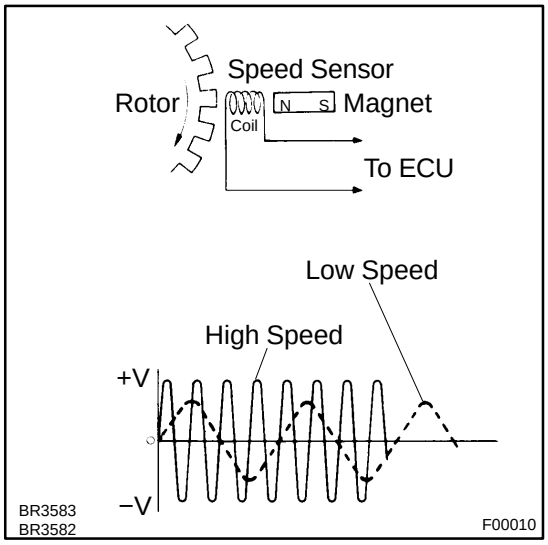
DTC	C0200/31	RIGHT FRONT SPEED SENSOR CIRCUIT

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 sends the appropriate signals to the ECU. These signals are used for control of the ABS control system. The front and rear rotors have 48 serrations each.

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.

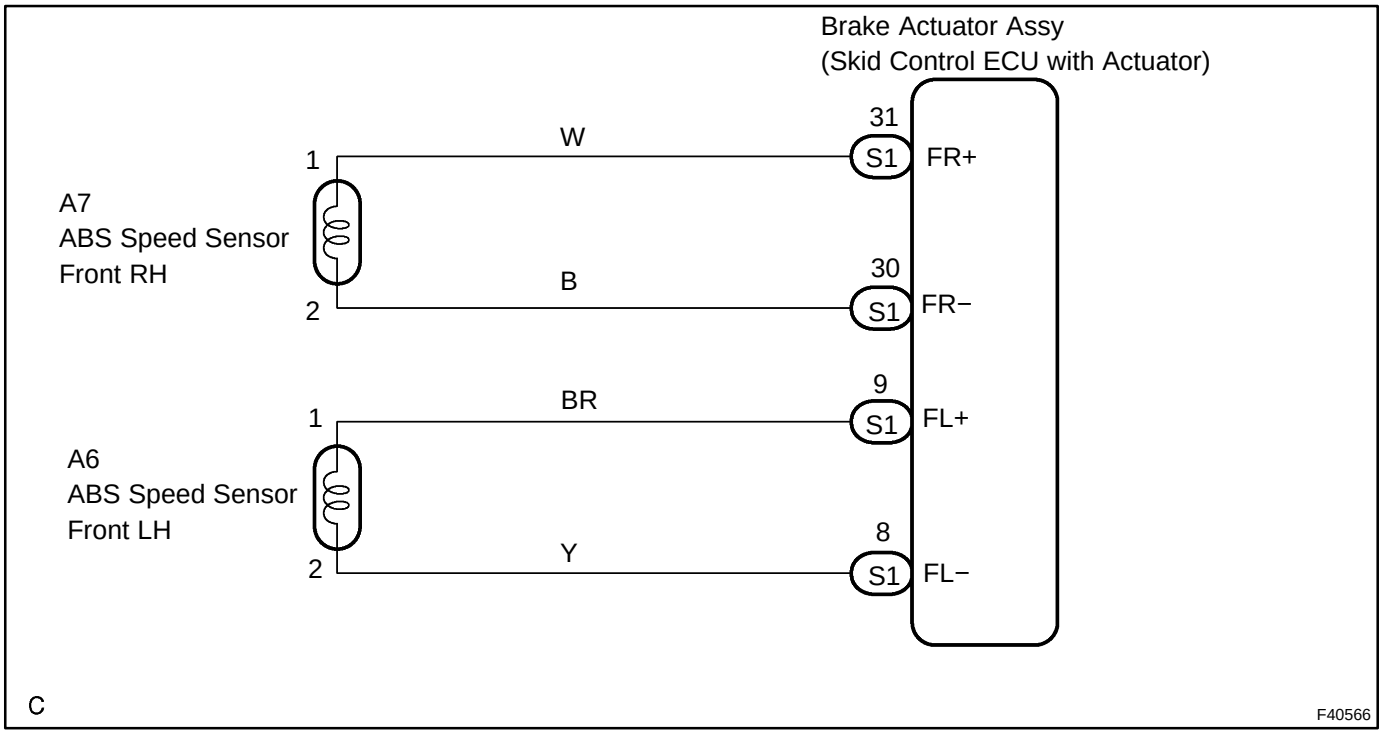
DTC No.	DTC Detecting Condition	Trouble Area
C0200/31 C0205/32	When any of the following (1 to 3) is detected: 1. With vehicle speed at 6 mph (10 km/h) or more, sensor signal circuit of faulty wheel is open or short for 1 sec. or longer. 2. Momentary interruption of sensor signal of faulty wheel has occurred 7 times or more. 3. Sensor signal circuit is open for 0.5 sec. or longer.	• Right front, left front speed sensor • Speed sensor circuit • Sensor installation • Sensor rotor
C1235 / 35 C1236 / 36	Continuous noise occurs in the speed sensor signals with the vehicle speed at 12 mph (20 km/h) or more for 5 sec. or more.	• Right front, left front speed sensor • Speed sensor rotor

HINT:

DTC No. C0200/31 and C1235/35 are for the right front speed sensor.

DTC No. C0205/32 and C1236/36 are for 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(SPEED SENSOR OUTPUT VALUE)

(a) Select the item ”WHEEL SPEED FL (FR)” in the DATA LIST and read its value displayed on the hand−held tester.

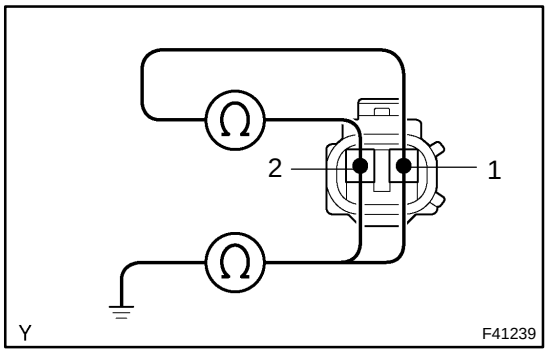
(b) Check that there is no difference between the speed value output from the speed sensor displayed on the hand−held tester and the speed value displayed on the speedometer when driving the vehicle.
OK:
There is almost no difference from the displayed speed value.

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

OK → **CHECK AND REPLACE BRAKE ACTUATOR ASSY (SEE PAGE 32−58)**

NG

2 INSPECT FRONT SPEED SENSOR



(a) Remove the front fender liner.
(b) Make sure that there is no looseness at the locking part and connecting part of the connector.
(c) Disconnect the speed sensor connector.
(d) Measure the resistance between terminals 1 and 2 of the speed sensor connector.
Standard: 0.6 to 2.5 kΩ
(e) Measure the resistance between terminals 1 and 2 of the speed sensor connector and body ground.
Standard: 10 kΩ or higher

A	OK
B	NG (Right front speed sensor)
C	NG (Left front speed sensor)

B → **REPLACE SPEED SENSOR FRONT RH**

C → **REPLACE SPEED SENSOR FRONT LH**

NOTICE:
Check the speed sensor signal after replacement (see page 05−933).

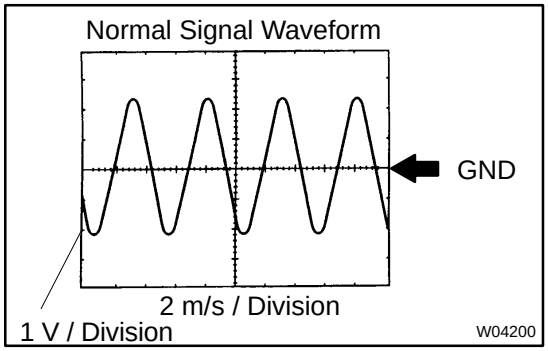
A

3 CHECK HARNESS AND CONNECTOR(SPEED SENSOR − SKID CONTROL ECU ASSY) (SEE PAGE 01−32)

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

OK

4 CHECK SPEED SENSOR AND SENSOR ROTOR SERRATIONS



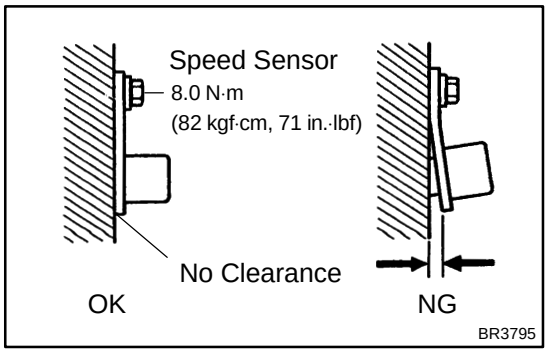
(REFERENCE) INSPECTION USING OSCILLOSCOPE
(a) Connect the oscilloscope to terminals FR+ − FR−, FL+ − FL− of the skid control ECU.
(b) Drive the vehicle at about 12 mph (20 km/h) and check the signal waveform.
OK:
A waveform as shown in the figure should be output.

HINT:
- As the vehicle speed (rpm of the wheels) 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 on it.

OK → CHECK AND REPLACE BRAKE ACTUATOR ASSY (SEE PAGE 32−58)

NG

5 CHECK FRONT SPEED SENSOR INSTALLATION



(a) Check the speed sensor installation.

OK:

• The installation bolt is tightened properly.

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

• There is no clearance between the sensor and the front steering knuckle.

A	OK
B	NG (Right front speed sensor)
C	NG (Left front speed sensor)

B → REPLACE SPEED SENSOR FRONT RH

C → REPLACE SPEED SENSOR FRONT LH

NOTICE:

Check the speed sensor signal after replacement (see page 05−933).

A

6 CHECK SPEED SENSOR ROTOR AND SENSOR TIP

NG → CLEAN OR REPLACE SPEED SENSOR AND SENSOR ROTOR SERRATIONS

NOTICE:

Check the speed sensor signal after replacement (see page 05−933).

OK

CHECK AND REPLACE BRAKE ACTUATOR ASSY (SEE PAGE 32−58)