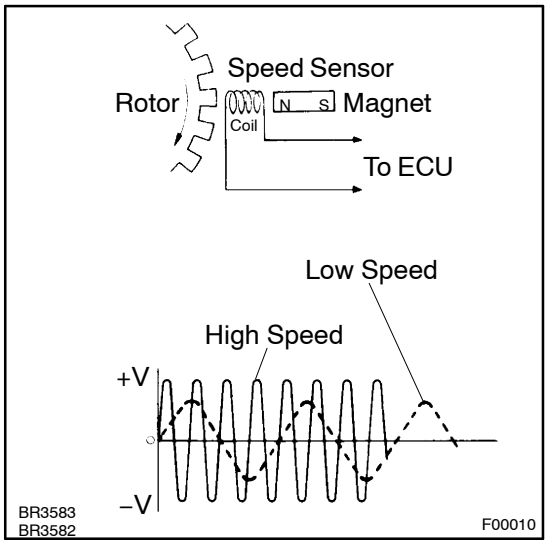
DTC	C0200/31	RIGHT FRONT SPEED SENSOR CIRCUIT

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



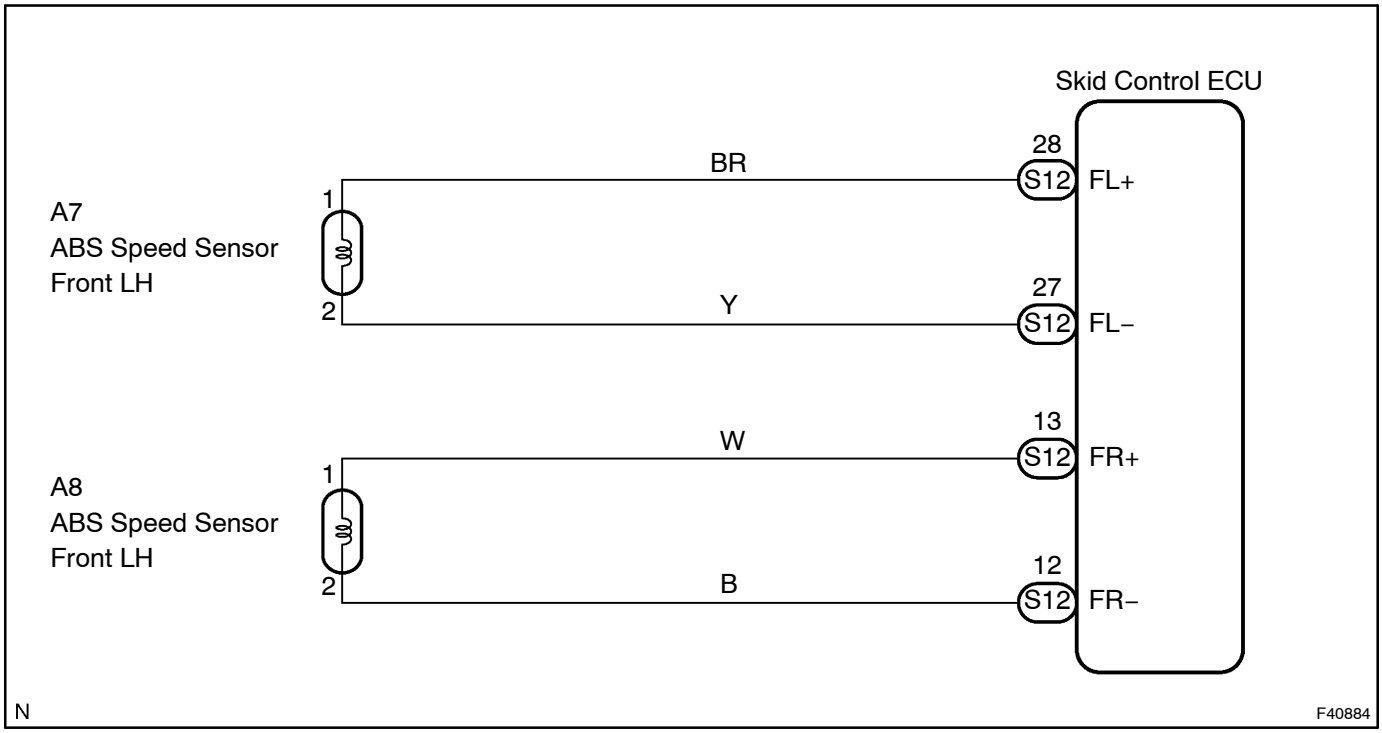
The speed sensor detects wheel speed and sends the appropriate signals to the ECU. These signals are used for control of the ABS control system. The front and rear rotors each have 48 serrations.

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	Detection of any of conditions from 1. through 4.: 1. With vehicle speed at 10 km/h or more, sensor signal circuit of faulty wheel is open or short for 15 sec. or longer. 2. Momentary interruption of sensor signal of faulty wheel has occurred 7 times or more. 3. With vehicle speed at 20 km/h or more, sensor signal of faulty wheel generated noise for 5 sec. or longer. 4. Sensor signal circuit is open for 0.025 sec. or longer.	• Right front, left front speed sensor • Speed sensor circuit • Sensor installation • Sensor rotor
C1235 / 35 C1236 / 36	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.	• Right front, 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 hand–held tester.

1	**READ VALUE OF TOYOTA 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.

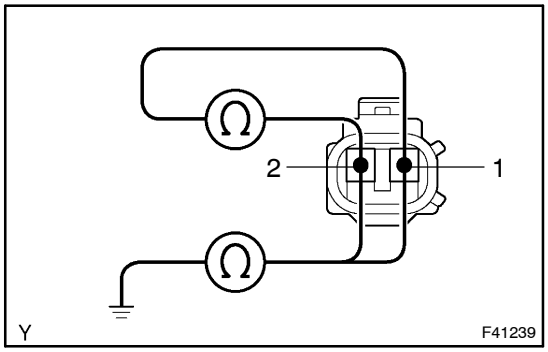
HINT:

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

OK → **REPLACE SKID CONTROL ECU ASSY**

NG

2	INSPECT FRONT SPEED SENSOR



(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.
(d) Measure resistance between terminals 1 and 2 of speed sensor connector.
OK: 1.4 – 1.8 kΩ at 20°C
(e) Measure resistance between terminals 1 and 2 of speed sensor connector and body ground.
OK: 1 MΩ 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 first (See page 05–451).

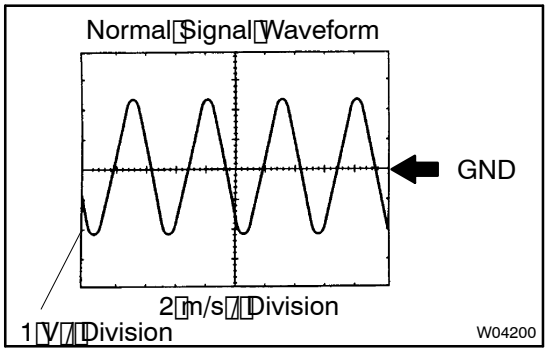
A

3	CHECK HARNESS AND CONNECTOR (SPEED SENSOR – SKID CONTROL ECU ASSY) (See page 01–31)

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

OK

4	CHECK SPEED SENSOR AND SENSOR ROTOR SERRATIONS



(REFERENCE) INSPECTION USING OSCILLOSCOPE

(a) Remove the skid control ECU with connectors still connected.

(b) Connect the oscilloscope to the terminals FR+ – FR–, FL+ – FL– of the skid control ECU.

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

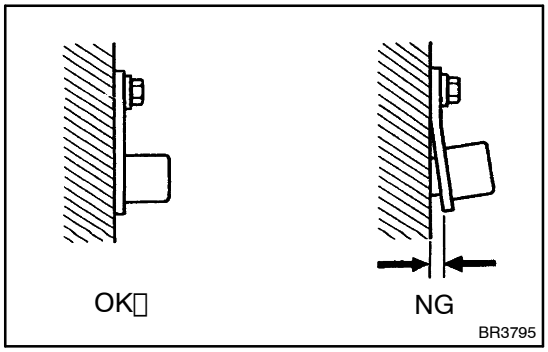
HINT:

- As the vehicle speed (rpm of the wheels) 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 SKID CONTROL ECU ASSY**

NG

5	CHECK 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)

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 last (See page 05–451).

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 last (See page 05–451).

OK

CHECK AND REPLACE SKID CONTROL ECU ASSY