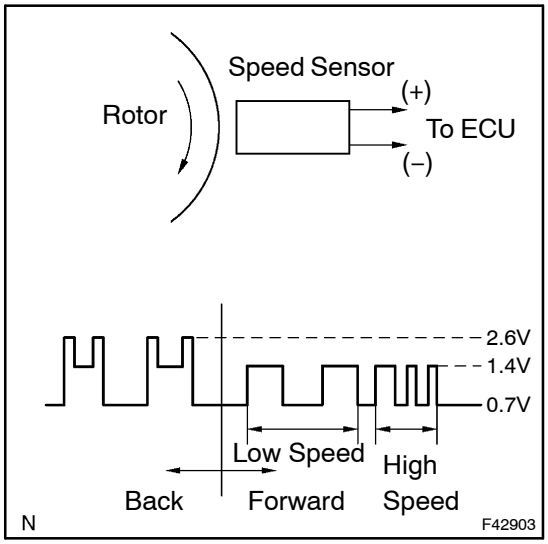
DTC	C0200/31	RIGHT FRONT SPEED SENSOR CIRCUIT

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

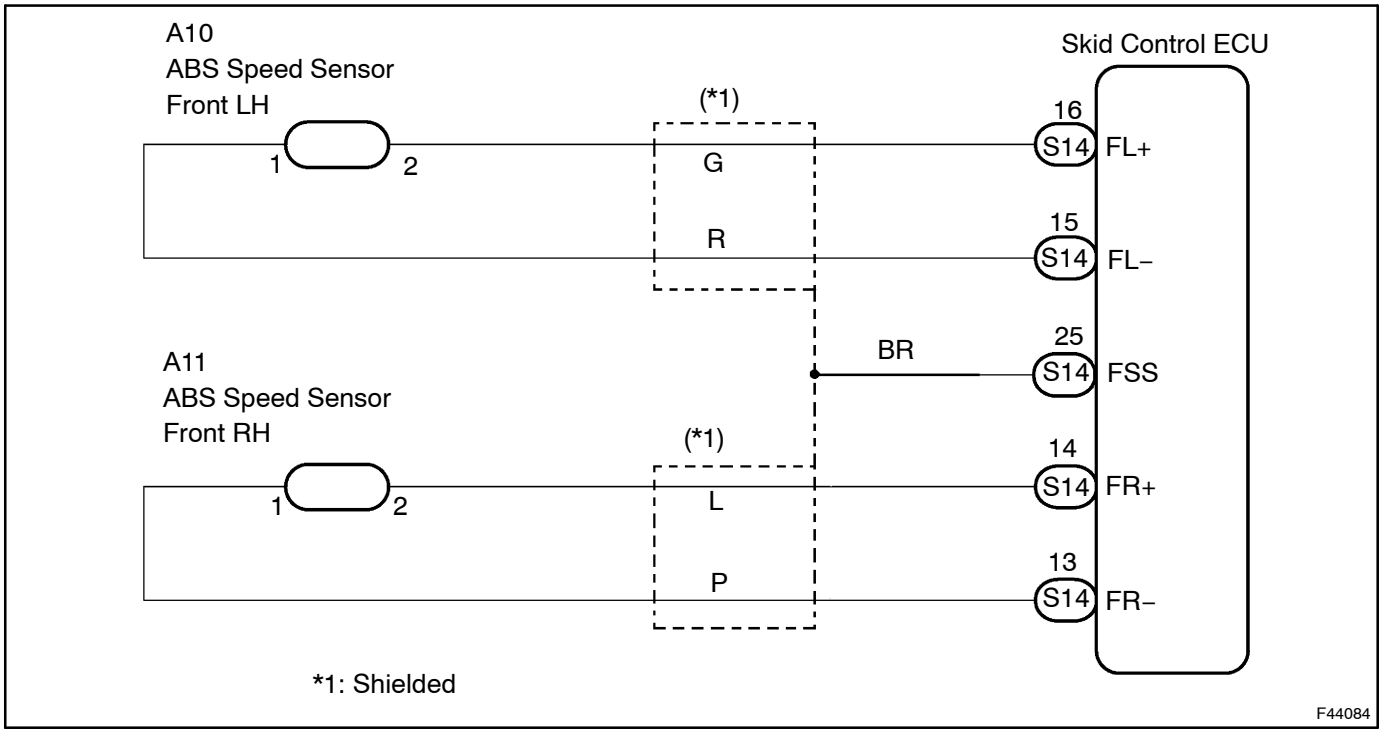


The speed sensor detects wheel speed and sends the appropriate signals to the ECU. These signals are used for control of the ABS and VSC control systems.

DTC No.	DTC Detecting Condition	Trouble Area
C0200/31 C0205/32	Detection of any of conditions 1. through 6.: 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. 4. When the vehicle speed is at 3 km/h (2mph) or more and any 3 wheels out of 4 wheels are out putting the back signal, the pulse with less than 300 us is produced 75 times on the other 1 wheel. 5. Changing of the normal rotation pulse and the reverse rotation pulse occur within 6 msec. for 1 sec. continuously. 6. The reverse rotation pulse is produced for 1 sec. with the vehicle speed at 100 km/h (62 mph) 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 hand–held tester and start from step 2 in case of not using hand–held tester.
- Start the inspection from step 4 in case of C1235/35 and C1236/36.

1	READ VALUE OF 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. (Compare the value of each 4 wheels with the vehicle speed on the speedometer.)
OK:
There is almost no difference from the displayed speed value.

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

OK	Go to step 3

NG

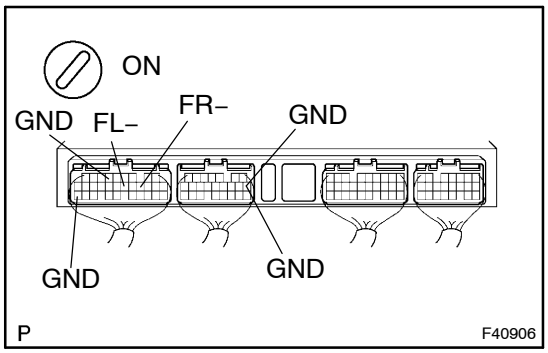
2	CHECK HARNESS AND CONNECTOR(FRONT SPEED SENSOR–SKID CONTROL ECU)

(a) Check for open and short circuit in harness and connector between each speed sensor and skid control ECU connector (See page 01–36).

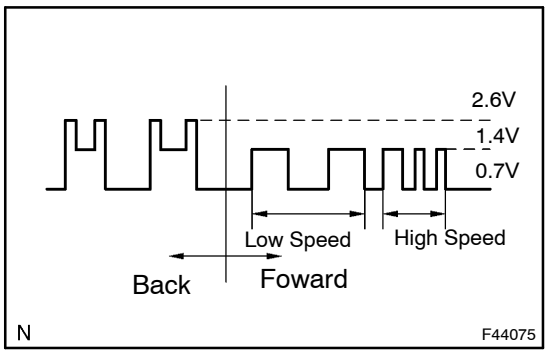
NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3	INSPECT SPEED SENSOR AND SENSOR ROTOR



(a) Remove the skid control ECU with the connector still connected.
(b) Turn the ignition switch ON.
(c) Measure resistance between terminal FR– and GND and FL– and GND of skid control ECU.
Resistance: 95 – 105 Ω



(REFERENCE) INSPECTION USING OSCILLOSCOPE

(a) Connect the oscilloscope to the terminals FR–, FL– and GND of the skid control ECU.
(b) Drive the vehicle at about 30 km/h (19 mph), and check the signal waveform.Check that no abnormal waveform appears when driving the vehicle at constant speed for 1 minute.

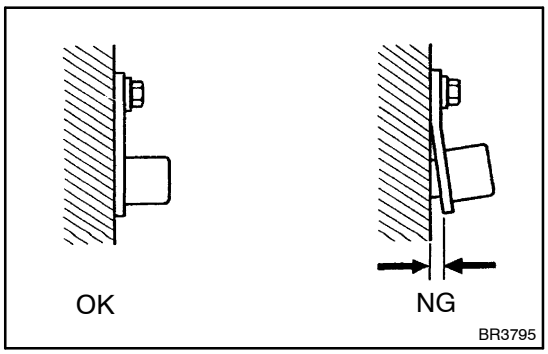
HINT:

- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform becomes shorter.
- 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

4 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**

OK

5 INSPECT SPEED SENSOR TIP

(a) Remove the front speed sensor (See page 32–86).
(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 05–730).

OK

6 INSPECT SPEED SENSOR ROTOR

(a) Remove the drive shaft, and thoroughly check around the rotor.
OK:
No scratches 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 05–730).

OK → **Go to step 7 (When C1235/35 and C1236/36)**

OK

CHECK AND REPLACE SKID CONTROL ECU ASSY

7	INSPECT SPEED SENSOR

(a) Shift the sensor in the front and in the rear, and check the waveform again.
OK:
Not change phenomenon

NG → **REPLACE SPEED SENSOR FRONT RH**

NG → **REPLACE SPEED SENSOR FRONT LH**

OK

REPLACE SPEED SENSOR ROTOR