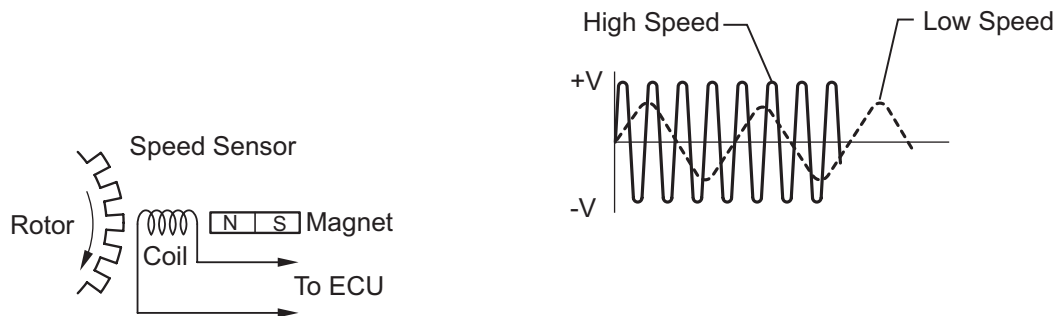


DTC	C0200/31	Right Front Wheel Speed Sensor Signal Malfunction
DTC	C0205/32	Left Front Wheel Speed Sensor Signal Malfunction
DTC	C1235/35	Foreign Object is Attached on Tip of Front Speed Sensor RH
DTC	C1236/36	Foreign Object is Attached on Tip of Front Speed Sensor LH

DESCRIPTION



C108865E02

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

Each of the front and rear rotors have 48 serrations. When the rotors rotate, the magnetic field generated by the permanent magnet in the speed sensor produces 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 Detection Condition	Trouble Area
C0200/31 C0205/32	When one of following occurs <ul style="list-style-type: none"> With vehicle speed at 10 km/h (6 mph) or more, sensor signal circuit of faulty wheel is open or short for 1 second or more Momentary interruption of sensor signal of faulty wheel has occurred 7 times or more Sensor signal circuit is open for 0.5 seconds or more 	<ul style="list-style-type: none"> Front speed sensor Front speed sensor circuit Speed sensor rotor
C1235/35 C1236/36	At vehicle speed of 20 km/h (12 mph) or more, condition that noise is included in speed sensor signal continues for 5 seconds or more.	<ul style="list-style-type: none"> Front speed sensor Front speed sensor circuit

HINT:

- DTCs C0200/31 and C1235/35 are for the front speed sensor RH.
- DTCs C0205/32 and C1236/36 are for the front speed sensor LH.

WIRING DIAGRAM



1 CHOOSE DIAGNOSIS METHOD

(a) Choose the diagnosis method.

Method

Method	Proceed to
Using intelligent tester	A
Not using intelligent tester	B

B

Go to step 4

A

2 READ VALUE OF INTELLIGENT TESTER (FRONT SPEED SENSOR)

(a) Check the DATA LIST for proper functioning of the front speed sensor.

Skid control ECU with actuator

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
WHEEL SPD FR	Wheel speed sensor (FR) reading / min.: 0 km/h (0 mph), max.: 326 km/h (202 mph)	Actual wheel speed	Speed similar to that of speedometer
WHEEL SPD FL	Wheel speed sensor (FL) reading / min.: 0 km/h (0 mph), max.: 326 km/h (202 mph)	Actual wheel speed	Speed similar to that of speedometer

OK:

There is almost no difference between actual wheel speed and displayed speed value.

NG

Go to step 4

OK

3

CHECK IF DTC OUTPUT RECURS

- Clear the DTCs (see page [BC-16](#)).
- Drive the vehicle at approximately 32 km/h (20 mph) or more for 60 seconds or more.
- Check for DTCs (see page [BC-16](#)).

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

HINT:

When replacing the skid control ECU with actuator, perform the zero point calibration (see page [BC-11](#)).

B

CHECK FOR INTERMITTENT PROBLEMS

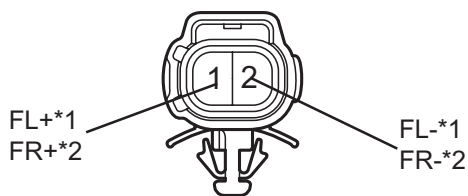
A

REPLACE BRAKE ACTUATOR ASSEMBLY

4

INSPECT FRONT SPEED SENSOR

*1: LH
*2: RH



C121563E01

- Disconnect the A4 and A5 sensor connectors.
- Measure the resistance of the speed sensors.

Standard resistance:

LH

Tester Connection	Specified Condition
1 (FL+) - 2 (FL-)	0.6 to 2.5 kΩ at 40 to 120°C
1 (FL+) - Body ground	10 kΩ or higher
2 (FL-) - Body ground	

RH

Tester Connection	Specified Condition
1 (FR+) - 2 (FR-)	0.6 to 2.5 kΩ at 40 to 120°C
1 (FR+) - Body ground	10 kΩ or higher
2 (FR-) - Body ground	

HINT:

- Check the speed sensor signal after the speed sensor replacement (see page [BC-7](#)).
- When replacing the speed sensor, clean the installation hole of the sensor.

NG

REPLACE FRONT SPEED SENSOR

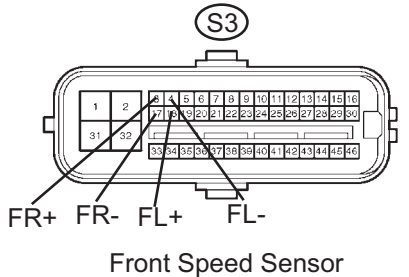
OK

5

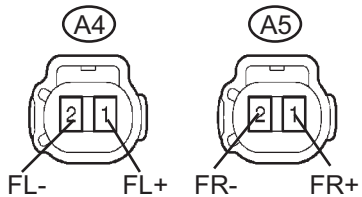
CHECK WIRE HARNESS (SKID CONTROL ECU - FRONT SPEED SENSOR)

Wire Harness Side

Skid Control ECU with Actuator



Front Speed Sensor



C120141E04

- Disconnect the S3 ECU connector.
- Disconnect the A4 and A5 speed sensor connectors.
- Measure the resistance of the wire harness side connectors.

Standard resistance:
LH

Tester Connection	Specified Condition
S3-18 (FL+) - A4-1 (FL+)	Below 1 Ω
S3-4 (FL-) - A4-2 (FL-)	
A4-1 (FL+) - Body ground	10 k Ω or higher
A4-2 (FL-) - Body ground	

RH

Tester Connection	Specified Condition
S3-3 (FR+) - A5-1 (FR+)	Below 1 Ω
S3-17 (FR-) - A5-2 (FR-)	
A5-1 (FR+) - Body ground	10 k Ω or higher
A5-2 (FR-) - Body ground	

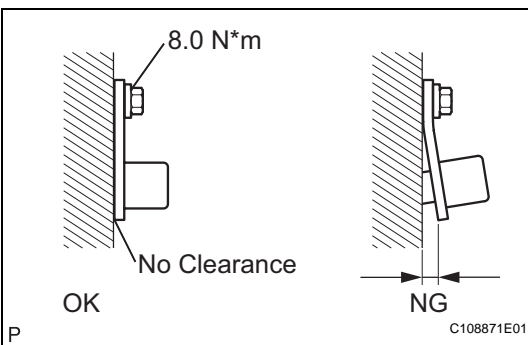
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

6

CHECK FRONT SPEED SENSOR (INSTALLATION)



- Check the speed sensor installation.

OK:

Installation bolt is tightened properly.

There is no clearance between sensor and front steering knuckle.

Torque:

8.0 N*m (82 kgf*cm, 71 in.*lbf)

HINT:

- Check the speed sensor signal after the speed sensor replacement (see page BC-7).
- When replacing the speed sensor, clean the installation hole of the sensor.

NG

SECURELY REINSTALL FRONT SPEED SENSOR

OK

7 INSPECT SPEED SENSOR (TIP)

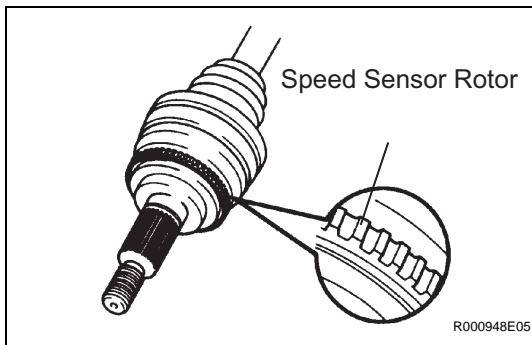
- (a) Remove the front speed sensor.
- (b) Check the sensor tip.

OK:

No scratches or foreign matter on sensor tip.

HINT:

Check the speed sensor signal after cleaning or replacing the speed sensor (see page [BC-7](#)).

NG**CLEAN OR REPLACE SPEED SENSOR****OK****8 INSPECT SPEED SENSOR ROTOR**

- (a) Remove the front axle hub.
- (b) Check the sensor rotor serrations.

OK:

No scratches, missing teeth or foreign matter on sensor rotor.

HINT:

- If foreign matter is attached, remove it and check the output waveform after reassembly.
- Check the speed sensor signal after cleaning or replacing the speed sensor rotor (see page [BC-7](#)).

NG**CLEAN OR REPLACE SPEED SENSOR ROTOR****OK****9 CHECK IF DTC OUTPUT RECURS**

- (a) Clear the DTCs (see page [BC-16](#)).
- (b) Drive the vehicle at approximately 30 km/h (19 mph) or more for 60 seconds or more.
- (c) Check for DTCs (see page [BC-16](#)).

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

HINT:

When replacing the skid control ECU with actuator, perform the zero point calibration (see page [BC-11](#)).

NG**END****A****REPLACE BRAKE ACTUATOR ASSEMBLY**