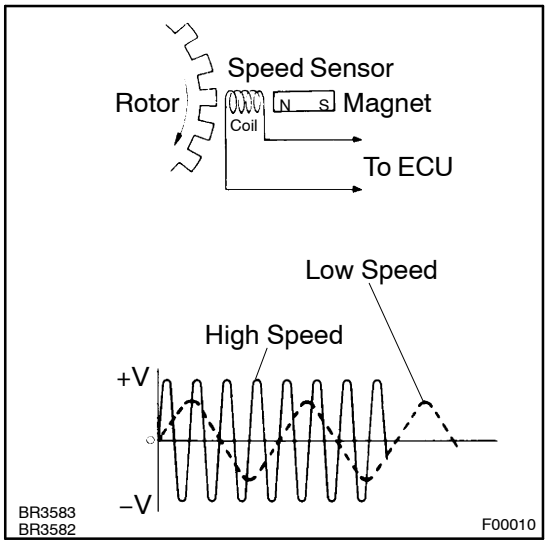
DTC	C0200/31	RIGHT FRONT SPEED SENSOR CIRCUIT

DTC	C0205/32	LEFT FRONT SPEED SENSOR CIRCUIT

CIRCUIT DESCRIPTION



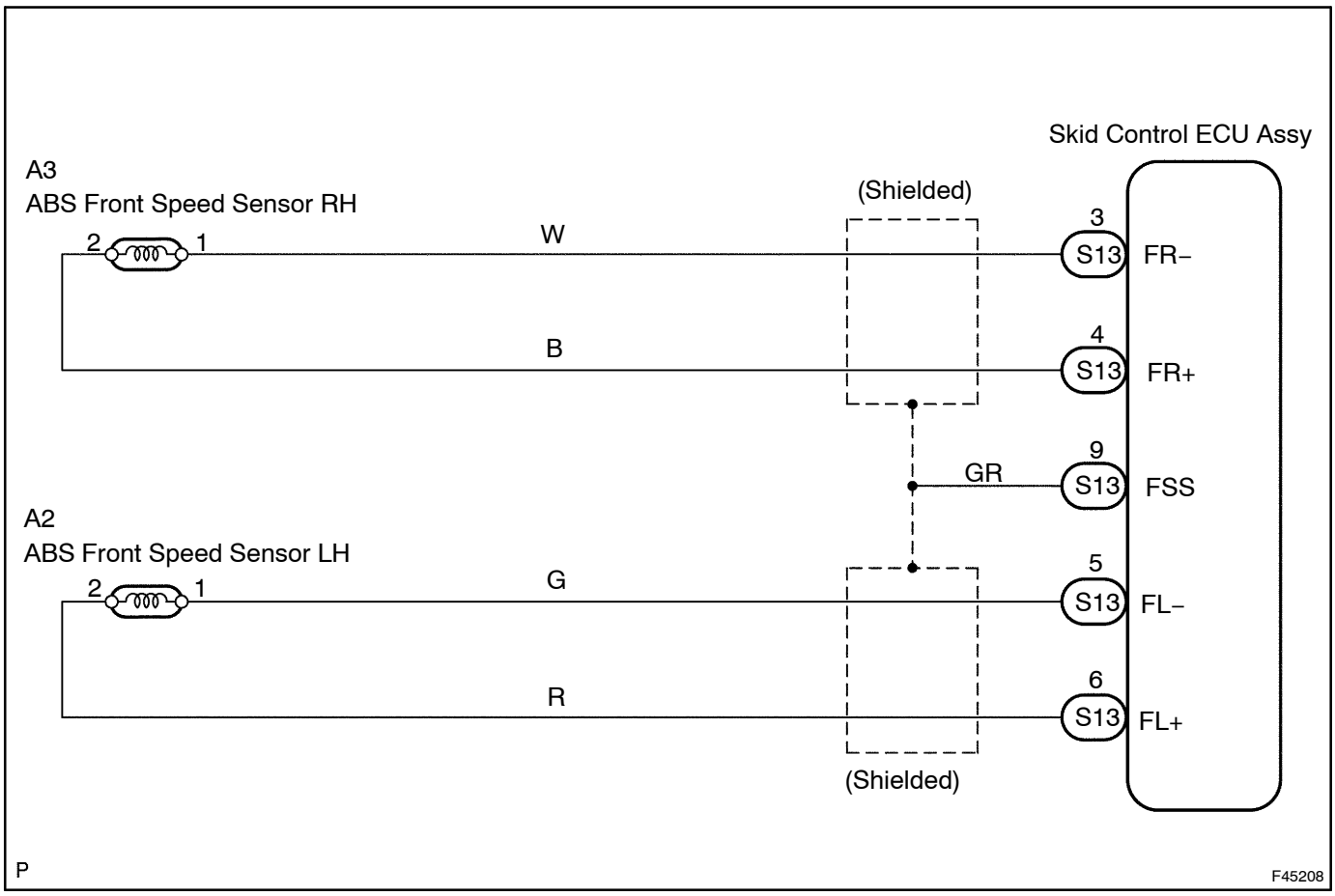
The speed sensor detects the wheel speed and sends the appropriate signals to the ECU. These signals are used to control the ABS control systems. Each of the front and rear rotors has 48 serrations.
When the rotors rotate, the magnetic field emitted by the permanent magnet in the speed sensor generates 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 Detection Condition	Trouble Area
C0200/31	Detection of any of conditions 1. through 4: 1. Vehicle speed is 10 km/h (6 mph) or more and open or short circuit in signal circuit of each vehicle speed sensor have continued for 15 sec. or more 2. Momentary interruption of each vehicle speed sensor signal has occurred more than 7 times 3. Open circuit condition of vehicle speed sensor signal circuit has continued for more than 0.5 sec. 4. Vehicle speed is higher than 20 km/h (12 mph) and noise on abnormal wheel sensor signal continues for 5 sec. or more	• Right front and left front speed sensors • Each speed sensor circuit • Speed sensor rotor • Sensor installation
C0205/32		

HINT:
DTC No. C0200/31 is for the right front speed sensor.
DTC No. C0205/32 is for the left front speed sensor.
Fail–safe function:
If any trouble occurs in the speed sensor circuit, the ECU will prohibit the ABS controls.
HINT:

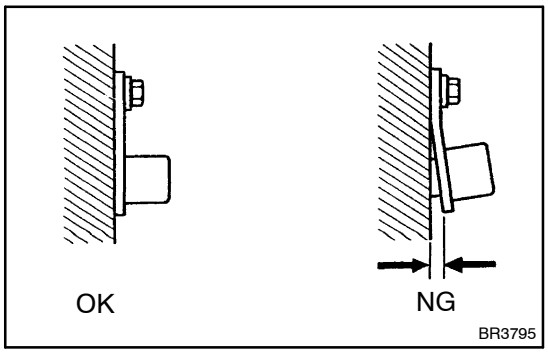
- For abnormality in one or two wheels, the BRAKE ASSIST can be performed under the condition that the brake system is normal.
- For abnormality in three or four wheels, the ECU cuts off the current to the solenoid relay and the BRAKE ASSIST is prohibited. If the brake pedal is depressed firmly, the brake force may be lowered.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT FRONT SPEED SENSOR INSTALLATION



(a) Check the speed sensor installation.
Standard:
The installation bolt is tightened properly and there is no clearance between the sensor and front steering knuckle.
Torque: 19.1 N·m (195 kgf·cm, 14 ft·lbf)

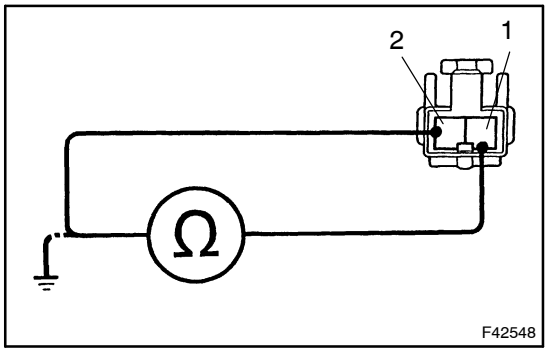
NOTICE:
Check the speed sensor signal last (See page 05–205).

NG → **REPLACE SPEED SENSOR FRONT RH**

NG → **REPLACE SPEED SENSOR FRONT LH**

OK

2	INSPECT FRONT SPEED SENSOR



(a) Disconnect the A2 and A3 front speed sensor connector.
(b) Measure the resistance between terminals 1 and 2 of the speed sensor.
Standard: 0.92 – 1.22 kΩ at 20°C (68°F)
(c) Measure the resistance between each of terminals 1 and 2 of the sensor and the body ground.
Standard: 1 MΩ or higher

NOTICE:
Check the speed sensor signal last (See page 05–205).

NG → **REPLACE SPEED SENSOR FRONT RH**

NG → **REPLACE SPEED SENSOR FRONT LH**

OK

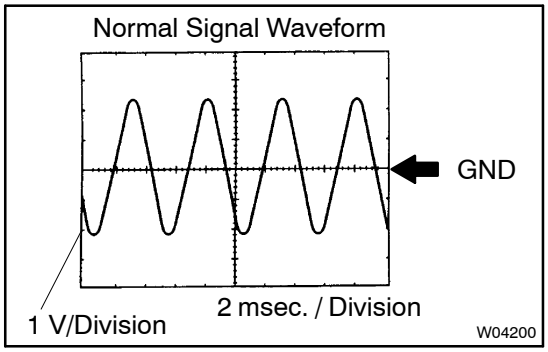
3	CHECK WIRE HARNESS (FRONT SPEED SENSOR ⇔ SKID CONTROL ECU ASSY)

(a) Check for open and short circuit in the harness and connector between the A2/3 connector of the speed sensor and the S13 ECU connectors (See page 01–27).

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

OK

4 CHECK SPEED SENSOR AND SENSOR ROTOR SERRATIONS



REFERENCE: INSPECTION USING OSCILLOSCOPE

(a) Connect an oscilloscope to terminals FR+, FL+ and GND of the skid control ECU connector.

(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 higher.
- 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 objects deposited on the rotor.

OK	**CHECK AND REPLACE SKID CONTROL ECU ASSY (See page 01–27)**

NG

5 INSPECT SPEED SENSOR TIP

(a) Disc type and drum type:
Remove the front speed sensor (See page 32–89).

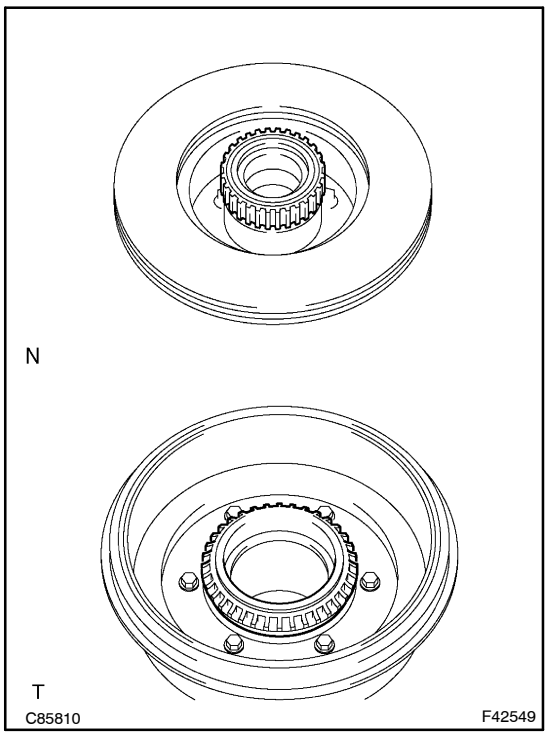
(b) Check the sensor tip.
Standard:
No scratches or no foreign objects on the sensor tip.

NOTICE:
Check the speed sensor signal last (See page 05–205).

NG	**CLEAN OR REPLACE SPEED SENSOR**

OK

6	INSPECT SPEED SENSOR ROTOR



(a) Disc type and drum type:
Remove the front speed sensor rotor
(See page 32–89).

(b) Check the sensor rotor serrations.
Standard:
No scratches, no missing teeth or no foreign objects.

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

NOTICE:
Check the speed sensor signal last (See page 05–205).

NG → **CLEAN OR REPLACE SENSOR ROTOR**

OK

CHECK AND REPLACE SKID CONTROL ECU ASSY (See page 01–27)