DTC	C0210/33	RIGHT REAR SPEED SENSOR CIRCUIT

DTC	C0215/34	LEFT REAR SPEED SENSOR CIRCUIT

DTC	C1238/38	FOREIGN MATTER IS ATTACHED ON TIP OF RIGHT REAR SENSOR

DTC	C1239/39	FOREIGN MATTER IS ATTACHED ON TIP OF LEFT REAR SENSOR

CIRCUIT DESCRIPTION

Refer to DTC C0200/31, C0205/32, C1235/35, C1236/36 on page 05–754.

DTC No.	DTC Detecting Condition	Trouble Area
C0210/33 C0215/34	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 0.12 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 rear and left rear speed sensor • Each speed sensor circuit • Speed sensor rotor
C1238/38 C1239/39	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 rear and left rear speed sensor • Speed sensor rotor

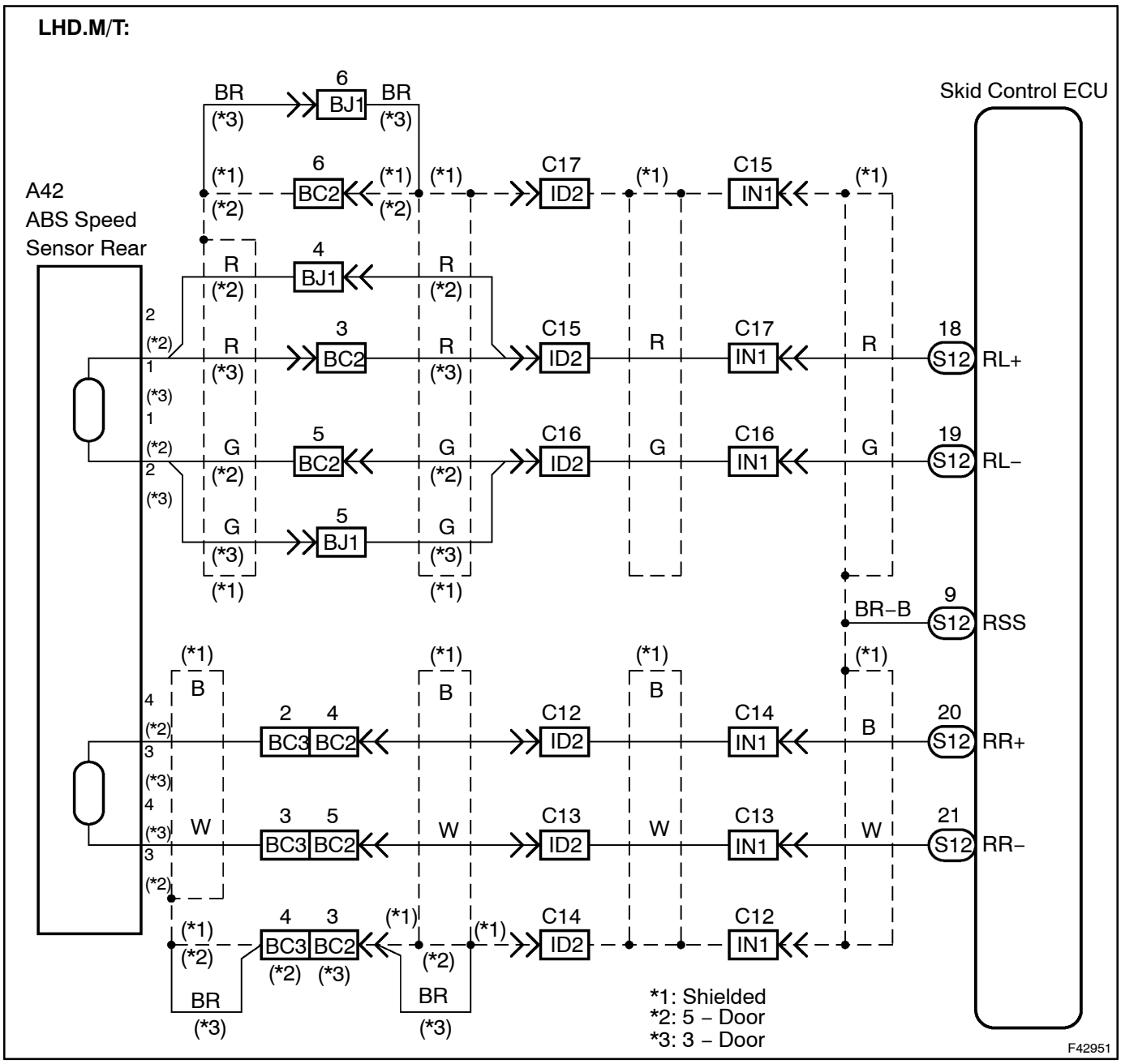
HINT:

DTC No. C0210/33, C1238/38 is the right rear speed sensor.

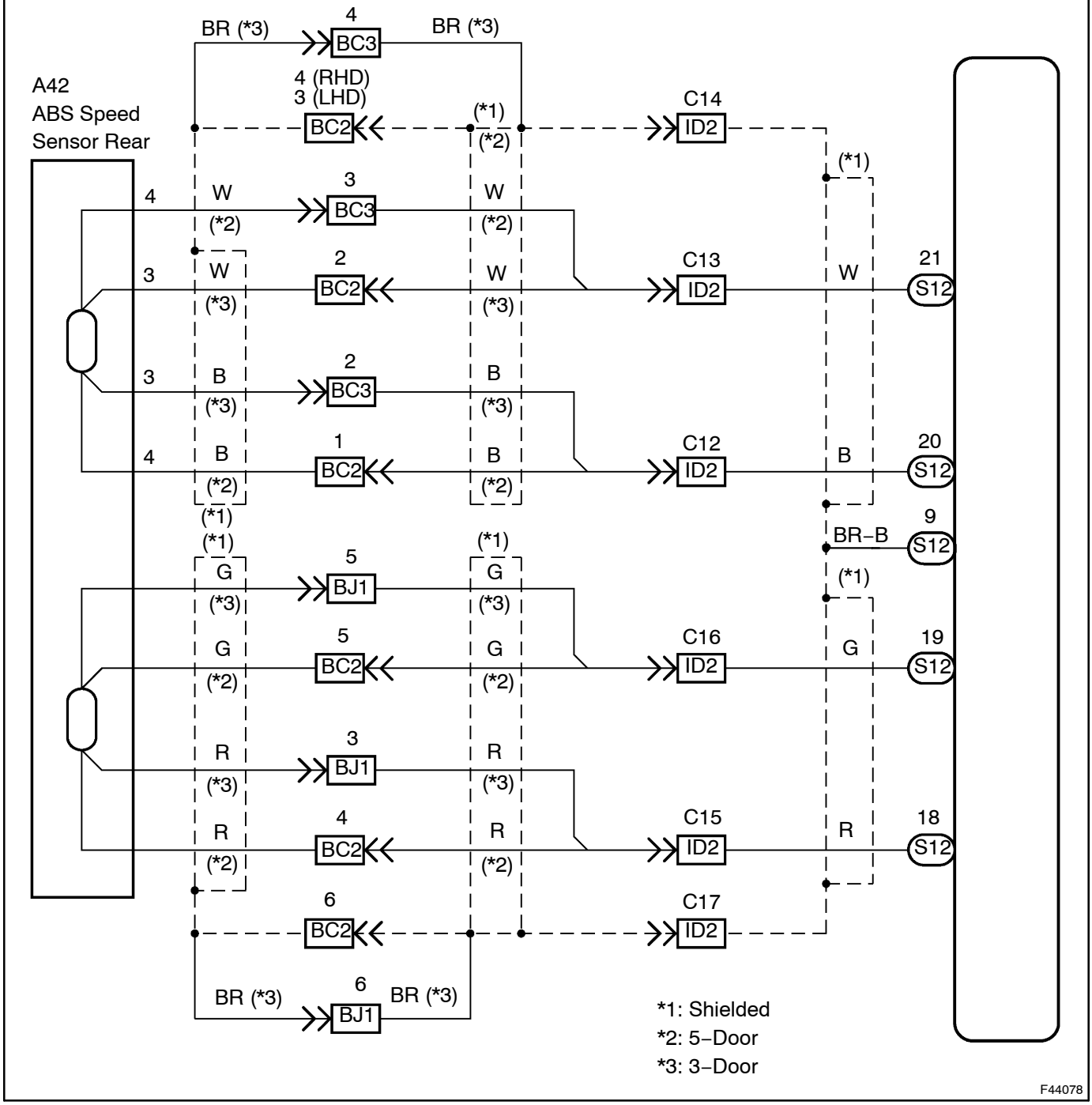
DTC No. C0215/34, C1239/39 is the left rear speed sensor.

WIRING DIAGRAM

LHD.M/T:



LHD.AT & RHD:


A42
ABS Speed
Sensor Rear
BR (*3)
4
BC3
BR (*3)
4 (RHD)
3 (LHD)
BC2
(*1)
(*2)
C14
ID2
(*1)
4
W
3
BC3
W
(*2)
(*2)
3
W
2
BC2
W
(*3)
(*3)
C13
ID2
W
21
S12
3
B
2
BC3
B
(*3)
(*3)
4
B
1
BC2
B
(*2)
(*2)
C12
ID2
B
20
S12
(*1)
(*1)
BR–B
9
S12
(*1)
(*1)
G
5
BJ1
G
(*3)
(*3)
(*1)
G
5
BC2
G
(*2)
(*2)
C16
ID2
G
19
S12
R
3
BJ1
R
(*3)
(*3)
R
4
BC2
R
(*2)
(*2)
C15
ID2
R
18
S12
6
BC2
C17
ID2
BR (*3)
6
BR (*3)
BJ1
*1: Shielded
*2: 5–Door
*3: 3–Door
F44078

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 C1238/38 and C1239/39.

1	READ VALUE OF REAR 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. (Compere the vehicle 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

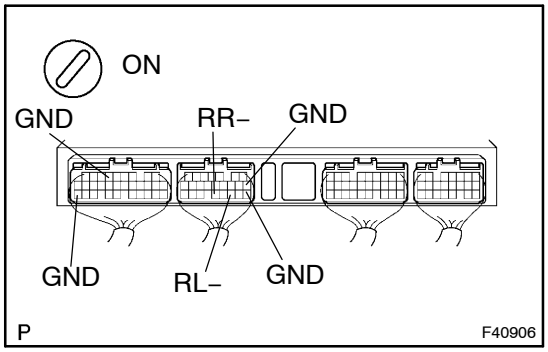
2	CHECK HARNESS AND CONNECTOR(REAR SPEED SENSOR – SKID CONTROL ECU)

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

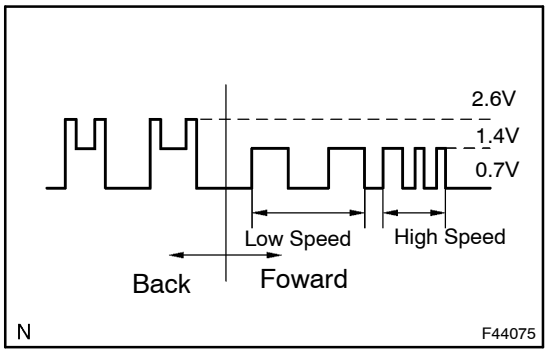
NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

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 RR– and GND and RL– and GND of skid control ECU.
Resistance: 95 – 105 Ω



(REFERENCE) INSPECTION USING OSCILLOSCOPE

(d) Connect the oscilloscope to the terminals RR+, RR– and GND of the skid control ECU.
(e) Drive the vehicle at about 30 km/h (19 mph), and check the signal waveform. Check that abnormal waveform appears when driving the vehicle at constant speed for 1 minute.

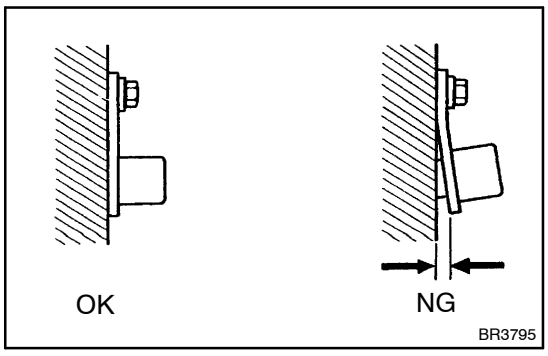
HINT:

- 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 REAR 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 REAR RH**

NG	**REPLACE SPEED SENSOR REAR LH**

OK

5	INSPECT SPEED SENSOR TIP

(a) Remove the rear speed sensor (See page 32–88).
(b) Check the sensor tip.
OK:
No scratches or foreign objects on the senaor 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 C1238/38 and C1239/39)**

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 REAR RH**

NG → **REPLACE SPEED SENSOR REAR LH**

OK

REPLACE SENSOR ROTOR