

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
DTC	C1238/38	Foreign Object is Attached on Tip of Rear Speed Sensor RH
DTC	C1239/39	Foreign Object is Attached on Tip of Rear Speed Sensor LH
DTC	C1275/75	Abnormal Change in Output Signal of Front Speed Sensor RH (Test Mode DTC)
DTC	C1276/76	Abnormal Change in Output Signal of Front Speed Sensor LH (Test Mode DTC)
DTC	C1277/77	Abnormal Change in Output Signal of Rear Speed Sensor RH (Test Mode DTC)
DTC	C1278/78	Abnormal Change in Output Signal of Rear Speed Sensor LH (Test Mode DTC)

DESCRIPTION

When foreign matter adheres to the speed sensor tip or speed sensor rotor, these DTCs are output. An abnormal waveform input from the sensor determines these conditions.

These DTCs may be detected when a malfunction occurs in the connector terminals or wire harness of the speed sensor circuit.

DTCs C1275/75 to C1278/78 will be cleared when the speed sensor sends a wheel speed signal or when Test Mode ends. DTCs from C1275/75 to C1278/78 are output only in Test Mode.

DTC Code	INF Code	DTC Detection Condition	Trouble Area
C1235/35	541	<p>Either of the following is detected:</p> <ol style="list-style-type: none"> When driving at 20 km/h (12 mph) or more, noise occurs on the speed sensor signal waveform for 5 seconds or more. When driving at 10 km/h (6 mph) or more, noise occurs once per wheel revolution for 15 seconds or more. 	<ul style="list-style-type: none"> Speed sensor rotor malfunction (foreign object attached) Foreign object attached to speed sensor Open or short in speed sensor Open or short in wire harness Improperly connected connector, deformation or corrosion of terminals Resistance in speed sensor circuit Brake booster with master cylinder (Skid control ECU)
C1236/36	542	<p>Either of the following is detected:</p> <ol style="list-style-type: none"> When driving at 20 km/h (12 mph) or more, noise occurs on the speed sensor signal waveform for 5 seconds or more. When driving at 10 km/h (6 mph) or more, noise occurs once per wheel revolution for 15 seconds or more. 	<ul style="list-style-type: none"> Speed sensor rotor malfunction (foreign object attached) Foreign object attached to speed sensor Open or short in speed sensor Open or short in wire harness Improperly connected connector, deformation or corrosion of terminals Resistance in speed sensor circuit

DTC Code	INF Code	DTC Detection Condition	Trouble Area
			<ul style="list-style-type: none"> Brake booster with master cylinder (Skid control ECU)
C1238/38	543	<p>Either of the following is detected:</p> <ol style="list-style-type: none"> When driving at 20 km/h (12 mph) or more, noise occurs on the speed sensor signal waveform for 5 seconds or more. When driving at 10 km/h (6 mph) or more, noise occurs once per wheel revolution for 15 seconds or more. 	<ul style="list-style-type: none"> Speed sensor rotor malfunction (foreign object attached) Foreign object attached to speed sensor Open or short in speed sensor Open or short in wire harness Improperly connected connector, deformation or corrosion of terminals Resistance in speed sensor circuit Brake booster with master cylinder (Skid control ECU)
C1239/39	544	<p>Either of the following is detected:</p> <ol style="list-style-type: none"> When driving at 20 km/h (12 mph) or more, noise occurs on the speed sensor signal waveform for 5 seconds or more. When driving at 10 km/h (6 mph) or more, noise occurs once per wheel revolution for 15 seconds or more. 	<ul style="list-style-type: none"> Speed sensor rotor malfunction (foreign object attached) Foreign object attached to speed sensor Open or short in speed sensor Open or short in wire harness Improperly connected connector, deformation or corrosion of terminals Resistance in speed sensor circuit Brake booster with master cylinder (Skid control ECU)
C1275/75 C1276/76 C1277/77 C1278/78	-	Detected only during Test Mode.	<ul style="list-style-type: none"> Speed sensor Speed sensor rotor

HINT:

- DTCs C1235/35 and C1275/75 are for the front speed sensor RH.
- DTCs C1236/36 and C1276/76 are for the front speed sensor LH.
- DTCs C1238/38 and C1277/77 are for the rear speed sensor RH.
- DTCs C1239/39 and C1278/78 are for the rear speed sensor LH.

WIRING DIAGRAM

Refer to DTCs C0200/31, C0205/32, C0210/33 and C0215/34  for front, and  for rear).

INSPECTION PROCEDURE

NOTICE:

When replacing the brake booster with master cylinder (skid control ECU), perform initialization and calibration of the linear solenoid valve .

PROCEDURE

1.	CHECK DTC
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(a) Check that no speed sensor malfunction DTC is output .

HINT:

When C0200/31, C0205/32, C0210/33, and/or C0215/34 are output together with C1235/35, C1236/36, C1238/38, and/or C1239/39, inspect and repair the trouble areas indicated by C0200/31, C0205/32, C0210/33, and/or C0215/34 first.

Result:

Result	Proceed to
DTCs (C1235/35 and/or C1236/36) are output	A
DTCs (C1238/38 and C1239/39) are output	B
Speed sensor malfunction DTCs (C0200/31, C0205/32, C0210/33 and/or C0215/34) are output	C

 [REPAIR CIRCUITS INDICATED BY OUTPUT DTCS](#)

 [CHECK HARNESS AND CONNECTOR \(SKID CONTROL SENSOR WIRE\)](#)

A



2.	CHECK FRONT SPEED SENSOR AND FRONT SPEED SENSOR ROTOR
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(a) Remove the front speed sensor and front speed sensor rotor  and .

(b) Check the speed sensor tip and speed sensor rotor.

OK:

The sensor tip and rotor is free of scratches, oil, and foreign matter.

NOTICE:

Check the speed sensor signal after cleaning or replacement .

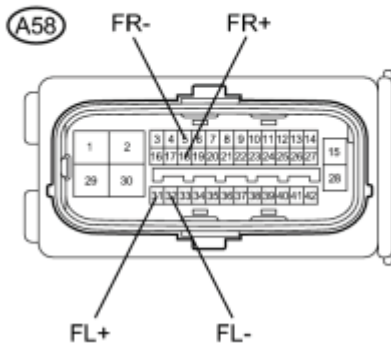
NG ► CLEAN OR REPLACE FRONT SPEED SENSOR AND FRONT SPEED SENSOR ROTOR

OK



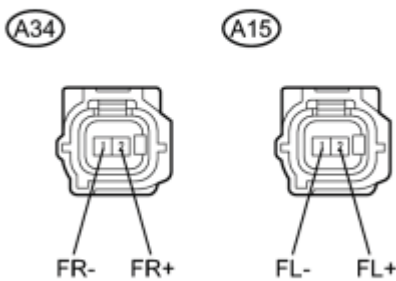
3. CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - FRONT SPEED SENSOR)

*1



(a) Install the front speed sensor and front speed sensor rotor.

*2



(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the skid control ECU connector and the front speed sensor connector.

(d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH

for LH

Tester Connection	Condition	Specified Condition
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Tester Connection	Condition	Specified Condition
A58-18 (FR+) - A34-2 (FR+)	Always	Below 1 Ω
A58-18 (FR+) - Body ground	Always	10 k Ω or higher
A58-5 (FR-) - A34-1 (FR-)	Always	Below 1 Ω
A58-5 (FR-) - Body ground	Always	10 k Ω or higher

Tester Connection	Condition	Specified Condition
A58-31 (FL+) - A15-2 (FL+)	Always	Below 1 Ω
A58-31 (FL+) - Body ground	Always	10 k Ω or higher
A58-32 (FL-) - A15-1 (FL-)	Always	Below 1 Ω
A58-32 (FL-) - Body ground	Always	10 k Ω or higher

Text in Illustration

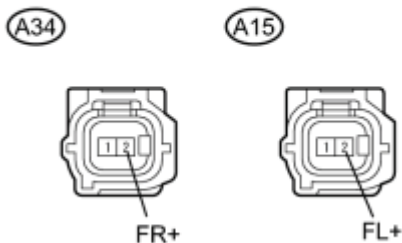
*1	Front view of wire harness connector (to Skid Control ECU)
*2	Front view of wire harness connector (to Front Speed Sensor)

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4. INSPECT SKID CONTROL ECU (SENSOR OUTPUT)

*1



(a) Reconnect the skid control ECU connector.

N

(b) Turn the power switch on (IG).

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

for LH

Tester Connection	Switch Condition	Specified Condition
A34-2 (FR+) - Body ground	Power switch on (IG)	5.7 to 14 V
Tester Connection	Switch Condition	Specified Condition
A15-2 (FL+) - Body ground	Power switch on (IG)	5.7 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Front Speed Sensor)
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NG  REPLACE BRAKE BOOSTER WITH MASTER CYLINDER

OK



5.	RECONFIRM DTC
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(a) Reconnect the front speed sensor connector.

(b) Clear the DTCs .

(c) Turn the power switch on (READY).

(d) Drive the vehicle at a speed of 20 km/h (12 mph) or more for at least 15 seconds.

(e) Check if the same DTC is recorded .

Result:


Result	Proceed to
DTCs (C1235/35 and/or C1236/36) are output	A
DTCs (C1235/35 and C1236/36) are not output	B

B  CHECK FOR INTERMITTENT PROBLEMS

A



6.	REPLACE FRONT SPEED SENSOR
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- (a) Turn the power switch off.
- (b) Replace the front speed sensor .



NOTICE:

Check the speed sensor signal after replacement .

NEXT



7.	RECONFIRM DTC
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- (a) Clear the DTCs .
- (b) Turn the power switch on (READY).
- (c) Drive the vehicle at a speed of 20 km/h (12 mph) or more for at least 15 seconds.
- (d) Check if the same DTC is recorded .

Result:


Result	Proceed to
DTCs (C1235/35 and/or C1236/36) are output	A
DTCs (C1235/35 and C1236/36) are not output	B

 END

A



8.	REPLACE FRONT SPEED SENSOR ROTOR
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- (a) Turn the power switch off.
- (b) Replace the front axle hub sub-assembly (front speed sensor rotor) .

HINT:

The front speed sensor rotor is incorporated into the front axle hub sub-assembly.

If the front speed sensor rotor needs to be replaced, replace it together with the front axle hub sub-assembly.

NOTICE:

Check the speed sensor signal after replacement .

NEXT



9. RECONFIRM DTC

- (a) Clear the DTCs **INFO**.
- (b) Turn the power switch on (READY).
- (c) Drive the vehicle at a speed of 20 km/h (12 mph) or more for at least 15 seconds.
- (d) Check if the same DTC is recorded **INFO**.

Result:

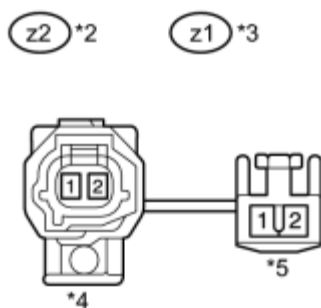
Result	Proceed to
DTCs (C1235/35 and/or C1236/36) are output	A
DTCs (C1235/35 and C1236/36) are not output	B

B END

A REPLACE BRAKE BOOSTER WITH MASTER CYLINDER

10. CHECK HARNESS AND CONNECTOR (SKID CONTROL SENSOR WIRE)

*1



- (a) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

N

- (b) Disconnect the rear speed sensor connector and the skid control sensor wire.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH

for LH

Tester Connection	Condition	Specified Condition
z2 ("A"-2) - z2 ("B"-1)	Always	Below 1 Ω
z2 ("A"-2) - z2 ("B"-2)	Always	10 k Ω or higher
z2 ("A"-2) - Body ground	Always	10 k Ω or higher
z2 ("A"-1) - z2 ("B"-2)	Always	Below 1 Ω
z2 ("A"-1) - z2 ("B"-1)	Always	10 k Ω or higher
z2("A"-1) - Body ground	Always	10 k Ω or higher

Tester Connection	Condition	Specified Condition
z1 ("A"-2) - z1 ("B"-1)	Always	Below 1 Ω
z1 ("A"-2) - z1 ("B"-2)	Always	10 k Ω or higher
z1 ("A"-2) - Body ground	Always	10 k Ω or higher
z1 ("A"-1) - z1 ("B"-2)	Always	Below 1 Ω
z1 ("A"-1) - z1 ("B"-1)	Always	10 k Ω or higher
z1 ("A"-1) - Body ground	Always	10 k Ω or higher

Text in Illustration

*1	Front view of skid control sensor wire
*2	for RH
*3	for LH
*4	Front view of wire harness connector (to Sensor Side Connector "A")
*5	Front view of wire harness connector (to Vehicle Side Connector "B")

NOTICE:

Check the speed sensor signal after replacement .

NG  REPLACE SKID CONTROL SENSOR WIRE

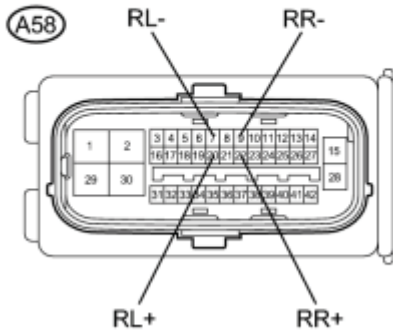
OK



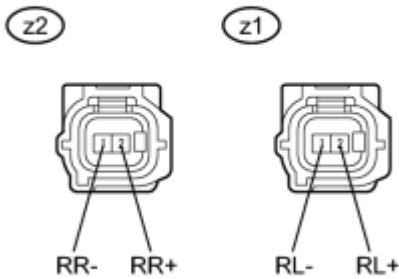
11.	CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - REAR SPEED SENSOR)
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(a) Reconnect the skid control sensor wire (for vehicle side connector).

*1



*2



(b) Make sure that there is no looseness at the locking part and the connecting part of the connector.

(c) Disconnect the skid control ECU connector.

(d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH

for LH

Tester Connection	Condition	Specified Condition
A58-22 (RR+) - z2-2 (RR+)	Always	Below 1 Ω
A58-22 (RR+) - Body ground	Always	10 kΩ or higher
A58-9 (RR-) - z2-1 (RR-)	Always	Below 1 Ω
A58-9 (RR-) - Body ground	Always	10 kΩ or higher
Tester Connection	Condition	Specified Condition
A58-20 (RL+) - z1-2 (RL+)	Always	Below 1 Ω

Tester Connection	Condition	Specified Condition
A58-20 (RL+) - Body ground	Always	10 kΩ or higher
A58-7 (RL-) - z1-1 (RL-)	Always	Below 1 Ω
A58-7 (RL-) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Skid Control ECU)
*2	Front view of wire harness connector (to Rear Speed Sensor)

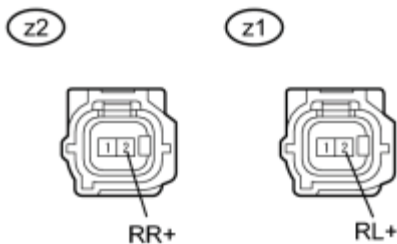
NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK



12.	INSPECT SKID CONTROL ECU (SENSOR OUTPUT)
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*1



(a) Reconnect the skid control ECU connector.

N

(b) Turn the power switch on (IG).

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

for LH

Tester Connection	Switch Condition	Specified Condition
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Tester Connection	Switch Condition	Specified Condition
z2-2 (RR+) - Body ground	Power switch on (IG)	5.7 to 14 V
Tester Connection	Switch Condition	Specified Condition
z1-2 (RL+) - Body ground	Power switch on (IG)	5.7 to 14 V

Text in Illustration



*1	Front view of wire harness connector (to Rear Speed Sensor)
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NG  REPLACE BRAKE BOOSTER WITH MASTER CYLINDER

OK



13.	RECONFIRM DTC
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- (a) Reconnect the rear speed sensor connector.
- (b) Clear the DTCs .
- (c) Turn the power switch on (READY).
- (d) Drive the vehicle at a speed of 20 km/h (12 mph) or more for at least 15 seconds.
- (e) Check if the same DTC is recorded .

Result:


Result	Proceed to
DTCs (C1238/38 and/or C1239/39) are output	A
DTCs (C1238/38 and C1239/39) are not output	B

B  CHECK FOR INTERMITTENT PROBLEMS

A



14.	REPLACE REAR SPEED SENSOR AND REAR SPEED SENSOR ROTOR
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- (a) Turn the power switch off.
- (b) Replace the rear speed sensor and the rear axle hub and bearing assembly (rear speed sensor rotor) .

HINT:

The rear speed sensor rotor is incorporated into the rear axle hub and bearing assembly.

If the rear speed sensor rotor needs to be replaced, replace it together with the rear axle hub and bearing assembly with rear speed sensor.



NOTICE:

Check the speed sensor signal after replacement .

NEXT



15.	RECONFIRM DTC
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- (a) Clear the DTCs .
- (b) Turn the power switch on (READY).
- (c) Drive the vehicle at a speed of 20 km/h (12 mph) or more for at least 15 seconds.
- (d) Check if the same DTC is recorded .

Result:

Result	Proceed to
DTCs (C1238/38 and/or C1239/39) are output	A
DTCs (C1238/38 and C1239/39) are not output	B

 B END

 A REPLACE BRAKE BOOSTER WITH MASTER CYLINDER