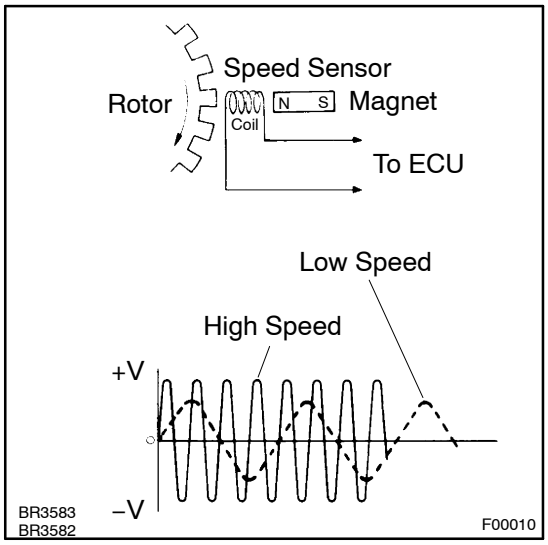
DTC	31 – 34	Speed Sensor Circuit

CIRCUIT DESCRIPTION



The speed sensor detects wheel speed and sends the appropriate signals to the ECU. These signals are used to control the ABS system. The front and rear rotors each have 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 Detecting Condition	Trouble Area
31 32 33 34	Detection of any of conditions 1. through 4.: 1. At vehicle speed of 10 km/h (6 mph) or more, pulses are not input for 15 sec. (200 sec. or more when RL and RR wheels are fauly.) 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 continuos noise occurs in the speed sensor signal with the vehicle speed at 20 km/h (12 mph) or more continues for 5 sec. or more. 4. The condition that the speed signal circuit is open continues for 0.5 sec. or more.	• Right front, left front, right rear and left rear speed sensor • Each speed sensor circuit • Sensor rotor

HINT:

DTC No. 31 is for the right front speed sensor.

DTC No. 32 is for the left front speed sensor.

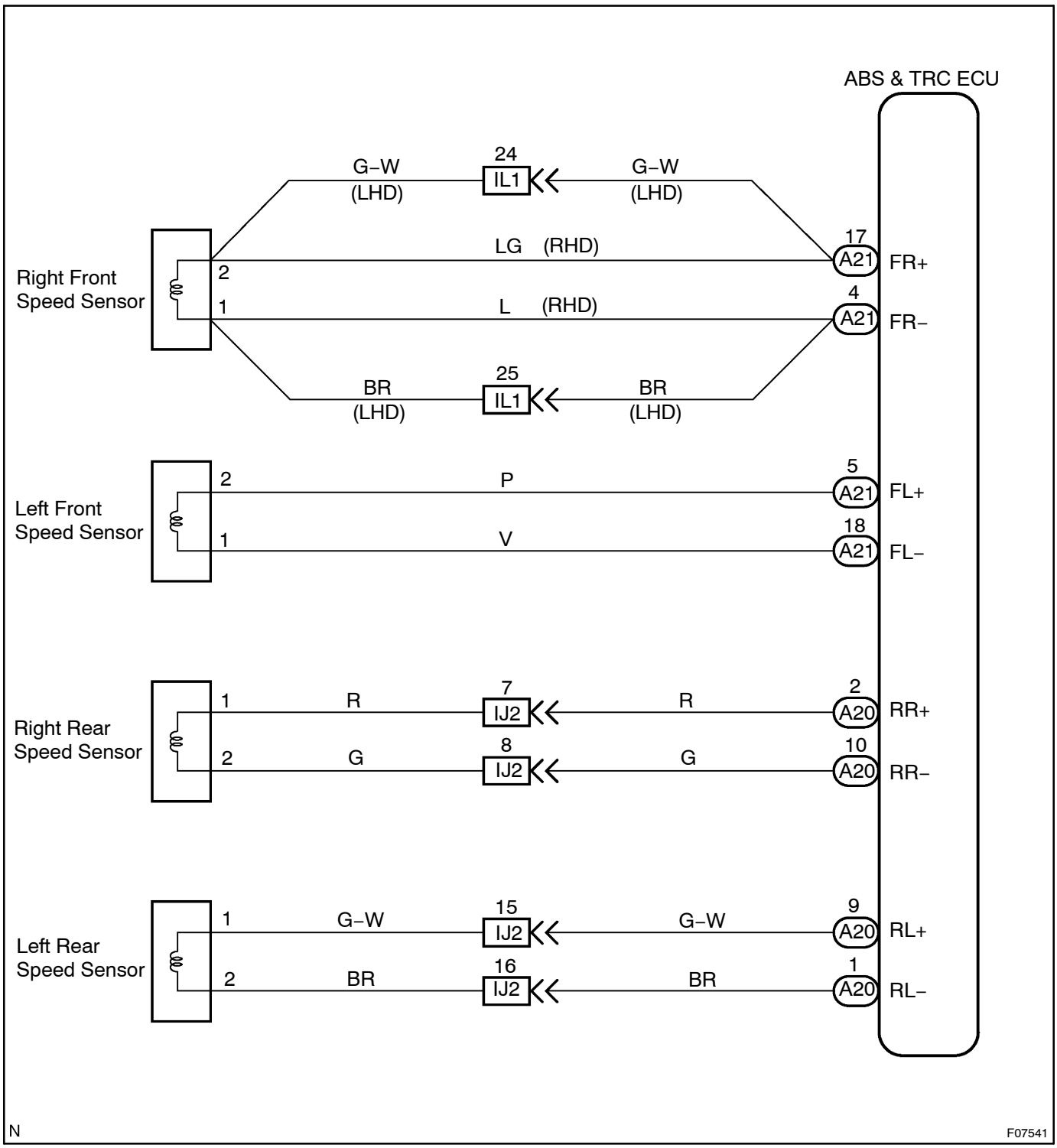
DTC No. 33 is for the right rear speed sensor.

DTC No. 34 is for the left rear speed sensor.

Fail safe function:

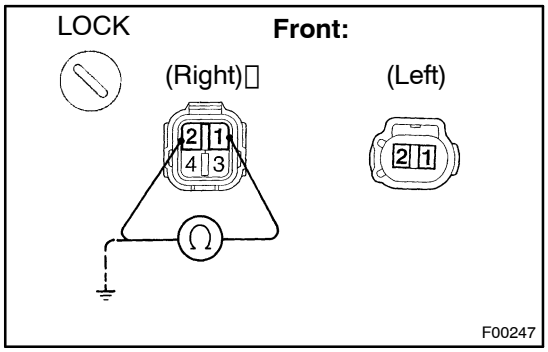
If any trouble occurs in the speed sensor circuit, the ECU cuts off current to the ABS solenoid relay and prohibits ABS controls and the brake system becomes normal.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check speed sensor.**



Front:

PREPARATION:

(a) Remove front fender moulding and fender liner.

(b) Disconnect speed sensor connector.

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector.

OK:

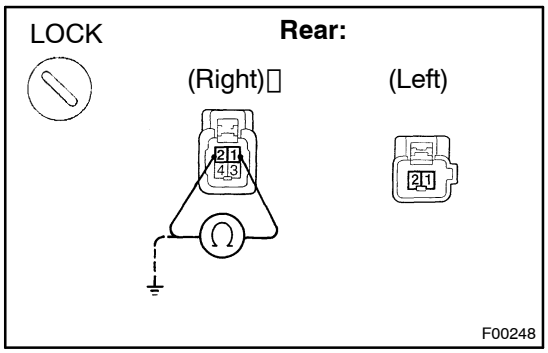
Resistance: 1.6 ± 0.2 kΩ at 20°C

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector and body ground.

OK:

Resistance: 1 MΩ or higher



Rear:

PREPARATION:

(a) Remove the luggage compartment trim front cover.

(b) Disconnect speed sensor connector.

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector.

OK:

Resistance: 1.1 ± 0.2 kΩ at 20 ± 3°C

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector and body ground.

OK:

Resistance: 1 MΩ or higher

NG	**Replace speed sensor.**

NOTICE:

Check the speed sensor signal (See page DI–153).

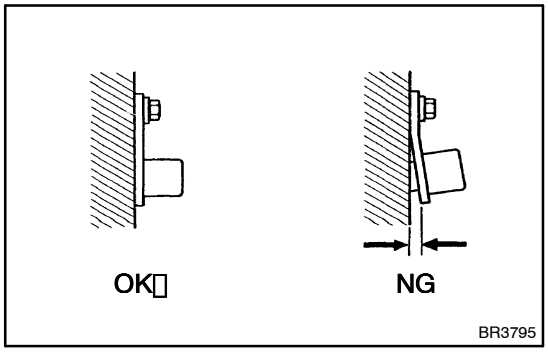
OK

2	Check for open and short circuit in harness and connector between each speed sensor and ABS & TRC ECU (See page IN–30).

NG → Repair or replace harness or connector.

OK

3	Check sensor installation.



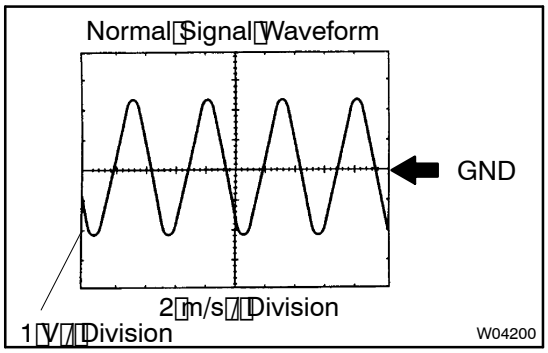
CHECK:
Check the speed sensor installation.
OK:
The installation bolt is tightened properly and there is no clearance between the sensor and front steering knuckle or rear axle carrier.

NG → **Replace speed sensor.**

NOTICE:
Check the speed sensor signal last (See page DI–153).

OK

4	Check speed sensor and sensor rotor serrations.

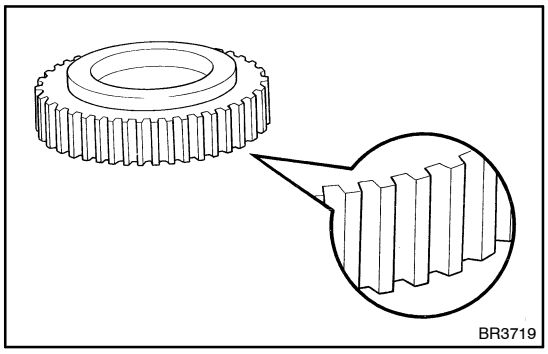


REFERENCE: INSPECTION USING OSCILLOSCOPE
PREPARATION:
(a) Remove the ABS & TRC ECU.
(b) Connect the oscilloscope to the terminals FR+, FL+, RR+ or RL+ and GND of the ABS & TRC ECU.
CHECK:
Drive the vehicle with about 30 km/h (19 mph), and check the signal waveform.

OK → **Check and replace ABS & TRC ECU.**

NG

5	Check sensor rotor and sensor tip.



Front:

PREPARATION:

Remove front speed sensor rotor (See page SA–12).

CHECK:

Check sensor rotor serrations.

OK:

No scratches, missing teeth or foreign objects.

PREPARATION:

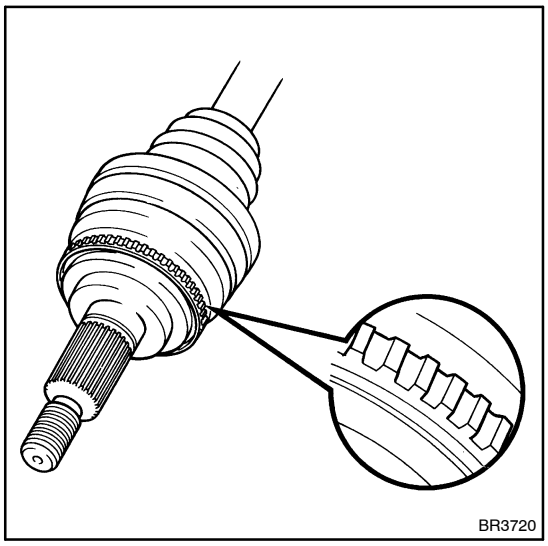
Remove the front speed sensor (See page BR–54).

CHECK:

Check the sensor tip.

OK:

No scratches or foreign objects on the sensor tip.



Rear:

PREPARATION:

Remove the drive shaft (See page SA–61).

CHECK:

Check the sensor rotor serrations.

OK:

No scratches, missing teeth or foreign objects.

PREPARATION:

Remove the rear speed sensor (See page BR–57).

CHECK:

Check the sensor tip.

OK:

No scratches or foreign objects on the sensor tip.

NG	Replace speed sensor or rotor.

NOTICE:

Check the speed sensor signal first (See page DI–153).

OK

Check and replace ABS & TRC ECU.