

Classification:

BR10-008a

Reference:

ITB10-056a

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Date:

September 25, 2012

ABS/VDC WHEEL SPEED SENSOR DIAGNOSIS

This bulletin has been amended to revise the Applied Vehicles and Service Information.
Please discard all previous versions.

APPLIED VEHICLES: 2007-2013 Infiniti vehicles equipped with ABS/VDC

SERVICE INFORMATION

This bulletin is being released to assist in accurate diagnosis when DTC:

- C1101 - C1104 [Wheel Speed Sensor 1],
and/or
- C1105 - C1108 [Wheel Speed Sensor 2],

... is stored in the related ECU.

NOTE: Use of CONSULT-III plus (C-III plus) and/or Wheel Sensor Tester Essential Tool J-45741 is recommended for more efficient diagnosis.

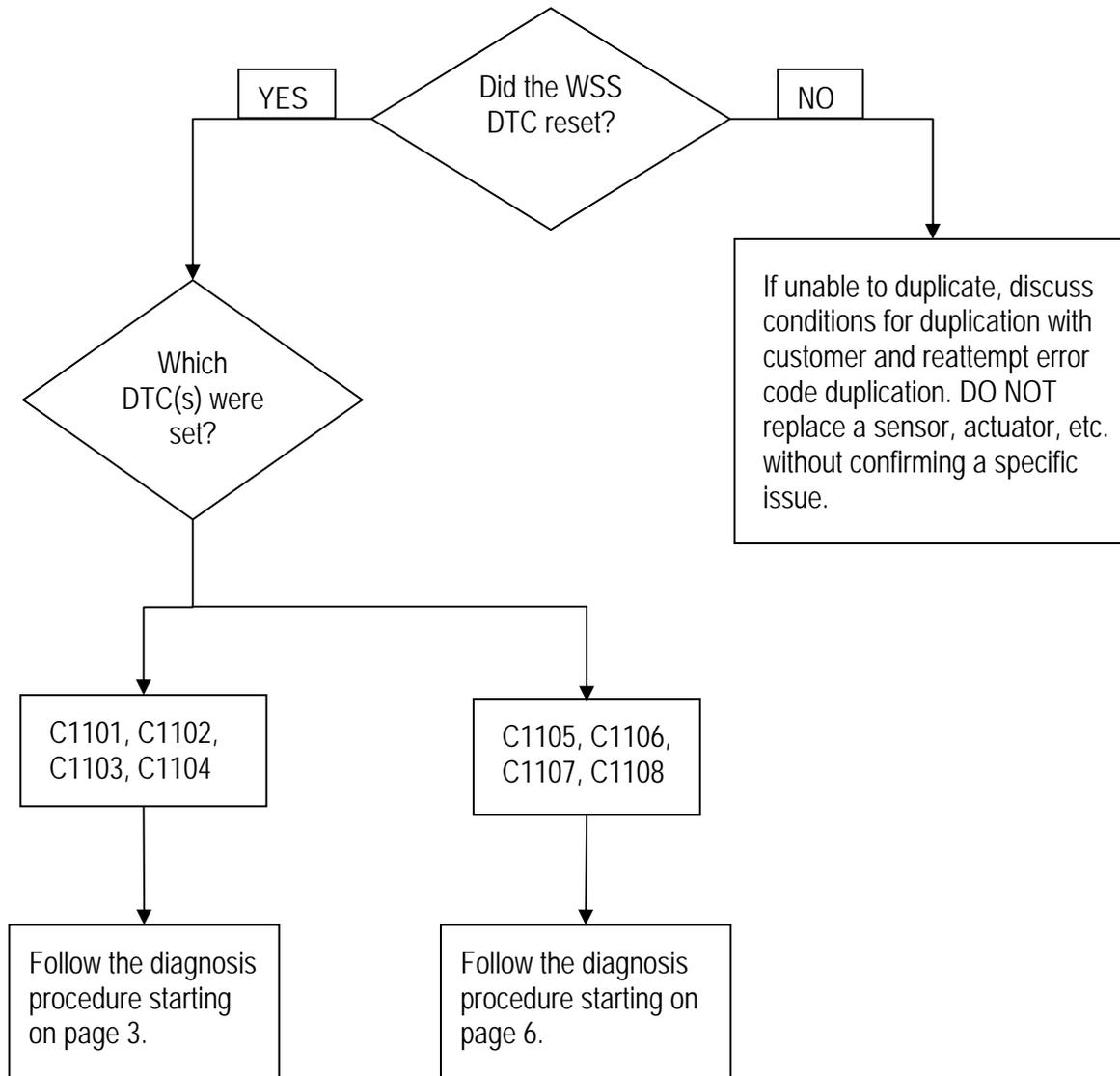
IMPORTANT:

- **ALWAYS** fully diagnose the code before performing any repairs.
- **DO NOT** replace a sensor based on DTC alone without confirming a specific issue.
- In order to use this bulletin or the Electronic Service Manual (ESM), the DTC must be ACTIVE. Past DTCs should be cleared and the incident duplicated before accurate diagnosis can be performed.
- **ALWAYS** perform the repair verification test before any additional repairs are attempted.

Infiniti Bulletins are intended for use by qualified technicians, not 'do-it-yourselfers'. Qualified technicians are properly trained individuals who have the equipment, tools, safety instruction, and know-how to do a job properly and safely. NOTE: If you believe that a described condition may apply to a particular vehicle, DO NOT assume that it does. See your Infiniti dealer to determine if this applies to your vehicle.

Diagnosis Flow Chart

1. With C-III plus, record all ACTIVE DTCs.
2. Clear the DTCs, then drive the vehicle at a speed greater than 13mph.



CLAIMS INFORMATION

Refer to the current Infiniti Warranty Flat Rate Manual and use the appropriate claims coding for repairs performed.

C1101 - C1104 Diagnostic Procedure

NOTE: Refer to the current Infiniti Warranty Flat Rate Manual and use the appropriate claims coding for repairs performed.

1. Check the suspect wheel speed sensor for damage or deformation.

Is inspection normal?

Yes → Proceed to step 2.

No → Replace the wheel speed sensor.

2. Check the wheel speed sensor output signal.

- a. Raise the vehicle on a hoist.

- b. Connect the ABS active wheel sensor tester (J-45741) to wheel sensor using the appropriate adapter.

- c. Turn on the ABS active wheel sensor tester power switch.

NOTE: The green POWER indicator should illuminate. If the POWER indicator does not illuminate, replace the battery in the ABS active wheel sensor tester before proceeding.

- d. Spin the wheel of the vehicle by hand and observe the red SENSOR indicator on the ABS active wheel sensor tester. The red SENSOR indicator should flash ON and OFF to indicate an output signal.

Does the ABS active wheel sensor tester detect a signal?

Yes → Proceed to step 3.

No → Replace wheel speed sensor.

3. Check harness short circuit to supply/ground and to each other.

- a. Disconnect the ABS actuator and electric unit (control unit) connector and wheel sensor connector with malfunction code.

- b. Check continuity between wheel sensor harness connector terminals and supply (battery voltage) and ground.

- c. Check continuity between wheel speed harness connector terminals.

Continuity should not exist.

OK → Proceed to step 4.

NG → Repair the circuit.

4. Check the harness and connector (ABS actuator to wheel speed sensor).

- a. Turn the ignition OFF.

- b. Disconnect the ABS module connector.

- c. Disconnect the respective wheel speed sensor connector.

- d. Inspect both connector cases for bent pins, deformation, corrosion, contamination.

OK → Proceed to step 4e.

NG → Repair connector.

- e. Refer to the measurement chart(s) in the **BRC > C1101, C1102, C1103, C1104 WHEEL SENSOR-1** section in the appropriate ESM.

OK → Proceed to step 5.

NG → Repair/Replace harness or connector.

5. Inspect the wheel speed sensor input voltage.

- a. Disconnect the ABS module harness connector.

- b. Measure voltage on Pin 1 and Pin 32 of the ABS module harness.

NOTE: Voltage must be measured between the mentioned Pins and the ECU grounds.

- c. Voltage should be the battery voltage.

OK → Proceed to step 5d.

NG → Repair harness circuit.

- d. Connect the ABS module to the connector and disconnect the wheel speed sensor connector.

- e. Turn the ignition ON.
- f. Measure the voltage between the wheel speed sensor signal circuit (+) and wheel speed sensor low reference (-).
- g. Measure the voltage between the wheel speed sensor signal circuit (+) and body ground (-).
- h. Voltage should be battery voltage.
 - OK → Replace wheel speed sensor.
 - NG → Replace ABS actuator. Refer to the appropriate ESM for removal and installation procedures and, if applicable, initialization procedures.

6. Perform 'Repair Verification Test.'

- a. Turn the ignition OFF.
- b. Connect all previously disconnected components and connectors.
- c. Ensure all accessories are turned OFF and the battery is fully charged.
- d. Ensure that the ignition is ON, and with the C-III plus, erase all DTCs from all modules. Start the engine and allow it to run for 2 minutes.
- e. After turning the ignition ON, road test the vehicle for at least 5 minutes.
- f. Turn the ignition OFF and wait 5 seconds. Turn the ignition ON and check for error codes using C-III plus.
- g. If DTC resets, return to symptom list and troubleshoot new or recurring symptom.
- h. If no DTCs are present, and the customer's concern can no longer be duplicated, the repair is complete.

C1105 - C1108 Diagnostic Procedure

NOTE: Refer to the current Infiniti Warranty Flat Rate Manual and use the appropriate claims coding for repairs performed.

1. Is wheel speed sensor assembly OK? (Refer to the wheel speed sensor removal and installation section in the appropriate ESM.)

OK → Proceed to step 3.

NG → Proceed to step 2.

2. Check the tire pressure and tire wear.

OK → Proceed to step 3.

NG → Adjust tire pressure or replace tire (perform repair verification test).

3. Visually check for damage or contamination of the head of wheel speed sensor.

OK → Proceed to step 4.

NG → Contamination – clean head of wheel speed sensor and perform repair verification test.

NG → Damaged – replace wheel speed sensor and perform repair verification test.

4. Visually check for contamination of the wheel speed sensor tone ring (magnetic encoder).

Below are examples of contamination.



NOTE: Contamination on wheel speed sensor tone ring can cause intermittent errors.

OK → Proceed to step 5.

NG → Clean tone ring and perform repair verification test.

5. Inspect the tone wheel/bearing for damage, missing teeth, cracks, corrosion or looseness.

OK → Replace wheel speed sensor and proceed to step 6.

NG → Replace tone wheel or bearing according to inspection result and proceed to step 6.

6. Perform repair verification test.

a. Turn the ignition OFF.

b. Connect all previously disconnected components and connectors.

c. Ensure all accessories are turned OFF and the battery is fully charged.

d. Ensure that the ignition is ON, and with the C-III plus, erase all DTCs from all modules. Start the engine and allow it to run for 2 minutes.

CAUTION: Ensure braking capability is available before road testing.

e. After turning the ignition ON, road test the vehicle for at least 5 minutes.

f. Turn the ignition OFF and wait 5 seconds. Turn the ignition on and using C-III plus, read DTCs from all modules.

Is the same DTC active again?

Yes → Replace ABS/VDC actuator assembly. Refer to the appropriate ESM for removal and installation procedures and, if applicable, initialization procedures.

No → Repair End.

