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## PRELIMINARY INFORMATION

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**Subject:** EBCM Wheel Speed Sensor Diagnostic Aid for ABS Message - Service Traction Message - Service Stabilitrak Message

**Models:** 2008-2011 Buick Enclave  
2008-2011 Cadillac CTS/CTS-V  
2010-2011 Cadillac CTS Wagon  
2011 Cadillac CTS/CTS-V Coupe  
2010-2011 Cadillac SRX  
2009-2011 Chevrolet Traverse  
2010-2011 Chevrolet Equinox  
2011 Chevrolet Cruze, Volt  
2007-2011 GMC Acadia  
2010-2011 GMC Terrain  
2007-2010 Saturn Outlook  
with any of the following DTCs or Symptom codes  
C0035 C0040 C0045 C0050 with symptom bytes 18 5A 0F.

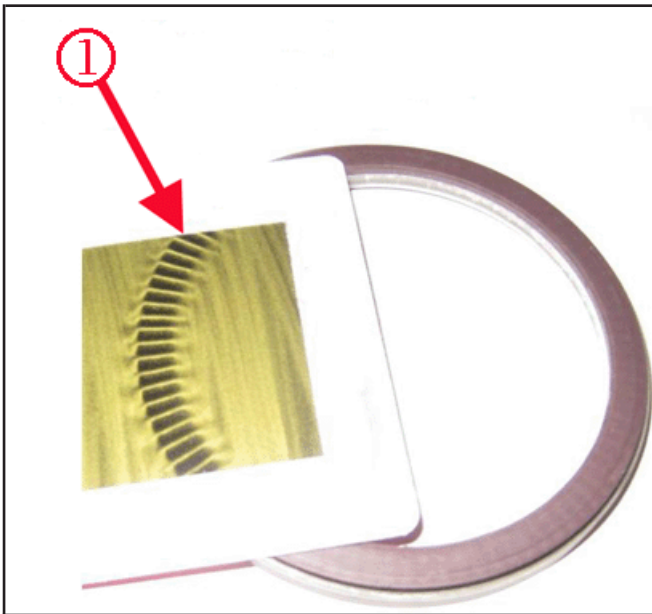
The following diagnosis might be helpful if the vehicle exhibits the symptom(s) described in this PI.

**Condition/Concern:**

A customer may comment the ABS, Service Traction Control System, and/or Service Stabilitrak telltale lights are on. During initial scan for EBCM module diagnostic codes you may find one or more of the following DTC's C0035-C0050 with specifically symptom bytes 18, 5A, 0F.

This condition may be caused by single or multiple pieces of ferrous metallic debris stuck to the wheel speed sensor magnetic encoder ring. This magnetic encoder ring is now part of the inboard bearing hub assembly.

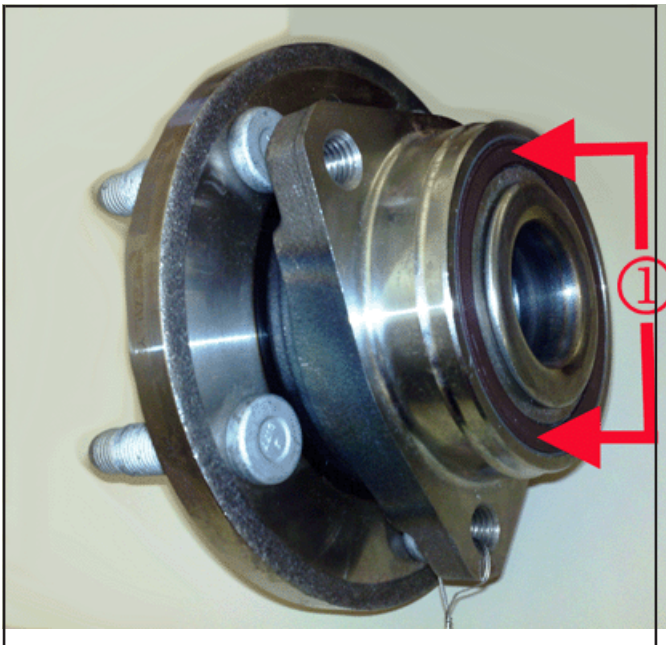
**Background Information:**



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(1) Wheel Speed Sensor  
Magnetic Encoder Ring  
North and South Poles are shown

**New Bearing Design**



2596032

1) Magnetic Encoder Ring  
Some new model vehicles today have begun to use a different type of wheel speed sensor encoder ring or tone wheel. Instead of a traditional mechanical type tooth tone wheel, the wheel speed sensor tone wheel is now made of a magnetized nitrile rubber ring, typically brown in color. This magnetic encoder consists of multiple North and South Pole pairs surrounding the outer circumference. When this magnetic encoder ring rotates and passes by the wheel speed sensor head; it generates a sine wave in the wheel speed sensor. The wheel speed sensor converts an analog signal to a digital square wave, and typical digital signal values switch between 7mA (Low) and 14mA (High) DC current.

**Recommendation/Instructions:**

Inspect and clean debris from the Encoder Ring.

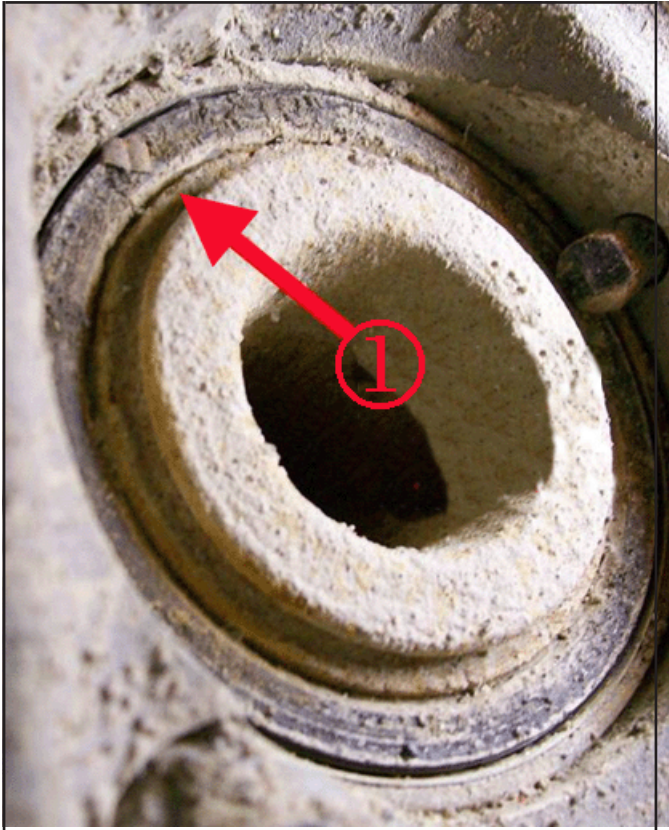
**Inspection and Cleaning Procedure:**

Below inspection and cleaning procedure is supporting information to the SI wheel speed sensor diagnostic mechanical fault table. In most cases the DTCs C0035-C0050 with symptom bytes 18, 5A, and 0F can be repaired by removing and/or cleaning any accumulated debris on the magnetic encoder ring; which is located on the inboard side of the bearing hub.

**Important:** Most repairs can be performed without any replacement of the bearing hub assembly or wheel speed sensor.

**Caution:** Take care not to damage the bearing outer seal when brushing and/or cleaning the magnetic encoder debris.

**Caution:** Do not use any type of magnetic tool to remove the debris from the bearing magnetic encoder; an external magnet can damage the encoder.

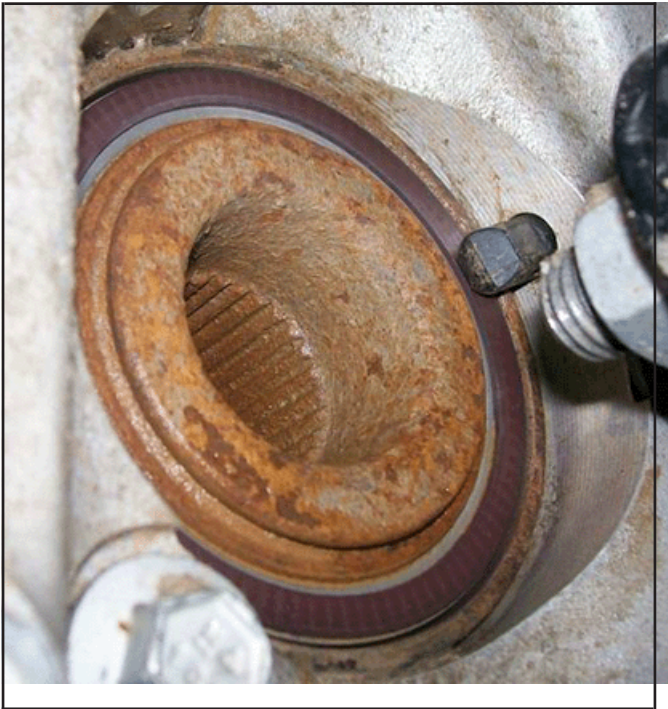
**BEFORE CLEANING**

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**(1) Sample Debris**

1. Based on the specific EBCM module Wheel Speed Sensor DTC code; inspect the appropriate corner magnetic encoder ring for possible debris.
  - C0035 Left Front Corner
  - C0040 Right Front Corner
  - C0045 Left Rear Corner
  - C0050 Right Rear Corner
2. If debris is found, perform the following cleaning recommendations.
  - 2.1. Gently using a dry nylon soft bristle brush, remove the foreign debris off the magnetic encoder ring. If debris was removed, proceed to step 3.
  - 2.2. If debris still remains, wash the encoder ring using a mild soap detergent and wipe dry.

**AFTER CLEANING**



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3. Connect a scan tool to the vehicle. Turn ON the ignition. Clear the DTCs.
4. Perform vehicle diagnostic repair verification procedure for DTC: C0035-C0050. Refer to SI.

Please follow this diagnostic or repair process thoroughly and complete each step. If the condition exhibited is resolved without completing every step, the remaining steps do not need to be performed.