



# Service Bulletin

## TECHNICAL

**Subject:** EBCM Wheel Speed Sensor Diagnostic Aid for ABS Message - Click or Ratchet Noise - Service Traction Message - Service Stabilitrak Message - Service Steering Message

*This Bulletin replaces PIC5428G. Please discard PIC5428G.*

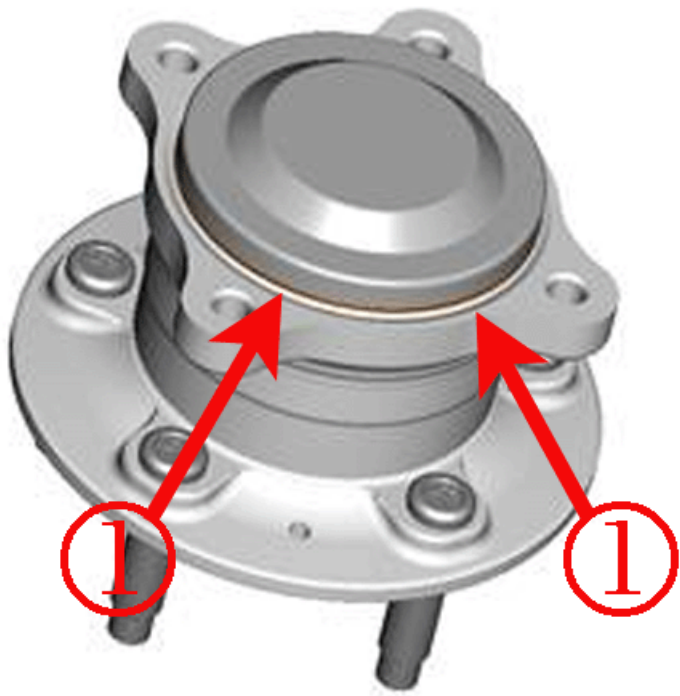
Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Buick	Enclave	2008	2017			All	All
Buick	LaCrosse	2010	2016			All	All
Buick	Regal	2011	2017			All	All
Buick	Verano (Front Wheel Drive Only)	2012	2017			All	All
Cadillac	ATS	2013	2014			All	All
Cadillac	CTS	2008	2014			All	All
Cadillac	SRX	2010	2016			All	All
Cadillac	XTS	2013	2017			All	All
Chevrolet	Camaro	2010	2015			All	All
Chevrolet	Colorado	2009	2012			All	All
Chevrolet	Cruze	2011	2015			All	All
Chevrolet	Volt	2011	2017			All	All
Chevrolet	Equinox	2010	2017			All	All
Chevrolet	Corvette Impala (VIN 1)	2014	2017			All	All

Chevrolet	Malibu Limited	2013	2016		All	All
Chevrolet	Traverse	2009	2017		All	All
GMC	Canyon	2009	2012		All	All
GMC	Acadia Limited	2007	2017		All	All
GMC	Terrain	2010	2017		All	All
Saturn	Outlook	2007	2010		All	All

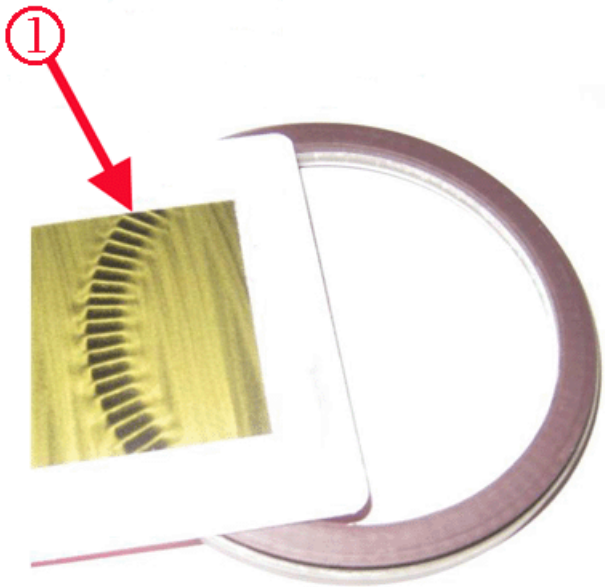
<b>Involved Region or Country</b>	North America and N.A. Export Regions
<b>Condition</b>	<p>Some customers may comment on any of the following conditions:</p> <ul style="list-style-type: none"> <li>The ABS, Service Traction Control System, and/or Service Stabilitrak telltale lights are on. During initial scan for EBCM module diagnostic codes you may find one or more of the following DTCs: C0035-C0050 with specifically symptom bytes 18, 5A, 0F.</li> </ul> <p><b>Note:</b> For vehicles equipped with Electric Power Steering RPO NJ2 only - Operator may also notice a Service Steering Message displaying in the Driver Information Center (DIC) and will experience heavier steering feel at low speed or static steering maneuvers when this happens. This will be accompanied with the Power Steering Control Module setting DTC U0415. This is a normal default action with the loss of a Wheel Speed Sensor signal. If DTC U0415 remains after removal of the Wheel Speed Sensor debris, refer to published diagnostics.</p> <ul style="list-style-type: none"> <li>A brief and intermittent noise, click, ratchet, grind, or ABS pump motor noises typically heard from the inside of the vehicle at parking lot speeds.</li> <li>A flashing Traction Control or Stabilitrak telltale at low speeds.</li> </ul> <p><b>Note:</b> The latter two conditions correspond with no reported EBCM / ABS / Stability DTCs set current or history.</p>
<b>Cause</b>	These conditions may be caused by single or multiple pieces of ferrous metallic debris stuck to the wheel speed sensor magnetic encoder ring.
<b>Correction</b>	Inspect and clean debris from the Encoder Ring.

## Bearing Information

**Note:** THIS INFORMATION IS NOT APPLICABLE TO CAPPED WHEEL BEARINGS.



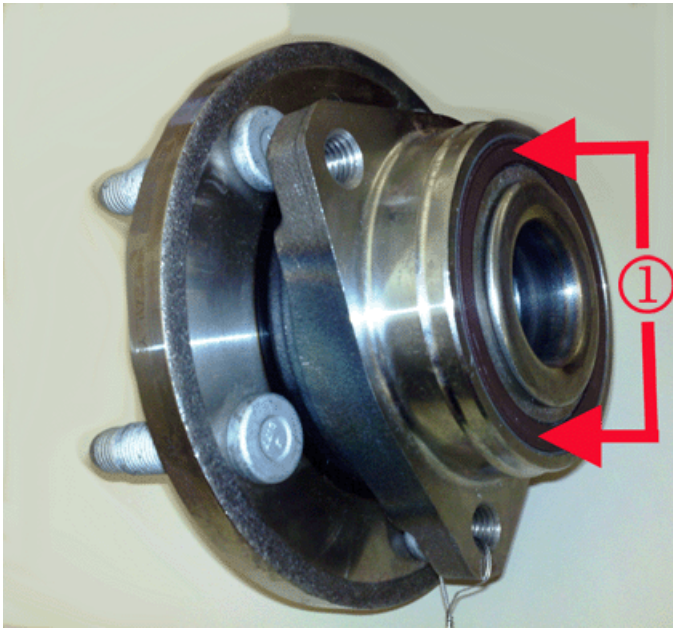
(1.) Capped Wheel Bearing



(1.) Wheel Speed Sensor

Magnetic Encoder Ring - North and South Poles are shown

New Bearing Design.



(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 sign 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.

### Parts Information

No parts are needed for this concern.

### Warranty Information

Labor Operation	Description	Vehicle(s) Involved	Labor Time
2480068*	Inspect and Clean Debris From Front Wheel Speed Sensor Encoder Ring (One Side)	Camaro, Corvette, CTS VIN D (RWD), Colorado (RWD), Canyon (RWD)	0.4 hr
		SRX, Volt	0.7 hr
		ATS (AWD), CTS VIN A/D (AWD), Acadia, Enclave, Outlook, Traverse, Equinox, Terrain, Cruze, Verano	1.0 hr
		LaCrosse, Regal	0.9 hr
		Malibu	0.8 hr
		Impala, XTS	1.6 hrs
		Colorado (4WD), Canyon (4WD)	1.9 hrs
2480078*	Inspect and Clean Debris From Rear Wheel Speed Sensor Encoder Ring (One Side)	Acadia (FWD), Enclave (FWD), Outlook (FWD), Traverse (FWD), SRX (FWD), LaCrosse (FWD), Regal (FWD), Equinox (FWD), Terrain (FWD), Malibu, Impala, XTS (FWD)	0.4 hr
		Camaro, Corvette, CTS VIN D, Equinox (AWD), Terrain (AWD)	0.9 hr
		SRX (AWD), ATS, CTS VIN A	1.1 hrs

	LaCrosse (AWD), Regal (AWD)	2.1 hrs
	Acadia (AWD), Enclave (AWD), Outlook (AWD), Traverse (AWD)	1.0 hr
	Volt	0.8 hr
	Cruze, Verano	0.6 hr
	XTS (AWD)	1.4 hrs
*This is a unique Labor Operation number for Bulletin use only.		

## Service 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, 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.

**Important:** For 2013-14 Buick Lacrosse, 2013-14 Buick Regal, 2014 Chevrolet Impala E, or 2013-14 Chevrolet Malibu, if the wheel bearing encoder ring is damaged, replace the wheel bearing and follow Bulletin 16-NA-348.

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

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



(1.) Sample Debris

- 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.

**Important:** To properly clean the magnetic encoder ring, some applications may require removal of the bearing/hub assembly. Refer to the specific Wheel Bearing and Hub Replacement procedure in SI.

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.

**Important:** For 2013-14 Buick Lacrosse, 2013-14 Buick Regal, 2014 Chevrolet Impala E, or 2013-14 Chevrolet Malibu add wheel bearing deflector. Refer to Bulletin 16-NA-348 for part number information.

**AFTER CLEANING**



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

<b>Version</b>	1
<b>Modified</b>	

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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