



Service Bulletin

Bulletin No.: 17-NA-221

Date: August, 2021

TECHNICAL

Subject: Poor Engine Performance in Extremely Cold Weather Conditions for LE2 Engines, Charge Air Cooler Icing - Malfunction Indicator Lamp (MIL) Illuminated, DTC P0299, P0234, P0236, P2227, P00C7 Set

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Buick	Encore	2016	2022	—	—	1.4L (LE2)	—
Chevrolet	Trax	2021	2022				

Involved Region or Country	North America
Condition	<p>Some customers may comment that when driving short distances and/or slow speed driving cycles, their vehicle experiences one or several of the following conditions within the first 10 to 15 minutes of vehicle operation in extremely cold weather conditions (-18°C or less / 0°F or less):</p> <ul style="list-style-type: none">• Loss of power• Smoke out the tail pipe• Hesitation on acceleration• Stalling condition• Burning oil odor possibly caused by oil leak• May also notice a Malfunction Indicator Lamp illuminated• After driving for a period of time, the driveability issues seem to diminish. <p>This condition may also cause an increase in crankcase pressure, creating oil leaks at seals and gaskets.</p> <p>The technician may find one or more of the following DTCs set:</p> <ul style="list-style-type: none">• P0234• P0236• P0299• P2227• P00C7
Cause	<p>This condition may be caused by ice accumulation in the charge air cooler (CAC), restricting air flow to the throttle body.</p>
Correction	<p>If any of the above conditions are present, allow time for possible ice build up in the CAC to melt by allowing the vehicle to thaw in a warm climate.</p> <p>If any of the following conditions are validated to be caused by freezing/icing, replace the CAC.</p> <p>If not previously performed, an oil change may be necessary to remove any moisture from the engine. Prior to the oil change, run the engine at idle for an extended period of time to melt any ice in the engine.</p> <p>If there is a check engine light with a P0234 or P0299 DTC during cold weather driving, refer to Turbocharger Wastegate Regulator Solenoid Valve Inspection below.</p> <ul style="list-style-type: none">– Frozen oil/water condensate contaminant in the Turbocharger Wastegate Regulator Solenoid Valve (TCV) is often concurrent with vehicle operation conditions that cause CAC freezing.

Important: Allow time for the vehicle to thaw in a warm environment to avoid damaging or breaking parts that may be required to be re-installed.

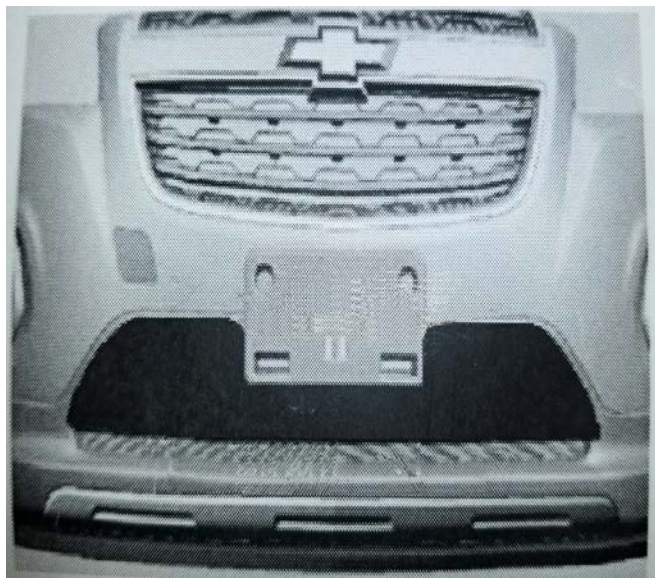
Turbocharger Wastegate Regulator Solenoid Valve Inspection

Important: For additional information on Oil/Moisture Condensate Freezing Up in the Turbocharger Wastegate Regulator Solenoid Valve, refer to PIP5812A.

Grille Winter Cover Installation

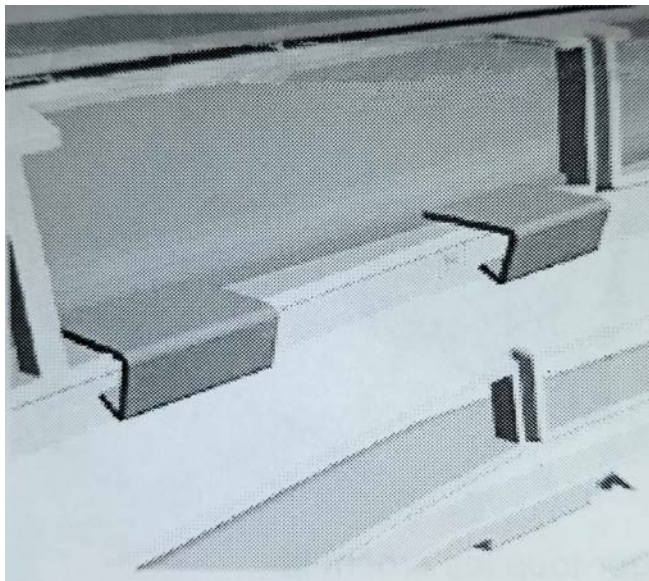
Warning: Remove grille cover during temperatures above 32°F/ 0°C to prevent engine and transmission overheating. Remove grille cover before towing a trailer of any size. Failure to do so will decrease transmission cooling efficiency and possibly cause damage to the drivetrain.

Note: The cover may appear to be undersized. The vinyl used may stretch during installation to ensure a tight fit. It is highly recommended that the cover be installed in a warm shop environment.



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1. Using care, orientate the fascia winter cover to the bumper fascia.

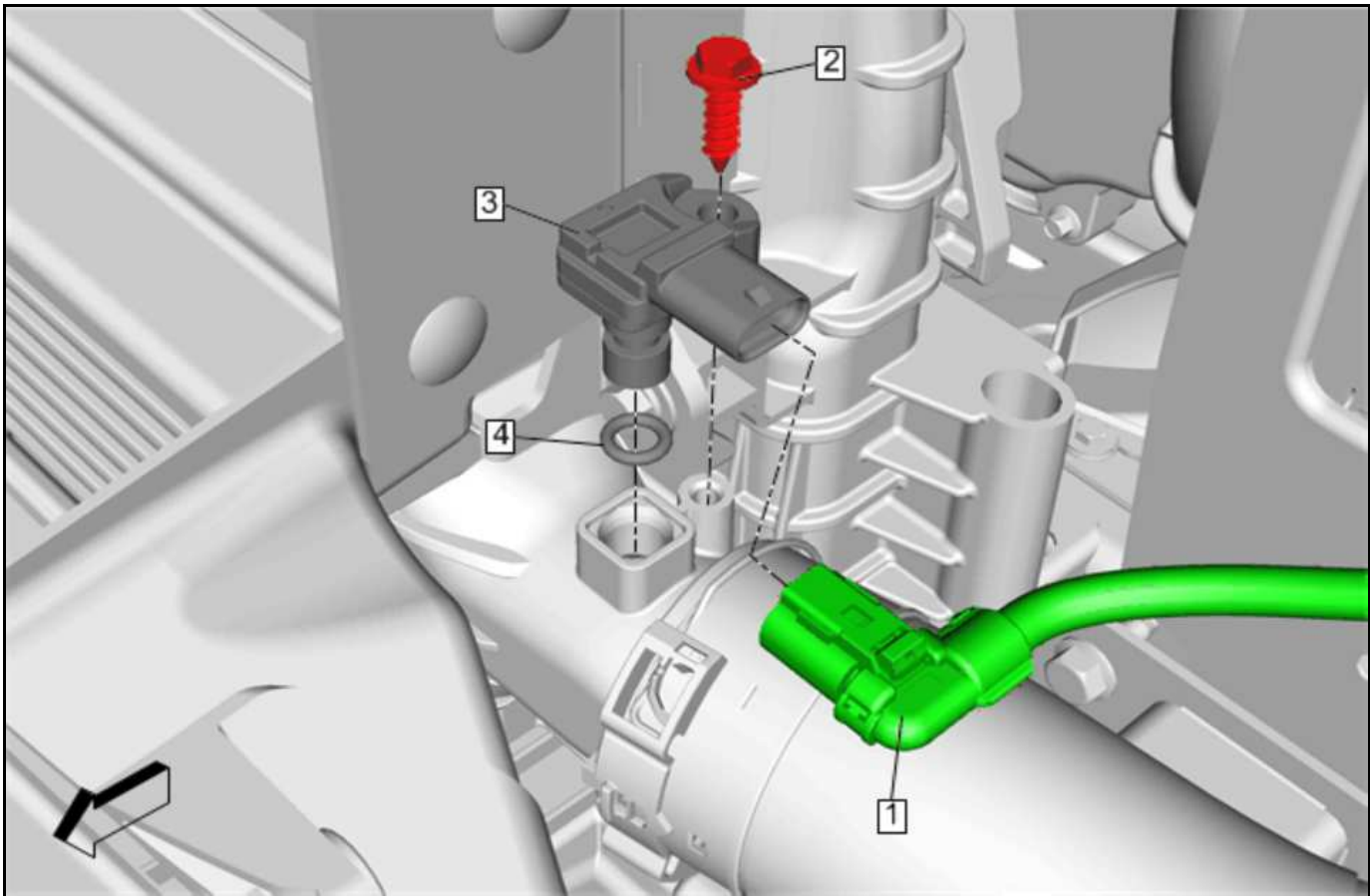


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2. Attach the cover to the fascia by pushing the hooks through the grille openings.
3. Validate that all the hooks are engaged and the cover is a tight fit.

Turbocharger Air Pressure Sensor Inspection

Important: Only perform steps 1-5 if DTC P0299 is set.



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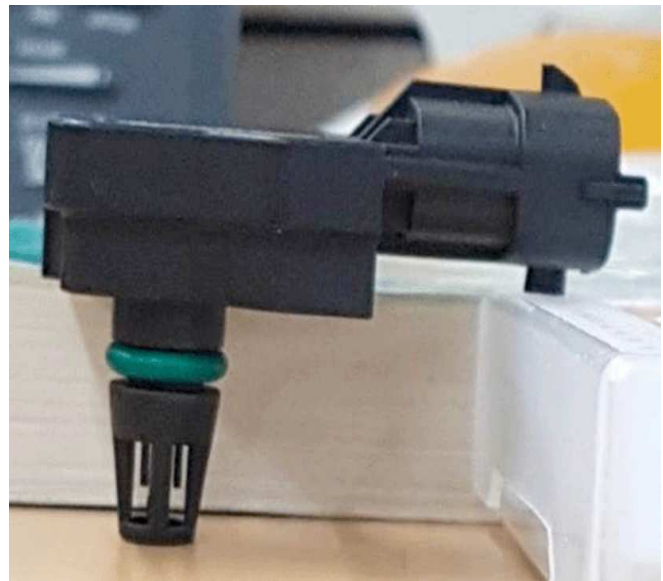
1. Remove the turbocharger Air Pressure sensor (3). Refer to *Turbocharger Air Pressure Sensor Replacement* in SI.



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Important: Due to the sensitivity of the sensor, **Do Not** use any chemical cleaners including water and **Do Not** use compressed air to remove contaminants.

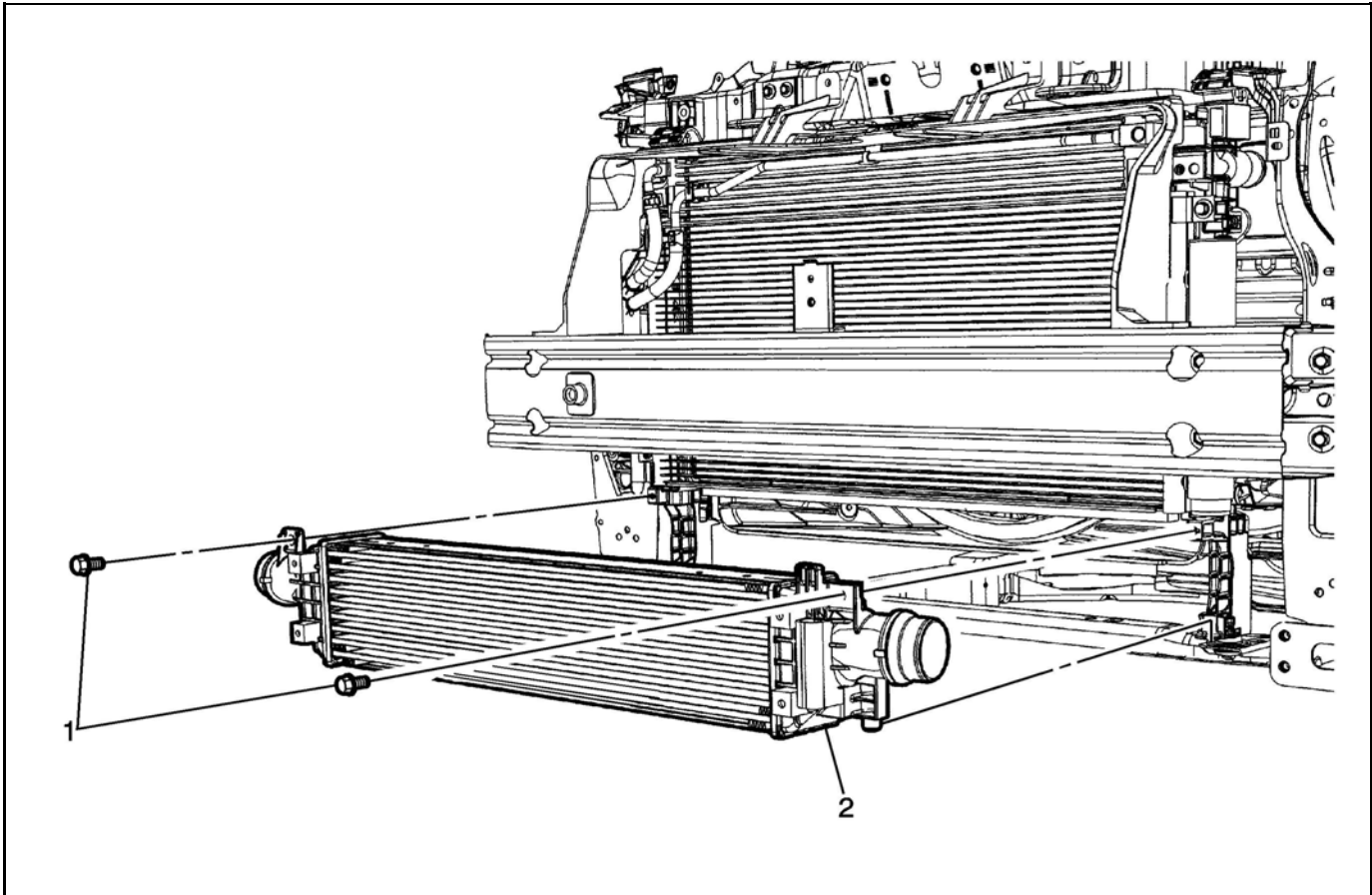
2. Inspect the sensor for any contaminants.



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3. Allow time for any ice build-up to melt by placing the sensor port down.
4. Clean the sensor with a clean towel.
5. Install the sensor.

Service Procedure



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1. Install the CAC (2). Refer to *Charge Air Cooler Replacement* in SI.

Important: Do Not perform an oil change if the oil change was recently done.

- If the oil change was recently done and no signs of moisture have been confirmed, Do Not proceed with procedure.
- If the oil change was not previously done or moisture has been found in the oil, proceed with procedure.

2. If required, perform an oil change. Refer to *Engine Oil and Oil Filter Replacement* in SI.

Parts Information

Description	Model Year	Part Number	Qty
Cooler, Charge Air	2016-2020	42574036	1
	2021	Installed in Production	—
Cover, Grille Winter	2016	42697326	1
	2017-2021	42697332	1
Filter, Oil	2016-2021	Refer to the Electronic Parts Catalog (EPC).	
Oil			

Warranty Information

Important: Emission Warranty coverage codes E (Base Emission Warranty) and E1 (California Emission Related Components 7 years/70,000 mile warranty) apply for Labor Operation 4081728.

For vehicles repaired under the Powertrain coverage, use the following labor operation. Reference the Applicable Warranties section of Investigate Vehicle History (IVH) for coverage information.

Labor Operation	Description	Labor Time
4081728*	Charge Air Cooler Replacement	1.1 hrs
Add	IAPT Inspection	0.2 hr
0580398*	Winter Grille Cover Installation	0.2 hr
Add	Oil Change	0.3 hr
Add	TCV Cleaning	0.3 hr

*This is a unique Labor Operation for bulletin use only.

Version	7
Modified	<p>August 14, 2017 – Added engine RPO to Subject.</p> <p>April 12, 2018 – Updated to 2018 model year and added breakpoint and IAPT information.</p> <p>February 01, 2019 – Added the 2019 Model Year, an Important statement at beginning of bulletin, Grille Winter Cover Installation procedure and parts information, changed Intake Air Pressure and Temperature Sensor Inspection title to Turbocharger Air Pressure Sensor Inspection and updated Warranty Information.</p> <p>April 09, 2019 – Added 2019 to the Model Years for the charge air cooler in the Parts Information.</p> <p>February 12, 2021 – Added the 2020-2021 Model Years to Encore, added the Trax Model, removed the breakpoint date and updated the Model Years in Parts Information table.</p> <p>August 05, 2021 – Added the 2022 Model Year, TVC information to the Correction section, Important statement to refer to PIP5812A under Turbocharger Wastegate Regulator Solenoid Valve Inspection section and Emission Warranty coverage statement to Warranty Information.</p>

