



Service Bulletin

Bulletin No.: 16-NA-405

Date: January, 2019

TECHNICAL

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

Attention: For vehicles that are out of warranty and are identified on the Applicable Warranties section in the GM Global Warranty Management system, refer to Special Coverage #17157.

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Buick	Encore	2013	2018	Refer to Correction section for breakpoints.		Equipped with 1.4L (RPO LUV)	
Chevrolet	Trax						

Involved Region or Country	North America
Condition	<p>Some customers may comment that when driving in extremely cold weather conditions (-18°C or less / 0°F or less), their vehicle experiences one or several of the following conditions:</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. • Malfunction Indicator Lamp (MIL) illuminated. <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"> • P0299 • P0236 • P2227 • P00C7
Cause	<p>This condition may be caused by one or more of the following:</p> <ul style="list-style-type: none"> • Plugged crank case vent tube from ice forming in the tube during very cold weather conditions. • Ice accumulation in the charge air cooler, restricting air flow to the throttle body.

<p>Correction</p>	<p>Important: The PCV heater parts are only to be used in northern states or provinces where temperatures are -18°C or less / 0°F or less and for critical customers only. If any of the following conditions are validated to be caused by freezing/icing, installation of the following components are necessary:</p> <ul style="list-style-type: none"> • Heated PCV Bypass system on vehicles built prior to February 19, 2018 (Encore/Trax VIN pos 1 = K) or March 12, 2018 (Trax VIN pos 1 = 3) • Modified Charge Air Cooler (CAC) on vehicles built prior to September 18, 2017 (Encore/Trax VIN pos 1 = K) or March 15, 2018 (Trax VIN pos 1 = 3) <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>
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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.

Grille Winter Cover Installation

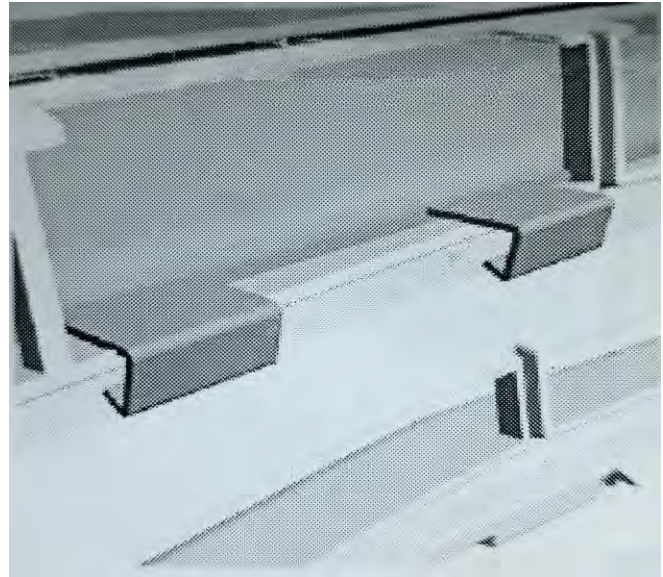
Warning: Remove grille cover during temperatures above 32°F/ 0°C to prevent engine and transmission overheating. Remove grille cover before towing a trailer of any size. Failure to do so will decrease transmission cooling efficiency and possibly cause damage to the drivetrain.

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.



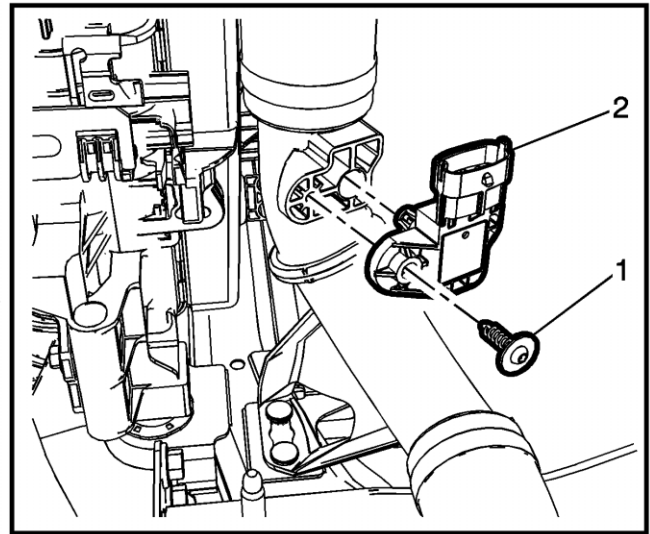
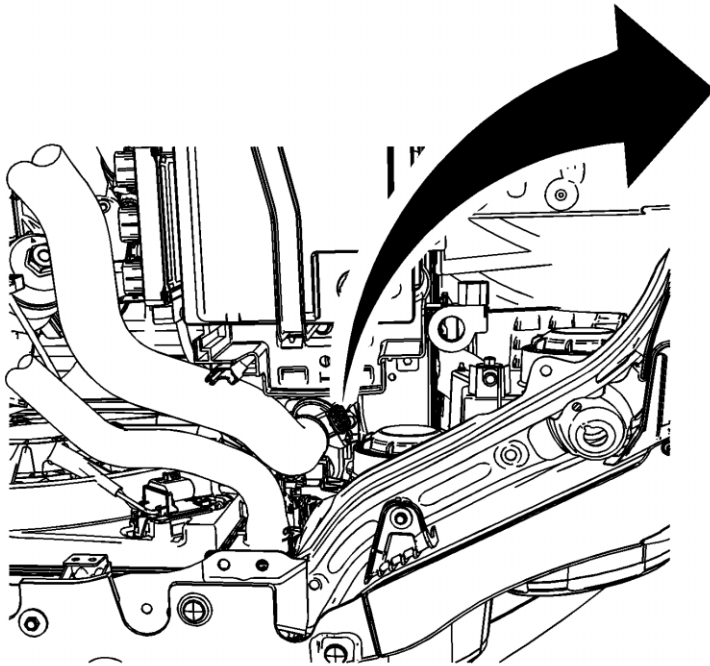
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2. Attach the cover to the fascia by pushing the hooks through the grille openings.
3. Validate that all the hooks are engaged and the cover is a tight fit.

Intake Air Pressure and Temperature Sensor Inspection

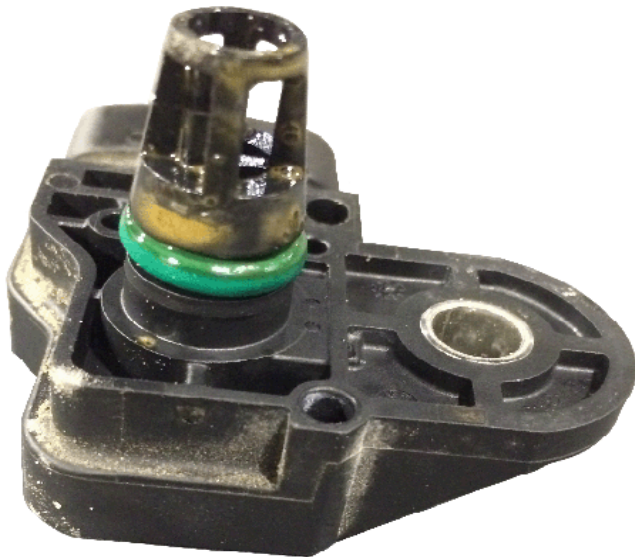
Important: Only perform steps 1-5 if DTC P0299 is set current and the PCV Heater Bypass has been installed previously.

Notice: If the PCV has not been previously installed, **Do Not** perform the Intake Air Pressure and Temperature Sensor Inspection and refer to the Service Procedure below.

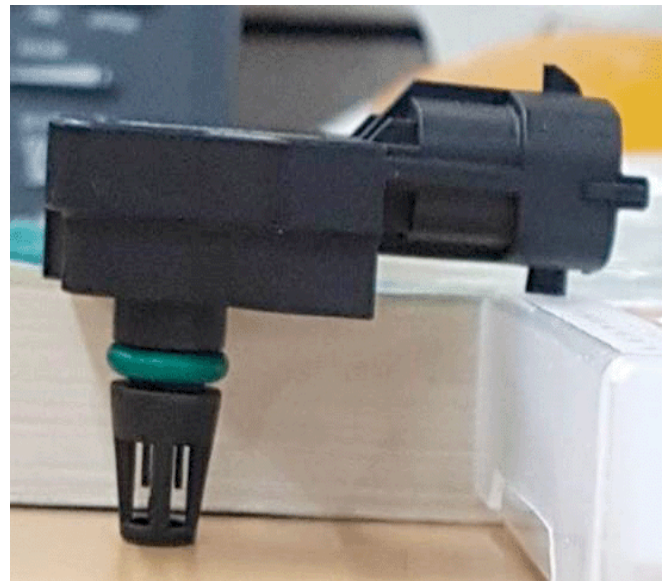


1. Remove the Intake Air Pressure and Temperature sensor (IAPT) (2). Refer to *Intake Air Pressure and Temperature Sensor Replacement* in SI.

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

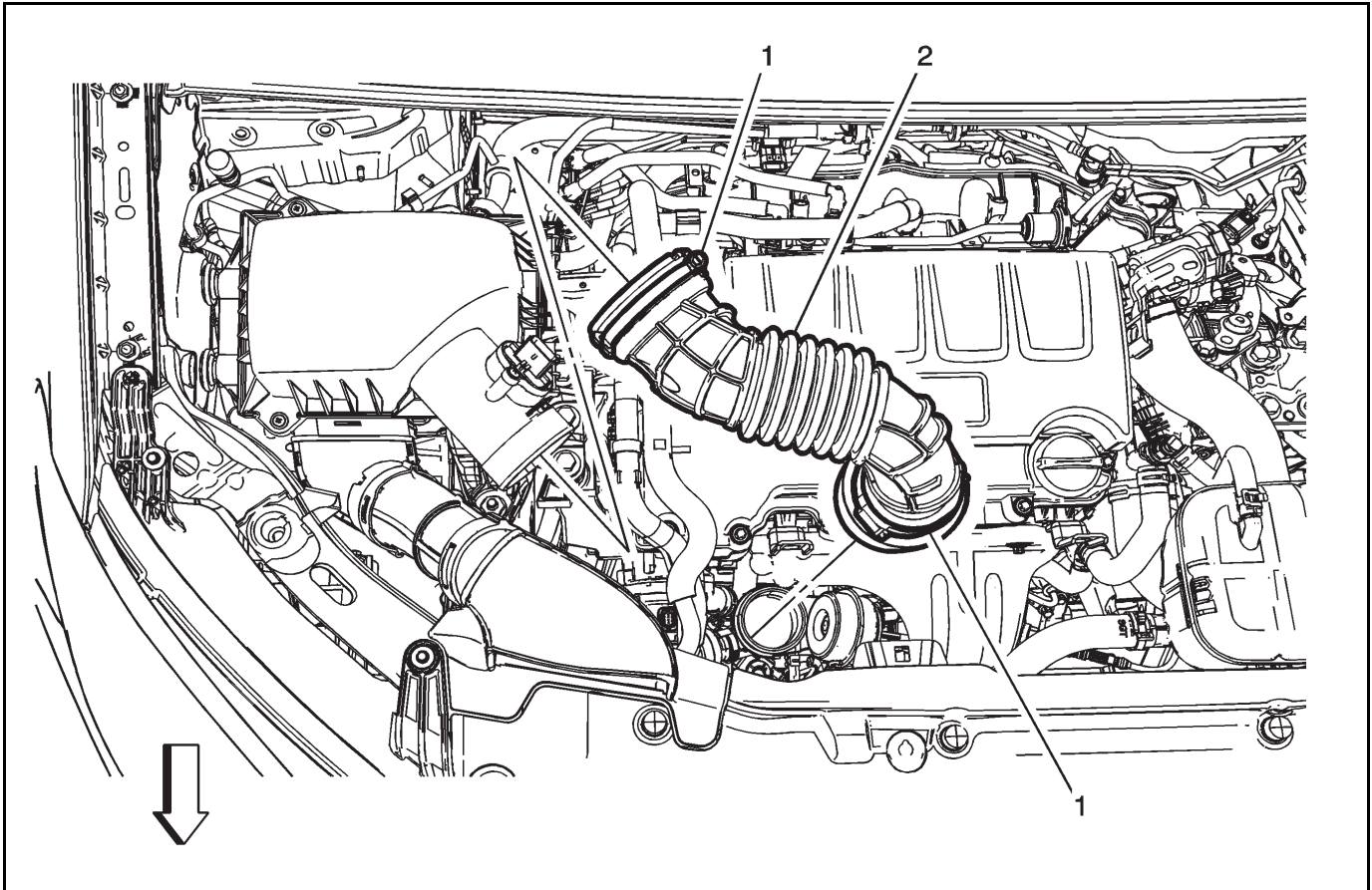
2. Inspect the IAPT sensor for any contaminates.

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. Inspect the IAPT sensor for any contaminates.

Service Procedure

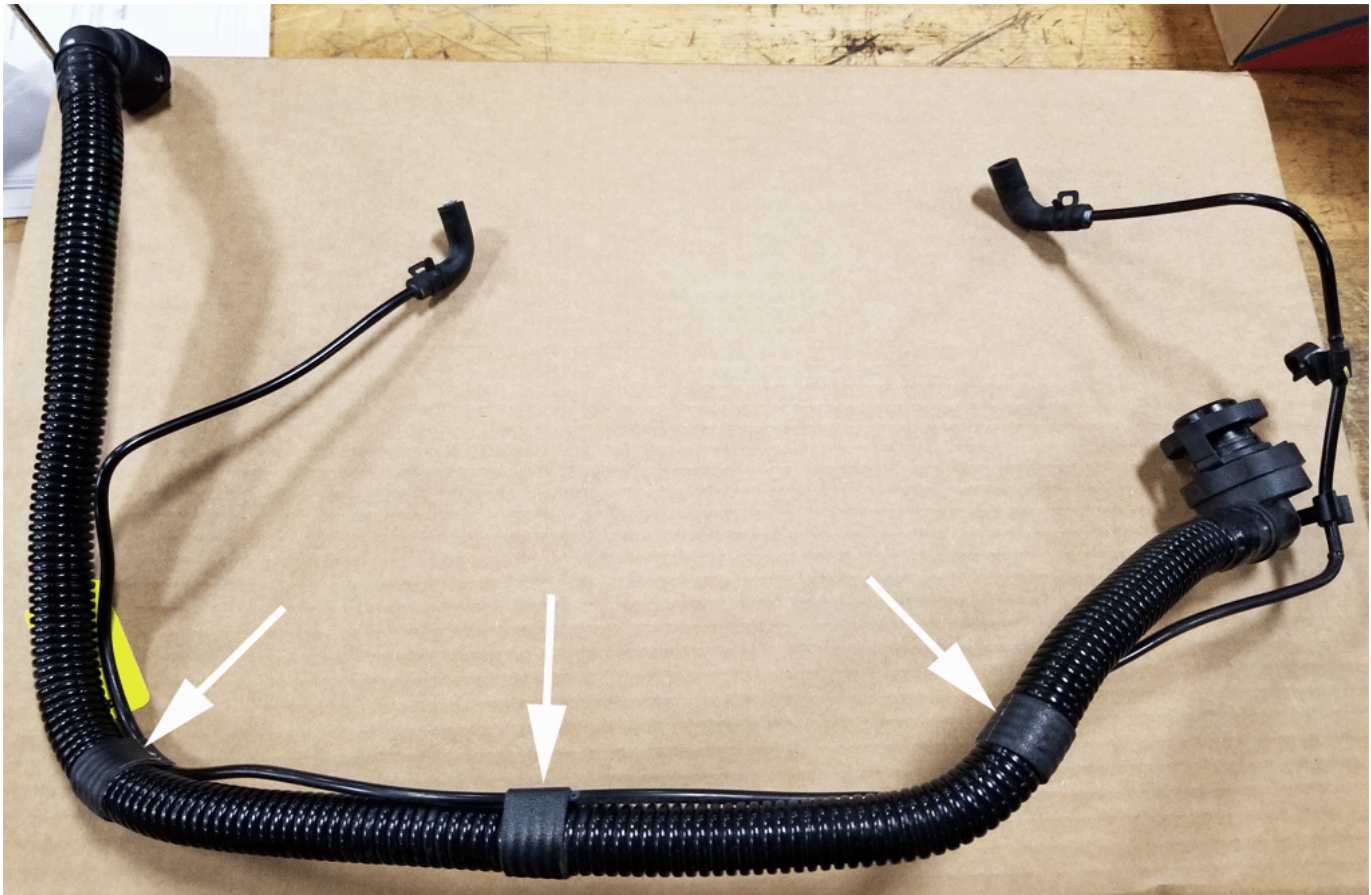
Notice: The PCV Heater may have been installed previously onto the vehicle. If the PCV heater has been installed, proceed to step 39.

1. Operate the vehicle until it reaches operating temperature.
2. Remove the battery. Refer to *Battery Replacement* in SI.
3. Remove the engine cover.



4. Remove and discard the air cleaner outlet duct (2) and resonator assembly.

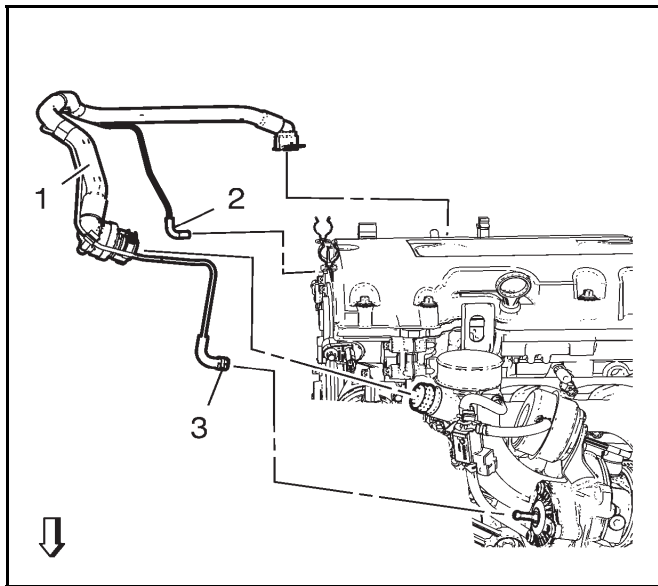
Caution: DO NOT remove the vacuum hose from the vehicle unless the vacuum hose shows apparent signs of damage. Part damage may occur when attempting to disconnect the vacuum hose.



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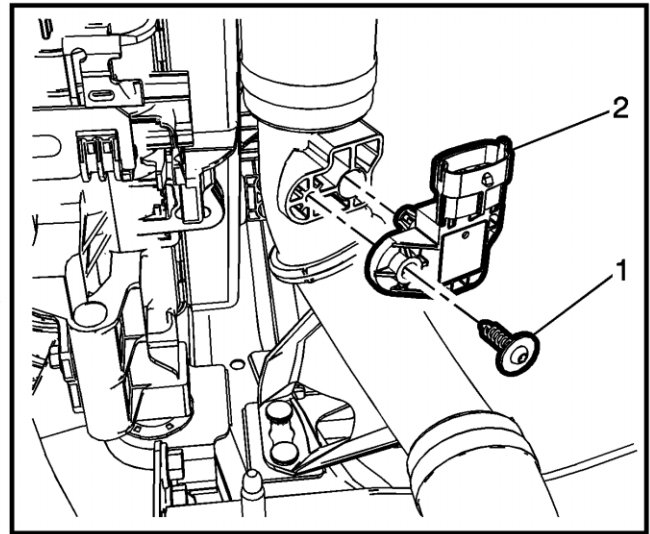
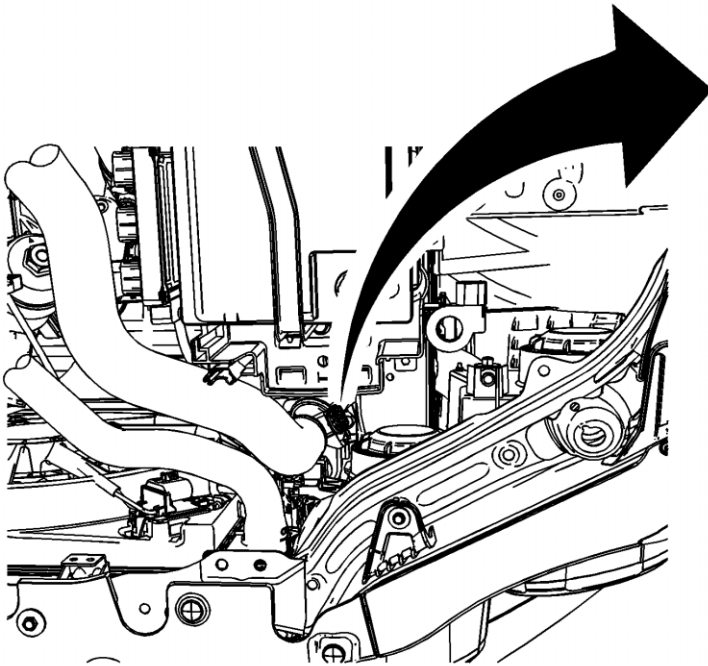
5. Using care, cut and remove the tape that secures the vacuum line to the Positive Crankcase Ventilation (PCV) hose/pipe/tube.

6. Remove and discard the PCV hose/pipe/tube (1) leaving the vacuum line. Refer to *Positive Crankcase Ventilation Hose/Pipe/Tube Replacement* in SI.



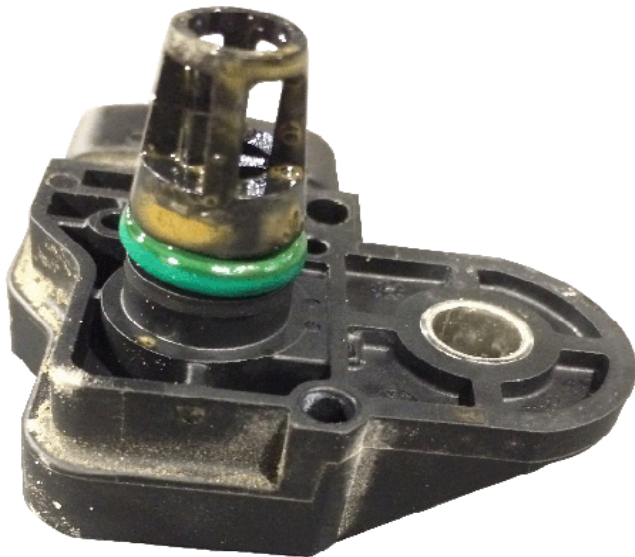
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Note: Original PCV pipe with vacuum line attached removed from vehicle for illustrative purposes **ONLY**.

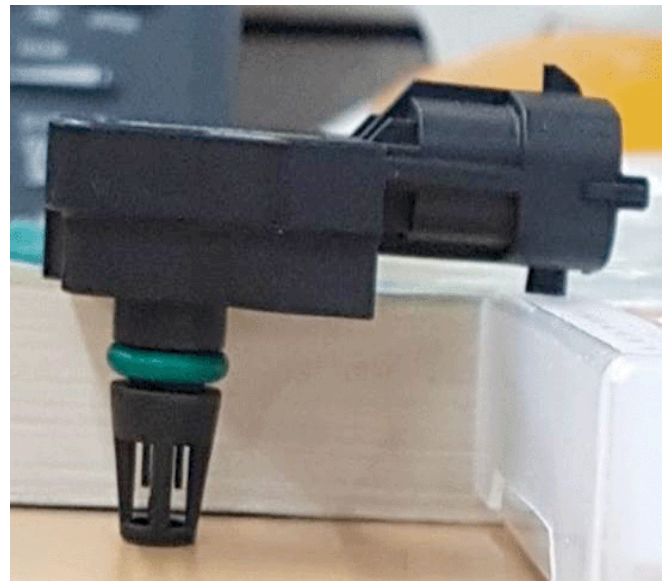


7. Remove the Intake Air Pressure and Temperature sensor (IAPT) (2). Refer to *Intake Air Pressure and Temperature Sensor Replacement* in SI.

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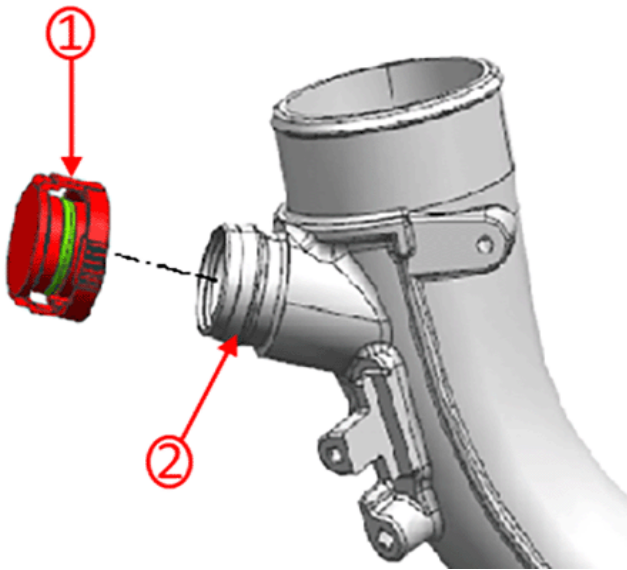


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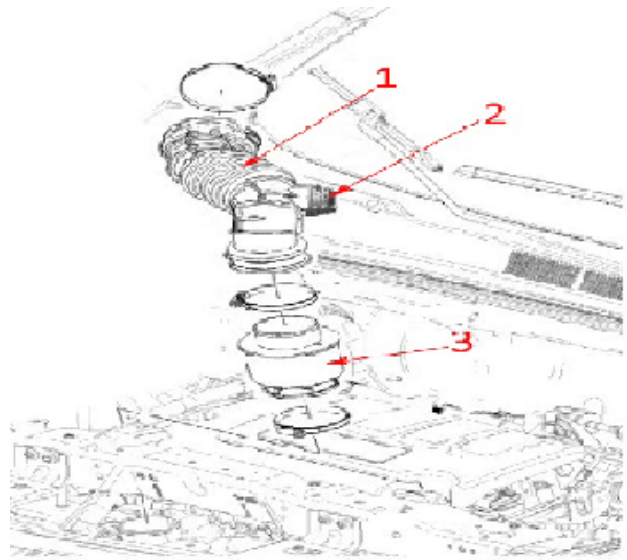
Important: Due to the sensitivity of the IAPT, **Do Not** use any chemical cleaners including water and **Do Not** use compressed air to remove contaminants.

8. Inspect the IAPT sensor for any contaminants.

- 9. Allow time for any ice build-up to melt by placing the sensor port down.
- 10. Clean the sensor with a clean towel.
- 11. Install the IAPT sensor.



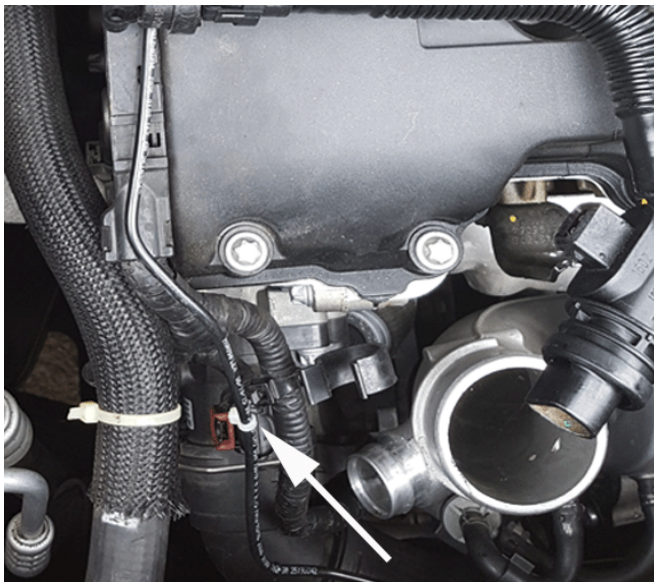
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12. Install the block off plug (1) onto the turbocharger bypass port (2).

14. Install the new air cleaner outlet duct (1) and air resonator (3) assembly.



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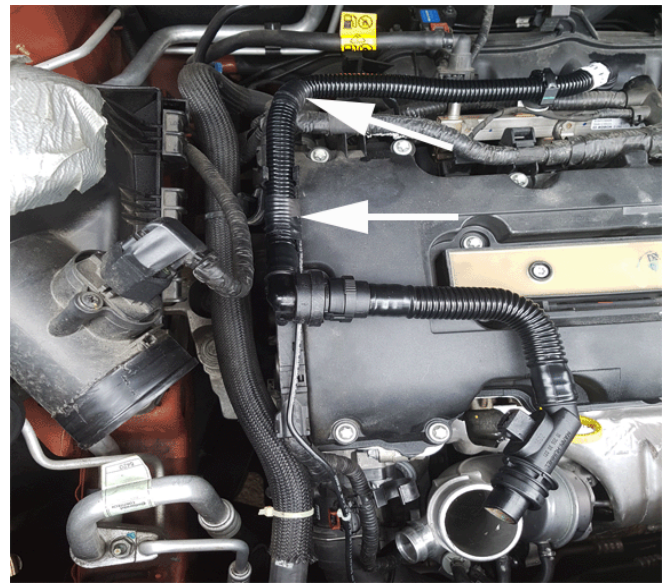
13. Using a tie strap, secure the vacuum line to the engine wiring harness.

15. Using care, cut and remove the tape securing the vacuum line to the NEW PCV pipe.

16. Remove the vacuum line from the PCV pipe assembly.

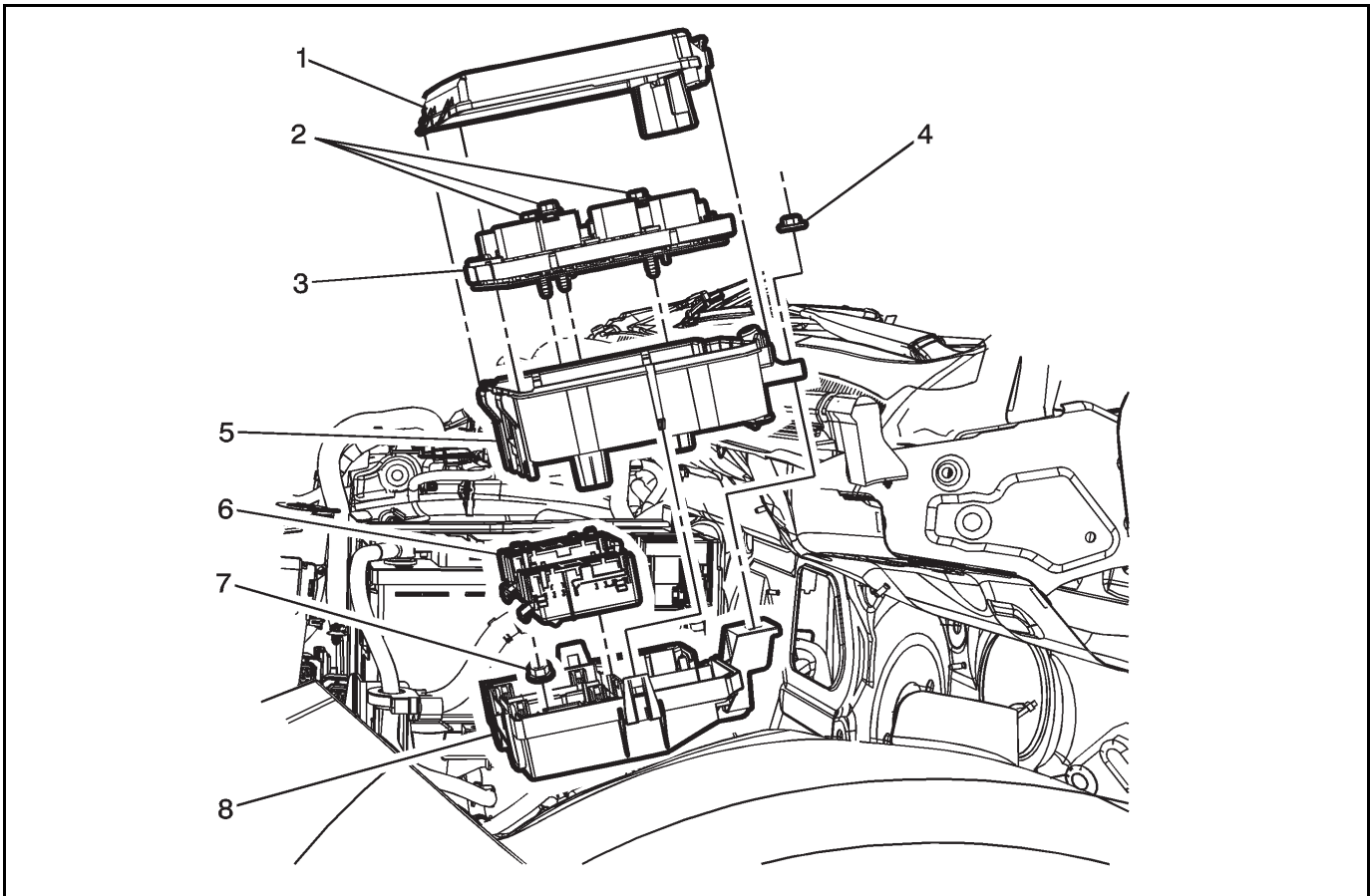
17. Install the new PCV pipe assembly.

18. Install the PCV heater into air cleaner outlet duct (2).



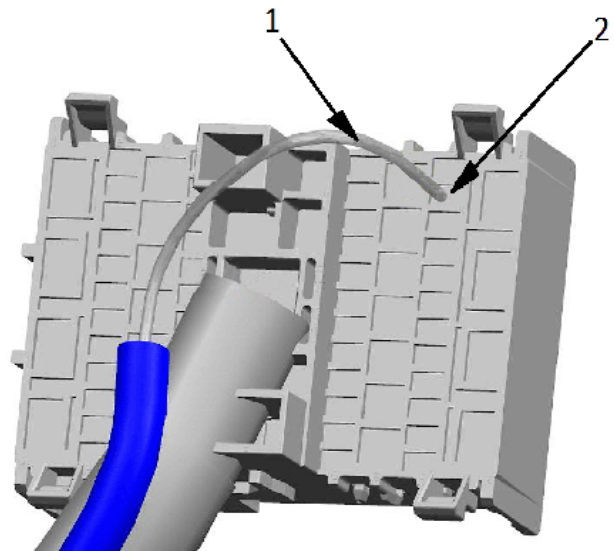
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19. Using Woven Polyester Electrical Tape (PET), secure the vacuum line to the PCV pipe.



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20. Remove the fuse block cover (1).
21. Remove the nut (4) that secures the upper fuse block to the body.
22. Loosen the three upper connector bolts (2).
23. Separate the upper (5) fuse block assembly from the fuse block base (8) by releasing the snap locks. Refer to *Front Compartment Fuse Block Replacement* in SI.
24. Route the PCV wiring harness under the battery tray.



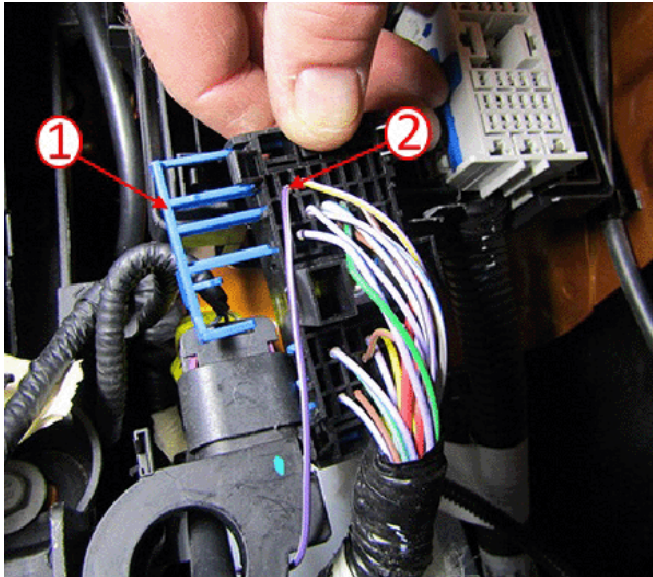
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25. **For 2013-2016 model vehicles:**
 - 25.1. Remove UEX_X2 connector from the fuse block base.
 - 25.2. Remove connector cover.

25.3. Install PCV heater wiring harness terminal (1) into the J11 cavity (2).

⇒ Refer to X50A Fuse Block - Underhood X2 (Doc ID 4752878) in SI.

25.4. Route the wiring harness between the battery and fuse block.



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26. For 2017-2018 model vehicles:

26.1. Remove the UEX_X3 connector from the fuse block base.

26.2. Remove the connector cover.

26.3. Remove connector lock (1).

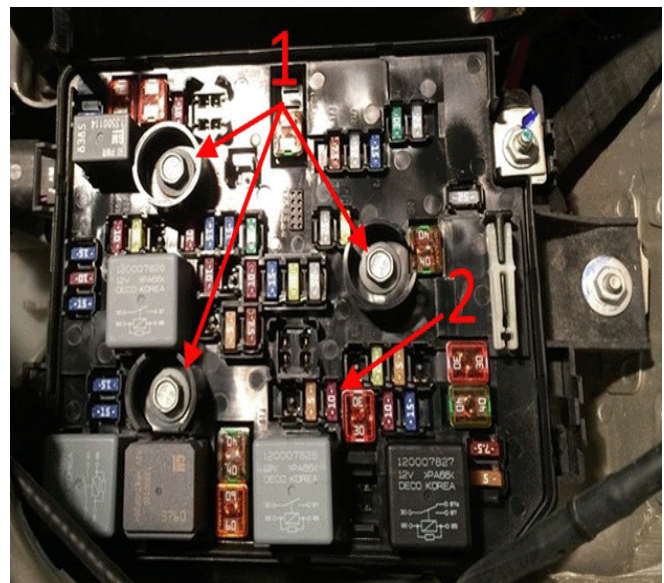
26.4. Install PCV heater wiring harness terminal into the H6 cavity (2).

⇒ Refer to X50A Fuse Block - Underhood X3 (Doc ID 4752879) in SI.

27. Using tie straps, fasten the PCV wiring harness to the connectors wiring harness at the white tape indicators.

28. Install the connector back onto the fuse block base.

Important: Only replace the fuse and install the labels on vehicles that have a 5 amp fuse. Some vehicles have the 10 amp fuse already installed and do not require replacement or the label.



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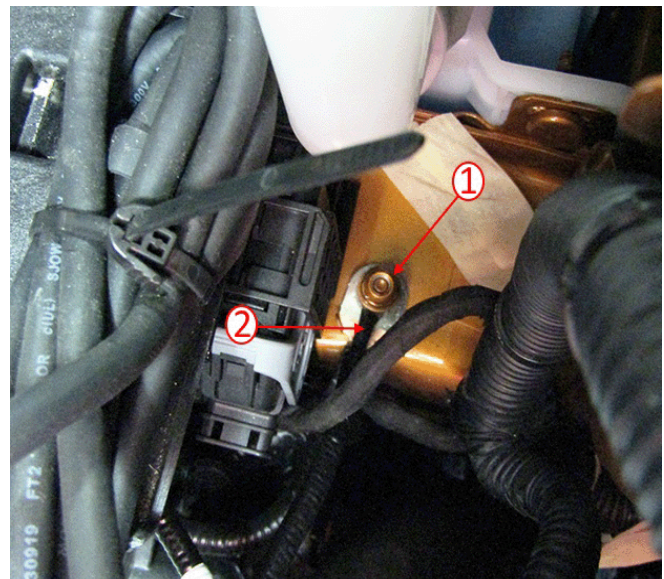
29. Position and snap the upper fuse block onto the base.

Tighten

Tighten the bolts (1) to specifications. Refer to *Fastener Specifications* in SI.

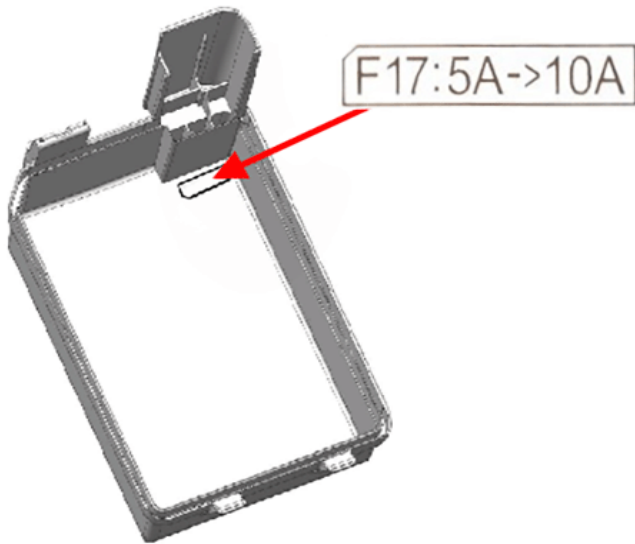
30. If necessary, replace the 5 amp fuse with a 10 amp fuse into cavity F17 (2).

31. Install the front compartment fuse block cover.



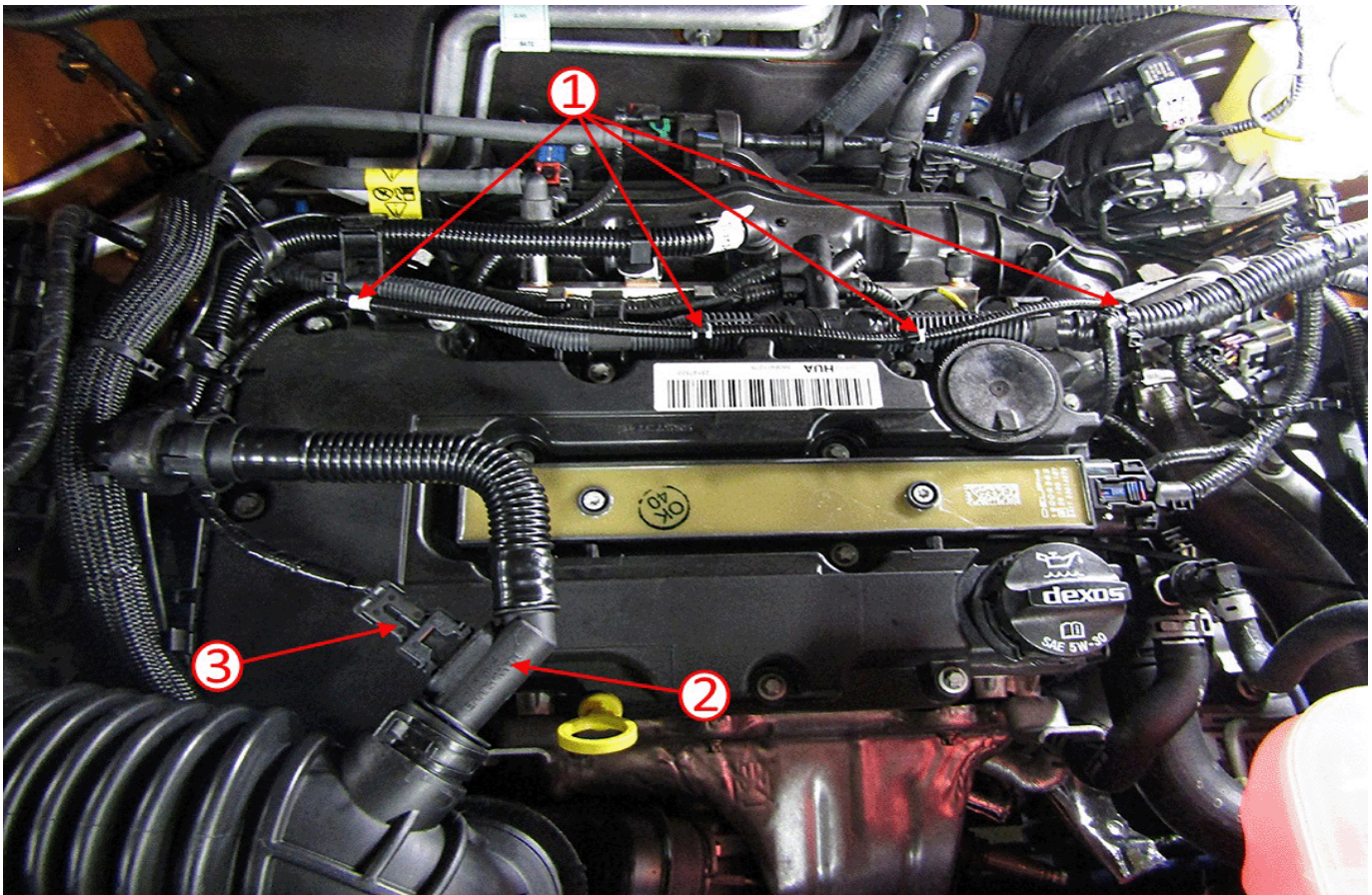
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32. Install the PCV heater wiring harness ground wire (2) to ground G103 (1).



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33. If necessary, install the UEC sticker onto the backside of the fuse block cover and in the owners manual under Engine Compartment Fuse Block.



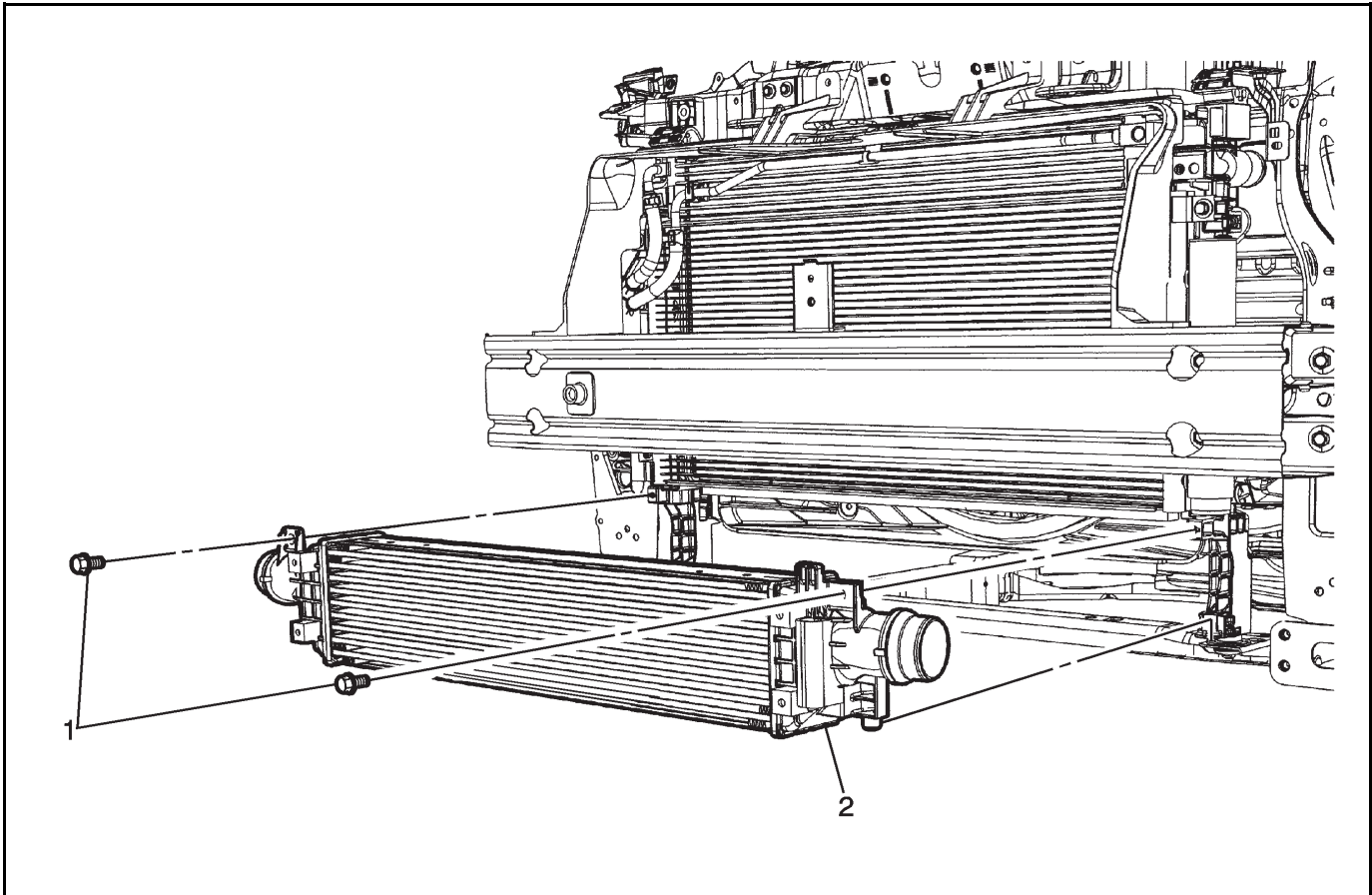
34. Route the PCV heater wiring harness across the engine wiring harness.
 35. Using the tie straps, fasten the wiring harness at the white marking points (1).
 36. Connect the electrical connector (3) to the PCV heater (2).

37. Install the battery.
 38. Install the engine cover.

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Important: Do Not perform an oil change if the vehicle is returning for the CAC update and/or if the oil change was recently done.

- If the oil change was recently done, proceed to step 40.
 - If the oil change was not previously done, proceed with procedure.
39. If required, perform an oil change. Refer to *Engine Oil and Oil Filter Replacement* in SI.
40. If installed, remove and discard the fascia blocker.



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41. Remove the CAC (2). Refer to *Charge Air Cooler Replacement* in SI.
42. Install the modified CAC.

Parts Information

Description	Model Year	Part Number	Qty
Kit, PCV Heater	2013-2016	25198125	1
Kit, PCV Heater	2017-2018 Encore/Trax built prior to February 19, 2018 (VIN pos 1 = K) 2017-2018 Trax built prior to March 12, 2018 (VIN pos 1 = 3)	25198126	1

Description	Model Year	Part Number	Qty
Cooler, Charge Air	2013-2018 Encore/Trax built prior to February 19, 2018 (VIN pos 1 = K)	42574031	1
	2013-2018 Trax built prior to March 12, 2018 (VIN pos 1 = 3)	42582747	1
Cover, Grille Winter	2013-2016 Trax &VK3 (with license plate bracket)	42697325	1
	2014-2016 Encore	42697326	1
	2017-2019 Trax	42697331	1
	2017-2019 Encore	42697332	1
	2013-2016 Trax -VK3 (without license plate bracket)	42702689	1
Filter, Oil	2013-2018	Refer to the Electronic Parts Catalog (EPC).	
Oil			

Warranty Information

Note: Only select the Labor Operation that corresponds with the repair performed.

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
4081358*	Diagnostic System Check	0.3 hr
Add	PCV Heater, Wiring Harness Installation	1.0 hr
Add	IAPT Inspection and Cleaning	0.2 hr

Labor Operation	Description	Labor Time
Add	Engine Oil and Oil Filter Replacement	0.3 hr
0580398*	Winter Grille Cover Installation	0.2 hr
4022940	Charge Air Cooler Replacement	Use Published Labor Operation Time

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

Version	11
Modified	<p>December 23, 2016 – Added DTCs to the Condition and a Note to the Parts Information.</p> <p>January 5, 2017 – Removed Fascia Blocker information.</p> <p>January 18, 2017 – Added draining the CAC.</p> <p>September 7, 2017 – Added fascia blocker removal information and added CAC part numbers.</p> <p>December 5, 2017 – Added RPO LUV to Subject, added the 2018 Model Year, modified the Attention statement and added IAPT sensor information.</p> <p>February 2, 2018 – Removed thaw CAC information and added connector pinout reference.</p> <p>April 4, 2018 – Added the Intake Air Pressure and Temperature Sensor Inspection section, an Important statement above step 8 and additional steps 9 and 10 on how to care for the IAPT, repair breakpoints and updated Warranty Information.</p> <p>September 25, 2018 – Added first Important statement for thawing vehicle after the Correction, updated the second Important statement, removed fascia blocker information before step 40 and updated the Warranty Information.</p> <p>January 04, 2019 – Added Winter Cover information.</p> <p>January 23, 2019 – Updated the Model Year information for P/N 42702689 in Parts Information table.</p>

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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