



Service Bulletin

Bulletin No.: 18-NA-020

Date: April, 2020

TECHNICAL

Subject: Malfunction Indicator Lamp Illuminated with DTC P0300 and/or P0299/P2227 Set

This Bulletin replaces PIP5511A. Please discard PIP5511A.

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:		
		from	to	from	to				
Buick	Envision	2016	2020	-	-	Equipped with 2.0L Engine (RPO LTG)	All		
Chevrolet	Equinox	2018							Equipped with 2.0L or 1.5L Engine (RPOs LTG, LYX)
GMC	Terrain								

Involved Region or Country	U.S. and Canada
Condition	Some customers may comment on a malfunction indicator lamp illuminated. During diagnosis, a technician may find DTC P0299, P2227, or P0300 set/stored.
Cause	This condition may be caused by a moisture build up inside the charge air cooler. Long drives through rainy conditions and/or high humidity conditions (heavy fog) can cause moisture to collect in the charge air cooler. A heavy acceleration can draw moisture into the engine causing DTC P0300. In cold temperatures, ambient and PCV moisture can freeze in the charge air cooler, restricting flow, and causing DTC P0299 and/or P2227.
Correction	Perform a smoke leak test of the charge air cooler, then follow the repair steps in the appropriate Service Procedure below, depending on the build date and vehicle outside temperature experience. Note: Charge Air Cooler Shutter is only to be used in northern states or provinces where temperatures are consistently 20°F/-7°C or less in the winter. Note: In rare cases where the addition of a charge air cooler shutter doesn't prevent CAC freezing, install the lower portion of the soft grill cover. Remove cover from the grill when temperatures are consistently above 20F/-7C.

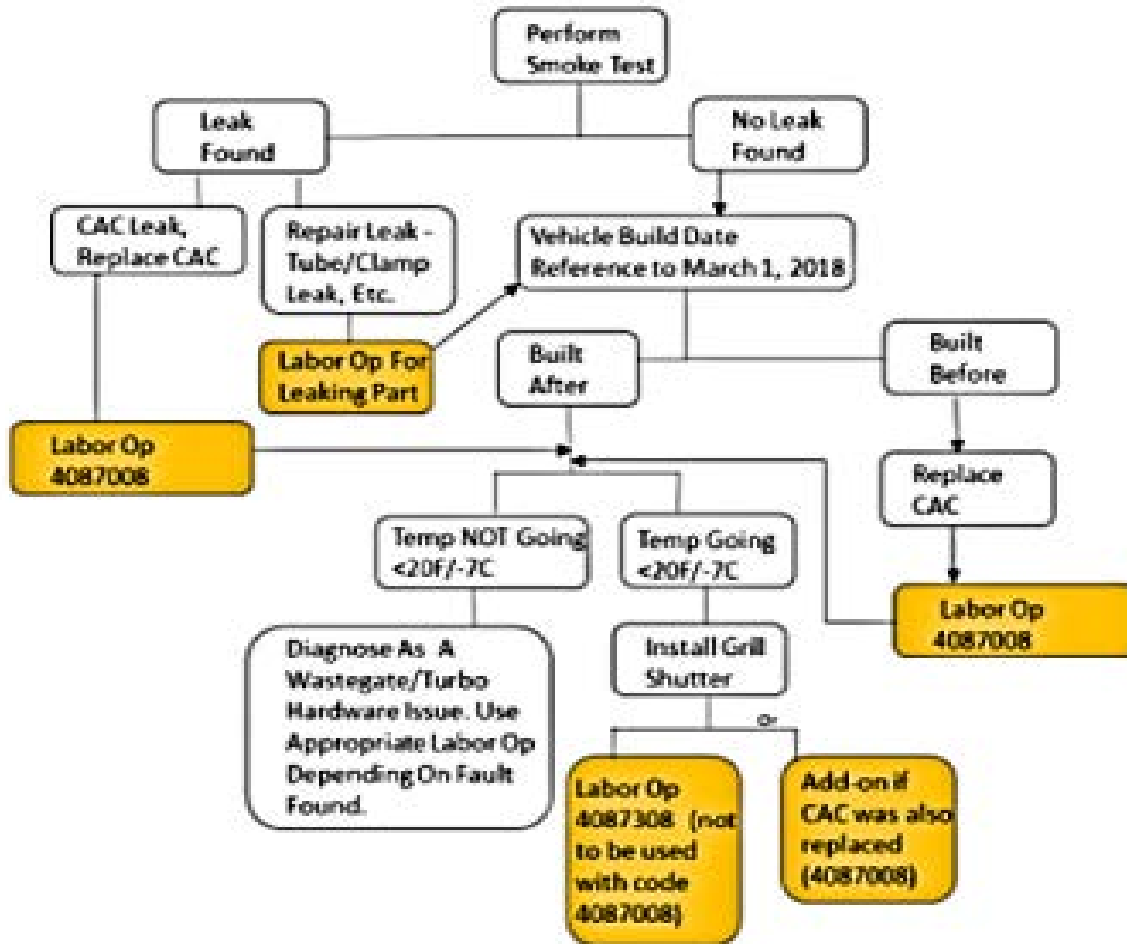
Note: DO NOT use the grill cover when towing, mountainous and/or during very hot ambient temperatures 86F/30C.

If a customer comes in to have the mastic removed from the charge air cooler, install the new shutter at that time, and use the shutter installation labor time.

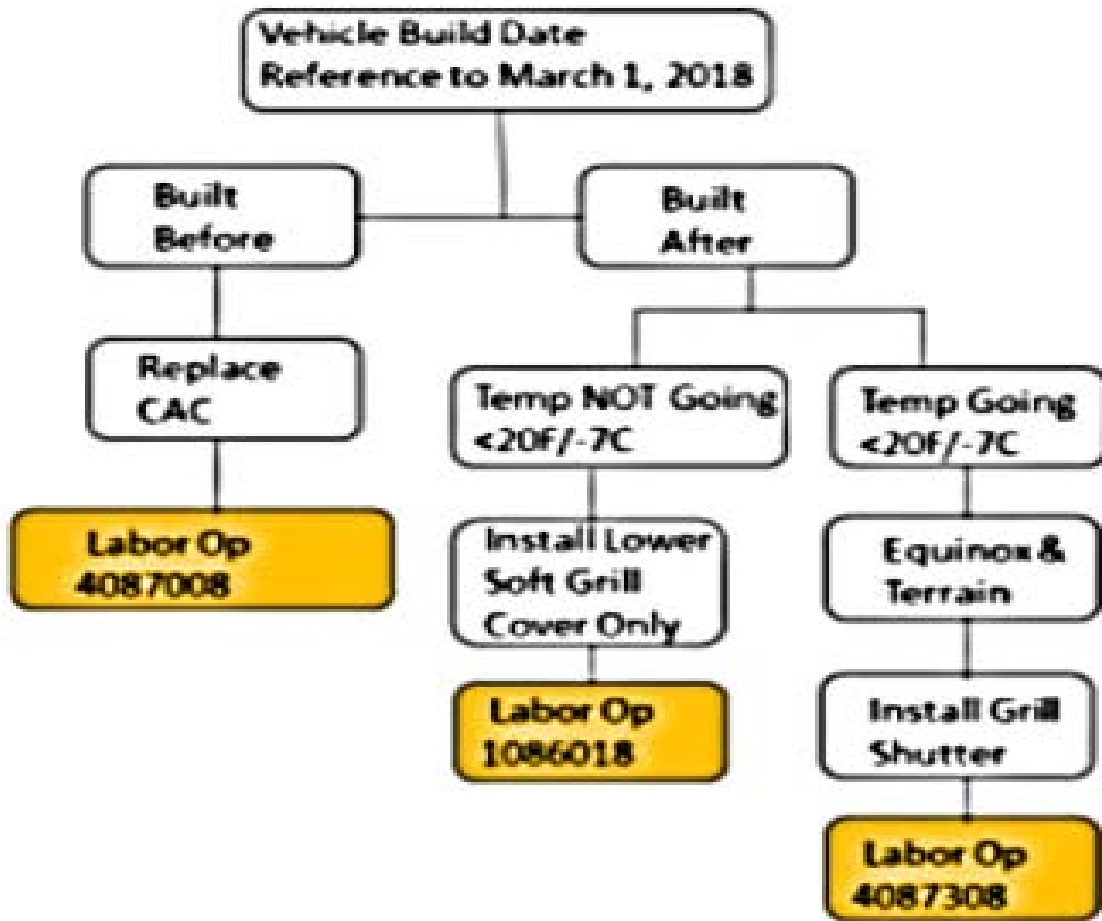
Note: If the charge air cooler is frozen and/or contaminated, remove and wash it out. Use the add-on labor operation.

Flow Chart Based on Conditions

DTC P0299 (with or without P2227) Equinox and Terrain



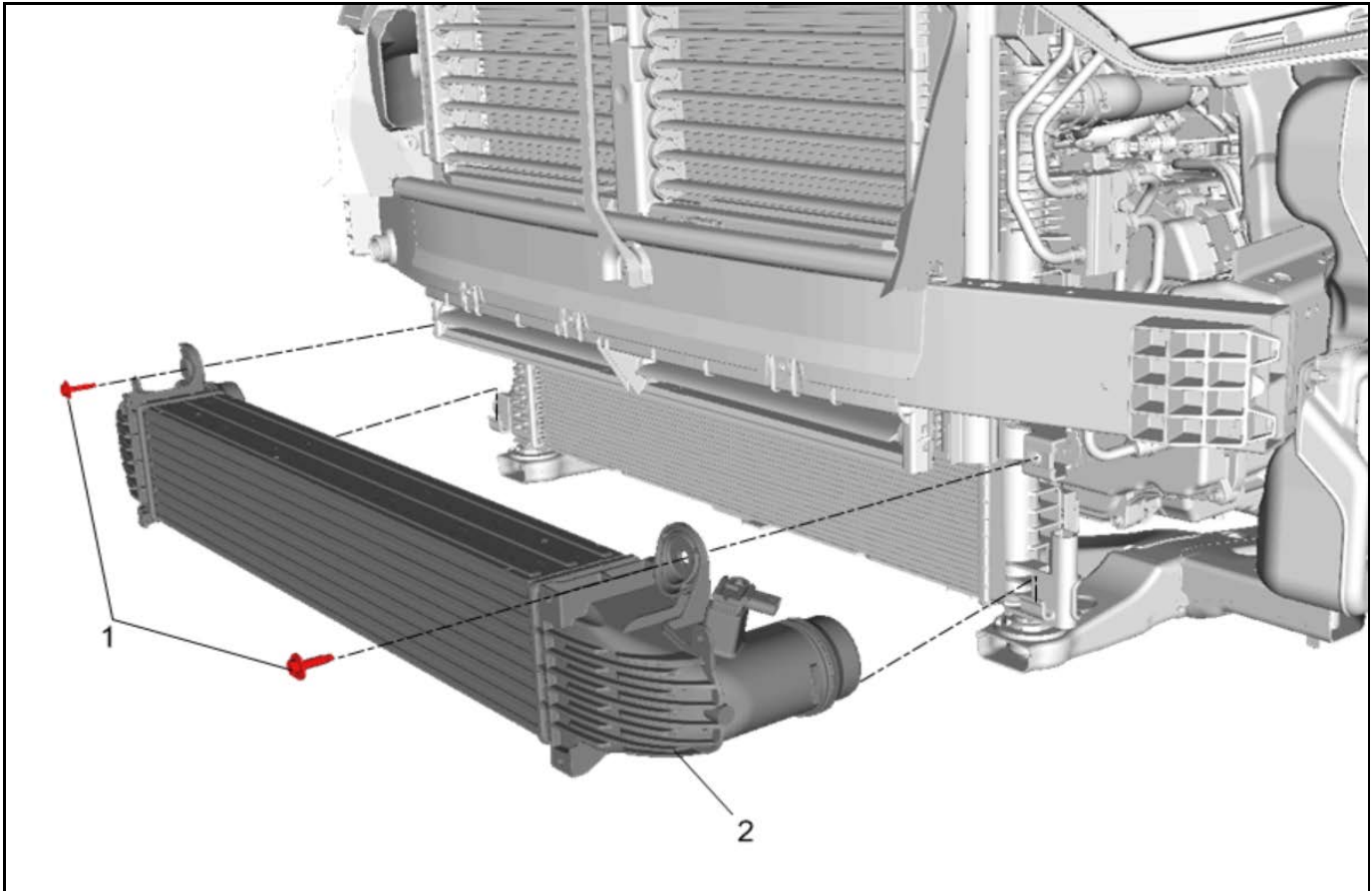
P0300



Service Procedure Equinox, Terrain

Important: For the 2.0L engine **ONLY**, remove the boost sensor from the intake charge pipe to the throttle body and wipe with a clean rag to remove residual moisture. The added shutter is activated to close and open based on temperature.

1. Perform a smoke leak test of the charge air cooler.



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- If a leak is determined, replace the charge air cooler with the newly designed part. Refer to *Charge Air Cooler Replacement* in SI.
- If there is NO leak, but a P0300, P0299 and/or P2227 are present, **AND the vehicle was built ON or BEFORE March 1, 2018**, then replace the charge air cooler with the newly designed part. Refer to *Charge Air Cooler Replacement* in SI.
- If there is NO leak, but a P0300, P0299 and/or P2227 are present, **AND the vehicle was built AFTER March 1, 2018**, refer to SI for further diagnosis.

Important: **DO NOT** replace the CAC ducts as part of this repair unless there is evidence of damage and/or a leak from the CAC ducts.

Important: In warmer climates with high humidity, P0300 may be set during extended highway driving due to the condensation of moisture in the charge air cooler. Installing the lower portion of the soft grill cover will help

prevent this occurrence. The customer should remove the cover for non-highway driving or when pulling a trailer.

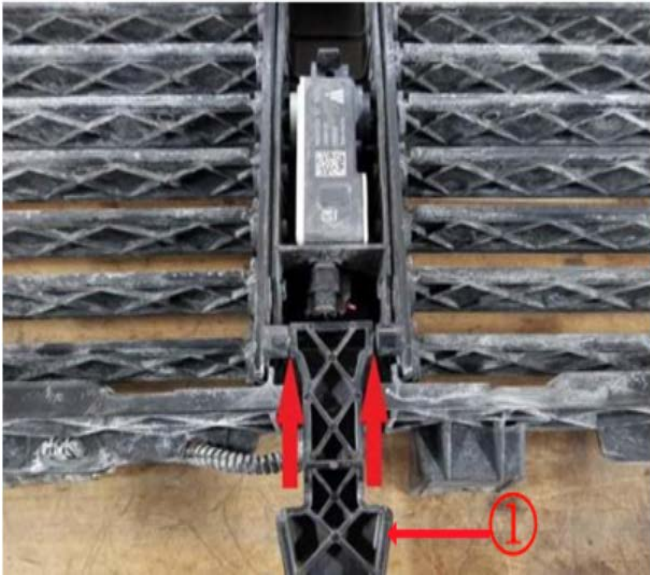
Service Procedure Equinox, Terrain

If the charge air cooler is icing in colder weather conditions, even after using the grill covers, **OR** the temperature is expected to be consistently below 20°F/-7°C, install a shutter in front of the Charge Air Cooler, following the steps listed below.

Important: Grill covers cannot be used once the Charge Air Cooler shutter is installed.

Important: The Charge Air Cooler shutter is a permanently installed item. The added shutter is activated to close and open, based on a temperature controlled integral thermostatic spring.

1. Remove the front bumper shutter. Refer to *Front Bumper Shutter Replacement* in SI.
2. Remove and discard the front bumper secondary (lower) shutter assembly. Refer to *Front Bumper Secondary Shutter Replacement* in SI.



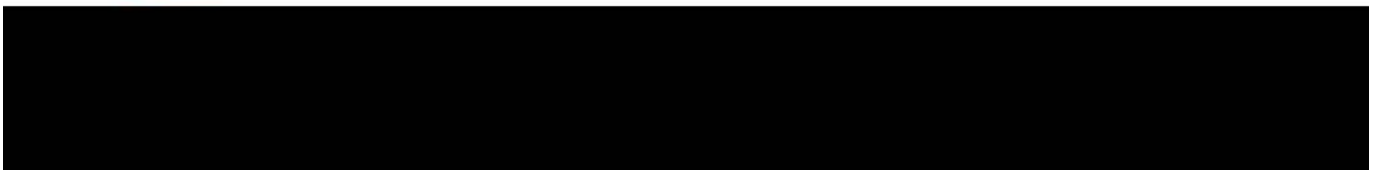
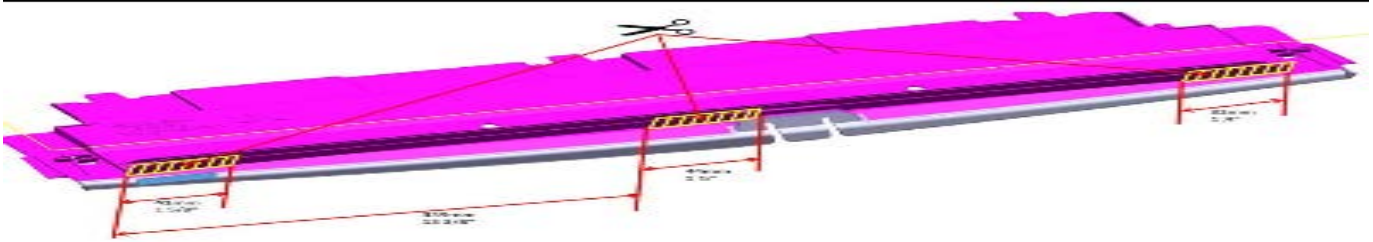
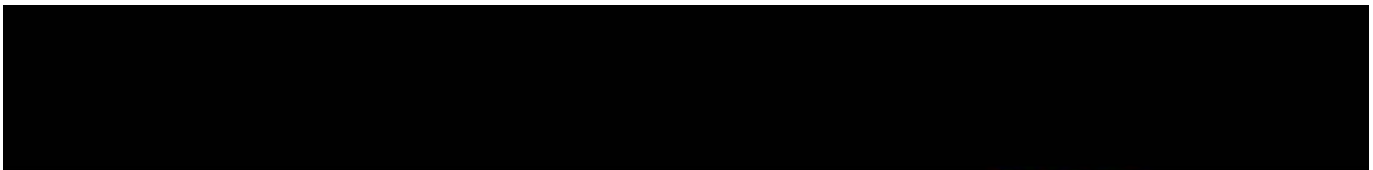
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3. On the back of the upper shutter using a saw blade, cut the upper shutter to lower shutter actuator at the pivot location, as shown in the photo above, and remove the linkage (1) and discard.

Note: The secondary (lower) shutter assembly will **NOT** need to be reinstalled in the future.

4. Reinstall the upper shutter.
5. Remove the radiator air lower baffle retainers and baffle. Refer to *Radiator Air Lower Baffle Replacement* in SI.

Note: Steps 6 - 9 listed below are for Equinox vehicles **ONLY**.

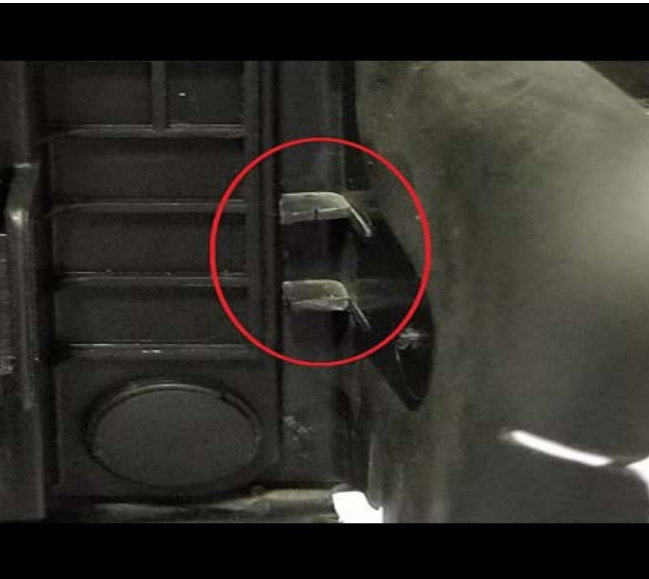


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6. Use a utility knife to cut out the front lip in 3 sections of the radiator air lower baffle, as shown in the pictures above.



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7. Use a utility knife to trim the ribs on the let and right sides of the side baffle, in order to provide clearance for the new shutter, as shown in the picture above



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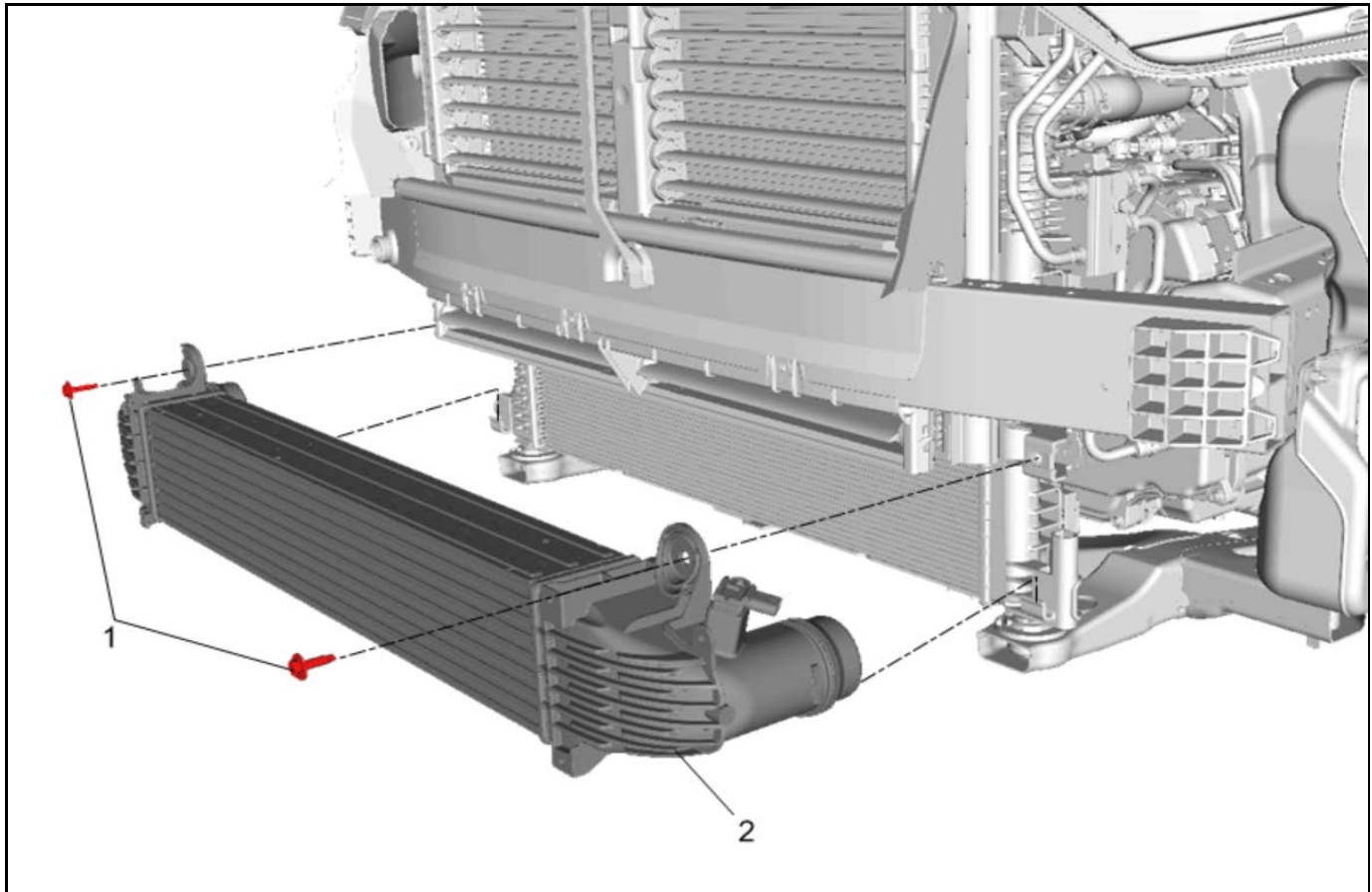
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8. Locate the shutter in front of the air lower baffle, and install the new retainers that come with the new shutter for the Equinox (1) and Terrain (2), as shown in the pictures above.
9. Reinstall the front bumper shutter.

Service Procedure Envision ONLY

Important: Remove the boost sensor from the intake charge pipe to the throttle body and wipe with a clean rag to remove residual moisture.

1. Perform a smoke leak test of the charge air cooler.



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Important: The newly designed charge air cooler is wider and is **NOT** compatible with the existing lower baffle on the vehicle. The baffle will need to be replaced to accommodate the larger charge air cooler.

- If a leak is determined, replace the charge air cooler with the newly designed part. Refer to *Charge Air Cooler Replacement* in SI.
- If there is NO leak, but a P0300, P0299 and/or P2227 are present, **AND the vehicle was built ON or BEFORE January 5, 2019**, then replace the charge air cooler with the newly designed part. Refer to *Charge Air Cooler Replacement* in SI.
- If there is NO leak, but a P0300, P0299 and/or P2227 are present, **AND the vehicle was built AFTER January 5, 2019**, refer to SI for further diagnosis.

Parts Information

Important: For Equinox and Terrain **ONLY:** The vehicles may not show an E48 RPO code, so use the other RPO identifiers to select the correct cover.

Causal Part	Description	Part Number	RPO
X	Charge Air Cooler	84454110	LYX
		84454111	LTG
		84634949 (Envision)	

Causal Part	Description	Part Number	RPO
NA*	COVER PKG-FRT GRL OPG	84624274 (Equinox)	Without WBL or WFP
		84624275 (Equinox with Redline/Sport)	With WBL or WFP
			Without VK3

Causal Part	Description	Part Number	RPO
		84630081 (Terrain without front license plate bracket)	With VK3
		84648360 (Terrain with front license plate bracket)	
	BAFFLE, RAD AIR LWR	23350091 (Envision ONLY)	-
	SHUTTER KIT - FRT BPR LWR	84812681 (Equinox)	LTG, LYX
		84826590 (Terrain)	

Labor Operation	Description	Labor Time
4087008*	Perform Smoke Test for Charge Air Cooler and Charge Air Cooler Replacement	2.3 hrs. (Envision)
		2.3 hrs. (Equinox RPO LTG)
		2.4 hrs. (Equinox RPO LYX)
		2.6 hrs. (Terrain RPO LTG)
		2.4 hrs (Terrain RPO LYX)
Add	Install Shutter Cover if also Replacing Charge Air Cooler	0.2 hrs (Equinox, Terrain)
1086018*	Perform Smoke Test and Install Charge Air Cooler Grille Cover	0.6 hrs. (Equinox)
		0.5 hrs. (Terrain)
4087308*	Perform Smoke Test for Charge Air Cooler and Install Shutter Cover	1.3 hrs. (Equinox, Terrain)
Add	Removing and Cleaning Charge Air Cooler if Frozen and/or Contaminated	1.0 hrs. (Equinox, Terrain)
*This is a unique Labor Operation for Bulletin use only.		

*For warranty transactions, **DO NOT** mark this/these parts as the Causal Part. Enter the word "Bulletin" in the Causal Part Description free-flow text field.

Warranty Information

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.

Version	12
Modified	<p>Released January 22, 2018</p> <p>Revised July 26, 2018 – Added Holden Equinox Model.</p> <p>Revised October 19, 2018 – Updated the Cause and Correction.</p> <p>Revised December 21, 2018 – Updated Additional Options, Correction, Parts Information and Warranty Information.</p> <p>Revised January 09, 2019 – Updated the Parts Information.</p> <p>Revised February 19, 2019 – Added Envision also updated the Condition, Parts Information and Warranty Information.</p> <p>Revised March 19, 2019 – Updated the Service Procedure and Warranty Information for Equinox/Terrain.</p> <p>Revised May 15, 2019 – Updated the Warranty Information and adding flow chart.</p> <p>Revised November 05, 2019 – Updated the Warranty Information.</p> <p>Revised December 17, 2019 – Added 2020 Model Year.</p> <p>Revised February 21, 2020 – Updated pictures for flow charts, also updated applicable information within the bulletin including the Service Procedure Equinox/Terrain also Part and Warranty Information.</p> <p>Revised April 07, 2020 – Updated information for the following: Correction, Service Procedure (Equinox/Terrain) and Warranty Information.</p>

