



Service Bulletin

Bulletin No.: 22-NA-002

Date: February, 2022

INFORMATION

Subject: Malfunction Indicator Lamp Illuminated with DTCs P0299/P0234 Set During Cold or Freezing Temperatures

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Chevrolet	Equinox	2018	2022	—	—	Equipped with 1.5L Engine (RPO LYX)	All
GMC	Terrain						

Involved Region or Country	U.S. and Canada
Condition	<p>Some customers may comment on a Malfunction Indicator Lamp illuminated or a reduced power complaint.</p> <p>Technicians may find the following DTCs set/stored.</p> <ul style="list-style-type: none"> • P0234 – Engine Underboost • P0299 – Engine Underboost
Cause	<p>This condition may be caused by a moisture build up inside the charge air cooler (CAC). This condition is more likely on the smaller displacement engines where an air-to-air charge air cooler is used.</p> <ul style="list-style-type: none"> – In cold temperatures, ambient and PCV moisture can freeze in the charge air cooler, restricting flow, and causing DTC P0299 and/or P0234.
Correction	<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 contaminant in the Turbocharger Wastegate Regulator Solenoid Valve (TCV) is often concurrent with vehicle operating conditions that cause CAC freezing. If either DTC P0234 or P0299 is set, refer to PIP5812C for Turbocharger Wastegate Regulator Solenoid Valve Inspection. Cleaning or replacing the TCV solenoid should be performed in addition to CAC protection measures specified in this bulletin. <p>Note: The Engine Control Module calibration should be updated. The new calibration will enable a revised transmission shift pattern during cold weather operation, which does not use overdrive as frequently. As a result, <i>some customers</i> may notice elevated engine RPMs during highway operation. This operating mode will reduce the potential for ice to build up inside the charge air cooler, and the potential for setting P0299 or P0234 diagnostic codes.</p> <p>The customer must be <i>informed</i> by dealership personnel by explaining the new engine control module calibration and its <i>effects</i> on transmission shift patterns at highway speeds during cold weather to avoid a customer return to the dealership after the programming is completed.</p> <p>Note: For additional DTC P0300 and/or P0299/P2227 corrections for 2018-2021, refer to bulletin 18-NA-020. 2022 models will be added once parts are available.</p>

Engine Control Module Programming

Important: Updated Engine Control Module calibration: The updated calibration will enable a revised transmission shift pattern during cold weather operation which does not use overdrive as frequently. As a result, the customer may notice elevated engine RPMs during highway operation. This operating mode will reduce the potential for ice to build up inside the charge air cooler, and the potential for setting P0299 or P0234 diagnostic codes.

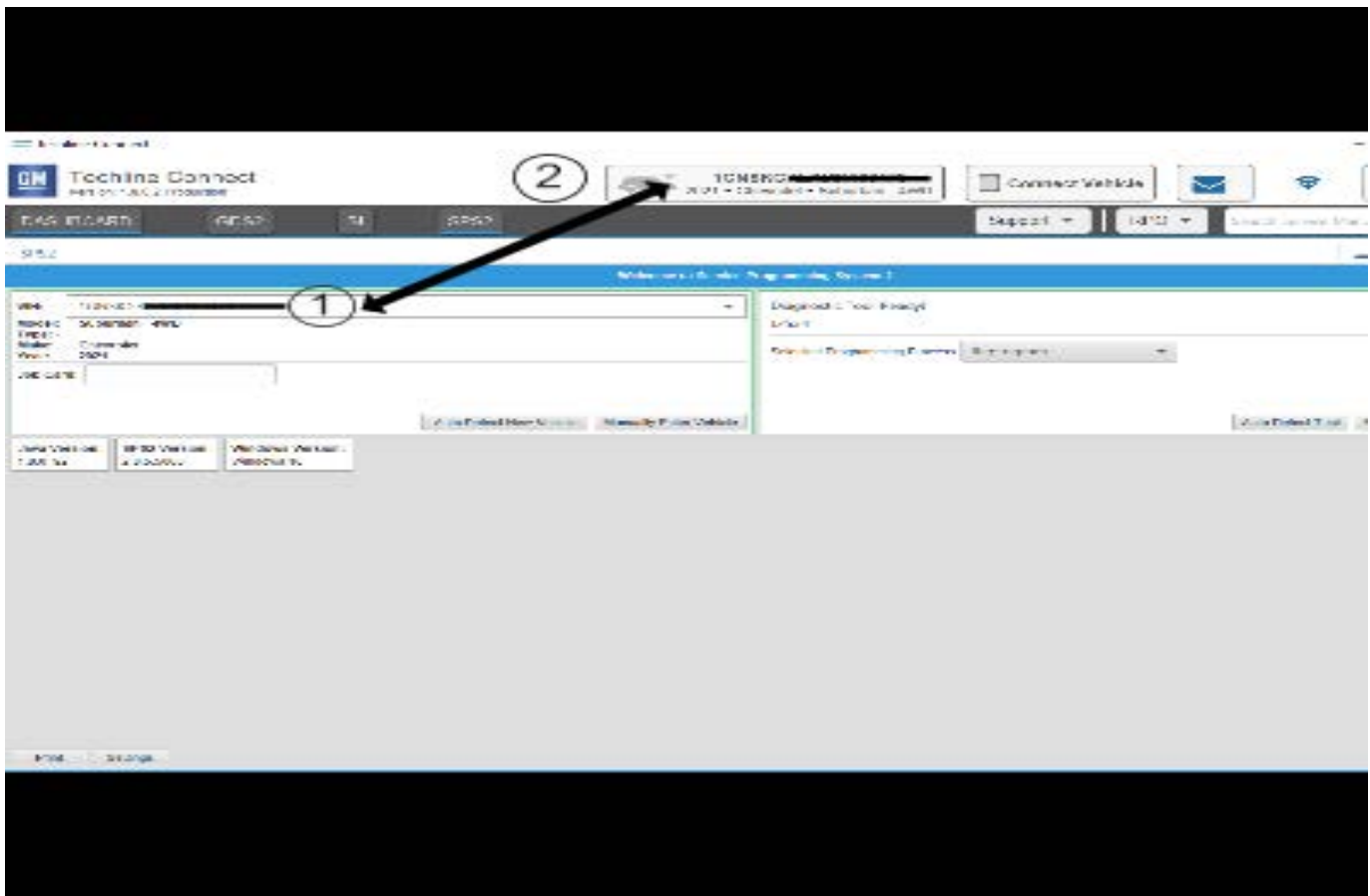
Caution: Before downloading the update files, be sure the computer is connected to the internet through a network cable (hardwired). DO NOT DOWNLOAD or install the files wirelessly. If there is an interruption during programming, programming failure or control module damage may occur.

- Ensure the programming tool is equipped with the latest software and is securely connected to the data link connector. If there is an interruption during programming, programming failure or control module damage may occur.
- Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. Install a GM Authorized Programming Support Tool to maintain system voltage. Refer to www.gmdesolutions.com for further information. If not available, connect a fully charged 12V jumper or booster pack disconnected from the AC voltage supply. DO NOT connect a battery charger.
- Follow the on-screen prompts regarding ignition power mode, but ensure that anything that drains excessive power (exterior lights, HVAC blower motor, etc) is off.
- Please verify that the radio time and date are set correctly before inserting USB drive into vehicle for programming, otherwise an error will result.
- Clear DTCs after programming is complete. Clearing powertrain DTCs will set the Inspection/Maintenance (I/M) system status indicators to NO.

Important: The service technician always needs to verify that the VIN displayed in the TLC left side drop down menu and the top center window match the VIN plate of the vehicle to be programmed prior to using Service Programming System 2 (SPS2) for programming or reprogramming a module.

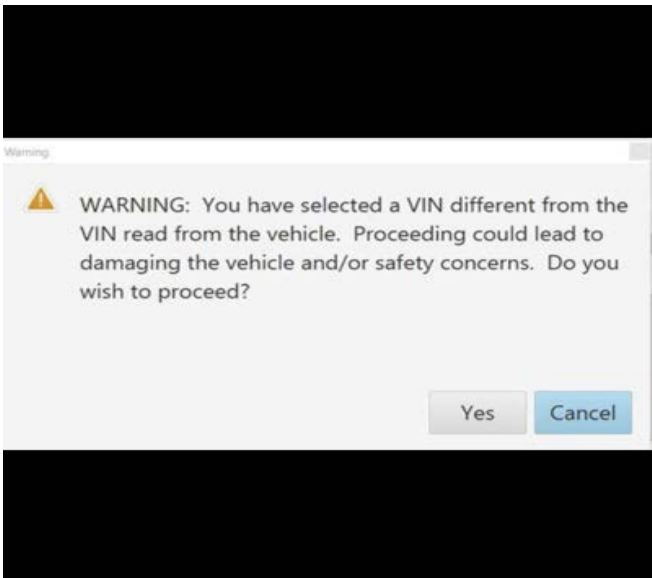
- For the TLC application, service technicians need to always ensure that the power mode (ignition) is "ON" before reading the VIN from the vehicle's VIN master module and that they do not select a VIN that is already in the TLC application memory from a previous vehicle.
- If the VIN that shows up in the TLC top center window after correctly reading the VIN from the vehicle does not match the VIN plate of the vehicle, manually type in the VIN characters from the vehicle VIN plate into the TLC top center window and use these for programming or reprogramming the subject module with the correct vehicle VIN and software and/or calibrations.
- The Engine Control Module (ECM) is the master module (for VIP vehicles) that TLC reads to determine the VIN of the vehicle. If the VIN read from the vehicle by TLC does not match the VIN plate of the vehicle, the ECM also needs to be reprogrammed with the correct VIN, software and calibrations that match the vehicle's VIN plate.
- The Body Control Module (BCM) is the master module (for GEM vehicles) that TLC reads to determine the VIN of the vehicle. If the VIN read from the vehicle by TLC does not match the VIN plate of the vehicle, the BCM also needs to be reprogrammed with the correct VIN, software and calibrations that match the vehicle's VIN plate.

Caution: Be sure the VIN selected in the drop down menu (1) is the same as the vehicle connected (2) before beginning programming.

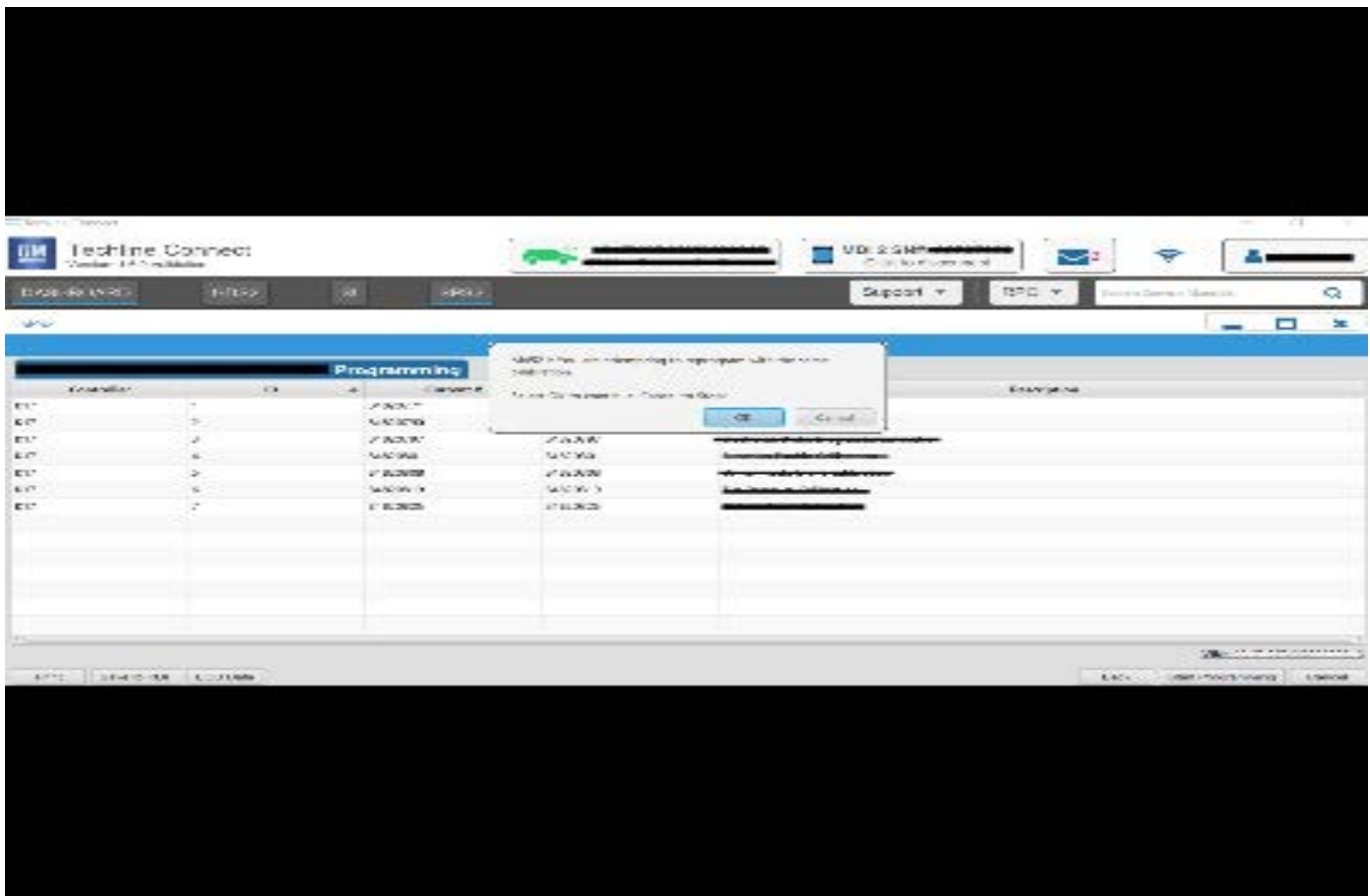


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Important: If the vehicle VIN DOES NOT match, the message below will be shown.



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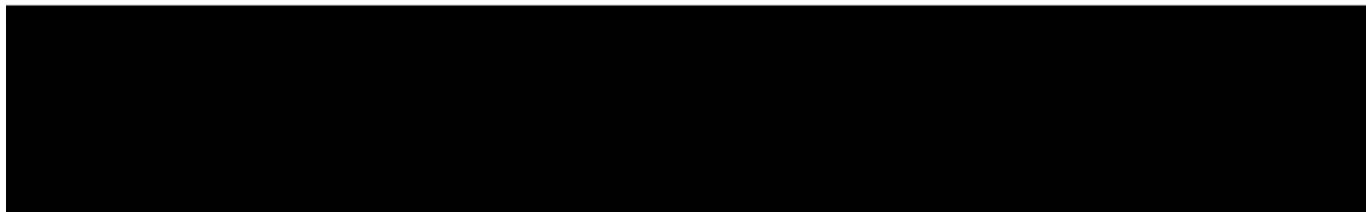


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Important: Techline Connect and TIS2WEB screens shown above.

Important: If the same calibration/software warning is noted on the TLC or SPS Summary screen, select OK and follow screen instructions. After a successful programming event, the WCC is located in the Service Programming System dialogue box of the SPS Summary screen. No further action is required. Refer to the Warranty Information section of this bulletin.

1. Reprogram the ECM. Refer to *K20 Engine Control Module Programming and Set up in SI*.



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Note: The screenshots above are an example of module programming and may not be indicative of the specific module that is being programmed. Module selection and VIN information have been blacked out.

Important: To avoid warranty transaction rejections, you **MUST** record the warranty claim code provided on the SPS Warranty Claim Code (WCC) screen shown above on the job card. Refer to callout 1 above for the location of the WCC on the SPS screen.

- Record the SPS Warranty Claim Code on the job card for warranty transaction submission.

The customer must be educated by dealership personnel by explaining the new engine control module calibration and its effect on transmission shift patterns at highway speeds during cold weather to avoid a customer return to the dealership after the programming is completed.

Warranty Information

Warranty coverage code E2 applies for this module programming event. ECM reprogramming is covered for 8 years/80,000 miles (U.S.) or 8 years/130,000 km (Canada).

Labor Operation	Description	Labor Time
2888438*	Engine Control Module Re-programming with SPS for P0299/P0234 Set During Cold or Freezing Temperatures	0.3 hrs.

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

Important: To avoid warranty transaction rejections, carefully read and follow the instructions below:

- The Warranty Claim Code must be accurately entered in the "SPS Warranty Claim Code" field of the transaction.
- When more than one Warranty Claim Code is generated for a programming event, it is required to document all Warranty Claim Codes in the "Correction" field on the job card. Dealers must also enter one of the codes in the "SPS Warranty Claim Code" field of the transaction, otherwise the transaction will reject. It is best practice to enter the FINAL code provided by SPS/SPS2.

Warranty Claim Code Information Retrieval

If the SPS Warranty Claim Code was not recorded on the Job Card, the code can be retrieved in the SPS system as follows:

1. Open TLC/TIS on the computer used to program the vehicle.
2. Select and start SPS/SPS2.
3. Select Settings.
4. Select the Warranty Claim Code tab.

The VIN, Warranty Claim Code and Date/Time will be listed on a roster of recent programming events. If the code is retrievable, dealers should resubmit the transaction making sure to include the code in the SPS Warranty Claim Code field.

Version	3
Modified	Released January 07, 2022 Revised January 13, 2022 - Removed LTG RPO from Engine, Add Reference to PIP581C in Correction section and Added ECM Programming section. Revised February 10, 2022 - Updated Labor Operation Number in Warranty Information section.

