



Service Bulletin

Bulletin No.: 21-NA-224

Date: November, 2022

TECHNICAL

Subject: Vehicle Will Not Charge and Hybrid Loss of Isolation with DTC P0AA6 and/or P1FFF, P1F0E, P0DAA

This bulletin replaces PIC5920J. Please discard PIC5920J.

Brand:	Model:	Model Year:		Build Date:		Engine:	Transmission:
		from	to	from	to		
Chevrolet	Volt	2011	2015	—	—	1.4L (LUU)	4ET50 Electric Drive Unit (MKA)
Cadillac	ELR	2014	2016				
Opel	Ampera	2011	2014				
Holden	Volt	2013	2014				

Involved Region or Country	North America, Europe, Australia/New Zealand
Condition	Some customers may comment that their vehicle will not charge. Customers may also comment that a Check Engine Lamp is illuminated. Technicians may find a current code P0AA6 and/or a P1F0E set on 2011-2013 Volt or a P0DAA on 2014 Chevy Volt, Opel Ampera or Cadillac ELR in the HPCM2.
Cause	The causes of the condition may be: <ul style="list-style-type: none"> 1. A loss of Hybrid/EV Battery Pack coolant (external or internal to the Hybrid/EV Battery Pack). 2. A loss of high voltage isolation within the battery cells or battery sections themselves.

Correction	<p>Locate the Isolation Test Resistance that is located in the HPCM 2 data list under HPCM 2 / Data Display / Data Display / Hybrid/EV Powertrain Control Module 2 Data and note the current value on the repair order.</p> <p>Also note the Isolation Resistance from the freeze frame records in the HPCM2 for the P0AA6, P1F0E, and/or P0DAA DTC.</p> <p>Inspect the Hybrid/EV Battery Pack coolant level by doing both of the following:</p> <ul style="list-style-type: none"> • Note if the coolant level is low in the underhood reservoir. • Remove the drain plug for the battery to see if any water/coolant drains out, indicating a coolant leak in the battery pack. <p>If necessary, refer to the <i>Hybrid/EV Battery Cooling System Diagnostic</i> in Service Information.</p> <p>Important: All P0AA6 failures must include an inspection of the Hybrid/EV Battery Pack drain plug, located on the battery tray, regardless of fluid level at the Hybrid/EV Battery Pack coolant reservoir. If any moisture is found during the drain plug inspection, contact the GM Technical Assistance Center (TAC).</p> <p>If the coolant level in the reservoir is at the proper level and there is no coolant or water drained from the battery from the drain plug inspection:</p> <p>2011–2015</p> <p>Program the HPCM2 (K114B) and the BECM K16 with the latest calibration. If DTC sets again, review freeze frame information again and follow SI diagnostics.</p> <p>2015–2016</p> <p>Please follow SI for the DTC that set after performing the coolant plug inspection.</p> <p>Important: If you have any moisture that is found in the battery during the drain plug inspection or the Isolation test resistance will not go above 275k Ohms after the HPCM2 and the BECM have been updated, please contact the Technical Assistance Center (TAC) for further direction.</p>
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Service Procedure

Important: Service agents must comply with all International, Federal, State, Provincial, and/or Local laws applicable to the activities it performs under this bulletin, including but not limited to handling, deploying, preparing, classifying, packaging, marking, labeling, and shipping dangerous goods. In the event of a conflict between the procedures set forth in this bulletin and the laws that apply to your dealership, you must follow those applicable laws.

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.
- Clear DTCs after programming is complete. Clearing powertrain DTCs will set the Inspection/Maintenance (I/M) system status indicators to NO.

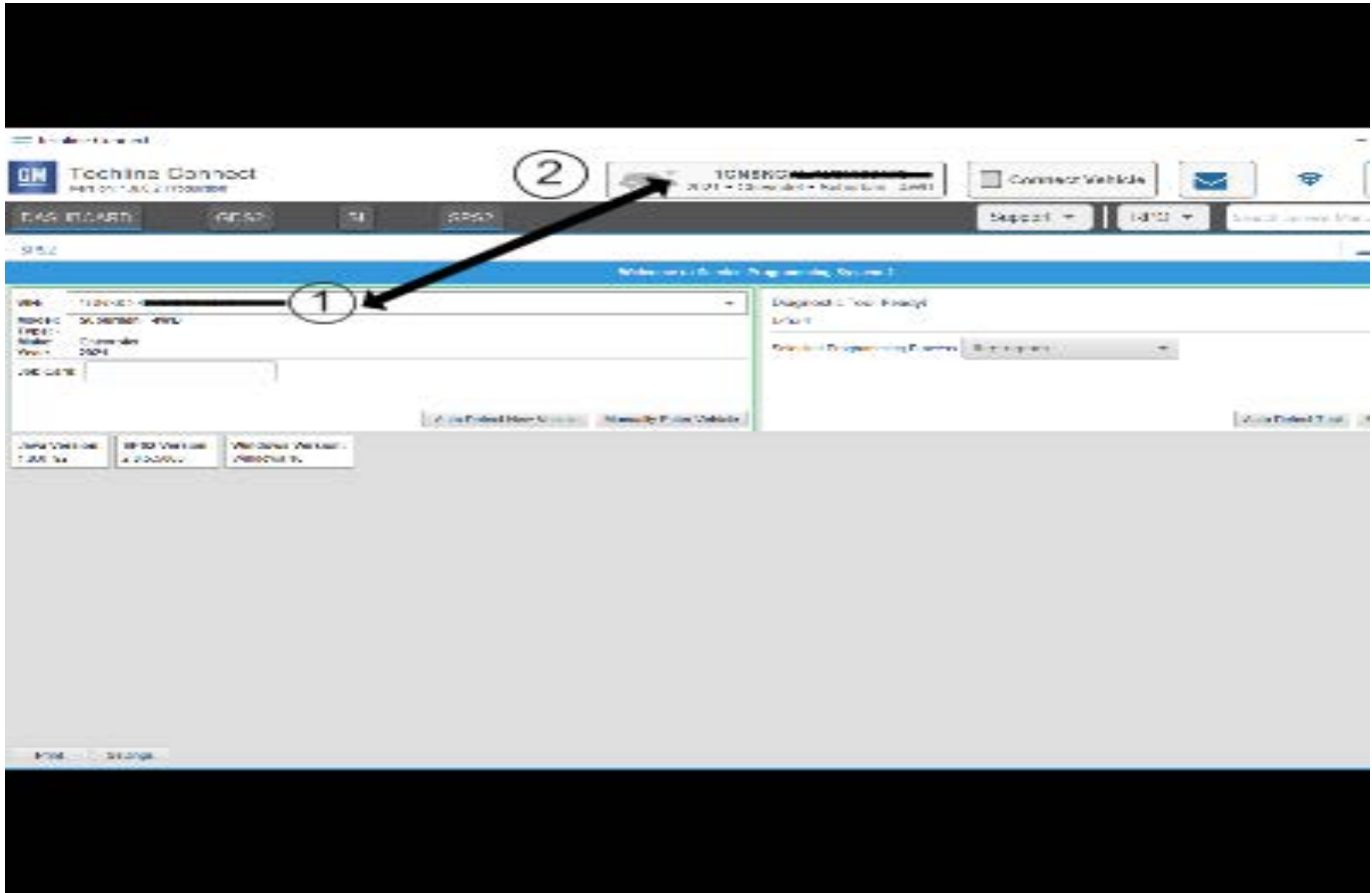
Important: The service technician always needs to verify that the VIN displayed in the TLC left side drop down menu and the top center window match the VIN plate of the vehicle to be programmed prior to using Service Programming System 2 (SPS2) for programming or reprogramming a module.

- 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

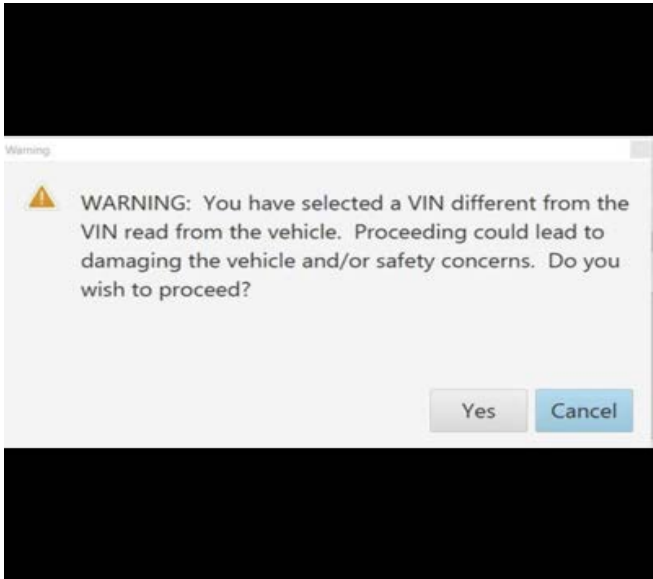
plate of the vehicle, the ECM also needs to be reprogrammed with the correct VIN, software and calibrations that match the vehicle's VIN plate.

- 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.

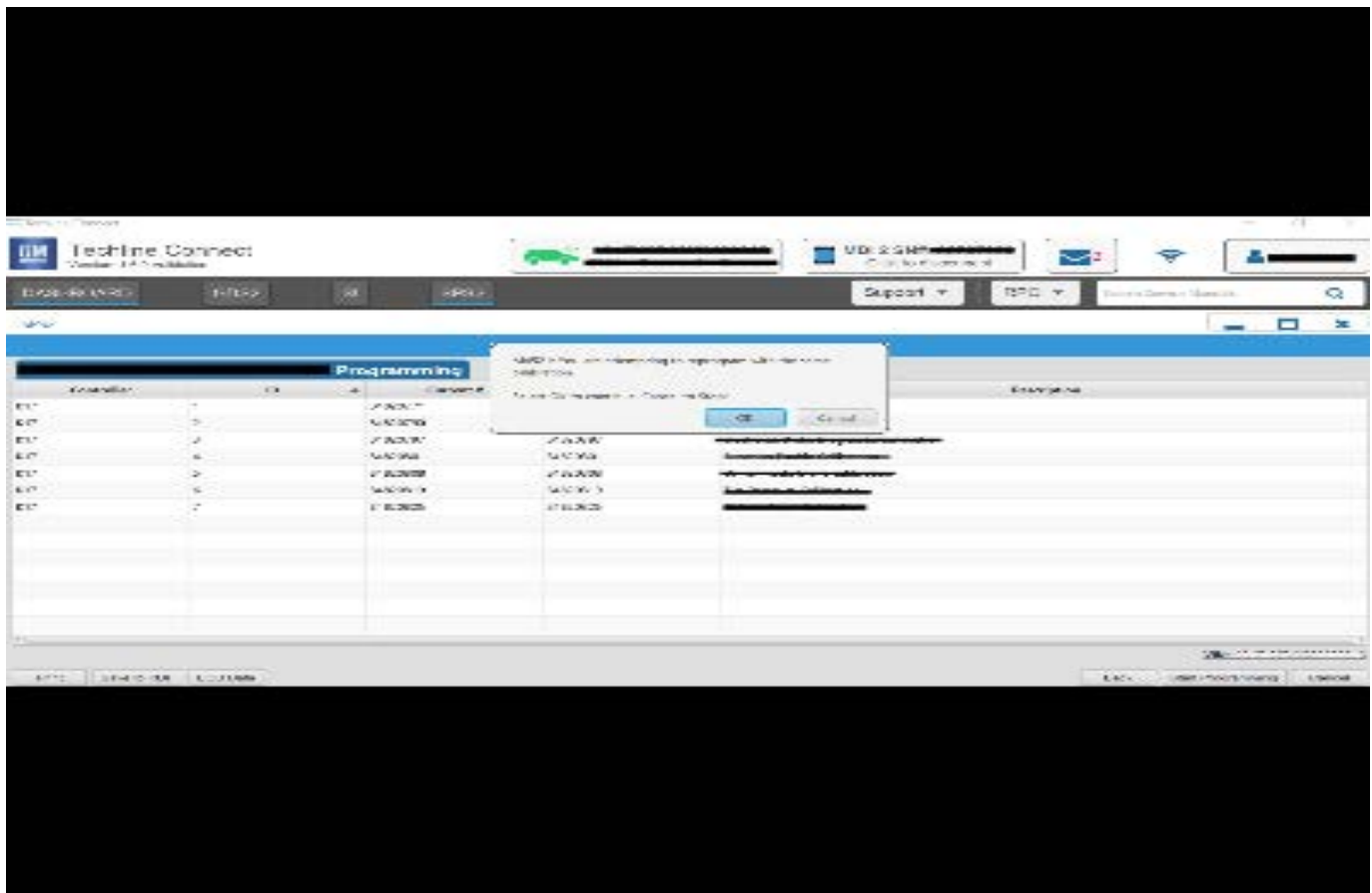
Caution: Be sure the VIN selected in the drop down menu (1) is the same as the vehicle connected (2) before beginning programming.



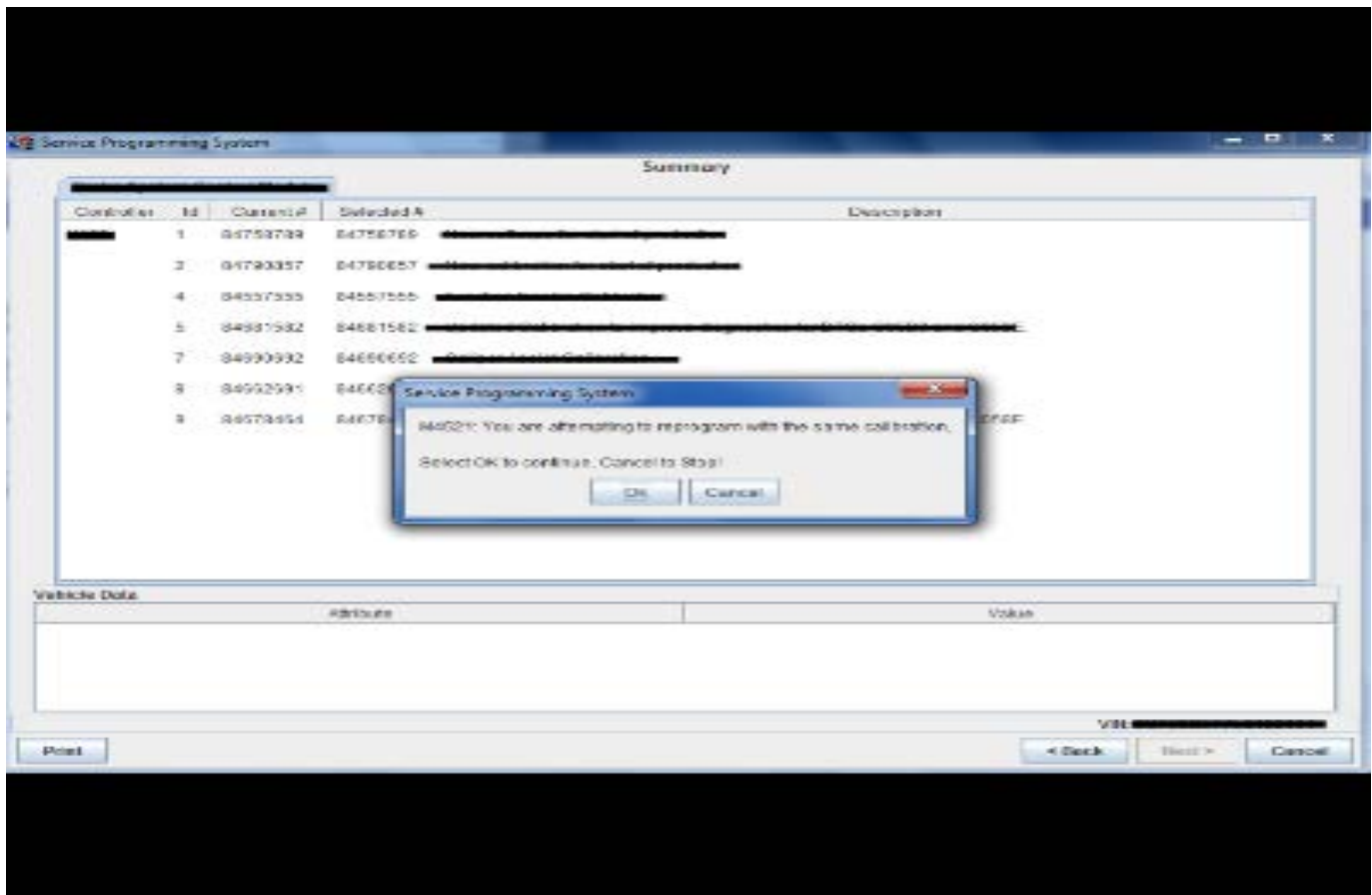
Important: If the vehicle VIN DOES NOT match, the message below will be shown.



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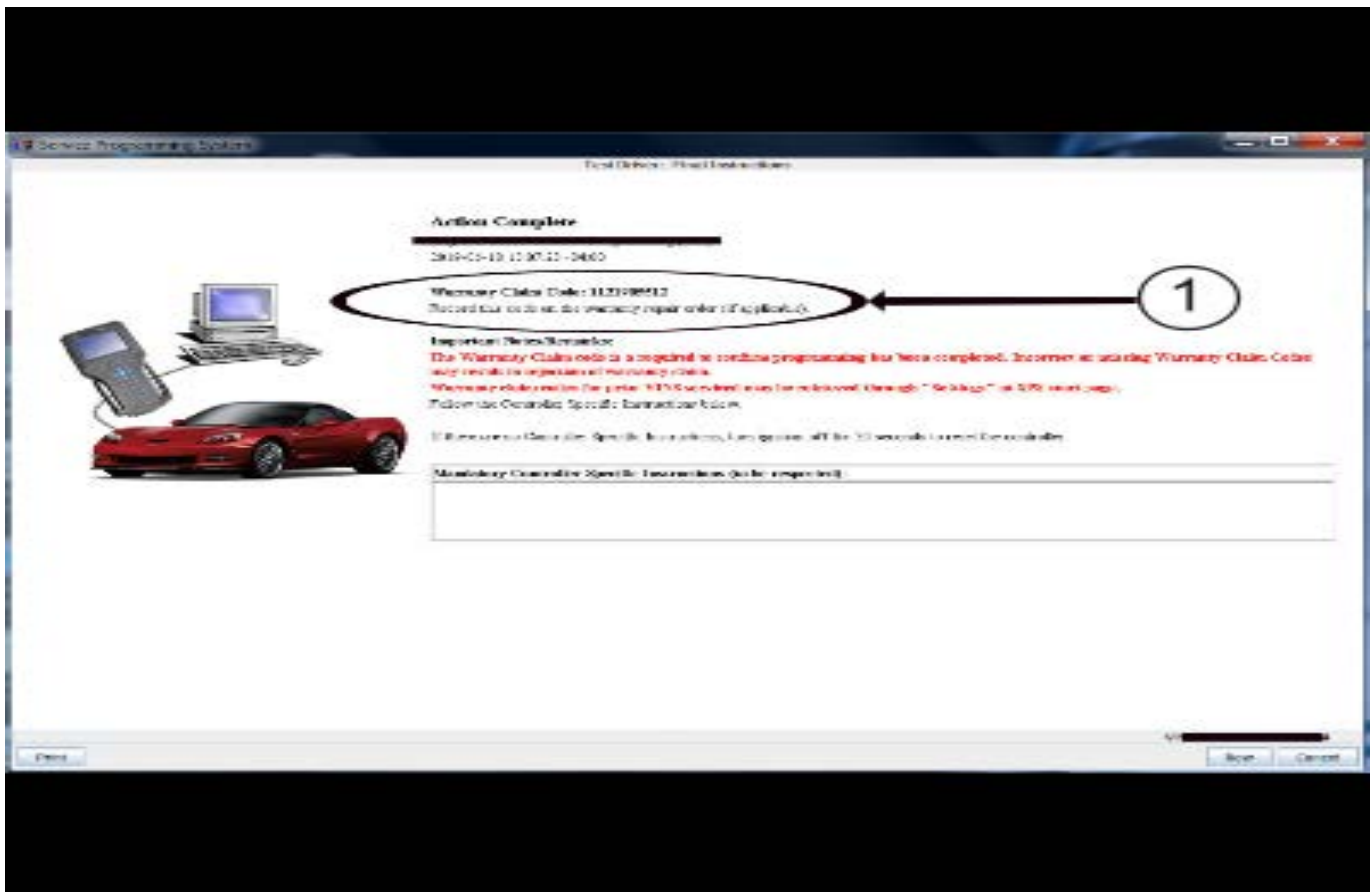
Important: Techline Connect and TIS2WEB screens shown above.

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. Document the WCC on the job card. No further action is required. Refer to the Warranty Information section of this bulletin.

1. Reprogram the Hybrid Powertrain Control Module 2 and Battery Energy Control Module. Refer to *Hybrid Powertrain Control Module 2 Programming and Setup* and *Battery Energy Control Module Programming and Setup* 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.

Warranty Information

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

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

Labor Operation	Description	Labor Time
2880268*	Reprogram the HPCM2 and the BECM	0.6 hr

*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:

- Open TLC/TIS on the computer used to program the vehicle.
- Select and start SPS/SPS2.
- Select Settings.
- 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	2
Modified	Released October 12, 2021 Revised November 21, 2022 – Added an Important statement at start of Service Procedure and corrected Warranty Information coverage.

