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Case Number: S220800027 REV. A

Release Date: August 2022

Symptom/Vehicle Issue: Cluster Message “**Electric Mode Unavailable Cabin Heating or Cooling**” or “Electric Mode Temporarily Unavailable”, Vehicle Engine Runs All the Time Does Not Enter Electric Vehicle (EV) Mode

Customer Complaint/Technician Observation: Customer states the vehicle does not go into Electric mode, may or may not have a cluster message “Electric Mode Unavailable Cabin Heating or Cooling”, **scenarios below:**

Scenario A) MIL lamp is on and/or pending DTCs

Technician observed - Electric mode unavailable message and one **or all** the following Diagnostic Trouble Codes (**DTC's**):

- P0E15-00 Hybrid/EV Battery Pack Coolant Heater “A” Control Performance – Electric Coolant Heater (ECH) **can be reset if not locked permanent. See Below.**
- U1008-00 LIN BUS 1 – **repair first**
- U1124-00 Lost Communication with LIN ECU 4 – **repair first**

Scenario B) No MIL Lamp on and no pending faults active

- Verify High Voltage (HV) coolant heater status in noted repair procedure below:
 - If heater is locked follow procedure below based on the locked state
 - If heater is not locked, verify the vehicle is not in **FUEL AND OIL REFRESH MODE (FORM)** see service diagnostics to clear or SOL case S2208000020.

NOTE: Vehicles that do not have a DTC can display the above message during normal cold start operation until the vehicle warms for 10 minutes at idle and/or 3 minutes of driving, no repairs may be required. However, if the owner complaint is vehicle does not go into Electric mode, verify the status of the ECH to ensure it is not in a permanently locked state and/or the vehicle is in Fuel and Oil Refresh Mode requiring extended fully warmed vehicle driving for up to two hours.

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Repair Procedure:

Heater status can be “**Locked Until Next Start**”, “**Locked Until Service**”, and/or “**Locked Permanent**”, the status indicates there may be a system issue which has caused the heater protection to engage. Some conditions that can contribute to the status change with the cooling system (blockage / low coolant / trapped air), heater low voltage supply, and heater high voltage supply issues need to be assessed and resolved prior to heater replacement. Failure to resolve the contributing condition will result in a repeat failure and return visit for the customer.

To repair, start by performing the service diagnostics for any Low Voltage (LV), High Voltage (HV) system DTC's and U1008-00, and/or U1124-00. For intermittent concerns, clean and secure the involved system component grounds (see below).

NOTE: Use wiTECH to verify the HV coolant heater status. The ECH status can be found in the Hybrid Control Processor (HCP) under the data tab.

The status will be one of the following:

- **OFF**
 - ECH operation is normal, continue with published service procedures to diagnose.
- **Locked Until Next Start**
 - The heater has detected an out-of-range low voltage, out to range high voltage, loss of communication, or internal error
 - The heater will re-attempt operation after a power-cycle
- **Locked Until Next Service**
 - The ECH has detected heating coolant difference for inlet and outlet temperatures
 - Requires service inspection for leaks, air in the system, and ECH unlock.
 - Follow the “Cabin Overheat Lock Reset” routine in wiTECH
 - From the topology screen go to the HCP - Misc Functions Tab - Cabin Overheat Lock Reset, follow wiTECH prompts
 - DTC P0E15-00 Must be present to proceed with the Unlock
 - DTC's U1008-00 and U1124 must be resolved/cleared/not present to unlock
 - Causes: system coolant leaks, power supply issues/connections at ECH or High Temp AUX pump, the High Temp Aux Pump, restricted coolant lines (including frozen coolant incorrect coolant mixture), air in system, and/or ECH internal failure.

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- LOCKED PERMANENT

- **The ECH must be replaced, this status can't be recovered or reset**
- This status sets when the ECH has gone into protection mode on the 3rd occurrence
- **Causes:** system coolant leaks, power supply issues/connections at ECH or High Temp AUX pump, the High Temp Aux Pump, restricted coolant lines (including frozen coolant incorrect coolant mixture), air in system, and/or ECH internal failure.

HV Coolant Heater Status	HCP / Data View	Locked Permanent	Sensors
HV Coolant Heater Status		Off	Sensors
HV Coolant Heater Status		Locked Until Next Service	Sensors

■ HCP

Hybrid Control Processor

Flash	DTCs	Data	Misc Functions	System Tests	Actuators	Details	Configuration
NAME							
Cabin Overheat Lock Reset ✓							
High Temp Coolant Fill - Aux Pump							
Low Temp Coolant Fill - Active Pump							
Low Temp Coolant Fill - Passive Pump							
Park Pawl Actuator Control							
Reset Clutch Capacity Adaption							
Reset High Voltage Cable Open DTC							
Resolver Offset Learn							

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Cabin Overheat Lock Reset

This procedure is used to unlock electric cabin heat function and is required to clear HCP DTC P0E15-00.

The following conditions must be fulfilled before the reset can be completed:

- HCP DTC P0E15-00 (Hybrid/EV Battery Pack Coolant Heater "A" Control Performance) MUST be present
- HCP DTC U1008-00 (LIN 1 Bus) CANNOT be present
- HCP DTC U1124-00 (Lost Communication With LIN ECU 4) CANNOT be present
- ECH inlet temperature MUST be below 75 deg C (167 deg F)
- ECH core temperature MUST be below 75 deg C (167 deg F)
- Maximum number of resets CANNOT be reached

Please select Continue.

Inspect the cooling system for any leaks or kinked damaged hoses, verify the coolant system is full and run the High Temp Coolant Fill - AUX PUMP routine to purge the system for air as needed.



High Temp Coolant Fill - Aux Pump

This routine will fill and purge air from the engine coolant loop.



This routine is one of the steps in the Engine Coolant Fill standard procedure. To ensure that coolant fill is successful please follow Service Information procedure from the beginning and run this routine only when directed.

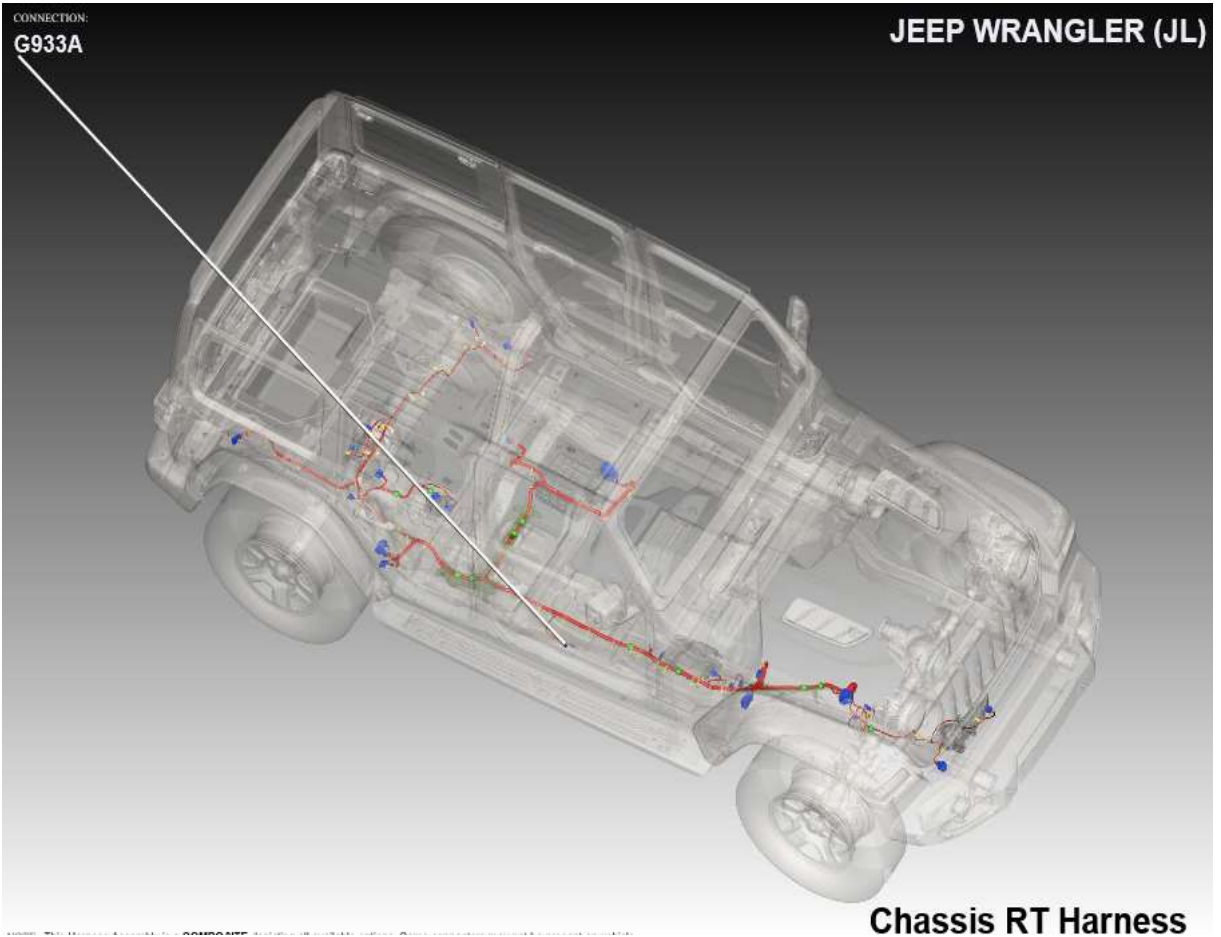
Inspect system grounds.

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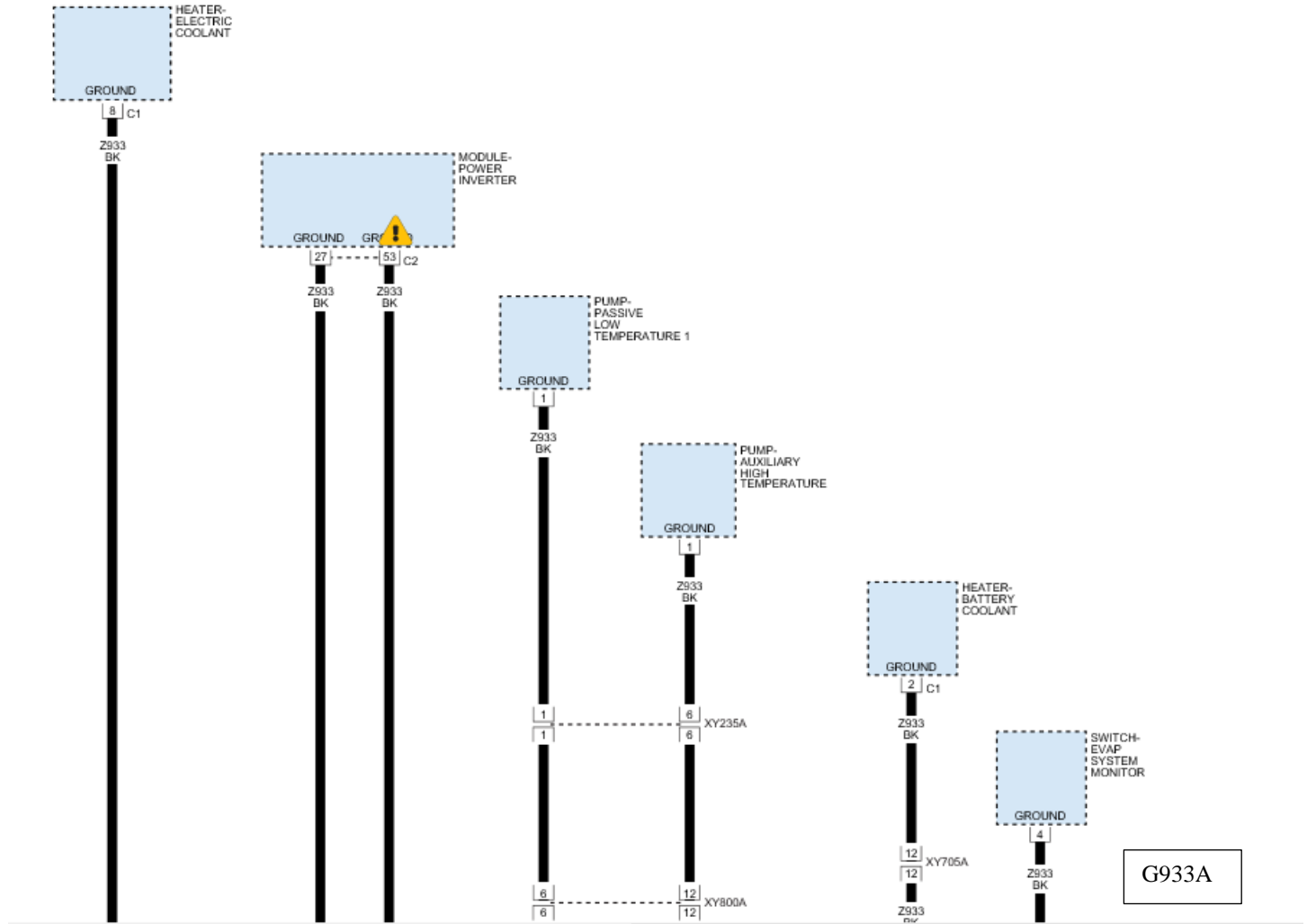


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NOTE : If all the above recommendations along with the published service diagnostic flow charts have been completed, no further repairs are suggested at this time. Engineering is evaluating a service software update that is estimated for release by the 4th quarter 2022.

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