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Case Number: S2208000041

Release Date: March 2022

Symptom/Vehicle Issue: Vehicle Only Runs In Gas Mode, Will Not Go Into Electric Mode With Or Without MIL Lamp On

Customer Complaint/Technician Observation: Customer states the vehicle does not go into Electric mode, during colder starts. Power Flow display shows “**Climate: 0 kW**” when requesting cabin heating.



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

Technician observed - One **or all** of the following **DTC's**:

- P0E15-00 Hybrid/EV Battery Pack Coolant Heater "A" Control Performance – **needs to be present for reset**
- U1008-00 LIN BUS 1 – **repair first**
- U1124-00 Lost Communication With LIN ECU 4 – **repair first**
- P0562 – **System Voltage Low – repair first**
- P0563 – **System Voltage Low – repair first**

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

Verify high voltage (ECH) coolant heater status for repair procedure.

Repair Procedure:

Heater status can be "**Locked Until Next Start**", "**Locked Until Next Service**", "**Locked Permanent**", or "**OFF**" 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.

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

NOTE: Use wiTech to verify the HV coolant heater status. The Electric Coolant Heater (ECH) status can be found under the HCP > DATA folder (example below).

OFF

- ECH operation is normal, continue with published service procedures to diagnose.

Locked Until Next Start

- The following conditions may lead to the ECH being in a LOCKED UNTIL NEXT START condition:

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- Out of range low voltage
- Out of range high voltage
- Loss of communication
- Temporary internal memory error
- Coolant or electronics overheat protection event

Requires service inspection for coolant leaks, air in the system, HV and LV supply issues, LIN network continuity.

- The heater will re-attempt operation after a power-cycle

LOCKED UNTIL NEXT SERVICE

- The ECH has accumulated three overheat protection events.
- Requires service inspection for leaks, air in the system, and ECH unlock.
- Follow the “Cabin Overheat Lock Reset” see routine using wiTECH
 - From the topology screen go to the HCP Misc Functions > Cabin Overheat Lock Reset > follow wiTECH Prompts
 - DTC P0E15-00 Must be present to proceed with the Unlock (see below)
 - DTC’s U1008-00, U1124, and other related DTC’s must be **resolved/cleared/not present to perform unlock**
- **Possible 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 in very cold ambient conditions), air in system, and/or ECH internal failure.

LOCKED PERMANENT

- **The ECH must be replaced**, this status can’t be recovered or reset, requires ECH to be replaced and also requires further service inspection for leaks, or air in the system, or coolant circulation problems (pump failure or blocked flow).
- This status sets if the heater has an internal hardware defect or has been unlocked (using the Cabin Overheat Lock Reset procedure noted above) more than 3 times.

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- **Possible 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 in very cold ambient conditions), air in system, and/or ECH internal failure.

EXAMPLE HV COOLANT HEATER STATUS - DATA VIEW

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.

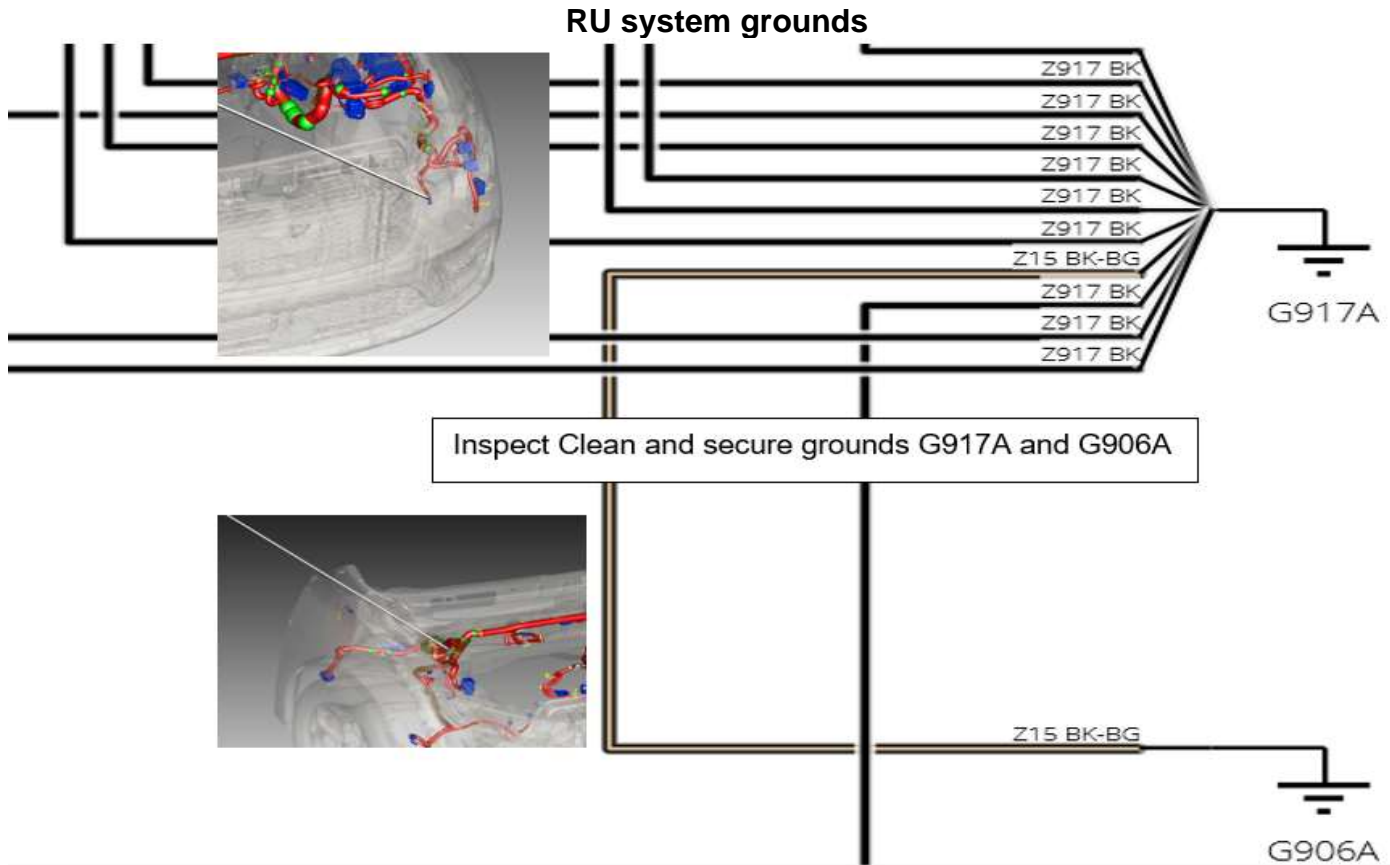
Inspect system grounds

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See TSB 08-052-22 as needed

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