



## Technical Service Bulletin

GROUP	NUMBER
CAMPAIGN	23-01-049H
DATE	MODEL(S)
JUNE 2023	KONA Electric (OS EV) IONIQ Electric (AE EV)

**SUBJECT:** COOLING SYSTEM CIRCUIT DEBRIS DISCHARGE AND COOLANT CHANGE (SERVICE CAMPAIGN T9E)

### ★ IMPORTANT

Dealers must perform this service campaign on all affected vehicles prior to customer retail delivery and whenever an affected vehicle is in the shop for any maintenance or repair.

Access the "Vehicle Information" screen via WEBDCS to identify open campaigns.

**Description:** This bulletin provides instructions to correct a condition with BSC-1 blue coolant flow restriction by debris causing abnormal high EWP (electric water pump) speed in certain 2020-21MY Ioniq Electric (AE EV) and 2019-22 Kona Electric (OS EV) models. Vehicle symptoms may include "Coolant supplement" or "Refill Inverter Coolant" warning light On. No related DTC are found stored. Normal inverter coolant reservoir tank level is confirmed. Special tools are required for this campaign to flush and clean debris from different cooling system circuits. The coolant will be replaced by updated BSC-2 low conductivity blue coolant.

### STUI



As outlined in the Digital Documentation Policy, all claims require VIN and Mileage validation through VCI connection or photo capture. Additionally, please ensure the repair Part photo requirement is completed according to the steps in the TSB. **All claims submitted that have incomplete, illegible, or missing documentation are subject to debit.**

### Applicable Vehicles: Certain:

- 2019 - 2022MY Kona EV (OS EV) vehicles produced from 05/07/2019 to 10/12/2021
- 2020 - 2021MY Ioniq EV (AE EV) vehicles produced from 11/01/2019 - 05/17/2021

### **i** Information

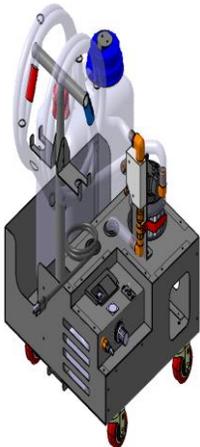
- **To ensure proper understanding of the service procedure and equipment connections, it is recommended to view or print this bulletin in color.**
- When working on the vehicle, ensure to disconnect the high voltage system and wear protective eye safety goggles to avoid injury from coolant leaks under pressure.
- To securely connect the equipment hoses, use existing coolant hose clamps at the identified locations on the vehicle as the equipment flushes coolant under pressure.

**SUBJECT:** COOLING SYSTEM CIRCUIT DEBRIS DISCHARGE AND COOLANT CHANGE  
(SERVICE CAMPAIGN T9E)

**Parts Information:**

Part Name		Part Number	Remarks.										
COOLANT (BSC-2)	 <p><b>Electric Vehicle Battery System Coolant (BSC-2)</b></p> <ul style="list-style-type: none"> <li>Used only in vehicles that call for Electric Vehicle Battery System Coolant (BSC-2)</li> <li>Coolant is blue in color</li> <li>Shelf life is two years</li> <li>Immediately use entire contents after opening</li> <li>For proper use and application please refer to the vehicle owner's manual</li> </ul> <p><b>WARNING:</b> Reproductive Harm - <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a></p> <table border="1"> <thead> <tr> <th>Part Number</th> <th>Container Size</th> <th>Package Units</th> <th>Min. Order</th> <th>Max. Order</th> </tr> </thead> <tbody> <tr> <td>00232-19113</td> <td>1.0 gal</td> <td>6</td> <td>6</td> <td>6</td> </tr> </tbody> </table>	Part Number	Container Size	Package Units	Min. Order	Max. Order	00232-19113	1.0 gal	6	6	6	00232-19113	3 Gallon bottles per vehicle.
Part Number	Container Size	Package Units	Min. Order	Max. Order									
00232-19113	1.0 gal	6	6	6									

**Tools Information:**

Tool Name	Figure	Part Number	Qty	Remarks
Coolant Flushing Equipment Set		KQ253-CV158QQH	1	Each dealer will be shipped one free of charge

**Warranty Information:**

Model	Op. Code	Operation	Op. Time	Causal Part	Nature Code	Cause Code
Kona (OS EV)	20D140R6	Debris Discharge and Coolant Change	1.9 M/H	00232-19113	E83	ZZ5
Ioniq (AE EV)	20D140R4	Debris Discharge and Coolant Change (Non Heat Pump vehicle)	1.9 M/H			
	20D140R5	Debris Discharge and Coolant Change (Heat Pump vehicle)	2.0 M/H			

**NOTE 1:** Submit claim on Claim Entry Screen as “Campaign” type.

**NOTE 2:** If a part that is not covered by this campaign is found in need of replacement while performing this service campaign and the affected part is still under warranty, submit a separate claim using the same repair order. If the affected part is out of warranty submit a Prior Approval Request for goodwill consideration prior to performing the work.

**NOTE 3:** The incident parts are subject to callback through the normal Warranty Technical Center (WTC) parts return process. **Claim is subject to debit if the parts requested are not returned.**

**NOTE 4:** Op times include VIN, Mileage and Part (if applicable) validation. **All claims submitted that have incomplete, illegible, or missing documentation are subject to debit.**

**Service Procedure:**

**NOTE:** Video of this service procedure is available at: <https://vimeo.com/825335870/9b6a196953>

**i Information**

- To access the appropriate service procedure steps for your specific vehicle, please first review section A to become familiar with general equipment procedures.
- **Refer to the below table to locate the applicable sections B or C based on vehicle model and configuration, along with the specific section steps that apply.**

VEHICLE MODEL	VEHICLE OPTIONS		SECTION	APPLICABLE SECTION STEPS
General Operating Instructions for Coolant Flush and Filter Equipment:			<b>A</b> (begins page 3)	A1-A3
Kona EV	Non-heat pump	Vehicle mfg. before 4/8/20* (Valve type)	<b>B</b> (begins page 6)	B1-B14, B17-B24
		Vehicle mfg. from 4/8/20 or later* (‘T’ branch pipe type)		B1-B14, B15-16, B18-B24
Ioniq EV	Non-heat pump		<b>C</b> (begins page 17)	C1-C16, C19-C24
	Heat pump			C1-C24

\*refer to the VIN Plate on side of door for Mfg (manufacture) date.

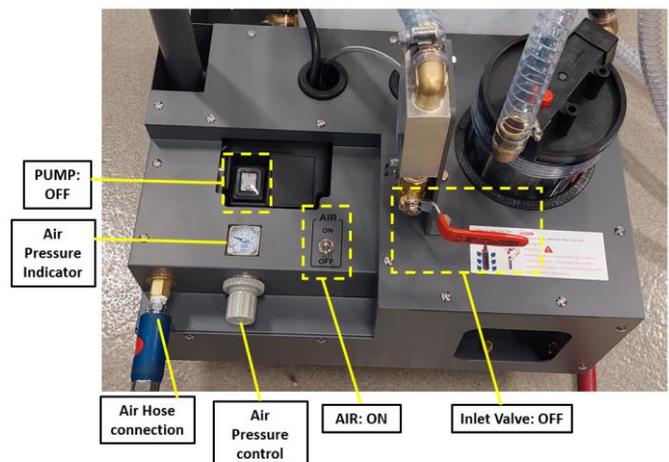
**A. General Operating Instructions for Coolant Flush and Filter Equipment**

**A1. Air Draining (Coolant Discharge)**

**NOTICE**

When discharging remaining coolant, turn off the coolant pump and close the inlet valve to prevent air from flowing back and interfering with coolant recovery.

- Ensure the equipment is set to Air ‘ON’, Pump ‘OFF’, and Inlet Valve ‘OFF’.
- Set air pressure to 2 bar for initial discharge.
- If drainage is insufficient, adjust air pressure up to 3 bar.

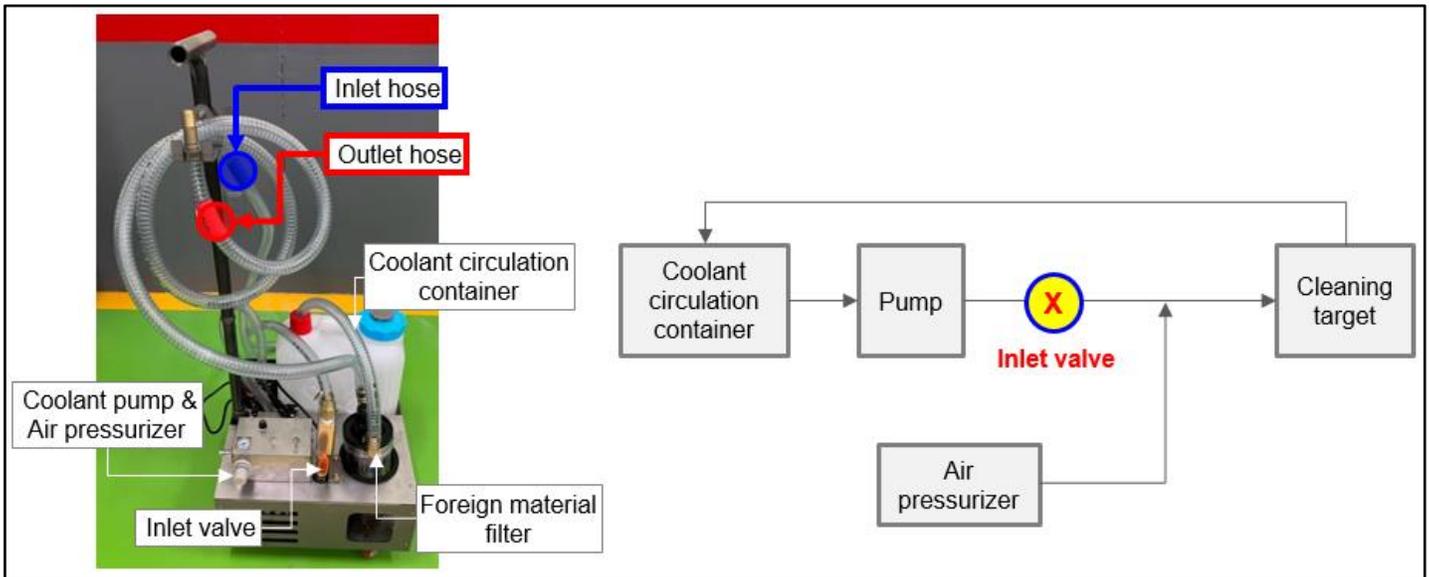
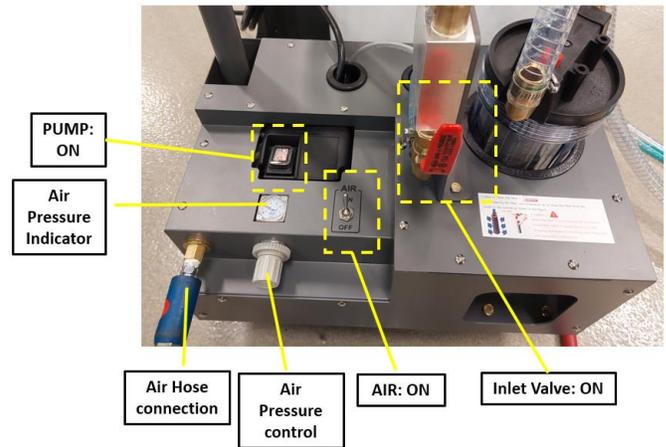


**A2. Coolant Cleaning (flushing and filtering of the vehicle's coolant circuit)**

**i Information**

When cleaning the cooling circuit using the equipment, set the equipment as follows:

- Pressure 2 bar
- Air ON
- Pump ON
- Inlet valve ON



**NOTICE**

In order to allow for proper priming of the pump system, ensure the coolant circulation container always contains at least 8L (half full) of fluid. This can include leftover coolant discharged from the previous vehicle. Add tap water or distilled water as needed to reach at least half full. Do not use salty or light water in the container.

**A3. Clean the equipment after each vehicle service, following these steps:**

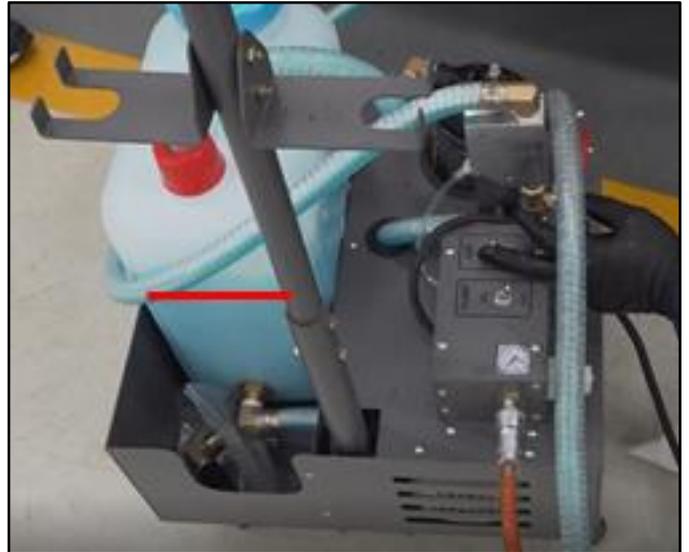
1. Turn on the water pump first, and then turn on the air.
2. Visually check the equipment's inlet end to see if air is coming out.
3. If air is not coming out, use the air pressure valve to increase the pressure slightly until air comes out.
4. Set the pressure to 2 bar.

**NOTICE**

To ensure proper maintenance of the equipment, follow these steps after completing a cleaning operation:

1. Use the air gun to blow the filter from the inside to the outside.
2. Spray air between the filter gaps to remove any foreign substances stuck in the filter.

Failure to perform step 2 can result in decreased flow rate and cleaning efficiency of the equipment.



**Vehicle Service Procedure:**

Open the hood of the vehicle and visually inspect the coolant color before proceeding with the steps outlined in this bulletin.

- **This bulletin only applies to vehicles with blue low conductivity coolant.**
- If the coolant color of the vehicle being inspected is pink or green, which indicates the use of general coolant, this bulletin does not apply.

**⚠ WARNING**

- When servicing the high voltage system, follow the "Safety Precautions, Cautions, and Warnings" to prevent electric shock or leakage accidents. Cut off the high voltage first by following the "High Voltage Cut-off Procedure."
- When connecting or disconnecting hoses or operating coolant cleaning equipment, always wear appropriate eye safety goggles to avoid accidental discharge into your eyes. Serious injury may occur from electric shock, leakage, or accidental discharge to eyes if the technician does not follow this warning.

**B. Kona (OS) EV - Debris Discharge and Coolant Change**

B1.

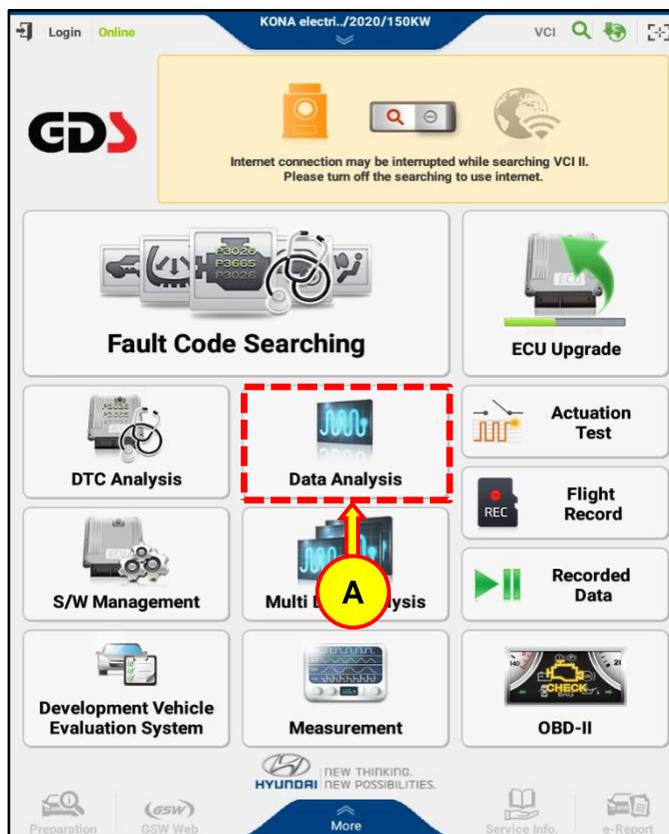
**i Information**

The rest of the TSB procedure must be performed regardless of whether this EWP check conditions are confirmed or not.

Initial EWP RPM will be checked at vehicle start in Ready mode:

- If it is above 2,000 RPM, proceed to step B2.
- If it is above 2,450 RPM, the phrase "Coolant supplement" or Inverter Coolant" warning may appear on the vehicle cluster.

B2. Select the Data Analysis (A) icon on the GDS-M initial screen.



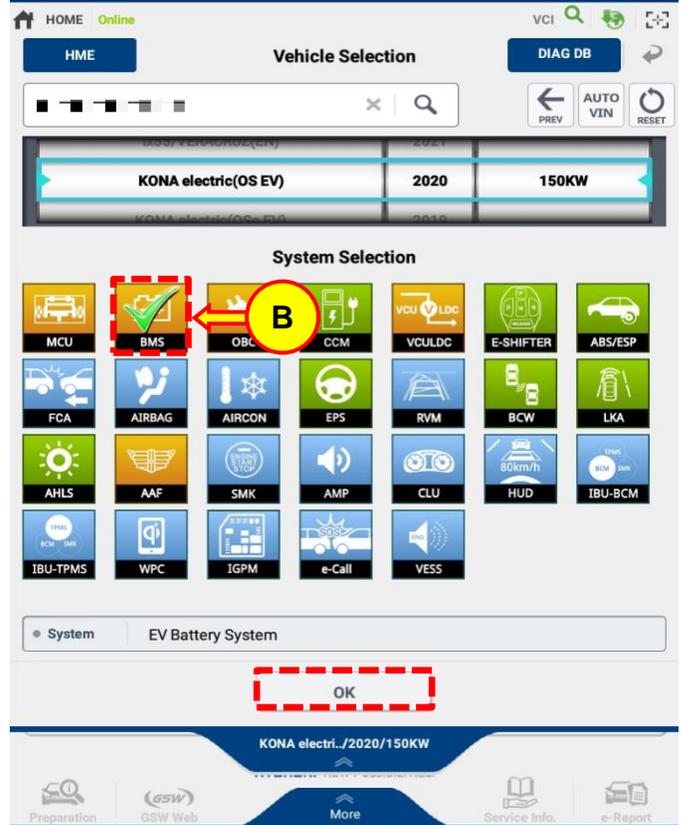
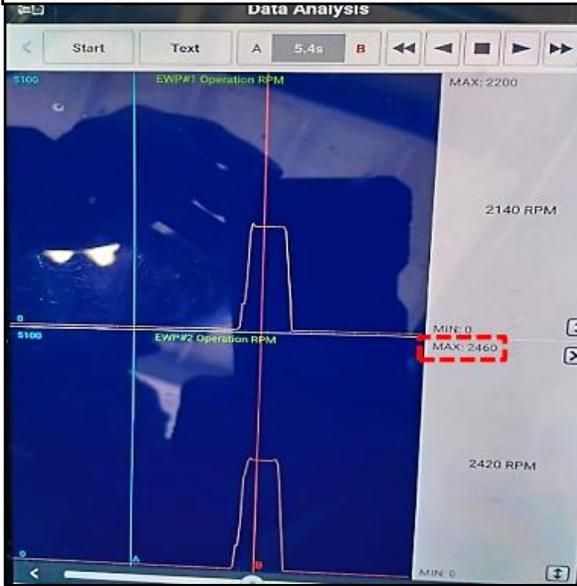
**SUBJECT: COOLING SYSTEM CIRCUIT DEBRIS DISCHARGE AND COOLANT CHANGE (SERVICE CAMPAIGN T9E)**

B3. Select the BMS (B) icon and press the 'OK' button.

**i Information**

Example of the Data Analysis Graph at vehicle start up in Ready mode.

The vehicle has 2 EWP and one of the EWP briefly increased above 2450 as seen by the MAX 2460 RPM.



B4. Scroll down to verify that the Battery BTMS Valve Control Mode (C) is set to Combined Mode by:

1. If the mode is set to Separated Mode, perform ignition on/off or key on/off.
2. Change the mode to Combined Mode.

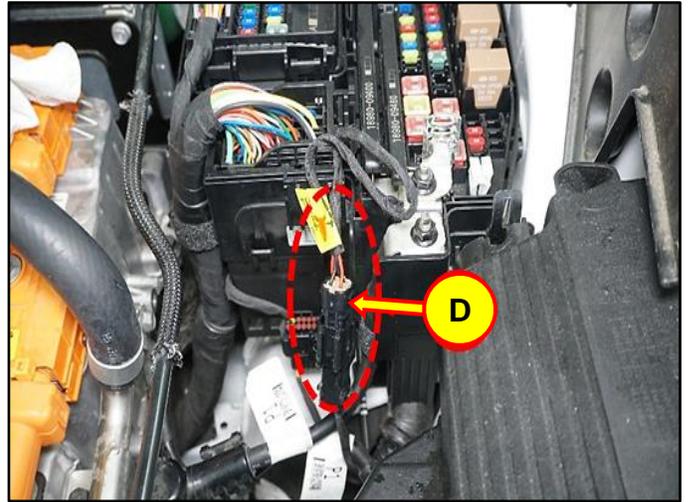
**i Information**

The **Combined Mode** condition is necessary for adequate cleaning to occur in the rest of this TSB procedure.

The screenshot shows the 'Data Analysis' screen with a list of 154 sensors. The 'Battery BTMS Valve Control Mode' is highlighted with a red dashed box and a yellow circle containing the letter 'C'. The value for this mode is 'Combined Mode'.

Sensor Name(154)	Value	Unit	Link Up
BMS Battery Chiller Operation RPM Request	0	RPM	
DATC A/C Compressor Operation RPM	0	RPM	
EWP#2 Operation RPM	0	RPM	
<b>Battery BTMS Valve Control Mode</b>	<b>Combined Mode</b>		
DATC Battery Chiller Valve Operation Status	Active	-	
BMS WHRLoop Inhibit Status	Permission	-	
BMS Heater Relay Status	OFF	-	
EWP#1 Fault Status	Normal	-	
BTMS Valve#1 Fault Status	Normal	-	
DATA A/Compressor Operation Status	Deactive	-	
BTMS Valve#1 Operation Degree Request	0	DEG	
BTMS Valve#1 Operation Feedback	0	DEG	
EWP#1 Protect Mode ON	OFF	-	
MCU Ewp Coolant Diagnosis Mode ON	OFF	-	
MCU Coolant Amount Check Error Status	Not Detect	-	
BTMS Self Monitoring Mode	OFF	-	
Battery Coolant Level too High Confirmed	OFF	-	
Battery PRA Busbar Temperature	0	°C	
Coolant Leakage Sense Voltage	0.0	V	

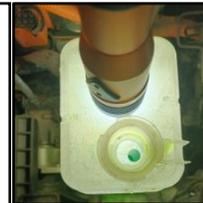
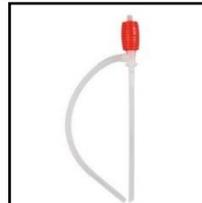
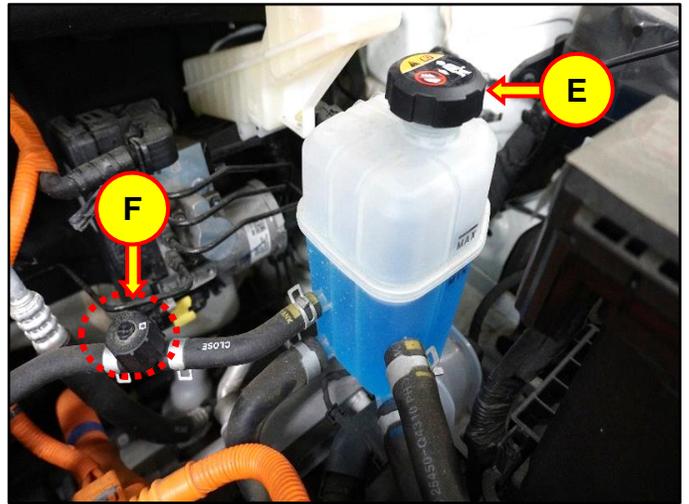
- B5. Remove the underhood service interlock connector (D).



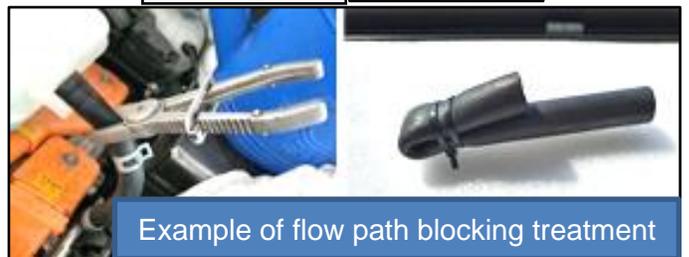
- B6. To drain the coolant, remove the reservoir tank cap (E) and drain the coolant inside the tank outside using a javara hose.

**i Information**

The reservoir tank has two chambers, upper and lower. Carefully feel for the hole between the two halves to insert the javara hose into the lower chamber.



- B7. Ensure that the reservoir tank degassing hose valve (F) is closed. If there is no valve, block the flow path as shown in the example to the right.  
NOTE: The valve is closed when the vehicle is shipped from the factory.



Change valve type to CLOSE.

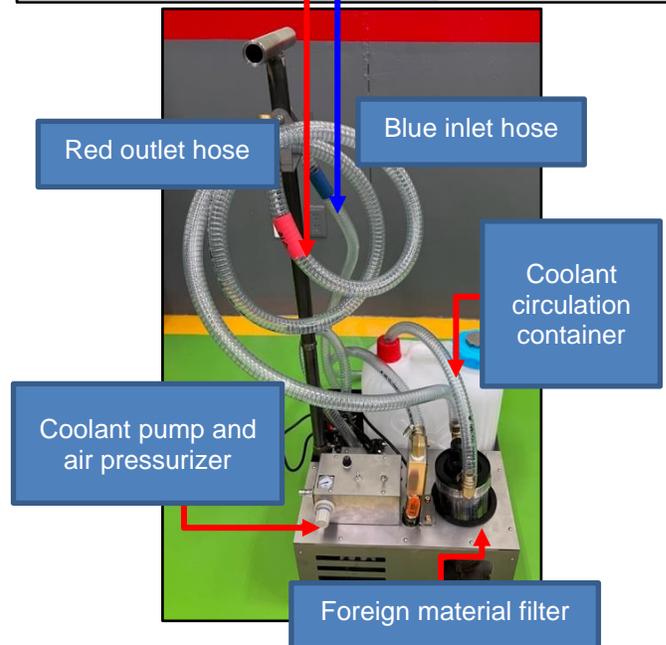
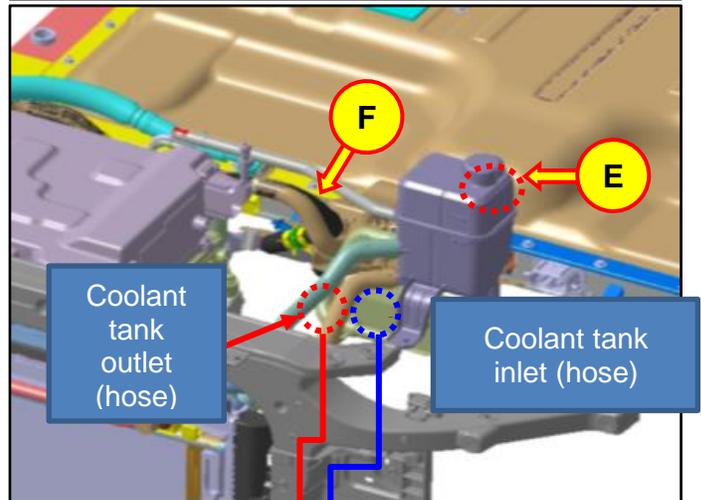
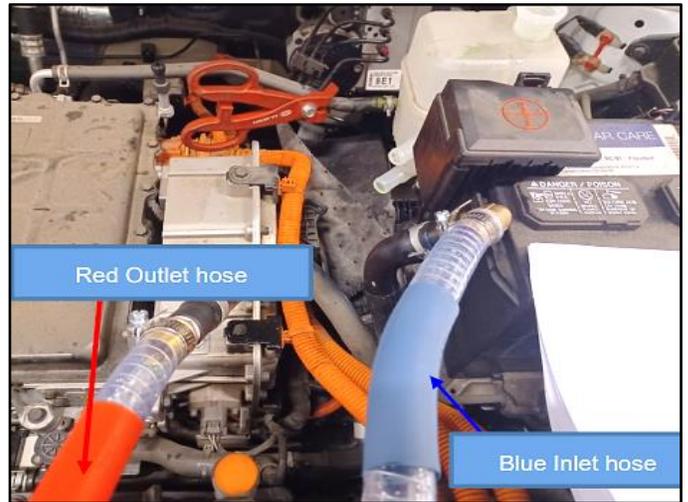


**B8. Cooling System Circuit: Coolant Discharge and Air Drain Procedure**

To ensure the hoses are securely connected to the vehicle, follow these instructions:

EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	Coolant tank inlet hose
Red outlet hose	Coolant tank outlet hose

1. Perform Air Drain for 2 minutes to discharge and drain the coolant.  
(Air ON, Pump OFF, Inlet Valve OFF)
2. Perform flush and filter cleaning circulating coolant for 5 minutes.  
(Air ON, Pump ON, Inlet Valve ON)
3. Perform Air Drain for 2 minutes to discharge and drain the coolant.  
(Air ON, Pump OFF, Inlet Valve OFF)



B9. Disconnect the inlet and outlet hoses of the cleaning equipment from the vehicle.

Set aside the separated reservoir tank for cleaning at a later time.



**Cleaning of 'EWP - EPCU - OBC – Motor Radiator' cooling circuit section.**

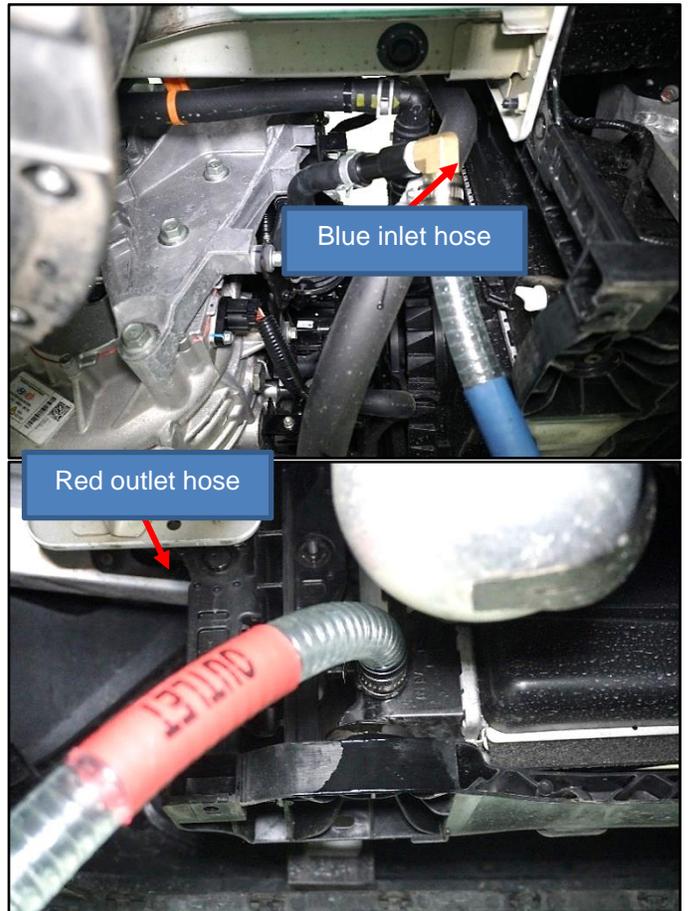
**i Information**

This cooling circuit requires thorough cleaning in **both directions** with steps B10, B12 and then B13 (repeats B10).

B10. After the vehicle is lifted, connect the hoses securely to vehicle and operate the equipment as follows:

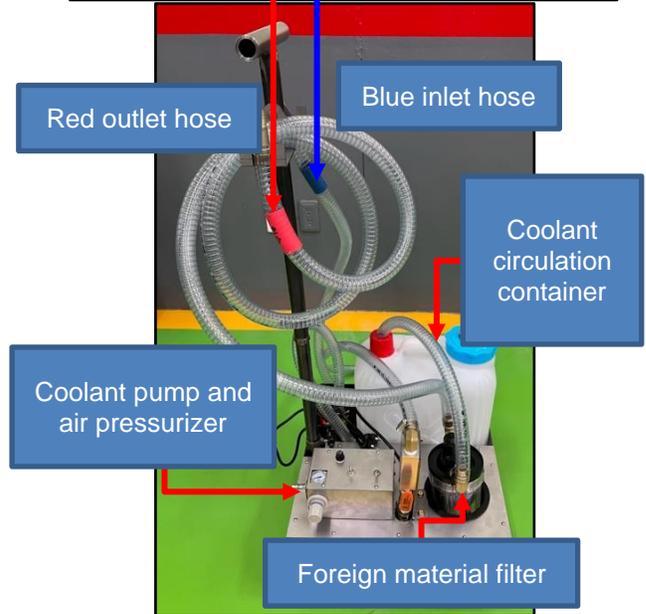
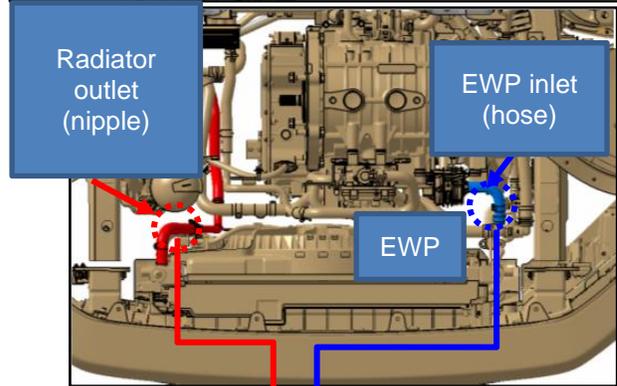
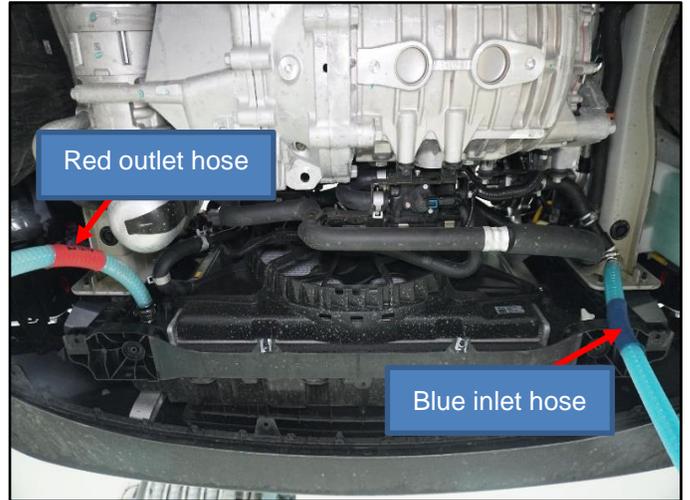
EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	EWP inlet hose
Red outlet hose	Radiator outlet nipple

1. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON)
2. Perform Air Drain for 2 minutes to discharge and drain the coolant. (Air ON, Pump OFF, Inlet Valve OFF)



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B10.  
cont.



**SUBJECT:** COOLING SYSTEM CIRCUIT DEBRIS DISCHARGE AND COOLANT CHANGE  
(SERVICE CAMPAIGN T9E)

B11. While the cleaning equipment is in operation, remove the reservoir tank to clean the residual coolant and debris inside.

Inject water and blow air through the reservoir tank.



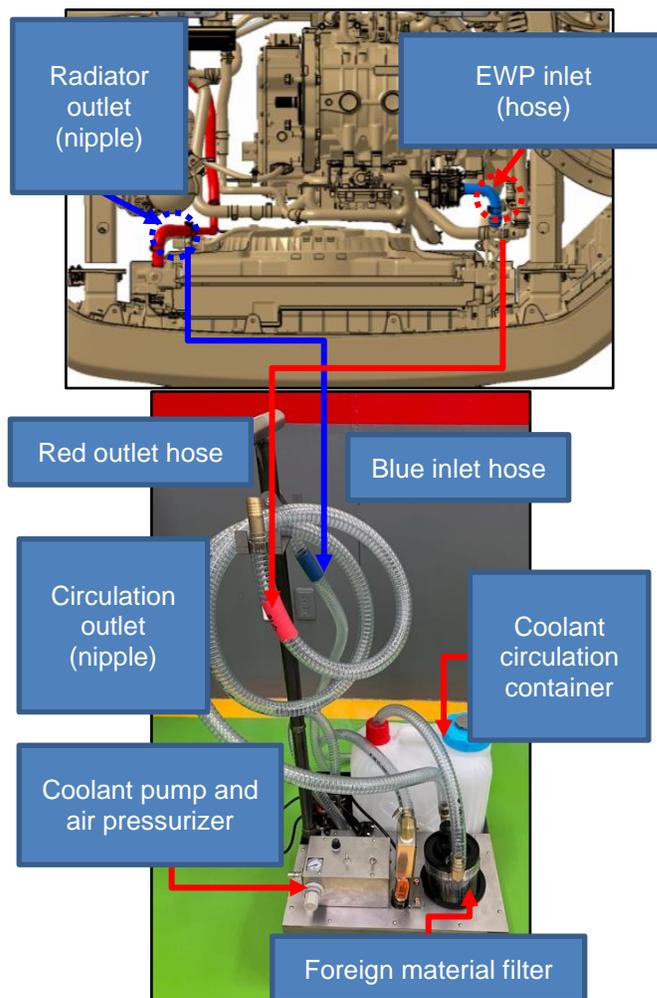
B12. Swap the equipment hoses in the opposite direction from that of step B10.

To ensure the hoses are securely connected to the vehicle, follow these instructions:

EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	Radiator outlet nipple
Red outlet hose	EWP inlet hose
1. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON) 2. Perform Air Drain for 2 minutes to discharge and drain the coolant. (Air ON, Pump OFF, Inlet Valve OFF)	

B13. Swap back the equipment hoses and perform cleaning then air draining again (step B10 again).

B14. Remove the hoses of the circulation equipment and reinstall the existing hoses of the vehicle.



**Decide next step based on Valve type:**

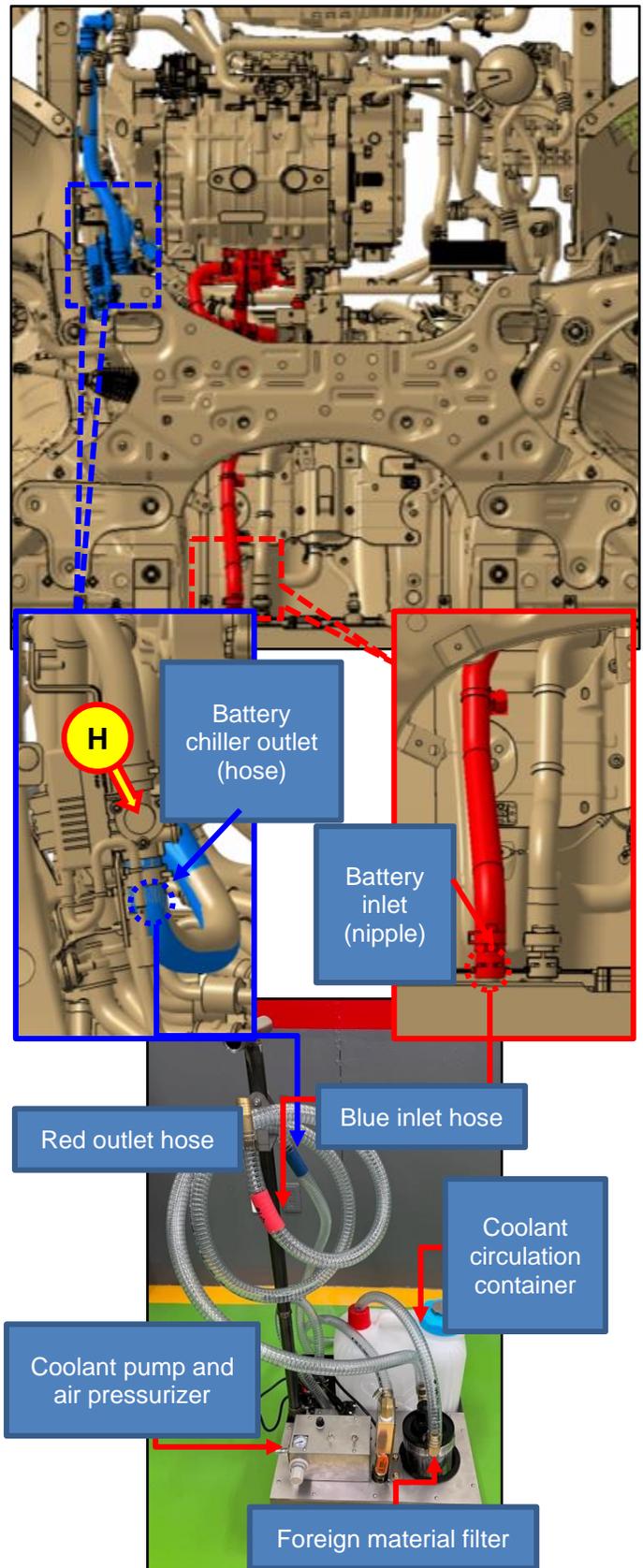
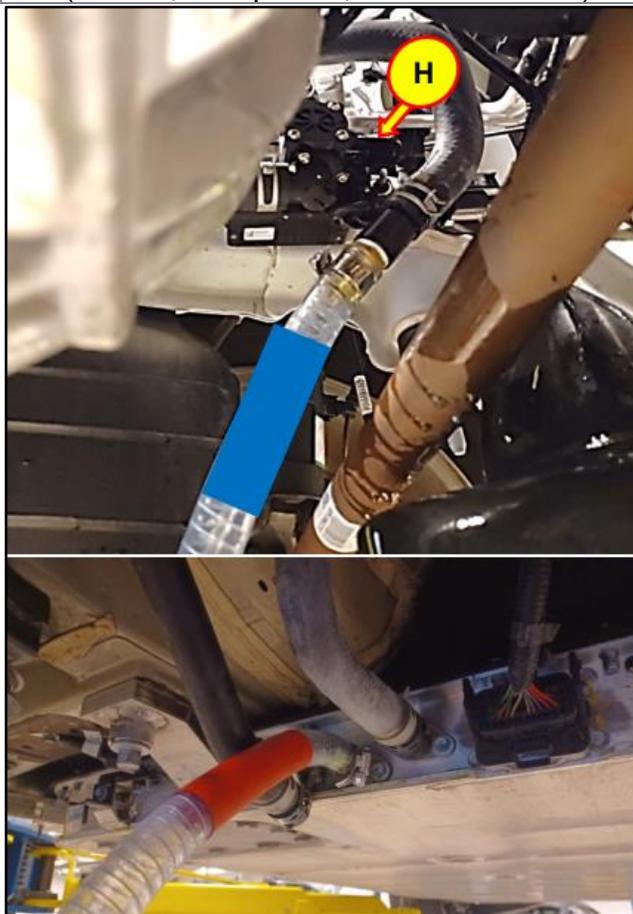
VALVE TYPE	VEHICLE PRODUCTION DATE	GO TO STEP
Valve type	<b>Before 4/8/20</b>	➔ B15
"T" branch pipe type	<b>From 4/8/20 or later</b>	➔ B17

**B15. Cleaning the Valve-Type High Voltage Battery Cooling Circuit, Including Battery Chiller, Coolant Heater, and Coolant**

While the vehicle is lifted, connect the hoses securely to vehicle and operate the equipment as follows:

EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	Battery chiller outlet hose (see (H) in diagram)
Red outlet hose	Battery inlet nipple

1. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON)
2. Perform Air Drain for 2 minutes to discharge the coolant. (Air ON, Pump OFF, Inlet Valve OFF)



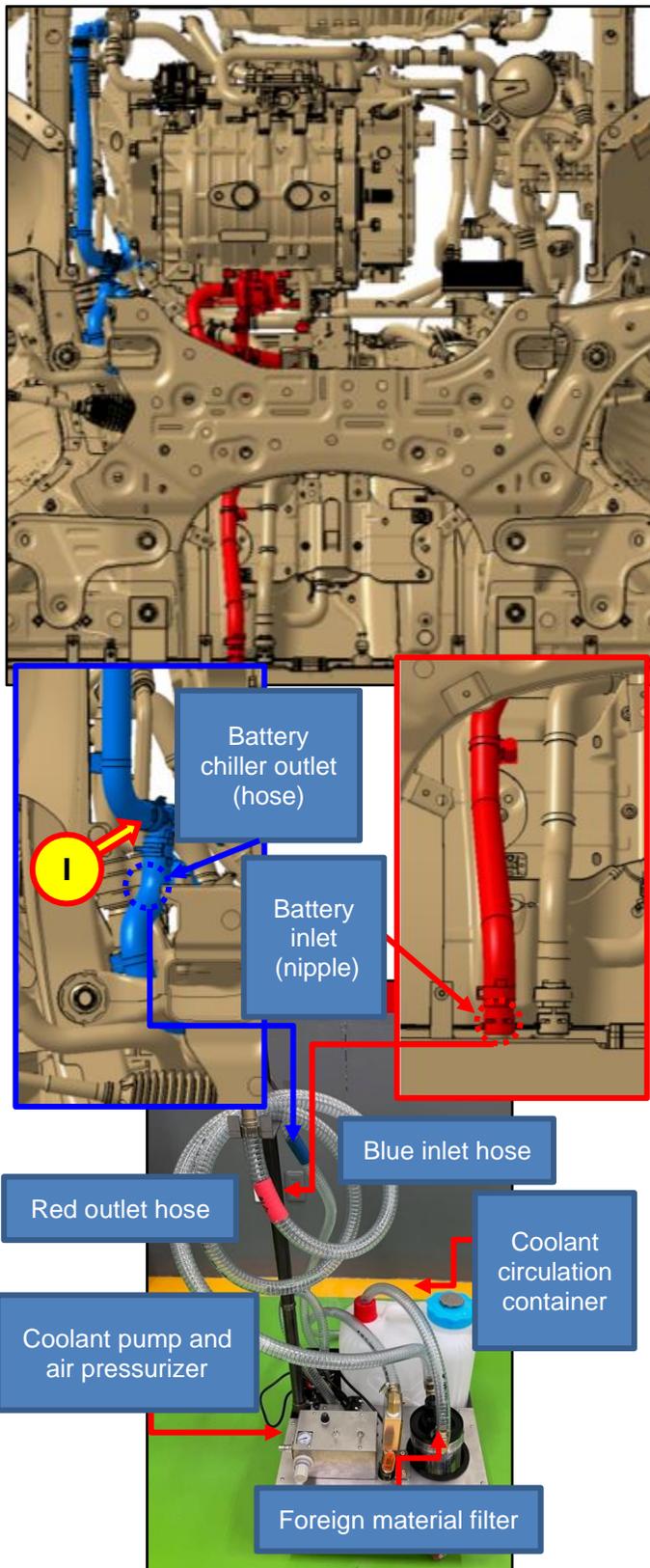
B16. After B15 is complete, skip to B18.

**B17. Cleaning the (T-Branch Pipe Type) Cooling Circuit Section of the Battery Chiller, Coolant Heater, and High Voltage Battery**

While the vehicle is lifted, connect the hoses securely to vehicle and operate the equipment as follows:

EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	Battery chiller outlet hose (see (H) in diagram)
Red outlet hose	Battery inlet nipple

1. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON)
2. Perform Air Drain for 2 minutes to discharge the coolant. (Air ON, Pump OFF, Inlet Valve OFF).



- B18. Disconnect the hoses from the circulation equipment of the vehicle and reinstall the original hoses back to their original positions on the vehicle.
- B19. Reconnect the service interlock connector or service safety switch that was previously disconnected from the battery.
- B20. Once all hoses in the vehicle are confirmed to be correctly installed, fill the reservoir tank with the improved low-conductivity coolant (BSC-2). Use the GDS-M system to perform air bleeding for 30 minutes by circulating the coolant through the EWP.
- B21. After completing the coolant fill, close the degas hose valve.

**i Information**

- Inject coolant into the reservoir tank based on the optional specifications of each model (~10 – 13 L).
- If the degassing hose of the reservoir does not have a valve before coolant injection, restore any flow path blockage that was previously operated on in B7. If there is a valve, ensure it is in the OPEN position (image on the right).
- After flushing a single vehicle, remove the equipment filter and thoroughly wash away any foreign substances.



- B22. Take a STUI photo of the coolant reservoir bottle complete filled after the flushing cleaning and coolant refill.

**STUI**



Please include the last 6 digits of the VIN and date of repair on a piece of paper. Ensure the VIN and date of repair are clearly visible. Upload the photo to STUI.



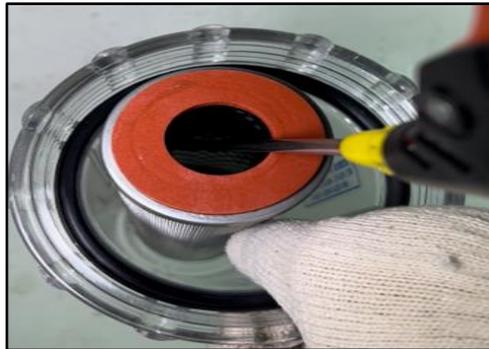
- B23. Start the engine and verify if the message "Coolant supplement" or Inverter Coolant" warning does not display.

B24. Use an air gun to clean the filter and filter case of the equipment, removing any foreign substances.

1. Blow the filter from the inside to the outside using the air gun.
2. Pay special attention to spraying air between the filter gaps to remove foreign substances effectively, as there may be a significant buildup in these areas.
3. Skipping this step may result in decreased flow rate and reduced cleaning effectiveness of the equipment due to foreign substances being stuck in the filter.

**NOTICE**

Use an air gun to inject air with precision into the gaps of the filter's inner wall, as sludge may be stuck there. Rotate the filter to ensure even spraying.



**C. Ioniq (AE) EV - Debris Discharge and Coolant Change**

- C1. Initial EWP RPM will be checked at vehicle start in Ready mode:
- If it is above 2,000 RPM, proceed to step C2.
  - If it is above 2,450 RPM, the phrase “Coolant supplement” or “Inverter Coolant” warning light may appear on the cluster.
- C2. Select the Data Analysis (A) icon on the GDS-M initial screen.

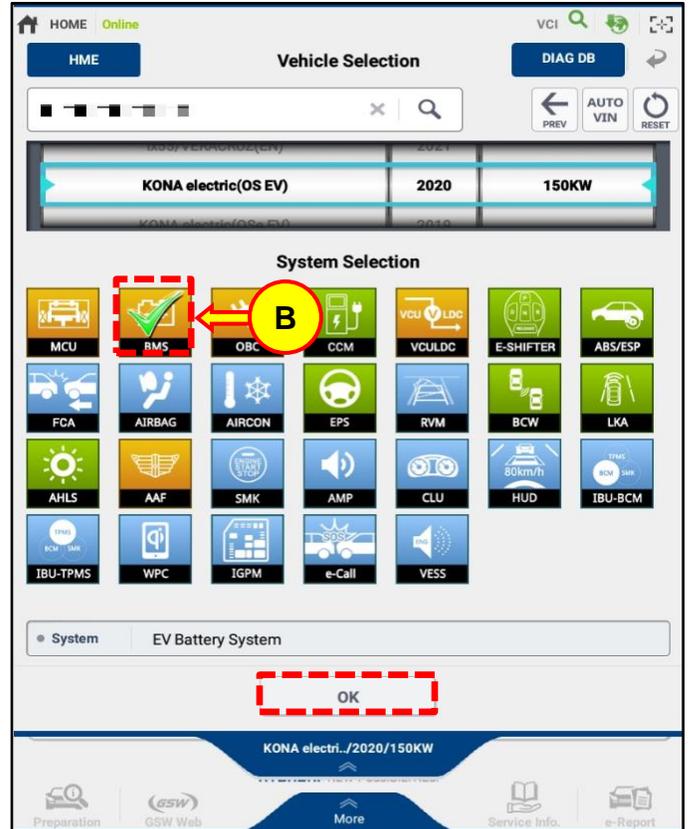
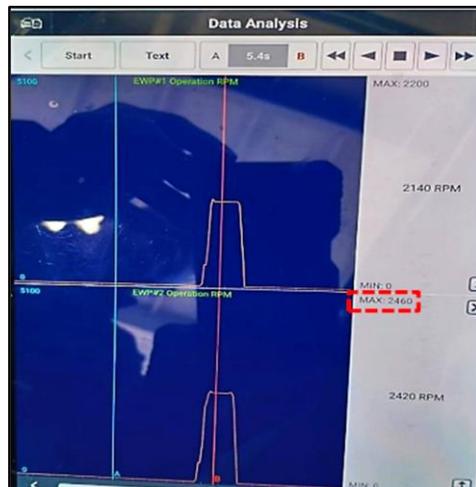


- C3. Select the BMS (B) icon and press the ‘OK’ button.

**i Information**

Example of the Data Analysis Graph at vehicle start up in Ready mode.

The vehicle has 2 EWP and one of the EWP briefly increased above 2450 as seen by the MAX 2460 RPM.



- C4. Scroll down to verify that the Battery BTMS Valve Control Mode (C) is set to Combined Mode by:
1. If the mode is set to Separated Mode, perform ignition on/off or key on/off.
  2. Change the mode to Combined Mode

**i Information**

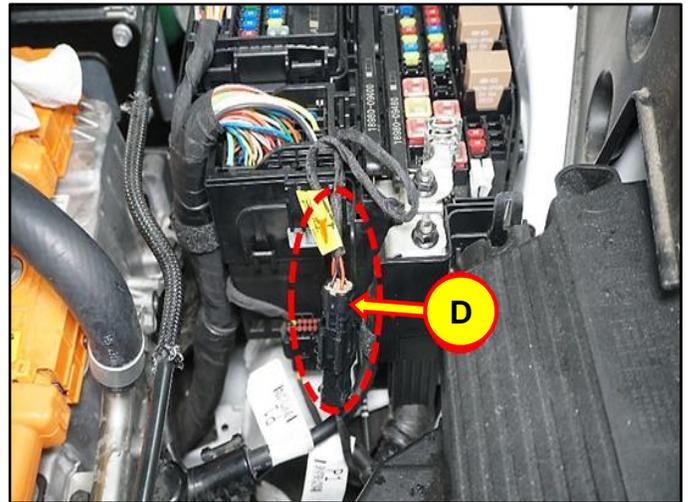
The **Combined Mode** is necessary for adequate cleaning.

Sensor Name(154)	Value	Unit	Link Up
BMS Battery Chiller Operation RPM Request	0	RPM	
DATC A/C Compressor Operation RPM	0	RPM	
EWP#2 Operation RPM	0	RPM	
<b>Battery BTMS Valve Control Mode</b>	<b>Combined Mode</b>		
DATC Battery Chiller Valve Operation Status	Active	-	
BMS WHRLoop Inhibit Status	Permission	-	
BMS Heater Relay Status	OFF	-	
EWP#1 Fault Status	Normal	-	
BTMS Valve#1 Fault Status	Normal	-	
DATA A/Compressor Operation Status	Deactive	-	
BTMS Valve#1 Operation Degree Request	0	DEG	
BTMS Valve#1 Operation Feedback	0	DEG	
EWP#1 Protect Mode ON	OFF	-	
MCU Ewp Coolant Diagnosis Mode ON	OFF	-	
MCU Coolant Amount Check Error Status	Not Detect	-	
BTMS Self Monitoring Mode	OFF	-	
Battery Coolant Level too High Confirmed	OFF	-	
Battery PRA Busbar Temperature	0	°C	
Coolant Leakage Sense Voltage	0.0	V	

- C5. Remove the underhood service interlock connector (D).

**i Information**

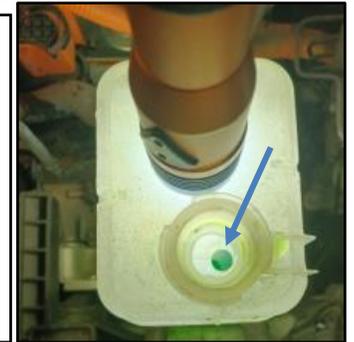
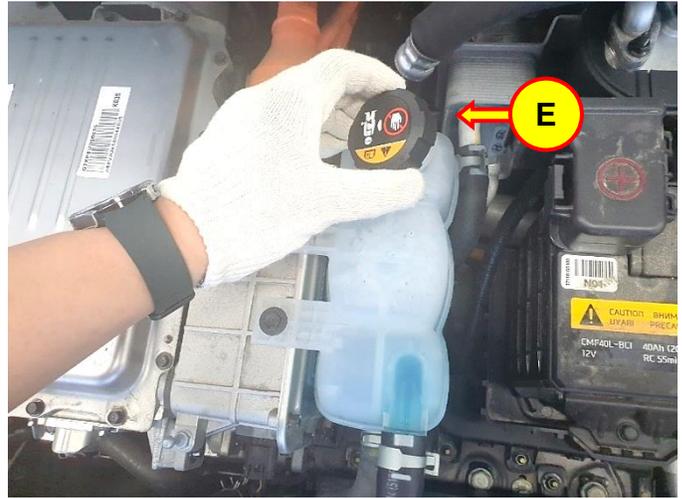
If the vehicle lacks an under-hood service interlock connector, the safety switch above the battery must be removed. This switch can be accessed under the carpet in the trunk of the vehicle.



- C6. To drain the coolant, remove the reservoir tank cap (E) and drain the coolant inside the tank outside using a javara hose.

**i Information**

The reservoir tank has two chambers, upper and lower. Carefully feel for the hole between the two halves to insert the javara hose into the lower chamber.

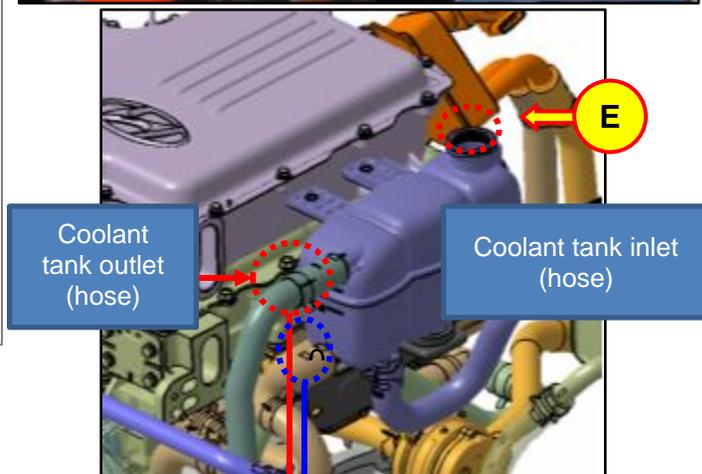
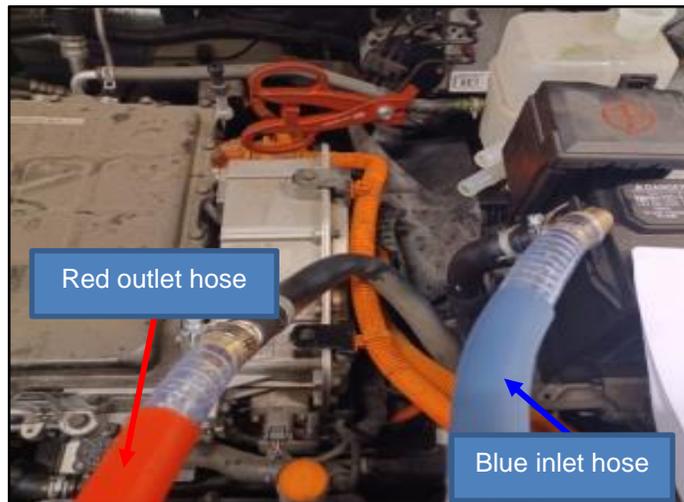


**C7. Coolant Discharge and Air Purging from Cooling System Circuits**

To ensure the hoses are securely connected to the vehicle, follow these instructions:

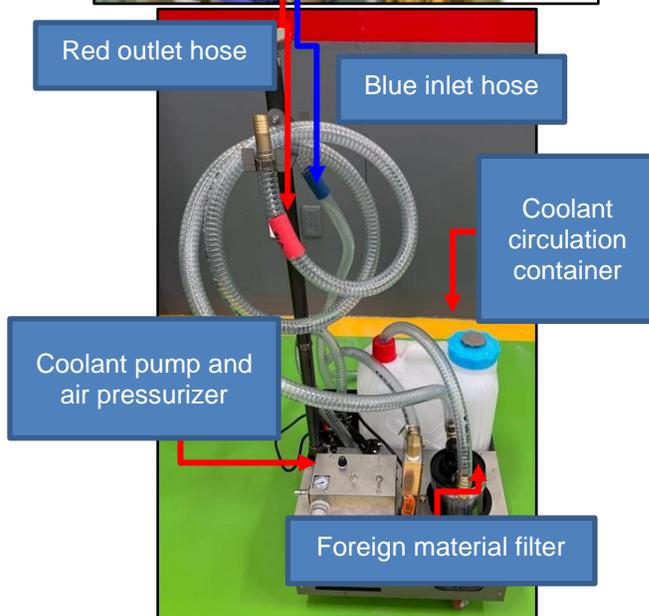
EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	Coolant tank inlet hose
Red outlet hose	Coolant tank outlet hose

1. Perform Air Drain for 2 minutes to discharge and drain the coolant. (Air ON, Pump OFF, Inlet Valve OFF)
2. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON)
3. Perform Air Drain for 2 minutes to discharge the coolant. (Air ON, Pump OFF, Inlet Valve OFF)



**C8. Disconnect the inlet / outlet hoses of the cleaning equipment from the vehicle's reservoir tank.**

Keep the separated reservoir tank of the vehicle aside for cleaning at a later stage.



**C9. Cleaning the EPCU - Motor - OBC - Radiator Cooling Circuit**

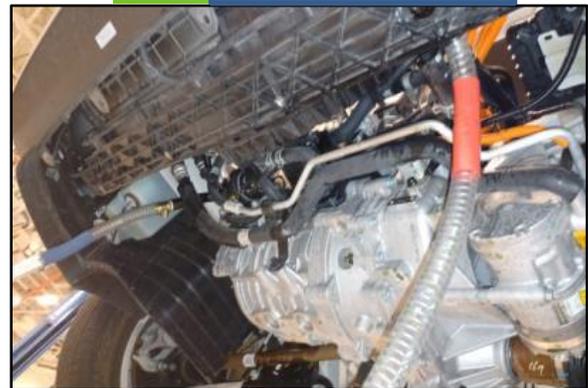
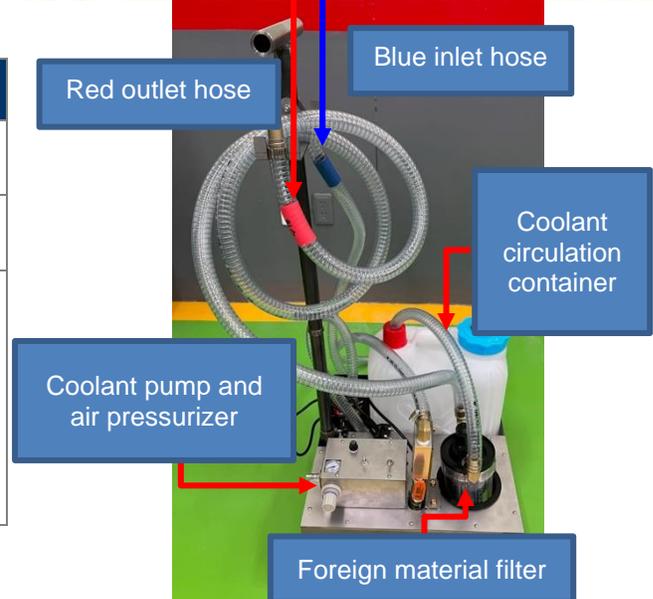
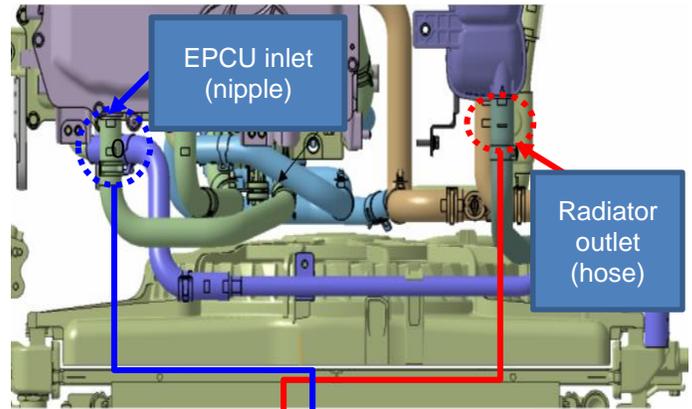
**i Information**

This cooling circuit requires thorough cleaning in **both directions** with steps C9, C11 and then C12 (repeats C9).

To ensure the hoses are securely connected to the vehicle, follow these instructions:

EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	EPCU inlet nipple
Red outlet hose	Radiator outlet hose

1. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON)
2. Perform Air Drain for 2 minutes to discharge the coolant. (Air ON, Pump OFF, Inlet Valve OFF)



**C10.** While the cleaning equipment is in operation, remove the reservoir tank to clean the residual coolant and debris inside.

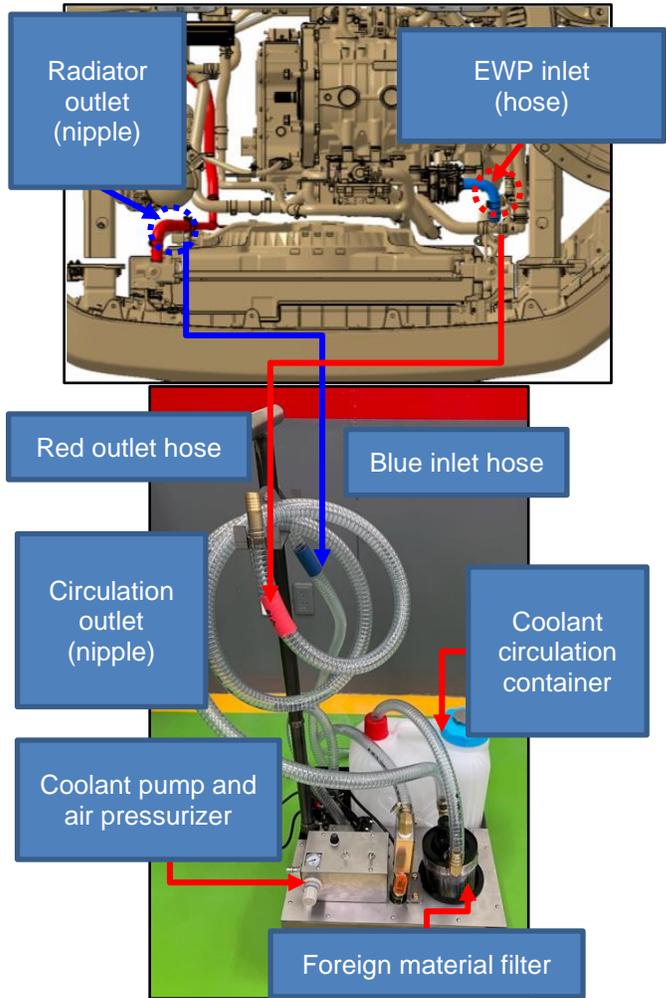


**SUBJECT:** COOLING SYSTEM CIRCUIT DEBRIS DISCHARGE AND COOLANT CHANGE  
(SERVICE CAMPAIGN T9E)

C11. Swap the equipment hoses in the opposite direction from that of step C9.

To ensure the hoses are securely connected to the vehicle, follow these instructions:

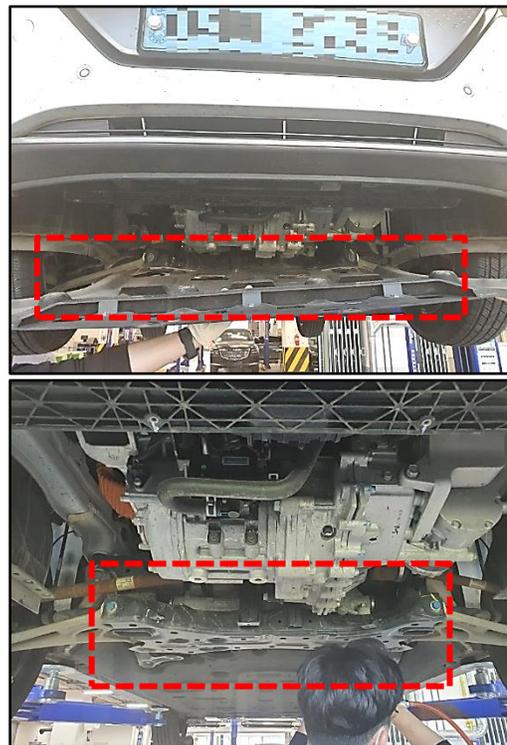
EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	Radiator outlet hose
Red outlet hose	EPCU inlet nipple
1. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON) 2. Perform Air Drain for 2 minutes to discharge the coolant. (Air ON, Pump OFF, Inlet Valve OFF)	



C12. Swap back the equipment hoses and repeat the cleaning and air draining process (as done in step C9).

C13. Disconnect the hoses from the circulation equipment, then reinstall the original hoses back onto the vehicle.

C14. Once the vehicle is lifted, remove the front / rear undercover.

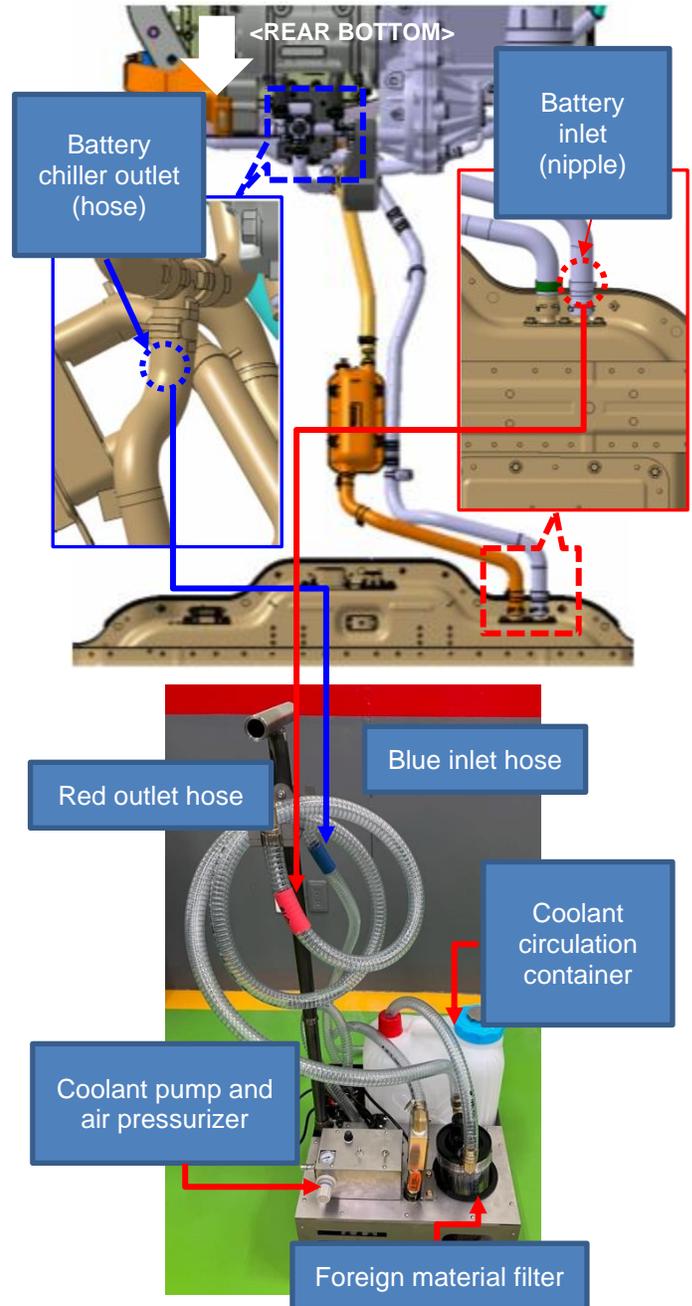


**C15. Cleaning the Cooling Circuit Section for Battery Chiller, Coolant Heater, and High Voltage Battery**

While the vehicle is lifted, connect the hoses securely to vehicle and operate the equipment as follows:

EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	Battery chiller outlet hose
Red outlet hose	Battery inlet nipple

1. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON)
2. Perform Air Drain for 2 minutes to discharge the coolant. (Air ON, Pump OFF, Inlet Valve OFF)

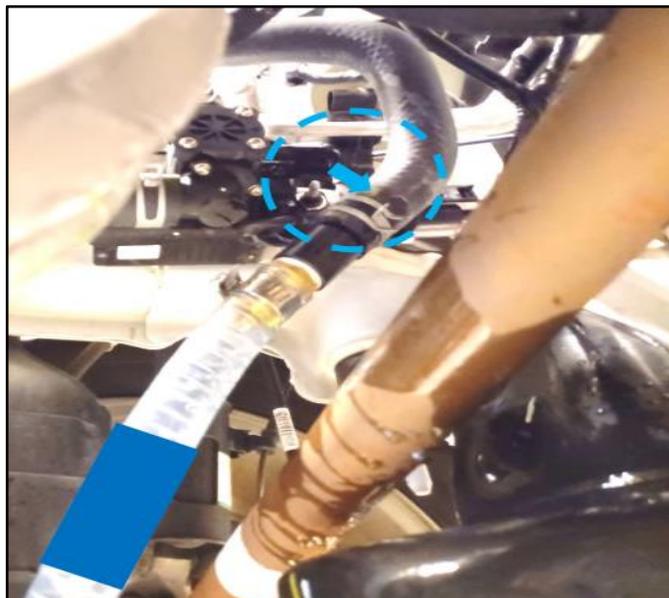


C16. Remove the hoses of the circulation equipment.

Reinstall the existing hoses of the vehicle.

Decide the next step:

VEHICLE OPTION	GO TO NEXT STEP
Heat pump	→ C17
Non-heat pump	→ C19

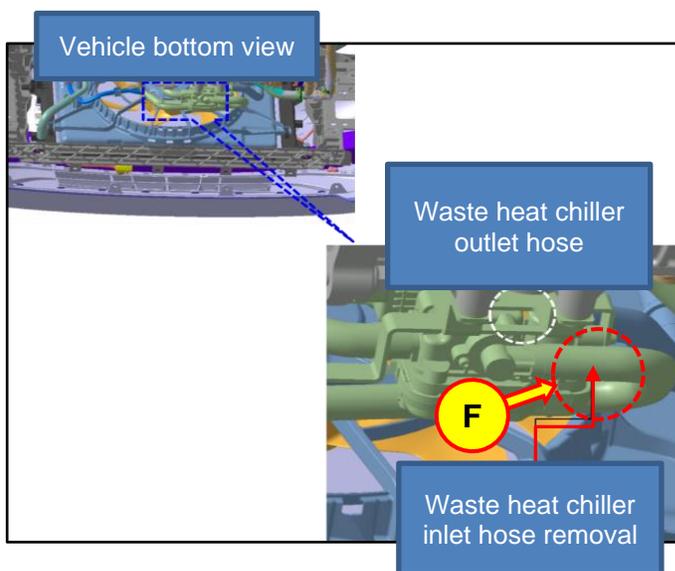


C17. **Cleaning the Cooling Circuit Section of Waste Heat Chiller**

**i Information**

Step C17 & C18 are only for the Heat Pump Option.

While the vehicle is lifted, remove the heat chiller inlet hose (F) from the bottom of the vehicle and allow it to drain.



**C18. Cleaning the Cooling Circuit Section of a Waste Heat Chiller — (ONLY for Heat Pump Option)**

While the vehicle is lifted, connect the hoses securely to vehicle and operate the equipment as follows:

EQUIPMENT	VEHICLE CONNECTION POINT
Blue inlet hose	Waste heat chiller inlet hose
Red outlet hose	Waste heat chiller outlet hose
1. Perform flush and filter cleaning circulating coolant for 5 minutes. (Air ON, Pump ON, Inlet Valve ON) 2. Perform Air Drain for 2 minutes to discharge the coolant. (Air ON, Pump OFF, Inlet Valve OFF)	

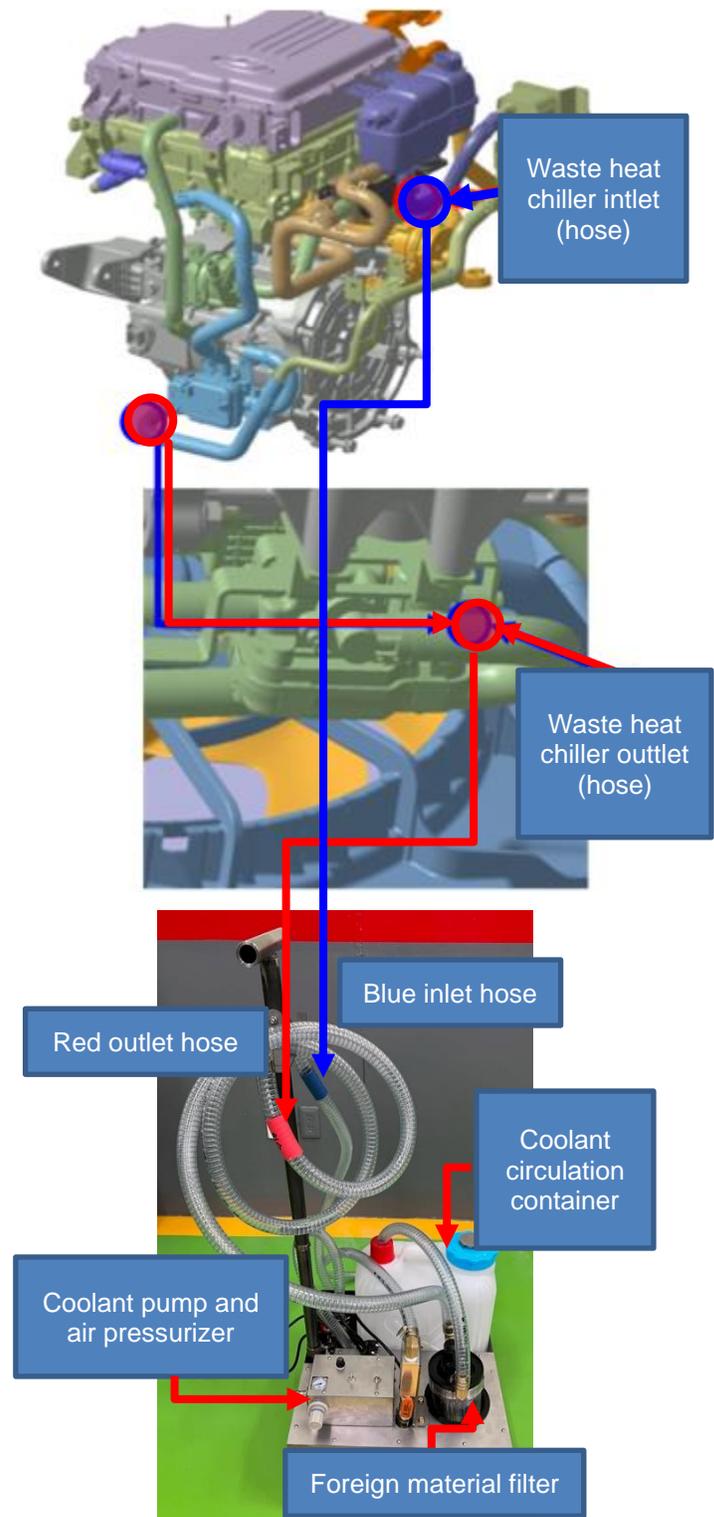
C19. Disconnect the hoses from the circulation equipment of the vehicle and reinstall the original hoses back to their original positions on the vehicle.

C20. Reconnect the service interlock connector or service safety switch that was previously disconnected from the battery.

C21. Once all hoses in the vehicle are confirmed to be correctly installed, fill the reservoir tank with the improved low-conductivity coolant (BSC-2). Use the GDS-M system to perform air bleeding for 30 minutes by circulating the coolant through the EWP

**i Information**

- Inject coolant into the reservoir tank based on the optional specifications of each model (~10 to 13 L).
- After flushing a single vehicle, remove the equipment filter and thoroughly wash away any foreign substances.



- C22. Take a STUI photo of the coolant reservoir bottle complete filled after the flushing cleaning and coolant refill.

**STUI**



Please include the last 6 digits of the VIN and date of repair on a piece of paper. Ensure the VIN and date of repair are clearly visible. Upload the photo to STUI.



- C23. Start the engine and verify if the message "Coolant supplement" or Inverter Coolant" warning does not display.

C24. Use an air gun to clean the filter and filter case of the equipment, removing any foreign substances:

1. Blow the filter from the inside to the outside using the air gun.
2. Pay special attention to spraying air between the filter gaps to remove foreign substances effectively, as there may be a significant buildup in these areas.
3. Skipping this step may result in decreased flow rate and reduced cleaning effectiveness of the equipment due to foreign substances being stuck in the filter.

**NOTICE**

Use an air gun to inject air with precision into the gaps of the filter's inner wall, as sludge may be stuck there. Rotate the filter to ensure even spraying.

