Polestar P3 High Voltage Training Workshop Activities

These activities aim to familiarize you with the technical changes in the Polestar 3 and how it interfaces with VIDA. While developing this training, we have discovered changes and need to know information that will benefit you in getting up to speed on this new vehicle. Please read carefully and answer all questions. Please feel free to ask questions as needed.

Activity 1A – Component Identification (Front)

Instructions:

- List the Component Name and Designation # of each component if available
- Used VIDA/TRIP laptop to support you in this activity

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Activity 1B – Component Questions (Front)

Instructions:

- Answer the following questions about some of the components listed above.
- Use VIDA/TRIP laptop to support you in this activity.

1. What coolant pump is a centrifugal pump with adjustable rotational speed? The pump module is used to pump the coolant through the high-voltage battery coolant circuit.	
2. On the live assembly 1B how many pumps and coolant valves are seen on the front drive train.	
3. Which bypass valve redirects the coolant in the electric drivetrain coolant circuit through the radiator to cool it down if the temperature of the coolant is too high?	
4. Which valve is a fully variable 3-way valve that controls the coolant flow between the climate system coolant circuit and the high-voltage battery coolant circuit?	
5. What modules are the satellite modules to the IHFA?	

Activity 1C – Component Identification (Rear)

Instructions:

- List the Component Name and Designation # if available, of each component
- Use VIDA/TRIP laptop to support you in this activity

Sticker #	

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Activity 1D – Component Questions (Rear)

Instructions:

- Answer the following questions about some of the components listed above.
- Use VIDA/TRIP Laptop to support you in this activity.

1. On component #14 what is the connector pin # for the Monitoring of proximity detection?	
2. What is the expected voltage on the proximity detection pin?	
3. Which module communicates with AC/DC chargers and the GHCA?	
4. What two components are connected through CAN to the GHCA?	
5. What is the AMP rating of the fuse in the IHRA?	

Activity 2A - INTERLOCK

- Connect to the vehicle with VIDA.
- Use VIDA tool to answer the question below regarding the Interlock Circuit.

  Planning and Diag. > Diagnostics > Components > HVBM > Diagnostic Sequences

1. Which Module is used to monitor the Interlock circuit?	
2. What are the 3 “internal battery” Interlock connectors?	
3. Once the “read” button is pushed on top right, what signals pop up?	
4. What voltage is an indication of an OPEN Circuit?	
5. How many Control Modules connect through the Interlock circuit?	
6. Name the Control modules that are connected through the interlock circuit.	
7. Disconnect the MSD. What reading are you seeing in the Parameters within VIDA?	
8. Why does the voltage change?	
9. Which Fuse box does the MSD shut off when pulled?	
10. When the MSD is open, which Relay is not active.	

11. What voltage is an indication of the INTERLOCK circuit operating as designed?	

Activity 2B –Deenergizing the Vehicle

Instructions:

- Connect the vehicle to VIDA
- Use VIDA to answer the questions below about the deenergizing process

Planning and Diagnostics > Diagnostics > Service Functions

Where do we find the deenergizing process in VIDA?	
How many Steps are listed in the de energizing process?	
Complete the deenergizing process as outlined in Vida:	
PROCESS:	
1. Preconditions	
2. Preparations	
3. Remote MSD	
• STOP “See Instructor”	
4. Voltage Conversion	
• STOP “See instructor”	

5. TCAM Backup Battery	
• STOP “See instructor”	
6. Main Battery	

Activity 2C – CMS removal/ BDU Fuse to HCLM Removal

Instructions:

- Connect the vehicle to VIDA
- Use VIDA to answer the questions below

Information > Repair > Removal-Replacement and Installation > CMS

1. In what function group do we find the CMS removal?	
2. How many subtitles are under that function group?	
3. Which PPE and tools are needed to perform the CMS removal?	
Continue with the CMS removal as layout by Vida	
4. Which Module are you disconnecting when you remove the connector on the LID of the BDU?	
5. What is the designation number of that Module?	
6. When doing the first voltage reading in the process, which contactor is the closest to	

the measuring point inside the orange cover?	
7. **<u>WARNING</u>** – At this point you must test and put on your gloves.	
8. What is the expected voltage at the measurement performed?	
9. What measurement did you receive?	
• STOP "See instructor"	
10. When replacing CMS, what is the torque requirement	
Follow the instructions as outlined within VIDA for FUSE BDU/HLCM	
11. What is the first warning Highlighted message when working on the BDU?	
12. What are and how many hyperlinks do you see during the removal process?	
13. When performing voltage readings, what are the expected voltages at the measuring points?	

Activity 2D –Reenergizing the Vehicle

Instructions:

- Connect the vehicle to VIDA
- Use VIDA to answer the questions below

<u>NOTE: #1 See instructor (ISO)</u>

<u>NOTE: #2 The service procedure for reenergizing the vehicle can be found at the end of the CMS replacement procedure.</u>

1. After 12 volts is reconnected, what test should be performed in the	

beginning of the re-energizing process		
2. In measurement 2 what tool is being tested?		
3. Why is testing the tool necessary before measurement 2?		
4. Which special tool number gets used first when testing at the EVI port?		
5. What was the spec value?		
6. What is the actual value?		
7. What was your reading? Did it pass the Isolation test?		

Activity 3A – Removal and Deenergizing of the HV Battery

Instructions:

- **ALL** PPE to be always worn while working inside the High Voltage Work Area.
- Failure to do so will result in being removed from the class.
- Follow the instructions as outlined in VIDA

Information > Removal Replacement and Installation > Internal Cable Harness/HV Battery/ Dismantling

1. When removing the HV pack, how many special tools are required?	
2. Are there special lifting points for HV battery removal from the vehicle?	
3. Is it necessary to remove the plumbing (piping) and wiring before removing the Battery LID?	
4. Where do you place the PRY bar when removing the HV LID?	
5. What's the next step after removing HV LID?	
6. Why do we remove the BUSBAR?	
7. When performing the Voltage reading after Busbar removal, what is the Expected Voltage?	
8. What could be the issue if there is voltage present at the measuring point?	
9. When reinstalling the Busbar, what type of noise did we observe?	

10. After the Busbar was installed, how many measurements are required to be taken with the Isolation meter? What were the readings?		

Activity 3B – HV Battery Component Identification

Instructions:

- List the Component Name and Designation # if available, of each component.
- Used VIDA/TRIP laptop to support you in this activity.

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Activity 3C – HV Battery Component Questions **Instructions:** • Answer the following questions about some of the components listed above. • Use VIDA/TRIP to support you in answering the following questions	
1. How many Modules are there in the HV battery pack?	
2. When the voltage measurement is taken after cell module replacement and 90v is present, is this normal? WHY?	
3. Are the Cell Modules connected in series or Parallel?	
4. Which Cell Module has its own CVTN?	
5. How many CVTNs are in the HV pack?	
6. What is the function of the HLCM?	
7. Is the HLCM liquid cooled	
8. What size Fuse protects the HLCM and where is it located	
9. Where is the EMC filter located	
10. Is the CMS located next to the negative contactor or positive contactor	
11. What is the Amperage **range** of the fast breaker in the BDU	

12. What is the function of the HVBM?	
13. Where are the Burst vents located and what is their function?	