



Service Manager Bulletin

TITLE:

Volvo Electric Vehicle Technical Live Voltage Permit to Work

GROUP:

00

NO:

018

ISSUING DEPARTMENT:

CAR MARKET:

United States and Canada

REVISIONS:

Further explanation of the purpose of the Permit to Work form (PTW)

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“Right first time in Time”

Volvo’s commitment to safety includes taking into consideration the safety and preparedness of our technicians, to properly service our vehicles.

Prior to the start of any high voltage battery work being performed, a risk assessment / safety check shall be performed. This is also known as a “Permit to Work Live Voltage”.

The Permit to Work Live Voltage document serves as an overarching communication that fully encompasses any and all electric vehicle (EV) battery repairs such as hybrids and battery electric vehicles. This document is not intended to replace or supersede any national, state, or local safety codes or regulations.

This Permit to Work Live Voltage document shall be filled out by the Advanced EV technician each time live voltage work is performed. This, for example, can include battery disconnect unit replacements, and internal high voltage battery repairs that require the lid to be removed. It also includes times when the repair takes more than one day to complete, and the technician returns to the vehicle on subsequent days.

Volvo recommends the retailer retain a copy of this completed document for a period of (7) years or as required by National, State and Local ordinances, whichever is greater.

*Retention of the Permit to Work Live Voltage document is required for Warranty and Technical auditing purposes.

Failure to produce the Permit to Work document, when requested, could result in a debit to a claim.



Along with the use of the Permit to Work Live Voltage, but not all inclusive, please reference VIDA Repair information:

Section Information > Repair > General Safety Information > 3: Electrical system > 300 General Safety information for electrically powered vehicles.

High Voltage Personal Protective Equipment (HV – PPE) Recommendations and Requirements:

- **Class 0 rubber gloves to be worn at all times**
- **Leather gloves worn over Class 0* rubber gloves when removing lid or near sharp areas**
- **Minimum Z87 face shield**
- **No metal to be worn within the electric vehicle designated work area: including jewelry, belt with buckles etc.**
- **Minimum ARC2 fire retardant long-sleeved shirt or coat**
- **Electrical hazard (EH) rated boots**

All Volvo Special Tools, designated in the VIDA Repair information, are available using normal ordering routines through Parts. Some equipment can be purchased through Wurth and the Volvo Equipment Program.

* The terms Class 0 and ICV rating of 1,000 volts are used interchangeably.



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Electric Vehicle Technical Permit-to-Work Live Voltage		
The <i>Electric Vehicle Technical Permit-to-Work Live Voltage</i> documentation and procedures must be completed by one that has a current Volvo Advanced Electric Vehicle Technician training certification.		
Section 1: Vehicle information		
Repair Order #:		VIN:
LV-PTW Number:		Date:
Vehicle Type	☐ Plugin Hybrid Electric Vehicle OR ☐ Battery Electric Vehicle	
Technician Certification Level	☐ AEVT-PHEV Certified And/OR ☐ AEVT-BEV Certified	
Section 1B: Description of Work being Performed		
RO Line Number/Letter:		
Description of diagnostics / repairs being performed:		
Section 2: Safety Controls		
Safety Chains:	Must be placed 360° around the vehicle and no less than 36" from the vehicle. Distance from chains to walls/doorways meet appropriate fire code.	☐ YES
Warning Sign:	Warning signs applied visibly on three (3) sides around the Electric Vehicle work area (secured to safety chains)	☐ YES
Prohibition Sign:	" Must not be operated. Work in progress. " The sign must be fitted or hung fully visible on the vehicle, contact details for the person responsible must be stated.	☐ YES
Site Assessment:	Site verified to be free of ceiling leaks, no trip hazards, and provided with appropriate accessibility for emergency response personnel	☐ YES
Personnel CPR:	Volvo Cars highly recommends that all personnel in the Electric Vehicle work area are CPR certified. Identify each role and their CPR certification: ☐ YES, the technician performing the work is CPR certified ☐ YES, the assistant with the emergency rescue hook is CPR certified ☐ NO, the technician performing the work is NOT CPR certified ☐ NO, the assistant with the emergency rescue hook is NOT CPR certified	
Assistance:	Technician assistant at electric vehicle work site is equipped with emergency hook and is Volvo Electric Vehicle Awareness trained.	☐ YES
Section 2B: High Voltage Personal Protective Equipment (HV-PPE)		
Gloves*:	Minimum Class 0* rated Rubber gloves with available with tester. Leather outer gloves to be worn when near sharp objects.	☐ YES
Protective Visor*:	Minimum Z87 rated face shield.	☐ YES
Clothing*:	Minimum ARC2 rated Non-melting clothing being worn, long sleeve shirt or coat	☐ YES

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Section 3: Tools and Equipment

1	Company emergency response procedures and evacuation plans are known and understood	☐ YES
2	Class 0* rated Emergency hook is available	☐ YES
3	Voltage Tester with minimum Cat3 rating	☐ YES
4	Approved and current Volvo diagnostic and repairs procedures available with VIDA access	☐ YES
5	Volvo Cars highly recommends both a functioning and charged defibrillator as well as insulated High-Voltage tools in the Electric Vehicle work area. Identify the current status of these items:	
	☐ YES, a defibrillator is available in the Electric Vehicle work area	☐ NO, a defibrillator is not available in the Electric Vehicle work area
	☐ YES, insulated high-voltage tools are available in the Electric Vehicle work area	☐ NO, insulated high-voltage tools are available in the Electric Vehicle work area

Section 4: Authorization

I confirm all the above precautions, safety requirements, tools, and equipment are available as described within their sections. I confirm that I hold the minimum certifications for Volvo Advanced Electric Vehicle Technician (AEVT).

Advanced Electric Vehicle Technician (AEVT) – Signature:

Print Name:

Date:

I confirm all the above precautions, safety requirements, tools, and equipment are available as described within their sections. I confirm that I hold the minimum certifications for Volvo Electric Vehicle Awareness and will be at the Electric Vehicle work area during the High Voltage Reduction process.

Electric Vehicle Awareness Technician (EVAT) – Signature:

Print Name:

Date:

Section 5: High Voltage Reduction

WARNING: If any steps are marked "NO", condition must be escalated to Retailer Technical Support through TIE

1	VIDA procedure available	☐ YES ☐ NO
2	Re-affirm manual MSD Isolation test proves no internal battery faults	☐ YES ☐ NO
3	PHEV Only: Go to Step 4 BEV Only: Perform voltage drop across the Battery Disconnect Unit (BDU) terminals. Is the voltage less than 60V?	☐ YES ☐ NO
4	Perform the battery lid removal process as per VIDA	☐ YES ☐ NO
5	PHEV Only: Remove all battery bus bars BEV Only: Remove the <i>ESSENTIAL COMPONENTS</i> below • Bus Bar between modules 3 and 4 • Bus Bar between modules 5 and 6 • Bus Bar between modules 15 and 16 • Bus Bar between modules 19 and 20 • Bus Bar between modules 23 and 24 • Disconnect low voltage connectors on cell modules 6, 19, 23, and 25	☐ YES ☐ NO
6	Was High-Voltage reduction successful and is the battery ready for repairs?	☐ YES ☐ NO

Section 6: Cancellation of Electric Vehicle Technical Permit-to-Work Live Voltage

1	Live Voltage repairs are complete per VIDA instructions and battery is ready to be installed into the vehicle	☐ YES (Repairs complete)
2	OR Live Voltage repairs are NOT complete	☐ NO (Repairs NOT complete)
Copy of Permit to Work Live Work document has been made and will be stored for (7) years.		☐ YES

Advanced Electric Vehicle Technician (AEVT) – Signature:

Print Name:

Date: