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High Voltage Battery Diagnostics Introduction

Function Introduction

An electric vehicle battery is often composed of many hundreds of small, individual cells arranged in a series/parallel configuration to achieve the desired voltage and capacity in the final pack. A common pack is composed of blocks of 18-30 parallel cells in series to achieve a desired voltage. For example, a 400V nominal pack will often have around 96 series blocks (as in the Tesla Model 3). Common nominal pack voltages in current vehicles range from 100V-200V for hybrid/plug-in hybrid vehicles and 400V to 800V and higher for electric-only vehicles. The reason for this is higher voltages allow more power to be transferred with less loss over the same diameter (and mass) of copper cable. This function is used to diagnose this kind of battery.



An example EV battery system with individual cells in series

When changing the control module of battery, the installation position and serial number of the battery unit and battery monitoring electronic equipment need to be transmitted to the new control module. The serial number of the high-voltage battery unit is normally located on the type plate at the housing. When changing the battery cells, we need to document the serial number of removed and installed battery cells.

If the following conditions occur, need to execute “Re-initialize and set the adjustment value of the high-voltage battery” function:

1. When the state of charge of the high-voltage battery is very low (less than 8%) and the range extender is running, power loss will occur.
2. When the state of charge of the high-voltage battery is very low (less than 8%), the range extender is unstable.
3. Vehicles without range extender: During starting or acceleration, if the state of charge of the high-voltage battery is very low (less than 8%), the high-voltage system will be shut down.

Here we have an example of how to document the serial number of cells modules when changing the battery cell modules.

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Device Requirement

PAD VII, European Euro Tab III, MM4.0.

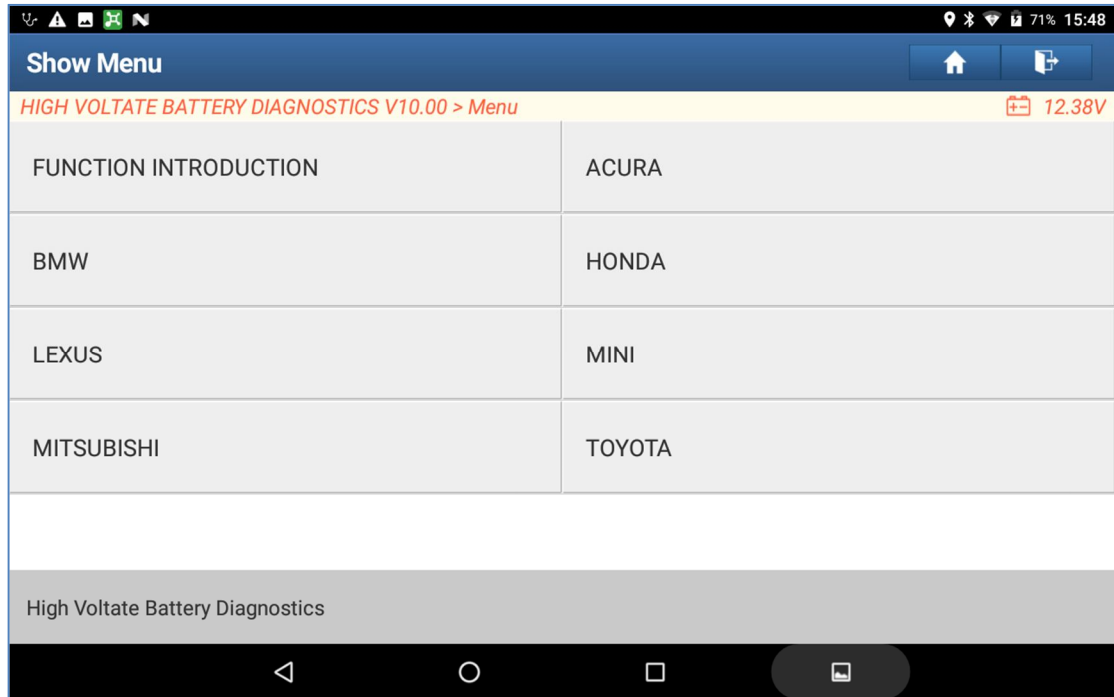
Other devices can buy “High Voltage Battery Diagnostics” function in Mall module.

Support Vehicles

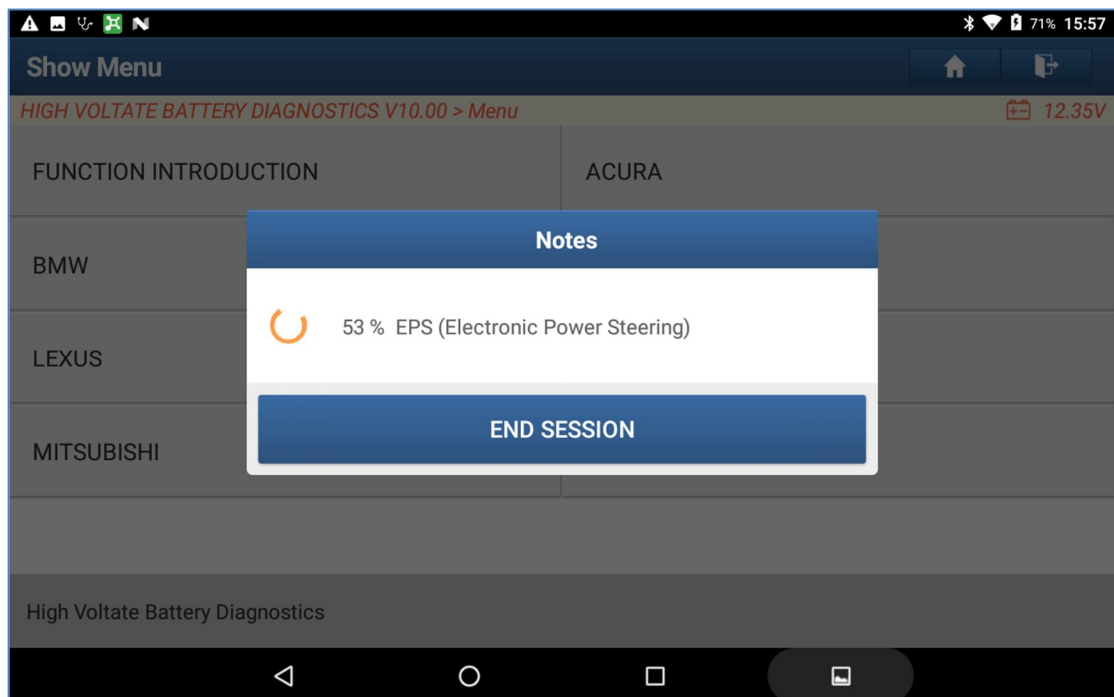
BMW, MINI, Toyota, Lexus, Honda, Acura, Mitsubishi

Operation Guide:

1. Enter “High Voltage Battery Diagnostics” V10.00, and select “BMW”.

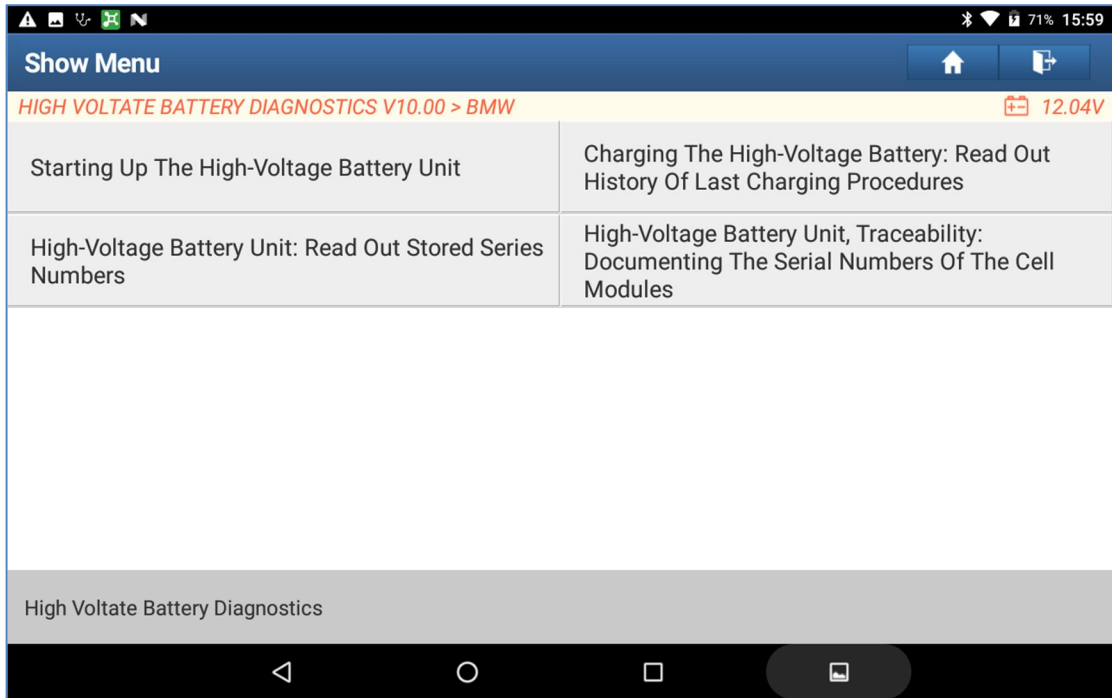


2. Scanning...

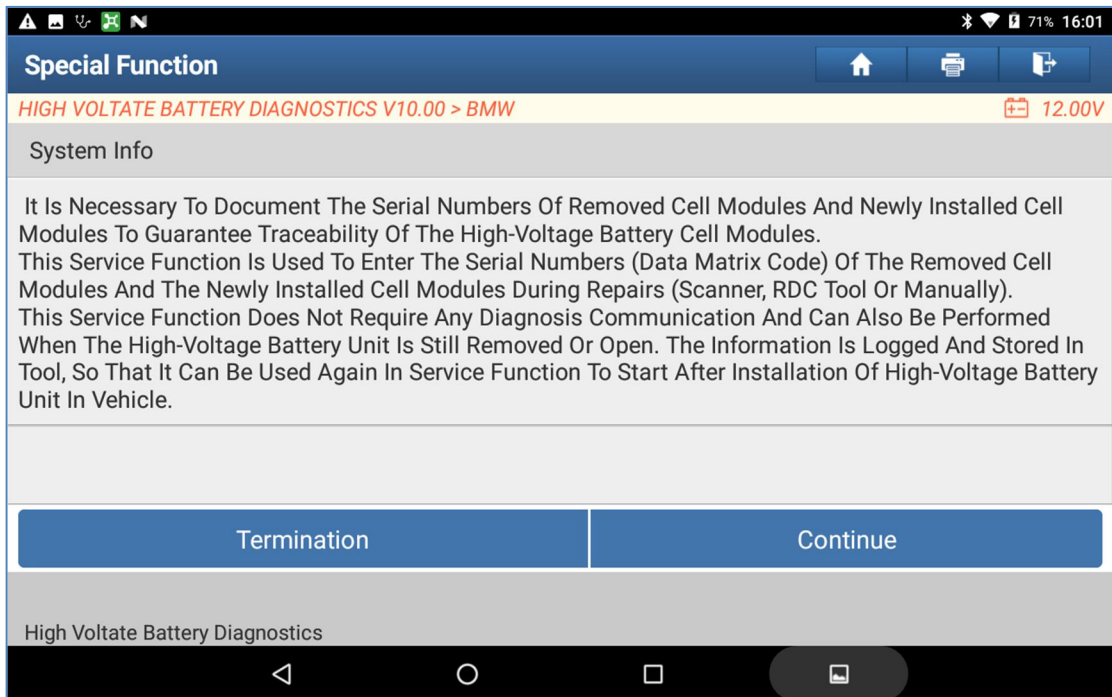


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3. Select "High-Voltage battery unit, traceability: documenting the serial numbers of the cell modules".

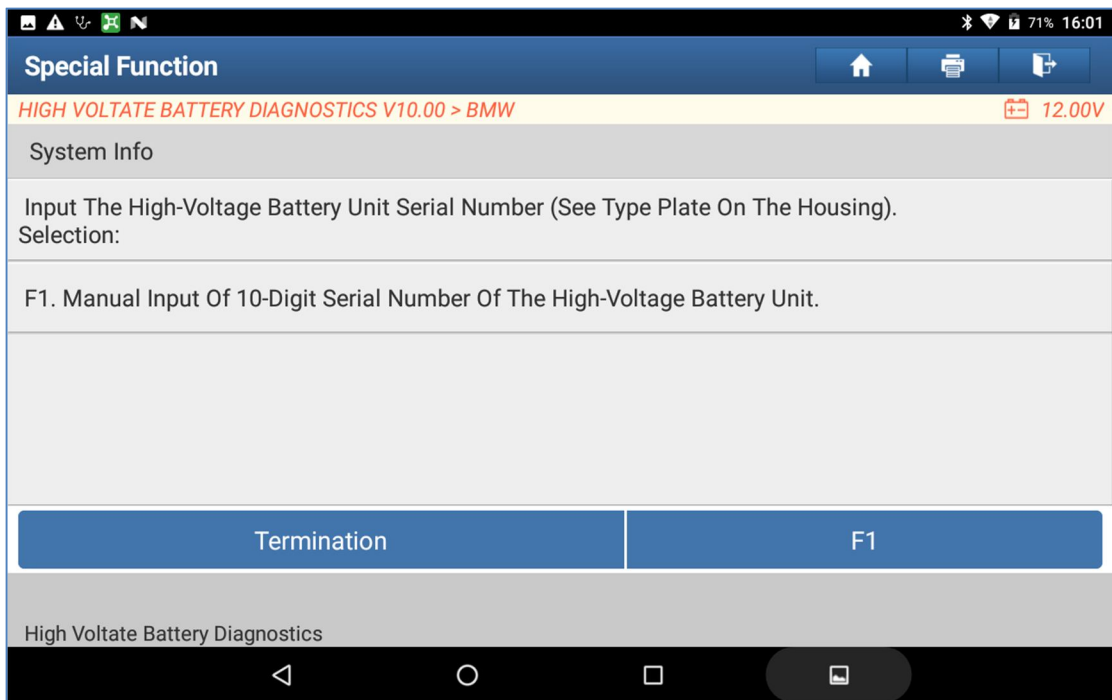


4. Read the system info carefully, and select "Continue".

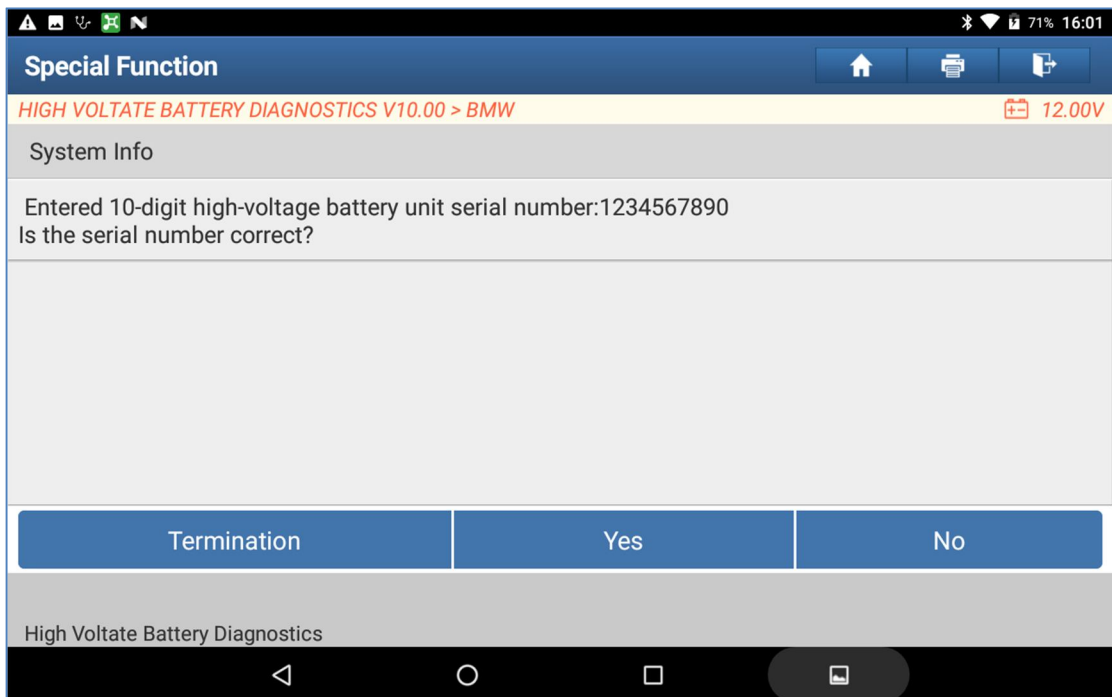


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5. Select "F1", manual input 10 digit serial number of the high voltage battery unit.

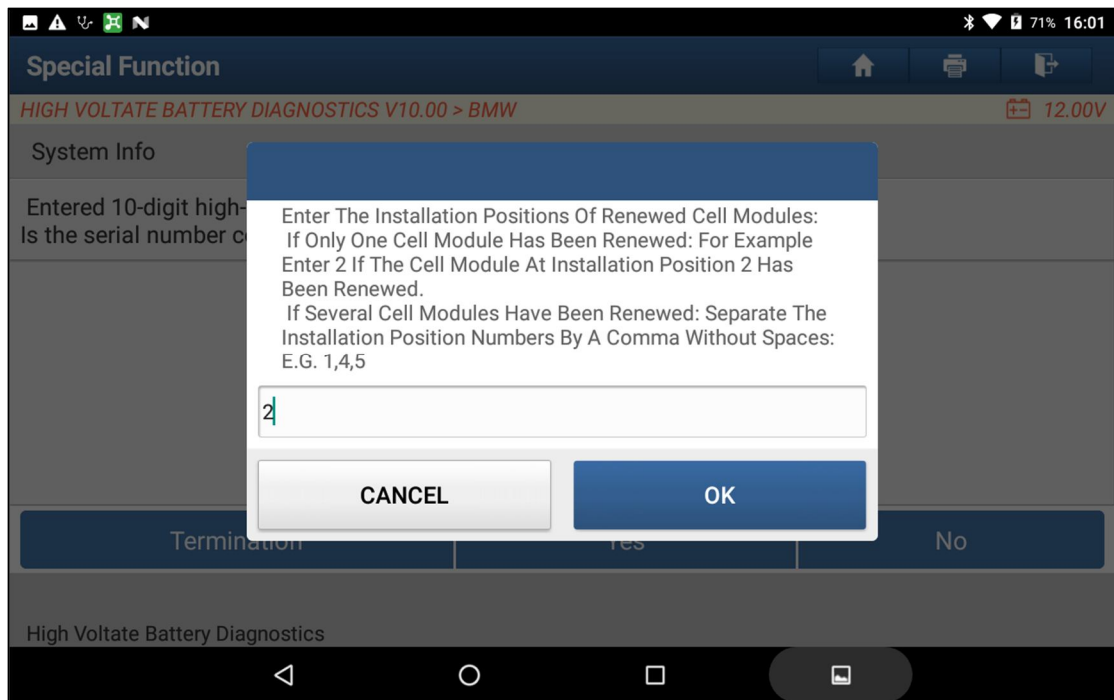


6. Input the correct serial number, the serial number of the high-voltage battery unit is normally located on the type plate at the housing here we fill "1234567890" as an example. And then click "Yes".

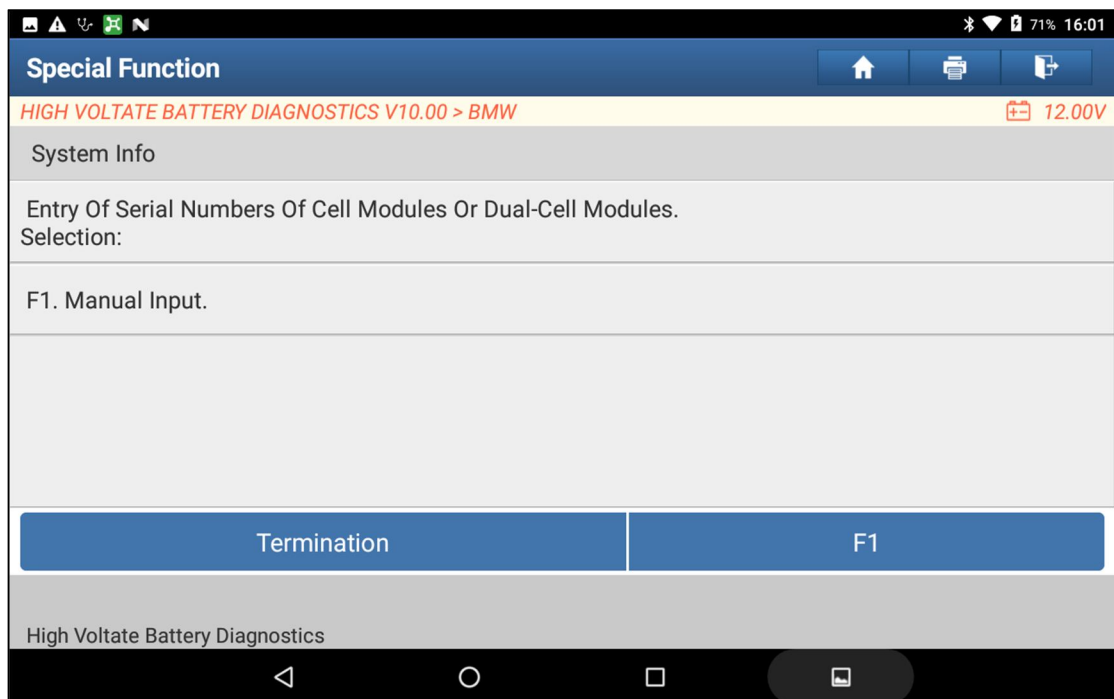


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7. Input the position of the renewed cell modules:



8. Here we need to input the serial number of cell module or dual cell modules, Select "F1".



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Battery cell example:

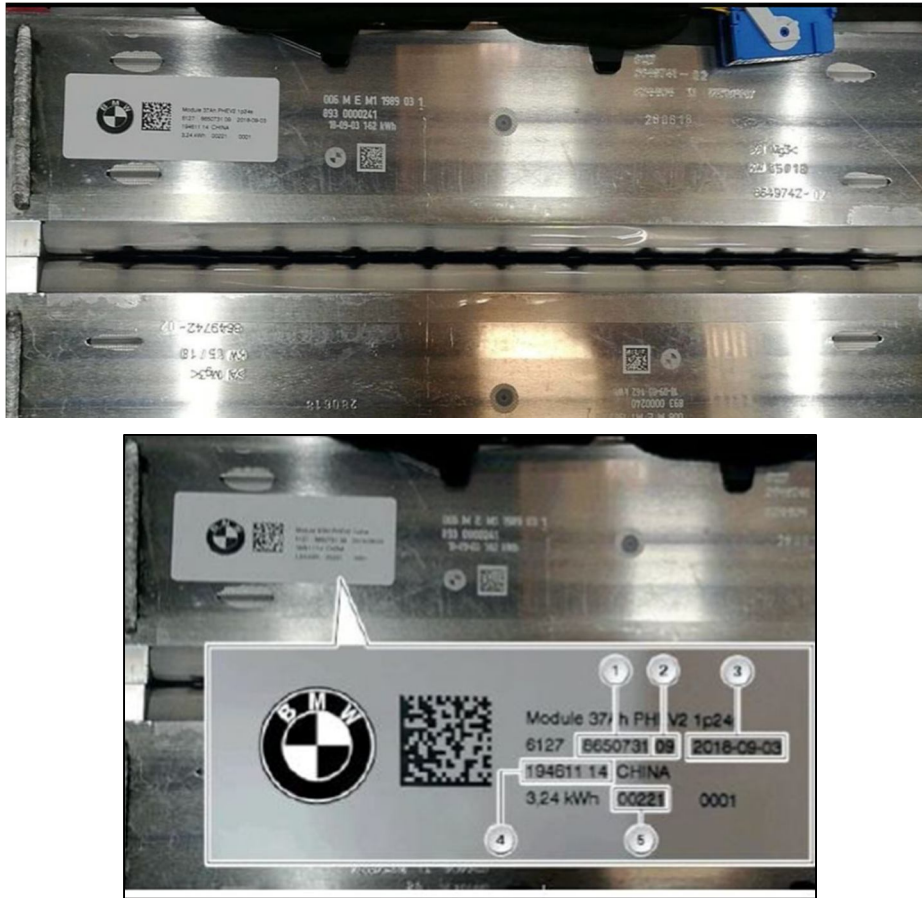
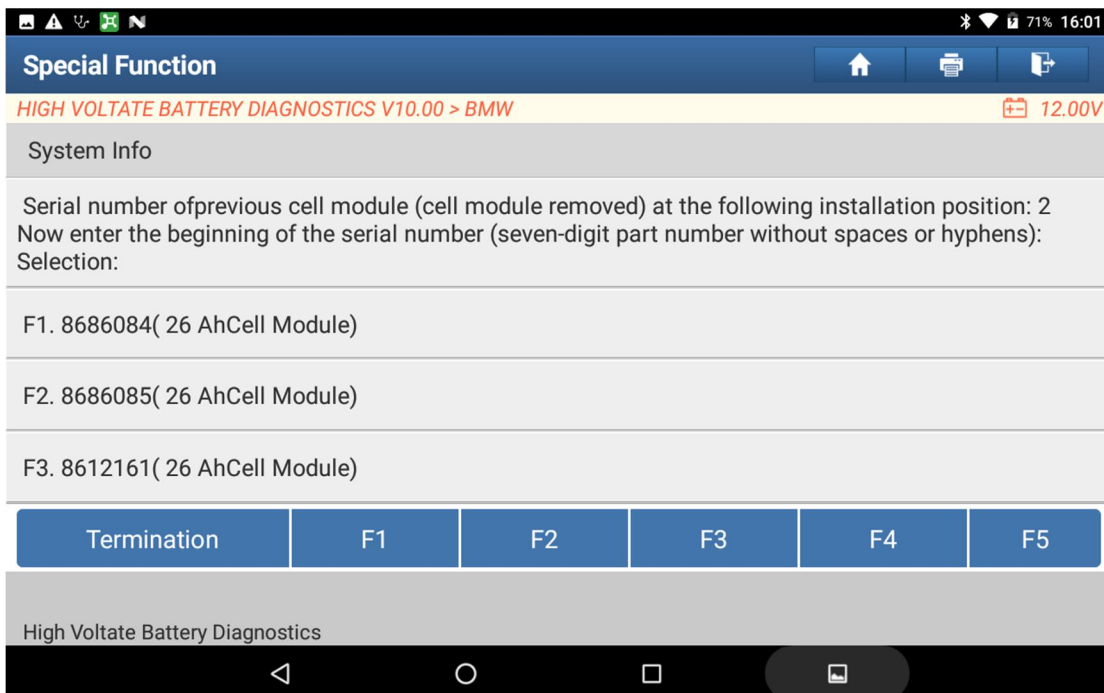


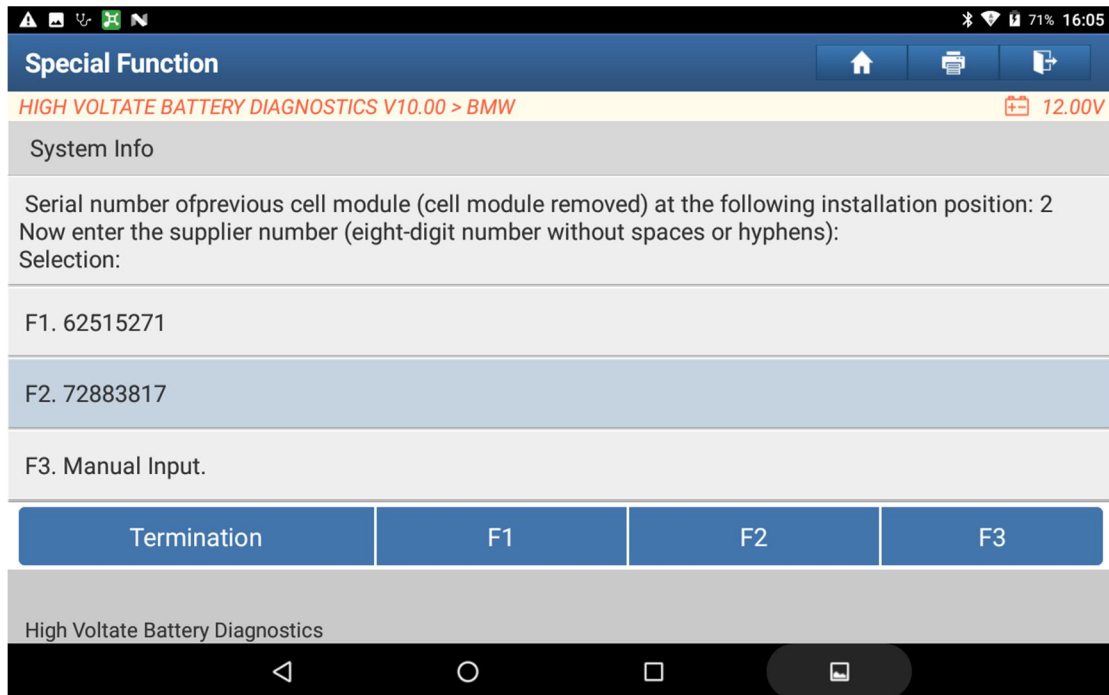
Figure 1

9. Here we need to input the beginning of the serial number (seven-digit part number without spaces or hyphens).(8650731 in figure 1)

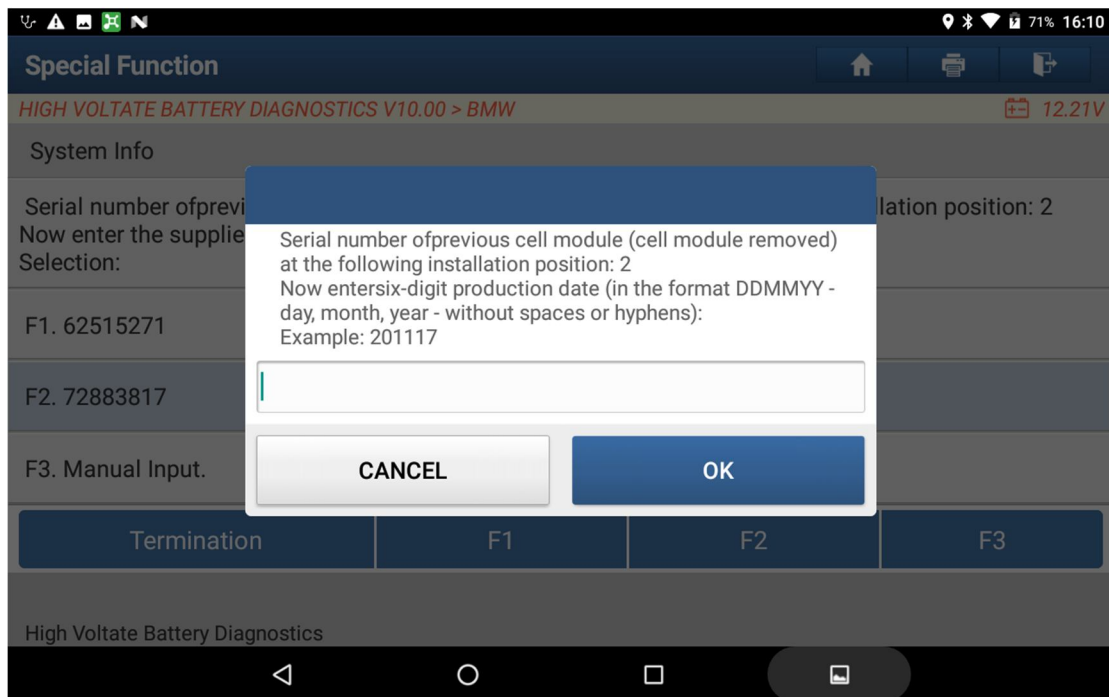


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10. Here we need to input the supplier number(19461114 in figure 1):

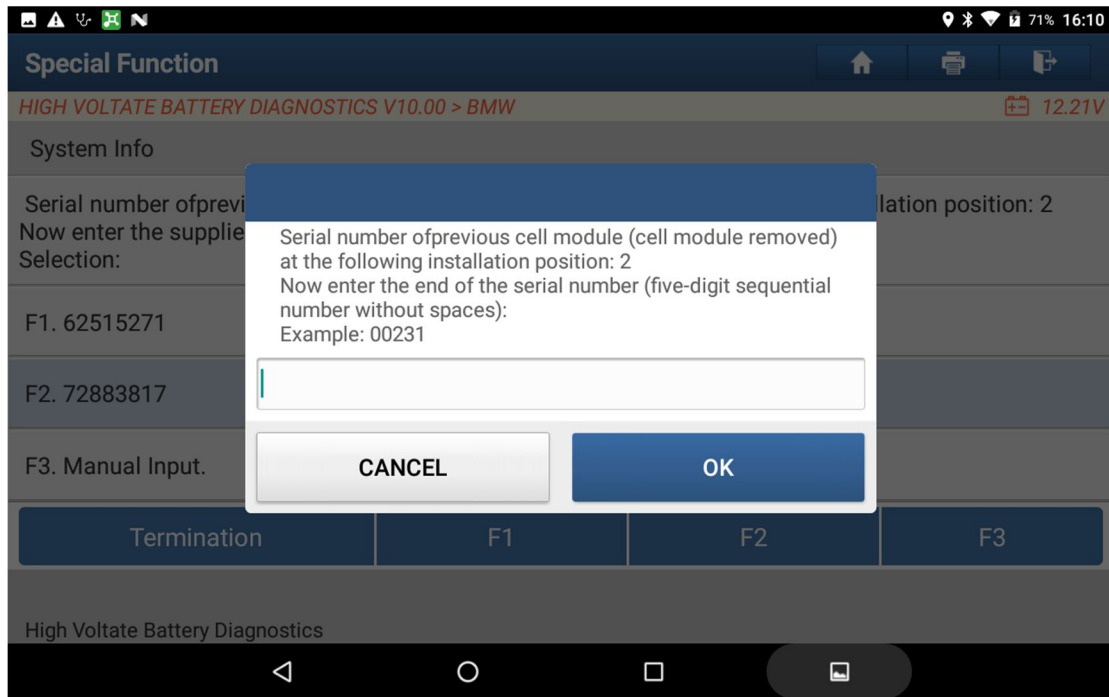


11. Here we need to fill the production date(20180903 in figure 1)

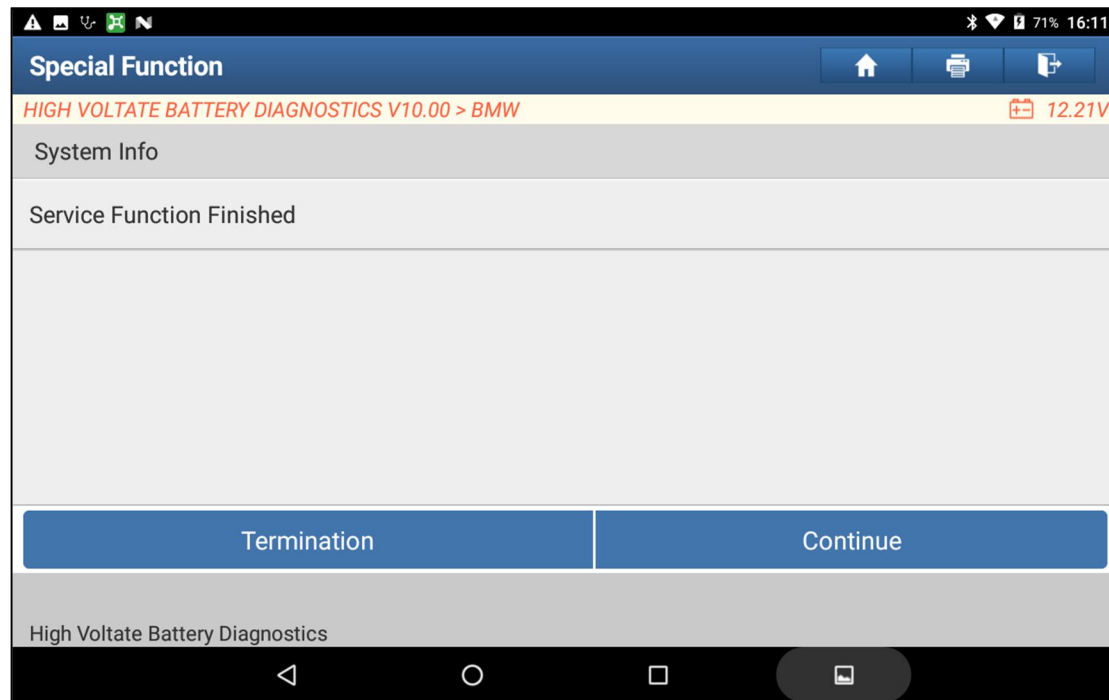


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12. Fill the end of the serial number(00221 in figure 1)



13. Finished.



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32 Service Functions

 Service Lamp Reset	 Electronic Throttle Rlrn	 Brake Reset	 Immobilizer Reset	 Battery Reset	 Injector Coding	 SAS Reset	 TPMS Reset
 ABS Bleeding	 Gear Learning	 DPF Regeneration	 Gearbox Reset	 Headlamp Reset	 Sunroof Initialization	 SUS Reset	 EGR Adaption
 A/F Reset	 AdBlue Reset	 Nox Sensor Reset	 Stop/Start Settings	 Transport Mode	 Coolant Bleed	 Windows Calibrations	 Seat Calibration
 Tyre Reset	 Language Change	 ACC System Calibration	 AC System Initialization	 Engine Power Balance Monitoring	 Gas Particulate Filter Regeneration	 Motor Angle Calibration	 High-Voltage Battery Health Detection