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# Preview Solution CBR-2454-1

## Volvo Chassis - VN (4) - Power Inverter **Operation and Verification**

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#### Valid For

Volvo Chassis - VN (4) model year 2025 to current

#### 1.0 Overview

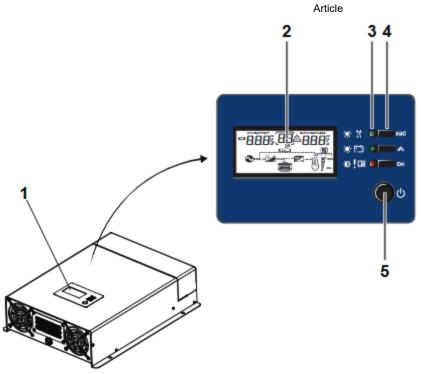
This CBR solution provides a check to ensure that the inverter is not continuously draining the batteries.

#### 1.1 Process

- When the inverter is On, it supplies 120 V AC to the 120 V AC outlets. The inverter converts the 24 V DC (Direct Current) from the battery to 120 V AC when there is no external power source connected.
- When the external 120 V AC power source is connected through a shore power connector, the inverter supplies 120 V AC to the PDU and also charges the 12 V DC batteries.
- The control panel has a display, status LEDs, function buttons and a power button. The display shows the status, malfunctions and error codes. **Inverter Operation**
- The status indicator LEDs will indicate the mode of operation.
- The function buttons on the control panel are used to change the status information that is displayed on the display, modify the mode, and carry out other functions such as turning On or Off the system alert and modifying the inverter/charger shutdown parameters.
- The power button in the control panel is used to turn On or Off the inverter/charger.

**Note:** For more information refer to:

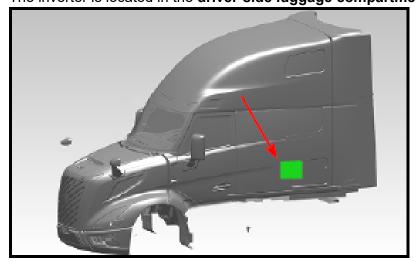
- **IMPACT** description design and function
- Owners Guide linked HERE



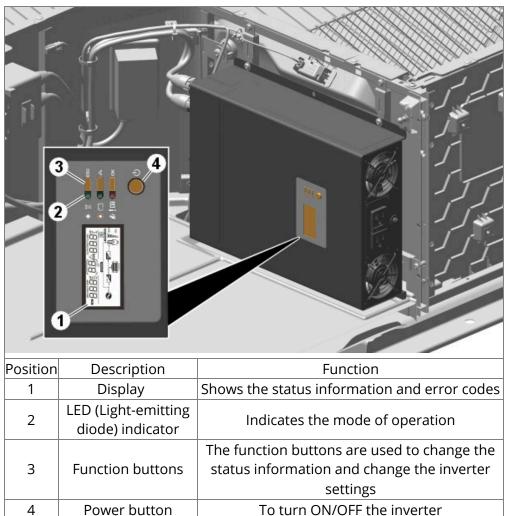
Item	Description
1	Display panel displays status information on the screen. It
	is comprised of a display screen, LEDs, and buttons.
2	Multi-function LCD screen shows status information and
	error codes.
3	Status LEDs indicate the mode of operation.
4	Three function buttons change status information
	displayed on the screen. Also, changes inverter/charger
	settings. See Freedom XC Display Panel on page 44 for
	detailed information on the panel's buttons.
5	Power [Standby] button is pressed for turning on the unit.
	The inverter turns on for the loads and when applicable,
	the charger turns on automatically.

# 1.2 Location

The inverter is located in the **driver-side luggage compartment**.







## 1.3 Inverter On/Off Logic

- The inverter can be turned on/off in VM Living, Accessory, Pre-running, or Running modes via the LECM or by pressing the button on the inverter itself.
- If in the **OFF** state in any vehicle mode, the inverter can also be turned **on or** woken up by connecting **shore power**.
- When the vehicle transitions to VM Parked from Living or another higher vehicle mode, the VMCU sends an Off request to the inverter.
  - This function works correctly, regardless of the button position on the inverter.

#### 1.4 Corner Case Issue

- The inverter's on/off button is pressed and left in the **ON** position.
- The truck transitions to **VM Parked**, and then **shore power is connected**, waking up the inverter to charge the batteries.
- When shore power is removed, the truck remains in VM Parked, meaning the VMCU does not send an Off request because it is correctly in VM Parking.
  - As a result, the inverter remains **ON indefinitely, leading to battery drain**.

#### 1.5 Additional Notes

 Engineering has observed frequent button activations at the plant during component checks, which results in vehicles leaving with the inverter button pressed.



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## 1.6 Summary

- The inverter will always shut off when the vehicle changes states.
- Potential drainage occurs when the inverter is turned on manually or when shore power is plugged/unplugged without a state change.

• Verify that the green LED is OFF to prevent continuous battery drain

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