



Technical Service Bulletin

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Power Distribution Element (PDE) Fuse Error and End of Life Fault Codes.

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Warranty Statement

The information in this document has no effect on present warranty coverage or repair practices, nor does it authorize TRP or Campaign actions.

Contents

Product Affected

- BES CM2450 EV101B

Issue

A Power Distribution Element (PDE) fuse error will activate fault codes 12167, 12168, 12169, 12171, 12172, 12173, or 13727.

A PDE end of life error will activate fault codes 11444, 11533, 11622, 11711, 11789 11878, or 13711.

Symptom:

- At least one of the following Fault Codes is active.
- PDE Fuse Error: 12167, 12168, 12169, 12171, 12172, 12173, or 13727
- PDE End of Life Error: 11444, 11533, 11622, 11711, 11789 11878, or 13711

Root Cause:

- Certain System Control Module (SCM) calibrations, Battery Management Controller (BMC) and High Voltage Battery Pack firmware can cause false occurrences of the PDE Fuse Error or End of Life fault codes.
- The diagnostics of these fault codes are different based on the SCM calibration, BMC and High Voltage Battery Pack firmware.

Verification

If technician is at the vehicle:

- Connect to recommended Cummins® electronic service tool or equivalent.
- Verify that the PDE Fuse Error or End of Life fault code is active.

Resolution

- See Service Bulletin 6482525 to determine the Road Release (RR) version of the BES.
 - **Note : If the technician is not at the vehicle, determine the SCM Calibration and RR version using the system's telematics data. See Service Bulletin 6502934 to access telematics data of the Battery Electric System (BES).**
- Reference Table 1 to determine service actions. The steps for each service action are outlined after Table 1.

Table 1, Service Actions Based on RR Version

RR7	1. If a PDE Fuse Error Fault is active, replace PDE and clear PDE fault. 2. PDE End Of Life Fault is an information only fault. If active, follow other troubleshooting steps of other active fault codes. If no other fault codes are active, no action is needed.
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Update BMS to RR7 or later:

- Update the System Control Module (SCM) calibration, Battery Management Controller (BMC) and High Voltage Battery Pack to RR7 or later.

Note : If the fault code is determined to be active using the telematics data, a replacement PDE may be ordered in parallel with updating the BMS to RR7 or later.

Replace PDE and Clear PDE Fault Code:

1. Replace the PDE of the battery pack with the PDE fuse error.
2. Launch PCAN-View and select applicable PCAN Hardware.
3. Connect to the CAN5 bus (External CAN of BMS) and verify that messages are being received.
4. Open the file corresponding to the battery with the fault you want to clear, such as "PMU1.xmt." located in the Teams Infant Care Folder. See CM2450K System Control Module (SCM) Bootloader v2.4.7.3 Not Compatible with Accelera™ Diagnostics Electronic Service Tool, TSB 250222.
5. This will populate the Transmit window with a list of messages.
6. After the messages load, click on the "Comment" column header to sort alphabetically by Comment, beginning with "P1_UL1".
7. Navigate to the "Receive / Transmit" tab.
8. With the "Transmit" window active... navigate to "Select All" from the Edit menu.
9. After all messages have been highlighted, hit the space bar to transmit all six messages.

Note : the "Count" column should increment for all messages.

10. Key OFF vehicle.
11. Wait 1 minute.

12. Turn OFF low voltage battery.

13. Wait 1 minute.

14. Turn ON low voltage battery.

15. Wait 1 minute.

16. Key ON vehicle.

17. Verify that the PDE Fuse Error or End of Life fault code is no longer active.

18. If any of the fault codes are active after completing the steps above, follow published troubleshooting steps.

Document History

Date	Details
2023-5-30	Module Created
2023-8-28	Added "Replace the PDE of the battery pack with the PDE fuse error."
2024-2-1	Updated document to include Power Distribution Element (PDE) Fuse Error and End of Life Fault Codes strategy.
2024-3-4	Added requirement for RR7 or later.
2026-5-29	Updated Resolution section.

Last Modified: 12-Jun-2026