

Service Update – Ford Battery Management System

Service Update #21-0402



E-Series May Exhibit Similar Characteristics

Recently a Ford E-450 with a Micro Bird body was presented to us with an issue where the body light failed to work. Basic diagnostics showed that there were no apparent issues and the lights should be operating.

Working with Micro Bird and performing several tests on the system, their thought was that it was a chassis issue and should be taken to a Ford dealer, which was done, and they stated that their systems were operating properly.

Continuing to work closely with Micro Bird, they had seen similar issues presented on a newer Ford “Transit” product that is equipped with a “Battery Management System “(BMS).

PLEASE NOTE: Presence of the BMS can be determined by a sensor attached to the negative terminal of the battery as shown in the photo above.

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The battery management system (BMS) monitors battery conditions and takes actions to extend battery life. If excessive battery drain is detected, the system may temporarily disable certain electrical features to protect the battery. Those electrical accessories affected include the rear defrost, heated/cooled seats, climate control fan, heated steering wheel, audio, and navigation system. A message may be shown in the information displays to alert the driver that battery protection actions are active. These messages are only for notification that an action is taking place, and not intended to indicate an electrical problem or that the battery requires replacement.

There is a “RESET” procedure for this system and on this particular unit we were asked to perform the reset even though the unit in theory would not have the system. Upon performing the reset, the unit’s lights then properly operated. After research by Micro Bird, it was determined that the “Vehicle Control Unit” may present similar behavior in certain circumstances and conclusion was made that the reset procedure can be performed on an E-Series unit even without the presence of the BMS system.

The following procedure resets the value for the BMS:

1. Close all doors, windows and hood
2. Turn key in ignition to ON (not accessory)
3. Set the exterior light switch to A for automatic or only parking lights
4. Within 10 seconds, activate the high beam lights pulling the arm towards you 5 to 7 times
5. Then press and release the brake pedal 3 times
6. Wait for the battery indicator in dash to flash

It is recommended to leave the vehicle without using it for 8 hours after procedure for BMS to finish recalibration.

The bus can go in 3 different states after procedure

1. Problem goes away (solved)
2. Problem reappears and is linked to the chassis
3. Problem reappears and is linked to an MB installed option

For #1, we can assume it was a false reading/alarm. This would be the situation with the E-450.

For #2 and #3, diagnosis needs to be done.

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Notes on units equipped with a Battery Management System:

- To ensure proper operation of the BMS, any electrical devices that are added to the vehicle should not have their ground connection made directly at the negative battery post. A connection at the negative battery post can cause inaccurate measurements of the battery condition and potential incorrect system operation.
- When a battery replacement is required, the battery should only be replaced with a Ford recommended replacement battery which matches the electrical requirements of the vehicle. After battery replacement, or in some cases after charging the battery with the external charger, the BMS requires eight hours of vehicle sleep time (key off with doors closed) to relearn the new battery state of charge. Prior to relearning the state of charge, the BMS may disable electrical features (to protect the battery) earlier than normal.

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