



# TECHNICAL SERVICE BULLETIN

## 3.5L PowerBoost - Trailer Brake System Fault See Manual Message In The IPC - DTCs U0140:87, U0143:87, And/Or U0444:82 Stored In The TRM

24-2116

23 April 2024

### Model:

Ford 2023 F-150	Engine: 3.5L PowerBoost
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**Markets:** North American markets only

**Issue:** Some 2023 F-150 vehicles equipped with a 3.5L PowerBoost engine may exhibit a **Trailer Brake System Fault See Manual** message in the IPC and/or DTC U0140:87, U0143:87, and/or U0444:82 stored in the TRM. These symptoms can occur without a trailer connected to the vehicle. This may be due to the software level of the GWM. To correct the condition, follow the Service Procedure to reprogram the GWM software using the latest software version of the FDRS scan tool.

**Action:** Follow the Service Procedure to correct the condition on vehicles that meet all of the following criteria:

- 2023 F-150
- Equipped with a 3.5L PowerBoost engine
- DTCs U0140:87, U0143:87, and/or U0444:82 stored in the TRM

### Parts - Parts To Inspect And Replace Only If Necessary

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
BAGM-48H6-760	Only If Necessary (up to 1)	Only If Necessary	1	Battery (760 Amp)
BAGM-94RH7-800	Only If Necessary (up to 1)	Only If Necessary	1	Battery (800 Amp)

Claim Quantity refers to the total number of individual pieces required to repair the vehicle.

Package Order Quantity refers to the amount of the service part number package(s) required to repair the vehicle.

Number In Package refers to the number of individual pieces included in a service part number package.

Only If Necessary indicates the part is not mandatory.

**Warranty Status:** Eligible under provisions of New Vehicle Limited Warranty (NVLW)/Service Part Warranty (SPW)/Special Service Part (SSP)/Extended Service Plan (ESP) coverage. Limits/policies/prior approvals are not altered by a TSB. NVLW/SPW/SSP/ESP coverage limits are determined by the identified causal part and verified using the OASIS part coverage tool.

### Labor Times

Description	Operation No.	Time
2023 F-150 3.5L PowerBoost: Reprogram The Appropriate Modules As Required By The Software Update And Service Procedure (Do Not Use With Any Other Labor Operations)	MT242116	Actual Time

### Repair/Claim Coding

Causal Part:	14G490
Condition Code:	04

## Service Procedure

**NOTE:** Ask the customer to bring their spare key fob to assist in the FDRS programming. The time required to complete this procedure will vary depending on several factors including the number of module software updates required, available internet bandwidth, USB flash drive variability, and the potential that CAN flashing (software update via the DLC with FDRS) may be required. It is recommended to connect to the internet with an ethernet cable and use a USB 3.2 capable flash drive when performing software updates.

1. Start an FDRS session and navigate to Toolbox tab > Datalogger > BCM and select the BATT\_SOC\_PID. Verify the PID reads 50% or higher. If SOC is less than 50%, charge the battery by attaching the battery charger's negative clamp to the engine or chassis ground and not the negative battery terminal. Refer to WSM, Section 414-01.

**NOTE:** Connecting the battery charger negative clamp directly to the battery negative terminal might result in the SOC\_PID not immediately reflecting the improvement from charging. It is not necessary to perform a BMS reset unless the battery is replaced.

- (1). If the battery is unable to achieve a 50% SOC then a new battery may be required. Use the Rotunda GRX-3590 or DCA-8000 testers to verify if replacement is required. If the battery is replaced, fully charge the new battery, then disconnect the Rotunda charger and perform a BMS reset using the FDRS scan tool.
2. Reconnect the battery charger and set it to maintain a vehicle voltage of 12.6-13.6 volts. A low battery state of charge while performing a software update to any module may result in a repeat **Restart Required** message in the vehicle's center display screen or a message on the FDRS saying **Part Number Validation Failed** or **DID Validation Failed**.
3. Are there any updates available for the GWM, TCU, or APIM?
  - (1). Yes - proceed to Step 4.
  - (2). No - this article does not apply. Refer to WSM, Section 415-00.
4. Perform the Module Software Updating Procedures outlined below for the GWM, TCU, and APIM. Perform a network test after each software update using the latest software level of the FDRS scan tool. This refreshes the list of modules that have available software updates based current module software levels. Continue performing software updates to the GWM, TCU, and APIM until all available software updates for those modules are complete. If any error conditions are experienced during programming, refer to WSM, Section 418-01A > General Procedures > Module Programming for the Error Condition Table.

## Module Software Updating Procedure

The following instructions apply when performing a software update on any of the following modules:

- GWM
- TCU
- APIM

**NOTE:** A 32GB or larger USB flash drive is required for software updates. USB 3.2 or higher is recommended for faster file transfer. Make sure the USB flash drive being used is formatted correctly. To see the available drives, hold down the Windows icon keyboard key and press the E keyboard key. Right click on the USB flash drive and select Properties. If File System under the General tab is not exFAT, the drive must be formatted.

To format the USB flash drive:

- Right click on the USB flash drive
  - Select Format, select exFAT for the File System
  - Select Default Allocation Size for the Allocation Unit Size
  - De-selecting Quick Format is not necessary and results in a lengthier operation
1. Using the FDRS, begin module programming by selecting the SW Updates tab. Download and run the application for desired module. Follow all on-screen instructions carefully.
  2. When prompted, connect the USB flash drive to the FDRS.
  3. When prompted by the FDRS, safely remove/eject the USB flash drive from the PC, turn the vehicle to KOER. Connect the USB flash drive to the media hub to install the software update. The update starts automatically and may take 10 minutes or longer to complete.

**NOTE: It may take up to 5 minutes for the vehicle to recognize the USB flash drive with software update.**

4. When the vehicle's center display screen prompts to restart the vehicle:

- (1). Turn the vehicle OFF.
- (2). Wait 10 minutes.
- (3). Turn the vehicle to KOER.
- (4). Leave the USB flash drive inserted into the vehicle, until the vehicle's center display screen states programming successful.

**NOTE: It may take up to 5 minutes before the vehicle's center display screen displays the Update Successful pop-up. After 5 minutes if Successful pop-up is not shown on the center display screen, remove the USB flash drive and select YES on the FDRS Was The USB Update Successful prompt ( FDRS verifies if the module software update was successfully installed on the module).**

5. Continue following the FDRS prompts to complete all GWM/ TCU/ APIM software updates.

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NOTE: The information in Technical Service Bulletins is intended for use by trained, professional technicians with the knowledge, tools, and equipment to do the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by "do-it-yourselfers". Do not assume that a condition described affects your car or truck. Contact a Ford or Lincoln dealership to determine whether the Bulletin applies to your vehicle. Warranty Policy and Extended Service Plan documentation determine Warranty and/or Extended Service Plan coverage unless stated otherwise in the TSB article. The information in this Technical Service Bulletin (TSB) was current at the time of printing. Ford Motor Company reserves the right to supersede this information with updates. The most recent information is available through Ford Motor Company's on-line technical resources.