



# TECHNICAL SERVICE BULLETIN

## Programmable Module Installation (PMI) For Image Processing Module A (IPMA)

23-2170

01 June 2023

**Model:**

<b>Ford</b>
2021 Mustang Mach-E
2021 F-150

**Issue:** Some 2021 Mustang Mach-E and F-150 vehicles may fail PMI for the IPMA using the Ford Diagnosis and Repair System (FDRS) with an error stating Procedure Unsuccessful - GetFlashActionPartNumbers Unable To Obtain Flash Action Part Numbers From Available Topology if the power steering control module (PSCM), cruise control module (CCM), camera module - rear (CMR) and/or instrument panel cluster (IPC) are not at their latest software level prior to attempting PMI. To correct this condition follow the Service Procedure to update each of the modules necessary to complete PMI for the IPMA.

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

- 2021 F-150/Mustang Mach-E
- Encountered an error when attempting to perform PMI for the IPMA

**Parts****Parts To Inspect And Replace Only If Necessary**

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
BHAGM-H3	If Needed	Battery (Mustang Mach-E) - Refer To The Parts Catalog For The VIN Specific Application	1	1
BAGM-94RH7-800	If Needed	Battery (F-150, 800 Amp) - Refer To The Parts Catalog For The VIN Specific Application	1	1
BAGM-48H6-760	If Needed	Battery (F-150, 760 Amp) - Refer To The Parts Catalog For The VIN Specific Application	1	1
BAGM-49H8	If Needed	Battery (F-150, 850 Amp) - Refer To The Parts Catalog For The VIN Specific Application	1	1

Quantity refers to the amount of the service part number required to repair the vehicle.

Unit of Issue refers to the number of individual pieces included in a service part number package.

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

As Needed indicates the amount of the part may vary and/or is not a whole number. Parts can be billed out as non-whole numbers, including less than 1.

If Needed 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	Time
2021 Mustang Mach-E/F-150: Reprogram The Appropriate Modules As Required By The Software Update And Service Procedure (Do Not Use With Any Other Labor Operations)	Actual Time

**Repair/Claim Coding**

Causal Part:	RECAL
Condition Code:	04

**Service Procedure**

**NOTE: Ask the customer to bring their spare key fob to assist in the Ford Diagnosis and Repair System (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, universal serial bus (USB) flash drive variability, and the potential that controller area network (CAN) flashing (software update via the data link connector [DLC] with FDRS) may be required. It is recommended to connect to the internet with an ethernet cable and use a USB 3.0/3.1 capable flash drive when performing software updates.**

1. Start an FDRS session and navigate to Toolbox tab > Datalogger > body control module (BCM) and select the BATT\_SOC parameter identification (PID). Verify the PID reads 50% or higher. If state of charge (SOC) is less than 50%, charge the battery then navigate back to Toolbox tab > BCM > Reset Battery Monitor Sensor Learned Values application. Perform the battery monitor sensor (BMS) reset.
  - (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 recharge 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 center screen or a message on the FDRS saying Part Number Validation Failed or DID Validation Failed.
3. Are there any updates available for the gateway module A (GWM), SYNC module (APIM) or telematics control unit module (TCU)?
  - (1). Yes - proceed to Step 4.
  - (2). No - proceed to Step 5.
4. Perform the Module Software Updating Procedures outlined below for the GWM, APIM and TCU. Perform a network test after each software update using the latest software level of the FDRS scan tool. This will refresh the list of modules that have available software updates based current module software levels. Continue performing software updates 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.
5. For Mustang Mach-E vehicles, reprogram the PCM using the latest software level of the FDRS. Follow all on-screen instructions carefully to complete all coordinated module software updates.
6. Reprogram each of the following modules to the latest software level using FDRS in the following order:
  - IPC
  - PSCM
  - CMR
  - CCM

**Module Software Updating Procedure**

**NOTE: Depending on the current software level of the modules, all the following updates may not be required.**

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

- GWM
- TCU
- APIM

**NOTE: If the next update is not showing available, perform a network test and recheck availability.**

**NOTE: A 32GB or larger universal serial bus (USB) flash drive is required for the GWM, TCU, APIM and IPC software updates. USB 3.0 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 will result in a lengthier operation.

1. Using the FDRS, begin module programming by selecting the SW Updates tab. Follow all on-screen instructions carefully. Perform the next available update.
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 FDRS and connect it to the USB media hub to install the software into the module. When the USB software update begins, the center display screen displays a message stating Do Not Remove USB. The update 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.
4. When the pop-up stating Restart Required appears on the center display screen:
  - (1). Turn the ignition off.
  - (2). Wait for 10 minutes.
  - (3). Restart the vehicle (key-on vehicle running/ready). The update is still in progress at this time.

**NOTE: It may take up to 5 minutes before the center display screen displays Update Successful pop up. After 5 minutes if Update Successful pop up is not shown on the center display screen, remove the USB 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. Once the pop up stating Update Successful appears in the center display screen, select Close, remove the USB flash drive from the USB media hub, and select Yes on FDRS indicating the update installed successfully. This initiates the remaining automated configuration steps and reports the module software part numbers and application software levels to the Ford online database. Failure to follow this step results in an inaccurate database as well as omitted, improperly installed, or improperly configured applications (features) such as navigation (if equipped). It is normal for the module to reset during this step.

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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.