

CERTAIN 2021-2023 MODEL YEAR MUSTANG MACH-E VEHICLES — POWERTRAIN CONTROL MODULE - COORDINATED SOFTWARE UPDATES

SERVICE PROCEDURE

IMPORTANT! The Service Technician Specialty Training (STST) Competency 10 certification requirement, for U.S. market only, will be enforced starting with repair orders opened on or after April 1, 2024. Field Service Action (FSA) repairs will reject if the repairing technician is not certified in STST Competency 10 FSA. See Electronic Field Communication (EFC) 14251 for more details.

Module Programming

NOTE: Program appropriate vehicle modules before performing diagnostics and clear all Diagnostic Trouble Codes (DTCs) after programming. For DTCs generated after programming, follow normal diagnostic service procedures.

1. Connect a battery charger to the 12 Volt (V) battery.

- Use of a heavy-duty charger is recommended to maintain proper battery voltage during this procedure.

NOTE: Verify the negative cable of the charger is installed on a chassis or engine ground and not the 12V battery negative terminal to prevent the battery saver mode from activating on the vehicle.

NOTE: If the diagnostic software does not load or if the vehicle cannot be identified properly, make sure there is a good internet connection and the Vehicle Communication Module (VCM) is properly connected to the Data Link Connector (DLC).

2. Log into Ford Diagnostic and Repair System (FDRS).

NOTE: Vehicle information is automatically retrieved by the diagnostic software and a Network Test is run. Vehicle identification data appears on the screen when this is complete.

3. Click **Read VIN from Vehicle** or manually enter the Vehicle Identification Number (VIN).



NOTE: Available modules are shown on the left hand (LH) side of the screen and available procedures are listed on the right hand (RH) side of the screen. Modules that are communicating are highlighted in green.

4. Select **Toolbox** tab.

5. Select the **SW Updates** tab on the RH side of the screen. See Figure 1.



FIGURE 1

6. From the list on the RH side of the screen, select **PCM - Powertrain Control Module (PCM) Software Update**.

NOTE: After the programming of the PCM, the FDRS will automatically prompt you to update the necessary modules based on the vehicles options. Follow the on-screen instructions to complete the update.

7. Click **RUN**. Follow all on-screen instructions carefully. Follow the on-screen instructions and complete the remainder of the updates, until the update is complete.

8. Check and clear all Continuous Memory Diagnostic Trouble Codes (CMDTCs).

9. Disconnect the battery charger from the 12V battery.



Important Information for Module Programming

NOTE: When programming a module, use the following basic checks to ensure programming completes without errors.

- Make sure the 12V battery is fully charged before carrying out the programming steps and connect FDRS/scan tool to a power source.

NOTE: A good internet connection is necessary to identify the vehicle and to load the diagnostic software.

- Inspect the Vehicle Communication Module II (VCM II)/Vehicle Communication Module III (VCM III) or the Vehicle Communication and Measurement Module (VCMM) and the cables for any damage. Make sure scan tool connections are not interrupted during programming.
- A hardwired connection is strongly recommended.
- Turn off all unnecessary accessories (radio, heated/cooled seats, headlamps, interior lamps, HVAC system, etc.) and close doors.
- Turn the accessories back on after programming has completed.
- Disconnect/depower any aftermarket accessories (remote start, alarm, power inverter, CB radio, etc.).
- Follow all scan tool on-screen instructions carefully.
- Disable FDRS/scan tool sleep mode, screensaver, hibernation modes.
- Create all sessions key on engine off (KOEO). Starting the vehicle before creating a session will cause errors within the programming inhale process.

Recovering a module when programming has resulted in a blank module

- a. Disconnect the VCM II/VCM III or the VCMM from the data link connector (DLC) and your computer.
- b. After ten seconds, reconnect the VCMII/VCMIII or the VCMM to the DLC and the PC. Launch FDRS. The VCMII/VCMIII or the VCMM icon should turn green in the bottom right corner of the screen. If it does not, troubleshoot the FDRS to VCM connection.
- c. If you are using the same FDRS as the initial programming attempt, select the appropriate VIN from the Vehicle Identification menu. If you are using a different FDRS, select "Read VIN from Vehicle" and proceed through the Network Test.
- d. In the Toolbox menu, navigate to the failed module and Download/Run Programmable Module Installation (PMI). Follow the on-screen prompts. When asked if the original module is installed, select "No" and continue through the installation application.
- e. Once programming has completed, a screen may list additional steps required to complete the programming process. Make sure all applicable steps are followed in order.

