CERTAIN 2021-2023 MODEL YEAR MUSTANG MACH-E AND 2022-2023 TRANSIT BATTERY ELECTRIC VEHICLE (BEV) — HIGH VOLTAGE BATTERY MODULE REPLACEMENT

SERVICE PROCEDURE

WARNING: Service of the high voltage system on this vehicle is restricted to qualified personnel. The required qualifications vary by region. Always observe local laws and legislative directives regarding electric vehicle service. Failure to follow this instruction may result in serious personal injury or death.

WARNING: To prevent the risk of high-voltage shock, always follow precisely all warnings and service instructions, including instructions to depower the system. The high-voltage system utilizes approximately 450 volts DC, provided through high-voltage cables to its components and modules. The high-voltage cables and wiring are identified by orange harness tape or orange wire covering. All high-voltage components are marked with high-voltage warning labels with a high-voltage symbol. Failure to follow these instructions may result in serious personal injury or death.

WARNING: Never install the service disconnect plug when a high-voltage service cover is removed. Always install the cover prior to connecting the service disconnect plug. The cover prevents inadvertent contact with the high voltage which is present at several points under the cover. Failure to follow these instructions may result in serious personal injury or death.

WARNING: Disconnect the 12 volt (V) battery before servicing the direct current to alternating current (DC-AC) inverter or alternating current (AC) powerpoint to prevent the risk of high voltage shock. Failure to follow this instruction may result in serious personal injury.

WARNING: Any fluid or gel found within the high voltage battery tray is to be treated as battery acid and requires safety glasses and rubber gloves prior to clean up.

NOTE: If you do not have the special tools referenced in the Workshop Manual (WSM) to perform the FSA repair, please contact 1-800 ROTUNDA and choose option 3 to place an order.

NOTE: It is recommended to discharge the vehicle battery down to 25%-30% before beginning any of the following work. Allow the vehicle to run with all the accessories running if at full charge. If unable to discharge the battery, each *new* module can take up to 7 hours to charge, and up to 14 hours per array.

NOTE: With the high voltage battery removed, if the 12V battery is reconnected the vehicle will remain in Emergency Mode until the brake is pressed.

NOTE: If you become locked out of the vehicle, there is an access plug within the rear bumper.

NOTE: If the Ford Diagnostic and Repair System (FDRS) cannot communicate with the Battery Energy Control Module (BECM) contact the Technical Assistance Center (TAC) for diagnostic support.

1. Using FDRS or similar diagnostic scan tool, Check for DTCs. Is DTC P0AA6, P0B24, and/or P0DE6 present?

   YES - Contact the TAC for diagnostic support.
   NO - Proceed to Step 2.

NOTE: Make sure that the FDRS release level is at 37.4.4 or higher.

2. Using FDRS, perform a Battery Energy Control Module (BECM) battery health check and record the BECM health tool generated target voltage code.

3. Remove the High Voltage Battery Cover. Follow the Workshop Manual (WSM) procedures in Section 414-03A.

NOTE: For extended-range batteries, the fifth row may need to be removed if all of the affected SN are not found within the visible 5 rows and inspection of the fifth lower is needed. Follow the WSM procedures in Section 414-03A.

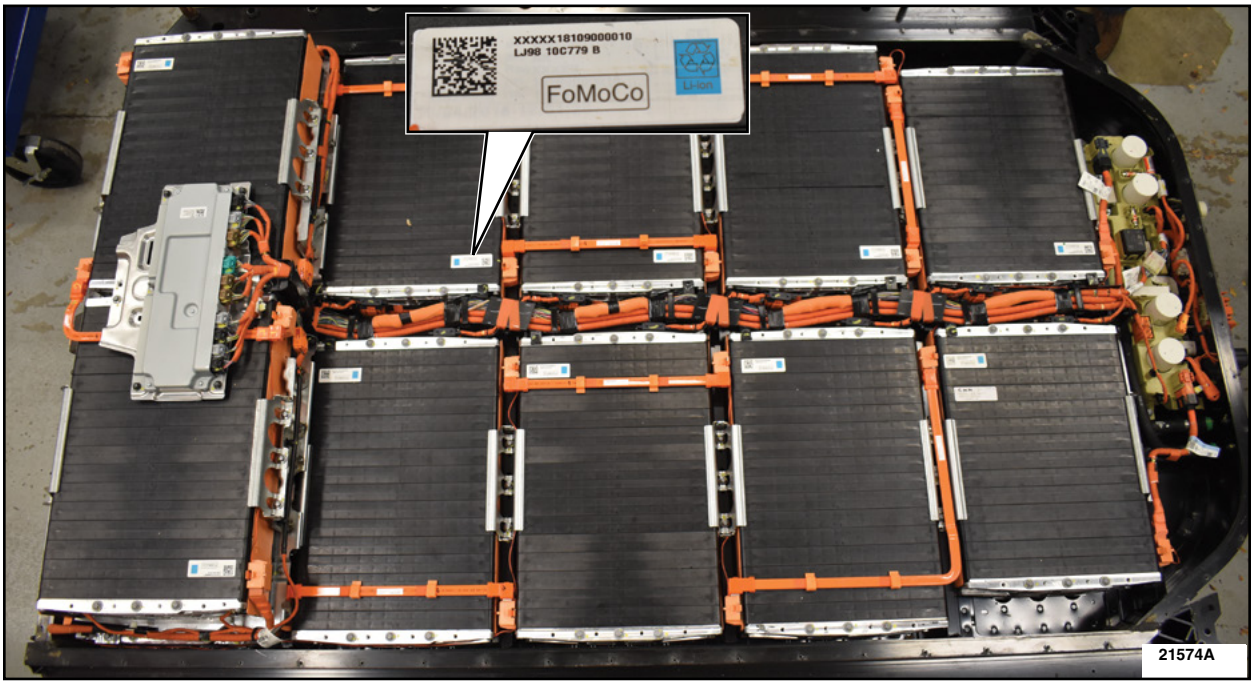

FIGURE 1

NOTE: Each row of arrays is called a battery module. The arrays in a row need to be replaced as a pair. See Figure 2.

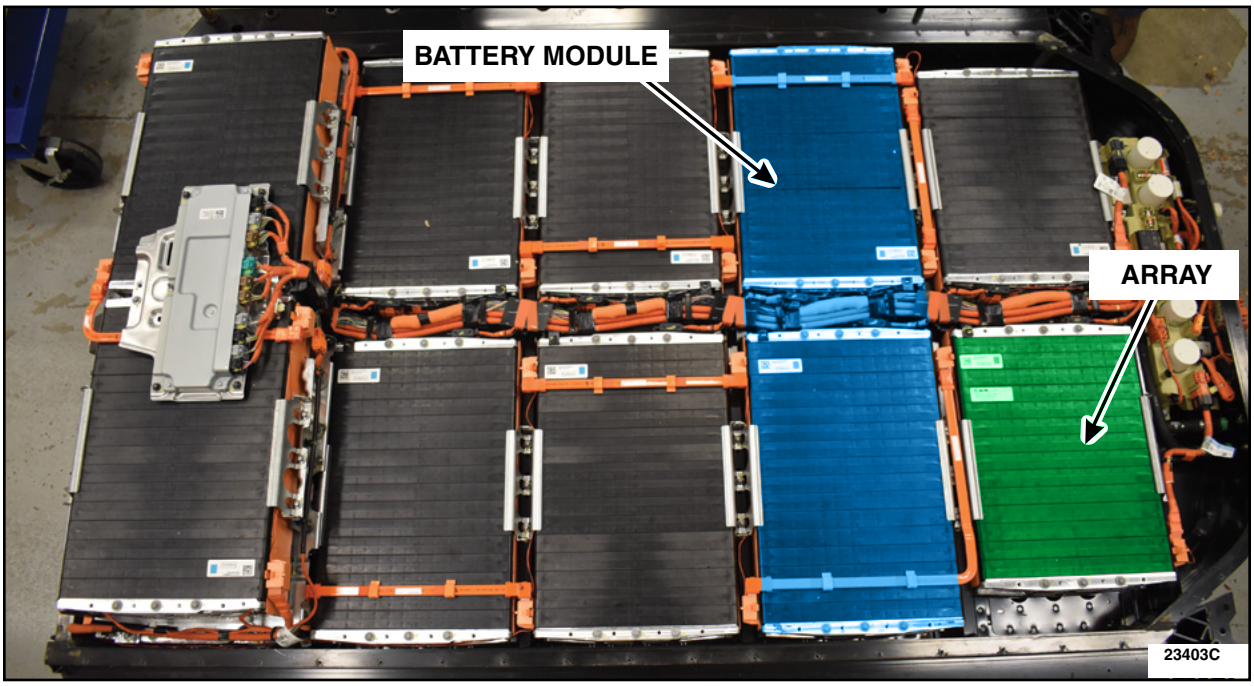

FIGURE 2

4. Remove the module with the affected array(s). Follow the WSM procedures in Section 414-03A.

5. Transfer the jumper harness from the inboard side of the module to the *new* module. See Figure 3.

NOTE: This jumper harness is found on all five rows except for the fifth upper on the extended-range.

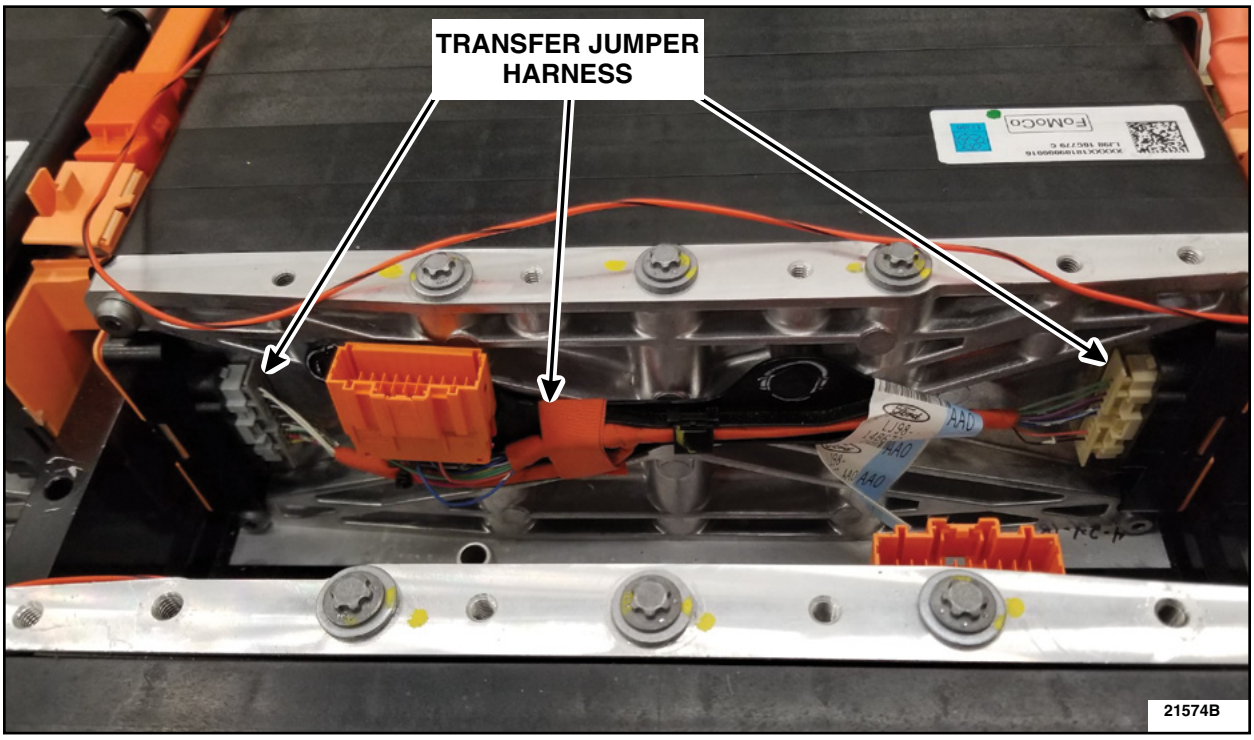

FIGURE 3

6. Install the *new* battery module. Follow the WSM procedures in Section 414-03A.

7. Install the high voltage battery cover. Follow the WSM procedures in Section 414-03A.

8. Using FDRS, check and clear codes.

9. Charge the vehicle to 100 percent.

NOTE: Please verify if the vehicle is in One-Pedal Driving mode prior to the test drive. If the vehicle did not arrive with One-Pedal Driving mode activated prior to the test drive, turn off One-Pedal Driving before releasing the vehicle to the customer.

10. To activate One-Pedal Driving perform the following:

a. Touch the Mustang Mach-E icon in the upper-left corner of your touchscreen.
b. From the DRIVE MODE screen, slide the button to turn it on.
c. Use the brake to come to a complete stop if the vehicle does not slow down soon enough.

NOTE: Keep in mind that until you turn them off, Drive Modes and One-Pedal Driving will remain on each time you start the vehicle.

11. Perform a test drive of at least 20 miles (32 Km) in city driving conditions with One-Pedal Driving activated to verify the repair.

    - City driving consisting of occasional acceleration and coast conditions. Safely but aggressively accelerate from 0-40 MPH (0-64 Kmh) and coast from 40-0 MPH (0-64 Kmh) with One-Pedal Driving activated to verify the repair.

NOTE: If the vehicle did not arrive with One-Pedal Driving mode activated prior to the test drive, turn off One-Pedal Driving before releasing the vehicle to the customer.

IMPORTANT NOTE: Federal law prohibits selling motor vehicle parts or components that are under safety, compliance, or emissions recall. Unless a part is requested to be returned to Ford, all parts replaced under this FSA must be scrapped in accordance with all applicable local, state and federal environmental protection and hazardous material regulations. Refer to the Parts Retention, Return, & Scrapping section of the FSA dealer bulletin for further information.