



Service Engineering Operations
Customer Service Division

Ford Motor Company
PO Box 1904
Dearborn, Michigan 48121

August 22, 2024

TO: All U.S. Ford and Lincoln Dealers

SUBJECT: **Customer Satisfaction Program 23B12**
Certain 2021-2022 Model Year Mustang Mach E and 2022 Model Year E-Transit
High Voltage Battery Module (HVBM) Replacement

PROGRAM TERMS

This program will be in effect through September 30, 2025. There is no mileage limit for this program.

AFFECTED VEHICLES

Vehicle	Model Year	Assembly Plant	Build Dates
Mustang Mach E	2021-2022	Cuautitlan	03-Aug-2020 through 25-May-2022
E Transit	2022	Kansas City	07-Jan-2022 through 02-May-2022

US population of affected vehicles: 274. Affected vehicles are identified in OASIS and FSA VIN Lists.

REASON FOR THIS PROGRAM

In all of the affected vehicles, a High Voltage Battery Module (HVBM) was previously replaced using an incorrect Thermal Interface Material (TIM) template. A HVBM that has been serviced using the incorrect TIM template may cause the cells to operate at a temperature higher than design intent, resulting in reduced cell performance and, over time, a progressive reduction in vehicle range that may become noticeable to the driver. This may also result in a malfunction indicator light, DTC code and battery power limiting.

SERVICE ACTION

NOTE: The terms “battery module” and “battery array” are used interchangeably in this FSA, the Workshop Manual, parts catalog, and EFC 15213 & EFC 14947.

Dealers are to remove the High Voltage battery and replace one or more battery arrays and update the Battery Energy Control Module (BECM) software. The array(s) to be replaced will be specified by VIN with the included VIN list replacement table. This service must be performed on all affected vehicles at no charge to the vehicle owner. To assist vehicle owners to have this repair completed when parts are available, dealers should:

- Arrange to pick up the owner’s vehicle and drive it to the dealership for repairs (rentals are authorized – see Rental Vehicles).
 - Re-deliver the owner’s vehicle after repairs have been completed.
- Pick-Up & Delivery should be made available for all customers. Refer to the Rental and Claiming sections for further details.

ESSENTIAL SPECIAL SERVICE TOOLS

If you do not have the special tools needed, please contact 1-800 ROTUNDA and choose option 3 to place an order to purchase.

OWNER NOTIFICATION MAILING SCHEDULE

Owner letters are expected to be mailed by the week of September 2, 2024. Dealers should repair any affected vehicles that arrive at their dealerships, whether or not the customer has received a letter.

ATTACHMENTS

- Administrative Information
- Labor Allowances and Parts Ordering Information
- Technical Instructions
- VIN List Tables
- Mobile Service Repair Assessment
- Mobile Repair/Vehicle Pick-Up & Delivery Record
- Owner Notification Letter

QUESTIONS & ASSISTANCE

For questions and assistance, contact the Special Service Support Center (SSSC) via the SSSC Web Contact Site. The SSSC Web Contact Site can be accessed through the Professional Technician System (PTS) website using the SSSC link listed at the bottom of the OASIS VIN report screen or listed under the SSSC tab.

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MOBILE SERVICE REPAIR ASSESSMENT LEVEL

-  - Not a Mobile Service Repair

OASIS ACTIVATION

OASIS will be activated on August 22, 2024.

FSA VIN LISTS ACTIVATION

FSA VIN Lists will be available through <https://web.fsavinlists.dealerconnection.com> on August 22, 2024. Owner names and addresses will be available by September 20, 2024.

NOTE: Your FSA VIN Lists may contain owner names and addresses obtained from motor vehicle registration records. The use of such motor vehicle registration data for any purpose other than in connection with this program is a violation of law in several states, provinces, and countries. Accordingly, you must limit the use of this listing to the follow-up necessary to complete this service action.

SOLD VEHICLES

- Owners of affected vehicles will be directed to dealers for repairs.
- Immediately contact any of your affected customers whose vehicles are not on your VIN list but are identified in OASIS. Give the customer a copy of the Owner Notification Letter (when available) and schedule a service date.
- Correct other affected vehicles identified in OASIS which are brought to your dealership.
- Dealers are to prioritize repairs of customer vehicles over repairs of new and used vehicle inventory.

STOCK VEHICLES

- Correct all affected units in your new vehicle inventory before delivery.
- Use OASIS to identify any affected vehicles in your used vehicle inventory.

BRANDED / SALVAGED TITLE VEHICLES

Affected branded / salvaged title vehicles are eligible for this service action.

OWNER REFUNDS

Refunds are not approved for this program.

RENTAL VEHICLES

Dealers are pre-approved for up to 2 days for a rental vehicle. Follow Extended Service Plan (ESP) guidelines for dollar amounts. Rentals will only be reimbursed for the day(s) the vehicle is at the dealership for part replacement. Prior approval for more than 2 rental day(s) is required from the SSSC via the SSSC Web Contact Site.

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FORD PICK-UP & DELIVERY

- Dealers participating in the Remote Experience Program –
 - Refer to EFC14125, 2024 Remote Experience Program, Pick-Up & Delivery (PDL) Offset section for additional details.
- Dealers NOT participating in the Remote Experience Program –
 - Dealers may claim one-half labor hour per repair for vehicle Pick-Up & Delivery services.
 - Dealers must retain a Vehicle Pick-Up & Delivery Record with the repair order documentation.

ADDITIONAL REPAIR (LABOR TIME AND/OR PARTS)

Additional repairs identified as necessary to complete the FSA should be managed as follows:

- For related damage and access time requirements, refer to the Warranty and Policy Manual / Section 6 – Ford & Lincoln Program Policies / General Information & Special Circumstances for FSAs / Related Damage.
- For vehicles within new vehicle bumper-to-bumper warranty coverage, no SSSC approval is required, although related damage must be on a separate repair line with the “Related Damage” radio button checked.
 - Ford vehicles – 3 years or 36,000 miles
- For vehicles outside new vehicle bumper-to-bumper warranty coverage, submit an Approval Request to the SSSC Web Contact Site before completing the repair.

CLAIMS PREPARATION AND SUBMISSION

- **Technician Competency Requirement:** The STST Competency 10 certification requirement in the U.S. market only will be enforced starting with repair orders opened on or after April 1, 2024. FSA repairs will reject if the repairing technician is not certified in STST Competency 10 FSA. See EFC14251 for more details.
- **Claim Entry:** Enter claims using Dealer Management System (DMS) or One Warranty Solution (OWS) online.
 - When entering claims:
 - Claim type 31: Field Service Action
 - Sub Code: 23B12
 - Customer Concern Code (CCC): D16
 - Condition Code (CC): 12
 - Causal Part Number: 10D672. Quantity 0
 - For additional claims preparation and submission information, refer to the Recall and Customer Satisfaction Program (CSP) Repairs in the OWS User Guide.
- **Related Damage/Additional labor and/or parts:** Must be claimed as Related Damage on a separate repair line from the FSA with the same claim type and subcode as described in Claim Entry above.

IMPORTANT: Click the Related Damage Indicator radio button.

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CLAIMS PREPARATION AND SUBMISSION (continued)

- **Rentals:** For rental vehicle claiming, follow Extended Service Plan (ESP) guidelines for dollar amounts. Enter the total amount of the rental expense under the Miscellaneous Expense code RENTAL.
- **Pick-Up & Delivery:**
 - Dealers participating in the Remote Experience Program –
 - Refer to EFC14125, 2024 Remote Experience Program, Pick-Up & Delivery (PDL) Offset section for additional details.
 - Dealers NOT participating in the Remote Experience Program –
 - Dealers may claim one-half labor hour per repair for vehicle Pick-Up & Delivery services.
 - Dealers must retain a Vehicle Pick-Up & Delivery Record with the repair order documentation.
- **Parts Handling Allowance:** A parts handling allowance is being provided, unless otherwise notified by the Company or as provided by state law, in addition to the dealer cost of the HVBM assembly. To claim the allowance, enter \$330 as HANDLG in the Misc. Expense area of the claim form.

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LABOR ALLOWANCES

Description	Labor Operation	Labor Time
Mustang Mach E - Replace 1 High Voltage Battery Array	MT23B12B	M-time up to 11.0 Hours
Mustang Mach E - Replace 2 High Voltage Battery Arrays	MT23B12C	M-time up to 12.5 Hours
Mustang Mach E - Replace 3 High Voltage Battery Arrays	MT23B12D	M-time up to 14.0 Hours
E Transit - Replace 1 High Voltage Battery Array	MT23B12E	M-time up to 9.0 Hours
Vehicle Pick-Up & Delivery Allowance: This allowance is only for <u>non-eligible</u> 2023 Remote Experience Program Dealers. NOTE: This allowance is for dealer-performed vehicle Pick-Up & Delivery for dealership repairs only. Can only be claimed once, regardless of outstanding FSAs repaired.	23B12PP	0.5 Hours

PARTS REQUIREMENTS / ORDERING INFORMATION

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
W711890-S442	2	1	4	HV Battery Chassis Mount Bolt – All Mach E
W717859-S439	6	2	4	HV Battery Chassis Mount Bolt – 21MY Mach E
W721140-S439	6	2	4	HV Battery Chassis Mount Bolt – 22MY Mach E
W720404-S450	4	1	4	Battery Energy Control Module (BECM) Bracket Bolts – All Mach E
W720404 S450	12 per HVBM	3 per HVBM	4	HVBM Mount Bolt – All Mach E and Transit
TA-38-B	2 per HVBM	2 per HVBM	1	Thermal Interface Material (TIM) – All Mach E and Transit

Order the parts listed in the above table through normal order processing channels. To guarantee the shortest delivery time, an emergency order for parts must be placed.

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Special Program Part Ordering:

To place an order for a HVBM array kit, use the online HVBATT system. Refer to EFC 15213, High Voltage Battery and Array Order and Return Process Change, for additional details.

Parts listed below apply to both Mach E and Transit vehicles.

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
LJ9Z-10D672-CLRM	As Needed	As Needed	1 Pair	AA Array Service Kit
LJ9Z-10D672-CMRM	As Needed	As Needed	1 Pair	BB Array Service Kit
LJ9Z-10D672-CNRM	As Needed	As Needed	1 Pair	AB Array Service Kit
LJ9Z-10D672-CPRM	As Needed	As Needed	1 Pair	CC Array Service Kit
LJ9Z-10D672-CQRM	As Needed	As Needed	1 Pair	DD Array Service Kit
LJ9Z-10D672-CRRM	As Needed	As Needed	1 Pair	EE Array Service Kit
LJ9Z-10D672-CSRM	As Needed	As Needed	1 Pair	FF Array Service Kit

100% of the affected vehicle population is expected to require replacement of one or more High Voltage Battery Modules.

DEALER PRICE

For the latest part prices, refer to DOES II. The dealer will receive the HVBM array kit through the zero-cost exchange process.

HANDLING ALLOWANCE

An allowance of \$330 per HVBM (Array pair) is being provided unless otherwise notified by the Company or as provided by state law, in addition to the dealer cost of the HVBM.

PARTS RETENTION, RETURN, & SCRAPPING

Follow the provisions of the Warranty and Policy Manual, Section 1 - WARRANTY PARTS RETENTION AND RETURN POLICIES. If a replaced part receives a scrap disposition, the part must be scrapped by all applicable local, state, and federal environmental protection and hazardous material regulations. Federal law prohibits selling motor vehicle parts or components that are under safety, compliance, or emissions recall.

For HV battery/array, refer to EFC14947, Launch of RCRC Return Process for Mach-E, E-Transit and F150 Lightning High Voltage Battery Array Returns. Dealers are to retain all replaced arrays and store them in the service crate (that the dealer received the new array kit it). Dealers are to return all replaced arrays in the crate via your local RCRC. **No array kits are to be scrapped. 100% of array kits are to be returned to Ford.**

EXCESS STOCK RETURN

The excess stock returned for credit must have been purchased from Ford Customer Service Division by Policy Procedure Bulletin 4000.

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REPLACED FSA PARTS INSPECTION AND SIGN OFF

Effective March 1st, 2021, all parts replaced as part of an FSA repair with a repair order open date of March 1st, 2021, or later must be inspected and signed off on the repair order by a member of your dealer's fixed operations management team or an employee the task has been delegated to. If the task is to be delegated to a non-management employee, the employee needs to be someone other than the technician who completed the repair and needs to understand the importance of completing this task consistently and accurately.

- All parts replaced as part of an FSA repair should be returned to the parts department following the Warranty Parts Retention and Return Policies.
- Inspect the replaced parts to verify the FSA repair was completed.
- If the FSA repair is found to be complete, the designated employee signs the repair order line or parts return stamp area (electronic or hand signed) for the FSA repair indicating the parts were inspected and validated to have been replaced.
- After the parts have been inspected, they should be handled based on the guidance in the parts status report in the Online Warranty System (Hold, Return, CORE, Scrap, etc.). Please visit FMCDEALER > PARTS & SERVICE > WARRANTY ADMINISTRATION & WARRANTY PARTS RETURN for the latest [Immediate Scrap List](#) information.
- For Battery/Array, follow the RCRC process. Refer to EFC14947, Launch of RCRC Return Process for Mach-E, E-Transit and F150 Lightning High Voltage Battery Array Returns.
- This process is subject to review during warranty audits for FSA repairs with a repair order open date of March 1st, 2021, or later. Any eligible FSA claims requiring parts replacement found not to have been inspected and signed off during a warranty audit will be subject to chargeback and consideration for enrollment into the Dealer Incomplete Recall Repair Process.

Note: Other approvals (electronic or handwritten) for add-on repair lines, dealer-owned vehicle repairs, and repeat repairs do not qualify as FSA parts inspection approvals. The post-repair FSA parts inspection process (electronic or handwritten) is independent of other warranty approval requirements. The approval by the designated employee implies that the FSA parts were found to be replaced and must be able to be identified on the Repair Order. If multiple FSAs require approval on a single Repair Order, each applicable occurrence will require individual post-repair approval by the designated employee.



Ford Motor Company
Customer Service Division
PO Box 1904
Dearborn, Michigan 48121

September 2024

Customer Satisfaction Program 23B12

Mr. John Sample
123 Main Street
Anywhere, USA 12345

12345678901234567

At Ford Motor Company, we are committed not only to building high-quality, dependable products but also to building a community of happy, satisfied customers. To demonstrate that commitment, we are providing a no-charge Customer Satisfaction Program for your vehicle.

Why are you receiving this notice?

On your vehicle, a High Voltage Battery Module (HVBM) was previously replaced using an incorrect Thermal Interface Material (TIM) template.

What is the effect?

This may result in the battery cells operating at a temperature higher than design intent, resulting in reduced cell performance and, over time, a progressive reduction in vehicle range that may become noticeable to the driver. This may also result in a malfunction indicator light, DTC code and battery power limiting.

What will Ford and your dealer do?

In the interest of customer satisfaction, Ford Motor Company has authorized your dealer to replace the affected HVBM free of charge (parts and labor) under the terms of this program.

This Customer Satisfaction Program will be in effect until September 30, 2025, regardless of mileage. Coverage is automatically transferred to subsequent owners.

How long will it take?

The time needed for this repair is less than 2 full days. However, due to service scheduling requirements, your dealer may need your vehicle for a longer period of time. Additional time may be required to determine what HVBM needs to be replaced and shipping of parts.

What should you do?

Please call your dealer without delay to schedule a service appointment for Customer Satisfaction Program 23B12.

If you do not already have a servicing dealer, you can access ford.com/support for dealer addresses, maps, and driving instructions.

Ford Motor Company wants you to have this service action completed on your vehicle. The vehicle owner is responsible for making arrangements to have the work completed.

**What should you do?
(continued)**

NOTE - You can receive information about Recalls and Customer Satisfaction Programs through our FordPass App. The app can be downloaded through the App Store or Google Play. In addition, there are other features such as reserving parking in certain locations and controlling certain functions on your vehicle (lock or unlock doors, remote start) if it is equipped to allow control.

Pick-Up and Delivery

Complimentary vehicle Pick-Up & Delivery service may also be available upon request through participating dealers. Your dealer will pick up your vehicle and return it with the repair completed.

Do you need a rental vehicle?

Your dealer is authorized to provide a rental vehicle for your personal transportation at no charge (except for fuel, insurance, and tax) while your vehicle is at the dealership for repairs. Please see your dealer for guidelines and limitations.

What if you no longer own this vehicle?

If you no longer own this vehicle and have an address for the current owner, please forward this letter to the new owner.

You received this notice because our records, which are based primarily on state registration and title data, indicate that you are the current owner.

Can we assist you further?

If you have difficulties getting your vehicle repaired promptly and without charge, please contact your dealership's Service Manager for assistance.

RETAIL OWNERS: If you have questions or concerns, please contact our **Ford Customer Relationship Center (CRC) at 1-866-436-7332** and one of our representatives will be happy to assist you. The CRC is open on weekdays from 8:00 AM – 11:00 PM and on Saturday 8:00 AM - 8:00 PM (Eastern Time). TTY/TDD users, please contact the CRC at the number listed using the Telecommunication Relay Service by dialing 711.

If you wish to contact us through the internet, our address is ford.com/support.

FLEET OWNERS: If you have questions or concerns, please contact our **Ford Pro Contact Center at 1-800-34-FLEET**, choose Option #1, and one of our representatives will be happy to assist you. If you wish to contact us through the Internet, our address is fleet.ford.com.

Representatives are available Monday through Friday: 7:00 AM – 11:00 PM and Saturday 7:00 AM – 5:00 PM (Eastern Time).

MOTORHOME OWNERS: If you have questions or concerns, please contact our **Motorhome Customer Assistance Center toll-free at 1-866-906-9811**. Representatives are available 24 hours a day.

Thank you for your attention to this important matter.

Customer Service Division

Customer Satisfaction Program 23B12

Certain 2021-2022 Mustang Mach E and 2022 Model Year E-Transit
High Voltage Battery Module (HVBM) Replacement







Mobile Service Repair Assessment

Assessment levels have been identified to help determine the ease of performing eligible mobile service repairs for a Field Service Action (FSA) outside of the dealership service facility.


Dealer Bulletin


Within the Administrative Information Attachment of the dealer bulletin a mobile service repair assessment level(s) will be provided. These assessment levels have been determined using the amount of time, equipment and labor identified to perform the intended service action.

Assessment Levels

-  - Mobile Reprogramming
-  - Light Mobile Service
-  - Enhanced Mobile Service
-  - Advanced Mobile Service
-  - Wheel and Tire Mobile Service
-  - Not a Mobile Service Repair

Description of each level that is used to determine the overall assessment.

-  – Mobile Reprogramming
 - Module Programming or similar type services
 - Minimum tools maybe required other than an **IDS/FDRS** setup
 - FDRS programming that requires internet connection (wi-fi or mobile hotspot)
 - Make sure vehicle has a charge port to ensure battery voltage is maintained during flashing of the module(s)
 - Repairs not greater than 1 hour in length (including time to wait for programming)





Note: The location will need a charging station or wall box to maintain the 12-volt battery.
-  – Light Mobile Service
 - Interior repair procedures that do not require seat, dash, or headliner removal
 - Under hood repairs that do not require large component removal
 - Exterior repairs that do not require large component/panel removal
 - Repairs may require standard hand tools (Access to a Technician starter kit or similar)

Customer Satisfaction Program 23B12

Certain 2021-2022 Mustang Mach E and 2022 Model Year E-Transit
High Voltage Battery Module (HVBM) Replacement

   – Enhanced Mobile Service

- **A two-person process is required anytime a procedure requires work under the vehicle**
 - Brake Inspection and Brake Repair/Replacement
 - Limited Suspension Component replacement (no alignment)
 - Under Vehicle access for limited repairs (no large component removal)
 - Vehicle Check Up - VCU
 - Pre-Delivery Inspection - PDI
 - Used Car Inspection/Presale Inspection
 - May require floor jack, jack stands, and impact tools
- Note: Wheel lock may be required.*

    – Advanced Mobile Service

- Fluid Exchange/Oil Change
- Light Repairs
- Brake Hydraulic Repairs

 – Wheel and Tire Mobile Service

- Tire Removal from Wheel
- Tire Balancing
- Tire Repair

Note: Specialized Mobile Service unit and equipment including Tire balancer and Tire Changer required.

 – Not a Mobile Service Repair

- Large component removal
- BEV Battery Replacement
- Requires a vehicle hoist – to complete the repair (more than inspection)
- Required vehicle alignment
- Requires significant vehicle disassembly
- Repairs greater than 2-3 hours
- Any repairs that require M-Time
- Includes a service procedure where the vehicle owner may be distressed about the state of their vehicle

CERTAIN 2021-2022 MUSTANG MACH-E VEHICLES AND 2022 E-TRANSIT — HIGH VOLTAGE BATTERY ARRAY REPLACEMENT

SERVICE PROCEDURE OVERVIEW






The vehicles included in this Field Service Action (FSA) have been identified as receiving a High Voltage Battery Module (HVBM) replacement using a service kit that included an incorrect Thermal Interface Material (TIM) template. For all vehicles included in this FSA, the type of HVBM that requires replacement is known and is listed in the supplied VIN tables. For the majority of vehicles, the HVBM numeric location is also known, and will be listed. For some vehicles, the HVBM numeric location is unknown. In these cases, the supplied serial numbers that the vehicle was built with will be listed in the tables and will be used to determine what HVBM requires replacement by process of elimination. All the serial numbers listed in these tables are factory installed HVBMs and DO NOT require replacement. The HVBM locations shown in Figure 4, on Page 5, correlate to the HVBM pairs that are listed in the VIN tables. Use the VIN tables and Figure 4 to determine what HVBM needs to be replaced.

The software update that is applied during this FSA improves the battery functionality at a lower state of health and improves the Ford Diagnostic and Repair System (FDRS) Battery State of Health function. If contacting the Special Service Support Center (SSSC) to request High Voltage (HV) battery replacement, a screen shot/picture of the “Battery State of Health” value must be provided.



SERVICE PROCEDURE

IMPORTANT! The STST Competency 10 certification requirement for USA market only will be enforced starting with repair orders opened on or after April 1, 2024. FSA repairs will reject if the repairing technician is not certified in STST Competency 10 FSA. See EFC14251 for more details.

-  **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 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.

IMPORTANT! This Field Service Action (FSA), must be performed by a certified BEV technician.

NOTE: If you do not have the special service tools referenced in the Workshop Manual to perform the Field Service Action 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 each 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: Make sure that the FDRS release level is at 41.5.2 or higher.

NOTE: If the FDRS cannot communicate with the Battery Energy Control Module (BECM) contact the technical assistance center (TAC) for diagnostic support.

1. Using FDRS, update the BECM software to the latest level.
2. Using FDRS, select BECM Battery Health, click **Download** and then select **RUN**. See Figure 1.

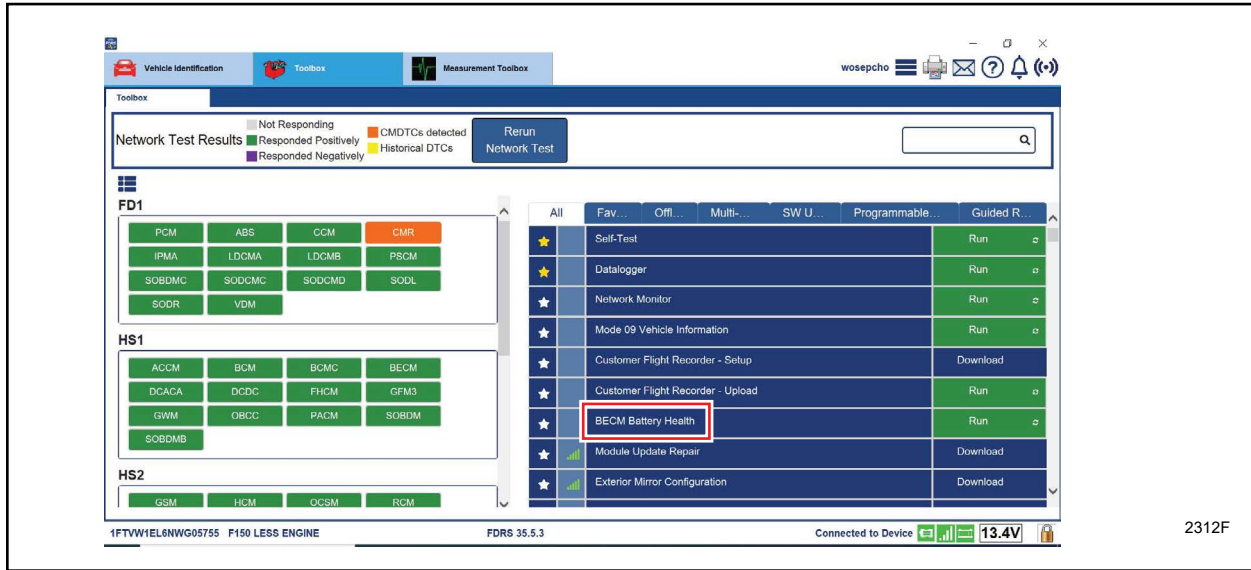


FIGURE 1

3. Follow the on-screen prompts. Capture and record the FDRS Generated Target Voltage Code. See Figure 2.

NOTE: This code **MUST** be recorded before continuing to the next step.

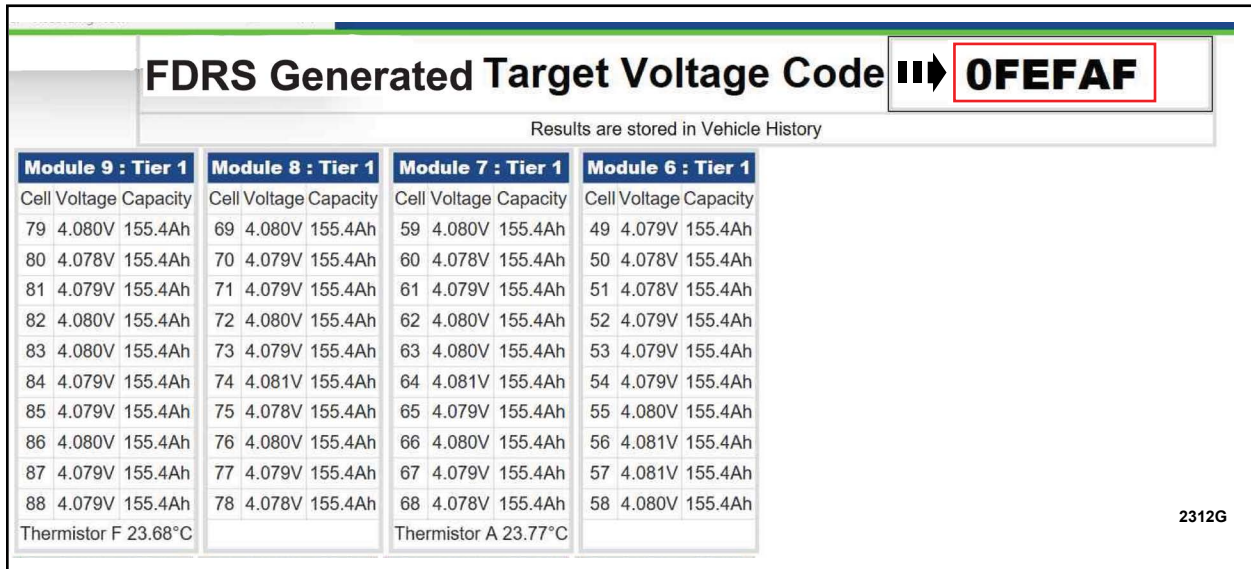


FIGURE 2



4. On the same screen where the FDRS Generated Target Voltage Code is found, locate and record the battery healthy percentage shown on the screen. See Figure 3.

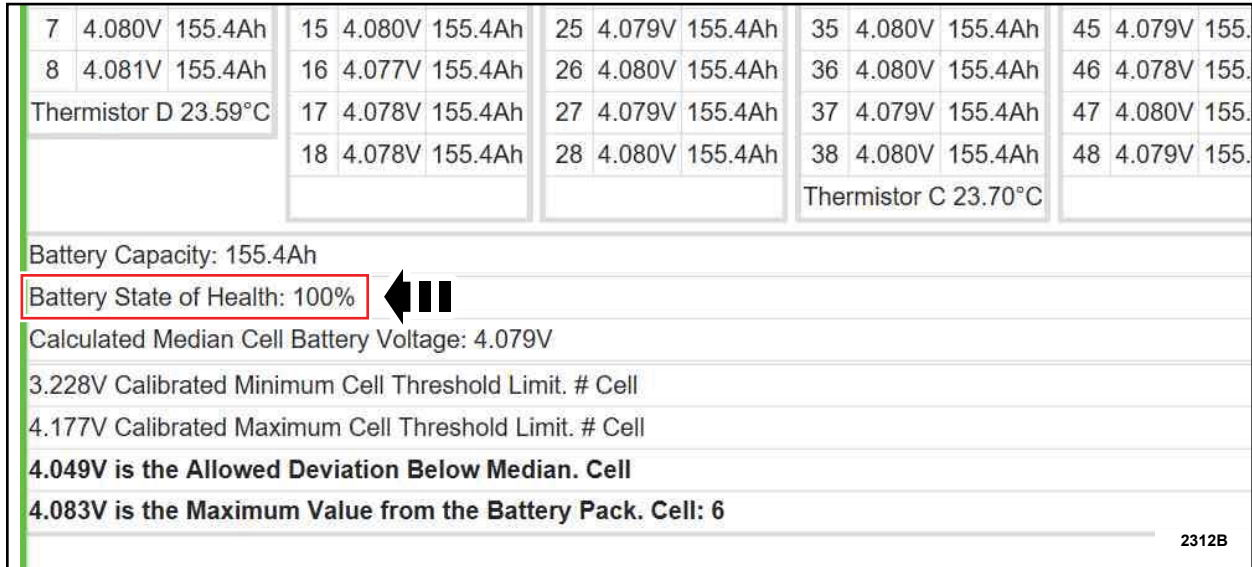


FIGURE 3

5. Is the battery state of health 85% or greater?

Yes - Proceed to Step 6.

No - To place an order for a HV Battery, use the online HVBATT system. Refer to EFC 15213, High Voltage Battery and Array Order and Return Process Change, for additional details.

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 each to charge, and up to 14 hours per array.

6. Using the supplied VIN tables and the VIN table descriptions listed below, verify what type of HVBM requires replacement. More than one type of HVBM may be required. Once the HVBM type has been identified, place the order for the HVBM using the online HVBATT system. Refer to EFC 15213, High Voltage Battery and Array Order and Return Process Change, for additional details. Proceed to Step 7.

NOTE: For VINs in tables 1-3, the type of HVBM required will be listed and should be ordered prior to disassembling the HV Battery. If the VIN is located in table 4, the HV Battery will need to be disassembled and the HVBM's inspected prior to placing any orders.



NOTE: The HVBM's are replaced in pairs, so the HVBM's are listed as pairs in the VIN table that correlate to their locations in the HV battery shown in Figure 4.

NOTE: Figure 4 shows the HVBM configuration with lettered values that correlate directly to the HVBM's in the VIN tables. If the table lists FF, it is referencing the pair of HVBM's labeled F in Figure 4.

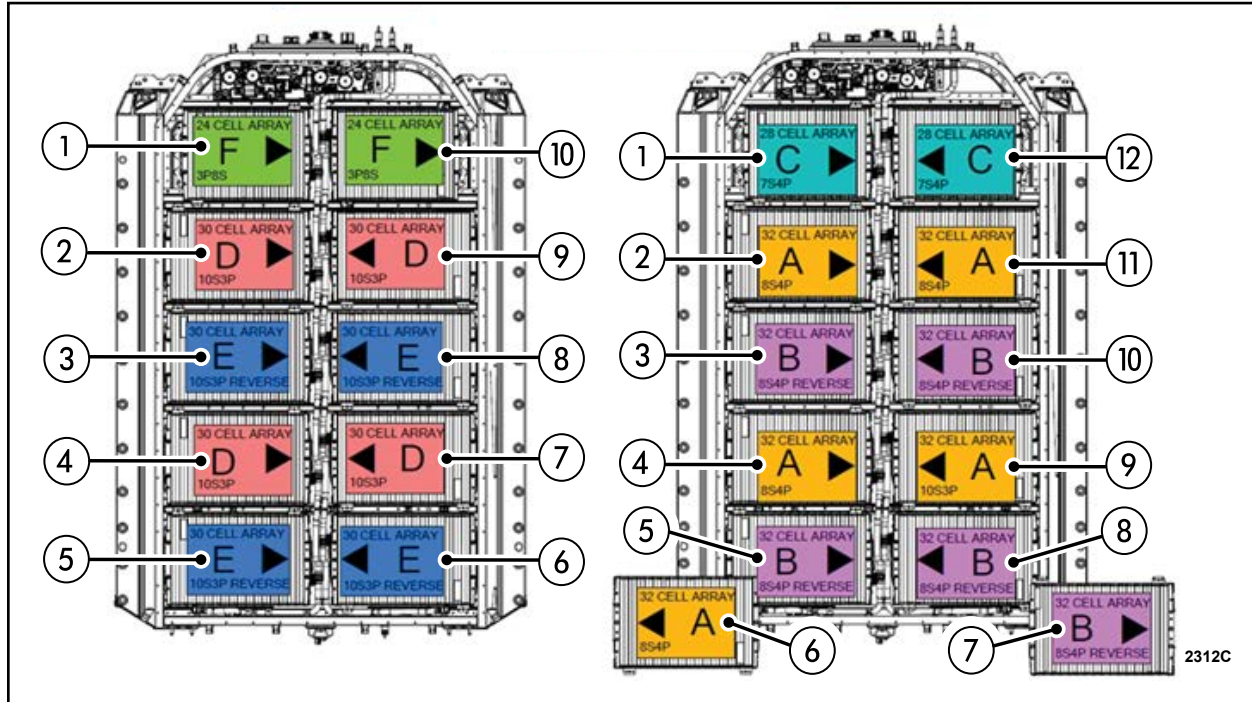


FIGURE 4



VIN Table 1

VINs in this table have the type of HVBM pair that is required and the numeric locations listed. Reference figure 4 to verify the location and type of HVBM that requires replacement.

VIN Table 2

For VINs in this table, the type of HVBM pair is known but the location is unknown. The installed HVBMs will need to have their serial numbers compared to what is listed on the VIN table to verify which location of the HVBM pair requires replacement.

- Referencing Figure 4, locate the serial numbers on the installed HVBMs in the HV battery and compare them with the serial numbers listed in the VIN Table.
- HVBM serial numbers that match what is listed in the table are factory installed and DO NOT require replacement.
- A serial number on an installed HVBM that DOES NOT match a serial number in the VIN table is a service assembly that requires replacement.

NOTE: The serial number is located on the top side of the HVBM near the sense lead connectors and should be accessible without removing the HVBM (see Figure 5). Accessing the rear BB pair serial numbers will likely require the removal of the AB pair HVBMs.

VIN Table 3

For VINs in this table, there is more than one HVBM pair that requires replacement, and one or more of the locations is unknown. The types of HVBM pairs are known. The installed HVBMs will need to have their serial numbers compared to what is listed on the VIN table to verify which location of the HVBM pair requires replacement.

- Referencing Figure 4, locate the serial numbers on the installed HVBMs in the HV battery and compare them with the serial numbers listed in the VIN Table.
- HVBM serial numbers that match what is listed in the table are factory installed and DO NOT require replacement.
- A serial number on an installed HVBM that DOES NOT match a serial number in the VIN table is a service assembly that requires replacement.

NOTE: The serial number is located on the top side of the HVBM near the sense lead connectors and should be accessible without removing the HVBM (see Figure 5). Accessing the rear BB pair serial numbers will likely require the removal of the AB pair HVBMs.

NOTE: Some VINs in this table will require up to three HVBM to be replaced. If you cannot identify all HVBM that needs to be replaced, contact the SSSC for further assistance. Include clear photos of the Serial Numbers of the modules you are inspecting.



VIN Table 4

VINs in this table do not have serial numbers listed and will require the Julian date codes on the listed HVBM to be inspected to find the outlier. VINs in this table will require the HV battery to be disassembled and the HVBM inspected to determine what type of HVBM is needed prior to placing any orders.

- Referencing Figures 4 and 5, locate the Julian dates on the installed HVBM and compare them with the other HVBM Julian dates to verify what pair is the outlier. If the table states UNKNOWN, then all the HVBM Julian dates will need to be inspected to find the outlier.
- The HVBM the vehicle was built with will have Julian date codes that are typically within a month of each other. The service assembly that was installed will have a Julian date code that is not close and later than the rest of the HVBM.
- If you cannot identify the HVBM that needs to be replaced, contact the SSSC for further assistance. Include clear photos of the Julian date codes of the modules you are inspecting.

NOTE: The Julian date is part of the serial number and is located on the top side of the HVBM near the sense lead connectors and should be accessible without removing the HVBM (see Figure 5). Accessing the rear BB pair serial numbers will likely require the removal of the AB pair HVBM.

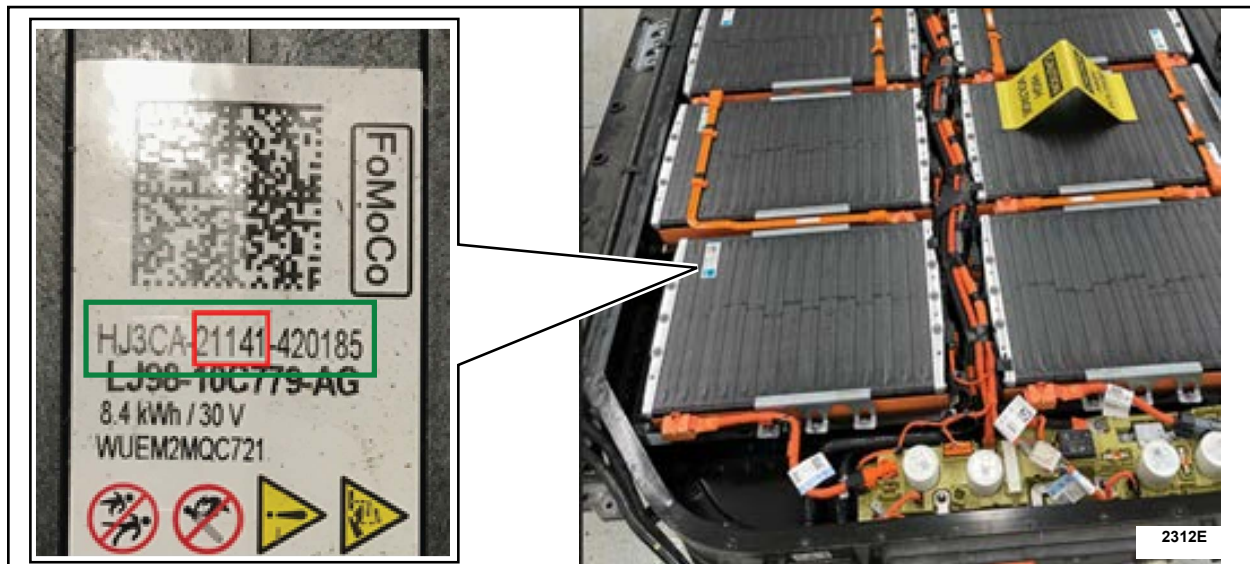


FIGURE 5

NOTE: Shown in Figure 5 is the HVBM serial number tag. The GREEN box contains the complete HVBM serial number, and the RED BOX contains the Julian date code. In this example, the HVBM was built on the 141st day of 2021 (21141) which is May 21, 2021.



7. Remove the HV Battery and cover. Referencing the VIN Table attachments and VIN table descriptions above, inspect the HV battery modules to verify what modules require replacement. Replace the HVBM(s). Follow the procedures in Workshop Manual (WSM) Section 414-03A. This completes this Field Service Action (FSA).

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.



Customer Satisfaction Program 23B12

Mobile Repair / Vehicle Pick-Up and Delivery Record

VIN _____ received (check one):

- Mobile Repair
- Pick-up and/or delivery service

As outlined below for the 23B12 Field Service Action program.

Mobile Repair – Date: _____

OR

Pick-up – Date: _____

Delivery – Date: _____

Repair Order #

Repair Order Date

Service Manager Signature

Date