



TECHNICAL SERVICE BULLETIN

Unable to update the APIM or TCU with FDRS and USB Drive - Module Recovery

22-2166

28 April 2022

Model:

2021 Mustang Mach-E - Battery Electric Vehicle (BEV) with High Voltage (HV) Technology | Assembly Plant: Cuautitlan (Mexico)

Summary

Some Mustang Mach-E vehicles technicians may experience the inability to update the Accessory Protocol Interface Module (APIM) or Telematics Control Unit (TCU) using the Ford Diagnosis and Repair System (FDRS) and Universal Serial Bus (USB) drive. The Professional Technician System (PTS) – Over The Air (OTA) Dashboard on vehicles with this condition may also display multiple APIM and/or TCU updates have failed, and/or a no OTA history message. In addition, on vehicles with this condition, the customer may have reported experiencing an OTA software update failure message via the vehicle display and/or FordPass Application. This may be due to an internal software error.

NOTE: Only 10% of vehicles may require this procedure.

To rectify, follow the Service Procedure to update and/or recover the Accessory Protocol Interface Module (APIM) / Telematics Control Unit (TCU).

Labor Times

Description	Operation No.
Diagnostic Tool - Vehicle Connection/Communication - incl. select customer symptoms, reading & deleting fault codes in the relevant Ford Diagnosis and Repair System	29 099 0
External Power Supply - Connection (In Conjunction with Diagnostic Scan) And Module - Programming (0.2 hours)	722121P21
Module Update Repair application (Includes: USB and Ethernet Cable Connection) (0.2 hours)	721661R22

Repair/Claim Coding

Causal Part:	A035525
Condition Code:	04

Special Tools & Workshop Equipment

NOTE: Failure to use the listed and approved Special Service Tools may result in application failure.

Special Tools & Workshop Equipment	Designation	Source of supply
FOR-SYN-CAB USB to USB Cable Kit	-	Ford of Europe – Special Service Tools & Equipment*
USB male – Ethernet female**	Trendnet TU2-ET100 USB 2.0 OR	Locally procured
	Trendnet TU3-ETG USB 3.0 OR	
	Startech USB31000S USB 3.0 OR	
	UGREEN USB 3.0 model 40321 OR	
	Amazon Basics USB 3.0 U3-GE-1P OR equivalent	
Cable: Ethernet male - Ethernet male	-	Locally procured

* Workshop Equipment is available at <https://fordspecialtools.service-solutions.com> or non-Ford, according to specification

** The following USB-to-Ethernet adapters do not work and should **not** be used: TP-Link USB3 - 10/100/1000, Cable Creations 10/100/1000 USB3, UGREEN USB2 - 10/100, Cable Leader USB 2.0, UGREEN FBA_20256

Service Instruction

Run the Module Update Repair application

- NOTE: To prevent the battery saver mode from activating on the vehicle, verify that the negative cable of the charger is installed on a chassis or engine ground, and not the 12-volt battery negative terminal. Do not plug the vehicle into the high voltage battery charger during programming, this can cause modules to not program correctly. Only use the 12-volt battery charger during programming.**

NOTE: Make sure any antivirus software loaded in the laptop computer must be disabled or uninstalled prior to performing this procedure. Administrative rights access on the laptop computer being used is required to perform this procedure.

NOTE: Use only a wireless connection for internet access as this application requires the use of the laptop computer ethernet port during the module recovery procedure.

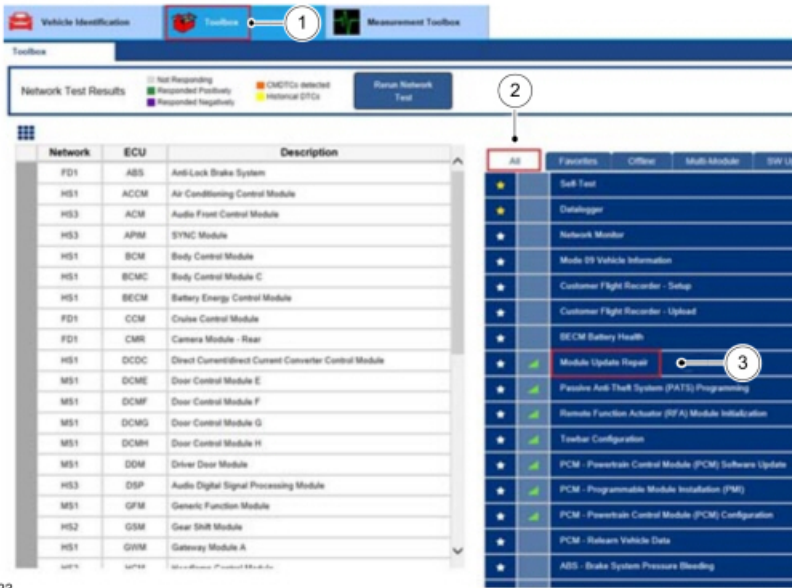
NOTE: Confirm the FDRS is at the latest software level.

Connect Diagnostic Tool to the vehicle and establish communication (VID the vehicle).

- o Confirm the vehicle details are correct.
- o Start an FDRS vehicle session.

2. Navigate to the toolbox tab on FDRS then select the Multi Module tab. Under the Multi Module tab, download and run the Module Update Repair application.

- (1). Toolbox tab
- (2). Multi module
- (3). Module Update Repair application



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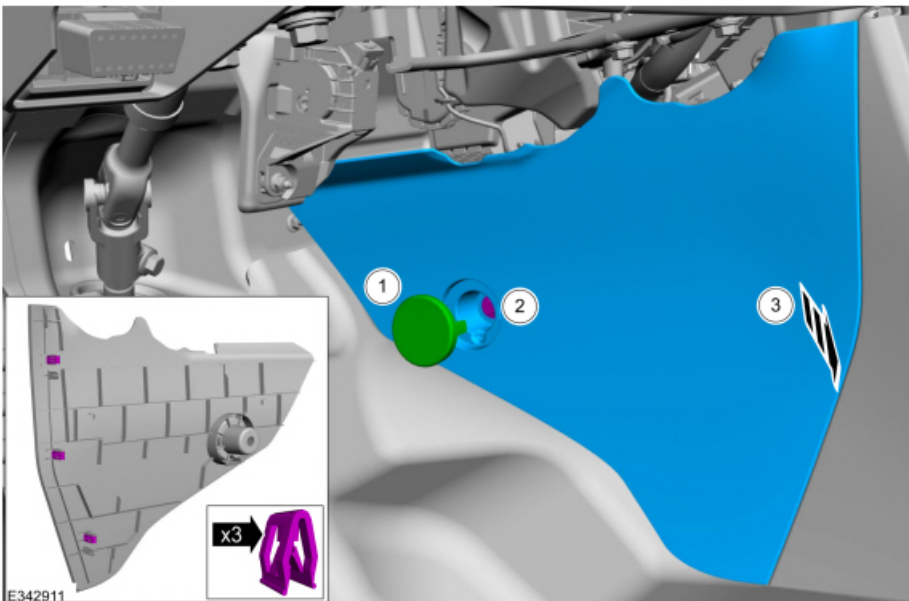
3. Does the FDRS application provide the message <This vehicle does not qualify for Module Update Repair. The TSB does not apply to this vehicle concern>?

- o **YES** - This article does not apply. Continue with following other service publications for APIM and TCU programming and/or the Workshop Manual (WSM) for normal diagnostics.
- o **NO** - Go to next step.

4. **NOTE: Same location for both RHD/LHD vehicles.**

Gain access to the APIM in-line USB cable connector. For additional information, refer to Mustang Mach-E 2021 Workshop Manual Section 501-12.

- o Remove the left-hand side floor console front trim panel.



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5. The electrical connector may be concealed by tape.



6. Disconnect the APIM in-line USB electrical connector.



7. The FDRS Application prompts to connect the vehicle to your laptop computer, with an installation of either USB (A) or ethernet (B), cable and adapters connections, based on the failure detected.

USB connections

1. **NOTE: Do not click on the OK button, until the two connections are completed.**

If this message is prompted, please proceed with the two required USB connections - A1 and A2.



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2. Required USB connections - A1 and A2:

- A1 - Connect the Adapter USB type A Female - Mini B 5 Pin Female, to the vehicle harness.
- A2 - Connect the Cable USB 2 Male – USB 2 Male, to the USB female adapter, and to the laptop computer USB port.



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Ethernet connections

1. **NOTE: Do not click on the OK button, until the three connections are completed.**

Allow the FDRS to establish an ethernet connection before continuing with the process. Moving too quickly prevents the FDRS from identifying the network and affects the recovery process. Once the ethernet connection is identified, select continue.

- If this message is prompted, please proceed with the three required ethernet connections - B1, B2, and B3



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2. Required Ethernet connections - B1, B2, and B3:

- B1 - Connect the Adapter USB type A Female - Mini B 5 Pin Female, to the vehicle harness.
- B2 - Connect the Adapter USB male – Ethernet female, to the USB female adapter.
- B3 - Connect the Cable Ethernet male - Ethernet male, to the Ethernet female adapter, and to the laptop computer ethernet port.



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3. Click the **OK** button. If an exception message is popping-up as the one shown below, verify all connections, and cables and adaptors referred specifications, before reattempting. Failure to use the approved Special Service Tools may result in application failure. The application may only be run a maximum of five times within a seven-day time frame for each VIN.
 - o Refer to the error condition chart at the end of this article for further reference.



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4. Continue following the FDRS on-screen prompts until the procedure is complete. The FDRS will display when to disconnect the cables.
5. Restore the vehicle harness connections.
6. Once this procedure is complete, FDRS will return to the toolbox tab. Select the Software Updates tab and update the APIM and/or TCU software as required.
7. Check the Professional Technician System (PTS) website for applicable SYNC 4 Technical Service Bulletin (TSB) articles for the most recent software update procedures.
 - o It may be applicable Special Service Message (SSM): 50562 - Mustang Mach-E. Reverse Brake Assist Unavailable Message, Missing Active Guide Lines And/Or DTC U0415:86 In The Image Processing Module A (IPMA)
8. Disconnect the Diagnostic Tool and battery charger.

Error Condition Chart

Error Message - FDRS	Probable Cause	Action
<Unable to communicate with vehicle through ethernet adapter. Verify that the ethernet adapter being used is compatible per the TSB.>	Incompatible or faulted USB-to-Ethernet adapter	Verify the USB-to-Ethernet adapter that is being used is on the Ford recommended list.
		Re-attempt programming with a different adapter
<This vehicle does not qualify for Module Update Repair. The TSB does not apply to this vehicle concern.>	The APIM and/or TCU modules are not corrupted. The TSB procedure does not apply.	The module repair procedure and TSB does not apply. Continue with following other service publications for APIM and TCU programming and/or the Workshop Manual (WSM) for normal diagnostics.

Error Message - FDRS	Probable Cause	Action
<Maximum number of retry attempts has been reached. Unable to continue.>	Due to Ford Cyber Security requirements, the maximum number of attempts has been reached to run this application. Up to 15 attempts or within 20 days, whichever comes first.	Replace the affected module (APIM or TCU)
FDRS displays message stating <Please ensure proper cable is connected and Fastboot driver is installed.>	Unable to communicate with vehicle through USB 2 Male to Male cable to USB mini adapter.	Unable to communicate with vehicle through USB 2 Male to Male cable. Use a different USB to USB cable and USB mini adapter and run the application once more.

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