

TECHNICAL SERVICE BULLETIN

Unable To Update The APIM, TCU Or GWM With The FDRS And USB Drive - Module Recovery

22-2404

31 October
2022

This bulletin supersedes 22-2150.

Model:

| |
|---------------------------------|
| Ford 2021 Bronco |
| 2021 Edge |
| 2021 F-150 |
| 2021 Mustang Mach-E |
| Lincoln 2021 Nautilus |

Summary

This article supersedes TSB 22-2150 to update the Service Procedure.

Issue: For some 2021 Mustang Mach-E, F-150, Edge, Nautilus and Bronco vehicles technicians may experience the inability to update the accessory protocol interface module (APIM), telematics control unit (TCU) or gateway module (GWM) using the Ford Diagnosis and Repair System (FDRS) and Universal Serial Bus (USB) drive. The PTS – 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 a Ford Power-Up software update failure message via the vehicle display and/or FordPass/LincolnWay. This may be due to an internal software error. To correct this condition, follow the Service Procedure to update and/or recover the APIM/TCU.

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

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

- 2021 Mustang Mach-E/F-150/Edge/Nautilus/Bronco
- Inability to update the APIM, TCU or GWM using the FDRS and USB drive

Special Tool(s)

| |
|--|
| USB-to-Ethernet adapter: Trendnet TU2-ET100 USB2.0, Trendnet TU3-ETG USB 3.0, Startech USB31000S USB 3.0, UGREEN USB USB 3.0 model no 40321, Amazon Basics USB 3.0 U3-GE-1P. These adapters have been validated through Ford service testing. |
| Mini B 5 Pin Female Adapter: Rotunda Part# CCMUSB-AF-BF5 or equivalent (Vehicles with USB Media Hub) |
| USB 2 Cable - Male to Male: Rotunda Part# CCMUSB2-AM-AM-10 or equivalent (All vehicles) |
| Ethernet cable assembly, obtain locally (All vehicles) |
| NOTE: Ford has received feedback from technicians that 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. In the near future, a list of good/bad USB-to-Ethernet adapters will be published on PTS > Service Tips. |

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 | Operation No. | Time |
|---|---------------|-------------|
| Download And Run The Module Repair Application Following The Service Procedure, Includes Time To Access Connector | MT222404 | Actual Time |

Repair/Claim Coding

| | |
|-----------------|--------|
| Causal Part: | 14G670 |
| Condition Code: | 04 |

Service Procedure



CAUTION: Due to Ford cyber security requirements, the module repair procedure outlined in this article is limited to a maximum of 15 attempts with a total of 20 days from the first time the application is run before the application is permanently disabled for each unique VIN. Make sure that all required and compatible tooling listed in this article is available prior to performing this procedure to reduce the chances of encountering this lockout state. If a lockout occurs, module replacement may be necessary. Note that even if the application is run successfully, the 20 day timer (allowing 15 attempts) continue to run in the background. If the module repair application has successfully completed in the past, it is not required to be run again.

NOTE: Administrative access on the laptop computer being used is required to perform this procedure. Make sure any antivirus software loaded in the laptop computer is disabled or uninstalled prior to performing 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. Verify the FDRS is at the latest software level.

1. Connect either the vehicle communications module (VCM) II or VCM III to the data link connector (DLC) and start a vehicle session using the FDRS. 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.
2. Does the FDRS application provide the following message: This vehicle does not qualify for Module Update Repair. The TSB does not apply to this vehicle concern?
 - (1). Yes - this article does not apply. Continue with following other service publications for APIM, TCU or GWM programming and/or the Workshop Manual (WSM) for normal diagnostics.
 - (2). No - proceed to Step 3.
3. Connect a battery charger to the vehicle's 12v battery. Set the charger to maintain the battery at 12.6-13.6 volts.
4. For F-150 vehicles not equipped with a SYNC media hub, proceed to Step 6. Lower trim level F-150 vehicles are instead equipped with pass-through USB ports and do not have a SYNC media hub.
5. For Mustang Mach-E, Nautilus, and F-150 vehicles equipped with a SYNC Media hub, access the APIM in-line USB connector.
 - (1). For Mustang Mach-E vehicles, remove the left-hand side floor console front trim panel and disconnect the APIM in-line USB connector. The connector may be concealed by tape. Refer to Step 4 in the WSM Section 501-12 floor console removal. (Figures 1-3)

Figure 1

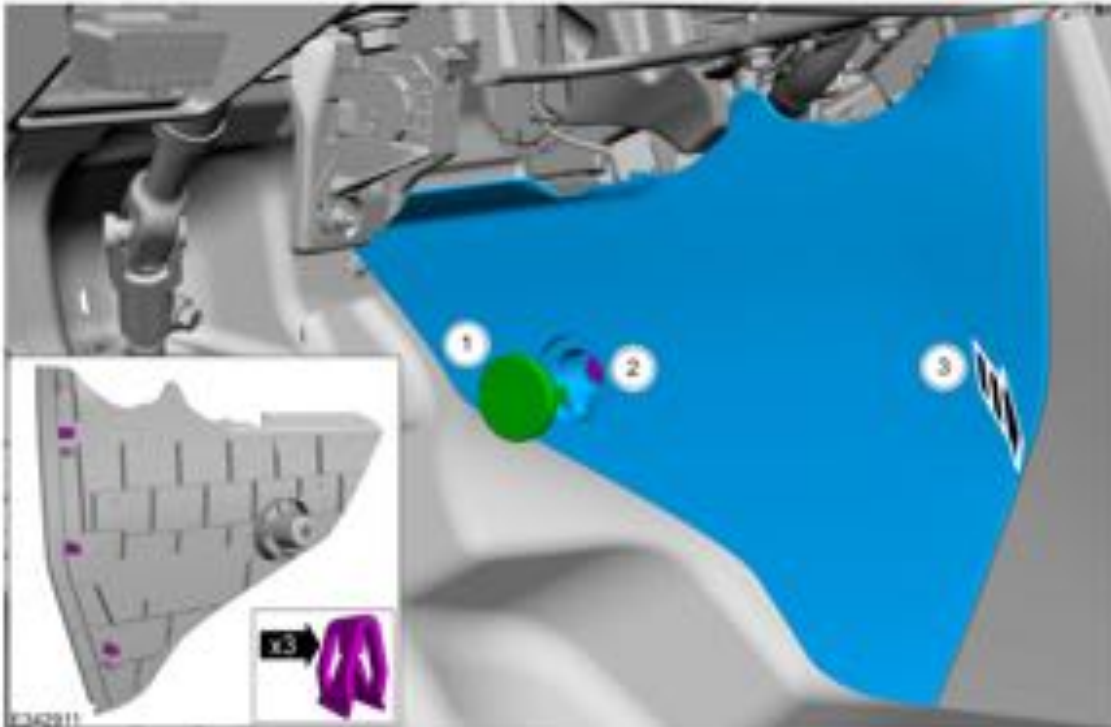


Figure 2



Figure 3



(2). For F-150 vehicles with a SYNC media hub and center console, remove the floor console lower left hand trim panel and disconnect the APIM in-line USB connector. Refer to Step 5 in Workshop Manual (WSM), Section 501-12 floor console removal. (Figures 4-6)

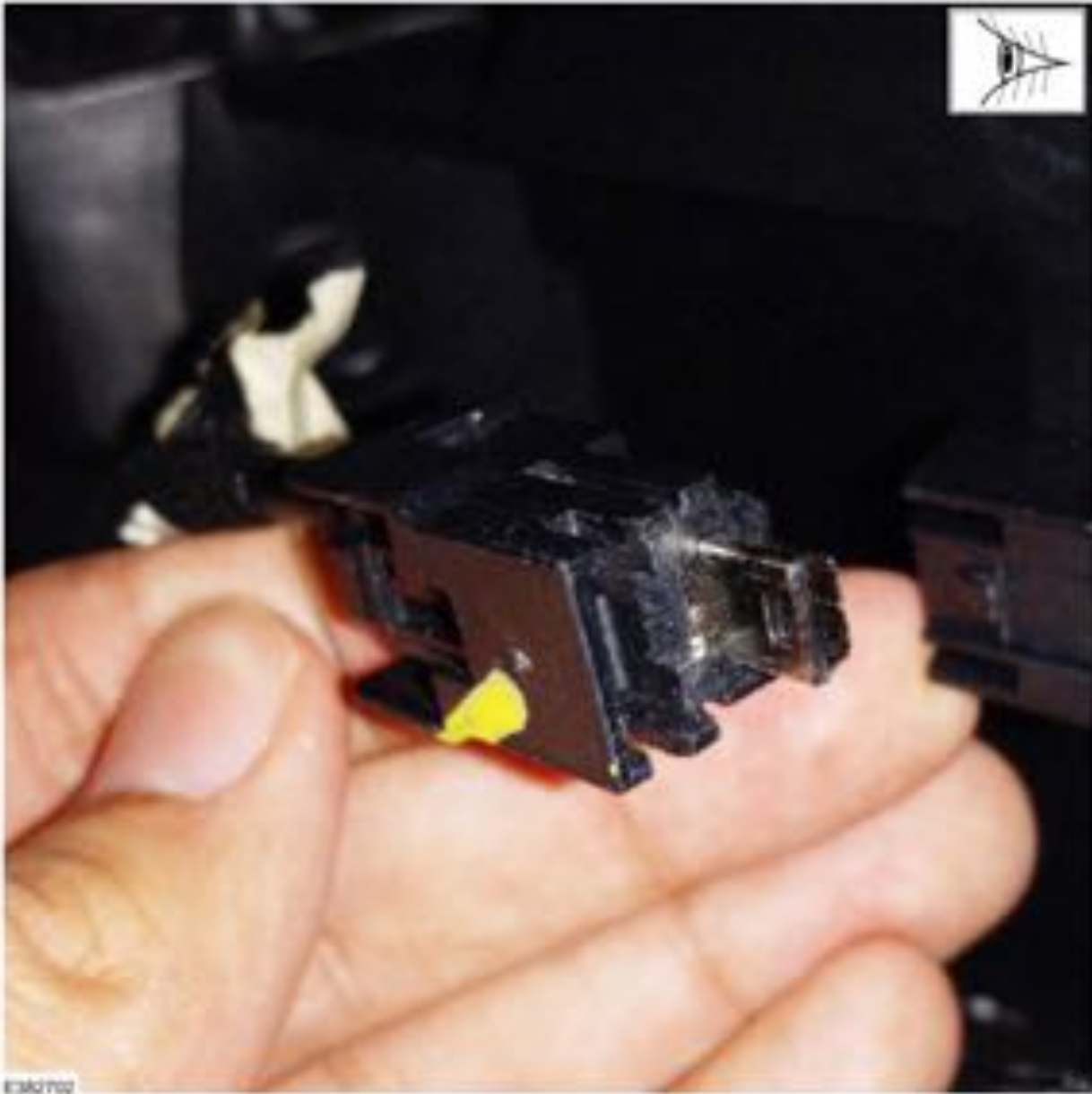
Figure 4



Figure 5



Figure 6



© 2002

(3). For F-150 vehicles with the SYNC media hub and no center console, disconnect the SYNC media hub mini-USB connector from the back of the media hub. On some F-150 vehicles, media hub removal may not be required and the mini-USB connector can be accessed from the back of the instrument panel. Refer to Step 2 in Workshop Manual (WSM), Section 415-00 Universal Serial Bus (USB) Hub removal. (Figures 7-8)

Figure 7



Figure 8



(4). For Nautilus vehicles, remove the floor console lower right hand trim panel and disconnect the APIM in-line USB connector. Refer to Step 1 in Workshop Manual (WSM), Section 501-12 floor console removal. (Figures 9-10)

Figure 9

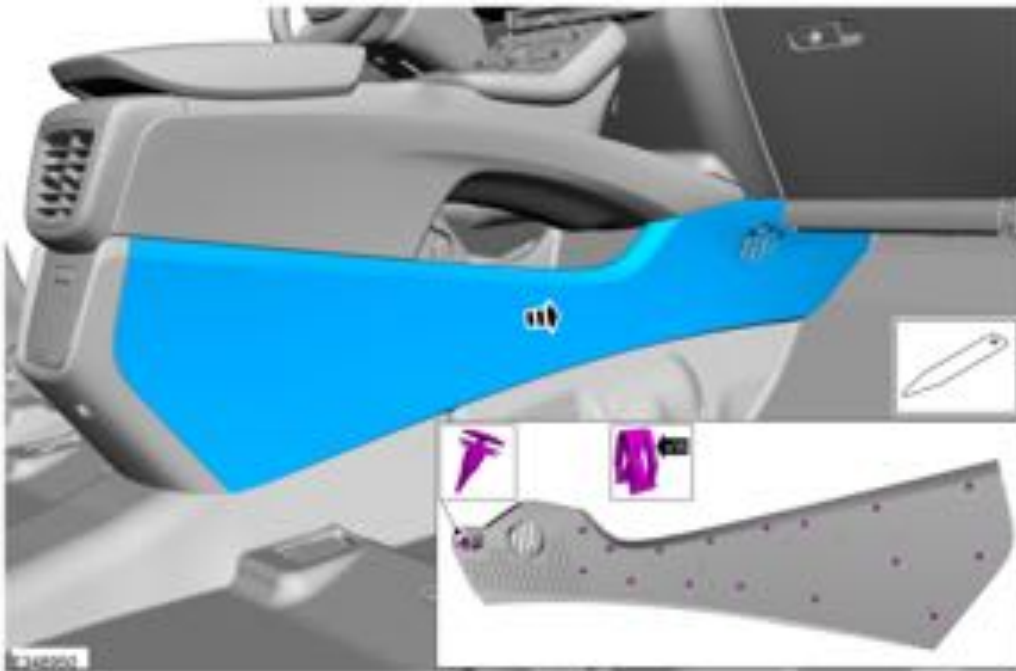
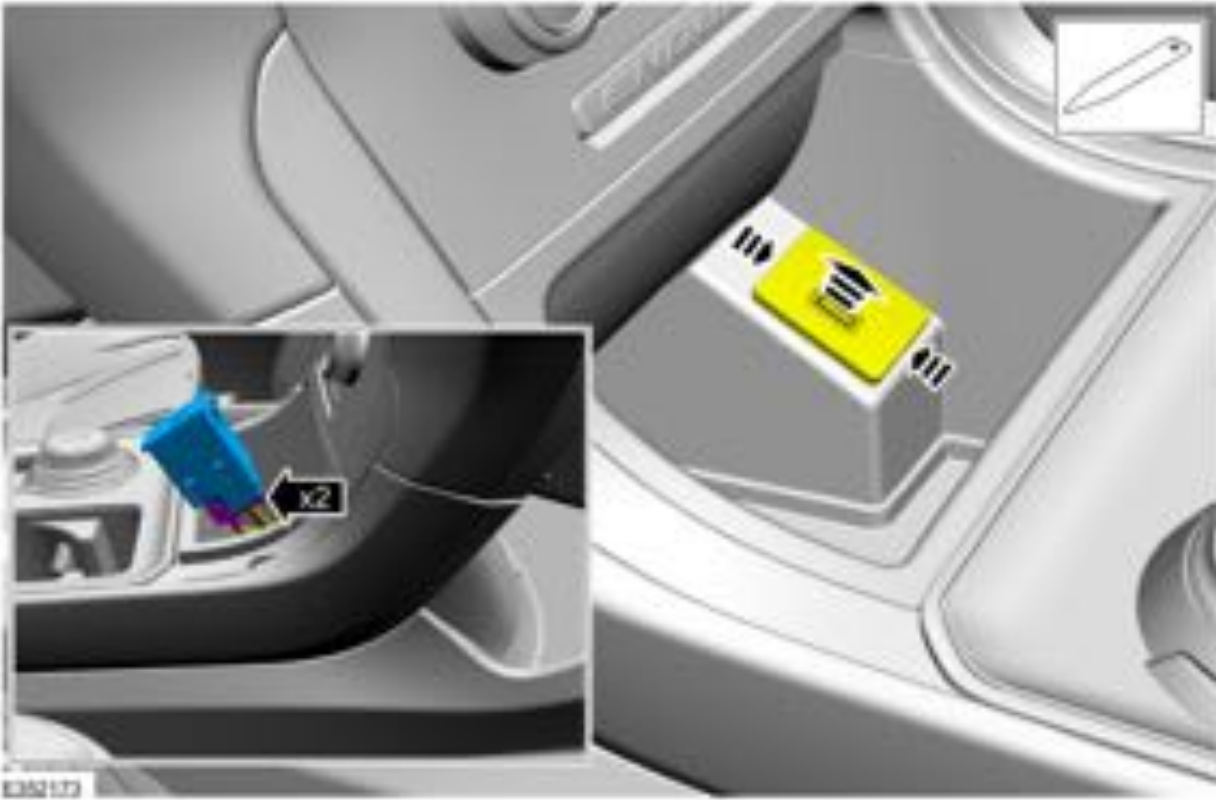


Figure 10



(5). For Edge vehicles, remove the SYNC media hub and disconnect the mini-USB connector on the back of the media hub. Refer to Step 1 in Workshop Manual (WSM), Section 415-00 Media Hub removal. (Figure 11)

Figure 11



(6). For Bronco vehicles, remove the SYNC media hub and disconnect the mini-USB connector on the back of the media hub. Refer to Steps 1 through 5 in WSM, Section 415-00 Universal Serial Bus (USB) Hub removal. Step 5 allows access to the mini-USB connector.

NOTE: Verify you have the appropriate Special Tools listed in this document. Failure to use the approved Special Tools may result in application failure. The application may only be run a maximum of 15 times within a 20 day timeframe for each VIN. Refer to the error condition table at the end of this article for further reference.

6. The FDRS prompts the installation of either USB or ethernet cable connections based on the failure detected. 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.

Required USB connections:

- Mustang Mach-E, Edge, Nautilus, Bronco and F-150 vehicles equipped with a SYNC Media hub:
 - Connect the Mini B 5-pin female adapter to the vehicle harness.
 - Connect the USB 2 Cable - male-to-male to the female adapter and the laptop USB port.

Figure 12



E307466

| Item | Description |
|------|-----------------------------|
| 1 | FDRS |
| 2 | USB 2 Cable (male-to-male) |
| 3 | Mini B 5-pin female adapter |
| 4 | Vehicle harness |

Figure 13 - Mustang Mach-E



E308390

Figure 14 - Edge



Figure 15 - Nautilus



Figure 16 - Bronco



Figure 17 - F-150 with SYNC media hub and center console



Figure 18 - F-150 with SYNC media hub without center console



• F-150 vehicles without a SYNC media hub:

- Connect the USB 2 Cable - male-to-male or equivalent to the vehicle USB port and the laptop USB port

Figure 19



E381467

| Item | Description |
|------|----------------------------|
| 1 | FDRS |
| 2 | USB 2 Cable (male-to-male) |
| 3 | Vehicle harness |

Figure 20 - F-150 without SYNC media hub



Required ethernet connections:

- Mustang Mach-E, Edge, Nautilus, Bronco and F-150 vehicles equipped with a SYNC media hub:
 - Connect the Mini B 5-pin female adapter to the vehicle harness.
 - Connect the USB-to-ethernet adapter to the female adapter.
 - Connect the ethernet cable to the USB-to-ethernet adapter and laptop ethernet port.

Figure 21 - Mustang Mach-E



Figure 22 - Edge



Figure 23 - Nautilus



Figure 24 - Bronco



Figure 25 - F-150 with SYNC media hub and center console



Figure 26 - F-150 with SYNC media hub without center console



- F-150 vehicles without SYNC media hub:
 - Connect the USB-to-ethernet adapter to the vehicle USB port.
 - Connect the ethernet cable to the USB-to-adapter and laptop ethernet port.

Figure 27



E397466

| Item | Description |
|------|-----------------------------|
| 1 | FDRS |
| 2 | Ethernet Cable |
| 3 | USB-to-ethernet adapter |
| 4 | Mini B 5-pin female adapter |
| 5 | Vehicle harness |

Figure 28 - F-150 without SYNC media hub



E397466

NOTE: Make sure to use the appropriate Special Tools listed in this document. Failure to use the approved Special Tools may result in application failure. The application may only be run a maximum of 15 times within a 20 day timeframe for each VIN. Refer to the error condition table at the end of this article for further reference.

NOTE: Make sure any antivirus software loaded in the laptop computer is disabled or uninstalled prior to performing this procedure.

7. Continue following the FDRS on-screen prompts until the procedure is complete. The FDRS displays when to disconnect the cables. Restore the vehicle harness connections.
8. Once this procedure is complete, FDRS returns to the toolbox tab. Check the Professional Technician System (PTS) website for applicable SYNC 4 and Reverse Brake Assist System TSB, SSMs, GSB publications to update the APIM, TCU and/or GWM to the latest software level.

Error Condition Table

| Error Message in FDRS | Cause | Actions |
|---|--|--|
| Unable to communicate with vehicle through ethernet adapter. Verify that the ethernet adapter being used is compatible per the TSB. | <ul style="list-style-type: none"> • Incompatible or faulted USB-to-Ethernet adapter | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • The APIM and/or TCU modules are not corrupted. The TSB procedure does not apply. | <ul style="list-style-type: none"> • The module repair procedure and TSB does not apply. Refer to Step 2, Substep 1 (Yes response) of this article. |
| Exception trying to obtain diagnostic files from the backend server required to repair this vehicle. This could indicate that this VIN has been locked out. | <ul style="list-style-type: none"> • 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, which ever comes first. | <ul style="list-style-type: none"> • Make sure that the module repair application has not previously been completed successfully by reviewing warranty history on PTS or FDRS vehicle history. • Replace the affected module (APIM or TCU) |
| Module Repair has failed due to limited or no connection with the vehicle through the USB cable | <ol style="list-style-type: none"> 1. Incorrect tooling or improper connections to the vehicle. <ol style="list-style-type: none"> 1. Mini B 5 Pin Female Adapter (Rotunda Part # CCMUSB-AF-BF5 or equivalent) (vehicles with media hub). 2. USB 2 cable – male to male (Rotunda part # CCMUSB2-AM-AM-10 or equivalent). 2. This may also be caused by a fault with the USB port on the computer being utilized or the fastboot driver not being installed. | <ol style="list-style-type: none"> 1. Verify that the proper cable and adapters are being utilized per the TSB 2. Retry the programming using a different USB port on the PC 3. Retry the programming with a different PC 4. Download the fastboot driver following the prompt in the FDRS error message |

© 2022 Ford Motor Company

All rights reserved.

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.