

CERTAIN 2021-2022 MODEL YEAR F-150, SUPER-DUTY, EXPEDITION, NAVIGATOR, AND 2022 MODEL YEAR MAVERICK VEHICLES — INTEGRATED TRAILER RELAY MODULE

SERVICE PROCEDURE

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 12V battery.

NOTE: Verify that the negative cable of the charger is installed on a chassis or engine ground, and not the 12 volt 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 Control Module (VCM) is properly connected to the Data Link Connector (DLC).

- NEW !** 2. Log into Ford Diagnostic and Repair System (FDRS). *Ensure FDRS is updated to latest version.*

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 VIN.

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

4. Select Toolbox tab.

5. From the list on the LH side of the screen, select the **TRM**.

6. From the list on the RH side of the screen, select **TRM - Integrated Trailer Relay Module (TRM) Software Update**.

7. Click **RUN**. Follow all on-screen instructions carefully.

8. Disconnect the battery charger from the 12V battery once the programming has completed.

9. If Brake Assist message is displayed after TRM reprogramming, vehicle will need to be driven to clear message.

NOTE: Vehicle will need to be driven at least 1 mile (2KM) at 40 MPH (64 KPH).



10. Run the self-test to look for DTCs. Was DTC U0140:82 found in the TRM?

No - Recall is complete.

Yes - Continue to Step 11 *for 2021 F-150 vehicles only.*

*For 2021 F-150 **ONLY** if DTC U0140:82 is present.*

11. Check the vehicle's **State Of Charge Parameter Identification Data (PID)** by performing the following:

- Launch the Ford Diagnostic and Repair System (FDRS) and navigate to toolbox tab > datalogger > BCM and select **BATT SOC PID**.
- Ensure that the **BATT_SOC PID** reads over 80%. If the PID is less than 80%, fully recharge the vehicle's 12-volt battery using the appropriate Rotunda battery tester and charger.
- Remove the charger from the vehicle and using FDRS, navigate to toolbox tab > BCM > **Reset Battery**.
- Monitor Sensor Learned Values application. Perform the BMS reset.
- Connect the Rotunda battery tester and charger and set it to maintain 12.6 to 13.6 volts. Monitor the voltage real time using the indicator at the bottom right corner of FDRS to ensure that it is within this range.

NOTE: Verify that the negative cable of the charger is installed on a chassis or engine ground, and not the 12 volt 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).

NOTE: VCM 3 is recommended for improved data download time.

12. Log into Ford Diagnostic and Repair System (FDRS). Ensure FDRS is updated to the latest version at 31.6.7 or higher.

NOTE: A 32GB or larger USB flash drive is required for APIM, TCU, and GWM software updates. Make sure the USB flash drive being used is formatted correctly. To see the available drives, hold down the Windows icon keyboard key and press the E keyboard key. Right click on the USB flash drive and select Properties. If File System under the General tab is not exFAT, the drive must be formatted. To format the USB flash drive, right click on the USB flash drive, select Format, select exFAT for the File System, and select Default Allocation Size for the Allocation Unit Size. De-selecting Quick Format is not necessary and will result in a lengthier operation.

NOTE: Once USB flash drive contains the initial files, future file updates using the USB flash drive will require less time.

NOTE: The USB drive does not have to be formatted between vehicles if you are performing the same program.



13. Start a new FDRS session.

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.

14. Select **Toolbox** tab.

STEPS 15 THROUGH 20 WILL BE USED MULTIPLE TIMES DURING STEPS 21 THROUGH 28.

15. Select **Software Updates** tab to see updates available.

16. Select the module from the Module Programming Sequence section below starting at Step 21.

17. When prompted by the FDRS, connect the USB flash drive to the personal computer (PC).

18. When prompted by the FDRS, safely remove/eject the USB flash drive from the PC, turn the vehicle to Key On Engine Running (KOER), and connect the USB to the media hub to install the software update. The update starts automatically and may take 10 minutes or longer to complete.

NOTE: It may take up to 5 minutes for the vehicle to recognize the USB flash drive with software update.

19. For APIM, TCU, and GWM USB software updates when SYNC touchscreen prompts to restart the vehicle:

- Turn the vehicle **OFF**.
- Open the driver door.
- Wait ten minutes to allow the vehicle to power down.
- Close the driver's door.
- Turn the vehicle to **KOER**.

20. Leave the USB drive inserted into the vehicle, until the vehicles infotainment display screen states **programming successful**.

NOTE: It may take up to 5 minutes before SYNC touchscreen displays Update Successful pop up. After 5 minutes if "Successful" pop up is not shown on SYNC touchscreen, remove the USB and select **YES** on the FDRS "Was the USB Update Successful" prompt (FDRS verifies if the module software update was successfully installed on the module).

NOTE: Repeat Steps 15-20 (while performing Steps 21-28) until no more software updates are available for modules covered in Steps 21-28.

MODULE PROGRAMMING SEQUENCE

IMPORTANT NOTE: Modules need to be programmed in exactly the order as listed below (some are repeated) unless there is no update available. Module updates will vary per vehicle based on Ford Power-UP over-the-air (OTA) updates previously completed. Some modules may already be at the latest level.



21. Select **GWM** - Gateway Module (GWM) – software update.

- See Steps 15-20.
- Run application.
- If no more software updates are available, move to the next module in the sequence.

NOTE: If FSA 22B08 is open for this vehicle, perform that field action before proceeding.

22. Select **TCU** - Telematics Control Unit (TCU) - software update.

- See Steps 15-20.
- Run application.
- If error message on SYNC display screen or no activity after 10 minutes.
 - See TSB 22-2150 - Module Recovery.
 - Retry TCU software update with same USB drive.

23. Select **APIM** - Accessory Protocol Interface Module (APIM/SYNC) - software update.

- See Steps 15-20.
- Run application.
- Follow General Service Bulletin (GSB) 21-7088 - SYNC Programming, USB flash drive method.
- If error message on SYNC display screen or no activity after 10 minutes.
 - See TSB 22-2150 - Module Recovery.
 - Retry APIM software update with same USB drive.

NOTE: Step 24 is a required step separate from Step 21. Please follow all steps exactly as written.

24. Select **GWM** - Gateway Module (GWM) - software update.

- See Steps 15-20.
- Run application.
- If no update is available, move to the next module in the sequence.

25. Select **APIM** - Accessory Protocol Interface Module (APIM) - software update.

- See Steps 15-20.
- Run application.
- If no update is available, move to the next module in the sequence.

26. Select **TCU** - Telematics Control Unit (TCU) - software update.

- See Steps 15-20.
- Run application.
- If error message on SYNC display screen or no activity after 10 minutes.
 - See TSB 22-2150 - Module Recovery.
 - Retry TCU software update with same USB drive.

27. Select **GWM** - Gateway Module (GWM) - software update.

- See Steps 15-20.
- Run application.
- If no update is available, move to the next module in the sequence.

28. Repeat steps 24,25, and 26 as many times as required until no more updates are available.



29. Select **APIM** - Accessory Protocol Interface Module (APIM/SYNC) - software update.

- See Steps 15-20.
- Run application.
- Follow General Service Bulletin (GSB) 21-7088 - SYNC Programming, USB flash drive method.

30. Select **IPMA** – Image Processing Module A (IPMA) - software update.

- Run application
- Coordinated update of four modules.
- Select OK if conditions are met to continue to next module including; Camera Module Rear (CMR), then Cruise Control Module (CCM) module, and then the Power Steering Control Module (PSCM).
- Refer to TSB's [22-2121](#) and [22-2109](#).
- If error message on SYNC display screen or no activity after 10 minutes. See TSB 22-2150 - Module Recovery.
- Retry APIM software update with same USB drive.

31. Perform the following procedures after updating:

- FDRS IPMA Alignment
- Appropriate FDRS camera alignment
 - Vehicles equipped with 360 degree camera, IPMA - 360 Degree View Camera Alignment
 - For all other vehicles, perform the IPMA - Pro Trailer Backup Assist Camera Alignment. This procedure should be performed on all vehicles without 360 degree cameras, even if the vehicle is not equipped with Pro Trailer Backing Assist (PTBA).

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 Vehicle Communication Module II (VCM II)/Vehicle Communication and Measurement Module (VCMM) and 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.
- 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 VCMII or VCMM from the data link connector (DLC) and your PC.
- b. After ten seconds, reconnect the VCMII/VCMM to the DLC and the PC. Launch FDRS. The VCMII/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.





David J. Johnson
Director
Service Engineering Operations
Ford Customer Service Division

Ford Motor Company
P. O. Box 1904
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August 24, 2022

TO: All U.S. Ford and Lincoln Dealers

SUBJECT: NEW VEHICLE DEMONSTRATION / DELIVERY HOLD

Safety Recall 22S17 *Supplement # 2*

Certain 2021- 2022 Model Year F-150, 2022 Model Year, Expedition, Navigator,
Maverick, and Super Duty Vehicles
Reprogram Integrated Trailer Relay Module (TRM)

New! REASON FOR THIS SUPPLEMENT

- *Attachment III: Technical Instructions Module Programming*

AFFECTED VEHICLES

Vehicle	Model Year	Assembly Plant	Build Dates
Expedition	2022	KTP	April 15, 2021 through February 10, 2022
F-150	2021	DTP	January 8, 2020 through November 22, 2021
F-150	2022	DTP	September 14, 2021 through February 16, 2022
F-150	2021	KCAP	February 12, 2020 through December 20, 2021
F-150	2022	KCAP	October 13, 2021 through February 15, 2022
Maverick	2022	HSAP	February 3, 2021 through February 22, 2022
Navigator	2022	KTP	April 15, 2021 through February 10, 2022
Super Duty	2022	KTP	December 2, 2020 through February 15, 2022

Affected vehicles are identified in OASIS and FSA VIN Lists.

REASON FOR THIS SAFETY RECALL

In all of the affected vehicles, the trailer brake controller may not properly apply the trailer brakes when towing a trailer equipped with an electric or electric-over-hydraulic brake system. This may result in no trailer brake function while driving, loss of trailer brakes, and extended stopping distances, increasing the risk of a crash.

New! SERVICE ACTION

Before demonstrating or delivering any new in-stock vehicles involved in this recall, dealers are to reprogram the trailer relay module (TRM) *for 2021MY F-150 Only - If DTC U0140:82 is present after the TRM software update. Program GWM, TCU, APIM, IPMA (and the 12" IPC – if equipped) until there are no remaining updates for those modules.* with the latest level software. This service must be performed on all affected vehicles at no charge to the vehicle owner.

OWNER NOTIFICATION MAILING SCHEDULE

Owner letters were mailed the week of April 18, 2022. Dealers should repair any affected vehicles that arrive at their dealerships, whether or not the customer has received a letter.

PLEASE NOTE:

Federal law requires dealers to complete this recall service before a new vehicle is delivered to the buyer or lessee. Violation of this requirement by a dealer could result in a civil penalty of up to \$21,000 per vehicle. Correct all vehicles in your new vehicle inventory before delivery.

Over The Air (OTA) Updates (Ford Power-Up/Lincoln Way):

- In addition to your dealer being able to update vehicles now using FDRS, Ford currently deploy the software update via OTA.
- Before scheduling service for an OTA-capable vehicle, please verify through PTS that the FSA is still open (OASIS) and has not already received the OTA update.
 1. Verify FSA is still open by viewing the “Outstanding Field Service Actions” on the OASIS results page on PTS. (Note: If the OTA update was recently downloaded onto vehicle the FSA may still show as open)
 2. If the FSA is still open in the Outstanding Field Service Actions section, proceed to the tab titled “Connected Vehicle”. In the “Over The Air Update 60 Day History”, you can determine if an OTA update occurred on the affected module by viewing the “Completion Status”, which should show “Campaign Successful”. The “Release Notes” will also indicate that the campaign was successfully downloaded onto the vehicle. (Note: the FSA may still show as open in the Outstanding Field Service Actions section of PTS even though the OTA update was successfully downloaded onto the vehicle. This FSA will eventually be removed from the Outstanding Field Service Actions screen of PTS.)

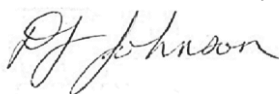
ATTACHMENTS

Attachment I: Administrative Information
Attachment II: Labor Allowances and Parts Ordering Information
Attachment III: Technical Information

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.

Sincerely,



David J. Johnson

NEW VEHICLE DEMONSTRATION / DELIVERY HOLD
Safety Recall 22S17 Supplement # 2
Certain 2021-2022 Model Year F-150 Vehicles
Certain 2022 Model Year, Expedition, Navigator, Maverick, and Super Duty Vehicles
Reprogram Integrated Trailer Relay Module

OASIS ACTIVATION

OASIS was activated on March 29, 2022.

Note: Some of the affected vehicles were repaired at the plant and inadvertently left in this recall, these units have been removed from OASIS and online VIN listing. Please review OASIS to verify if the vehicle is still in the program. If the vehicle is no longer in the program and repairs are started or completed before a claim was submitted, contact SSSC for further direction.

FSA VIN LISTS ACTIVATION

FSA VIN Lists were made available through <https://web.fsavinlists.dealerconnection.com> on March 29, 2022. Owner names and addresses were made available the week of April 11, 2022.

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 recall 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 recall.

SOLD VEHICLES

- Ford has not issued instructions to stop selling/delivering or driving used vehicles under this safety recall. Owners should contact their dealer for an appointment to have their vehicles remedied as soon as practicable. Owners can continue to safely drive their vehicles.
- 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.

DEALER-OPERATED RENTAL VEHICLES

The Fixing America's Surface Transportation (FAST) Act law effective June 2016 prohibits a rental company from selling, renting, or leasing vehicles subject to a safety or compliance recall. Please consult your legal counsel for legal advice.

TITLE BRANDED / SALVAGED VEHICLES

Affected title branded and salvaged vehicles are eligible for this recall.

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Reprogram Integrated Trailer Relay Module

OWNER REFUNDS

- **This safety recall must still be performed, even if the owner has paid for a previous repair. Claiming a refund will not close the recall on the vehicle.**
- Ford Motor Company is offering a refund for owner-paid repairs covered by this recall if the repair was performed prior to the date indicated in the reimbursement plan, which is posted with this bulletin. Owners are directed to seek reimbursement through authorized dealers or, at their option, directly through Ford Motor Company at P.O. Box 6251, Dearborn, MI 48121-6251.
- Dealers are also pre-approved to refund owner-paid emergency repairs that were performed away from an authorized servicing dealer after the end date specified in the reimbursement plan. Non-covered repairs, or those judged by Ford to be excessive, will not be reimbursed.
- Refunds will only be provided for the cost associated with reprogramming integrated trailer brake control module.

RENTAL VEHICLES

Rental vehicles are not approved for this program.

LINCOLN PICKUP AND DELIVERY

Owners of 2017 MY and newer Lincoln vehicles have the option of requesting pickup and delivery service with a Lincoln loaner (up to 2 days), from their dealership. For details, reference EFC08708, 2021 Lincoln Pickup & Delivery Updates.

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 FSA's / 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
 - Lincoln vehicles – 4 years or 50,000 miles

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Reprogram Integrated Trailer Relay Module

CLAIMS PREPARATION AND SUBMISSION

- **Claim Entry:** Enter claims using Dealer Management System (DMS) or One Warranty Solution (OWS) online.
 - When entering claims, select claim type 31: Field Service Action. The FSA number (22S17) is the sub code.
 - 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 same claim type and sub code as described in Claim Entry above.

IMPORTANT: Click the Related Damage Indicator radio button.
- **Refunds:** Submit refunds on a separate repair line.
 - Program Code: 22S17
 - Misc. Expense: ADMIN
 - Misc. Expense: REFUND
 - Misc. Expense: 0.2 Hrs.
 - Multiple refunds should be submitted on one repair line and the invoice details for each repair should be detailed in the comments section of the claim.

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Certain 2021-2022 Model Year F-150 Vehicles

Certain 2022 Model Year, Expedition, Navigator, Maverick, and Super Duty Vehicles

Reprogram Integrated Trailer Relay Module

LABOR ALLOWANCES

Description	Labor Operation	Labor Time
Repair: Reprogram Integrated Trailer Relay Module (TRM) with the latest level using FDRS.	22S17B	0.4 Hour
F-150 Only - If DTC U0140:82 is present after the TRM software update. Program GWM, TCU, APIM, IPMA (and the 12" IPC – if equipped) until there are no remaining updates for those modules.	MT22S17C	Up to 8.0 Hours

PARTS REQUIREMENTS / ORDERING INFORMATION

Parts are not required to complete this repair.