



TECHNICAL SERVICE BULLETIN

SYNC 4 Without Navigation - Compass Direction Indication Stuck Or Not Updating Correctly

21-238802 November
2021**Model:**

Ford 2021 F-150

Issue: Some 2021 F-150 vehicles equipped with SYNC 4 without navigation may exhibit a condition where the compass direction indication is stuck or is not updating correctly in the instrument cluster and/or SYNC 4 screen. This may be due to a software concern in the telematics control unit (TCU) and the accessory protocol interface module (APIM). To correct the condition, follow the Service Procedure steps to reprogram the TCU and the APIM.

NOTE: The TCU and the APIM software update that addresses the symptom listed in this bulletin may have been sent via over the air (OTA) to connected vehicles that have automatic updates enabled through the SYNC 4 screen. Enter the vehicle identification number (VIN) in Professional Technician System (PTS) and check the OTA Dashboard under the Connected Vehicle tab for OTA update history. If an update to the APIM has successfully completed recently and the customer is reporting the symptoms are no longer present, this article may not apply.

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

- 2021 F-150
- Equipped with SYNC 4 without navigation
- Compass direction indication is stuck or is not updating correctly in the instrument cluster and/or SYNC 4 screen

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
2021 F-150 Check For Updates, Reprogram TCU (Do Not Use With Any Other Labor Operations)	212388A	0.4 Hrs.
2021 F-150 Check For Updates, Reprogram TCU And GWM (Do Not Use With Any Other Labor Operations)	212388B	0.5 Hrs.
2021 F-150 Check For Updates, Reprogram TCU, GWM And APIM (Do Not Use With Any Other Labor Operations)	212388C	1.1 Hrs.
2021 F-150 Check For Updates, Reprogram GWM And APIM (Do Not Use With Any Other Labor Operations)	212388D	0.9 Hrs.
2021 F-150 Check For Updates, Reprogram APIM (Do Not Use With Any Other Labor Operations)	212388E	0.8 Hrs.

Repair/Claim Coding

Causal Part:	14F546
Condition Code:	04

Service Procedure

NOTE: To assist in Ford Diagnosis and Repair System (FDRS) programming, ask the customer to bring a key fob when performing this procedure.

1. Connect the vehicle communications module (VCM) II, vehicle communications and measurement module (VCMM) or later level to the vehicle's data link connector (DLC) and the diagnostic scan tool universal serial bus (USB) port. Start a vehicle session with the FDRS and select the toolbox tab to see the available software updates.
2. Is a TCU software update available?
 - (1). Yes - proceed to Step 3.
 - (2). No - proceed to Step 4.
3. Update the TCU software using the latest version of the FDRS. Refer to Workshop Manual (WSM), Section 418-01A.
 - (1). Connect a battery charger to the vehicle's 12v battery. Set the charger to maintain 12.6 - 13.6 volts.

NOTE: A blank 32GB or larger USB flash drive is required for TCU update. 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 more lengthy operation.

- (2). Using the FDRS, reprogram the TCU by selecting TCU - Telematics Control Unite Software Update. Follow all on-screen instructions carefully.
- (3). When prompted, connect the USB flash drive to the FDRS.

NOTE: It may take up to 30 seconds for the vehicle to recognize the USB flash drive.

- (4). When prompted by the FDRS, safely remove/eject the USB flash drive from the diagnostic scan tool and connect it to the USB hub to install the software into the TCU. The update starts automatically, and may take 10 minutes or longer to complete. It is normal for the TCU to reset during this step.
- (5). Once the pop-up stating Installation Complete appears in the SYNC screen, select Close, remove the USB flash drive from the USB hub and connect it to the diagnostic scan tool, and select OK on the diagnostic scan tool. This initiates the remaining automated configuration steps and reports the TCU assembly, vehicle interface processor (VIP), calibration, customer interface processor (CIP), and application software levels to the Ford online database. Failure to follow this step results in an inaccurate database as well as omitted, improperly installed, or improperly configured applications (features) such as navigation (if equipped). It is normal for the TCU to reset during this step.

NOTE: Update the gateway module (GWM) before performing the APIM update. Updated APIM software will not show as being available in FDRS until the GWM has been successfully updated.

4. Is a GWM software update available?
 - (1). Yes - proceed to Step 5.
 - (2). No - proceed to Step 6.
5. Update the GWM using the latest version of FDRS. Refer to WSM, Section 418-01A.
 - (1). Connect a battery charger to the vehicle's 12v battery. Set the charger to maintain 12.6-13.6 volts.

NOTE: A blank 32GB or larger USB flash drive is required for GWM update. 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 more lengthy operation.

- (2). Using the FDRS, reprogram the GWM by selecting GWM - Gateway Module A (GWM) Software Update. Follow all on-screen instructions carefully.
- (3). When prompted, connect the USB flash drive to the FDRS.

NOTE: It may take up to 30 seconds for the vehicle to recognize the USB flash drive.

- (4). When prompted by the FDRS, safely remove/eject the USB flash drive from the diagnostic scan tool and connect it to the USB hub to install the software into the GWM. The update starts automatically, and may take 10 minutes or longer to complete. It is normal for the GWM to reset during this step.

- (5). Once the pop-up stating Installation Complete appears in the SYNC screen, select Close, remove the USB flash drive from the USB hub and connect it to the diagnostic scan tool, and select OK on the diagnostic scan tool. This initiates the remaining automated configuration steps and reports the GWM assembly, vehicle interface processor (VIP), calibration, customer interface processor (CIP), and application software levels to the Ford online database. Failure to follow this step results in an inaccurate database as well as omitted, improperly installed, or improperly configured applications (features) such as navigation (if equipped). It is normal for the GWM to reset during this step.
6. If a GWM software update was performed, re-run the network test on the FDRS. Is an APIM software update available?
 - (1). Yes - proceed to Step 7.
 - (2). No - this article does not apply. Claim any reprogramming performed using the correct labor operation in this article. Refer to WSM, Section 415-00 for further SYNC diagnostics.

NOTE: A blank 64GB or larger USB flash drive is required for APIM software update. 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. Make sure the Quick Format box is selected. If it is not selected, it will result in a lengthier operation.

7. Make sure a battery charger is connected to the vehicle's 12 volt battery. Set the charger to maintain 12.6-13.6 volts.
8. Close all the doors on the vehicle. Locking the latch mechanically while the door is open simulates a closed door.
9. Download and run the APIM Software Update application on the FDRS and follow the on-screen prompts. If any error conditions are experienced during programming, refer to WSM Section 418-01A > General Procedures > Module Programming for the Error Condition Table.
 - (1). When directed by the FDRS, install the USB flash drive into the vehicle. Wait 5 minutes for the updating prompts to show up in the sync screen in the vehicle.

NOTE: It may take up to 5 minutes for the vehicle to recognize the USB flash drive. All doors must remain closed until the SYNC screen prompts a restart is required. To view the progress, drop down the updating screen in the sync screen.

- (2). When the update on the USB flash drive has downloaded to the vehicle, the touchscreen displays a Restart Required message. The ignition needs to be turned off for 10 minutes. Open the driver's door, then close it to allow the vehicle to completely power down. During this key off time, the screen continues through a reboot process.
- (3). After the 10 minutes, start the vehicle and allow another 5 minutes for the Update Successful message to appear in SYNC screen. Once the Update Successful message appears, the USB flash drive may be removed, and the doors opened.
- (4). Return the USB flash drive to the FDRS and follow the on-screen prompts to complete the procedure.

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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.