Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

2016 FORD Kuga OEM Service and Repair Workshop Manual

Go to manual page

A10 VERIFY TELEMATIC CONTROL MODULE (TCU) WI-FI SIGNAL STRENGTH

- From the vehicle touchscreen select Connectivity> Manage Wi-Fi networks.
- Add a new local network to the vehicle.
- Select the new local network.
- Review the signal strength of the new local network.
- Using an additional Wi-Fi capable device in the same location, compare the Wi-Fi strength displayed on the second device with the signal strength displayed in the new local network.

Is the signal strength displayed in the new local network equal to the strength displayed on the second Wi-Fi compatible device?

Yes	GO to A11

No	INSTALL a new TCU (telematic control unit module) . REFER to: Telematics Control Unit (TCU) Module (415-00 Information and Entertainment System - General Information, Removal and Installation).

A11 CHECK FOR GWM (GATEWAY MODULE A) AND TCU (TELEMATIC CONTROL UNIT MODULE) UPDATES USING THE DIAGNOSTIC SCAN TOOL

- Using a diagnostic scan tool, check for GWM (gateway module A) and the TCU (telematic control unit module) updates.

Are any software updates available for the GWM (gateway module A) or the TCU (telematic control unit module) ?

Yes	COMPLETE the module update in question. If a GWM (gateway module A) and a TCU (telematic control unit module) update is available, Complete the GWM (gateway module A) updated first, then complete the TCU (telematic control unit module) update.GO to A12

No	GO to A13

A12 VERIFY MODULE FUNCTION AFTER SOFTWARE UPDATE

- Verify a Wi-Fi hotspot can be enabled from the vehicle touchscreen.

Was a Wi-Fi hotspot able to be enabled from the vehicle touchscreen?

Yes	CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new GWM (gateway module A) .

No	The system is operating correctly at this time. The concern may have been caused by module connections or an unresolved system Cache error. ADDRESS the root cause of any connector or terminal issues identified.

PINPOINT TEST B : OTA UPDATES HAVE NOT INSTALLED OR ARE DELAYED BEYOND 8 CALENDAR DAYS WITHOUT A FAULT MESSAGE DISPLAYED ON THE TOUCH SCREEN OR IN THE FORDPASS OR LINCOLN WAY APPS

Normal Operation and Fault Conditions

REFER to: Module Configuration - System Operation and Component Description(418-01B Module Configuration - Vehicles With: Over-the-Air (OTA) Programming, Description and Operation).

REFER to: Module Configuration - System Operation and Component Description (418-01B Module Configuration - Vehicles With: Over-the-Air (OTA) Programming, Description and Operation).

Possible Sources

- Automatic update feature disabled
- Preconditions not met
- Poor cellular reception
- Poor Wi-Fi reception
- TCU (telematic control unit module) reception concern
- TCU (telematic control unit module)

B1 VERIFY CONNECTIVITY SETTINGS

- Review the connectivity settings on the vehicle touchscreen. Make sure Connectivity and Automatic Updates are set to ENABLED.
  - Select Settings > Connectivity on the vehicle touchscreen to review the connectivity status.
  - Select Settings > Software updates on the vehicle touchscreen to review the automatic system updates status.
- .

Are vehicle connectivity and automatic updates set to enabled?

Access the GWM (gateway module A) and monitor the UE1_ERROR_STATUS (Update Event #1 Error Status) PID (parameter identification)
Access the GWM (gateway module A) and monitor the UE2_ERROR_STATUS (Update Event #2 Error Status) PID (parameter identification)
Access the GWM (gateway module A) and monitor the UE3_ERROR_STATUS (Update Event #3 Error Status) PID (parameter identification)
Access the GWM (gateway module A) and monitor the UE4_ERROR_STATUS (Update Event #4 Error Status) PID (parameter identification)

- **NOTE**

  If the Gateway Module, Last 4 Updates PIDs EU1_Error _STATUS () PID, EU2_Error _STATUS () PID, EU3_Error _STATUS () PID and EU4_Error _STATUS () PID are not available, GO TO Step B4.

Review the PID (parameter identification) data and determine the status at the time of the last OTA update event.

Was Cancelled from the cloud (Ford), Rejected by the user or Data use exceeded indicated for any of the last 4 OTA update events?

Yes	The OTA update was cancelled by user intervention, Ford systems intervention or the data use plan has been exceeded. INFORM the customer of the conditions that cause these situations.

No	GO to B4

B4 REVIEW THE TELEMATIC CONTROL MODULE AUTHORIZATION STATE

- View the following TCU (telematic control unit module) OTA Parameter Identifications (PIDs):
  Access the TCU (telematic control unit module) and monitor the AUTHMODE (Authorization Status) PID (parameter identification)

Is the authorization state Factory Mode or Unprovisioned?

Yes	GO to B6

No	GO to B5

B5 REVIEW CONNECTIVITY HISTORY AND INDICATED PROGRAMMING FAULTS

- View the following OTA Parameter Identifications (PIDs) to identify the module authorization status.
  - An unprovisioned status in any of the modules listed below may inhibit various web services.
- Access the GWM (gateway module A) and monitor the AUTHMODE (Authorization Status) PID (parameter identification)
  Access the APIM (SYNC module) and monitor the AUTHMODE (Authorization Status) PID (parameter identification)
  Access the RFA (remote function actuator) and monitor the BLEM_PROV_STAT (Bluetooth Low Energy Module Provisioning Status) PID (parameter identification)
  Access the OBCC (Off-Board Charger Controller) and monitor the AUTHMODE (Authorization Status) PID (parameter identification)

Does the authorization state indicate unprovisioned for the GWM, APIM, RFA or OBCC?

Yes	GO to B8

No	GO to B9

B8 COMPLETE CONNECTIVITY AUTHORIZATIONS

- Using a diagnostic scan tool carry out the PMI (programmable module installation) procedure for the module(s) which are not authorized (GWM, APIM, RFA, OBCC).
- Park the vehicle away from buildings with a clear view of the sky.
- Ignition OFF.
- Ignition ON.
- Wait for a minimum of 5 minutes.
- Review the authorization mode PID (parameter identification) for the module in question.
  Access the GWM (gateway module A) and monitor the AUTHMODE (Authorization Status) PID (parameter identification)
  Access the APIM (SYNC module) and monitor the AUTHMODE (Authorization Status) PID (parameter identification)
  Access the RFA (remote function actuator) and monitor the BLEM_PROV_STAT (Bluetooth Low Energy Module Provisioning Status) PID (parameter identification)
  Access the OBCC (Off-Board Charger Controller) and monitor the AUTHMODE (Authorization Status) PID (parameter identification)

Does the authorization state still indicate unprovisioned for the module in question?

Yes	For a GWM (gateway module A) unprovisioned state, INSTALL a new module in question. Refer to the appropriate Section for the installation procedure.

No	INSTALL a new TCU (telematic control unit module) . REFER to: Telematics Control Unit (TCU) Module (415-00 Information and Entertainment System - General Information, Removal and Installation).

B11 CHECK FOR GWM (GATEWAY MODULE A) AND TCU (TELEMATIC CONTROL UNIT MODULE) UPDATES USING THE DIAGNOSTIC SCAN TOOL

- Using a diagnostic scan tool, check for GWM (gateway module A) and the TCU (telematic control unit module) updates.

Are any software updates available for the GWM (gateway module A) or the TCU (telematic control unit module) ?

Yes	COMPLETE the module update in question. If a GWM (gateway module A) and a TCU (telematic control unit module) update is available, Complete the GWM (gateway module A) updated first, then complete the TCU (telematic control unit module) update. GO to B12

No	GO to B13

B12 VERIFY MODULE FUNCTION AFTER SOFTWARE UPDATE

- Verify a Wi-Fi hotspot can be enabled from the vehicle touchscreen.

Was a Wi-Fi hotspot able to be enabled from the vehicle touchscreen?

Yes	The system is operating correctly at this time. The concern may have been caused by out of date module software.

No	GO to B13

B13 RESET THE VEHICLE MODULES AND UPDATE THE MODULES THAT FAILED TO RECEIVE THE OTA UPDATE

- Ignition OFF.
- Disconnect the battery negative cable.

PINPOINT TEST C : THE VEHICLE TOUCHSCREEN DISPLAYS INHIBIT

Normal Operation and Fault Conditions

REFER to: Module Configuration - System Operation and Component Description(418-01B Module Configuration - Vehicles With: Over-the-Air (OTA) Programming, Description and Operation).

REFER to: Module Configuration - System Operation and Component Description (418-01B Module Configuration - Vehicles With: Over-the-Air (OTA) Programming, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
GWM (gateway module A) U102D:00	Incompatible Vehicle Software: No Sub Type Information	Sets in the GWM (gateway module A) when a coordinated update for safety critical ECUs that require engine inhibit, fails to install or swap. If the revert to the active partition is not completed successfully for all affected ECUs, SWUM needs to keep the engine inhibited permanently.
BCM (body control module) U1023:00	Vehicle Inhibited Due To Cloud Control: No Sub Type Information	Sets in the BCM (body control module) when connection to the data cloud is interrupted and data updates from the cloud have failed to complete.

Possible Sources

- Suspect module
- OTA update process has failed to complete correctly or been interrupted

C1 REMOVE VEHICLE FROM INHIBIT MODE

- Using FDRS (Ford Diagnosis and Repair System) , carry out the BCM (body control module) service function Over the-Air (OTA) Update Vehicle Inhibit Reset.
- Follow the on screen instructions to remove the vehicle from the inhibit mode.
- Refer to the OTA Dashboard in PTS (Professional Technician System) to determine which module(s) were included in the update that resulted in the vehicle inhibit failure.
- Use FDRS (Ford Diagnosis and Repair System) to update the module that failed to complete. REFER to Toolbox > Software update. Select the module in question and follow the on screen instructions.

Did the update complete successfully?

Yes	The repair is complete.

Collision Warning and Collision Avoidance System - Overview

419-03C Collision Warning and Collision Avoidance System	***2022 F-150***
Description and Operation	***Procedure revision date: 09/25/2020***

Collision Warning and Collision Avoidance System - Overview

Overview

The pre-collision assist system is offered as a camera-only option without ACC (adaptive cruise control) . An additional safety feature on vehicles equipped with ACC (adaptive cruise control) uses both the CCM (cruise control module) (radar) and the IPMA (image processing module A) .

The forward collision warning system alerts the driver of a collision risk by illuminating a warning indicator located in the IPC (instrument panel cluster) information center. The IPC (instrument panel cluster) sends a request to the ACM (audio front control module) to sound an audible warning chime.

Forward Collision Warning System

The forward collision warning system works in conjunction with the ACC (adaptive cruise control) system. During a possible collision event, the CCM (cruise control module) commands:

- the IPC (instrument panel cluster) to activate the warning indicator in the information center.
- the IPC (instrument panel cluster) to activate the chime message.
- the ACM (audio front control module) to mute audio volume and signal the chime.

4	IPC (instrument panel cluster)
5	BCM (body control module)
6	GWM (gateway module A)
7	ABS (anti-lock brake system)
8	IPMA (image processing module A)
9	IPMA (image processing module A) Camera
10	PCM (powertrain control module)

Network Message Chart

Network Input Messages - ACM (audio front control module)

Broadcast Message	Originating Module	Message Purpose
IPC (instrument panel cluster) chime	IPC (instrument panel cluster)	Data used to command a warning chime during a possible collision event and audio mute so the warning chime can be heard.

Network Input Messages - IPC (instrument panel cluster)

Broadcast Message	Originating Module	Message Purpose
Collision avoidance and driver support camera status	IPMA (image processing module A)	Data used to command the pre-collision assist system fault status in the message center.
Collision avoidance and driver support chime status	CCM (cruise control module)	Data used to command a warning chime that a collision event is possible.
Collision avoidance and driver support radar	CCM (cruise control module)	Data used to command a radar blocked message in the message center.

- Visual and audible alert
- Brake support
- Active braking

Vehicles equipped with ACC (adaptive cruise control) use object detection information from the radar sensor integrated in the CCM (cruise control module) and the forward-looking camera in the IPMA (image processing module A) mounted on the windshield below the rear view mirror. The CCM (cruise control module) and the IPMA (image processing module A) scan a designated area in front of the vehicle. Network messages sent between the CCM (cruise control module) and the IPMA (image processing module A) on dedicated CAN (controller area network) circuits, which determine whether an object, vehicle or pedestrian is in the path of travel, the approximate distance to the object and how fast the vehicle is approaching it.

Vehicles equipped without ACC (adaptive cruise control) uses object detection information from the forward-looking camera in the IPMA (image processing module A) only.

When the vehicle approaches the object, the IPMA (image processing module A) sends a message through the GWM (gateway module A) to the IPC (instrument panel cluster) module to turn on the red pre-collision warning indicator in the message center and to sound an audible alert. The IPMA (image processing module A) also sends a message to the ABS (anti-lock brake system) module to pre-charge the brakes in order to prepare them for rapid braking. If the system determines that a collision is imminent, an active braking message is sent from the IPMA (image processing module A) to the ABS (anti-lock brake system) module. The system reduces the gap between the brake pads and discs, applying the brakes to slow vehicle speed without driver intervention.

The pre-collision alert system uses image recognition software that differentiates shapes, which allows the system to determine if the approaching object is a vehicle or a pedestrian. If the camera does not recognize the shape as a vehicle or a pedestrian, the system does not provide full function.

The forward collision (pre-collision assist) warning RTT (reconfigurable telltale) indicator can illuminate if the forward collision assist system is degraded due to environmental conditions that reduce camera vision function, such as direct or low light, ice on the windshield, heavy rain or fog. The RTT (reconfigurable telltale) indicator can also illuminate when the pre-collision assist or the stability control systems are turned off while in drive mode. This is part of normal system operation.

The pre-collision assist system is active at speeds above 5 kph (3 mph) and pedestrian detection is active at speeds up to 80 kph (50 mph).

The pre-collision assist system has sensitivity detection that can be changed using the touchscreen controls in the pre-collision assist menu. The alert sensitivity is adjusted and active braking can be turned on or off using the touch screen. The active braking function reverts back to ON at the next ignition cycle. For additional information, refer to the Owners Literature.