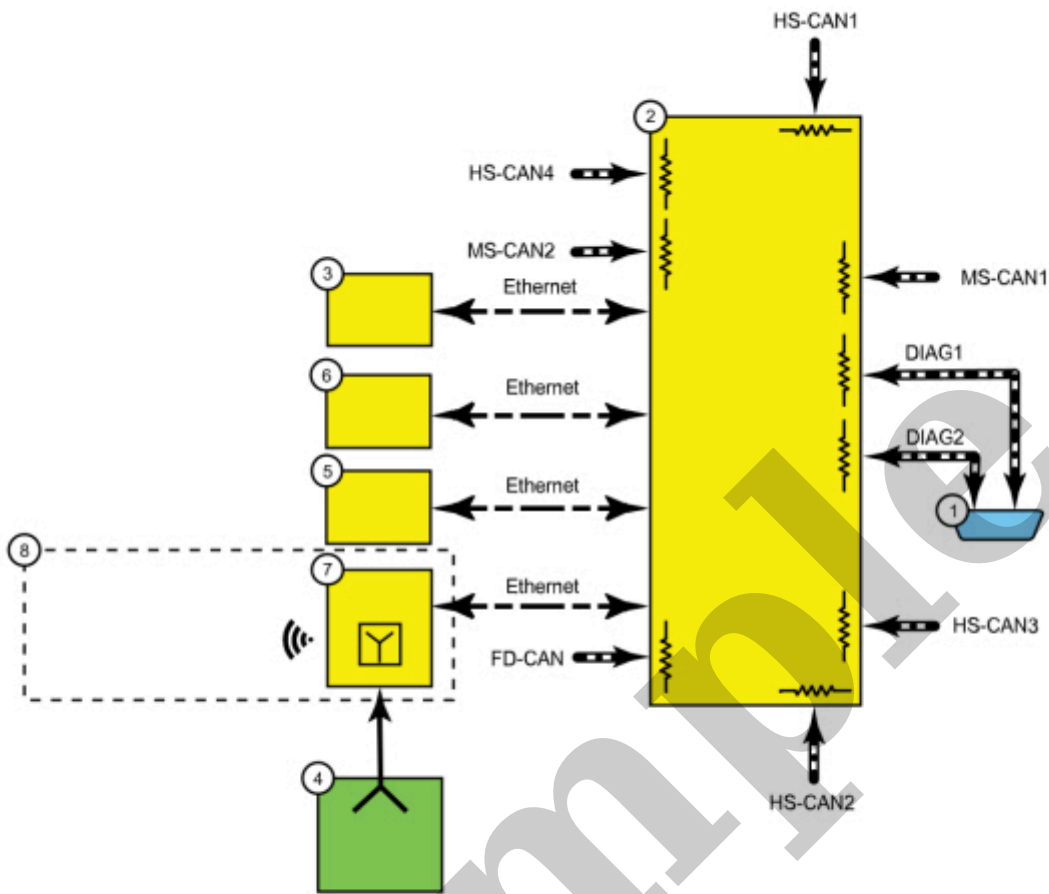


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2014 FORD Kuga OEM Service and Repair Workshop Manual

[Go to manual page](#)



E338489

Item	Description
1	DLC (data link connector)
2	GWM (gateway module A)
3	IPMA (image processing module A)
4	Primary cellular antenna
5	IPC (instrument panel cluster)

- May Green dedicated for the IPC (instrument panel cluster)
- Nut Brown dedicated for the Diagnostic
- Platinum Grey dedicated for the DSRC (Dedicated Short Range Communications) module
- Light Pink dedicated for the PCM (powertrain control module)
- Pastel Orange dedicated for the TCU (telematic control unit module) 2
- Pastel Green dedicated for the BCM (body control module)



E345260

NOTE

The Number of Ethernet master connectors and Ethernet communication circuit connections depicted in the graphic above are for description of capability only and may not represent what the vehicle is equipped with.

Gateway Module

The GWM (gateway module A) receives data from the Ethernet network and distributes the data to the receiving modules across all of the vehicle networks.

Ethernet Cable

Ethernet Module Communications Network

418-00C Ethernet Module Communications Network	2022 F-150
Diagnosis and Testing	Procedure revision date: 05/10/2022

Ethernet Module Communications Network

Diagnostic Trouble Code (DTC) Chart

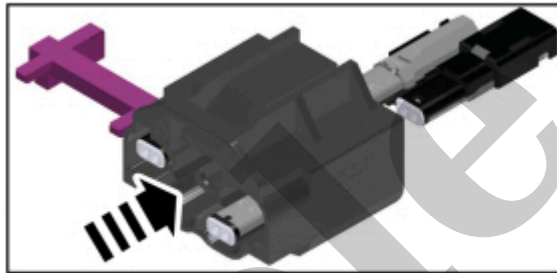
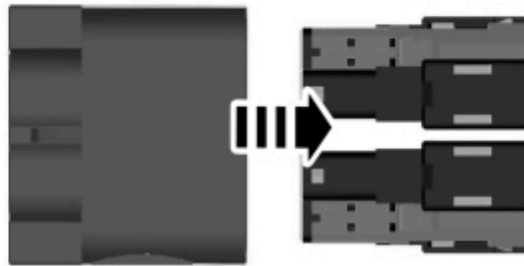
Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

Diagnostic Trouble Code Chart

Module	DTC (diagnostic trouble code)	Description	Action
APIM (SYNC module)	U2400:81	Ethernet failure with Gateway Module A (GWM): Invalid Serial Data Received	GO to Pinpoint Test A
APIM (SYNC module)	U2400:92	Ethernet failure with Gateway Module A (GWM): Performance or Incorrect Operation	GO to Pinpoint Test A
GWM (gateway module A)	U2401:00	Ethernet failure with Accessory Protocol Module (APIM): No Sub Type Information	GO to Pinpoint Test B
GWM (gateway module A)	U2401:81	Ethernet failure with Accessory Protocol Module (APIM): Invalid Serial Data Received	GO to Pinpoint Test A



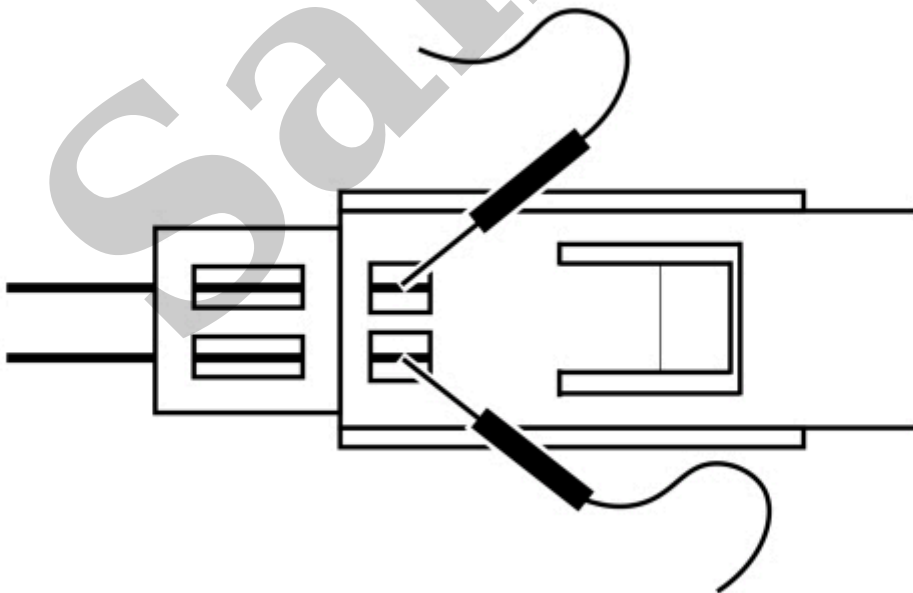
E343030

To test the Ethernet cable in question at the GWM (gateway module A) , the cable must be removed from the GWM (gateway module A) master connector to gain access to the connector pins where probing can take place (refer to the illustration above). The Ethernet cable connector end identification color can be used to identify the module the Ethernet cable is connected to. Refer to the chart in the Description and Operation section for the color assignment. REFER to: [Ethernet Module Communications Network - System Operation and Component Description](#)(418-00C Ethernet Module Communications Network, Description and Operation).

illustration above) **Ethernet Cable Testing At Cable In-line Connection**



E341361



E341363

GWM (gateway module A) U2404:81	Ethernet Failure With Image Processing Module 'A' (IPMA): Invalid Serial Data Received	Sets in the GWM (gateway module A) when an invalid data message is received from the IPMA (image processing module A) and DTC (diagnostic trouble code) U2401:92 is set.
GWM (gateway module A) U2404:92	Ethernet Failure With Image Processing Module 'A' (IPMA): Performance Or Incorrect Operation	Sets in the GWM (gateway module A) when an invalid data message is received from the IPMA (image processing module A) .
APIM (SYNC module) U2400:81	Ethernet Failure With Gateway Module A (GWM): Invalid Serial Data Received	Sets in the APIM (SYNC module) when an invalid data message is received from the GWM (gateway module A) .
APIM (SYNC module) U2400:92	Ethernet Failure With Gateway Module A (GWM): Performance Or Incorrect Operation	Sets in the APIM (SYNC module) when an invalid data message is received from the GWM (gateway module A) .
IPMA (image processing module A) U2400:00	Ethernet Failure With Gateway Module A (GWM): No Sub Type Information	Sets in the IPMA (image processing module A) when no data message information is received from the GWM (gateway module A) .

Possible Sources

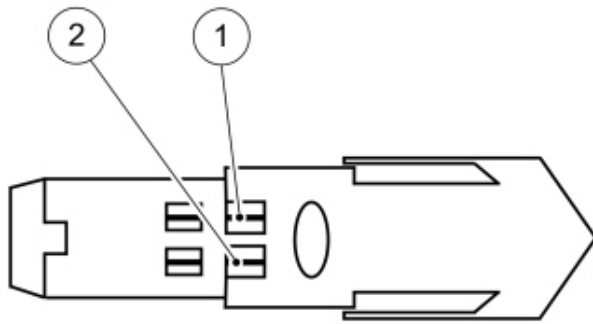
- Wiring, terminals, or connectors
- TCU (telematic control unit module)
- APIM (SYNC module)
- IPC (instrument panel cluster)
- IPMA (image processing module A)

A1 CHECK THE NETWORK COMMUNICATION

- Using a diagnostic scan tool, carry out the network test.

Does the module in question, APIM (SYNC module) , TCU (telematic control unit module) , IPC (instrument panel cluster) , IPMA (image processing module A) pass the network test?

Yes	GO to A2
-----	--------------------------

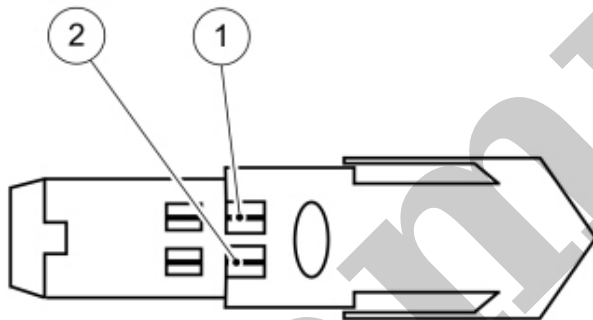


E343033

Ethernet cable , pin 1

Ω

Ground



E343033

Ethernet cable , pin 2

Ω

Ground

Are the resistances greater than 10,000 ohms?

Yes

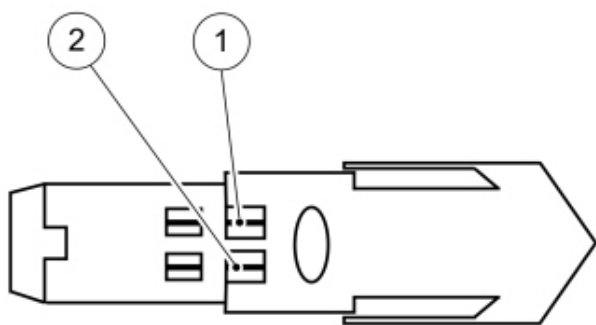
GO to [A4](#)

No

INSTALL a new Ethernet cable.

A4 CHECK THE ETHERNET CIRCUIT FOR A SHORT TOGETHER

- Measure:

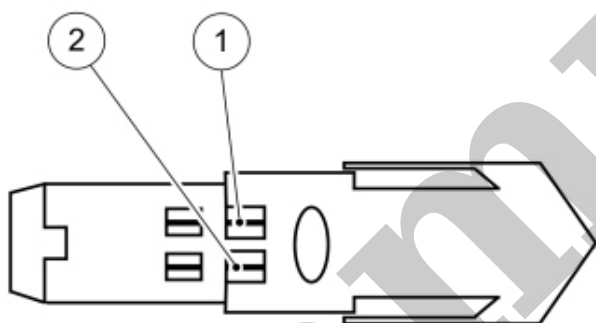


E343033

Ethernet cable, pin 1

\bar{V}

Ground



E343033

Ethernet cable, pin 2

\bar{V}

Ground

Is any voltage present?

Yes

INSTALL a new Ethernet cable.

No

GO to [A6](#)

A6 CHECK THE ETHERNET CIRCUIT FOR AN OPEN

- Ignition OFF.

A7 RECHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) for the module in question (APIM (SYNC module) , IPC (instrument panel cluster) , IPMA (image processing module A) , TCU (telematic control unit module)) setting the DTC (diagnostic trouble code) .
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds
- Using a diagnostic scan tool, carry out the self-test for the module in question (APIM (SYNC module) , IPC (instrument panel cluster) , IPMA (image processing module A) , TCU (telematic control unit module)).

Is the DTC (diagnostic trouble code) still present?

Yes	If the APIM (SYNC module) is the suspect module, GO to A8 If the TCU (telematic control unit module) is the suspect module, GO to A9 If the IPC (instrument panel cluster) is the suspect module, GO to A10 If the IPMA (image processing module A) is the suspect module, GO to A11
No	The module reset has resolved the concern.

A8 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM (SYNC module) connectors.
- Repair:
 - Corrosion (clean module pins or install new connectors or terminals)
 - Damaged or bent pins (install new terminals or pins)
 - Pushed-out pins (install new pins as necessary)
- Reconnect the APIM (SYNC module) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	<p>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 APIM (SYNC module) .</p> <p>REFER to: SYNC Module [APIM] - Vehicles With: 8 Inch Center Display Screen/12 Inch Center Display Screen</p>
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