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2017 FORD Focus ST 5 Doors OEM Service and Repair Workshop Manual

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DTC (diagnostic trouble code)	Description	Fault Trigger Condition
APIM (SYNC module) C1001:01	Vision System Camera: General Electrical Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when an expected video signal is not received from the IPMA (image processing module A) .
APIM (SYNC module) C1001:02	Vision System Camera: General Signal Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when the video signal is not received from the IPMA (image processing module A) .
APIM (SYNC module) C1001:1C	Vision System Camera: Circuit Voltage Out Of Range	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when an unexpected voltage is detected on the coaxial cable between the IPMA (image processing module A) and APIM (SYNC module) .
APIM (SYNC module) C1001:81	Vision System Camera: Invalid Serial Data Received	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when an expected video signal is not received from the IPMA (image processing module A) .
APIM (SYNC module) C1001:87	Vision System Camera: Missing Message	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when message is missing from the IPMA (image processing module A) over the LVDS (low voltage differential signaling) .
IPMA (image processing module A) B115E:08	Camera Module: Bus Signal/Message Failures	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when expected communications are not received from the rear parking aid camera over the LVDS (low voltage differential signaling) .
IPMA (image processing module A) B115E:11	Camera Module: Circuit Short To Ground	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when rear parking aid camera coaxial cable is shorted to ground.

	(413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing).

G2 CHECK FOR CORRECT SPEEDOMETER OPERATION

- Verify the operation of the speedometer.

Does the speedometer operate correctly?

Yes	GO to G3

No	DIAGNOSE the speedometer. REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing).

G3 CARRY OUT A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to G4

No	See the Symptom Chart: Communication Network.

G4 CHECK THE DISPLAY

- **NOTE**

  Some fault conditions may cause the actual camera image(s) not to be displayed.

  Observe the audio system display.
- Select REVERSE.
- Wait 30 seconds.

Does the audio system display switch to parking aid camera display mode?

Yes	Select PARK. GO to G5

C242F-2 coaxial cable core	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to G7

No	REPLACE the affected coaxial cable.

G7 CHECK THE REAR CAMERA COAXIAL CABLE CORE AND SHIELD FOR AN OPEN

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242F-2 coaxial cable core	Ω	C4357-1 coaxial cable core
C242F-2 coaxial cable shield	Ω	C4357-1 coaxial cable shield

Are the resistances less than 3 ohms?

Yes	GO to G8

No	REPLACE the affected coaxial cable.

G8 CHECK THE REAR CAMERA COAXIAL CABLE CORE AND SHIELD FOR A SHORT TOGETHER

- Measure:

Positive Lead	Measurement / Action	Negative Lead

No	GO to G10

G10 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND BETWEEN THE IPMA (IMAGE PROCESSING MODULE A) AND THE APIM (SYNC MODULE)

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242C-16	Ω	Ground
C242C-17	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to G11

No	REPAIR the circuit in question.

G11 CHECK THE VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE IPMA (IMAGE PROCESSING MODULE A) AND THE APIM (SYNC MODULE)

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242C-16	Ω	C2383A-15

C242C-16	Ω	C242C-17

Is the resistance greater than 10,000 ohms?

Yes	GO to G18

No	REPAIR the circuits.

G14 CHECK THE COAXIAL CABLE CORE AND SHIELD FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect IPMA (image processing module A) C242F .
- Disconnect APIM (SYNC module) C2383E .
- Ignition ON.
- Measure VDC (voltage direct current) :

Positive Lead	Measurement / Action	Negative Lead
C242F-1 coaxial cable core	V	Ground
C242F-1 coaxial cable shield	V	Ground

Is any DC (direct current) voltage present?

Yes	REPLACE the affected coaxial cable.

No	GO to G15

G15 CHECK THE COAXIAL CABLE CORE FOR A SHORT TO GROUND

G17 CHECK THE COAXIAL CABLE CORE AND SHIELD FOR A SHORT TOGETHER

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242F-1 coaxial cable core	Ω	C242F-1 coaxial cable shield

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation). If the concern is still present after camera replacement, GO to G18

No	REPLACE the affected coaxial cable.

G18 CHECK FOR CORRECT IPMA (IMAGE PROCESSING MODULE A) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMA (image processing module A) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect the IPMA (image processing module A) 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	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 IPMA (image processing module A) . REFER to: Image Processing Module A (IPMA) (419-07 Lane Keeping System, Removal and Installation).

(413-13B Parking Aid - Vehicles With: Parking Aid Camera, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
APIM (SYNC module) C1001:02	Vision System Camera: General Signal Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when the video signal is not received from the IPMA (image processing module A) .
APIM (SYNC module) C1001:1C	Vision System Camera: Circuit Voltage Out Of Range	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when an unexpected voltage is detected on the coaxial cable between the IPMA (image processing module A) and APIM (SYNC module) .
APIM (SYNC module) C1001:81	Vision System Camera: Invalid Serial Data Received	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when an expected video signal is not received from the IPMA (image processing module A) .
APIM (SYNC module) C1001:87	Vision System Camera: Missing Message	A continuous and on-demand DTC (diagnostic trouble code) that sets in the APIM (SYNC module) when message is missing from the IPMA (image processing module A) over the LVDS (low voltage differential signaling) .

Possible Sources

- Wiring, terminals or connectors
- Communication network concern
- TR (transmission range) input concern
- Infotainment display concern
- IPMA (image processing module A)

H1 CHECK FOR CORRECT GEAR INPUT AT THE IPC (INSTRUMENT PANEL CLUSTER)

- Ignition ON.
- While monitoring the IPC (instrument panel cluster) PRNDL indicator, briefly select each gear in the entire range.

Does the IPC (instrument panel cluster) PRNDL indicator match the actual gear selection?

Yes	GO to H2

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to the IPMA (image processing module A) DTC (diagnostic trouble code) Chart in this section.

No	GO to H5

H5 CHECK THE COAXIAL CABLE CORE AND SHIELD FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect IPMA (image processing module A) C242F .
- Disconnect APIM (SYNC module) C2383E .
- Ignition ON.
- Measure VDC (voltage direct current) :

Positive Lead	Measurement / Action	Negative Lead
C242F-1 coaxial cable core	V	Ground
C242F-1 coaxial cable shield	V	Ground

Is any DC (direct current) voltage present?

Yes	REPLACE the affected coaxial cable.

No	GO to H6

H6 CHECK THE COAXIAL CABLE CORE FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242F-1 coaxial cable core	Ω	C242F-1 coaxial cable shield

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation). If the concern is still present after camera replacement, GO to H9

No	REPLACE the affected coaxial cable.

H9 CHECK FOR CORRECT IPMA (IMAGE PROCESSING MODULE A) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMA (image processing module A) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect the IPMA (image processing module A) 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	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 IPMA (image processing module A) . REFER to: Image Processing Module A (IPMA) (419-07 Lane Keeping System, Removal and Installation). If the concern is still present after IPMA (image processing module A) replacement, GO to H10