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2014 FORD Focus ST 5 Doors OEM Service and Repair Workshop Manual

Go to manual page

Are the resistances greater than 10,000 ohms?

Yes	GO to N9

No	REPAIR the circuit in question.

N9 CHECK THE VIDEO SIGNAL CIRCUITS BETWEEN THE CHMSL CAMERA AND IPMA (IMAGE PROCESSING MODULE A) FOR A SHORT TO THE VIDEO SHIELD

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C9125-3	Ω	C9125-5
C9125-4	Ω	C9125-5

Are the resistances greater than 10,000 ohms?

Yes	GO to N10

No	REPAIR the circuit in question.

N10 CHECK VIDEO SIGNAL CIRCUITS BETWEEN THE CHMSL CAMERA AND IPMA (IMAGE PROCESSING MODULE A) FOR AN OPEN

- Measure:

Positive Lead	Measurement / Action	Negative Lead

Positive Lead	Measurement / Action	Negative Lead
C9125-2	Ω	C242B-1

Is resistance less than 3 ohms ?

Yes	GO to N13

No	REPAIR the circuit.

N13 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO GROUND

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C9125-2	Ω	Ground

Is resistance greater than 10,000 ohms?

Yes	GO to N14

No	REPAIR the circuit.

N14 CHECK FOR CORRECT CHMSL CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the CHMSL camera connector.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins

No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST O : THE TRAILER CAMERA IS INOPERATIVE

NOTE

Before disconnecting the camera or trailer electrical connections, verify that the connectors are properly seated and latched.

Refer to Wiring Diagrams Cell 145for schematic and connector information.

Normal Operation and Fault Conditions REFER to: Parking Aid - System Operation and Component Description
(413-13B Parking Aid - Vehicles With: Parking Aid Camera, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B152F:12	Base Camera: Circuit Short To Battery	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when there is a circuit shorted to battery on the trailer camera wiring.

Possible Sources

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

Visual Inspection and Pre-checks

- BJB (battery junction box) fuse 25 (10A).
- Verify the tailgate is fully closed.
- Verify the trailer electrical connection is properly seated and latched.

O1 CHECK AND CLEAN THE CAMERA LENS

O4 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

- Using the diagnostic scan tool, perform the IPMA (image processing module A) self-test.

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 O5

O5 CHECK FOR VOLTAGE AT THE TRAILER CAMERA

- Ignition OFF.
- Disconnect Trailer tow connector C439 .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C439-1	V	Ground

Is the voltage greater than 11 volts?

Yes	GO to O6

No	INSPECT BJB (battery junction box) fuse 25 (10A). If the fuse is OK, repair the circuit for an open. If the fuse is not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the short circuit.

O6 CHECK FOR GROUND AT THE TRAILER CAMERA

- Measure:

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C439-9	V	Ground
C439-10	V	Ground

Is any voltage present?

Yes	REPAIR the circuit in question.

No	GO to O9

O9 CHECK THE VIDEO SIGNAL CIRCUITS BETWEEN THE TRAILER CAMERA AND IPMA (IMAGE PROCESSING MODULE A) FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C439-9	Ω	Ground
C439-10	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to O10

Are the resistances less than 3 ohms?

Yes	GO to O12

No	REPAIR the circuit in question.

O12 CHECK THE TRAILER HARNESS PARKING AID CAMERA HARNESS

- Inspect the trailer harness between C439 and the trailer parking aid camera for:
  - open or short circuits
  - damaged or pushed out pins
  - corrosion

Is the harness OK?

Yes	GO to O13

No	REPAIR the harness.

O13 CHECK FOR CORRECT TRAILER CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the trailer camera connector.
- 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 trailer camera connector. Make sure it seats and latches 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

Normal Operation and Fault Conditions REFER to: Parking Aid - System Operation and Component Description
(413-13B Parking Aid - Vehicles With: Parking Aid Camera, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B14A5:11	Multi-Camera View Switch: Circuit Short To Ground	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when the camera selection switch is stuck closed or the circuit is shorted to ground.

Possible Sources

- Wiring, terminals or connectors
- TR (transmission range) input concern
- Vehicle speed input concern
- Camera selection switch
- IPMA (image processing module A)

Visual Inspection and Pre-checks

- Inspect the camera selection switch to verify that the switch is not damaged or stuck in the pressed position.

P1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify the operation of the camera selection switch.

Does the camera selection switch operate correctly?

Yes	CLEAR the DTC (diagnostic trouble code) . The system is operating correctly at this time. The concern may have been caused by high network traffic or the driver's perception of how the parking aid system operates. REFER to the Owner's Manual.

No	GO to P2

P2 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

P5 CHECK FOR GROUND AT THE CAMERA SELECTION SWITCH

- Ignition OFF.
- Disconnect Instrument panel center stack left switch C2480 .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2480-3	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to P6

No	REPAIR the circuit.

P6 CHECK THE CAMERA SELECTION SWITCH CIRCUIT FOR AN OPEN

- Disconnect IPMA (image processing module A) C242B .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242B-10	Ω	C2480-2

Is the resistance less than 3 ohms?

Yes	INSTALL a new instrument panel console switch assembly. If the concern is still present after replacing the switch, GO to P9

No	REPAIR the circuit.

- 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).

No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST Q : THE VISUAL PARK AID ALERT IS INOPERATIVE - VEHICLES WITH IPMA (IMAGE PROCESSING MODULE A)

Normal Operation and Fault Conditions

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

Possible Sources

- Communication network concern
- APIM (SYNC module)
- IPMA (image processing module A)

Q1 VERIFY THE VISUAL PARK AID ALERT IS ENABLED

- Ignition ON.
- Verify that the visual park aid alert is enabled in the infotainment system settings menu. Refer to the Owner's Literature.

Is the visual park aid alert enabled?