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2015 FORD Focus ST 5 Doors OEM Service and Repair Workshop Manual

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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.
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PINPOINT TEST K : THE FRONT PARKING AID CAMERA IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY

Refer to Wiring Diagrams Cell 145 for 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) B148E:11	Front Camera: Circuit Short To Ground	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when front parking aid camera coaxial cable is shorted to ground.
IPMA (image processing module A) B148E:15	Front Camera: Circuit Short To Battery Or Open	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when front parking aid camera coaxial cable is shorted to battery or open.
IPMA (image processing module A) B148E:31	Front Camera: No Signal	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when expected video signals are not received from the front parking aid camera over the coaxial cable.

Possible Sources

- Communication network concern
- TR (transmission range) input concern
- Vehicle speed input concern
- Front parking aid camera
- Display concern
- IPMA (image processing module A)

K4 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 K5
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No	Select PARK. DIAGNOSE the display. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information, Diagnosis and Testing).
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K5 CHECK THE FRONT CAMERA COAXIAL CABLE CORE AND SHIELD FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect IPMA (image processing module A) C242E .
- Disconnect Front parking aid camera C1663 .
- Ignition ON.
- Measure VDC (voltage direct current) :

Positive Lead	Measurement / Action	Negative Lead
C242E-1 coaxial cable core		Ground
C242E-1 coaxial cable shield		Ground

Is any DC (direct current) voltage present?

Yes	REPLACE the affected coaxial cable.
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Yes	GO to K8
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No	REPLACE the affected coaxial cable.
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K8 CHECK THE FRONT CAMERA COAXIAL CABLE CORE AND SHIELD FOR A SHORT TOGETHER

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242E-1 coaxial cable core	Ω	C242E-1 coaxial cable shield

Is the resistance greater than 10,000 ohms?

Yes	<p>INSTALL a new front parking aid camera.</p> <p>REFER to: Front Parking Aid Camera (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).</p> <p>If the concern is still present after camera replacement, GO to K9</p>
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No	REPLACE the affected coaxial cable.
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K9 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?

Possible Sources

- Communication network concern
- LH (left-hand) side parking aid camera
- IPMA (image processing module A)

L1 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 L2
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No	See the Symptom Chart: Communication Network.
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L2 CHECK THE LH (LEFT-HAND) SIDE CAMERA COAXIAL CABLE CORE AND SHIELD FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect IPMA (image processing module A) C242E .
- Disconnect LH (left-hand) side parking aid camera C5104 .
- Ignition ON.
- Measure VDC (voltage direct current) :

Positive Lead	Measurement / Action	Negative Lead
C242E-3 coaxial cable core		Ground
C242E-3 coaxial cable shield		Ground

Is any DC (direct current) voltage present?

Yes	REPLACE the affected coaxial cable.
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No	REPLACE the affected coaxial cable.
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L5 CHECK THE LH (LEFT-HAND) SIDE CAMERA COAXIAL CABLE CORE AND SHIELD FOR A SHORT TOGETHER

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242E-3 coaxial cable core	Ω	C242E-3 coaxial cable shield

Is the resistance greater than 10,000 ohms?

Yes	<p>INSTALL a new LH (left-hand) side camera. REFER to: Side 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 L6</p>
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No	REPLACE the affected coaxial cable.
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L6 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?

Possible Sources

- Communication network concern
- RH (right-hand) side parking aid camera
- IPMA (image processing module A)

M1 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 M2
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No	See the Symptom Chart: Communication Network.
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M2 CHECK THE RH (RIGHT-HAND) SIDE CAMERA COAXIAL CABLE CORE AND SHIELD FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect IPMA (image processing module A) C242E .
- Disconnect RH (right-hand) side parking aid camera C6104 .
- Ignition ON.
- Measure VDC (voltage direct current) :

Positive Lead	Measurement / Action	Negative Lead
C242E-4 coaxial cable core		Ground
C242E-4 coaxial cable shield		Ground

Is any DC (direct current) voltage present?

Yes	REPLACE the affected coaxial cable.
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No	REPLACE the affected coaxial cable.
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M5 CHECK THE RH (RIGHT-HAND) SIDE CAMERA COAXIAL CABLE CORE AND SHIELD FOR A SHORT TOGETHER

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242E-4 coaxial cable core	Ω	C242E-4 coaxial cable shield

Is the resistance greater than 10,000 ohms?

Yes	<p>INSTALL a new RH (right-hand) side camera. REFER to: Side 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 M6</p>
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No	REPLACE the affected coaxial cable.
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M6 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?

Possible Sources

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

Visual Inspection and Pre-checks

- BJB (battery junction box) fuse 25 (10A).
- If the CHMSL camera is not configured after replacement, some video functions will be inoperative. Verify the CHMSL camera configuration using the diagnostic scan tool.

N1 CHECK AND CLEAN THE CAMERA LENS

- Clean and make sure the affected camera lens is clear of any debris.
- Ignition ON.
- Test the parking aid camera system and monitor the video images.

Is the concern still present?

Yes	GO to N2
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No	The system is operating correctly at this time. The concern may have been caused by dirt or debris on the camera lens.
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N2 CHECK FOR CORRECT GEAR INPUT AT THE IPC (INSTRUMENT PANEL CLUSTER)

- 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 N3
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N5 CHECK FOR GROUND AT THE CHMSL CAMERA

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C9125-1	\bar{V}	C9125-5

Is the voltage greater than 11 volts?

Yes	GO to N7
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No	GO to N6
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N6 CHECK THE CHMSL CAMERA GROUND/SHIELD CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect IPMA (image processing module A) C242C .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242C-10	Ω	C9125-5

Is the resistance less than 3 ohms?

Yes	GO to N15
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No	REPAIR the circuit.
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