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2015 FORD Focus 5 Doors OEM Service and Repair Workshop Manual

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Is the voltage greater than 9 volts?

Yes	GO to D4
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No	REPAIR the circuit.
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D4 CHECK FOR GROUND AT THE SENSOR

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C4421-1	\bar{V}	C4421-3

Is the voltage greater than 9 volts?

Yes	GO to D5
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No	REPAIR the circuit.
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D5 CHECK THE SENSOR FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C4421-2	Ω	Ground

Is the resistance greater than 10,000 ohms?

C4421-2

 Ω

C4421-3

Is the resistance greater than 10,000 ohms?**Yes**GO to [D8](#)**No**

REPAIR the affected circuits.

D8 CHECK THE SENSOR CIRCUITS FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C4421-1	Ω	C242A-15
C4421-2	Ω	C242A-18
C4421-3	Ω	C242A-4

Are the resistances less than 3 ohms?**Yes**GO to [D9](#)**No**

REPAIR the affected circuit.

D9 INSTALL A KNOWN GOOD SENSOR

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 E : B129C:96 OR B129D:96

NOTE

Before disconnecting any of the active park assist sensors, verify the connectors are properly seated and latched.

Normal Operation and Fault Conditions

REFER to: [Parking Aid - System Operation and Component Description](#)(413-13C Parking Aid - Vehicles With: Active Park Assist, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B129C:96	Left Front Side Sensor: Component Internal Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when the left front active park assist sensor has internally failed or has an incorrect attenuation time.
IPMA (image processing module A) B129D:96	Right Front Side Sensor: Component Internal Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when the right front active park assist sensor has internally failed or has an incorrect attenuation time.

Possible Sources

- Front active park assist sensor
- IPMA (image processing module A)

E1 CHECK THE CONTINUOUS AND ON-DEMAND IPMA (IMAGE PROCESSING MODULE A) DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.

Yes	GO to E4
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No	<p>INSTALL a new active park assist sensor for the suspect sensor.</p> <p>REFER to: Front Active Park Assist Sensors (413-13C Parking Aid - Vehicles With: Active Park Assist, Removal and Installation).</p>
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E4 CHECK FOR CORRECT IPMA (IMAGE PROCESSING MODULE A) OPERATION

- Ignition OFF.
- Disconnect and inspect all IPMA (image processing module A) connectors and related in-line 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 and related in-line 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 IPMA (image processing module A) .</p> <p>REFER to: Image Processing Module A (IPMA) (419-07 Lane Keeping System, Removal and Installation).</p>
No	<p>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.</p>

PINPOINT TEST F : B129C:98, B129D:98, B13F3:98, B13F4:98

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

Are parking aid Diagnostic Trouble Codes (DTCs) other than B129C:98, B129D:98, B13F3:98, or B13F4:98 recorded?

Yes

For all other Diagnostic Trouble Codes (DTCs), REFER to the Master DTC (diagnostic trouble code) chart.

No

GO to [F2](#)

F2 CHECK THE PARKING AID SENSOR FOR PROPER VENTILATION

NOTE

The operating temperature range for the active park assist sensors is -40°C (-40°F) to 85°C (176°F).

- Clean the front bumper and sensors with high-pressure water.
- Make sure the suspect parking aid sensor(s) is flush-mounted in the bezel.
- Check for damage, debris or any aftermarket air dams that may restrict sensor ventilation.
- Check for aftermarket exhaust or other aftermarket parts.

Is there any damage or aftermarket parts restricting the ventilation to the sensor(s)?

Yes

REPAIR or REMOVE the aftermarket parts as needed.

No

GO to [F3](#)

F3 CHECK THE PARKING AID SENSORS

- Ignition OFF.
- Install a known good sensor for the suspect parking aid sensor. For a front sensor, REFER to: [Front Active Park Assist Sensors](#)(413-13C Parking Aid - Vehicles With: Active Park Assist, Removal and Installation).
For a rear sensor, REFER to: [Rear Active Park Assist Sensors](#)(413-13C Parking Aid - Vehicles With: Active Park Assist, Removal and Installation).
- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the IPMA (image processing module A) self-test.

Is the concern still present?

Before disconnecting any of the active park assist sensors, verify the connectors are properly seated and latched.

Normal Operation and Fault Conditions

REFER to: [Parking Aid - System Operation and Component Description](#)(413-13C Parking Aid - Vehicles With: Active Park Assist, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B13F3:96	Left Rear Side Sensor: Component Internal Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when the left rear active park assist sensor has internally failed or has an incorrect attenuation time.
IPMA (image processing module A) B13F4:96	Right Rear Side Sensor: Component Internal Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when the right rear active park assist sensor has internally failed or has an incorrect attenuation time.

Possible Sources

- Rear active park assist sensor
- IPMA (image processing module A)

G1 CHECK THE CONTINUOUS AND ON-DEMAND IPMA (IMAGE PROCESSING MODULE A) DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, retrieve the IPMA (image processing module A) Diagnostic Trouble Codes (DTCs).

Are Diagnostic Trouble Codes (DTCs) other than DTC (diagnostic trouble code) B13F3:96 or DTC (diagnostic trouble code) B13F4:96 present?

Yes	DIAGNOSE all other IPMA (image processing module A) Diagnostic Trouble Codes (DTCs) first. REFER to the Master DTC (diagnostic trouble code) chart.
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G4 CHECK FOR CORRECT IPMA (IMAGE PROCESSING MODULE A) OPERATION

- Ignition OFF.
- Disconnect and inspect all 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	<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 IPMA (image processing module A) .</p> <p>REFER to: Image Processing Module A (IPMA) (419-07 Lane Keeping System, Removal and Installation).</p>
No	<p>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.</p>

PINPOINT TEST H : THE ACTIVE PARK ASSIST SYSTEM DOES NOT ACTIVATE WHEN THE SWITCH IS PRESSED

Normal Operation and Fault Conditions

To activate, the active park assist system relies on several messaged inputs and driver input through the active park assist switch. REFER to: [Parking Aid - System Operation and Component Description](#)(413-13C Parking Aid - Vehicles With: Active Park Assist, Description and Operation).

Possible Sources

- Communication network concern
- GWM (gateway module A) concern
- Active park assist switch
- IPMA (image processing module A)

H1 VERIFY THE CUSTOMER CONCERN

C2039-2	Ω	C242A-24
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Is the resistance less than 3 ohms?

Yes	GO to H4
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No	REPAIR the circuit.
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H4 CHECK THE PARKING AID SWITCH GROUND CIRCUIT FOR AN OPEN

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2039-3	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to H5
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No	REPAIR the circuit.
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H5 CHECK THE PARKING AID SWITCH OPERATION

- Connect Instrument panel center stack middle switch C2039 .
- Measure while pressing and releasing the parking aid switch:

Positive Lead	Measurement / Action	Negative Lead
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**PINPOINT TEST I : THERE IS AN ACTIVE PARK ASSIST FAULT MESSAGE SHOWN IN THE CENTERSTACK
INFOTAINMENT DISPLAY AND/OR IN THE IPC (INSTRUMENT PANEL CLUSTER) MESSAGE CENTER DISPLAY**

Refer to Wiring Diagrams Cell 14for schematic and connector information.

Normal Operation and Fault Conditions REFER to: [Parking Aid - System Operation and Component Description](#)
(413-13C Parking Aid - Vehicles With: Active Park Assist, Description and Operation).

- Possible Sources**
- Communication network concern
 - IPMA (image processing module A)
 - PSCM (power steering control module) concern
 - SCCM (steering column control module) concern
 - ABS (anti-lock brake system) concern
 - PCM (powertrain control module) concern
 - RCM (restraints control module) concern
 - TRM (trailer module) concern
 - IPC (instrument panel cluster) concern
 - GWM (gateway module A) concern
 - APIM (SYNC module) concern
 - BCM (body control module) concern

I1 PERFORM A NETWORK TEST

- Ignition ON.
- Using a diagnostic scan tool, perform a network test.

Do all modules pass the network test?

Yes	GO to I2
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No	
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I2 CHECK THE IPMA (IMAGE PROCESSING MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

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

Are any Diagnostic Trouble Codes (DTCs) present?

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