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2007 FORD Focus Wagon OEM Service and Repair Workshop Manual

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Are the resistances greater than 10,000 ohms?

Yes	GO to K8

No	REPAIR the affected circuits.

K8 CHECK THE SENSOR CIRCUITS FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1430-1	Ω	C242A-22
C1430-2	Ω	C242A-9
C1430-3	Ω	C242A-11

Are the resistances less than 3 ohms?

Yes	GO to K9

No	REPAIR the affected circuit.

K9 INSTALL A KNOWN GOOD SENSOR

- Connect IPMA (image processing module A) C242A .
- Install a known good sensor for the suspect RHF (right-hand front) inner parking aid 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.

PINPOINT TEST L : B1B40:08

NOTE

Before disconnecting the IPMA (image processing module A) or any of the parking aid sensors, verify 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
(413-13A Parking Aid - Vehicles With: Rear Parking Aid, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B1B40:08	Left Front Outer Sensor: Bus Signal/Message Failures	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when there is a message failure on the LIN (local interconnect network) for the LHF (left-hand front) outer parking aid sensor.

Possible Sources

- Wiring, terminals or connectors
- LHF (left-hand front) outer parking aid sensor
- IPMA (image processing module A)

L1 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, carry out the IPMA (image processing module A) self-test.
- Check the parking aid Diagnostic Trouble Codes (DTCs) from the self-test.

Are Diagnostic Trouble Codes (DTCs) for multiple front parking aid sensors recorded?

- Ignition OFF.
- Disconnect LHF (left-hand front) outer parking aid sensor C1428 .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1428-1	V⎓	Ground

Is the voltage greater than 9 volts?

Yes	GO to L4

No	REPAIR the circuit.

L4 CHECK FOR GROUND AT THE SENSOR

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1428-1	V⎓	C1428-3

Is the voltage greater than 9 volts?

Yes	GO to L5

No	REPAIR the circuit.

L5 CHECK THE SENSOR FOR A SHORT TO POWER

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1428-2	Ω	C1428-1
C1428-2	Ω	C1428-3

Are the resistances greater than 10,000 ohms?

Yes	GO to L8

No	REPAIR the affected circuits.

L8 CHECK THE SENSOR CIRCUITS FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1428-1	Ω	C242A-22
C1428-2	Ω	C242A-21
C1428-3	Ω	C242A-11

Are the resistances less than 3 ohms?

	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 M : B1B42:08

NOTE

Before disconnecting the IPMA (image processing module A) or any of the parking aid sensors, verify 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
(413-13A Parking Aid - Vehicles With: Rear Parking Aid, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B1B42:08	Left Front Inner Sensor: Bus Signal/Message Failures	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when there is a message failure on the LIN (local interconnect network) for the LHF (left-hand front) inner parking aid sensor.

Possible Sources

- Wiring, terminals or connectors
- LHF (left-hand front) inner parking aid sensor
- IPMA (image processing module A)

Is the voltage greater than 9 volts?

Yes	GO to M4

No	REPAIR the circuit.

M4 CHECK FOR GROUND AT THE SENSOR

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1429-1	V	C1429-3

Is the voltage greater than 9 volts?

Yes	GO to M5

No	REPAIR the circuit.

M5 CHECK THE SENSOR FOR A SHORT TO POWER

- Disconnect IPMA (image processing module A) C242A .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1429-2	V	Ground

Is any voltage present?

Are the resistances greater than 10,000 ohms?

Yes	GO to M8

No	REPAIR the affected circuits.

M8 CHECK THE SENSOR CIRCUITS FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1429-1	Ω	C242A-22
C1429-2	Ω	C242A-20
C1429-3	Ω	C242A-11

Are the resistances less than 3 ohms?

Yes	GO to M9

No	REPAIR the affected circuit.

M9 INSTALL A KNOWN GOOD SENSOR

- Connect IPMA (image processing module A) C242A .
- Install a known good sensor for the suspect LHF (left-hand front) inner parking aid 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.

PINPOINT TEST N : B1B44:96, B1B46:96, B1B48:96, B1B50:96

NOTE

Before disconnecting the IPMA (image processing module A) or any of the parking aid sensors, verify 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
(413-13A Parking Aid - Vehicles With: Rear Parking Aid, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B1B44:96	Right Rear Outer Sensor: Component Internal Failure	A continuous memory and on-demand DTC (diagnostic trouble code) that sets when the RHR (right-hand rear) outer parking aid sensor has internally failed or has an incorrect attenuation time.
IPMA (image processing module A) B1B46:96	Right Rear Inner Sensor: Component Internal Failure	A continuous memory and on-demand DTC (diagnostic trouble code) that sets when the RHR (right-hand rear) inner parking aid sensor has internally failed or has an incorrect attenuation time.
IPMA (image processing module A) B1B48:96	Left Rear Outer Sensor: Component Internal Failure	A continuous memory and on-demand DTC (diagnostic trouble code) that sets when the LHR (left-hand rear) outer parking aid sensor has internally failed or has an incorrect attenuation time.
IPMA (image processing module A) B1B50:96	Left Rear Inner Sensor: Component Internal Failure	A continuous memory and on-demand DTC (diagnostic trouble code) that sets when the LHR (left-hand rear) inner parking aid sensor has internally failed or has an incorrect attenuation time.

Does the PID (parameter identification) read 2,540mm (100in)?

Yes	GO to N3
No	GO to N4

N3 CHECK THE PARKING AID SENSOR DISTANCE PARAMETER IDENTIFICATIONS (PIDS) WITH A TEST OBJECT BEHIND THE VEHICLE

NOTE

Make sure the area around the vehicle is clear of anything that can activate the parking aid system.

- Using a diagnostic scan tool,
  Access the IPMA (image processing module A) and monitor the LRI_DIST (Left Rear Inner Parking Aid Sensor Distance) (cm) PID (parameter identification)
  Access the IPMA (image processing module A) and monitor the LRO_DIST (Left Rear Outer Parking Aid Sensor Distance) (cm) PID (parameter identification)
  Access the IPMA (image processing module A) and monitor the RRI_DIST (Right Rear Inner Parking Aid Sensor Distance) (cm) PID (parameter identification)
  Access the IPMA (image processing module A) and monitor the RRO_DIST (Right Rear Outer Parking Aid Sensor Distance) (cm) PID (parameter identification)
- While monitoring the Parameter Identifications (PIDs), move a test object into and out of the detection zone behind each sensor. For an example of a test object,
  REFER to: Azimuth System Check(413-13A Parking Aid - Vehicles With: Rear Parking Aid, General Procedures).

Does the PID (parameter identification) approximately match the distance from the test object to the rear bumper of the vehicle?

Yes	GO to N5
No	GO to N4

N4 CHECK THE PARKING AID SENSORS

- Ignition OFF.