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2003 FORD Focus Wagon OEM Service and Repair Workshop Manual

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No	GO to A3

A3 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using the diagnostic scan tool, carry out the IPC (instrument panel cluster) self-test.

Are any IPC (instrument panel cluster) Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Instrumentation, Message Center and Warning Chimes(413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing).

No	GO to A4

A4 VERIFY THE PARKING AID IS ENABLED

- Verify the rear parking aid and front parking aid (if equipped) is enabled in the IPC (instrument panel cluster) message center.

Is the parking aid system enabled?

Yes	GO to A5

No	ENABLE the parking aid system.

A5 CHECK FOR CORRECT GEAR INPUT

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

Does the IPC (instrument panel cluster) PRNDL indicator match the gear selection throughout the entire range?

Yes	GO to A6

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 B : B1B57:11

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 The IPMA (image processing module A) supplies voltage to the front parking aid sensors via a common circuit. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B1B57:11	Front Sensors Power Circuit: Circuit Short To Ground	A continuous memory and on-demand DTC (diagnostic trouble code) that sets when the front sensor voltage supply circuit is shorted to ground or the signal return circuit.

Possible Sources

- Wiring, terminals or connectors
- Front parking aid sensor
- Front active park assist sensor (if equipped)
- IPMA (image processing module A)

B1 CHECK THE FRONT BUMPER WIRING HARNESS

- Ignition OFF.
- Inspect the front bumper wiring harness for opens, shorts, grounds, or corrosion.

Is the front bumper wiring harness OK?

Yes	GO to B2

- Ignition OFF.
- Disconnect: LHF (left-hand front) active park assist sensor C1854.
- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the IPMA (image processing module A) self-test.

Is DTC (diagnostic trouble code) B1B57:11 present?

Yes	GO to B5

No	INSTALL a new LHF (left-hand front) front active park assist sensor. REFER to: Front Active Park Assist Sensors (413-13C Parking Aid - Vehicles With: Active Park Assist, Removal and Installation).

B5 CHECK THE RHF (RIGHT-HAND FRONT) ACTIVE PARK ASSIST SENSOR FOR AN INTERNAL SHORT

- Ignition OFF.
- Disconnect: RHF (right-hand front) active park assist sensor C1855.
- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the IPMA (image processing module A) self-test.

Is DTC (diagnostic trouble code) B1B57:11 present?

Yes	GO to B6

No	INSTALL a new RHF (right-hand front) active park assist sensor. REFER to: Front Active Park Assist Sensors (413-13C Parking Aid - Vehicles With: Active Park Assist, Removal and Installation).

B6 CHECK THE RHF (RIGHT-HAND FRONT) INNER PARKING AID SENSOR FOR AN INTERNAL SHORT

- Ignition OFF.
- Disconnect: RHF (right-hand front) inner parking aid sensor C1430.
- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the IPMA (image processing module A) self-test.

Yes	GO to B9

No	REPAIR the circuit.

B9 CHECK THE FRONT PARKING AID SENSOR VOLTAGE SUPPLY CIRCUIT AND GROUND CIRCUIT FOR A SHORT TOGETHER

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242A-22	Ω	C242A-11

Is the resistance greater than 10,000 ohms?

Yes	GO to B10

No	REPAIR the circuit.

B10 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?

- Ignition OFF.
- Inspect the rear bumper wiring harness for opens, shorts, grounds, or corrosion.

Is the bumper wiring harness OK?

Yes	GO to C2

No	REPAIR or INSTALL a new bumper wiring harness.

C2 CHECK THE LHR (LEFT-HAND REAR) OUTER PARKING AID SENSOR FOR AN INTERNAL SHORT

- Disconnect: LHR (left-hand rear) Outer Parking Aid Sensor C4009.
- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the IPMA (image processing module A) self-test.

Is DTC (diagnostic trouble code) B1B58:11 present?

Yes	GO to C3

No	INSTALL a new LHR (left-hand rear) outer parking aid sensor. REFER to: Rear Parking Aid Sensor (413-13A Parking Aid - Vehicles With: Rear Parking Aid, Removal and Installation).

C3 CHECK THE LHR (LEFT-HAND REAR) INNER PARKING AID SENSOR FOR AN INTERNAL SHORT

- Ignition OFF.
- Disconnect: LHR (left-hand rear) Inner Parking Aid Sensor C4010.
- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the IPMA (image processing module A) self-test.

Is DTC (diagnostic trouble code) B1B58:11 present?

Yes	GO to C4

No	INSTALL a new LHR (left-hand rear) inner parking aid sensor.

C6 CHECK THE RHR (RIGHT-HAND REAR) ACTIVE PARK ASSIST SENSOR FOR AN INTERNAL SHORT

- Ignition OFF.
- Disconnect: RHR (right-hand rear) active park assist sensor C4421.
- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the IPMA (image processing module A) self-test.

Is DTC (diagnostic trouble code) B1B58:11 present?

Yes	GO to C7

No	INSTALL a new RHR (right-hand rear) side active park assist sensor. REFER to: Rear Active Park Assist Sensors (413-13C Parking Aid - Vehicles With: Active Park Assist, Removal and Installation).

C7 CHECK THE LHR (LEFT-HAND REAR) ACTIVE PARK ASSIST SENSOR FOR AN INTERNAL SHORT

- Ignition OFF.
- Disconnect: LHR (left-hand rear) Active Park Assist Sensor C4420.
- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the IPMA (image processing module A) self-test.

Is DTC (diagnostic trouble code) B1B58:11 present?

Yes	GO to C8

No	INSTALL a new LHR (left-hand rear) active park assist sensor. REFER to: Rear Active Park Assist Sensors (413-13C Parking Aid - Vehicles With: Active Park Assist, Removal and Installation).

C8 CHECK THE REAR PARKING AID SENSOR VOLTAGE SUPPLY CIRCUIT FOR A SHORT TO GROUND

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

- 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 D : THE PARKING AID SWITCH IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY

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) B1303:9E	Park Assist Switch: Stuck On	A continuous DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when the IPMA (image processing module A) detects a short to ground in the parking aid disable switch input circuit.

Possible Sources

- Communication network concern
- Parking aid switch

Is the resistance greater than 10,000 ohms?

Yes	GO to D6

No	REPAIR the circuit.

D4 CHECK THE PARKING AID SWITCH CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect IPMA (image processing module A) C242A .
- Disconnect Instrument panel center stack middle switch C2039 .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2039-2	Ω	C242A-24

Is the resistance less than 3 ohms?

Yes	GO to D5

No	REPAIR the circuit.

D5 CHECK THE PARKING AID SWITCH GROUND CIRCUIT FOR AN OPEN

- Measure:

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

- 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 E : THE PARKING AID DISABLE SWITCH LED (LIGHT EMITTING DIODE) IS INOPERATIVE OR ALWAYS ON

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) B1B54:11	Function LED - Park Aid: Circuit Short To Ground	A continuous and on-demand DTC (diagnostic trouble code) that sets when the parking aid disable status LED (light emitting diode) circuit is shorted to ground.
IPMA (image processing module A) B1B54:15	Function LED - Park Aid: Circuit Short To Battery Or Open	A continuous and on-demand DTC (diagnostic trouble code) that sets when the parking aid disable status LED (light emitting diode) circuit is open or shorted to battery voltage.

Possible Sources

- Wiring, terminals or connectors