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2000 FORD Focus Wagon OEM Service and Repair Workshop Manual

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- 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.

Q5 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM (SYNC module) 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 APIM (SYNC module) 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 APIM (SYNC module) . REFER to: SYNC Module [APIM] - Vehicles With: 8 Inch Center Display Screen/12 Inch Center Display Screen (415-00 Information and Entertainment System - General Information, Removal and Installation).

No	See the Symptom Chart: Communication Network.

R2 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

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

Are any IPMA (image processing module A) Diagnostic Trouble Codes (DTCs) retrieved?

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

No	• For an active guideline concern, GO to R3• For a fixed guideline concern, GO to R6

R3 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE ABS (ANTI-LOCK BRAKE SYSTEM) MODULE SELF-TEST

- Using a diagnostic scan tool, carry out the ABS (anti-lock brake system) module self-test.

Are any ABS (anti-lock brake system) module Diagnostic Trouble Codes (DTCs) retrieved?

Yes	See the ABS (anti-lock brake system) DTC (diagnostic trouble code) Chart. REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control, Diagnosis and Testing).

No	GO to R4

R4 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE PSCM (POWER STEERING CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, carry out the PSCM (power steering control module) self-test.

Are any PSCM (power steering control module) Diagnostic Trouble Codes (DTCs) retrieved?

Yes	See the PSCM (power steering control module) DTC (diagnostic trouble code) Chart. REFER to: Steering Wheel and Column Electrical Components

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 S : THE MANUAL ZOOM 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
- Rear parking aid camera
- APIM (SYNC module) concern
- GWM (gateway module A) concern
- IPMA (image processing module A) concern

S1 CARRY OUT A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to S2

No	See the Symptom Chart: Communication Network.

S2 CHECK FOR RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) present?

Yes	REFER to the DTC (diagnostic trouble code) Chart in this section.

- 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 T : B115E:49 OR B115E:96

Normal Operation and Fault Conditions
DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B115E:49	Camera Module: Internal Electronic Failure	Sets in continuous memory and on-demand in the IPMA (image processing module A) when an internal fault is detected in the rear parking aid camera.
IPMA (image processing module A) B115E:96	Camera Module: Component Internal Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when the rear parking aid camera has an internal failure.

Possible Sources

- Rear parking aid camera

Is DTC (diagnostic trouble code) B148E:96 retrieved?

Yes	INSTALL a new front parking aid camera, REFER to: Front Parking Aid Camera (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).

No	The system is operating correctly at this time.

PINPOINT TEST V : B12BE:96

Normal Operation and Fault Conditions
DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B12BE:96	Left Front Camera: Component Internal Failure	A continuous and on-demand DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when the LH (left-hand) side parking aid camera has an internal failure.

Possible Sources

- LH (left-hand) side parking aid camera

V1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

- Ignition ON.
- Using the diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs).
- Wait 10 seconds.
- Using the diagnostic scan tool, carry out the IPMA (image processing module A) self-test.

Is DTC (diagnostic trouble code) B12BE:96 retrieved?

Yes	INSTALL a new LH (left-hand) side parking aid camera, REFER to: Side Parking Aid Camera (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).

Normal Operation and Fault Conditions
DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
BCM (body control module) B115E:55	Camera Module: Not Configured	Sets in continuous memory and on-demand in the BCM (body control module) when the rear parking aid camera is not configured.
IPMA (image processing module A) B115E:55	Camera Module: Not Configured	Sets in continuous memory and on-demand in the IPMA (image processing module A) when the rear parking aid camera is not configured.

Possible Sources

- Rear parking aid camera initialization

X1 PERFORM THE PARKING AID CAMERA INITIALIZATION USING A DIAGNOSTIC SCAN TOOL

- Ignition ON.
- Using the diagnostic scan tool, perform the parking aid camera initialization procedure.
  REFER to: Parking Aid Camera Initialization(413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures).

Did the parking aid camera initialization procedure complete successfully?

Yes	The system is operating correctly at this time.

No	REFER to the parking aid camera initialization procedure to troubleshoot the concern. REFER to: Parking Aid Camera Initialization (413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures).

PINPOINT TEST Y : B152E:49

Normal Operation and Fault Conditions
DTC Fault Trigger Conditions

Possible Sources

- CHMSL camera initialization

Z1 PERFORM THE PARKING AID CAMERA INITIALIZATION USING A DIAGNOSTIC SCAN TOOL

- Ignition ON.
- Using the diagnostic scan tool, perform the parking aid camera initialization procedure.
  REFER to: Parking Aid Camera Initialization(413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures).

Did the parking aid camera initialization procedure complete successfully?

Yes	The system is operating correctly at this time.

No	REFER to the parking aid camera initialization procedure to troubleshoot the concern. REFER to: Parking Aid Camera Initialization (413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures).

PINPOINT TEST AA : B115E:78 OR B1578:78

Normal Operation and Fault Conditions
DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) B115E:78	Camera Module: Alignment Or Adjustment Incorrect	Sets in continuous memory and on-demand in the IPMA (image processing module A) when the camera alignment is detected to be incorrect.
IPMA (image processing module A) B1578:78	Digital Park Assist Camera Vision System: Alignment Or Adjustment Incorrect	Sets in continuous memory and on-demand in the IPMA (image processing module A) when the camera alignment is detected to be incorrect.

Possible Sources

- 360 degree view camera alignment

	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 camera. REFER to: Rear Parking Aid Camera (413-13B Parking Aid - Vehicles With: Parking Aid Camera, 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 AC : THE LOWER CORNERS OF THE FRONT, REAR, OR SIDE CAMERA IMAGE IN THE 360 DEGREE CAMERA VIEW SHOW VERTICAL COLORED LINES OR APPEAR GREYED OUT

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).

Possible Sources

- Camera alignment

AC1 CARRY OUT THE 360 DEGREE CAMERA ALIGNMENT

- Ignition ON.
- Using the diagnostic scan tool, carry out the 360 degree view camera alignment procedure.
  REFER to: 360 Degree View Camera Alignment(413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures).

Is the concern resolved?

Yes	The system is operating correctly at this time. The concern was caused by camera alignment.

No	GO to Pinpoint Test I

PINPOINT TEST AD : FROZEN OR SLOW SCREEN TRANSITIONS BETWEEN CAMERA VIEWS

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

360 Degree View Camera Alignment

413-13B Parking Aid - Vehicles With: Parking Aid Camera	***2022 F-150***
General Procedures	***Procedure revision date: 08/5/2022***

360 Degree View Camera Alignment

NOTE

On vehicles equipped with Trailer Reverse Guidance (TRG) complete this procedure and also perform the Trailer Reverse Guidance camera alignment.

NOTE

Damage to or misalignment of any of the cameras or the body panels they are mounted to can cause the camera alignment to be unsuccessful.

1. Prior to beginning this procedure, perform the following:
    1. Verify the exterior rear view mirrors to make sure they are in normal driving position.
    2. Verify suspension is in a normal driving mode if equipped with adjustable suspension.
    3. Verify that all doors, deck lid, liftgate and tailgate are closed.
    4. Using a scan tool retrieve and if necessary repair any parking aid camera Diagnostic Trouble Codes (DTCs).
    5. Clean the camera lenses. Inspect all cameras (except center high-mounted stoplamp camera and trailer camera, if equipped), the associated mounting hardware and body components for damage.
2. Environmental conditions that may affect the procedure: