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2012 FORD Focus ST 5 Doors OEM Service and Repair Workshop Manual

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NOTICE

Use caution when handling the coaxial cables. Damage may occur if the cable is bent at too sharp of an angle.

The front parking aid camera is located in the center of the front grille. The front parking aid camera communicates with the IPMA (image processing module A) through a coaxial cable in a digital serial format (LVDS (low voltage differential signaling)).

The 360 degree view camera alignment must be performed after the front grille or the front parking aid camera is removed from the vehicle.

LH (left-hand) And RH (right-hand) Side Camera

NOTICE

Use caution when handling the coaxial cables. Damage may occur if the cable is bent at too sharp of an angle.

The side parking aid cameras are located inside the LH (left-hand) and RH (right-hand) exterior rear view mirrors and are serviceable separately from the mirrors. The LH (left-hand) and RH (right-hand) side cameras communicate with the IPMA (image processing module A) through a coaxial cable in a digital serial format (LVDS (low voltage differential signaling)).

The 360 degree view camera alignment must be performed after the LH (left-hand) or RH (right-hand) side camera or exterior mirror is removed from the vehicle.

IPMA (image processing module A) (Vehicles Equipped Digital Rear Parking Aid Camera

NOTICE

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For vehicles equipped with a digital rear parking aid camera, all camera views are produced by the IPMA (image processing module A) using input from one or more camera(s). The processed video signals are sent from the IPMA (image processing module A) to the APIM (SYNC module) on shielded twisted pair of circuits for the 8 inch audio system display, or a coaxial cable for the 12 inch audio system display.

In addition to generating the camera views and providing power to the cameras, the IPMA (image processing module A) receives the video signals from the front, rear, LH (left-hand) and RH (right-hand) parking aid cameras through coaxial cables and CHMSL camera and trailer camera (if equipped) on shielded, twisted pair

The trailer camera is analog and sends video signals to the IPMA (image processing module A) through shielded, twisted pair of circuits. The trailer camera is ON any time it receives voltage and it does not communicate with the IPMA (image processing module A) .

APIM (SYNC module)	C1001:1C	Vision System Camera: Circuit Voltage Out Of Range	GO to Pinpoint Test H
APIM (SYNC module)	C1001:81	Vision System Camera: Invalid Serial Data Received	GO to Pinpoint Test G
APIM (SYNC module)	C1001:81	Vision System Camera: Invalid Serial Data Received	GO to Pinpoint Test H
APIM (SYNC module)	C1001:87	Vision System Camera: Missing Message	GO to Pinpoint Test G
APIM (SYNC module)	C1001:87	Vision System Camera: Missing Message	GO to Pinpoint Test H
BCM (body control module)	B115E:01	Camera Module: General Electrical Failure	GO to Pinpoint Test A
BCM (body control module)	B115E:02	Camera Module: General Signal Failure	GO to Pinpoint Test A
BCM (body control module)	B115E:08	Camera Module: Bus Signal / Message Failure	GO to Pinpoint Test A
BCM (body control module)	B115E:49	Camera: Internal Electrical Failure	GO to Pinpoint Test A
BCM (body control module)	B115E:55	Camera Module: Not Configured	GO to Pinpoint Test X
BCM (body control module)	B115E:9A	Camera Module: Component or System Operating Conditions	GO to Pinpoint Test A
IPMA (image processing module A)	B115E:08	Camera Module: Bus Signal/Message Failures	GO to Pinpoint Test G
IPMA (image processing module A)	B115E:08	Camera Module: Bus Signal/Message Failures	GO to Pinpoint Test J
IPMA (image processing module A)	B115E:11	Camera Module: Circuit Short To Ground	GO to Pinpoint Test G

IPMA (image processing module A)	B12BE:96	Left Front Camera: Component Internal Failure	GO to Pinpoint Test V
IPMA (image processing module A)	B12BF:11	Right Front Camera: Circuit Short To Ground	GO to Pinpoint Test M
IPMA (image processing module A)	B12BF:15	Right Front Camera: Circuit Short To Battery Or Open	GO to Pinpoint Test M
IPMA (image processing module A)	B12BF:31	Right Front Camera: No Signal	GO to Pinpoint Test M
IPMA (image processing module A)	B12BF:96	Right Front Camera: Component Internal Failure	GO to Pinpoint Test W
IPMA (image processing module A)	B1300:12	Video Output "A": Circuit Short To Battery	GO to Pinpoint Test G
IPMA (image processing module A)	B148E:11	Front Camera: Circuit Short To Ground	GO to Pinpoint Test K
IPMA (image processing module A)	B148E:15	Front Camera: Circuit Short To Battery Or Open	GO to Pinpoint Test K
IPMA (image processing module A)	B148E:31	Front Camera: No Signal	GO to Pinpoint Test K
IPMA (image processing module A)	B148E:96	Front Camera: Component Internal Failure	GO to Pinpoint Test U
IPMA (image processing module A)	B14A5:11	Multi-Camera View Switch: Circuit Short To Ground	GO to Pinpoint Test P
IPMA (image processing module A)	B152E:08	Rear Camera 2: Bus Signal/Message Failure	GO to Pinpoint Test N
IPMA (image processing module A)	B152E:12	Rear Camera 2: Circuit Short To Battery	GO to Pinpoint Test N
IPMA (image processing module A)	B152E:49	Rear Camera 2: Internal Electronic Failure	GO to Pinpoint Test Y

processing module A)	
Poor image quality (foggy/cloudy/fuzzy/blurry/hazy image or moisture/water in lens or black spots) with IPMA (image processing module A)	GO to Pinpoint Test G
Frozen screen or slow screen transitions	REFER to: Information and Entertainment System(415-00 Information and Entertainment System - General Information, Diagnosis and Testing).
Manual zoom function is inoperative without IPMA (image processing module A)	GO to Pinpoint Test E
Manual zoom function is inoperative with IPMA (image processing module A)	GO to Pinpoint Test S
Visual park aid alert is inoperative without IPMA (image processing module A)	GO to Pinpoint Test C
Visual park aid alert is inoperative with IPMA (image processing module A)	GO to Pinpoint Test Q
Active guidelines are inoperative or do not operate correctly without IPMA (image processing module A)	GO to Pinpoint Test D
Active guidelines are inoperative or do not operate correctly with IPMA (image processing module A)	GO to Pinpoint Test R
Fixed guidelines are inoperative or do not operate correctly without IPMA (image processing module A)	GO to Pinpoint Test D
Fixed guidelines are inoperative or do not operate correctly with IPMA (image processing module A)	GO to Pinpoint Test R
The video delay feature is inoperative or does not operate correctly	GO to Pinpoint Test F
Video image is upside down	GO to Pinpoint Test AB
All other image concerns without IPMA (image processing module A)	GO to Pinpoint Test A

The trailer camera views are inoperative or do not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test O
Static/flashing/blinking/flickering/scrolling or rolling image/screen, scrolling horizontal lines for one or more 360 degree camera views	Refer to the Pinpoint Test	GO to Pinpoint Test I
Poor image quality (foggy/cloudy/fuzzy/blurry/hazy image or moisture/water in lens or black spots) for one or more 360 degree camera views	Refer to the Pinpoint Test	GO to Pinpoint Test I
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 the Pinpoint Test	GO to Pinpoint Test AC
Frozen or slow screen transitions between camera views	Refer to the Pinpoint Test	GO to Pinpoint Test AD
One or more of the images in the 360 degree camera view is misaligned	• Camera alignment	REFER to: 360 Degree View Camera Alignment(413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures).
Manual zoom function is inoperative (rear parking aid camera image only)	Refer to the Pinpoint Test	GO to Pinpoint Test S
Visual park aid alert is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test Q
Active guidelines are inoperative or do not operate correctly (rear parking aid camera image only)	Refer to the Pinpoint Test	GO to Pinpoint Test R
Fixed guidelines are inoperative or do not operate correctly (rear parking aid camera image only)	Refer to the Pinpoint Test	GO to Pinpoint Test R
The video delay feature is inoperative or does not operate correctly (rear parking aid camera image only)	Refer to the Pinpoint Test	GO to Pinpoint Test F

Pinpoint Test(s)

Possible Sources

- Wiring, terminals or connectors
- Rear parking aid camera
- BCM (body control module) concern
- TR (transmission range) input concern
- Audio system display (without video display in interior auto-dimming mirror)
- Fuse
- Communication concern
- LIN (local interconnect network) concern

A1 CHECK AND CLEAN THE REAR VIDEO CAMERA LENS

- Clean and make sure the rear parking aid camera lens is clear of any debris.
- Ignition ON.
- Test the system and verify the parking aid camera image.

Is the parking aid camera concern still present?

Yes	GO to A2

No	The system is operating correctly at this time. The concern was caused by a dirty parking aid camera lens.

A2 CHECK FOR CORRECT GEAR INPUT

- While monitoring the reversing lamps, move the selector lever through the entire range.

Do the reversing lamps illuminate only in reverse?

Yes	GO to A3

No	REFER to: Reversing Lamps(417-01 Exterior Lighting, Diagnosis and Testing).

A3 CHECK THE BCM (BODY CONTROL MODULE) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, check the BCM (body control module) Continuous Memory Diagnostic Trouble Codes (CMDTCs).

Does the display switch to parking aid camera mode and display REAR VIDEO CAMERA IS UNAVAILABLE PLEASE CONTACT YOUR DEALERSHIP?

Yes	GO to A7

No	DIAGNOSE the audio system display. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information, Diagnosis and Testing).

A7 CHECK THE VOLTAGE TO THE CAMERA

NOTE

Before disconnecting the rear parking aid camera, verify that the connector is properly seated and latched.

- Ignition OFF.
- Disconnect Rear Parking Aid Camera C4360 .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C4360-1	V	Ground

Is the voltage greater than 11 volts?

Yes	GO to A8

No	INSPECT BJB (battery junction box) fuse 25 (10A). If the fuse is OK, repair the circuit for an open. If the fuse is not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the short circuit.

No	GO to A10

A10 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C4360-3	Ω	Ground
C4360-4	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to A11

No	REPAIR the circuit in question.

A11 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO THE VIDEO SHIELD

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C4360-3	Ω	C4360-5
C4360-4	Ω	C4360-5