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2010 FORD Galaxy OEM Service and Repair Workshop Manual

[Go to manual page](#)

- 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 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 module connections. ADDRESS the root cause of any connector or pin issues.</p>

PINPOINT TEST E : THE MESSAGE CENTER DISPLAYS A IPMA (IMAGE PROCESSING MODULE A) CAMERA MALFUNCTION SERVICE REQUIRED MESSAGE

Normal Operation and Fault Conditions

In addition to certain fault conditions, the IPMA (image processing module A) CAMERA MALFUNCTION SERVICE REQUIRED message is displayed in the message center when the IPMA (image processing module A) camera alignment has been initiated, but is incomplete.

Possible Sources

- Communication network concern
- IPMA (image processing module A) concern

E1 PERFORM A NETWORK TEST

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

Does the IPMA (image processing module A) pass the network test?

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 F : U0100:00 OR U0293:00

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

Normal Operation and Fault Conditions The IPMA (image processing module A) communicates with the PCM (powertrain control module) through the FD-CAN (Flexible Data Rate Controller Area Network), GWM (gateway module A) and FD-CAN (Flexible Data Rate Controller Area Network). **DTC Fault Trigger**

Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) U0100:00	Lost Communication With ECM/PCM 'A': No Sub Type Information	Sets in continuous memory in the IPMA (image processing module A) if data messages received from the PCM (powertrain control module) through the GWM (gateway module A) are missing for 5 seconds or longer.
IPMA (image processing module A) U0293:00	Lost Communication With Hybrid/EV Powertrain Control Module 'A': No Sub Type Information	Sets in continuous memory in the IPMA (image processing module A) if data messages received from the PCM (powertrain control module) through the GWM (gateway module A) are missing for 5 seconds or longer.

Possible Sources

- Communication network concern
- PCM (powertrain control module)
- GWM (gateway module A) concern
- IPMA (image processing module A) concern

F1 VERIFY THE CUSTOMER'S CONCERN

No	GO to F4
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F4 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the PCM (powertrain control module) KOEO (key on, engine off) .

Are any non-network Diagnostic Trouble Codes (DTCs) present?

Yes	<p>DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs).</p> <p>REFER to: Electronic Engine Controls (303-14A Electronic Engine Controls - 2.7L EcoBoost (238kW/324PS), Diagnosis and Testing).</p> <p>REFER to: Electronic Engine Controls (303-14B Electronic Engine Controls - 3.3L Duratec-V6, Diagnosis and Testing).</p> <p>REFER to: Electronic Engine Controls (303-14E Electronic Engine Controls - 3.5L V6 PowerBoost (CN), Diagnosis and Testing).</p> <p>REFER to: Electronic Engine Controls (303-14D Electronic Engine Controls - 5.0L 32V Ti-VCT, Diagnosis and Testing).</p> <p>REFER to: Lane Keeping System - System Operation and Component Description (419-07 Lane Keeping System, Description and Operation).</p>
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No	GO to F5
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F5 PERFORM THE GWM (GATEWAY MODULE A) SELF-TEST

- Using a diagnostic scan tool, perform the GWM (gateway module A) self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	<p>REFER to: Controller Area Network (CAN) Module Communications Network(418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).</p> <p>REFER to: Ethernet Module Communications Network (418-00C Ethernet Module Communications Network, Diagnosis and Testing).</p>
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No	GO to F6
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Yes	GO to F8
No	The system is operating correctly at this time. The concern may have been caused due to incorrect parts replacement procedures or incorrect module configuration.

F8 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all PCM (powertrain control 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 PCM (powertrain control module) connectors. Make sure they seat and latch correctly.
- Operate the system to 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,</p>  <p>Guided Routine available in the on-line Workshop Manual.</p>
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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 G : U0101:00

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

No	<p>REFER to: Controller Area Network (CAN) Module Communications Network(418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).</p> <p>REFER to: Ethernet Module Communications Network (418-00C Ethernet Module Communications Network, Diagnosis and Testing).</p>
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G3 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

- Using a diagnostic scan tool, perform the IPMA (image processing module A) self-test.
- Clear the Diagnostic Trouble Codes (DTCs).
- Wait 10 seconds.
- Repeat the IPMA (image processing module A) self-test.

Are any Diagnostic Trouble Codes (DTCs) present?

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to the IPMA (image processing module A) DTC (diagnostic trouble code) Chart in this section.
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No	GO to G4
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G4 PERFORM THE TCM (TRANSMISSION CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the TCM (transmission control module) self-test.

Are any non-network Diagnostic Trouble Codes (DTCs) present?

Yes	<p>DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs).</p> <p>REFER to: DTC Chart and Pinpoint Tests - 2.7L EcoBoost (238kW/324PS) (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).</p> <p>REFER to: DTC Chart and Pinpoint Tests - 3.3L Duratec-V6 (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).</p> <p>REFER to: DTC Chart and Pinpoint Tests - 3.3L Duratec-V6 (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).</p> <p>REFER to: DTC Chart and Pinpoint Tests - 3.5L V6 PowerBoost (CN)</p>
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set due to high network traffic or an intermittent fault condition.

G7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE

If new modules were installed prior to the DTC (diagnostic trouble code) being set, the module configuration may be incorrectly set during the PMI (programmable module installation), or the PMI (programmable module installation) may not have been carried out.

- CHECK the vehicle service history for recent service actions related to the TCM (transmission control module), IPMA (image processing module A) or GWM (gateway module A). If recent service history is found:
 - verify correct replacement module was installed
 - HVBOM may be used to verify correct part fitment
 - verify the configuration of replacement module was correct
 - re-configure module using as-built data prior configuration is suspect
 - verify the module was not obtained from a like vehicle and installed into customer vehicle
 - return the swapped module to source vehicle and obtain new replacement module
- Operate the system and determine if the observable symptom is still present.

Is the observable symptom still present?

Yes

GO to [G8](#)

No

The system is operating correctly at this time. The concern may have been caused due to incorrect parts replacement procedures or incorrect module configuration.

G8 CHECK FOR CORRECT TCM (TRANSMISSION CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all TCM (transmission control 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

- GWM (gateway module A)

H1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to H2
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No	CLEAR the DTC (diagnostic trouble code) . The system is operating normally at this time. The DTC (diagnostic trouble code) may have been set due to high network traffic or an intermittent fault condition.
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H2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test

Does the GSM (gear shift module) pass the network test?

Yes	GO to H3
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No	REFER to: Controller Area Network (CAN) Module Communications Network (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing). REFER to: Ethernet Module Communications Network (418-00C Ethernet Module Communications Network, Diagnosis and Testing).
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H3 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

- Using a diagnostic scan tool, clear the IPMA (image processing module A) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPMA (image processing module A) Diagnostic Trouble Codes (DTCs).

Is DTC (diagnostic trouble code) U0103:00 still present?

Yes	GO to H7
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No	The system is operating correctly at this time. The DTC (diagnostic trouble code) may have set due to high network traffic or an intermittent fault condition.
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H7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE

If new modules were installed prior to the DTC (diagnostic trouble code) being set, the module configuration may be incorrectly set during the PMI (programmable module installation) , or the PMI (programmable module installation) may not have been carried out.

- CHECK the vehicle service history for recent service actions related to the GSM (gear shift module) , IPMA (image processing module A) or GWM (gateway module A) . If recent service history is found:
 - verify correct replacement module was installed
 - HVBOM may be used to verify correct part fitment
 - verify the configuration of replacement module was correct
 - re-configure module using as-built data if prior configuration is suspect
 - verify the module was not obtained from a like vehicle and installed into customer vehicle
 - return the swapped module to source vehicle and obtain new replacement module
- Operate the system and determine if the observable symptom is still present.

Is the observable symptom still present?

Yes	GO to H8
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Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
IPMA (image processing module A) U0121:00	Lost Communication With Anti-Lock Brake System (ABS) Control Module 'A': No Sub Type Information	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) if messages received from the ABS (anti-lock brake system) module through the GWM (gateway module A) are missing 5 seconds or longer.
IPMA (image processing module A) U0415:82	Invalid Data Received from Anti-Lock Brake System (ABS) Control Module 'A': Alive/Sequence Counter Incorrect/Not Updated	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) if the IPMA (image processing module A) fails to receive updated ABS (anti-lock brake system) data from ABS (anti-lock brake system) module.
IPMA (image processing module A) U0415:83	Invalid Data Received from Anti-Lock Brake System (ABS) Control Module 'A': Value Of Signal Protection Calculation Incorrect	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when IPMA (image processing module A) receive the value of signal protection calculation incorrect from ABS (anti-lock brake system) .
IPMA (image processing module A) U0415:86	Invalid Data Received from Anti-Lock Brake System (ABS) Control Module 'A': Signal Invalid	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) when IPMA (image processing module A) receive the invalid signal from ABS (anti-lock brake system) .

Possible Sources

- Communication network concern
- ABS (anti-lock brake system) module
- IPMA (image processing module A) concern
- GWM (gateway module A)

I1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.