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2009 FORD Galaxy OEM Service and Repair Workshop Manual

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No	GO to I4

I4 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

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

Are any non-network 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.

No	GO to I5

I5 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) set?

Yes	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).

No	GO to I6

I6 RECHECK THE IPMA (IMAGE PROCESSING MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

NOTE

Make sure that the brake pedal remains in the rest position. A DTC (diagnostic trouble code) may be set if the brake pedal is applied while performing the IPMA (image processing module A) self-test procedure.

- Using a diagnostic scan tool, clear the IPMA (image processing module A) Diagnostic Trouble Codes (DTCs).

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 ABS (anti-lock brake system) module or IPMA (image processing 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 I8

No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

I8 CHECK FOR CORRECT ABS (ANTI-LOCK BRAKE SYSTEM) MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect the ABS (anti-lock brake system) 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 ABS (anti-lock brake system) 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?

		GWM (gateway module A) are missing 5 seconds or longer.
IPMA (image processing module A) U024F:00	Lost Communication With Side Obstacle Detection Control Module 'D': No Sub Type Information	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) if data messages received from the SODCMD (Side Obstacle Detection Control Module D) through the GWM (gateway module A) are missing 5 seconds or longer.
IPMA (image processing module A) U0533:86	Invalid Data Received From Side Obstacle Detection Control Module 'A': Signal Invalid	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) if invalid data messages received from the SODL (side obstacle detection control module LH) through the GWM (gateway module A) .
IPMA (image processing module A) U0534:86	Invalid Data Received From Side Obstacle Detection Control Module 'B': Signal Invalid	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) if invalid data messages received from the SODR (side obstacle detection control module RH) through the GWM (gateway module A) .
IPMA (image processing module A) U054F:86	Invalid Data Received From Side Obstacle Detection Control Module 'C': Signal Invalid	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) if invalid data messages received from the SODCMC (Side Obstacle Detection Control Module C) through the GWM (gateway module A) .
IPMA (image processing module A) U0550:86	Invalid Data Received From Side Obstacle Detection Control Module 'D': Signal Invalid	A continuous memory DTC (diagnostic trouble code) that sets in the IPMA (image processing module A) if invalid data messages received from the SODCMD (Side Obstacle Detection Control Module D) through the GWM (gateway module A) .

Possible Sources

- Communication concern
- GWM (gateway module A)
- SODL (side obstacle detection control module LH)
- SODR (side obstacle detection control module RH)
- SODCMC (Side Obstacle Detection Control Module C)

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

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

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to the IPMA (image processing module A) DTC Chart in this section.
No	GO to J4

J4 CHECK THE GWM (GATEWAY MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, check the GWM (gateway module A) Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) present?

Yes	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).
No	GO to J5

J5 PERFORM THE SODR (SIDE OBSTACLE DETECTION CONTROL MODULE RH) OR SODL (SIDE OBSTACLE DETECTION CONTROL MODULE LH) OR SODCMC (SIDE OBSTACLE DETECTION CONTROL MODULE C) OR SODCMD (SIDE OBSTACLE DETECTION CONTROL MODULE D) MODULE SELF-TEST

- Using a diagnostic scan tool, perform the SODL (side obstacle detection control module LH) module, SODR (side obstacle detection control module RH) module, SODCMC (Side Obstacle Detection Control Module C) or SODCMD (Side Obstacle Detection Control Module D) self-test.

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

Yes	REFER to: Blind Spot Information System(419-04A Side and Rear Vision, Diagnosis and Testing).
No	GO to J6

Yes	GO to J8

No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

J8 CHECK FOR CORRECT SODL (SIDE OBSTACLE DETECTION CONTROL MODULE LH) , SODR (SIDE OBSTACLE DETECTION CONTROL MODULE RH) , SODCMC (SIDE OBSTACLE DETECTION CONTROL MODULE C) AND SODCMD (SIDE OBSTACLE DETECTION CONTROL MODULE D) OPERATION

- Disconnect and inspect all the SODL (side obstacle detection control module LH) , SODR (side obstacle detection control module RH) , SODCMC (Side Obstacle Detection Control Module C) or the SODCMD (Side Obstacle Detection Control Module D) connectors.
- Repair:
  - corrosion (install new connectors or terminals - clean module pins)
  - damaged or bent pins - install new terminals pins
  - pushed-out pins - install new pins as necessary
- Reconnect the SODL (side obstacle detection control module LH) , SODR (side obstacle detection control module RH) , SODCMC (Side Obstacle Detection Control Module C) AND SODCMD (Side Obstacle Detection Control Module D) connectors and 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, replace suspect module: INSTALL a new SODL (side obstacle detection control module LH) , REFER to: Side Obstacle Detection Control Module (SODCM) (419-04A Side and Rear Vision, Removal and Installation). INSTALL a new SODR (side obstacle detection control module RH) , REFER to: Side Obstacle Detection Control Module (SODCM) (419-04A Side and Rear Vision, Removal and Installation). INSTALL a new SODCMC (Side Obstacle Detection Control Module C) ,

- Verify there is an observable symptom present.

Is there an observable symptom present?

Yes	GO to K2

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.

K2 CHECK THE COMMUNICATION NETWORK

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

Does the PSCM (power steering control module) pass the network test?

Yes	GO to K3

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).

K3 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

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

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

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to IPMA (image processing module A) DTC (diagnostic trouble code) Chart in this section.

No	GO to K4

K4 PERFORM THE PSCM (POWER STEERING CONTROL MODULE) SELF-TEST

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.

K7 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 PSCM (power steering control module) , GWM (gateway module A) or IPMA (image processing 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 K8

No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

K8 CHECK FOR CORRECT PSCM (POWER STEERING CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all PSCM (power steering control module) connectors.
- Repair:
  - corrosion (install new connector or terminals - clean module pins)

- BCM (body control module)
- IPMA (image processing module A) concern

L1 VERIFY THE CUSTOMER CONCERN

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

Is there an observable symptom present?

Yes	GO to L2

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.

L2 CHECK THE COMMUNICATION NETWORK

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

Do the BCM (body control module) and the GWM (gateway module A) pass the network test?

Yes	GO to L3

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).

L3 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	DIAGNOSE all non-network Diagnostic Codes (DTCs). REFER to the IPMA (image processing module A) DTC (diagnostic trouble code) Chart in this section.

- 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) U0140:00 still present?

Yes	GO to L7

No	The system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set due to high network traffic or an intermittent fault condition.

L7 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 BCM (body 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 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 L8

No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.