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2012 FORD S-Max OEM Service and Repair Workshop Manual

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No	VERIFY BCM (body control module) fuse 37 (20A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

AC2 CHECK THE IPMA (IMAGE PROCESSING MODULE A) GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242A-13	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to AC3

No	REPAIR the circuit.

AC3 CHECK THE FD-CAN (FLEXIBLE DATA RATE CONTROLLER AREA NETWORK) CIRCUITS BETWEEN THE IPMA (IMAGE PROCESSING MODULE A) AND THE GWM (GATEWAY MODULE A) FOR AN OPEN

- Disconnect: IPMA (image processing module A) C242B.
- Disconnect GWM (gateway module A) C2431A .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C242B-8	Ω	C2431A-4
C242B-7	Ω	C2431A-17

Normal Operation and Fault Conditions The OBCC (Off-Board Charger Controller) module communicates on the HS-CAN1 (high-speed controller area network 1) . REFER to: Controller Area Network (CAN) Module Communications Network - Electric - System Operation and Component Description (418-00A Controller Area Network (CAN) Module Communications Network, Description and Operation).

Possible Sources

- Wiring, terminals and connector
- OBCC (Off-Board Charger Controller) module
- SOBDM (secondary on-board diagnostic control module A) (Battery Charging Control Module [BCCM])

AD1 CHECK FOR SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) (BATTERY CHARGING CONTROL MODULE [BCCM]) NETWORK CONNECTION

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

Does the SOBDM (secondary on-board diagnostic control module A) (Battery Charging Control Module [BCCM]) pass the network test?

Yes	GO to AD2

No	DIAGNOSE a module communication concern. GO to Pinpoint Test AQ

AD2 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out a SOBDM (secondary on-board diagnostic control module A) (Battery Charging Control Module [BCCM]) self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	DIAGNOSE the Diagnostic Trouble Codes (DTCs). REFER to: High Voltage Battery Charging System - Electric (414-03B High Voltage Battery Charging System, Diagnosis and Testing).

No	GO to AD3

AD3 CHECK THE OBCC (OFF-BOARD CHARGER CONTROLLER) MODULE VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

AD5 CHECK THE HS-CAN1 (HIGH-SPEED CONTROLLER AREA NETWORK 1) CIRCUITS BETWEEN THE OBCC (OFF-BOARD CHARGER CONTROLLER) MODULE AND THE GWM (GATEWAY MODULE A) FOR AN OPEN

- Disconnect GWM (gateway module A) C2431A .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1012-4	Ω	C2431A-7
C1012-3	Ω	C2431A-20

Are the resistances less than 3 ohms?

Yes	CONNECT all disconnected connectors. GO to AD6

No	REPAIR the circuit in question.

AD6 CHECK FOR CORRECT OBCC (OFF-BOARD CHARGER CONTROLLER) MODULE OPERATION

- Disconnect and inspect the OBCC (Off-Board Charger Controller) module connector.
- 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 OBCC (Off-Board Charger Controller) module connector. Make sure it seats and latches 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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	DIAGNOSE the Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).

No	GO to AE3

AE3 CHECK THE OCS (OCCUPANT CLASSIFICATION SYSTEM) MODULE VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Wait one minute.
- Disconnect: OCS (occupant classification system) module C3285.
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C3285-1	V	Ground

Is the voltage greater than 11 volts?

Yes	GO to AE4

No	REPAIR the circuit in question.

AE4 CHECK THE OCS (OCCUPANT CLASSIFICATION SYSTEM) MODULE GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead

- Disconnect and inspect the OCS (occupant classification system) module connector and related in-line 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 OCS (occupant classification system) module connector and related in-line 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 OCSM (occupant classification system module) . If equipped with multi-contour seats, REFER to: Occupant Classification System (OCS) Sensor - Vehicles With: Multi-Contour Seats (501-20B Supplemental Restraint System, Removal and Installation). If not equipped with multi-contour seats, REFER to: Occupant Classification System (OCS) Sensor - Vehicles Without: Multi-Contour Seats (501-20B Supplemental Restraint System, Removal and Installation).
No	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.

PINPOINT TEST AF : THE PACM (PEDESTRIAN ALERT CONTROL MODULE) DOES NOT RESPOND TO THE DIAGNOSTIC SCAN TOOL

Refer to Wiring Diagrams Cell 14for schematic and connector information.
Refer to Wiring Diagrams Cell 66for schematic and connector information.

Normal Operation and Fault Conditions The PACM (pedestrian alert control module) communicates on the HS-CAN1 (high-speed controller area network 1) . REFER to: Controller Area Network (CAN) Module Communications Network - Electric - System Operation and Component Description (418-00A Controller Area Network (CAN) Module Communications Network, Description and Operation).

Possible Sources

- Fuse
- Wiring, terminals and connector

Yes	GO to AF3

No	REPAIR the circuit.

AF3 CHECK THE HS-CAN1 (HIGH-SPEED CONTROLLER AREA NETWORK 1) CIRCUITS BETWEEN THE PACM (PEDESTRIAN ALERT CONTROL MODULE) AND THE GWM (GATEWAY MODULE A) FOR AN OPEN

- Disconnect GWM (gateway module A) C2431A .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2828-2	Ω	C2431A-7
C2828-3	Ω	C2431A-20

Are the resistances less than 3 ohms?

Yes	CONNECT all disconnected connectors. GO to AF4

No	REPAIR the circuit in question.

AF4 CHECK FOR CORRECT PACM (PEDESTRIAN ALERT CONTROL MODULE) OPERATION

- Disconnect and inspect the PACM (pedestrian alert control module) connector.
- 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 PACM (pedestrian alert control module) connector. Make sure it seats and latches correctly.

Is the text "pass" or a DTC (diagnostic trouble code) listed next to any of the following modules (if equipped): ABS (anti-lock brake system) module, CMR (Camera Module - Rear) , HCM (headlamp control module) , IPMA (image processing module A) , PCM (powertrain control module) , PSCM (power steering control module) , SOBDMC (secondary on-board diagnostic control module C) or VDM (vehicle dynamics control module) ?

Yes	If "pass" or a DTC (diagnostic trouble code) was listed next to the PCM (powertrain control module) , a network fault is not currently present. If "pass" or a DTC (diagnostic trouble code) was listed next to one or more modules other than the PCM (powertrain control module) , GO to AG2

No	No modules are currently communicating on the FD-CAN (Flexible Data Rate Controller Area Network) . GO to Pinpoint Test B

AG2 VERIFY SECTION 302-14 PINPOINT TEST: UNABLE TO ACTIVATE SELF-TEST/NETWORK COMMUNICATION ERROR

- Verify section 302-14 pinpoint test UNABLE TO ACTIVATE SELF-TEST/NETWORK COMMUNICATION ERROR has been carried out.

Has section 302-14 pinpoint test UNABLE TO ACTIVATE SELF-TEST/NETWORK COMMUNICATION ERROR been carried out?

Yes	GO to AG3

No	Refer to section 302-14 Electrified Drivetrain Control D&T pinpoint test: UNABLE TO ACTIVATE SELF-TEST/NETWORK COMMUNICATION ERROR. REFER to: Electrified Drivetrain Control (302-14 Electrified Drivetrain Control, Diagnosis and Testing).

AG3 CHECK THE FD-CAN (FLEXIBLE DATA RATE CONTROLLER AREA NETWORK) CIRCUITS BETWEEN THE PCM (POWERTRAIN CONTROL MODULE) AND THE GWM (GATEWAY MODULE A) FOR AN OPEN

- Ignition OFF.
- Disconnect: GWM (gateway module A) C2431A.
- Disconnect PCM (powertrain control module) C1915B .

	Guided Routine available in the on-line Workshop Manual.

No	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.

PINPOINT TEST AH : THE PDM (PASSENGER DOOR MODULE) DOES NOT RESPOND TO THE DIAGNOSTIC SCAN TOOL

Refer to Wiring Diagrams Cell 14for schematic and connector information.
Refer to Wiring Diagrams Cell 100for schematic and connector information.
Normal Operation and Fault Conditions The PDM (passenger door module) communicates on the MS-CAN (medium speed-controller area network) 1. REFER to: Controller Area Network (CAN) Module Communications Network - Electric - System Operation and Component Description (418-00A Controller Area Network (CAN) Module Communications Network, Description and Operation).
Possible Sources

- Fuse
- Wiring, terminals and connector
- PDM (passenger door module)

Visual Inspection and Pre-checks

- Verify BCM (body control module) fuse 26 (30A) is OK.

AH1 CHECK THE PDM (PASSENGER DOOR MODULE) VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: PDM (passenger door module) C652A.
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C652A-1	V⎓	Ground

Is the voltage greater than 11 volts?

Yes	GO to AH2

Are the resistances less than 3 ohms?

Yes	CONNECT all disconnected connectors. GO to AH4
No	REPAIR the circuit in question.

AH4 CHECK FOR CORRECT PDM (PASSENGER DOOR MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the PDM (passenger door module) connector.
- 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 PDM (passenger door module) connector. Make sure it seats and latches 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 PDM (passenger door module) . REFER to: Passenger Door Module (PDM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	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.

PINPOINT TEST AI : THE PSCM (POWER STEERING CONTROL MODULE) DOES NOT RESPOND TO THE DIAGNOSTIC SCAN TOOL

Refer to Wiring Diagrams Cell 14for schematic and connector information.
Refer to Wiring Diagrams Cell 43for schematic and connector information.