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2007 FORD S-Max OEM Service and Repair Workshop Manual

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No FD-CAN (Flexible Data Rate Controller Area Network) communication, all modules are not responding	GO to Pinpoint Test B
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No HS-CAN2 (high-speed controller area network 2) communication, all modules are not responding	GO to Pinpoint Test D
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The WACM (wireless accessory charging module) does not respond to the diagnostic scan tool	GO to Pinpoint Test AS

Pinpoint Tests

PINPOINT TEST A : NO POWER TO THE REMOTE DLC (DATA LINK CONNECTOR)

Normal Operation and Fault Conditions

The diagnostic scan tool is connected to the remote DLC (data link connector) to communicate with the DIAG 1 circuits. The GWM (gateway module A) translates diagnostic messages for the FD-CAN (Flexible Data Rate Controller Area Network) , HS-CAN1 (high-speed controller area network 1) , HS-CAN2 (high-speed controller area network 2) , HS-CAN3 (high-speed controller area network 3) , HS-CAN4 (high-speed controller area network 4) and the MS-CAN (medium speed-controller area network) 1. REFER to: Controller Area Network (CAN) Module Communications Network - System Operation and Component Description(418-00A Controller Area Network (CAN) Module Communications Network, Description and Operation).

Possible Sources

- Fuse
- Wiring, terminals or connector
- Diagnostic scan tool
- Remote DLC (data link connector)

Visual Inspection and Pre-checks

- Verify BCMC (body control module C) [BJB (battery junction box)] fuse 160 (10A) is OK.

A1 CHECK THE REMOTE DLC (DATA LINK CONNECTOR) PINS FOR DAMAGE

- Ignition OFF.
- Disconnect the diagnostic scan tool cable from the remote DLC (data link connector) .
- Inspect the remote DLC (data link connector) pins 4, 5 and 16 for spreading or damage using a Rotunda flex probe with the dimensions: 1.5mm width x 0.80mm thickness.
  - Refer to the Rotunda flex probe or probe kit documentation to confirm the dimensions, if not printed on the probe.

Are any pin fit concerns or damage observed with remote DLC (data link connector) pins 4, 5 and 16?

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 the resistances less than 3 ohms?

Yes	CHECK the diagnostic scan tool for correct operation.

No	REPAIR the circuit in question.

PINPOINT TEST B : NO FD-CAN (FLEXIBLE DATA RATE CONTROLLER AREA NETWORK) COMMUNICATION, ALL MODULES ARE NOT RESPONDING

NOTE

Failure to disconnect the battery when instructed will result in false resistance readings.

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

Normal Operation and Fault Conditions The FD-CAN (Flexible Data Rate Controller Area Network) modules communicate with the diagnostic scan tool through the remote DLC (data link connector) DIAG 1 circuits. REFER to: Controller Area Network (CAN) Module Communications Network - System Operation and Component Description (418-00A Controller Area Network (CAN) Module Communications Network, Description and Operation).

Possible Sources

- Fuse
- Wiring, terminals or connectors
- Remote DLC (data link connector)
- ABS (anti-lock brake system) module
- CMR (Camera Module - Rear) (if equipped)
- GWM (gateway module A)
- IPMA (image processing module A)
- PCM (powertrain control module)
- PSCM (power steering control module)
- SOBDMC (secondary on-board diagnostic control module C) (hybrid)
- TCCM (transfer case control module) (if equipped)
- TCM (transmission control module) (if equipped)
- VDM (vehicle dynamics control module) (if equipped)

NOTE

No	If the resistance is greater than 132 ohms, GO to B5 If the resistance is less than 108 ohms, GO to B6

B3 CHECK THE DIAG 1 NETWORK CIRCUIT (+) AND (-) CIRCUITS FOR A SHORT TO GROUND

- Connect the negative battery cable.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2122-6	Ω	Ground
C2122-14	Ω	Ground

Are the resistances greater than 1,000 ohms?

Yes	GO to B4

No	GO to B7

B4 CHECK THE DIAG 1 NETWORK CIRCUIT (+) AND (-) CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2122-6	V	Ground

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2122-6	Ω	C2122-14

Is the resistance greater than 1,000 ohms?

Yes	CONNECT the negative battery cable. GO to B29

No	REPAIR the circuit.

B7 CHECK THE DIAG 1 NETWORK CIRCUIT (+) AND (-) CIRCUITS FOR A SHORT TO GROUND WITH THE GWM (GATEWAY MODULE A) DISCONNECTED

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

Positive Lead	Measurement / Action	Negative Lead
C2122-6	Ω	Ground
C2122-14	Ω	Ground

Are the resistances greater than 1,000 ohms?

Yes	GO to B29

No	REPAIR the circuit in question.

Yes	GO to B10

No	GO to B14

B10 CHECK THE FD-CAN (FLEXIBLE DATA RATE CONTROLLER AREA NETWORK) (+) AND FD-CAN (FLEXIBLE DATA RATE CONTROLLER AREA NETWORK) (-) CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2431A-4		Ground
C2431A-17		Ground

Is the voltage greater than 6 volts on either circuit?

Yes	REPAIR the circuit in question.

No	GO to B11

B11 CHECK THE GWM (GATEWAY MODULE A) TERMINATION RESISTOR (COMPONENT SIDE)

- Measure:

Positive Lead	Measurement / Action	Negative Lead

Yes	CONNECT all disconnected connectors. GO to B15

No	REPAIR the circuit in question.

B13 CHECK THE FD-CAN (FLEXIBLE DATA RATE CONTROLLER AREA NETWORK) (+) AND FD-CAN (FLEXIBLE DATA RATE CONTROLLER AREA NETWORK) (-) CIRCUITS FOR A SHORT TOGETHER WITH THE MODULES DISCONNECTED

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

Positive Lead	Measurement / Action	Negative Lead
C2431A-4	Ω	C2431A-17

- Disconnect modules one at a time until the resistance is greater than 3 ohms.
  - ABS (anti-lock brake system) module C135
  - CMR (Camera Module - Rear) C2826A (if equipped)
  - IPMA (image processing module A) C242B
  - PCM (powertrain control module) C1232B (2.7L EcoBoost), C1233B (3.0L Diesel), C1551B (3.3L Duratec), C175B (3.5L EcoBoost/PowerBoost) or C1381B (5.0L 32V Ti-VCT)
  - PSCM (power steering control module) C1463A
  - SOBDMC (secondary on-board diagnostic control module C) C1458A (hybrid)
  - TCCM (transfer case control module) C2371A (if equipped)
  - TCM (transmission control module) C1822 (if equipped)
  - VDM (vehicle dynamics control module) C4396 (if equipped)

Did the resistance change to greater than 3 ohms with one of the modules disconnected?

Yes	CONNECT all disconnected connectors. For the ABS (anti-lock brake system) module, GO to B27 For the CMR (Camera Module - Rear) , GO to B28 For the IPMA (image processing module A) , GO to B30 For the PCM (powertrain control module) , GO to B31 For the PSCM (power steering control module) , GO to B32 For the SOBDMC (secondary on-board diagnostic control module C) , GO to B33 For the TCCM (transfer

	For the ABS (anti-lock brake system) module, GO to B27 For the CMR (Camera Module - Rear) , GO to B28 For the IPMA (image processing module A) , GO to B30 For the PCM (powertrain control module) , GO to B31 For the PSCM (power steering control module) , GO to B32 For the SOBDMC (secondary on-board diagnostic control module C) , GO to B33 For the TCCM (transfer case control module) , GO to B34 For the TCM (transmission control module) , GO to B35 For the VDM (vehicle dynamics control module) , GO to B36

No	REPAIR the circuit in question. CONNECT all modules.

B15 CHECK FOR RESTORED COMMUNICATION WITH THE PSCM (POWER STEERING CONTROL MODULE) DISABLED

- **NOTE**

  When re-running the network test, close the network test application first or the screen display reverts back to the prior network test results.

  Disconnect: BCMC (body control module C) [BJB (battery junction box)] fuses 22 (10A), 204 (50A) and 213 (50A).
- Using a diagnostic scan tool, carry out the network test.

Do all other FD-CAN (Flexible Data Rate Controller Area Network) modules pass the network test?

Yes	INSTALL the removed fuses. GO to Pinpoint Test AE

No	INSTALL the removed fuses. GO to B16

B16 CHECK FOR RESTORED COMMUNICATION WITH THE PCM (POWERTRAIN CONTROL MODULE) , SOBDMC (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE C) (IF EQUIPPED) AND TCM (TRANSMISSION CONTROL MODULE) (IF EQUIPPED) DISABLED

- Disconnect: BCMC (body control module C) [BJB (battery junction box)] fuses 5 (5A), 6 (25A), 24 (10A), 65 (15A) and 95 (15A).
- Using a diagnostic scan tool, carry out the network test.

Do all other modules pass the network test?