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2017 FORD S-Max OEM Service and Repair Workshop Manual

Go to manual page

	CONNECT the r	nodule. GO to D13
D13 VE	RIFY VEHICLE EQ	UIPMENT - GSM (GEAR SHIFT MODULE)
• In Is the	spect the vehicle f vehicle equipped	or a GSM (gear shift module) . with a GSM (gear shift module) ?
Yes	GO to D14	
No	GO to D15	
D14 CH DISAB	IECK FOR RESTOR	ED NETWORK COMMUNICATION WITH THE GSM (GEAR SHIFT MODULE)
D14 CH DISAB NOT Wher back	HECK FOR RESTOR LED E n re-running the ne to the prior netwo	ED NETWORK COMMUNICATION WITH THE GSM (GEAR SHIFT MODULE) etwork test, close the network test application first or the screen display reve rk test results.
D14 CH DISAB NOT Wher back	E The re-running the network to the prior network t	ED NETWORK COMMUNICATION WITH THE GSM (GEAR SHIFT MODULE) etwork test, close the network test application first or the screen display reve rk test results.
D14 CH DISAB NOT Wher back • D	E The re-running the net to the prior netwo sconnect: BCM (be	etwork test, close the network test application first or the screen display reve rk test results.
D14 CH DISAB NOT Wher back • D • U Do all	HECK FOR RESTOR LED The re-running the net to the prior netwo isconnect: BCM (be sing a diagnostic s other HS-CAN2 (h	etwork test, close the network test application first or the screen display reverse rk test results.
D14 CH DISAB NOT Wher back • D • U Do all Yes	E The re-running the new sconnect: BCM (be sing a diagnostic s other HS-CAN2 (here) INSTALL the ren	etwork test, close the network test application first or the screen display reverse rk test results. ody control module) fuse 7 (10A). can tool, carry out the network test. high-speed controller area network 2) modules pass the network test? noved fuse. GO to Pinpoint Test V
D14 CH DISAB NOT Wher back • D • U Do all Yes	E IE The re-running the new to the prior network isconnect: BCM (be sing a diagnostic s other HS-CAN2 (here) INSTALL the renew INSTALL the	etwork test, close the network test application first or the screen display reverse rk test results. bdy control module) fuse 7 (10A). can tool, carry out the network test. high-speed controller area network 2) modules pass the network test? noved fuse. GO to Pinpoint Test V noved fuse. GO to D15
D14 CH DISAB NOT Wher back • D • U Do all Yes No	E INSTALL the rer	EED NETWORK COMMUNICATION WITH THE GSM (GEAR SHIFT MODULE) etwork test, close the network test application first or the screen display reverses rk test results. ody control module) fuse 7 (10A). can tool, carry out the network test. nigh-speed controller area network 2) modules pass the network test? noved fuse. GO to Pinpoint Test V noved fuse. GO to D15 UIPMENT - HCM (HEADLAMP CONTROL MODULE)

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: BCM (body control module) fuse 36 (15A) and BCMC (body control module C) [BJB (battery junction box)] fuse 105 (50A).
- Using a diagnostic scan tool, carry out the network test.

Do all other HS-CAN2 (high-speed controller area network 2) modules pass the network test?

Yes	INSTALL the removed fuses. GO to Pinpoint Test Al	
		-
Νο	INSTALL the removed fuses. GO to D19	

D19 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE RCM (RESTRAINTS CONTROL MODULE) DISCONNECTED

NOTE

Yes

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: RCM (restraints control module) C310B.
- Using a diagnostic scan tool, carry out the network test.

CONNECT the module. GO to Pinpoint Test AF

Do all other HS-CAN2 (high-speed controller area network 2) modules pass the network test with the module disconnected?

No CONNECT the module. The HS-CAN2 (high-speed controller area network 2) tests within specification. The concern may have been caused by module connections. CONNECT any disconnected connectors or fuses. Test for normal operation. If the concern is still present, ADDRESS the root cause of any connector or pin issues.

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
GSM (gear shift module) . If equipped with a column shifter,
REFER to: Gear Shift Module (GSM) - Vehicles With: Column Shift
(307-05B Automatic Transmission External Controls - 10-Speed Automatic Transmission – 10R80,
Removal and Installation).
If equipped with a console/floor shifter, REFER to: Gear Shift Module (GSM) - Vehicles With:
Console Shift
(307-05B Automatic Transmission External Controls - 10-Speed Automatic Transmission – 10R80,
Removal and Installation).
If equipped with a console/floor shifter, REFER to: Gear Shift Module (GSM) - Vehicles With:
Console Shift
(307-05B Automatic Transmission External Controls - 10-Speed Automatic Transmission – 10R80,
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.

D22 CHECK FOR CORRECT GWM (GATEWAY MODULE A) OPERATION

- Ignition OFF.
- Disconnect and inspect the GWM (gateway module A) 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 GWM (gateway module A) connector. Make sure it seats and latches correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

YesCHECK 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
GWM (gateway module A).
REFER to: Gateway Module A (GWM)

(418-00A Controller Area Network (CAN) Module Communications Network, Removal and Installation).

- 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?

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 OCS (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.

D25 CHECK FOR CORRECT RCM (RESTRAINTS CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the RCM (restraints control module) connector and related in-line connectors.
- Repair:

Yes

- 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 RCM (restraints control 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 RCM (restraints control module) .

REFER to: Restraints Control Module (RCM)

- damaged or bent pins install new terminals/pins
- pushed-out pins install new pins as necessary
- Reconnect the SCCM (steering column control 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 SCCM (steering column control module). If equipped with adaptive steering, REFER to: Steering Column Control Module (SCCM) - Vehicles With: Adaptive Steering (211-05 Steering Wheel and Column Electrical Components, Removal and Installation). If not equipped with adaptive steering, REFER to: Steering Wheel and Column Electrical Components, Removal and Installation). (211-05 Steering Wheel and Column Electrical Components, 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 E : NO HS-CAN3 (HIGH-SPEED CONTROLLER AREA NETWORK 3) COMMUNICATION, ALL MODULES ARE NOT RESPONDING

01	
U	

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 Diagnostic messages sent/received between the diagnostic scan tool and the HS-CAN3 (high-speed controller area network 3) modules are accessed through the DIAG 1 circuits on the remote DLC (data link connector). 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)

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2431A-9	Ω	C2431A-22

Is the resistance between 108 and 132 ohms?

Yes	iO to E3	
Νο	the resistance is greater than 132 ohms, GO to E6 If the resistance is less than 108 ohms, GO 7	to

E3 CHECK THE HS-CAN3 (HIGH-SPEED CONTROLLER AREA NETWORK 3) (+) AND HS-CAN3 (HIGH-SPEED CONTROLLER AREA NETWORK 3) (-) CIRCUITS FOR A SHORT TO GROUND

- Connect negative battery cable.
- Measure:

Positive Lead Measurement / Action		Negative Lead
C2431A-9	Ω	Ground
C2431A-22	Ω	Ground

Are the resistances greater than 1,000 ohms?

Yes	GO to	E4	

	E342878	mponent Side)	Ω	E342878	
		nponene side)			
Is the Yes	GO to E22	etween 108 ohms and 1	32 ohms?		
No	INSTALL a new GWM (gateway module A) . REFER to: Gateway Module A (GWM) (418-00A Controller Area Network (CAN) Module Communications Network, Removal and Installation).				
E6 CI (INST	HECK THE HS-C	AN3 (HIGH-SPEED CONT EL CLUSTER) AND THE G	ROLLER AREA NET	WORK 3) CIRCUITS BETWEEN THE IPC DULE A) FOR AN OPEN	
•	Disconnect: IPC Measure:	(instrument panel cluste	er) C220A.		
	Positive Lead	Measurement / Action	Negative Lead		
	C220A-12	Ω	C2431A-9		
	C220A-13	Ω	C2431A-22		

Are the resistances less than 3 ohms?

E8 CHECK THE HS-CAN3 (HIGH-SPEED CONTROLLER AREA NETWORK 3) (+) AND HS-CAN3 (HIGH-SPEED CONTROLLER AREA NETWORK 3) (-) CIRCUITS FOR A SHORT TO GROUND WITH THE MODULES DISCONNECTED

• Measure:

Positive Lead	Measurement / Action	Negative Lead
C2431A-9	Ω	Ground
C2431A-22	Ω	Ground

- Disconnect modules one at a time until the resistance to ground is greater than 1,000 ohms.
 - ACM (audio front control module) C240A
 - APIM (SYNC module) C2383A (if equipped)
 - DSP (audio digital signal processing module) C3154A (mid-level) or C3155A (high-level) (if equipped)
 - IPC (instrument panel cluster) C220A
 - TRM (trailer module) / TBM (trailer brake control module) C2498C (if equipped)
 - WACM (wireless accessory charging module) C390 (if equipped)

Are the resistances greater than 1,000 ohms?

CONNECT the GWM (gateway module A) .

For the ACM (audio front control module), GO to E19 For the APIM (SYNC module), GO to E20YesFor the DSP (audio digital signal processing module), GO to E21 For the IPC (instrument panel
cluster), GO to E23 For the TRM (trailer module) / TBM (trailer brake control module), GO to E24
For the WACM (wireless accessory charging module), GO to E25

No REPAIR the circuit in question. CONNECT all modules.

E9 CHECK FOR RESTORED COMMUNICATION WITH THE IPC (INSTRUMENT PANEL CLUSTER) DISCONNECTED

E12 CHECK FOR RESTORED COMMUNICATION WITH THE ACM (AUDIO FRONT 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: BCM (body control module) fuse 32 (20A).
- Using a diagnostic scan tool, carry out the network test.

Do all other HS-CAN3 (high-speed controller area network 3) modules pass the network test?

Yes	INSTALL the removed fuse. GO to Pinpoint Test J	
Νο	INSTALL the removed fuse. GO to E13	
E13 VER	IFY VEHICLE EQUIPMENT - DSP (AUDIO DIGITAL SIGNAL PROCESSING MODULE)	
• Insj	pect the vehicle for a DSP (audio digital signal processing module) .	
IS LITE VE	enicie equipped with a DSP (audio digital signal processing module) ?	
Yes	GO to E14	
Νο	GO to E15	
E14 CHECK FOR RESTORED COMMUNICATION WITH THE DSP (AUDIO DIGITAL SIGNAL PROCESSING MODULE) DISABLED		
NOTE		
NOTE		