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2014 FORD Mondeo Sedan OEM Service and Repair Workshop Manual

[Go to manual page](#)

- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.

Is DTC (diagnostic trouble code) U301E:00, U301F:00, and/or U3020:00 present?

Yes	If DTC (diagnostic trouble code) U301F:00 is present, GO to AK2 If DTC (diagnostic trouble code) U301F:00 is not present, GO to AK3
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No	The concern is not present at this time.
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AK2 CHECK SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) DIAGNOSTIC TROUBLE CODES (DTCs) WITH THE OBCC (OFF-BOARD CHARGER CONTROLLER) DISCONNECTED

- Ignition OFF.
- Disconnect OBCC (Off-Board Charger Controller) C1012 .
- Ignition ON.
- Using a diagnostic scan tool, clear the SOBDM (secondary on-board diagnostic control module A) DTCs.
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.

Is DTC (diagnostic trouble code) U301F:00 present?

Yes	GO to AK3
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No	GO to AK7
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AK3 CHECK THE WAKE-UP CIRCUIT VOLTAGE

NOTE

While performing this test a delay for the wake-up circuit to transition from 12V to 0V after turning the ignition OFF is normal.

- Ignition OFF.
- Disconnect OBCC (Off-Board Charger Controller) C1012 .

AK5 CHECK THE WAKE-UP CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1012-1	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to AK6
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No	REPAIR the circuit.
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AK6 CHECK THE WAKE-UP CIRCUIT FOR AN OPEN

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1012-1	Ω	C1821A-H3

Is the resistance less than 3 ohms?

Yes	GO to AK8
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No	REPAIR the circuit.
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AK7 CHECK FOR CORRECT OBCC (OFF-BOARD CHARGER CONTROLLER) MODULE OPERATION

- Inspect OBCC (Off-Board Charger Controller) C1012

- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.

Are any of the following DTCs U301E:00, U301F:00, and/or U3020:00 reported?

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 SOBDM (secondary on-board diagnostic control module A) . REFER to: Secondary On-Board Diagnostic Control Module A (SOBDM) - Electric (414-03B High Voltage Battery Charging 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 AL : U3513:00

Refer to Wiring Diagrams Cell 12for schematic and connector information.

Normal Operation and Fault Conditions The high voltage system utilizes an interlock system at the high voltage cable connections to confirm that the cables are connected. The interlock status is based on the high voltage battery voltage measurement the BECM (battery energy control module) sends via HS-CAN (high-speed controller area network) . The SOBDM (secondary on-board diagnostic control module A) compares this voltage to the voltage present at the module after the contactors have closed. Presence of this DTC (diagnostic trouble code) illuminates the Charger Service Required indicator in the IPC (instrument panel cluster) and results in the CSI (Charge Status Indicator) flashing a fault pattern and the vehicle will not charge. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDM (secondary on-board diagnostic control module A) U3513:00	High Voltage System Interlock Circuit 'B' Low: No Sub Type Information	Sets when a high voltage measurement at the SOBDM (secondary on-board diagnostic control module A) and the BECM (battery energy control module) has a difference greater than 50.0V after the contactors have closed.

Possible Sources

- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.

Is DTC (diagnostic trouble code) U3513:00 present?

Yes	GO to AL3
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No	The concern is not present at this time.
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AL3 CHECK THE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) CABLE FOR BEING FULLY SEATED

- Ignition OFF.
- Depower the high voltage battery system.
REFER to: [High Voltage System De-energizing - Electric](#) (414-03A High Voltage Battery, Mounting and Cables, General Procedures).
- Check that the SOBDM (secondary on-board diagnostic control module A) C1821C is connected and fully seated.

Was the connector connected and fully seated?

Yes	GO to AL4
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No	<p>RECONNECT the connector and verify it is fully seated. Repower the high voltage system.</p> <p>REFER to: High Voltage System De-energizing - Electric (414-03A High Voltage Battery, Mounting and Cables, General Procedures).</p> <p>Operate the system and determine if the concern is still present. If the concern is still present, GO to AL4</p>
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AL4 CHECK THE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) HIGH VOLTAGE CABLE FOR BEING OPEN

- Disconnect DCDC (direct current/direct current converter control module) C1457A .
- Disconnect SOBDM (secondary on-board diagnostic control module A) C1821C .
- Measure:

- Using a diagnostic scan tool, clear the SOBDM (secondary on-board diagnostic control module A) DTCs.
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.

Is DTC (diagnostic trouble code) U3513:00 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 new SOBDM (secondary on-board diagnostic control module A) . REFER to: Secondary On-Board Diagnostic Control Module A (SOBDM) - Electric (414-03B High Voltage Battery Charging 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 AM : P00FD:00

Refer to Wiring Diagrams Cell 12for schematic and connector information.

Normal Operation and Fault Conditions During normal operation the DCDC (direct current/direct current converter control module) draws high voltage current from the high voltage battery and converts to it low voltage current to maintain and/or charge the 12-volt battery when requested by the BCM (body control module) . With the ignition ON, if the SOBDMC (secondary on-board diagnostic control module C) determines high voltage battery SOC (State Of Charge) is too low to support charging of the 12-volt battery DTC (diagnostic trouble code) P00FD:00 sets and the 12-volt battery no longer is charged and will eventually deplete. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDMC (secondary on-board diagnostic control module C) P00FD:00	Battery 'B' State of Charge Performance: No Sub Type Information	Sets if the BCM (body control module) is requesting high voltage battery to low voltage battery (12-volt) energy transfer and the high voltage battery SOC

REFER to: [Battery Drain Check](#)

(414-01 Battery, Mounting and Cables, General Procedures).

PINPOINT TEST AN : P064F:00, P06B8:00

Refer to Wiring Diagrams Cell 12 for schematic and connector information.

Normal Operation and Fault Conditions When powered on, the GFM2 (generic function module 2) validates internal software and loads the NVRAM (nonvolatile random-access memory) parameters. If the GFM2 (generic function module 2) fails to load NVRAM (nonvolatile random-access memory) parameters or detects the software checksum does not match a DTC (diagnostic trouble code) sets. The CSI (Charge Status Indicator) illuminates to indicate a fault and the vehicle will not charge. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDM (secondary on-board diagnostic control module A) P064F:00	Unauthorized Software/Calibration Detected: No Sub Type Information	Sets if GFM2 (generic function module 2) detects unauthorized software.
SOBDM (secondary on-board diagnostic control module A) P06B8:00	Internal Control Module Non-Volatile Random Access Memory (NVRAM) Error: No Sub Type Information	Sets if GFM2 (generic function module 2) fails to load NVRAM (nonvolatile random-access memory) parameters.

Possible Sources

- GFM2 (generic function module 2) software
- GFM2 (generic function module 2)

AN1 RETRIEVE GFM2 (GENERIC FUNCTION MODULE 2) DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the GFM2 (generic function module 2) DTCs.
- Using a diagnostic scan tool, perform GFM2 (generic function module 2) self-test.

Is DTC (diagnostic trouble code) P064F:00 and/or P06B8:00 present?

Yes	CARRY OUT PMI (programmable module installation) on the GFM2 (generic function module 2) . REFER to: Module Programming (418-01A Module Configuration, General Procedures).
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GFM2 (generic function module 2) P0D51:00	Battery Charger Hybrid/EV Battery Output Current Sensor 'A' Circuit: No Sub Type Information	This DTC (diagnostic trouble code) sets when the GFM2 (generic function module 2) detects a output current sensor circuit fault.
GFM2 (generic function module 2) P0D5C:00	Battery Charger Hybrid/EV Battery Output Power Performance: No Sub Type Information	This DTC (diagnostic trouble code) sets when the GFM2 (generic function module 2) output power is less than expected by a calibrated threshold for 5 minutes.
GFM2 (generic function module 2) P0D85:00	Battery Charging Output Voltage Too High: No Sub Type Information	This DTC (diagnostic trouble code) sets when the voltage output from the GFM2 (generic function module 2) during power conversion is greater than 448V.

Possible Sources

- High voltage battery cable
- GFM2 (generic function module 2)

WARNING

To prevent the risk of high-voltage shock, always follow precisely all warnings and service instructions, including instructions to depower the system. The high-voltage system utilizes approximately 300 volts DC, provided through high-voltage cables to its components and modules. The high-voltage cables and wiring are identified by orange harness tape or orange wire covering. All high-voltage components are marked with high-voltage warning labels with a high-voltage symbol. Failure to follow these instructions may result in serious personal injury or death.

AO1 CHECK BECM (BATTERY ENERGY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, perform BECM (battery energy control module) self-test.

Are any BECM (battery energy control module) Diagnostic Trouble Codes (DTCs) present other than P0D5C:00?

Yes	ADDRESS the BECM (battery energy control module) DTC (diagnostic trouble code) . REFER to: High Voltage Battery, Mounting and Cables - Electric (414-03A High Voltage Battery, Mounting and Cables, Diagnosis and Testing).
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C1457A-2	Ω	C1457A-3
C1457A-1	Ω	C1457A-4

Are the resistances greater than 400,000 ohms?

Yes	GO to AO4
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No	<p>INSTALL a new high voltage battery cable assembly.</p> <p>REFER to: High Voltage Battery Cables - Electric (414-03A High Voltage Battery, Mounting and Cables, Removal and Installation).</p>
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AO4 CHECK THE HIGH VOLTAGE CABLE FOR BEING OPEN

- Using a diagnostic scan tool, clear the GFM2 (generic function module 2) DTCs.
- CONNECT a known good EVSE to a AC (alternating current) power outlet and the vehicle charge port. For DTC (diagnostic trouble code) P0D5C:00 wait 5 minutes. For DTC (diagnostic trouble code) P0D21:00, P0D23:00, P0D4C:00, P0D51:00, and/or P0D85:00 wait 1 minute.
- DISCONNECT the EVSE from the vehicle charge port.
- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.

Is DTC (diagnostic trouble code) P0D21:00, P0D23:00, P0D4C:00, P0D51:00, P0D5C:00 and/or P0D85:00 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 GFM2 (generic function module 2) . REFER to: Generic Function Module 2 (GFM2) - Electric (414-03B High Voltage Battery Charging 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 AP : P0D80:00, P0D81:24, P0D81:25

Refer to Wiring Diagrams Cell 12for schematic and connector information.

Normal Operation and Fault Conditions The GFM2 (generic function module 2) monitors the AC (alternating current) voltage input from the Electric Vehicle supply Equipment (EVSE). The GFM2 (generic function module 2) expects the AC (alternating current) voltage input to be present when the SOBDM (secondary on-board diagnostic control module A) closes the internal S2 switch and the AC (alternating current) voltage not to be present when the S2 switch is opened. The S2 switch, which is internal to the SOBDM (secondary on-board diagnostic control module A) , changes the pilot voltage signal to notify the EVSE when to send AC (alternating current) voltage to the GFM2 (generic function module 2) . The AC (alternating current) voltage input monitoring is used to ensure correct operation of the EVSE and to ensure the high voltage cables are not open. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
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