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2011 FORD Mondeo Sedan OEM Service and Repair Workshop Manual

Go to manual page

Sample

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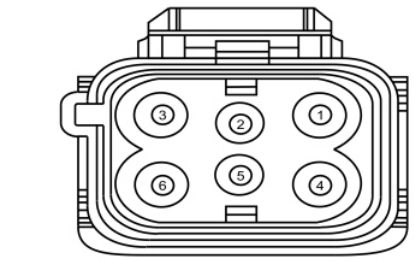
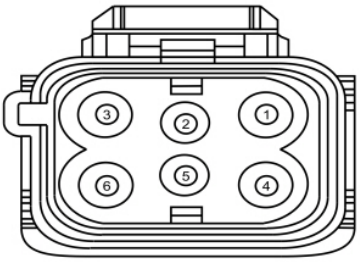
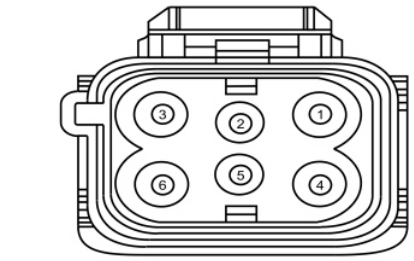
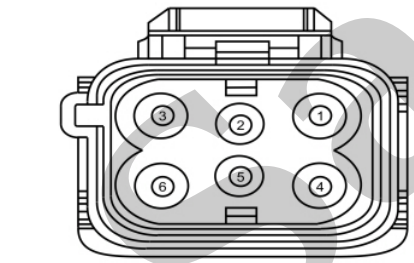
 C309-3 (female side)	Ω	 C309-4 (female side)
 C309-3 (female side)	Ω	C1002-GND
 C309-4 (female side)	Ω	C1002-GND

Are the resistances greater than 400,000 ohms?

Yes	INSTALL a new charge port. REFER to: Charge Port - Electric (414-03B High Voltage Battery Charging System, Removal and Installation).

No	INSTALL a new high voltage cable.

Sample

- Repower the high voltage system.
  REFER to: High Voltage System De-energizing - Electric(414-03A High Voltage Battery, Mounting and Cables, General Procedures).
- Ignition ON.
- 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) P0D2A:00 wait 10 minutes. For DTC (diagnostic trouble code) P0D27:00, P0D28:00, P0D38:00, and /or P0D3D:00 wait 1 minute.
- DISCONNECT the EVSE from the vehicle charge port.
- Using a diagnostic scan tool, perform GFM2 (generic function module 2) self-test.

Is DTC (diagnostic trouble code) P0D27:00, P0D28:00, P0D2A:00, P0D38:00 and/or P0D3D: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 BA : U3003:16, U3003:17

Refer to Wiring Diagrams Cell 12for schematic and connector information.
Normal Operation and Fault Conditions When the SOBDM (secondary on-board diagnostic control module A) is operating it continuously monitors the 12-volt module power supply for being out of range. If this voltage is less or greater than a calibrated threshold a DTC (diagnostic trouble code) sets. Presence of these DTC (diagnostic trouble code) s does not illuminate the Charger Service Required indicator in the IPC (instrument panel cluster) or affect vehicle charging. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDM (secondary on-board diagnostic control module A)	Battery Voltage: Circuit Voltage Below	Sets if SOBDM (secondary on-board diagnostic control module A) 12-volt power source falls

Sample

No	If no DTCs repeat the concern is not present at this time. For DTC (diagnostic trouble code) U3003:16 or U3003:17 present only in the SOBDM (secondary on-board diagnostic control module A) , GO to BA5

BA2 CHECK THE 12-VOLT BATTERY

- Carry out the 12-volt battery condition test.
  REFER to: Battery - Electric(414-01 Battery, Mounting and Cables, Diagnosis and Testing).

Did the 12-volt battery pass the condition test?

Yes	GO to BA3

No	INSTALL a new 12V battery. REFER to: Battery - Electric (414-01 Battery, Mounting and Cables, Removal and Installation).

BA3 CHECK THE DIRECT CURRENT/DIRECT CURRENT (DC/DC) CONVERTER CONTROL MODULE VOLTAGE CONVERTER STATUS (DCDC_ENABLE) PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view DCDC (direct current/direct current converter control module) PIDs.
- Access the DCDC (direct current/direct current converter control module) and monitor the DCDC_ENABLE (DC/DC Enable Status) PID (parameter identification)

Does the PID (parameter identification) read Enable?

Yes	GO to BA4

No	Perform the self-test for the SOBDMC (secondary on-board diagnostic control module C) and BECM (battery energy control module) . For SOBDMC (secondary on-board diagnostic control module C) DTCs, REFER to: Rear Electric Drive Assembly (302-02 Rear Electric Drive Assembly, Diagnosis and Testing). For BECM (battery energy control module) DTCs, REFER to: High Voltage Battery, Mounting and Cables - Electric

Sample

- Access the SOBDM (secondary on-board diagnostic control module A) and monitor the MAINECUV (Main ECU voltage supply) (V) PID (parameter identification)

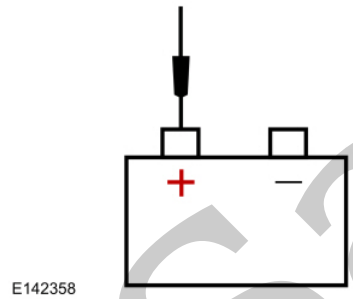
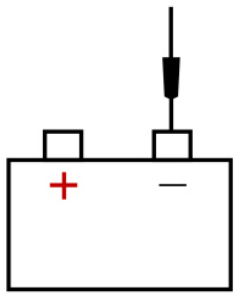
Does the PID (parameter identification) read 8-16 volts?

Yes	GO to BA8

No	If the PID (parameter identification) reads less than 8 volts or greater than 16 volts, GO to BA6

BA6 MEASURE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) INPUT VOLTAGE

- Ignition OFF.
- Disconnect SOBDM (secondary on-board diagnostic control module A) C1821A .
- Measure:

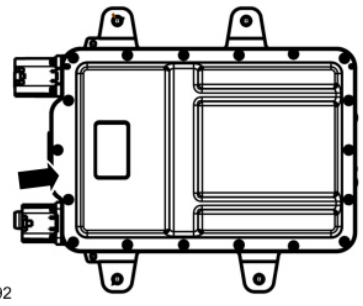
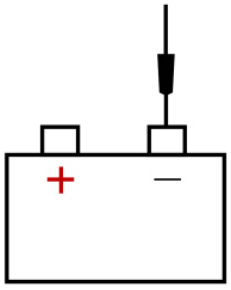
Positive Lead	Measurement / Action	Negative Lead
 E142358	V	 E142359

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1821A-H1 (female side)	V	Ground

Are the SOBDM (secondary on-board diagnostic control module A) circuit voltages equal to 12-volt battery voltage?

Sample

 E322292 SOBDM (secondary on-board diagnostic control module A) case ground	V	 E142359

Is the voltage less than 0.5V?

Yes	GO to BA8

No	INSPECT the SOBDM (secondary on-board diagnostic control module A) bracket to vehicle frame is mounting for excessive corrosion and/or being loose. REPAIR as necessary.

BA8 CHECK FOR CORRECT SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) OPERATION

- Inspect SOBDM (secondary on-board diagnostic control module A) C1821A.
- 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 SOBDM (secondary on-board diagnostic control module A) connector. Make sure it seats and latches correctly.
- Ignition ON.
- Using a diagnostic scan tool, clear the SOBDM (secondary on-board diagnostic control module A) DTCs.
- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.

Is the DTC (diagnostic trouble code) still present?

Sample

SOBDM (secondary on-board diagnostic control module A) P1A3C:00	Hybrid/EV Battery Charging Disabled - DC Charging Station Performance: No Sub Type Information	Sets if SOBDM (secondary on-board diagnostic control module A) detects a DC (direct current) fast charging fault.
SOBDM (secondary on-board diagnostic control module A) P1A3C:23	Hybrid/EV Battery Charging Disabled - DC Charging Station Performance: Signal Stuck Low	Sets if SOBDM (secondary on-board diagnostic control module A) detects the charging station is reporting a 0 watts or amps for maximum charging power or current.

Possible Sources

- DC (direct current) fast charge EVSE
- DC (direct current) EVSE emergency stop button pressed

BB1 RETRIEVE ALL THE OBCC (OFF-BOARD CHARGER CONTROLLER) AND SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

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

Are any OBCC (Off-Board Charger Controller) DTCs present other than P1A3C:00 OR SOBDM (secondary on-board diagnostic control module A) DTCs P0CF4:29, P0CF4:77, P0CF5:00, P0CF7:00, P0CF7:66 and/or P0D2B:38?

Yes	REFER to the OBCC (Off-Board Charger Controller) and/or SOBDM (secondary on-board diagnostic control module A) DTC (diagnostic trouble code) chart in this section and diagnose the other DTCs first.

No	GO to BB2

Sample

OBCC (Off-Board Charger Controller) P1A3C:89	Hybrid/EV Battery Charging Disabled - DC Charging Station Performance: Data Transfer Failure	Sets if OBCC (Off-Board Charger Controller) detects a PLC (Power Line Communication) fault with the DC (direct current) fast charging station.

Possible Sources

- DC (direct current) fast charge EVSE
- DC (direct current) EVSE emergency stop button pressed

BC1 RETRIEVE ALL THE OBCC (OFF-BOARD CHARGER CONTROLLER) AND SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the OBCC (Off-Board Charger Controller) DTCs.
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, perform OBCC (Off-Board Charger Controller) self test.

Are any OBCC (Off-Board Charger Controller) DTCs other than P1A3C:89?

Yes	REFER to the OBCC (Off-Board Charger Controller) DTC (diagnostic trouble code) chart in this section and diagnose the other DTCs first.

No	GO to BC2

BC2 ATTEMPT TO CHARGE THE VEHICLE USING A DC (DIRECT CURRENT) FAST CHARGE EVSE (ELECTRIC VEHICLE SUPPLY EQUIPMENT)

- CONNECT the vehicle to a known good DC (direct current) fast charge EVSE (Electric Vehicle Supply Equipment) to the vehicle and attempt to charge the high voltage battery for a minimum of 2 minutes.
- STOP the DC (direct current) fast charge session using the normal stop button and DISCONNECT the EVSE from the vehicle charge port.
- Using a diagnostic scan tool, perform OBCC (Off-Board Charger Controller) self test.

Did the vehicle charge successfully with no faults indicated on the CSI (charge status indicator) and DTC (diagnostic trouble code) P1A3C:89 NOT repeat?

Yes	Advise customer the concern was caused by the use of a incompatible or faulty DC (direct current) fast charging station or pressing the emergency stop button while the vehicle was charging.

Sample

- Ignition ON.
- Using a diagnostic scan tool, clear the OBCC (Off-Board Charger Controller) and SOBDM (secondary on-board diagnostic control module A) DTCs.
- CONNECT the vehicle to a known good DC (direct current) fast charge EVSE (Electric Vehicle Supply Equipment) to the vehicle and attempt to charge the high voltage battery for a minimum of 2 minutes.
- DISCONNECT the DC (direct current) fast charge EVSE (Electric Vehicle Supply Equipment) from the vehicle charge port.
- Using a diagnostic scan tool, perform OBCC (Off-Board Charger Controller) and SOBDM (secondary on-board diagnostic control module A) DTCs.

Is DTC (diagnostic trouble code) P0634:00 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 OBCC (Off-Board Charger Controller) . REFER to: Off-Board Charger Controller (OBCC) - Electric (414-03B High Voltage Battery Charging System, Removal and Installation).

No	The DTC (diagnostic trouble code) was the result of high ambient temperatures.

PINPOINT TEST BE : U0111:00

Normal Operation and Fault Conditions

The OBCC (Off-Board Charger Controller) communicates with the BECM (battery energy control module) over a HS-CAN (high-speed controller area network) to send and receive important vehicle data.

When powered on, the OBCC (Off-Board Charger Controller) continually monitors the HS-CAN (high-speed controller area network) . If communication with a module is lost, a fault is detected and the OBCC (Off-Board Charger Controller) sets the appropriate DTC (diagnostic trouble code) . The powertrain malfunction (wrench) indicator illuminates and DC (direct current) fast charging is disabled.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
OBCC (Off-Board Charger Controller)	Lost Communication With Battery Energy Control Module	This DTC (diagnostic trouble code) sets if the OBCC (Off-Board Charger Controller) does not

Sample

	(414-01 Battery, Mounting and Cables, Removal and Installation).

BE3 REVIEW THE DTCS FROM THE OBCC (OFF-BOARD CHARGER CONTROLLER)

- Review the Diagnostic Trouble Codes (DTCs) recorded during the OBCC (Off-Board Charger Controller) self-test.

Is DTC (diagnostic trouble code) U3003:16 or U3003:17 recorded?

Yes	DIAGNOSE the battery voltage DTC (diagnostic trouble code) stored in the OBCC (Off-Board Charger Controller) . REFER to the OBCC (Off-Board Charger Controller) DTC (diagnostic trouble code) chart.

No	GO to BE4

BE4 CHECK THE COMMUNICATION NETWORK

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

Does the BECM (battery energy control module) pass the network test and complete a self test?

Yes	GO to BE5

No	DIAGNOSE the scan tool communication with the BECM (battery energy control module) concern. REFER to: Controller Area Network (CAN) Module Communications Network (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

BE5 RETRIEVE THE DTCS FROM THE BECM (BATTERY ENERGY CONTROL MODULE)

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

Is DTC (diagnostic trouble code) U3003:16 or U3003:17 recorded?

Sample