Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

2006 FORD Mondeo Sedan OEM Service and Repair Workshop Manual

Go to manual page

W3 REVIEW THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A)

- Review the DTCs recorded during the SOBDM (secondary on-board diagnostic control module A) 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 SOBDM (secondary on-board diagnostic control module A) . REFER to the SOBDM (secondary on-board diagnostic control module A) DTC (diagnostic trouble code) chart.

No	GO to W4

W4 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 OBCC (Off-Board Charger Controller) self-test.

Does the OBCC (Off-Board Charger Controller) pass the network test and complete a self test?

Yes	GO to W5

No	DIAGNOSE a diagnostic scan tool communication with the OBCC (Off-Board Charger Controller) concern. REFER to: Controller Area Network (CAN) Module Communications Network (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

W5 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE OBCC (OFF-BOARD CHARGER CONTROLLER) APIM (SYNC MODULE)

- Using a diagnostic scan tool, perform the OBCC (Off-Board Charger Controller) self-test.

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

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

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) U0293:00	Lost Communication With Hybrid/EV Powertrain Control Module 'A': No Sub Type Information	This DTC (diagnostic trouble code) sets if the SOBDM (secondary on-board diagnostic control module A) does not receive an expected message from the SOBDMC (secondary on-board diagnostic control module C) .

Possible Sources

- Fuse(s)
- Wiring, terminals or connectors
- SOBDMC (secondary on-board diagnostic control module C)
- SOBDM (secondary on-board diagnostic control module A)

NOTICE

Use the correct probe adapter(s) from the Flex Probe Kit when taking measurements. Failure to use the correct probe adapter(s) may damage the connector.

X1 CHECK THE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- CONNECT a known good EVSE to the vehicle charge port and wait 1 minute.
- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.
- Using a diagnostic scan tool, clear the SOBDM (secondary on-board diagnostic control module A) DTCs and wait 10 seconds.
- Using a diagnostic scan tool, perform SOBDM (secondary on-board diagnostic control module A) self-test.

Is DTC (diagnostic trouble code) U0293:00 retrieved?

Yes	GO to X2

Does the SOBDMC (secondary on-board diagnostic control module C) pass the network test and complete a self test?

Yes	GO to X5

No	DIAGNOSE a diagnostic scan tool communication with the SOBDMC (secondary on-board diagnostic control module C) concern. REFER to: Controller Area Network (CAN) Module Communications Network (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

X5 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE SOBDMC (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE C)

- Using a diagnostic scan tool, perform the SOBDMC (secondary on-board diagnostic control module C) self-test.

Is DTC (diagnostic trouble code) P0562:00 or P0563:00 recorded?

Yes	DIAGNOSE the SOBDMC (secondary on-board diagnostic control module C) DTC (diagnostic trouble code) . REFER to: Rear Electric Drive Assembly (302-02 Rear Electric Drive Assembly, Diagnosis and Testing).

No	GO to X6

X6 CHECK FOR A LOST COMMUNICATION WITH THE SOBDMC (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE C) DTC (DIAGNOSTIC TROUBLE CODE) IN OTHER MODULES

- Using a diagnostic scan tool, retrieve Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

Is DTC (diagnostic trouble code) U0293:00 set in multiple modules?

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

- BECM (battery energy control module) input

Y1 RETRIEVE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

- 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 DTC (diagnostic trouble code) U0412:00 present?

Yes	RETRIEVE BECM (battery energy control module) DTCs. REFER to: High Voltage Battery, Mounting and Cables - Electric (414-03A High Voltage Battery, Mounting and Cables, Diagnosis and Testing).

No	The concern is not present at this time.

PINPOINT TEST Z : U0422:00

Normal Operation and Fault Conditions

When powered on, the SOBDM (secondary on-board diagnostic control module A) also known as the Battery Charger Control Module (BCCM) receives and monitors input messages via the HS-CAN (high-speed controller area network) . This DTC (diagnostic trouble code) sets if a HS-CAN (high-speed controller area network) message from the BCM (body control module) is invalid. If a fault is detected charging is not affected and the Charger Service Required indicator is not illuminated.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDM (secondary on-board diagnostic control module A) U0422:00	Invalid Data Received From Body Control Module: No Sub Type Information	DTC (diagnostic trouble code) indicates a HS-CAN (high-speed controller area network) message from the BCM (body control module) is invalid.

Possible Sources

Possible Sources

- Network traffic
- GWM (gateway module A) input

AA1 RETRIEVE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

- 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 DTC (diagnostic trouble code) U0447:00 present?

Yes	RETRIEVE GWM (gateway module A) DTCs. REFER to: Controller Area Network (CAN) Module Communications Network (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).
No	The concern is not present at this time.

PINPOINT TEST AB : U0554:00

Normal Operation and Fault Conditions

When powered on, the SOBDM (secondary on-board diagnostic control module A) also known as the Battery Charger Control Module (BCCM) receives and monitors input messages via the HS-CAN (high-speed controller area network) . This DTC (diagnostic trouble code) sets if the HS-CAN (high-speed controller area network) message charge status display from the APIM (SYNC module) is invalid. If a fault is detected charging is not affected and the MIL (malfunction indicator lamp) is not illuminated.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDM (secondary on-board diagnostic control module A) U0554:00	Invalid Data Received From Accessory Protocol Interface	DTC (diagnostic trouble code) indicates a HS-CAN (high-speed controller area

SOBDM (secondary on-board diagnostic control module A) U057D:00	Invalid Data Received From Off-Board Charger Control Module: No Sub Type Information	DTC (diagnostic trouble code) indicates a HS-CAN (high-speed controller area network) message from the OBCC (Off-Board Charger Controller) is invalid.

Possible Sources

- High network traffic
- OBCC (Off-Board Charger Controller) input

AC1 RETRIEVE OBCC (OFF-BOARD CHARGER CONTROLLER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the SOBDM (secondary on-board diagnostic control module A) Diagnostic Trouble Codes (DTCs).
- CONNECT a known good DC (direct current) fast charge station to the vehicle charge port and charge the high voltage battery for 1 minute.
- 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 SOBDM (secondary on-board diagnostic control module A) self-test.

Is DTC (diagnostic trouble code) U057D: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 system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set due to high network traffic or an intermittent fault condition.

PINPOINT TEST AD : U0594:00

Normal Operation and Fault Conditions

PINPOINT TEST AE : U1020:00

Refer to Wiring Diagrams Cell 14for schematic and connector information.
Refer to Wiring Diagrams Cell 21for schematic and connector information.
Normal Operation and Fault Conditions The SOBDM (secondary on-board diagnostic control module A) also known as the Battery Charger Control Module (BCCM) communicates with the GFM2 (generic function module 2) also know as the secondary Battery Charger Control Module (BCCM) over dedicated communication circuits to send and receive important charging data. When powered on, the SOBDM (secondary on-board diagnostic control module A) continually monitors GFM2 (generic function module 2) communication. If communication with the module is lost, a fault is detected and the SOBDM (secondary on-board diagnostic control module A) sets U1020:00 DTC (diagnostic trouble code) . **Possible Sources**

- Fuse(s)
- Wiring, terminals and connectors
- GFM2 (generic function module 2)

Visual Inspection and Pre-checks

- Verify BJB (battery junction box) fuse 116 (10A) are OK.

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.

AE1 RETRIEVE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

- 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 and record any DTCs.

Is DTC (diagnostic trouble code) U1020:00 present?

Yes	GO to AE2

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C3003A-C2	V	Ground

- Ignition ON.

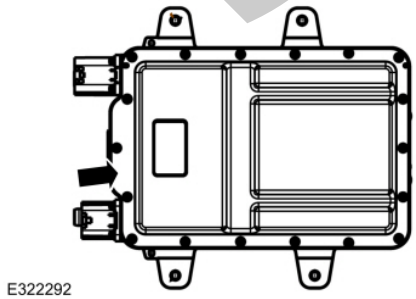
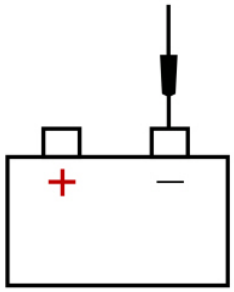
Did the voltage read greater than 11 volts when the ignition was turned on?

Yes	GO to AE5

No	DIAGNOSE the HEV wake-up circuit between the SOBDM (secondary on-board diagnostic control module A) and GFM2 (generic function module 2) and REPAIR as necessary.

AE5 CHECK THE GFM2 (GENERIC FUNCTION MODULE 2) CASE GROUND

- Ignition OFF.
- Connect GFM2 (generic function module 2) C3003A .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
 E322292 GFM2 (generic function module 2) case ground	V	 E142359

GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1821A-B1	Ω	Ground
C1821A-B2	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to AE8

No	REPAIR the affected circuit.

AE8 CHECK THE COMMUNICATION CIRCUITS BETWEEN THE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) AND THE GFM2 (GENERIC FUNCTION MODULE 2) FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1821A-B1	Ω	C3003A-E2
C1821A-B2	Ω	C3003A-E1

Is the resistances less than 3 ohms?