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2010 FORD Mondeo Sedan OEM Service and Repair Workshop Manual

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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) 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) U0140:00	Lost Communication With Body Control Module: No Sub Type Information	This DTC (diagnostic trouble code) sets if the OBCC (Off-Board Charger Controller) does not receive an expected message from the BCM (body control module) .

Possible Sources

- Wiring, terminals or connectors
- High network traffic
- 12-volt battery
- OBCC (Off-Board Charger Controller)
- BCM (body control module)

BF1 CHECK THE BECM (BATTERY ENERGY CONTROL MODULE) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, perform OBCC (Off-Board Charger Controller) self-test.
- Using a diagnostic scan tool, clear the OBCC (Off-Board Charger Controller) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Wait 5 seconds.
- Ignition ON.
- Using a diagnostic scan tool, perform OBCC (Off-Board Charger Controller) self-test

Is DTC (diagnostic trouble code) U0140:00 retrieved?

Yes	GO to BF2
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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.
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(418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

BF5 RETRIEVE THE DTCS FROM THE BCM (BODY CONTROL MODULE)

- Using a diagnostic scan tool, perform BCM (body control module) self-test.

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

Yes

DIAGNOSE the BCM (body control module) DTC (diagnostic trouble code) .
REFER to: [Body Control Module \(BCM\)](#)
(419-10 Multifunction Electronic Modules, Diagnosis and Testing).

No

GO to [BF6](#)

BF6 CHECK FOR A LOST COMMUNICATION WITH THE BCM (BODY CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) IN OTHER MODULES

	receive an expected message from the GWM (gateway module A) .
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Possible Sources

- Wiring, terminals or connectors
- High network traffic
- 12-volt battery
- OBCC (Off-Board Charger Controller)
- GWM (gateway module A)

BG1 CHECK THE BECM (BATTERY ENERGY CONTROL MODULE) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, perform OBCC (Off-Board Charger Controller) self-test.
- Using a diagnostic scan tool, clear the OBCC (Off-Board Charger Controller) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Wait 5 seconds.
- Ignition ON.
- Using a diagnostic scan tool, perform OBCC (Off-Board Charger Controller) self-test

Is DTC (diagnostic trouble code) U0146:00 retrieved?

Yes	GO to BG2
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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.
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BG2 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 BG3
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No	INSTALL a new 12-volt battery. REFER to: Battery - Electric
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REFER to: [Controller Area Network \(CAN\) Module Communications Network](#)
(418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

No GO to [BG6](#)

BG6 CHECK FOR A LOST COMMUNICATION WITH THE GWM (GATEWAY MODULE A) 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) U0146:00 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 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).

No

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, it is necessary to seek additional help. REFER to the Service Repair And Technical Assistance Process. A Vehicle Data Recorder (VDR) or similar recorder may also be useful.

PINPOINT TEST BH : U019B:00

Normal Operation and Fault Conditions

The OBCC (Off-Board Charger Controller) communicates with the SOBDM (secondary on-board diagnostic control module A) also known as the Battery Charger Control Module (BCCM) over a HS-CAN (high-speed controller area network) to send and receive important vehicle data.

BH2 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 BH3
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No	INSTALL a new 12-volt battery. REFER to: Battery - Electric (414-01 Battery, Mounting and Cables, Removal and Installation).
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BH3 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.
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No	GO to BH4
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BH4 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 SOBDM (secondary on-board diagnostic control module A) self-test.

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

Yes	GO to BH5
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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, it is necessary to seek additional help. REFER to the Service Repair And Technical Assistance Process. A Vehicle Data Recorder (VDR) or similar recorder may also be useful.

PINPOINT TEST BI : U0293:00

Normal Operation and Fault Conditions

The OBCC (Off-Board Charger Controller) communicates with the SOBDMC (secondary on-board diagnostic control module C) also known as the rear Inverter System Controller (ISC) over the FD-CAN (Flexible Data Rate Controller Area Network) and HS-CAN (high-speed controller area network) to send and receive important vehicle data. The GWM (gateway module A) communicates the data between both networks. 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 BECM (battery energy control module) sets the appropriate DTC (diagnostic trouble code) 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) U0293:00	Lost Communication With Hybrid/EV Powertrain Control Module 'A': No Sub Type Information	This DTC (diagnostic trouble code) sets if the OBCC (Off-Board Charger Controller) does not receive an expected message from the SOBDMC (secondary on-board diagnostic control module C) .

Possible Sources

- Wiring, terminals or connectors
- High network traffic
- 12-volt battery
- OBCC (Off-Board Charger Controller)
- SOBDMC (secondary on-board diagnostic control module C)

BI1 CHECK THE BECM (BATTERY ENERGY CONTROL MODULE) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

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

No	GO to BI4
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BI4 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 SOBDMC (secondary on-board diagnostic control module C) self-test.

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

Yes	GO to BI5
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No	<p>DIAGNOSE the scan tool communication with the SOBDMC (secondary on-board diagnostic control module C) concern.</p> <p>REFER to: Controller Area Network (CAN) Module Communications Network (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).</p>
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BI5 RETRIEVE THE DTCS FROM THE SOBDMC (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE C)

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

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

Yes	<p>DIAGNOSE the SOBDMC (secondary on-board diagnostic control module C) DTC (diagnostic trouble code) .</p> <p>REFER to:</p> <p>Rear Electric Drive Assembly</p> <p>(302-02 Rear Electric Drive Assembly, Diagnosis and Testing).</p>
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No	GO to BI6
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- BECM (battery energy control module) input

BJ1 RETRIEVE OBCC (OFF-BOARD CHARGER CONTROLLER) DTCS

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

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

Yes	RETRIEVE BECM (battery energy control module) Diagnostic Trouble Codes (DTCs). REFER to: High Voltage Battery, Mounting and Cables - Electric (414-03A High Voltage Battery, Mounting and Cables, Diagnosis and Testing).
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No	The concern is not present at this time.
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PINPOINT TEST BK : U0447:00

Normal Operation and Fault Conditions

When powered on, the OBCC (Off-Board Charger Controller) 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 GWM (gateway module A) is invalid. This DTC (diagnostic trouble code) does not affect DC (direct current) fast charging.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
OBCC (Off-Board Charger Controller) U0447:00	Invalid Data Received From Serial Data Gateway 'A': No Sub Type Information	DTC (diagnostic trouble code) indicates a HS-CAN (high-speed controller area network) message from the GWM (gateway module A) is invalid.

Possible Sources

- High network traffic
- GWM (gateway module A) input

BK1 RETRIEVE GWM (GATEWAY MODULE A) DTCS

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

Is DTC (diagnostic trouble code) U049C:00 present?

Yes	RETRIEVE SOBDM (secondary on-board diagnostic control module A) Diagnostic Trouble Codes (DTCs). REFER to the DTC (diagnostic trouble code) chart in this section.
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No	The concern is not present at this time.
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PINPOINT TEST BM : U0594:00

Normal Operation and Fault Conditions

When powered on, the OBCC (Off-Board Charger Controller) 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 PCM (powertrain control module) is invalid. This DTC (diagnostic trouble code) results in DC (direct current) fast charge being disabled.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
OBCC (Off-Board Charger Controller) U0594:00	Invalid Data Received From Hybrid/EV Powertrain Control Module 'A': No Sub Type Information	DTC (diagnostic trouble code) indicates a HS-CAN (high-speed controller area network) message from the PCM (powertrain control module) is invalid.

Possible Sources

- High network traffic
- PCM (powertrain control module) input

BM1 RETRIEVE OBCC (OFF-BOARD CHARGER CONTROLLER) DTCS

- Ignition ON.
- Using a diagnostic scan tool, clear the OBCC (Off-Board Charger Controller) Diagnostic Trouble Codes (DTCs).