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2005 FORD Mondeo Sedan OEM Service and Repair Workshop Manual

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controller area network) . This DTC (diagnostic trouble code) sets if the one of the following HS-CAN (high-speed controller area network) messages EVSE plug status, EVSE power maximum, EVSE power type or charger ready status from the GFM2 (generic function module 2) is invalid. Presence of this DTC (diagnostic trouble code) illuminates the Charger Service Required indicator in the IPC (instrument panel cluster) 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) U1021:00	Invalid Data Received From Generic Function Module 2: No Sub Type Information	DTC (diagnostic trouble code) indicates a HS-CAN (high-speed controller area network) message from the GFM2 (generic function module 2) is invalid.

Possible Sources

- Incompatible or faulty EVSE
- GFM2 (generic function module 2) input
- GFM2 (generic function module 2)

AF1 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.
- CONNECT a known good EVSE to the vehicle charge port and 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) U1021:00 present?

Yes	RETRIEVE and ADDRESS GFM2 (generic function module 2) DTCs. Refer to the DTC (diagnostic trouble code) chart in this section. If no DTCs are 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 GFM2 (generic function module 2) . REFER to: Generic Function Module 2 (GFM2) - Electric

Is DTC (diagnostic trouble code) U3000:47 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 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 concern is not present at this time.

PINPOINT TEST AH : U3000:49

Normal Operation and Fault Conditions

When powered on, the SOBDM (secondary on-board diagnostic control module A) performs an internal self tests and monitors the operation of internal components including DC (direct current) voltage/current sensor and the AC (alternating current) voltage/current sensor. If an SOBDM (secondary on-board diagnostic control module A) internal component failure occurs DTC (diagnostic trouble code) U3000:49 sets. 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) U3000:49	Control Module: Internal Electronic Failure	This DTC (diagnostic trouble code) sets if the SOBDM (secondary on-board diagnostic control module A) detects an internal component failure.

Possible Sources

- SOBDM (secondary on-board diagnostic control module A)

AH1 RETRIEVE ALL THE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

		module A) detects a VIN (vehicle identification number) mismatch.

Possible Sources

- SOBDM (secondary on-board diagnostic control module A) software configuration
- BCM (body control module) software configuration

AI1 CLEAR ALL CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS) AND REPEAT SELF TEST

- Ignition ON.
- Using a diagnostic scan tool, clear all CMDTCs.
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, perform a CMDTCs self test.

Is DTC (diagnostic trouble code) U3002:62 present in more than 1 module?

Yes	Perform a PMI (programmable module installation) on the BCM (body control module) . REFER to: Module Programming (418-01A Module Configuration, General Procedures).

No	GO to AI2

AI2 RETRIEVE THE 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) U3002:62 present?

Yes	Perform a PMI (programmable module installation) on the SOBDM (secondary on-board diagnostic control module A) . REFER to: Module Programming (418-01A Module Configuration, General Procedures).

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.

NOTE

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.

AJ1 CHECK SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

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

Is DTC (diagnostic trouble code) U301B:00 and/or U301C:00 present?

Yes	GO to AJ2

No	The concern is not present at this time.

AJ2 CHECK THE WAKE-UP CIRCUIT VOLTAGE

- Ignition OFF.
- Disconnect DCDC (direct current/direct current converter control module) C1457B .
- CONNECT a known good EVSE to the vehicle charge port.

C1457B-5	V	Ground

Is any voltage present?

Yes	REPAIR the circuit.

No	GO to AJ4

AJ4 CHECK THE WAKE-UP CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1457B-5	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to AJ5

No	REPAIR the circuit.

AJ5 CHECK THE WAKE-UP VOLTAGE WITH THE SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) CONNECTED

- Connect SOBDM (secondary on-board diagnostic control module A) C1821A .
- CONNECT a known good EVSE to the vehicle charge port.
- Measure:

Positive Lead	Measurement / Action	Negative Lead

C1457B-5		Ground

Does the voltage read 12V with the EVSE connected and 0V with the EVSE disconnected?

Yes	GO to AJ7

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, INSTALL a new DCDC (direct current/direct current converter control module) . REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module - Electric (414-05 Voltage Converter/Inverter, Removal and Installation).

AJ7 CHECK THE WAKE-UP VOLTAGE WITH THE SOBDMC (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE C) CONNECTED

- Connect SOBDMC (secondary on-board diagnostic control module C) C3471D .
- CONNECT a known good EVSE to the vehicle charge port.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1457B-5		Ground

- DISCONNECT the EVSE from the vehicle charge port.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1457B-5		Ground

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, INSTALL a new DCDC (direct current/direct current converter control module) . REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module - Electric (414-05 Voltage Converter/Inverter, Removal and Installation).

AJ9 CHECK THE WAKE-UP VOLTAGE WITH THE PCM (POWERTRAIN CONTROL MODULE) CONNECTED

- Disconnect DCDC (direct current/direct current converter control module) C1457B .
- Connect PCM (powertrain control module) C1551 .
- CONNECT a known good EVSE to the vehicle charge port.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1457B-5	V	Ground

- DISCONNECT the EVSE from the vehicle charge port.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1457B-5	V	Ground

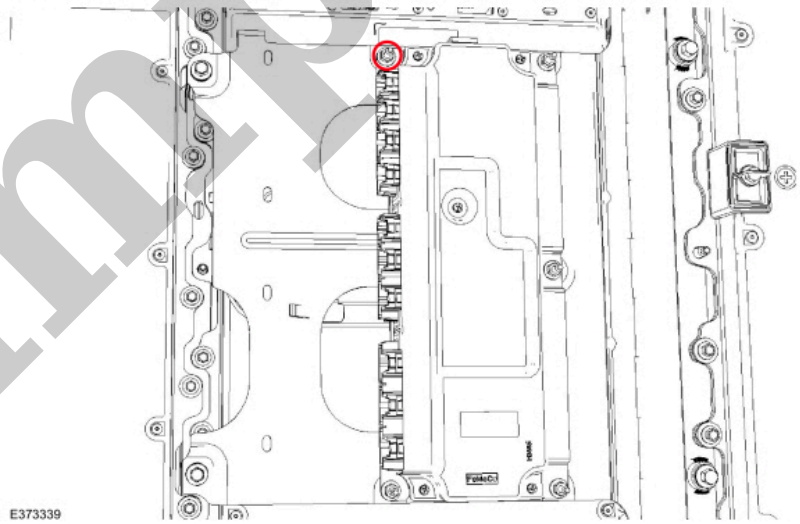
Does the voltage read 12V with the EVSE connected and 0V with the EVSE disconnected?

Yes	GO to AJ10

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

AJ11 CHECK THE WAKE-UP CIRCUIT INSIDE THE BATTERY PACK FOR A SHORT TO CASE GROUND

- Depower the high voltage battery system.
  REFER to: High Voltage System De-energizing - Electric(414-03A High Voltage Battery, Mounting and Cables, General Procedures).
- Remove the high voltage battery.
  REFER to: High Voltage Battery - Electric(414-03A High Voltage Battery, Mounting and Cables, Removal and Installation).
- Remove the high voltage battery cover.
  REFER to: High Voltage Battery Cover - Electric(414-03A High Voltage Battery, Mounting and Cables, Removal and Installation).
- Disconnect BECM (battery energy control module) C4816A .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C4816A-4	Ω	 CASE GROUND

Is the resistance greater than 10,000 ohms?

Yes	GO to AJ12

- 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.

Are any of the following DTCs U301B:00 and/or U301C: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 AK : U301E:00, U301F:00, U3020:00

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

Normal Operation and Fault Conditions When an EVSE (Electric Vehicle Supply Equipment) is connected to the vehicle the SOBDM (secondary on-board diagnostic control module A) also known as the Battery Charger Control Module (BCCM) wakes up and supplies a 12-volt wake-up signal to the OBCC (Off-Board Charger Controller) . The SOBDM (secondary on-board diagnostic control module A) monitors the wake-up circuit for faults setting a DTC (diagnostic trouble code) . The following Diagnostic Trouble Codes (DTCs) will illuminate the Charger Service Required indicator in the IPC (instrument panel cluster) . **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDM (secondary on-board diagnostic control module A) U301E:00	Control Module Wake-up Circuit 'B'/Open: No Sub Type Information	Sets when the SOBDM (secondary on-board diagnostic control module A) is supplying a 12V command and the driver feedback indicates circuit is 0V.