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2017 FORD Mondeo Hatchback OEM Service and Repair Workshop Manual

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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 BECM (battery energy control module) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Start the engine. (Ready indicator light ON)
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, perform BECM (battery energy control module) self-test.

Are any of the following Diagnostic Trouble Codes (DTCs) retrieved: P0B24:00, P0DAD:00, P0DAE:00, P0DB1:00, P0DB2:00, P0DB5:00, P0DB6:00, P0DB9:00, P0DBA:00, P0DBD:00, P0DBE:00, P0DC1:00, P0DC2:00, P0DC5:00, or P0DC6:00?

Yes	GO to AP8

No	The vehicle concern has been repaired.

AP8 ALLOW THE BECM (BATTERY ENERGY CONTROL MODULE) TO PERFORM CELL BALANCING

- 1.
  Access the BECM (battery energy control module) and monitor the BATT_CHAR_[SOC] (Battery Pack State of Charge (SOC)) (%) PID (parameter identification)
- 2. If the value reads less than 30% connect a known good level 2 EVSE (preferred) or level 1 EVSE to the vehicle to charge the high voltage battery until the value reads 30% or greater.
- 3.
  Access the BECM (battery energy control module) and monitor the HEV_BAT_VAR_V (Hybrid Battery - Variation In Voltage Measurement Between Battery Modules) (V) PID (parameter identification)
- 4. RECORD the PID (parameter identification) value.
- 5. Using the scan tool, clear the BECM (battery energy control module) Diagnostic Trouble Codes (DTCs).
- 6. Ignition OFF for a minimum of 48 hours.
- 7. Ignition ON
- 8.
  Access the BECM (battery energy control module) and monitor the HEV_BAT_VAR_V (Hybrid Battery - Variation In Voltage Measurement Between Battery Modules) (V) PID (parameter identification)
- 9. RECORD the PID (parameter identification) value. If the value is less than the reading recorded in step 4 repeat steps 1-9. If the value is not less than the reading recorded in step 4 proceed to step 10.

BECM (battery energy control module) U3003:64	Battery Voltage: Signal Plausibility Failure	Sets if BECM (battery energy control module) 12-volt power source goes above 25 volts or less than 2.5 volts for at least 2 seconds.

Possible Sources

- 12-volt battery
- Wiring, terminals or connectors
- Direct Current/Direct Current (DC/DC) converter control module
- BECM (battery energy control module)

Visual Inspection and Pre-checks

- Inspect the 12-volt battery terminals for being clean and tight.

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.

AQ1 CLEAR ALL CMDTCS AND REPEAT SELF TEST

- Access the DCDC (direct current/direct current converter control module) and monitor the DCDC_ENABLE (DC/DC Enable Status) PID (parameter identification)

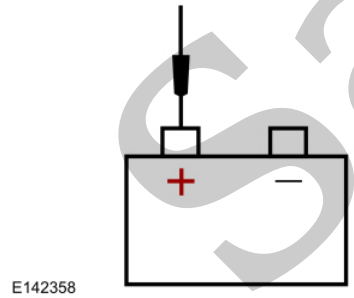
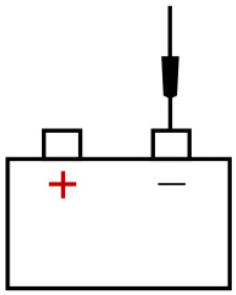
Does the PID (parameter identification) read Enable?

Yes	GO to AQ4

No	Verify the high voltage battery service disconnect is installed and all other Diagnostics Trouble Codes (DTCs) have been addressed. For BECM (battery energy control module) Diagnostic Trouble Codes (DTCs), REFER to the DTC (diagnostic trouble code) chart in this section.

AQ4 MEASURE DIRECT CURRENT/DIRECT CURRENT (DC/DC) CONVERTER CONTROL MODULE OUTPUT VOLTAGE

- For DTC (diagnostic trouble code) U3003:17, turn off all accessories for a minimum of 2 minutes.
- For DTC (diagnostic trouble code) U3003:16, turn on the headlamps and HVAC (heating, ventilation and air conditioning) fan for a minimum of 2 minutes.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
 E142358	V	 E142359

Is the voltage 13-14.9 volts?

Yes	GO to AQ5

No	CARRY OUT self-test of the Direct Current/Direct Current (DC/DC) converter control module. REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module - Electric

No	VERIFY BJB (battery junction box) fuse 146 (15A) is OK. If the fuse is OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

AQ6 CHECK BECM (BATTERY ENERGY CONTROL MODULE) GROUND

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C144-25 (female side)	Ω	Ground
C144-26 (female side)	Ω	Ground

Are the resistances less than 3 ohms?

Yes	GO to AQ7

No	REPAIR the circuit.

AQ7 CHECK BECM (BATTERY ENERGY CONTROL MODULE) B+ INPUT AND GROUND CIRCUITS INSIDE THE BATTERY PACK

- Depower the high voltage 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 all the BECM (battery energy control module) connectors in sequence.

C144-6 (male side)	Ω	C4239-1 (male side)
C144-25 (male side)	Ω	C4239-22 (male side)
C144-26 (male side)	Ω	C4239-11 (male side)

Are the resistances less than 3 ohms?

Yes	INSTALL a new high voltage battery wiring harness. REFER to: High Voltage Battery Wiring Harness - Electric (414-03A High Voltage Battery, Mounting and Cables, Removal and Installation).

No	INSTALL a new high voltage battery connector assembly. REFER to: High Voltage Battery Connector Assembly - Electric (414-03A High Voltage Battery, Mounting and Cables, Removal and Installation). Re-install the high voltage battery cover and the high voltage battery. Repower the high voltage system. REFER to: High Voltage System De-energizing - Electric (414-03A High Voltage Battery, Mounting and Cables, General Procedures). Clear the BECM (battery energy control module) DTC's. Repeat the self-test.

AQ9 INSPECT THE BECM (BATTERY ENERGY CONTROL MODULE) CONNECTOR

- Inspect BECM (battery energy control module) C4816A
- For:
  - corrosion
  - damaged or bent pins
  - pushed-out pins

Are any concerns present?

Yes	INSTALL a new high voltage battery wiring harness. REFER to: High Voltage Battery Wiring Harness - Electric

AR1 CHECK THE BECM (BATTERY ENERGY CONTROL MODULE) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, perform BECM (battery energy control module) self-test.
- Using a diagnostic scan tool, clear the BECM (battery energy control module) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Wait 5 seconds.
- Ignition ON.
- Using a diagnostic scan tool, perform BECM (battery energy control module) self-test

Is DTC (diagnostic trouble code) U0100:00 retrieved?

Yes	GO to AR2

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.

AR2 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 AR3

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

AR3 REVIEW THE DTCS FROM THE BECM (BATTERY ENERGY CONTROL MODULE)

- Review the Diagnostic Trouble Codes (DTCs) recorded during the BECM (battery energy control module) self-test.

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

AR6 CHECK FOR A LOST COMMUNICATION WITH THE PCM (POWERTRAIN CONTROL MODULE) 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) U0100:00 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,  Guided Routine available in the on-line Workshop Manual.
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.

PINPOINT TEST AS : U0140:00

Normal Operation and Fault Conditions

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

When powered on, the BECM (battery energy control module) 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) .

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition

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

AS3 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, perform a network test.

Does the BCM (body control module) pass the network test?

Yes	GO to AS4

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

AS4 REVIEW THE DTCS FROM THE BECM (BATTERY ENERGY CONTROL MODULE)

- Review the Diagnostic Trouble Codes (DTCs) recorded during the BECM (battery energy control module) 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 BECM (battery energy control module) . REFER to the BECM (battery energy control module) DTC (diagnostic trouble code) chart.

No	GO to AS5

AS5 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) U3006:16 or U3006:17 recorded?

energy control module) sets the appropriate DTC (diagnostic trouble code) .

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
BECM (battery energy control module) U0151:00	Lost Communication With Restraints Control Module: No Sub Type Information	This DTC (diagnostic trouble code) sets if the BECM (battery energy control module) does not receive an expected message from the RCM (restraints control module) for 5 seconds.

Possible Sources

- Wiring, terminals or connectors
- High network traffic
- 12-volt battery
- BECM (battery energy control module)
- RCM (restraints control module)

AT1 CHECK THE BECM (BATTERY ENERGY CONTROL MODULE) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, perform BECM (battery energy control module) self-test.
- Using a diagnostic scan tool, clear the BECM (battery energy control module) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Wait 5 seconds.
- Ignition ON.
- Using a diagnostic scan tool, perform BECM (battery energy control module) self-test

Is DTC (diagnostic trouble code) U0151:00 retrieved?

Yes	GO to AT2

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.

AT2 CHECK THE 12-VOLT BATTERY

- Carry out the 12-volt battery condition test.