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2010 FORD Mondeo Hatchback OEM Service and Repair Workshop Manual

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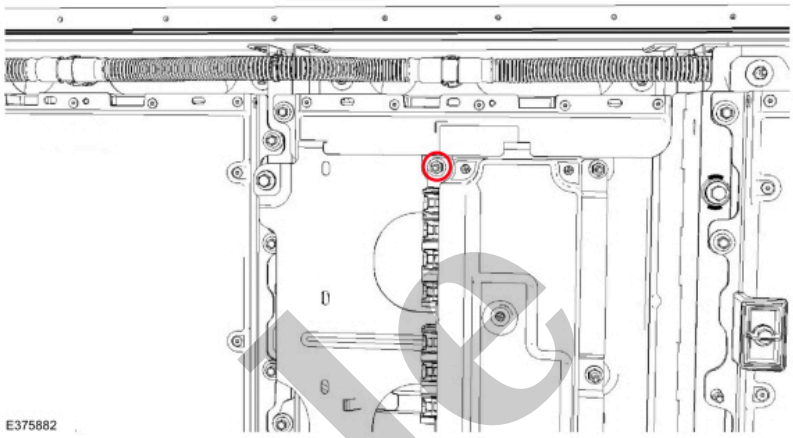
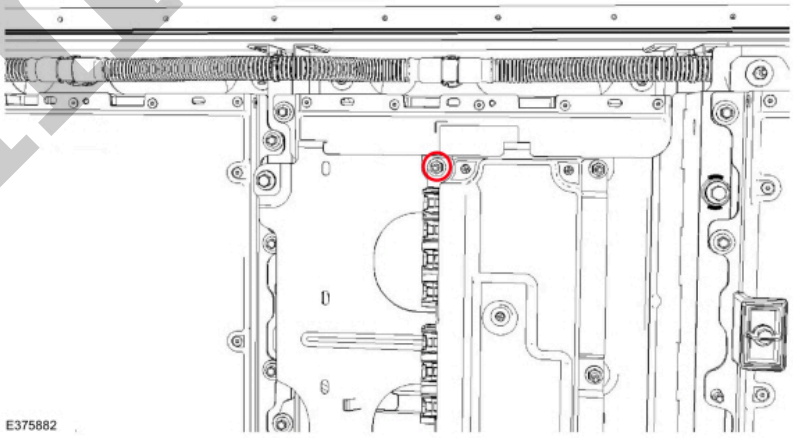
Positive Lead	Measurement / Action	Negative Lead
C4815G-4	Ω	 CASE GROUND
C4815G-1	Ω	 CASE GROUND

Is the resistance greater than 10,000 ohms?

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

No	For measurement A, GO to AJ6 For measurement B, GO to AJ7

AJ6 CONFIRM THE LOCATION OF THE OPEN CIRCUIT

- Disconnect BECM (battery energy control module) low voltage inline C4239 .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C144-8 (male side)	Ω	C4239-2 (male side)

Is the resistance less than 3 ohms?

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

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

AJ7 CONFIRM THE LOCATION OF THE OPEN CIRCUIT

- Disconnect high voltage battery junction box low voltage inline C4240 .

Is the resistance greater than 10,000 ohms?

Yes	GO to AJ10

No	INSTALL a new wiring harness. REFER to: High Voltage Battery Wiring Harness - 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.

AJ9 CONFIRM THE LOCATION OF THE SHORTED CIRCUIT

- Disconnect high voltage battery junction box low voltage inline C4240 .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C4815G-1	Ω	C4815G-4

Is the resistance greater than 10,000 ohms?

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

No	INSTALL a new high voltage battery connector assembly. REFER to: High Voltage Battery Connector Assembly - Electric

	FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new BECM (battery energy control module) and high voltage battery junction box - positive. REFER to: Battery Energy Control Module (BECM) - Electric (414-03A High Voltage Battery, Mounting and Cables, Removal and Installation). REFER to: High Voltage Battery Junction Box - Electric (414-03A High Voltage Battery, Mounting and Cables, Removal and Installation).

No	INSTALL a new high voltage battery junction box - positive. REFER to: High Voltage Battery Junction Box - Electric (414-03A High Voltage Battery, Mounting and Cables, Removal and Installation).

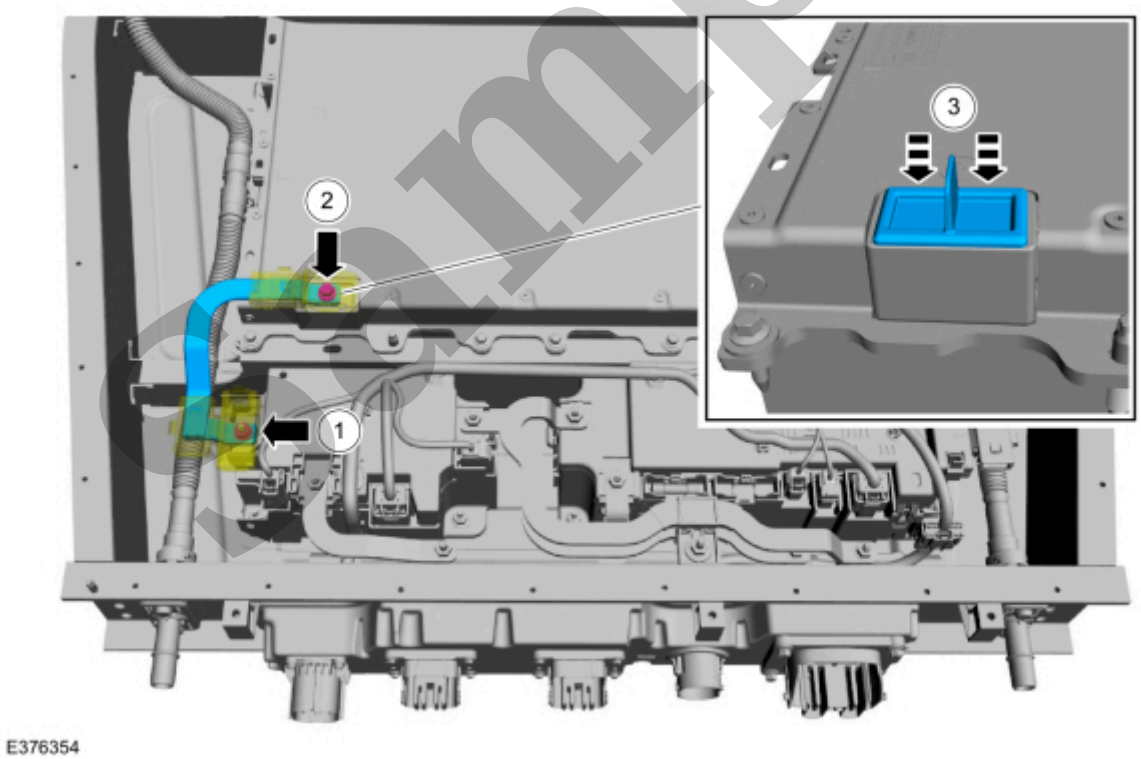
PINPOINT TEST AK : P2BCE:00, P2BD0:00, P2BD1:00

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

Normal Operation and Fault Conditions When the ignition is turned on, the BECM (battery energy control module) makes various vehicle checks. If these checks are normal, the BECM (battery energy control module) sends a signal to the contactor to close which will supply power to the high-voltage vehicle systems. The BECM (battery energy control module) monitors the high voltage contactor control circuits for overcurrent, undercurrent, and open circuit faults. If a fault is detected the BECM (battery energy control module) will set a 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
BECM (battery energy control module) P2BCE:00	Battery Charging System Negative Contactor 'B' Control Circuit/Open: No Sub Type Information	Sets when BECM (battery energy control module) senses the negative charging contactor control circuit is faulted.
BECM (battery energy control module) P2BD0:00	Battery Charging System Negative Contactor 'B' Control Circuit Low: No Sub Type Information	Sets if BECM (battery energy control module) senses undercurrent on the negative charging contactor control circuit.
BECM (battery energy control module) P2BD1:00	Battery Charging System Negative Contactor 'B' Control Circuit High: No Sub Type Information	Sets if BECM (battery energy control module) senses overcurrent on the negative charging contactor control circuit.

AK2 CHECK CONTACTOR CIRCUITS FOR A SHORT TO CASE GROUND

- Ignition OFF.
- 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.
  REFER to: Battery Energy Control Module (BECM) - Electric(414-03A High Voltage Battery, Mounting and Cables, Removal and Installation).
- Depower the high voltage battery junction box by removing the displayed buss bar and install a safety cap on the battery module connection.
- 

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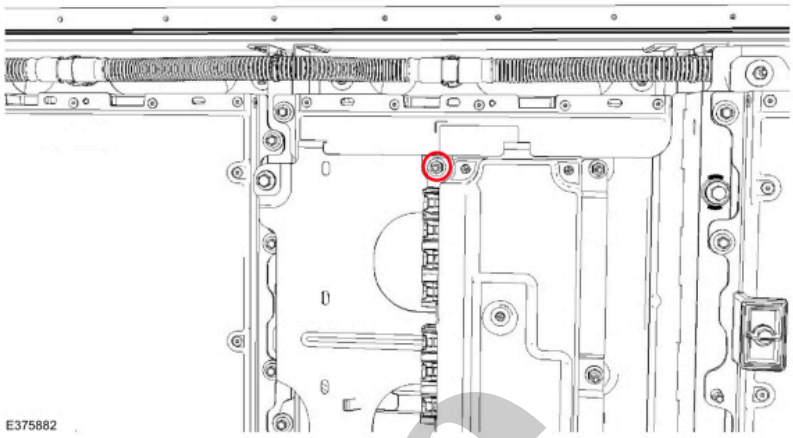
- Disconnect High Voltage Battery Junction Box C4815D .
- Measure:
  Measurement A

	C4815D-3	Ω	 CASE GROUND

Is the resistance greater than 10,000 ohms?

Yes	GO to AK4

No	For measurement A, GO to AK3 For measuremrent B, INSTALL a new wiring harness. REFER to: High Voltage Battery Wiring Harness - 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.

AK3 CONFIRM THE LOCATION OF THE GROUNDED CIRCUIT

- Disconnect BECM (battery energy control module) low voltage inline C4239 .
- Measure:

NOTE

Any of the BECM (battery energy control module) bracket mounting nuts or high voltage battery

	DTC's. Repeat the self-test.

AK4 CHECK CONTACTOR CIRCUITS FOR AN OPEN

- Measure:

  Measuremnt A

Positive Lead	Measurement / Action	Negative Lead
C4815D-2	Ω	C144-8 (male side)

  Measurment B

Positive Lead	Measurement / Action	Negative Lead
C4815D-3	Ω	C4816C-15

Are the resistances less than 3 ohms?

Yes	GO to AK6

No	For measurement A, GO to AK5 For measurement B, INSTALL a new wiring harness. REFER to: High Voltage Battery Wiring Harness - 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.

AK5 CONFIRM THE LOCATION OF THE OPEN CIRCUIT

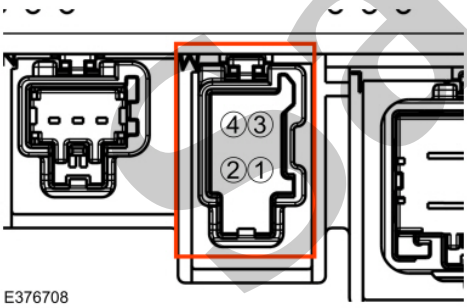
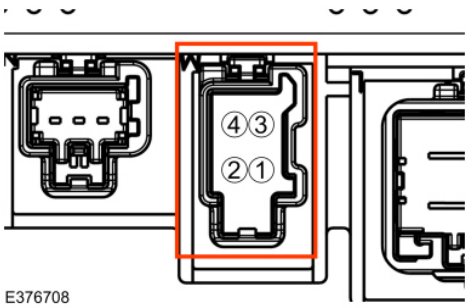
Is the resistance greater than 10,000 ohms?

Yes	GO to AK7

No	INSTALL a new wiring harness. REFER to: High Voltage Battery Wiring Harness - 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.

AK7 CHECK THE CONTACTOR COIL RESISTANCE

- Measure:

Positive Lead	Measurement / Action	Negative Lead
 C4815D-3 (component side)	Ω	 C4815D-2 (component side)

Is the resistance between 19.8 - 24.2 ohms?

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

		current) fast charge contactors are being commanded closed.

Possible Sources

- DC (direct current) fast charge station
- Water intrusion in the DC (direct current) fast charge to high voltage battery connector
- Water intrusion in the high-voltage in the vehicle charge port terminals
- Vehicle charge port and cable assembly

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.

AL1 TEST SYSTEM WITH A KNOWN GOOD EVSE CONNECTED TO THE VEHICLE

- Ignition ON.
- Using a diagnostic scan tool, clear the BECM (battery energy control module) DTCs.
- CONNECT the vehicle to a known good DC (direct current) fast charge station to the vehicle DC (direct current) fast charge port and attempt to charge the high voltage battery for a minimum of 5 minutes.
- STOP the DC (direct current) fast charge session using the normal stop button and DISCONNECT the EVSE from the vehicle DC (direct current) fast charge port.
- Using a diagnostic scan tool, perform BECM (battery energy control module) self-test.

Did the vehicle charge successfully with no faults indicated on the CSI (charge status indicator) and DTC (diagnostic trouble code) P2C85:00 and/or P2C85:1E NOT repeat?

Yes	The vehicle is operating normally at this time. The fault was the result of the use of faulty DC (direct current) fast charge station or due to prior water intrusion. No further action is needed.

No	GO to AL2

AL2 INSPECT FOR WATER IN THE DC (DIRECT CURRENT) FAST CHARGE CONNECTOR AND CHARGE PORT

- Depower the high voltage system.
  REFER to: High Voltage System De-energizing - Electric(414-03A High Voltage Battery, Mounting and Cables, General Procedures).
- Disconnect High Voltage Battery C292 .