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.

2003 FORD Mondeo Hatchback OEM Service and Repair Workshop Manual

Go to manual page

No	For measurement A, GO to X6 For measurement B, GO to X7

X6 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

X7 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 X10

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.

X9 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-3	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).

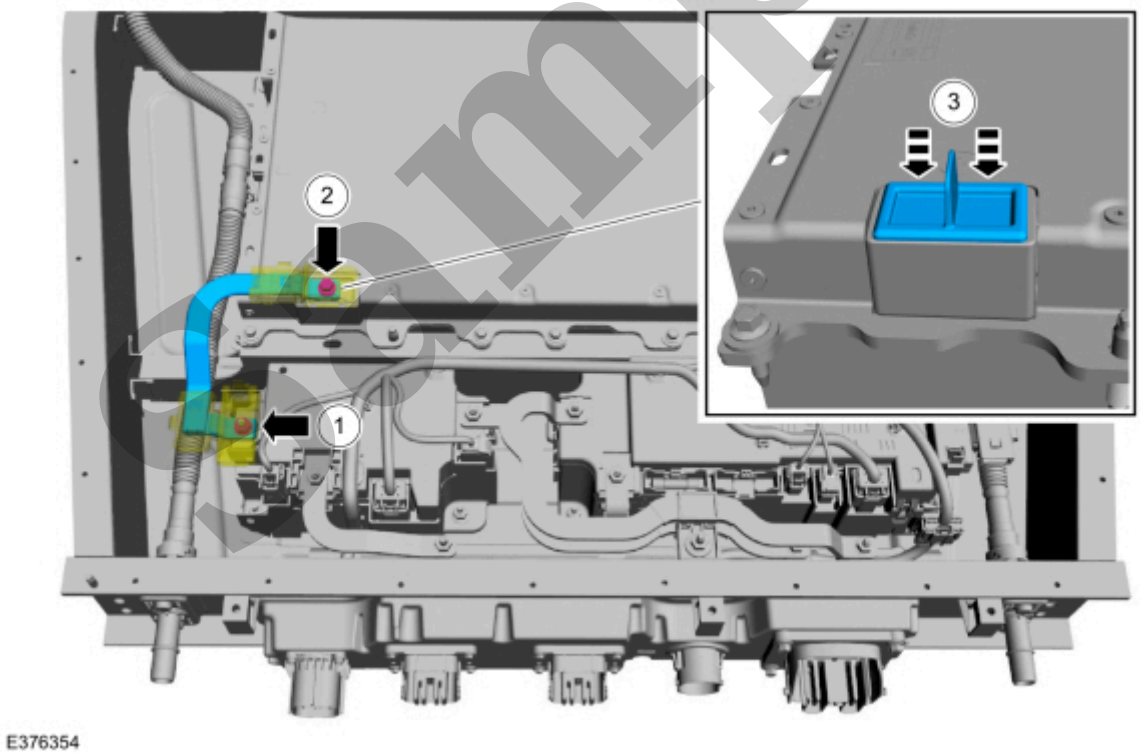
No	INSTALL a new high voltage battery junction box - positive. REFER to: High Voltage Battery Junction Box - Electric (414-03A High Voltage Battery, Mounting and Cables, Removal and Installation).

PINPOINT TEST Y : P0ADD:00, P0ADF:00, P0AE0:00

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 negative 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 stop safely hazard (red triangle) warning indicator illuminates and the vehicle will shut down and/or not start. **DTC Fault Trigger Conditions**

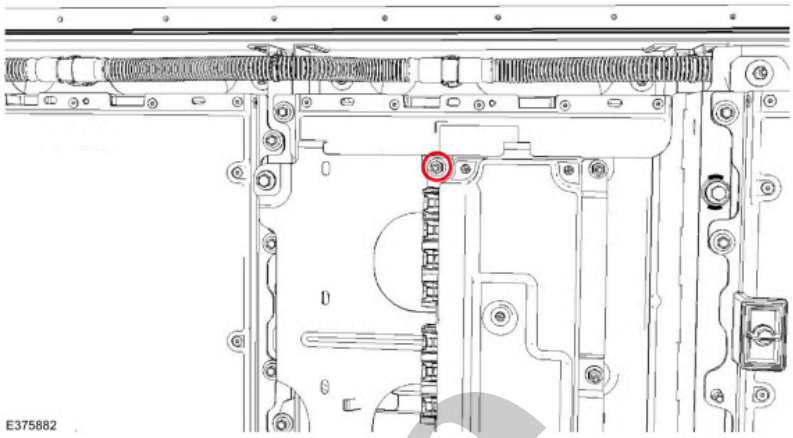
DTC (diagnostic trouble code)	Description	Fault Trigger Condition
BECM (battery energy control module) P0ADD:00	Hybrid/EV Battery Negative Contactor Control Circuit/Open: No Sub Type Information	Sets when BECM (battery energy control module) senses the negative contactor control circuit is faulted.
BECM (battery energy control module) P0ADF:00	Hybrid/EV Battery Negative Contactor 'A' Control Circuit Low: No Sub Type Information	Sets if BECM (battery energy control module) senses undercurrent on the negative contactor control circuit.
BECM (battery energy control module) P0AE0:00	Hybrid/EV Battery Negative Contactor 'A' Control Circuit High: No Sub Type Information	Sets if BECM (battery energy control module) senses overcurrent on the negative contactor control circuit.

Y2 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.
- 

E376354

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

	C4815D-1	Ω	 CASE GROUND

Is the resistance greater than 10,000 ohms?

Yes	GO to Y4

No	For measurement A, GO to Y3 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.

Y3 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.

Y4 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-1	Ω	C4816C-9

Are the resistances less than 3 ohms?

Yes	GO to Y6
No	For measurement A, GO to Y5 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.

Y5 CONFIRM THE LOCATION OF THE OPEN CIRCUIT

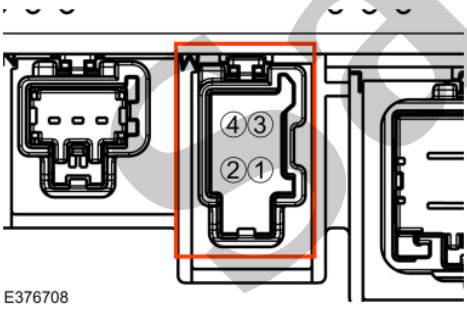
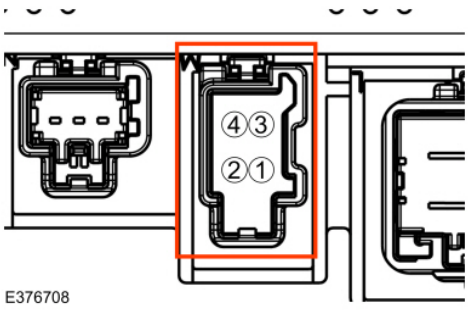
Is the resistance greater than 10,000 ohms?

Yes	GO to Y7

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.

Y7 CHECK THE CONTACTOR COIL RESISTANCE

- Measure:

Positive Lead	Measurement / Action	Negative Lead
 C4815D-1 (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

Possible Sources

- Wiring, terminals or connectors
- High voltage cable assembly
- Direct Current/Direct Current (DC/DC) converter control module
- SOBDM (secondary on-board diagnostic control module A)
- Cabin Coolant Heater
- ACCM (air conditioning control module) and electric compressor assembly
- ACCMB (Air Conditioining Compressor Control Module B) and electric compressor assembly (if equipped)
- DCACA (Direct Current/Alternating Current Converter Module A)
- DCACB (Direct Current/Alternating Current Converter Module B) (if equipped)
- GFM2 (generic function module 2) (if equipped)
-
- SOBDMC (secondary on-board diagnostic control module C)
- SOBDMB (Secondary On-Board Diagnostic Control Module B (SOBDMB)) (AWD (all-wheel drive) only)
- High voltage battery junction box
- BECM (battery energy control module)
- Severely discharged high voltage battery

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 450 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.

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.

NOTE

Disregard any additional Diagnostic Trouble Codes (DTCs) that may be result of performing the following tests.

- 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 C295 .
- Repower the high voltage system.
  REFER to: High Voltage System De-energizing - Electric(414-03A High Voltage Battery, Mounting and Cables, General Procedures).
- Operate the system performing at least 2 ignition cycles.
- Using a diagnostic scan tool, clear the BECM (battery energy control module) Diagnostic Trouble Codes (DTCs).
- Using a diagnostic scan tool, perform BECM (battery energy control module) self-test.

Is DTC (diagnostic trouble code) P2C89:00 and/or P0C78:00 retrieved?

Yes	GO to Z4
No	GO to Z11

Z4 CHECK THE HIGH VOLTAGE BATTERY AUXILLIARY CABLE INSIDE THE HIGH VOLTAGE BATTERY FOR BEING SHORTED

- Measure:
  High Voltage Battery

  NOTE

  Perform each measurement at the high votlage battery.

Positive Lead	Measurement / Action	Negative Lead
C295-1 (male side)	Ω	C295-2 (male side)