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2009 FORD Focus Coupe OEM Service and Repair Workshop Manual

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- Wiring, terminals or connectors
- Push button ignition switch
- BCM (body control module)

NOTICE

Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

I1 ISOLATE THE BCM (BODY CONTROL MODULE)

- Ignition ON.
- Disconnect BCM (body control module) C2280B .
- Observe the ignition mode indicator.

Does the ignition mode indicator continue to illuminate?

Yes	GO to I2

No	GO to I3

I2 CHECK THE IGNITION MODE INDICATOR CIRCUIT FOR A SHORT TO VOLTAGE

- Disconnect Push Button Ignition Switch C2195 .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2195-2	V	Ground

Is any voltage present?

Yes	REPAIR the circuit.

No	INSTALL a new ignition switch.

has been left unattended with the accessories on. REFER to: Steering Wheel and Column Electrical Components - System Operation and Component Description (211-05 Steering Wheel and Column Electrical Components, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SCCM (steering column control module) B11D9:16	Vehicle Battery: Circuit Voltage Below Threshold	Sets in continuous memory if the SCCM (steering column control module) detects battery voltage below 8 volts on the battery voltage supply circuit.

Possible Sources

- Battery
- Wiring, terminals or connectors
- Fuse
- Charging system
- SCCM (steering column control module)

Visual Inspection and Pre-checks

- Make sure the vehicle battery terminals and cables are free of any corrosion and other contaminates.
- Make sure the vehicle battery terminals are tightened to their correct torque specifications.

NOTICE

Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

J1 CHECK FOR SCCM (STEERING COLUMN CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, carry out the SCCM (steering column control module) self-test.
- Using a diagnostic scan tool, clear the SCCM (steering column control module) Diagnostic Trouble Codes (DTCs).
- Using a diagnostic scan tool, carry out the SCCM (steering column control module) self-test.

Is DTC (diagnostic trouble code) B11D9:16 still present?

Yes	GO to J2

No	CHARGE the battery and REPEAT the battery condition test. If the battery does not pass the battery condition test, INSTALL a new battery. REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing).

J4 CHECK THE SCCM (STEERING COLUMN CONTROL MODULE) VOLTAGE SUPPLY CIRCUIT FOR HIGH RESISTANCE

- Measure and record the battery voltage.
- Disconnect SCCM (steering column control module) C226A .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C226A-2	V	Ground

Is the voltage within 0.2 volt of the recorded battery voltage?

Yes	GO to J5

No	REPAIR the circuit.

J5 CHECK THE SCCM (STEERING COLUMN CONTROL MODULE) GROUND CIRCUIT FOR HIGH RESISTANCE

- Disconnect the negative battery cable.
  REFER to: Battery Disconnect and Connect(414-01 Battery, Mounting and Cables, General Procedures).
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C226A-8	Ω	Ground

PINPOINT TEST K : B11D9:17

Refer to Wiring Diagrams Cell 13for schematic and connector information.

Normal Operation and Fault Conditions The SCCM (steering column control module) continuously monitors input voltage for correct operation. If voltage outside of defined limits is detected by the SCCM (steering column control module) , the applicable DTC (diagnostic trouble code) sets. DTC (diagnostic trouble code) B11D9:17 can set if the vehicle has been recently jump started or the vehicle battery has been recently charged. REFER to: Steering Wheel and Column Electrical Components - System Operation and Component Description
(211-05 Steering Wheel and Column Electrical Components, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SCCM (steering column control module) B11D9:17	Vehicle Battery: Circuit Voltage Above Threshold	Sets in continuous memory if the SCCM (steering column control module) detects battery voltage above 19 volts on the battery voltage supply circuit.

Possible Sources

- Wiring, terminals or connectors
- Charging system
- SCCM (steering column control module)

K1 CHECK FOR HIGH BATTERY VOLTAGE AND/OR CHARGING SYSTEM DTC (DIAGNOSTIC TROUBLE CODE) IN THE PCM (POWERTRAIN CONTROL MODULE)

- Ignition ON.
- Using a diagnostic scan tool, carry out the PCM (powertrain control module) KOEO (key on, engine off) and KOER (key on, engine running) self-tests.

Are any voltage and/or charging system Diagnostic Trouble Codes (DTCs) present?

Yes	DIAGNOSE the charging system Diagnostic Trouble Codes (DTCs). REFER to: Charging System - 2.7L EcoBoost (238kW/324PS)/3.5L EcoBoost (BM) (414-00 Charging System - General Information, Diagnosis and Testing). REFER to: Charging System - 3.3L Duratec-V6/5.0L 32V Ti-VCT (414-00 Charging System - General Information, Diagnosis and Testing). REFER to: Charging System (414-00 Charging System - General Information, Diagnosis and Testing).

- Ignition OFF.
- Disconnect and inspect the SCCM (steering column control module) connectors.
- Repair:
  - corrosion (install new connector or terminals - clean module pins)
  - damaged or bent pins - install new terminals/pins
  - pushed-out pins - install new pins as necessary
- Reconnect the SCCM (steering column control module) connectors and all other previously disconnected connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still 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 SCCM (steering column control module) . REFER to: Steering Column Control Module (SCCM) (211-05 Steering Wheel and Column Electrical Components, Removal and Installation). REFER to: Steering Column Control Module (SCCM) - Vehicles With: Adaptive Steering (211-05 Steering Wheel and Column Electrical Components, 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 L : U300A:01

Refer to Wiring Diagrams Cell 13for schematic and connector information.

Normal Operation and Fault Conditions REFER to: Steering Wheel and Column Electrical Components - System Operation and Component Description
(211-05 Steering Wheel and Column Electrical Components, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition

Yes	REPAIR the circuit in question.

No	GO to L2

L2 CHECK THE IGNITION SWITCH CIRCUITS FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2280B-50	Ω	C250-6
C2280B-37	Ω	C250-2
C2280A-14	Ω	C250-1

Are the resistances less than 3 ohms?

Yes	INSTALL a new ignition switch. REFER to: Ignition Switch - Vehicles With: Keyed Ignition (211-05 Steering Wheel and Column Electrical Components, Removal and Installation). REFER to: Ignition Switch - Vehicles With: Keyless Entry and Push Button Start (211-05 Steering Wheel and Column Electrical Components, Removal and Installation). . TEST the system for normal operation. IF the concern is still present, GO to L3

No	REPAIR the circuit in question.

L3 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SCCM (steering column control module) B135C:11	Heater Element: Circuit Short To Ground	This DTC sets when the heated steering wheel is commanded on and the SCCM (steering column control module) senses current greater than 10 amps on the steering wheel heating element output circuit for greater than 150 ms, indicating a short to ground. This DTC also sets when the steering wheel heating element output Field Effect Transistor (FET) in the SCCM (steering column control module) has a thermal failure. When this fault sets, the steering wheel heating element output is disabled until the ignition is cycled.
SCCM (steering column control module) B135C:15	Heater Element: Circuit Short To Battery Or Open	This DTC sets when the heated steering wheel is commanded on and the SCCM (steering column control module) senses current less than 1 amp on the steering wheel heating element output circuit for more than 1 second. This indicates an open circuit. When this fault sets, the steering wheel heating element output is disabled until the heated steering wheel is commanded ON while the engine is running. If the condition that caused the fault to set is still present, the SCCM (steering column control module) will switch the steering wheel heating element output off within 1 second.
SCCM (steering column control module) U210A:11	Temperature Sensor: Circuit Short To Ground	This DTC only sets when the heated steering wheel is commanded on and the SCCM (steering column control module) detects less than 0.794 volts on the temperature sensor input circuit for greater than 1 second, indicating a short to ground. When this fault occurs, the steering wheel heating element output is disabled until the ignition is cycled.
SCCM (steering column control module) U210A:15	Temperature Sensor: Circuit Short To Battery Or Open	This DTC sets when the heated steering wheel is commanded on and the SCCM (steering column control module) detects voltage greater than or equal to 4.986 volts on the temperature sensor reference circuit for more than 1 second. indicating an open circuit or an open temperature sensor. However, extreme cold temperatures below - 58 °F (- 50 °C) can also cause this DTC (diagnostic trouble code) to set. When this fault occurs, the steering wheel heating element output is disabled until the ignition is cycled.

Possible Sources

	REFER to: Charging System (414-00 Charging System - General Information, Diagnosis and Testing).

No	GO to M3

M3 CHECK THE SCCM VOLTAGE FEED CIRCUIT

- Disconnect: SCCM (steering column control module) C226A
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C226A-2	V	Ground

Is the voltage above 11 volts?

Yes	GO to M4

No	VERIFY BCM (body control module) fuse 13 (7.5A) is OK. If not OK, REFER to the Wiring Diagrams manual to identify the possible cause of the circuit short. If OK, REPAIR the circuit.

M4 CHECK THE SCCM GROUND CIRCUIT

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C226A-8	Ω	Ground

Positive Lead	Measurement / Action	Negative Lead
C218D-2	Ω	C218D-4

- Compare the recorded measurement value with the table shown.

Ambient Temperature	Resistance
0-10°C (32-50°F)	18,298-26,817 ohms
10-20°C (50-68°F)	12,250-17,699 ohms
20-25°C (68-77°F)	10,100-11,948 ohms
25-30°C (77-86°F)	8,411-9,900 ohms
30-35°C (86-95°F)	7,035-8,205 ohms
35-40°C (95-104°F)	5,912-6,837 ohms
40-50°C (104-122°F)	4,232-5,725 ohms

Is the resistance within the specified value for the current temperature of the steering wheel?

Yes	GO to M7

No	INSTALL a new heated steering wheel. REFER to: Steering Wheel (211-04 Steering Column, Removal and Installation). REFER to: Steering Wheel - Vehicles With: Adaptive Steering (211-04 Steering Column, Removal and Installation).

M7 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR FOR A SHORT TO GROUND

- Measure and record: