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2006 FORD Fusion European OEM Service and Repair Workshop Manual

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Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) U2014 only. This test does not apply to any other module except the PSCM (power steering control module) .

DTC Diagnostic Strategy

- If the module DTC (diagnostic trouble code) list results in a large number of Diagnostic Trouble Codes (DTCs), diagnose all module hard faults first (C102D, C1B00, C200B, C200C, C200D, U2011 and U3000) before diagnosing any network faults (lost communication or invalid data). If voltage concern Diagnostic Trouble Codes (DTCs) are present, diagnose those after any module hard faults and before any network faults. Diagnose all current and active Diagnostic Trouble Codes (DTCs) before diagnosing any historic Diagnostic Trouble Codes (DTCs).

DTC Trigger

- These Diagnostic Trouble Codes (DTCs) set when the PSCM (power steering control module) has detected a failure in the motor position sensor, the motor current sensor or the CAN (controller area network) . These Diagnostic Trouble Codes (DTCs) do not set a warning indicator or a message, they are for informational purposes only and indicate a possible fault in the hardware. If the fault sets again, the PSCM (power steering control module) sets the appropriate DTC (diagnostic trouble code) and warning indicator.

Pinpoint Test Purpose

- To verify if any other PSCM (power steering control module) Diagnostic Trouble Codes (DTCs) are present along with DTC (diagnostic trouble code) U2014:XX.

Diagnostic Aids

- These Diagnostic Trouble Codes (DTCs) are for informational purposes only. DO NOT install a new EPAS (electronic power assist steering) unit or PSCM (power steering control module) as a repair for these Diagnostic Trouble Codes (DTCs. Steering functionality is not affected and the driver should not observe any change in steering behavior.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PSCM (power steering control module) U2014:78	Control Module Hardware: Alignment Or Adjustment Incorrect	This DTC (diagnostic trouble code) sets due to an internal failure of the motor position sensor.
PSCM (power steering control module) U2014:81	Control Module Hardware: Invalid Serial Data Received	This DTC (diagnostic trouble code) sets when invalid information is sent from the motor position sensor.
PSCM (power steering control module)	Control Module Hardware: Performance Or Incorrect	This DTC (diagnostic trouble code) sets due to an internal failure of the motor current

Sample

programmed and learned information. Likewise, outputs like the motor and steering rack (travel) are tested against programmed and learned information.

Pinpoint Test Applicability

- This test applies to the following diagnostic concerns:
- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) C102D High Friction Inside Power Steering only.

This test DOES NOT apply to any other DTC (diagnostic trouble code) or symptom. **Pinpoint Test Purpose**

- This test verifies the presence of PSCM (power steering control module) DTC (diagnostic trouble code) C102D and determines if the cause is mechanical or electrical in nature.

Diagnostic Aids

- If DTC (diagnostic trouble code) C102D sets, steering assist is unaffected during the current drive cycle but steering assist is removed starting at the next ignition cycle. The message center displays STEERING LOSS STOP SAFELY.
- If a damaged bellows boot(s) was discovered during inspection and this pinpoint test
  DOES NOT
  lead to the installation of a new EPAS (electronic power assist steering) gear or bellows boot(s), ADDRESS the damaged boot(s) before returning the vehicle to the customer.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PSCM (power steering control module) C102D:00	High Friction Inside Power Steering: No Sub Type Information	This DTC (diagnostic trouble code) sets if high friction is detected inside the steering gear.

Possible Sources

- Steering gear internal failure

COMPLETE THE FDRS GUIDED ROUTINE

- **NOTE**

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- Heat shields
- Radiator ducts or shields
- Wheel well splash shields

Pinpoint Test Steps available in the on-line Workshop Manual.

PINPOINT TEST M : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) C200B:49 STEERING SHAFT TORQUE SENSOR 1: INTERNAL ELECTRONIC FAILURE

NOTE

Refer to Steering GSB (General Service Bulletin) for additional connector and wiring inspection tips.

Refer to Wiring Diagrams Cell 43for schematic and connector information.

Normal Operation and Fault Conditions REFER to: Power Steering - Overview (211-02 Power Steering, Description and Operation).

Description

- The PSCM (power steering control module) continually monitors the steering shaft torque sensor when the ignition is ON and the voltage supply to the sensor is between 5.26 and 4.71 volts.

Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) C200B:49 Steering Shaft Torque Sensor 1 only. It does not apply to any other module except the PSCM (power steering control module) .

DTC Diagnostic Strategy

- If the module DTC (diagnostic trouble code) list results in a large number of Diagnostic Trouble Codes (DTCs), diagnose all module hard faults first (C102D, C1B00, C200B, C200C, C200D, U2011 and U3000) before diagnosing any network faults (lost communication or invalid data). If voltage concern Diagnostic Trouble Codes (DTCs) are present, diagnose those after any module hard faults and before any network faults. Diagnose all current and active Diagnostic Trouble Codes (DTCs) before diagnosing any historic Diagnostic Trouble Codes (DTCs).

Pinpoint Test Purpose

- To verify PSCM (power steering control module) C200B:49 is present and provide diagnostics if DTC (diagnostic trouble code) C200B:49 is currently present and active in the PSCM (power steering control module) .

Diagnostic Aids

- During the ignition cycle that the DTC (diagnostic trouble code) initially sets, the PSCM (power steering control module) either enters reduced assist mode or steering assist is gradually reduced until the PSCM (power steering control module) enters manual mode.

sample

- **NOTE**

  This procedure must be completed using FDRS. Do not clear DTCs until the FDRS procedure has completed. To complete the diagnosis, navigate to the FDRS Guided Routine tab and carry out the procedure Electronic Power Assist Steering (EPAS) Internal Failure .

PINPOINT TEST N : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) C200C:49 STEERING SHAFT TORQUE SENSOR 2: INTERNAL ELECTRONIC FAILURE

NOTE

Refer to Steering GSB (General Service Bulletin) for additional connector and wiring inspection tips.

Refer to Wiring Diagrams Cell 43for schematic and connector information.

Normal Operation and Fault Conditions REFER to: Power Steering - Overview (211-02 Power Steering, Description and Operation).

Description

- The PSCM (power steering control module) continually monitors the steering shaft torque sensor when the ignition is ON and the voltage supply to the sensor is between 5.26 and 4.71 volts.

Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) C200C:49 Steering Shaft Torque Sensor 2 only. It does not apply to any other module except the PSCM (power steering control module) .

DTC Diagnostic Strategy

- If the module DTC (diagnostic trouble code) list results in a large number of Diagnostic Trouble Codes (DTCs), diagnose all module hard faults first (C102D, C1B00, C200B, C200C, C200D, U2011 and U3000) before diagnosing any network faults (lost communication or invalid data). If voltage concern Diagnostic Trouble Codes (DTCs) are present, diagnose those after any module hard faults and before any network faults. Diagnose all current and active Diagnostic Trouble Codes (DTCs) before diagnosing any historic Diagnostic Trouble Codes (DTCs).

Pinpoint Test Purpose

- To verify PSCM (power steering control module) C200C:49 is present and provide diagnostics if DTC (diagnostic trouble code) C200C:49 is currently present and active in the PSCM (power steering control module) .

Diagnostic Aids

- During the ignition cycle the DTC (diagnostic trouble code) initially sets, the PSCM (power steering control module) either enters reduced assist mode or steering assist is gradually reduced until the

Sample

- **NOTE**

  This procedure must be completed using FDRS. Do not clear DTCs until the FDRS procedure has completed. To complete the diagnosis, navigate to the FDRS Guided Routine tab and carry out the procedure Electronic Power Assist Steering (EPAS) Internal Failure .

PINPOINT TEST O : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) C200D:49 MOTOR ROTATION ANGLE SENSOR: INTERNAL ELECTRONIC FAILURE

NOTE

Refer to Steering GSB (General Service Bulletin) for additional connector and wiring inspection tips.

Refer to Wiring Diagrams Cell 43for schematic and connector information.

Normal Operation and Fault Conditions REFER to: Power Steering - Overview (211-02 Power Steering, Description and Operation).

Description

- The PSCM (power steering control module) continually monitors the motor position angle sensor when the ignition is ON and the voltage supply to the PSCM (power steering control module) is above 5.46 volts.

Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) C200D:49 Motor Rotation Angle Sensor only. It does not apply to any other module except PSCM (power steering control module) .

DTC Diagnostic Strategy

- If the module DTC (diagnostic trouble code) list results in a large number of Diagnostic Trouble Codes (DTCs), diagnose all module hard faults first (C102D, C1B00, C200B, C200C, C200D, U2011 and U3000) before diagnosing any network faults (lost communication or invalid data). If voltage concern Diagnostic Trouble Codes (DTCs) are present, diagnose those after any module hard faults and before any network faults. Diagnose all current and active Diagnostic Trouble Codes (DTCs) before diagnosing any historic Diagnostic Trouble Codes (DTCs).

Pinpoint Test Purpose

- To verify PSCM (power steering control module) C200D:49 is present and provide diagnostics if DTC (diagnostic trouble code) C200D:49 is currently present and active in the PSCM (power steering control module) .

Diagnostic Aids

Sample

COMPLETE THE FDRS GUIDED ROUTINE

- **NOTE**

  This procedure must be completed using FDRS. Do not clear DTCs until the FDRS procedure has completed. To complete the diagnosis, navigate to the FDRS Guided Routine tab and carry out the procedure Electronic Power Assist Steering (EPAS) Internal Failure .

PINPOINT TEST P : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) C200B:62 STEERING SHAFT TORQUE SENSOR 1: SIGNAL COMPARE FAILURE

NOTE

Refer to Steering GSB (General Service Bulletin) for additional connector and wiring inspection tips.

Refer to Wiring Diagrams Cell 43for schematic and connector information.

Normal Operation and Fault Conditions REFER to: Power Steering - Overview (211-02 Power Steering, Description and Operation).

Description

- The PSCM (power steering control module) continually monitors the steering shaft torque sensor when the ignition is ON and the voltage supply to the sensor is between 5.26 and 4.71 volts.

Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) C200B:62 Steering Shaft Torque Sensor 1 only. It does not apply to any other module except the PSCM (power steering control module) .

DTC Diagnostic Strategy

- If the module DTC (diagnostic trouble code) list results in a large number of Diagnostic Trouble Codes (DTCs), diagnose all module hard faults first (C102D, C1B00, C200B, C200C, C200D, U2011 and U3000) before diagnosing any network faults (lost communication or invalid data). If voltage concern Diagnostic Trouble Codes (DTCs) are present, diagnose those after any module hard faults and before any network faults. Diagnose all current and active Diagnostic Trouble Codes (DTCs) before diagnosing any historic Diagnostic Trouble Codes (DTCs).

Pinpoint Test Purpose

- To verify PSCM (power steering control module) C200B:62 is present and provide diagnostics if DTC (diagnostic trouble code) C200B:62 is currently present and active in the PSCM (power steering control module) .

Diagnostic Aids

Sample

COMPLETE THE FDRS GUIDED ROUTINE

- **NOTE**

  This procedure must be completed using FDRS. Do not clear DTCs until the FDRS procedure has completed. To complete the diagnosis, navigate to the FDRS Guided Routine tab and carry out the procedure Electronic Power Assist Steering (EPAS) Signal Error .

PINPOINT TEST Q : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) C200C:62 STEERING SHAFT TORQUE SENSOR 2: SIGNAL COMPARE FAILURE

NOTE

Refer to Steering GSB (General Service Bulletin) for additional connector and wiring inspection tips.

Refer to Wiring Diagrams Cell 43for schematic and connector information.

Normal Operation and Fault Conditions REFER to: Power Steering - Overview (211-02 Power Steering, Description and Operation).

Description

- The PSCM (power steering control module) continually monitors the steering shaft torque sensor when the ignition is ON and the voltage supply to the sensor is between 5.26 and 4.71 volts.

Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) C200C:62 Steering Shaft Torque Sensor 2 only. It does not apply to any other module except the PSCM (power steering control module) .

DTC Diagnostic Strategy

- If the module DTC (diagnostic trouble code) list results in a large number of Diagnostic Trouble Codes (DTCs), diagnose all module hard faults first (C102D, C1B00, C200B, C200C, C200D, U2011 and U3000) before diagnosing any network faults (lost communication or invalid data). If voltage concern Diagnostic Trouble Codes (DTCs) are present, diagnose those after any module hard faults and before any network faults. Diagnose all current and active Diagnostic Trouble Codes (DTCs) before diagnosing any historic Diagnostic Trouble Codes (DTCs).

Pinpoint Test Purpose

- To verify PSCM (power steering control module) C200C:62 is present and provide diagnostics if DTC (diagnostic trouble code) C200C:62 is currently present and active in the PSCM (power steering control module) .

Diagnostic Aids

Sample

COMPLETE THE FDRS GUIDED ROUTINE

- **NOTE**

  This procedure must be completed using FDRS. Do not clear DTCs until the FDRS procedure has completed. To complete the diagnosis, navigate to the FDRS Guided Routine tab and carry out the procedure Electronic Power Assist Steering (EPAS) Signal Error .

PINPOINT TEST R : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) C200D:62 MOTOR ROTATION ANGLE SENSOR: SIGNAL COMPARE FAILURE

NOTE

Refer to Steering GSB (General Service Bulletin) for additional connector and wiring inspection tips.

Refer to Wiring Diagrams Cell 43for schematic and connector information.

Normal Operation and Fault Conditions REFER to: Power Steering - Overview (211-02 Power Steering, Description and Operation).

Description

- The PSCM (power steering control module) continually monitors the motor position angle sensor when the ignition is ON and the voltage supply to the PSCM (power steering control module) is above 5.46 volts.

Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) C200D:62 Motor Rotation Angle Sensor only. It does not apply to any other module except PSCM (power steering control module) .

DTC Diagnostic Strategy

- If the module DTC (diagnostic trouble code) list results in a large number of Diagnostic Trouble Codes (DTCs), diagnose all module hard faults first (C102D, C1B00, C200B, C200C, C200D, U2011 and U3000) before diagnosing any network faults (lost communication or invalid data). If voltage concern Diagnostic Trouble Codes (DTCs) are present, diagnose those after any module hard faults and before any network faults. Diagnose all current and active Diagnostic Trouble Codes (DTCs) before diagnosing any historic Diagnostic Trouble Codes (DTCs).

Pinpoint Test Purpose

- To verify PSCM (power steering control module) C200D:62 is present and provide diagnostics if DTC (diagnostic trouble code) C200D:62 is currently present and active in the PSCM (power steering control module) .

Sample

COMPLETE THE FDRS GUIDED ROUTINE

- **NOTE**

  This procedure must be completed using FDRS. Do not clear DTCs until the FDRS procedure has completed. To complete the diagnosis, navigate to the FDRS Guided Routine tab and carry out the procedure Electronic Power Assist Steering (EPAS) Signal Error .

PINPOINT TEST S : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) U0401:00 INVALID DATA RECEIVED FROM POWERTRAIN CONTROL MODULE

Normal Operation and Fault Conditions

Description

- The PSCM (power steering control module) monitors the HS-CAN (high-speed controller area network) messages when the voltage to the PSCM (power steering control module) is greater than 10 volts and there are no Diagnostic Trouble Codes (DTCs) present inhibiting PSCM (power steering control module) operation.
- For additional information on the messages sent to the PSCM (power steering control module) from the PCM (powertrain control module) module, REFER to: Power Steering - System Operation and Component Description(211-02 Power Steering, Description and Operation).

Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) U0401 Invalid Data Received from the PCM (powertrain control module) only. It does not apply to any other module except the PSCM (power steering control module) .

DTC Diagnostic Strategy

- If the module DTC (diagnostic trouble code) list results in a large number of Diagnostic Trouble Codes (DTCs), diagnose all module hard faults first (C102D, C1B00, C200B, C200C, C200D, U2011 and U3000) before diagnosing any network faults (lost communication or invalid data). If voltage concern Diagnostic Trouble Codes (DTCs) are present, diagnose those after any module hard faults and before any network faults. Diagnose all current and active Diagnostic Trouble Codes (DTCs) before diagnosing any historic Diagnostic Trouble Codes (DTCs).

Pinpoint Test Purpose

- To direct the diagnosis to the module and associated circuit sending the faulty or unknown information in the messages.

Diagnostic Aids

- DTC (diagnostic trouble code) U0401:00 indicates a concern with the PCM (powertrain control module) . The module reporting this DTC (diagnostic trouble code) is not the problem module. Do not install a

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