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2006 FORD Freestyle OEM Service and Repair Workshop Manual

[Go to manual page](#)

- Outer tie-rod nuts

Are the listed components secured correctly and are all fasteners tightened to specifications?

| | |
|------------|--|
| Yes | INSTALL a new Steering Gear assembly. REFER to: Steering Gear (211-02 Power Steering, Removal and Installation). |
|------------|--|

| | |
|-----------|---|
| No | REPAIR or INSTALL new components or TIGHTEN fasteners as necessary. DRIVE the vehicle and VERIFY the concern is no longer present. |
|-----------|---|

PINPOINT TEST AL : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) U0140:00 LOST COMMUNICATION WITH BODY CONTROL MODULE

NOTE

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

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

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 9 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 BCM (body 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) U0140 Lost Communication with the BCM (body 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

PINPOINT TEST AM : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) U0146:00 LOST COMMUNICATION WITH SERIAL DATA GATEWAY "A"

NOTE

The serial data gateway module is also known as the GWM (gateway module A)

NOTE

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

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

Normal Operation and Fault Conditions REFER to: [Power Steering - System Operation and Component Description](#)

(211-02 Power Steering, Description and Operation).

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 GWM (gateway module A) 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) U0146 Lost Communication with serial data GWM (gateway module A) 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 the PSCM (power steering control module) wiring harness and connectors are OK. This test checks the connectors and wiring from the PSCM (power steering control module) 3 pin connector at the steering gear to the in-line connector in the engine compartment. If these circuits are working correctly, the test then directs to check the GWM (gateway module A) and wiring harness.

NOTE

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

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

Normal Operation and Fault Conditions Description

- The PSCM (power steering control module) monitors the HS-CAN (high-speed controller area network) when the ignition is ON for more than 5 seconds, 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 RCM (restraints 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) U0151 Lost Communication with RCM (restraints 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 verify the PSCM (power steering control module) wiring harness and connectors are OK. This test checks the connectors and wiring from the PSCM (power steering control module) 3 pin connector at the steering gear to the in-line connector in the engine compartment. If these circuits are working correctly, the test then directs to check the RCM (restraints control module) and wiring harness.

Diagnostic Aids

- Do not install a new PSCM (power steering control module) as part of the repair for a PSCM (power steering control module) DTC (diagnostic trouble code) U151:00.
- DTC (diagnostic trouble code) U0151:00 indicates a possible failure of the HS-CAN (high-speed controller area network) which can be due to a circuit fault in the HS-CAN (high-speed controller area network), the PSCM (power steering control module) wiring harness or a RCM (restraints control module) concern.
- The presence of DTC (diagnostic trouble code) U0151:00 prevents the optional Lane Centering Assist (LCA) feature from activating. If the DTC (diagnostic trouble code) sets during an assist event, the event

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 IPC (instrument panel cluster), 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) U0155 Lost Communication with the IPC (instrument panel cluster) 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 the PSCM (power steering control module) wiring harness and connectors are OK. This test checks the connectors and wiring from the PSCM (power steering control module) 3 pin connector at the steering gear to the in-line connector in the engine compartment. If these circuits are working correctly, the test then directs to check the IPC (instrument panel cluster) and wiring harness.

Diagnostic Aids

- Do not install a new PSCM (power steering control module) as part of the repair for a PSCM (power steering control module) DTC (diagnostic trouble code) U0155:00.
- DTC (diagnostic trouble code) U0155:00 indicates a possible failure of the HS-CAN (high-speed controller area network) which can be due to a circuit fault in the HS-CAN (high-speed controller area network), the PSCM (power steering control module) wiring harness or a IPC (instrument panel cluster) concern.

DTC Fault Trigger Conditions

| DTC (diagnostic trouble code) | Description | Fault Trigger Condition |
|--|--|---|
| PSCM (power steering control module) U0155:00 | Lost Communication With Instrument Panel Cluster (IPC) Control Module: No Sub Type Information | This DTC (diagnostic trouble code) sets when the PSCM (power steering control module) does not receive the IPC (instrument panel cluster) messages within a certain time frame. This can occur if the IPC (instrument panel cluster) wiring harness or electrical connectors are loose or |

- 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 the PSCM (power steering control module) wiring harness and connectors are OK. This test checks the connectors and wiring from the PSCM (power steering control module) 3 pin connector at the steering gear to the in-line connector in the engine compartment. If these circuits are working correctly, the test then directs to check the PAM (parking assist control module) and wiring harness.

Diagnostic Aids

- Do not install a new PSCM (power steering control module) as part of the repair for a PSCM (power steering control module) DTC (diagnostic trouble code) U159:00.
- DTC (diagnostic trouble code) U0159:00 indicates a possible failure of the HS-CAN (high-speed controller area network) which can be due to a circuit fault in the HS-CAN (high-speed controller area network), the PSCM (power steering control module) wiring harness or a PAM (parking assist control module) concern.
- The presence of DTC (diagnostic trouble code) U0159:00 prevents the active park assist system (if equipped) from activating. If set during an active park assist event, the event is terminated and the active park assist system is deactivated.

DTC Fault Trigger Conditions

| DTC (diagnostic trouble code) | Description | Fault Trigger Condition |
|--|--|--|
| PSCM (power steering control module) U0159:00 | Lost Communication With Parking Assist Control Module 'A': No Sub Type Information | This DTC (diagnostic trouble code) sets when the PSCM (power steering control module) does not receive the PAM (parking assist control module) module messages within a certain time frame. This can occur if the PAM (parking assist control module) module wiring harness or electrical connectors are loose or damaged, or if the vehicle battery state of charge levels are low. |

Possible Sources

- Fuse(s)
- Wiring, terminals or connectors
- Network communication concern
- PAM (parking assist control module)

the steering gear to the in-line connector in the engine compartment. If these circuits are working correctly, the test then directs to check the SCCM (steering column control module) and wiring harness.

Diagnostic Aids

- Do not install a new PSCM (power steering control module) as part of the repair for a PSCM (power steering control module) DTC (diagnostic trouble code) U0212:00.
- DTC (diagnostic trouble code) U0212:00 indicates a possible failure of the HS-CAN (high-speed controller area network) which can be due to a circuit fault in the HS-CAN (high-speed controller area network), the PSCM (power steering control module) wiring harness or a SCCM (steering column control module) concern.
- The presence of DTC (diagnostic trouble code) U0212:00 prevents the lane keep assist function (if equipped) from activating. If set during an lane keeping event, the event is terminated and the lane keep assist system is deactivated.

DTC Fault Trigger Conditions

| DTC (diagnostic trouble code) | Description | Fault Trigger Condition |
|--|---|--|
| PSCM (power steering control module) U0212:00 | Lost Communication With Steering Column Control Module: No Sub Type Information | This DTC (diagnostic trouble code) sets when the PSCM (power steering control module) does not receive the SCCM (steering column control module) messages within a certain time frame. This can occur if the SCCM (steering column control module) wiring harness or electrical connectors are loose or damaged, or if the vehicle battery state of charge levels are low. |

Possible Sources

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

NOTICE

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

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

- The presence of DTC (diagnostic trouble code) U023A:00 may prevent the optional steering features; Evasive Steering Assist (ESA), Lane Keeping Assist (LKA) and Lane Centering Assist (LCA) from activating. If the DTC (diagnostic trouble code) sets during an assist event, the event is terminated and the assist feature is deactivated.

DTC Fault Trigger Conditions

| DTC (diagnostic trouble code) | Description | Fault Trigger Condition |
|--|--|--|
| PSCM (power steering control module) U023A:00 | Lost Communication With Image Processing Module A: No Sub Type Information | This DTC (diagnostic trouble code) sets when the PSCM (power steering control module) does not receive the IPMA (image processing module A) module messages within a certain time frame. This can occur if the ABS (anti-lock brake system) module wiring harness or electrical connectors are loose or damaged, or if the vehicle battery state of charge levels are low. |

Possible Sources

- Fuse(s)
- Wiring, terminals or connectors
- Network communication concern
- IPMA (image processing module A)

NOTICE

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

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

PINPOINT TEST CG : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) U0122:00 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

NOTE

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

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

module)
U0122:00

Module: No Sub Type
Information

(vehicle dynamics control module) messages within a certain time frame. This can occur if the VDM (vehicle dynamics control module) wiring harness or electrical connectors are loose or damaged, or if the vehicle battery state of charge levels are low.

Possible Sources

- Fuse(s)
- Wiring, terminals or connectors
- VDM (vehicle dynamics control module)

NOTICE

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

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

PINPOINT TEST CJ : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) U0403:00 INVALID DATA RECEIVED FROM TRANSFER CASE CONTROL MODULE

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

Normal Operation and Fault Conditions REFER to: [Power Steering - System Operation and Component Description](#)

(211-02 Power Steering, Description and Operation).

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.

Pinpoint Test Applicability

- This test applies to PSCM (power steering control module) DTC (diagnostic trouble code) U0403 Invalid Data Received from the TCCM (transfer case 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

PINPOINT TEST CK : PSCM (POWER STEERING CONTROL MODULE) DTC (DIAGNOSTIC TROUBLE CODE) U0137:00 LOST COMMUNICATION WITH TRAILER BRAKE CONTROL MODULE

NOTE

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

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

Normal Operation and Fault Conditions Description

- The PSCM (power steering control module) monitors the HS-CAN (high-speed controller area network) messages when the ignition has been on for more than 5 seconds, 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 TBM (trailer brake control 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) U0137 Lost Communication with the TBM (trailer brake 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 verify the PSCM (power steering control module) wiring harness and connectors are OK. This test checks the connectors and wiring from the PSCM (power steering control module) 3 pin connector at the steering gear to the in-line connector in the engine compartment. If these circuits are working correctly, the test then directs to check the TBM (trailer brake control module) and wiring harness.

Diagnostic Aids

- Do not install a new PSCM (power steering control module) as part of the repair for a PSCM (power steering control module) DTC (diagnostic trouble code) U0137:00.
- DTC (diagnostic trouble code) U0122:00 indicates a possible failure of the HS-CAN (high-speed controller area network) which can be due to a circuit fault in the HS-CAN (high-speed controller area network), the PSCM (power steering control module) wiring harness or a TBM (trailer brake control module) concern.