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## 2007 FORD Focus ST 3 Doors OEM Service and Repair Workshop Manual

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| | |
|---|---|
| **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.<br>If no service articles exist for this concern, INSTALL a new VDM (vehicle dynamics control module) module.<br>REFER to: Vehicle Dynamics Control Module (VDM) (204-05 Vehicle Dynamic Suspension, Removal and Installation). |
| **No** | The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues. |

**PINPOINT TEST G : RIGHT REAR DAMPER SOLENOID ELECTRICAL FAULTS**

Refer to Wiring Diagrams Cell 41for schematic and connector information.

**Normal Operation and Fault Conditions**

The VDM (vehicle dynamics control module) sends a variable voltage to the damper solenoids based on sensor input and FD-CAN (Flexible Data Rate Controller Area Network) messages. The VDM (vehicle dynamics control module) continually monitors the damper solenoid circuits and sets a DTC (diagnostic trouble code) when a circuit fault is detected. A shorted or open damper solenoid also causes the VDM (vehicle dynamics control module) to set a DTC (diagnostic trouble code) . After setting the DTC (diagnostic trouble code) the VDM (vehicle dynamics control module) deactivates the dynamic suspension system resulting in a firm/harsh suspension feel and send a message to the IPC (instrument panel cluster) to display a dynamic suspension system warning message.

REFER to: Vehicle Dynamic Suspension (204-05 Vehicle Dynamic Suspension) .

**DTC Fault Trigger Conditions**

| DTC (diagnostic trouble code) | Description | Fault Trigger Condition |
|---|---|---|
| VDM (vehicle dynamics control | Right Rear Damper Solenoid: Circuit | This DTC (diagnostic trouble code) sets in continuous memory when the VDM (vehicle dynamics control module) |

- Make sure the valve solenoid electrical connector is free from any corrosion or other contaminants.

**NOTICE**

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

**G1 CHECK THE VDM (VEHICLE DYNAMICS CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)**

- Ignition ON.
- Using a diagnostic scan tool, carry out the VDM (vehicle dynamics control module) self-test.

**Is DTC (diagnostic trouble code) C110F:11 present?**

| | |
|---|---|
| **Yes** | GO to G2 |

| | |
|---|---|
| **No** | GO to G3 |

**G2 CHECK THE RH (RIGHT-HAND) REAR DAMPER SOLENOID CIRCUITS FOR A SHORT TO GROUND**

- Ignition OFF.
- Disconnect VDM (vehicle dynamics control module) C4396 .
- Disconnect RH (right-hand) rear damper solenoid C3656 .
- Disconnect RH (right-hand) rear damper solenoid C372 Raptor .
- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---|---|---|
| C4396-G1 | Ω | Ground |
| C4396-H1 | Ω | Ground |

**Are the resistances greater than 10,000 ohms?**

| | | |
|---|---|---|
| C4396-G1 | Ω | C3656-1 |
| C4396-H1 | Ω | C3656-2 |

**Raptor**

| Positive Lead | Measurement / Action | Negative Lead |
|---|---|---|
| C4396-G1 | Ω | C372-1 |
| C4396-H1 | Ω | C372-2 |

**Are the resistances less than 3 ohms?**

| | |
|---|---|
| **Yes** | GO to G5 |

| | |
|---|---|
| **No** | REPAIR the affected circuit. |

**G5 CHECK THE RH (RIGHT-HAND) REAR DAMPER SOLENOID CIRCUITS FOR A SHORT TOGETHER**

- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---|---|---|
| C3656-1 | Ω | C3656-2 |

**Raptor**

| | |
|---|---|
| | REFER to: Shock Absorber Solenoid - Raptor (204-02 Rear Suspension, Removal and Installation).<br>REFER to: Shock Absorber and Spring Assembly - Vehicles With: Dynamic Suspension (204-01B Front Suspension - LHD 4WD, Removal and Installation). |

**G7 VERIFY ALL WIRING CONNECTIONS**

- Disconnect VDM (vehicle dynamics control module) C4396 (if not previously disconnected).
- Disconnect damper solenoid valve electrical connector C3656 (if not previously disconnected).
- Disconnect damper solenoid valve electrical connector C372 Raptor (if not previously disconnected).
- Using a good light source, inspect all disconnected electrical connectors for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
  - spread terminals - install new terminals as necessary

**Are the connectors free of corrosion, damaged pins, bent pins, pushed-out pins and spread terminals?**

| | |
|---|---|
| **Yes** | GO to G8 |

| | |
|---|---|
| **No** | REPAIR the connector or terminals.<br>Refer to Wiring Diagrams Cell 5for schematic and connector information. |

**G8 CHECK FOR CORRECT VDM (VEHICLE DYNAMICS CONTROL MODULE) OPERATION**

- Connect damper solenoid valve electrical connector C3656. Make sure it seats and latches correctly.
- Connect damper solenoid valve electrical connector C372 Raptor. Make sure it seats and latches correctly.
- Connect VDM (vehicle dynamics control module) C4396. 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.<br>If no service articles exist for this concern, INSTALL a new VDM (vehicle dynamics control module) |

| | | |
|---|---|---|
| VDM (vehicle dynamics control module) U200D:11 | Control Module Output Power A: Circuit Short To Ground | Sets in continuous memory when the VDM (vehicle dynamics control module) detects if front height sensor supply voltage is less than 4.7 volts for 250 milliseconds. |
| VDM (vehicle dynamics control module) U200D:12 | Control Module Output Power A: Circuit Short To Battery | Sets in continuous memory when the VDM (vehicle dynamics control module) detects if front height sensor supply voltage is greater than 5.2 volts for 250 milliseconds. |

**Possible Sources**

- Wiring, terminals or connectors
- Height sensor
- VDM (vehicle dynamics control module)

**Visual Inspection and Pre-checks**

- Make sure the height sensor harness is routed correctly and is undamaged.
- Make sure the height sensor electrical connector is free from any corrosion or other contaminants.
- Make sure the height sensor brackets are not damaged.

**NOTICE**

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

**H1 CHECK THE VDM (VEHICLE DYNAMICS CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)**

| | |
|---|---|
| | If the connector is OK, REPAIR the affected circuit. |

| | |
|---|---|
| **No** | GO to H5 |

**H3 CHECK THE LH (LEFT-HAND) FRONT HEIGHT SENSOR CIRCUITS FOR A SHORT TO GROUND**

- Ignition OFF.
- Disconnect VDM (vehicle dynamics control module) C4396 .
- Disconnect LH (left-hand) front height sensor C1153 .
- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---|---|---|
| C1153-1 | Ω | Ground |
| C1153-2 | Ω | Ground |
| C1153-3 | Ω | Ground |

**Are the resistance greater than 10,000 ohms?**

| | |
|---|---|
| **Yes** | GO to H4 |

| | |
|---|---|
| **No** | INSPECT the height sensor connector for corrosion, pushed out pins, bent pins and spread terminals. REPAIR as necessary.<br>If the connector is OK, REPAIR the affected circuit. |

**H4 CHECK THE LH (LEFT-HAND) FRONT HEIGHT SENSOR CIRCUITS FOR AN OPEN**

- Measure:

| | | |
|---|---|---|
| C1153-2 | Ω | C1153-3 |

**Are the resistances greater than 10,000 ohms?**

| | |
|---|---|
| **Yes** | INSTALL a new height sensor.<br>REFER to: Front Suspension Height Sensor (204-05 Vehicle Dynamic Suspension, Removal and Installation).<br>If the concern is still present after height sensor replacement, GO to H6 |

| | |
|---|---|
| **No** | INSPECT the height sensor connector for corrosion, pushed out pins, bent pins and spread terminals. REPAIR as necessary.<br>If the connector is OK, REPAIR the affected circuit. |

**H6 VERIFY ALL WIRING CONNECTIONS**

- Ignition OFF.
- Disconnect all VDM (vehicle dynamics control module) connectors.
- Using a good light source, inspect all disconnected electrical connectors for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
  - spread terminals - install new terminals as necessary

**Are the connectors free of corrosion, damaged pins, bent pins, pushed-out pins and spread terminals?**

| | |
|---|---|
| **Yes** | GO to H7 |

| | |
|---|---|
| **No** | REPAIR the connector or terminals.<br>Refer to Wiring Diagrams Cell 5for schematic and connector information. |

**H7 CHECK FOR CORRECT VDM (VEHICLE DYNAMICS CONTROL MODULE) OPERATION**

- Connect LH (left-hand) front height sensor C1153. Make sure they seat and latch correctly.

| | | |
|---|---|---|
| VDM (vehicle dynamics control module) C1A04:11 | Right Front Height Sensor: Circuit Short To Ground | Sets in continuous memory when the VDM (vehicle dynamics control module) detects height sensor voltage less than 4% of supply (norminally 5V) for greater than 250 milliseconds on the right front height sensor signal circuit. |
| VDM (vehicle dynamics control module) C1A04:12 | Right Front Height Sensor: Circuit Short To Battery | Sets in continuous memory when the VDM (vehicle dynamics control module) detects height sensor voltage greater than 96% of supply (norminally 5V) for greater than 250 milliseconds on the right front height sensor signal circuit. |
| VDM (vehicle dynamics control module) U200D:11 | Control Module Output Power A: Circuit Short To Ground | Sets in continuous memory when the VDM (vehicle dynamics control module) detects if front height sensor supply voltage is less than 4.7 volts for 250 milliseconds. |
| VDM (vehicle dynamics control module) U200D:12 | Control Module Output Power A: Circuit Short To Battery | Sets in continuous memory when the VDM (vehicle dynamics control module) detects if front height sensor supply voltage is greater than 5.2 volts for 250 milliseconds. |

**Possible Sources**

- Wiring, terminals or connectors
- Height sensor
- VDM (vehicle dynamics control module)

**Visual Inspection and Pre-checks**

- Make sure the height sensor harness is routed correctly and is undamaged.
- Make sure the height sensor electrical connector is free from any corrosion or other contaminants.
- Make sure the height sensor brackets are not damaged.

**NOTICE**

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

**I1 CHECK THE VDM (VEHICLE DYNAMICS CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)**

- Ignition ON.
- **NOTE**

| | |
|---|---|
| **No** | GO to I5 |

**I3 CHECK THE RH (RIGHT-HAND) FRONT HEIGHT SENSOR CIRCUITS FOR A SHORT TO GROUND**

- Ignition OFF.
- Disconnect VDM (vehicle dynamics control module) C4396 .
- Disconnect RH (right-hand) front height sensor C1151 .
- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---|---|---|
| C1151-1 | Ω | Ground |
| C1151-2 | Ω | Ground |
| C1151-3 | Ω | Ground |

**Are the resistance greater than 10,000 ohms?**

| | |
|---|---|
| **Yes** | GO to I4 |

| | |
|---|---|
| **No** | INSPECT the height sensor connector for corrosion, pushed out pins, bent pins and spread terminals. REPAIR as necessary.<br>If the connector is OK, REPAIR the affected circuit. |

**I4 CHECK THE RH (RIGHT-HAND) FRONT HEIGHT SENSOR CIRCUITS FOR AN OPEN**

- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---|---|---|