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2001 FORD Focus 3 Doors OEM Service and Repair Workshop Manual

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VDM (vehicle dynamics control module)	U0100:08	Lost Communication With ECM/PCM "A": Bus Signal/Message Failures	GO to Pinpoint Test L
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VDM (vehicle dynamics control module)	U0121:08	Lost Communication With Anti-Lock Brake System (ABS) Control Module "A": Bus Signal/Message Failures	GO to Pinpoint Test N
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VDM (vehicle dynamics control module)	U0401:00	Invalid Data Received from ECM/PCM A: No Sub Type Information	GO to Pinpoint Test W
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VDM (vehicle dynamics control module)	U200E:11	Control Module Output Power B: Circuit Short To Ground	GO to Pinpoint Test K
VDM (vehicle dynamics control module)	U200E:12	Control Module Output Power B: Circuit Short To Battery	GO to Pinpoint Test J
VDM (vehicle dynamics control module)	U200E:12	Control Module Output Power B: Circuit Short To Battery	GO to Pinpoint Test K
VDM (vehicle dynamics control module)	U2012:56	Car Configuration Parameter(s): Invalid/Incompatible Configuration	GO to Pinpoint Test T
VDM (vehicle dynamics control module)	U2016:61	Control Module Main Software: Signal Calculation Failure	GO to Pinpoint Test T
VDM (vehicle dynamics control module)	U2024:4A	Control Module Cal-Config Data: Incorrect Component Installed	GO to Pinpoint Test T
VDM (vehicle dynamics control module)	U2024:51	Control Module Cal-Config Data: Not Programmed	GO to Pinpoint Test T
VDM (vehicle dynamics control module)	U2024:57	Control Module Cal-Config Data: Invalid/Incompatible Software Component	GO to Pinpoint Test T
VDM (vehicle dynamics control module)	U2100:00	Initial Configuration Not Complete: No Sub Type Information	GO to Pinpoint Test T
VDM (vehicle dynamics control module)	U3000:04	Control Module: System Internal Failures	GO to Pinpoint Test T

Stop/Steer/Ride > Ride Quality > Harsh > Over Bump	GO to Pinpoint Test E
Stop/Steer/Ride > Ride Quality > Harsh > Over Bump	GO to Pinpoint Test F
Stop/Steer/Ride > Ride Quality > Harsh > Over Bump	GO to Pinpoint Test G
Stop/Steer/Ride > Ride Quality > Harsh > Over Bump	GO to Pinpoint Test H
Stop/Steer/Ride > Ride Quality > Harsh > Over Bump	GO to Pinpoint Test I
Stop/Steer/Ride > Ride Quality > Harsh > Over Bump	GO to Pinpoint Test J
Stop/Steer/Ride > Ride Quality > Harsh > Over Bump	GO to Pinpoint Test K
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Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test D
Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test E
Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test F
Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test G
Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test J
Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test K
Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test T
Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test U
Stop/Steer/Ride > Ride Quality > Harsh > Rear	GO to Pinpoint Test V
Stop/Steer/Ride > Ride Quality > Soft/Float > Front	GO to Pinpoint Test D
Stop/Steer/Ride > Ride Quality > Soft/Float > Front	GO to Pinpoint Test E

The VDM (vehicle dynamics control module) does not respond to the diagnostic scan tool.	REFER to: Controller Area Network (CAN) Module Communications Network(418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

Pinpoint Tests

PINPOINT TEST A : U3003:16

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

Normal Operation and Fault Conditions The VDM (vehicle dynamics control module) requires an operating voltage that is between 9 and 16 volts. The VDM (vehicle dynamics control module) receives this voltage from the BCMC (body control module C) which has an internal FET (Field Effect Transistor) that is switched ON and OFF. The VDM (vehicle dynamics control module) has a single ground circuit. Excessive resistance or an open in one or more of these circuits, a discharged battery or an inoperative charging system results in the VDM (vehicle dynamics control module) setting 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. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
VDM (vehicle dynamics control module) U3003:16	Battery Voltage: Circuit Voltage Below Threshold	This DTC (diagnostic trouble code) sets in continuous memory and on-demand if the voltage supplied to the VDM (vehicle dynamics control module) falls below 9 volts for more than 500 milliseconds.

Possible Sources

- Wiring, terminals or connectors
- Charging system concern
- VDM (vehicle dynamics control module)
- BCMC (body control module C)

Visual Inspection and Pre-checks

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

NOTICE

REFER to: Battery(414-01 Battery, Mounting and Cables, Diagnosis and Testing).

Did the battery pass the condition test?

Yes	GO to A4

No	INSTALL a new battery. REFER to: Battery (414-01 Battery, Mounting and Cables, Removal and Installation).

A4 CHECK THE VDM (VEHICLE DYNAMICS CONTROL MODULE) VOLTAGE (IGN_VOLTS_SW (V) PID (PARAMETER IDENTIFICATION)

- Ignition ON.
- Measure and record the voltage at the battery.
- Using a diagnostic scan tool,
  Access the VDM (vehicle dynamics control module) and monitor the IGN_VOLTS_SW (Switched Ignition Voltage) (V) PID (parameter identification)

Is the PID (parameter identification) display within 0.2 volts of the recorded voltage?

Yes	GO to A7

No	GO to A5

A5 CHECK THE VDM (VEHICLE DYNAMICS CONTROL MODULE) VOLTAGE SUPPLY CIRCUIT FOR HIGH RESISTANCE

- Ignition OFF.
- Disconnect VDM (vehicle dynamics control module) C4396.
- Ignition ON.
- Measure and record the battery voltage.
- Measure:

Positive Lead	Measurement / Action	Negative Lead

- 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 A8

No	REPAIR the connector or terminals. Refer to Wiring Diagrams Cell 5for schematic and connector information.

A8 CHECK FOR CORRECT VDM (VEHICLE DYNAMICS CONTROL MODULE) OPERATION

- 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. If no Technical Service Bulletins (TSBs) exist for this concern, INSTALL a new VDM (vehicle dynamics control module) module. 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 B : U3003:17

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

Normal Operation and Fault Conditions The VDM (vehicle dynamics control module) requires an operating voltage that is between 9 and 16 volts. The VDM (vehicle dynamics control module) receives this voltage from the BCMC (body control module C) . The VDM (vehicle dynamics control module) has a single ground circuit. Excessive resistance or an open in one or more of these circuits, a discharged battery or a

- **NOTE**

  Do not allow the engine speed to increase above 2,000 RPM (revolutions per minute) while performing this step or the generator may self-excite and result in default charging system output voltage. If engine speed goes above 2,000 RPM (revolutions per minute) , turn the engine off and restart the engine before performing this step.

  Start and run the engine at approximately 1,500 RPM (revolutions per minute) for 3 minutes while monitoring the battery voltage.

Is the battery voltage between 13 and 15.2 volts?

Yes	GO to B3

No	DIAGNOSE the overcharging condition. 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).

B3 RECHECK THE VDM (VEHICLE DYNAMICS CONTROL MODULE) FOR DTC (DIAGNOSTIC TROUBLE CODE) U3003:17

- 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. If no Technical Service Bulletins (TSBs) exist for this concern, INSTALL a new VDM (vehicle dynamics control module) module. 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 C : P1758:19

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

Normal Operation and Fault Conditions Using input from the height sensors and FD-CAN (Flexible Data Rate Controller Area Network) messages, the VDM (vehicle dynamics control module) provides a varying current to the damper solenoid valves. The VDM (vehicle dynamics control module) is programmed with an upper limit for this current. One or more of the height sensors failing internally and damage or modifications to the vehicle suspension may cause this DTC (diagnostic trouble code) to set. 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. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
VDM (vehicle dynamics control module) P1758:19	Pressure Solenoid Control System Incorrect Current: Circuit Current Above Threshold	This DTC (diagnostic trouble code) sets in continuous memory if one or more of the damper solenoids requests a current greater than or equal to a preset maximum current for a given duration, 3 or more times during the same ignition cycle. For base F-150 with CCD suspension, the maximum current threshold and

	(204-05 Vehicle Dynamic Suspension, Removal and Installation). REFER to: Front Suspension Height Sensor (204-05 Vehicle Dynamic Suspension, Removal and Installation). TEST DRIVE the vehicle above 8 km/h (5 mph) on a smooth surface for at least 3 minutes. CARRY OUT the VDM (vehicle dynamics control module) self-test. If the DTC (diagnostic trouble code) returns, GO to C3

C3 RECALIBRATE THE VDM (VEHICLE DYNAMICS CONTROL MODULE) AND CHECK THE DAMPER SOLENOID CURRENT DRAWS

- Using a diagnostic scan tool, carry out the Ride Height Calibration routine without passengers or cargo in the vehicle.
- Test drive the vehicle above 8 km/h (5 mph) on a smooth surface for at least 4 minutes and use a diagnostic scan tool to record the following Parameter Identifications (PIDs):
  - Access the VDM (vehicle dynamics control module) and monitor the LF_DAMP_CUR (Left Front Damper Current) (Amp) PID (parameter identification)
  - Access the VDM (vehicle dynamics control module) and monitor the RF_DAMP_CUR (Right Front Damper Current) (Amp) PID (parameter identification)
  - Access the VDM (vehicle dynamics control module) and monitor the LR_DAMP_CUR (Left Rear Damper Current) (Amp) PID (parameter identification)
  - Access the VDM (vehicle dynamics control module) and monitor the RR_DAMP_CUR (Right Rear Damper Current) (Amp) PID (parameter identification)

Does any solenoid damper request a current greater than or equal to 1.9 amps continually for longer than 2 minutes?

Yes	GO to C4

No	The system is operating correctly at this time. The concern may have been caused by an incomplete or incorrectly calibrated VDM (vehicle dynamics control module) .

C4 CHECK FOR CORRECT VDM (VEHICLE DYNAMICS CONTROL MODULE) OPERATION

- 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