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2009 FORD Focus ST 5 Doors OEM Service and Repair Workshop Manual

Go to manual page

Sample

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- Using a diagnostic scan tool, perform the SASM (steering angle sensor module) self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Adaptive Steering(211-02 Power Steering, Diagnosis and Testing).
No	GO to BI3

BI3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC (instrument panel cluster) self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC (diagnostic trouble code) Chart: IPC (instrument panel cluster) in this section.
No	GO to BI4

BI4 PERFORM THE SECM (STEERING EFFORT CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the SECM (steering effort control module) self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	For DTC (diagnostic trouble code) B1380:2A, CLEAR the DTC (diagnostic trouble code) . REPEAT the self-test. If B1380:2A returns, INSTALL a new RH (right-hand) steering wheel switch. REFER to: Steering Wheel Multifunction Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation). For DTC (diagnostic trouble code) B1380:4A, INSTALL the correct RH (right-hand) steering wheel switch. REFER to: Steering Wheel Multifunction Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation). For DTC (diagnostic trouble code) B1380:11 or DTC (diagnostic trouble code) B1380:17, GO to BI5

Sample

WARNING

Turn the ignition OFF and wait one minute to deplete the backup power supply. Failure to follow this instruction may result in serious personal injury or death in the event of an accidental deployment.

- Ignition OFF.
- Remove the driver airbag.
  REFER to: Driver Airbag - Vehicles With: Adaptive Steering(501-20B Supplemental Restraint System, Removal and Installation).
- Disconnect RH (right-hand) Steering Wheel Switch C2999 .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2999-2	V	C2999-5
C2999-3	V	C2999-5
C2999-4 (Raptor only)	V	C2999-5

Is the voltage approximately 5 volts?

Yes	INSTALL a new RH (right-hand) steering wheel switch. REFER to: Steering Wheel Multifunction Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation).

No	GO to BI6

BI6 CHECK THE STEERING WHEEL HARNESS

- Ignition OFF.

Sample

Is the door ajar RTT (reconfigurable telltale) warning indicator off with the door closed, and on with the door open?

Yes	GO to BJ2

No	GO to Pinpoint Test A

BJ2 VERIFY THE IPC (INSTRUMENT PANEL CLUSTER) IS SET TO THE BRAKE COACH DISPLAY SCREEN

- Ignition ON.
- **NOTE**

  The IPC (instrument panel cluster) and message center navigation can be found in the Owner's Literature.

  Using the message center controls, make sure the IPC (instrument panel cluster) is set to display the brake coach display screen.

Is the IPC (instrument panel cluster) set to the brake coach display screen?

Yes	GO to BJ3

No	The brake coach display is operating correctly. The IPC (instrument panel cluster) was not set to the correct display screen.

BJ3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC (instrument panel cluster) self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the DTC (diagnostic trouble code) Chart: IPC (instrument panel cluster) in this section.

No	GO to BJ4

Sample

- 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 IPC (instrument panel cluster) connector. Make sure it seats and latches 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 IPC (instrument panel cluster) . REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes, 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 BK : THE DTE (DISTANCE TO EMPTY) DISPLAY IS INCORRECT OR FLUCTUATES

NOTE

The DTE (distance to empty) display and the fuel gauge both use the fuel level input from the fuel tank to provide their respective functions. If the fuel gauge doesn't function correctly, both the fuel gauge and the DTE (distance to empty) display are affected.

NOTE

The actual DTE (distance to empty) can be higher or lower than the DTE (distance to empty) displayed in the message center due to changes in driving conditions. It is important to understand how the DTE (distance to empty) is calculated and the factors that impact the DTE (distance to empty) display when determining how to address any DTE (distance to empty) concerns.

NOTE

Sample

- Transport mode
- Fuel level input from the IPC (instrument panel cluster)

The DTE (distance to empty) features the following:

DTE (distance to empty) decreases while driving, but can increase if fuel economy improves. After a period of high consumption and entering a state of low consumption, it is possible that DTE (distance to empty) will not change for a period of time.

DTE (distance to empty) calculation considers the amount of fuel above an empty indication. There is a certain amount of reserve fuel below the empty indication (DTE (distance to empty) equals 0) which allows for a minimal distance of additional driving. This fuel volume is not a specified amount and should not be relied upon.

Possible Sources

- Fuel gauge concern
- Changing between city and highway driving
- Extended idle times
- Using the remote start feature (if equipped) frequently or allowing the vehicle to warm up, particularly when parked on a grade
- Parking or driving on grades
- Inconsistent use of gasoline or E85 fuels
- Over-fueling or not filling the tank completely (trickle filling at above full, partial refueling with less than 10% of fuel tank capacity)
- PCM (powertrain control module) concern
- IPC (instrument panel cluster) configuration

Visual Inspection and Pre-checks

- If any of the previous conditions occur, the vehicle must be driven over time to allow the DTE (distance to empty) calculations to adjust.

BK1 REVIEW AND INVESTIGATE THE FOLLOWING DRIVING CONDITIONS WITH THE CUSTOMER

- Determine whether the driver changes the following driving conditions:
  - changing between towing/not towing, city/highway driving
  - use of extended idle times
  - use of remote start frequently (if equipped)
  - parking/driving on grades
  - use of E85 fuel exclusively or switching to non-Ethanol fuel
  - over filling the fuel tank or not filling the tank completely (partial refueling)

Does the driver change driving conditions?

Yes	Advise the customer how changing driving conditions can affect the current short-term DTE (distance to empty) as opposed to the displayed long-term DTE (distance to empty) .

Sample

BK5 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the BCM (body control module) self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the Master DTC (diagnostic trouble code) Chart.

No	The vehicle configuration is most likely incorrect for the fuel tank size. INSTALL As-Built data from PTS (Professional Technician System) following scan tool instructions.

PINPOINT TEST BL : THE DTE (DISTANCE TO EMPTY) DISPLAY IS INOPERATIVE

Normal Operation and Fault Conditions

See DTE (distance to empty) . REFER to: Message Center - System Operation and Component Description(413-01 Instrumentation, Message Center and Warning Chimes, Description and Operation).

Possible Sources

- Communication concern
- IPC (instrument panel cluster)

BL1 VERIFY OPERATION OF THE FUEL GAUGE

- Ignition ON.
- Verify operation of the fuel gauge.

Does the fuel gauge operate properly?

Yes	GO to BL2

No	GO to Pinpoint Test C

BL2 VERIFY OPERATION OF THE SPEEDOMETER

- Verify operation of the speedometer.

Does the speedometer operate properly?

Sample

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 BM : THE ELECTRIC VEHICLE (EV) COACH DISPLAY IS INOPERATIVE OR INCORRECT (HEV (HYBRID ELECTRIC VEHICLE))

Normal Operation and Fault Conditions

See Electric Vehicle (EV) Coach Display. REFER to: Message Center - System Operation and Component Description(413-01 Instrumentation, Message Center and Warning Chimes, Description and Operation).

If the power level fill display, power level threshold display or power regeneration threshold display message is missing or invalid for 5 seconds or longer, the IPC (instrument panel cluster) defaults the Electric Vehicle (EV) coach display off.

Possible Sources

- Communication concern
- PCM (powertrain control module) concern
- GWM (gateway module A) concern
- IPC (instrument panel cluster)

BM1 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT (reconfigurable telltale) warning indicator.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT (reconfigurable telltale) warning indicator.

Is the door ajar RTT (reconfigurable telltale) warning indicator off with the door closed, and on with the door open?

Yes	GO to BM2

No	GO to Pinpoint Test A

BM2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

Sample

- damaged or bent pins – install new terminals/pins
- pushed-out pins – install new pins as necessary

- Reconnect the IPC (instrument panel cluster) connector. Make sure it seats and latches 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 IPC (instrument panel cluster) . REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes, 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 BN : THE ENGINE HOURS AND ENGINE IDLE HOURS DISPLAY IS INOPERATIVE

Normal Operation and Fault Conditions

See Engine Hours Display and Engine Idle Hours Display. REFER to: Message Center - System Operation and Component Description(413-01 Instrumentation, Message Center and Warning Chimes, Description and Operation).

If the engine rpm data message is missing or invalid for less than 5 seconds, the IPC (instrument panel cluster) defaults the engine hours and engine idle hours displays to the last display based on the last message received.

If the vehicle speed message is missing or invalid for 5 seconds or longer, the IPC (instrument panel cluster) sets DTC (diagnostic trouble code) U0100:00 and defaults the engine hours and engine idle hours to the last displayed value with no additional accumulation.

Possible Sources

- Speedometer indication concern
- Tachometer indication concern
- IPC (instrument panel cluster)

BN1 VERIFY THE IPC (INSTRUMENT PANEL CLUSTER) IS SET TO THE ENGINE HOUR AND ENGINE IDLE HOUR DISPLAY SCREEN

Sample

BN4 RETRIEVE THE RECORD DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC (instrument panel cluster) self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC (diagnostic trouble code) Chart: IPC (instrument panel cluster) in this section.

No	GO to BN5

BN5 CHECK FOR CORRECT IPC (INSTRUMENT PANEL CLUSTER) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPC (instrument panel cluster) connector.
- 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 IPC (instrument panel cluster) connector. Make sure it seats and latches 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 IPC (instrument panel cluster) . REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes, 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 BO : THE OFF ROAD DISPLAY IS INOPERATIVE

Sample