

Fuel System

Symptom Chart

Fuel System : In Tank FTP, ORVR/ In Tank FTP, Non-ORVR

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.
REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).
for information regarding Ford-specific diagnostic practices.

NOTE: *The following procedure diagnoses a slow to fill concern only. For all other concerns, refer to Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.*

Symptom Chart

Condition	Possible Sources	Actions
Slow to fill	- Fuel tank filler pipe - Fuel tank filler pipe vent tube or recirculation tube - Fuel tank mounted vapor tubes - EVAP vapor line between tank and canister - EVAP canister (may be contaminated or blocked) - EVAP canister fresh air line kinks or blockages - Vapor Blocking Valve VBV if equipped - Fuel tank inlet check valve (part of the fuel tank) - Fuel tank valves (part of the fuel tank)	- For In Tank FTP, ORVR Refer to GO to Pinpoint Test A - For In Tank FTP, Non- ORVR to GO to Pinpoint Test B
All other fuel system concerns	Fuel system components	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.

Diagnostic Routine(s)

Slow to Fill

Normal Operation and Fault Conditions

Under normal operation, fuel should flow at a steady rate through the fuel tank filler pipe into the fuel tank. As fuel enters the fuel tank air is vented through the filler pipe or the ORVR system.

Pinpoint Tests A : SLOW TO FILL

Possible Sources

Possible Sources

- Fuel tank filler pipe
- Fuel tank filler pipe vent tube or recirculation tube
- Fuel tank mounted vapor tubes
- EVAP vapor line between tank and canister
- EVAP canister (may be contaminated or blocked)
- EVAP canister fresh air line kinks or blockages
- Vapor Blocking Valve VBV if equipped
- Fuel tank inlet check valve (part of the fuel tank)
- Fuel tank valves (part of the fuel tank)

PINPOINT TEST A : SLOW TO FILL: IN TANK FTP, ORVR (ON-BOARD REFUELING VAPOR RECOVERY)

A1 CHECK COMPONENTS FOR SIGNS OF DAMAGE

- Visually inspect the following components for signs of damage:
 - Fuel tank filler pipe
 - Fuel tank filler pipe vent tube or recirculation tube
 - Fuel tank mounted vapor tubes
 - EVAP vapor line between tank and canister
 - EVAP canister (may be contaminated or blocked)
 - EVAP canister fresh air line kinks or blockages
 - Vapor Blocking Valve VBV if equipped
 - Fuel tank inlet check valve (part of the fuel tank)
 - Fuel tank valves (part of the fuel tank)

Are any of the components damaged?

Yes	REPAIR or INSTALL new components to correct the concern.
No	GO to A2

A2 CHECK THE SYSTEM FOR ANY EVAP DTCS

- Using a diagnostic scan tool, perform the PCM self-test.
- Check the PCM for any of the following EVAP DTCs: P00FE, P0446, P0451, P0455, P0496, P04F0, P2450, and P2418.

Are any of these DTCs present?

Yes	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.
No	GO to A3

A3 REFUEL TEST

- While refueling the tank record the FTP. During the refueling event observe for slow fill concerns and typical diagnostic reference values.

Is slow fill issue present?

Yes	GO to A4
No	System Normal - Unable to identify the root cause at this time.

A4 FTP WHILE FILLING THE FUEL TANK

- Monitor the fuel tank pressure (FTP) for typical diagnostic reference values while filling the fuel tank.

Is the FTP continuously less than 1" H₂O / 0.25 kPa during the refueling event?

Yes	GO to A5
No	GO to A6

A5 INSPECT THE FUEL FILLER PIPE

- Disconnect the fuel filler pipe from the fuel tank and inspect.

Is the fuel filler pipe assembly blocked or damaged?

Yes	INSTALL a new Fuel Filler Pipe Assembly. REFER to: Fuel Tank Filler Pipe - Vehicles With: Midship Fuel Tank (310-01C Fuel Tank and Lines - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation). INSTALL a new Fuel Filler Pipe Assembly. REFER to: Fuel Tank Filler Pipe - Vehicles With: Aft of Axle Fuel Tank (310-01C Fuel Tank and Lines - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation).
No	INSTALL a new Fuel Tank Assembly. REFER to: Fuel Tank - Vehicles With: Aft of Axle Fuel Tank (310-01A Fuel Tank and Lines - 6.2L V8, Removal and Installation). INSTALL a new Fuel Tank Assembly. REFER to: Fuel Tank - Vehicles With: Aft of Axle Fuel Tank (310-01A Fuel Tank and Lines - 6.2L V8, Removal and Installation).

A6 VBV (VAPOR BLOCKING VALVE) SELF TEST

- Using diagnostic scan tool, perform the VBV self-test located in the IDS tool kit.

Did the test pass?

Yes	GO to A7
No	INSTALL a new Fuel Tank Assembly. REFER to: Fuel Tank - Vehicles With: Aft of Axle Fuel Tank (310-01A Fuel Tank and Lines - 6.2L V8, Removal and Installation). INSTALL a new Fuel Tank Assembly. REFER to: Fuel Tank - Vehicles With: Aft of Axle Fuel Tank (310-01A Fuel Tank and Lines - 6.2L V8, Removal and Installation).

A7 DIAGNOSE THE FRESH AIR HOSE

- Disconnect the fresh air line from EVAP canister.

Is the fresh air hose blocked or damaged?

Yes	Repair / Replace the fresh air hose.
No	INSTALL a new EVAP canister REFER to: Evaporative Emission Canister - Crew Cab (303-13B Evaporative Emissions - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation). INSTALL a new EVAP canister REFER to: Evaporative Emission Canister - Regular Cab (303-13B Evaporative Emissions - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation). INSTALL a new EVAP canister REFER to: Evaporative Emission Canister - SuperCab (303-13B Evaporative Emissions - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation).

PINPOINT TEST B : SLOW TO FILL: IN TANK FTP, NON- ORVR (ON-BOARD REFUELING VAPOR RECOVERY)

B1 CHECK COMPONENTS FOR SIGNS OF DAMAGE

- Visually inspect the following components for signs of damage:
 - Fuel tank filler pipe
 - Fuel tank filler pipe vent tube or recirculation tube
 - Fuel tank mounted vapor tubes
 - EVAP vapor line between tank and canister
 - EVAP canister (may be contaminated or blocked)
 - EVAP canister fresh air line kinks or blockages
 - Vapor Blocking Valve VBV if equipped
 - Fuel tank inlet check valve (part of the fuel tank)
 - Fuel tank valves (part of the fuel tank)

Are any of the components damaged?

Yes	REPAIR or INSTALL new components to correct the concern.
No	GO to B2

B2 CHECK THE SYSTEM FOR ANY EVAP DTCS

- Using a diagnostic scan tool, perform the PCM self-test.
- Check the PCM for any of the following EVAP DTCS: P00FE, P0446, P0451, P0455, P0496, P04F0, P2450, and P2418.

Are any of these DTCS present?

Yes	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.
No	GO to B3

B3 REFUEL TEST

- While refueling the tank record the FTP. During the refueling event observe for slow fill concerns and typical diagnostic reference values.

Is slow fill issue present?

Yes	GO to B4
No	System Normal - Unable to identify the root cause at this time.

B4 FTP WHILE FILLING THE FUEL TANK

- Monitor the fuel tank pressure (FTP) for typical diagnostic reference values while filling the fuel tank.

Is the FTP continuously less than 1" H2O / 0.25 kPa during the refueling event?

Yes	GO to B5
No	Replace the fuel tank vent tube from the fuel tank to the fill pipe REFER to: Fuel Tank Filler Pipe - Vehicles With: Midship Fuel Tank (310-01C Fuel Tank and Lines - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation). Replace the fuel tank vent tube from the fuel tank to the fill pipe REFER to: Fuel Tank Filler Pipe - Vehicles With: Aft of Axle Fuel Tank (310-01C Fuel Tank and Lines - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation).

B5 INSPECT THE FUEL FILLER PIPE

- Disconnect the fuel filler pipe from the fuel tank and inspect.

Is the fuel filler pipe assembly blocked or damaged?

Yes	INSTALL a new Fuel Filler Pipe Assembly. REFER to: Fuel Tank Filler Pipe - Vehicles With: Midship Fuel Tank (310-01C Fuel Tank and Lines - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation). INSTALL a new Fuel Filler Pipe Assembly. REFER to: Fuel Tank Filler Pipe - Vehicles With: Aft of Axle Fuel Tank (310-01C Fuel Tank and Lines - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation).
No	INSTALL a new Fuel Tank Assembly. REFER to: Fuel Tank - Vehicles With: Aft of Axle Fuel Tank (310-01A Fuel Tank and Lines - 6.2L V8, Removal and Installation). INSTALL a new Fuel Tank Assembly. REFER to: Fuel Tank - Vehicles With: Aft of Axle Fuel Tank (310-01A Fuel Tank and Lines - 6.2L V8, Removal and Installation).

