

# Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

## 1977 FORD Thunderbird OEM Service and Repair Workshop Manual

[Go to manual page](#)

PCM (powertrain control module)	P24C0:00	EVAP System Leak Detection Pump Switching Valve Stuck On: No Sub Type Information	<a href="#">GO to Pinpoint Test A</a>
---------------------------------	----------	---	---------------------------------------

### Global Customer Symptom Code (GCSC) Chart

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).

### Global Customer Symptom Code Chart

Customer Symptom	Action
Start/Run/Move > Fluids > Fuel > Slow Fill/Premature Shut Off	<a href="#">GO to Pinpoint Test A</a>
Start/Run/Move > Fluids > Fuel > Slow Fill/Premature Shut Off	<a href="#">GO to Pinpoint Test B</a>

### Pinpoint Test(s)

#### PINPOINT TEST A : SLOW TO FILL

Normal Operation and Fault Conditions		
DTC Fault Trigger Conditions		
DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P144B:00	EVAP System Secondary Purge Vapor Line Restricted/Blocked: No Sub Type Information	Evaporative Emission System Secondary Purge Vapor Line Restricted/Blocked
PCM (powertrain control module) P24C0:00	EVAP System Leak Detection Pump Switching Valve Stuck On: No Sub Type Information	Evaporative Emission System Leak Detection Pump Switching Valve Stuck On
<p><b>Possible Sources</b></p> <ul style="list-style-type: none"> <li>Fuel tank filler pipe</li> </ul>		
<p><b>A1 CHECK THE FUEL SYSTEM COMPONENTS FOR SIGNS OF DAMAGE</b></p>		

<b>Yes</b>	
------------	--

<b>No</b>	GO to <a href="#">A4</a>
-----------	--------------------------

#### **A4 MONITOR THE FTP WHILE FILLING THE FUEL TANK**

- Monitor the fuel tank pressure (FTP) reference values while filling the fuel tank.  
Access the PCM (powertrain control module) and monitor the FTP\_V (Fuel Tank Pressure Sensor Voltage) (V) PID (parameter identification)

##### **Is the FTP within specification**

<b>Yes</b>	GO to <a href="#">A6</a>
------------	--------------------------

<b>No</b>	GO to <a href="#">A5</a>
-----------	--------------------------

#### **A5 MONITOR THE FTP WHILE FILLING THE FUEL TANK WITH THE EVAP SYSTEM DISCONNECTED**

- Disconnect the fuel tank-to- EVAP (evaporative emission) canister quick connect coupling at the EVAP canister.
- Monitor the FTP reference value while filling the fuel tank.  
Access the PCM (powertrain control module) and monitor the FTP\_V (Fuel Tank Pressure Sensor Voltage) (V) PID (parameter identification)

##### **Is FTP within specification?**

<b>Yes</b>	INSPECT the EVAP (evaporative emission) system for blockage or restrictions. REPAIR the blockage or restriction. If the blockage or restriction cannot be repaired, INSTALL new EVAP (evaporative emission) system components.
------------	--

<b>No</b>	GO to <a href="#">A6</a>
-----------	--------------------------

#### **A6 INSPECT THE FUEL FILLER PIPE & VAPOR RECIRCULATION LINE ASSEMBLY**

- Disconnect the fuel filler pipe from the fuel tank.

- Disconnect the evaporative leak detection pump (ELDP) from the EVAP canister.
- Monitor the fuel tank pressure (FTP) to typical diagnostic reference values while filling the fuel tank. Access the PCM (powertrain control module) and monitor the FTP\_V (Fuel Tank Pressure Sensor Voltage) (V) PID (parameter identification)

**Is the FTP less than 12" H2O / 3.0 kPa?**

<b>Yes</b>	Remove / Replace the evaporative leak detection pump (ELDP). REFER to: <a href="#">Evaporative Emission System Leak Test</a> (303-13D Evaporative Emissions - 3.5L V6 PowerBoost (CN), General Procedures).
------------	---

<b>No</b>	GO to <a href="#">A10</a>
-----------	---------------------------

**A10 DIAGNOSE THE EVAP CANISTER**

- Disconnect the EVAP (evaporative emission) canister from the fuel vapor load line.
- Monitor the fuel tank pressure (FTP) to typical diagnostic reference values while filling the fuel tank. Access the PCM (powertrain control module) and monitor the FTP\_V (Fuel Tank Pressure Sensor Voltage) (V) PID (parameter identification)

**Is the FTP less than 12" H2O / 3.0 kPa?**

<b>Yes</b>	Remove / Replace the EVAP (evaporative emission) canister. REFER to: <a href="#">Evaporative Emission Canister</a> (303-13D Evaporative Emissions - 3.5L V6 PowerBoost (CN), Removal and Installation).
------------	---

<b>No</b>	Remove / Replace the fuel vapor line including the fuel vapor vent valve (FVVV) and fuel tank isolation valve (FTIV).
-----------	---

**PINPOINT TEST B : DTC P04B0**

Refer to Wiring Diagrams Cell 023for schematic and connector information.

**Normal Operation and Fault Conditions DTC Fault Trigger Conditions**


DTC (diagnostic trouble code)	Description	Fault Trigger Condition

<b>Yes</b>	GO to <a href="#">B3</a>
------------	--------------------------

<b>No</b>	Replace the FVV (Fuel Vapor Vent Valve).
-----------	--

**B3 CHECK FUEL VAPOR VENT VALVE CIRCUIT FVV (ALSO KNOWN AS THE REFUELING VALVE) FOR A SHORT TO VOLTAGE :**

- Ignition ON.
- Connect the Fuel Vapor Vent Valve (FVV) connector C441 .
- Ignition start or run condition.
- Measure the voltage as below:

Positive Lead	Measurement / Action	Negative Lead
C441-1		C175B-13

**Is any voltage present?**

<b>Yes</b>	the circuit is shorted to voltage and should be repaired.
------------	---

<b>No</b>	Perform a visual inspection on the connector pins and the FVV pins for any visible damage and repair as needed.
-----------	---

**B4 CHECK FUEL VAPOR VENT VALVE (ALSO KNOWN AS THE REFUELING VALVE) CIRCUITS FOR A SHORT TO GROUND :**

- Ignition OFF.
- Disconnect the Fuel Vapor Vent Valve (FVV) connector C441 .
- Measure resistance as below:

Positive Lead	Measurement / Action	Negative Lead

PCM (powertrain control module) P04B4:00

Refueling Vapor Control Valve Stuck Closed: No  
Sub Type Information

Refueling Valve (RV)  
stuck closed

#### Possible Sources

- Fuel filler pipe
- FTP Sensor
- Fuel Vapor Vent Valve

#### C1 CHECK THE REFUELING VALVE STUCK CLOSED

- Press the Refuel Door request button.
- Confirm FTP\_H20 PID (parameter identification)

**Does the Tank Pressure drop to less than 0.25 PSI (6.92 In.H2O)?**

<b>Yes</b>	GO to <a href="#">C3</a>
------------	--------------------------

<b>No</b>	GO to <a href="#">C2</a>
-----------	--------------------------

#### C2 CHECK THE FTP (FUEL TANK PRESSURE) SENSOR VOLTAGE WITH THE CAPLESS FUEL TANK FILLER PIPE OPENED

- Gently release the fuel door using the mechanical release lever located in the trunk.
- Install the supplemental refuelling adaptor provided with the vehicle to open the capless fuel tank filler pipe.
- KOEO (key on, engine off)
- Access the PCM and monitor the FTP (VOLT) PID.

Access the PCM (powertrain control module) and monitor the FTP\_V (Fuel Tank Pressure Sensor Voltage) (V) PID (parameter identification)

**Is FTP (Fuel Tank Pressure) Voltage reading between 1.4V -1.54 V?**

<b>Yes</b>	GO to <a href="#">C3</a>
------------	--------------------------

Fuel vapor vent valve (FVW) C4287-1	$\Omega$	C175E-24
-------------------------------------	----------	----------

**Is the resistance less than 5 ohms?**

<b>Yes</b>	GO to <a href="#">C5</a>
------------	--------------------------

<b>No</b>	Repair the open circuit. Clear the PCM (powertrain control module) DTC (diagnostic trouble code) s. REPEAT self-test.
-----------	---

**C5 CHECK FUEL VAPOR VENT VALVE (ALSO KNOWN AS THE REFUELING VALVE) CIRCUITS FOR A SHORT TO GROUND**

- Ignition OFF.
- Ignition starts or run condition.
- Measure Voltage as below.

Positive Lead	Measurement / Action	Negative Lead
Fuel vapor vent valve (FVW) C4287-2	$\overline{\text{V}}$	Ground
Fuel vapor vent valve (FVW) C4287-1	$\overline{\text{V}}$	Ground

**Is the voltage greater than 11 volts?**

<b>Yes</b>	Problem is intermittent. Look for signs of visual damage on the connector pins and FVW pins. Clear Codes & Send Vehicle out.
------------	--

<b>No</b>	Look for wiring issues and repair as necessary.
-----------	---

## Fuel System Pressure Check

<b>310-00D Fuel System - General Information - 3.5L V6 PowerBoost (CN)</b>	<b>2022 F-150</b>
<b>General Procedures</b>	<b>Procedure revision date: 10/1/2020</b>

### Fuel System Pressure Check

#### Check

##### NOTE

This Fuel System Pressure Check is for the low pressure side of the system.

1. Release the fuel system pressure.

Refer to: [Fuel System Pressure Release](#)(310-00D Fuel System - General Information - 3.5L V6 PowerBoost (CN), General Procedures).

2. Disconnect the battery ground cable.

Refer to: [Battery Cables - 3.5L V6 PowerBoost \(CN\)](#)(414-01 Battery, Mounting and Cables, Removal and Installation).

3. Remove the engine appearance cover retainers, release the engine appearance cover from the rear retainers and then remove the engine appearance cover.

**Torque** : 97 lb.in (11 Nm)

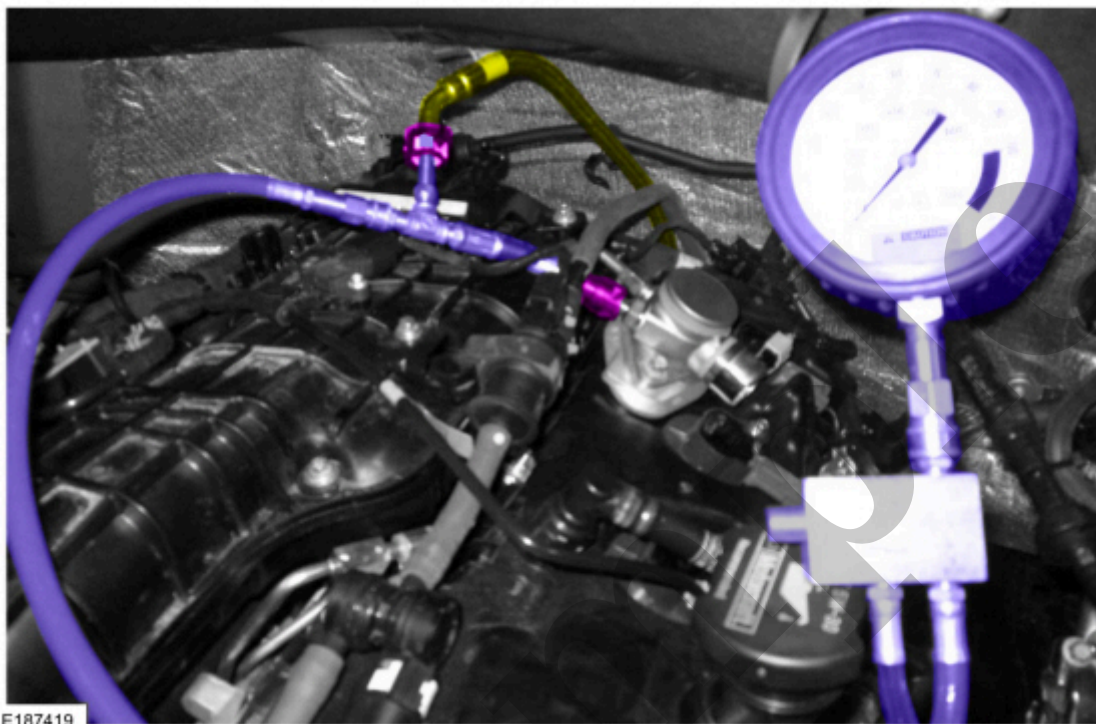


5. Disconnect the fuel jumper tube-to-high pressure pump quick release coupling.

Refer to: [Quick Release Coupling](#)(310-00D Fuel System - General Information - 3.5L V6 PowerBoost (CN), General Procedures).

6. Install the Fuel Pressure Test Kit between the fuel jumper tube and the High Pressure Fuel Pump.

**Use Special Service Tool** : 310-D009 (D95L-7211-A) Fuel Pressure Test Kit



E187419

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

7. **NOTE**

The Fuel Pump (FP) control module electrical connector was previously disconnected to release the fuel system pressure and must be reconnected to test the fuel system pressure.

Reconnect the Fuel Pump (FP) control module electrical connector.

8. Reconnect the battery ground cable.

Refer to: [Battery Cables - 3.5L V6 PowerBoost \(CN\)](#)(414-01 Battery, Mounting and Cables, Removal and Installation).

9. **NOTE**

## Fuel System Pressure Release

<b>310-00D Fuel System - General Information - 3.5L V6 PowerBoost (CN)</b>	<b>2022 F-150</b>
<b>General Procedures</b>	<b>Procedure revision date: 10/1/2020</b>

### Fuel System Pressure Release

#### Pressure release

1. With the vehicle in NEUTRAL, position it on a hoist.

Refer to: [Jacking and Lifting - Overview](#)(100-02 Jacking and Lifting, Description and Operation).

2. **NOTE**

The Fuel Pump driver Module is located on the frame rail above the fuel tank.

Disconnect the fuel pump driver module electrical connector.