

FUEL SYSTEM

310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS)

2019 Ranger

Diagnosis and Testing

Fuel System

Inspection and Verification

1. Verify the customer's concern by refueling the vehicle and observe the fuel fill rate.
2. Inspect to determine if any of the following mechanical concerns apply.

Visual Inspection Chart

Mechanical
• Bent, kinked or damaged fuel tank filler pipe • Bent, kinked or damaged fuel tank filler pipe fresh air hose or recirculation tube (if equipped) • Incorrect routing of the fuel tank filler pipe • Incorrect routing of the fuel tank filler pipe fresh air hose or recirculation tube (if equipped) • Incorrect position of fuel tank filler pipe clamps • Incorrect position of fuel tank filler pipe fresh air hose or recirculation tube clamps (if equipped) • Fuel tank mounted vapor tubes bent or damaged • EVAP system tubes or hoses bent or damaged • Accident damage to the fuel tank • Accident damage to the vehicle effecting the fuel tank filler pipe-to-body connection • Unauthorized modifications and/or alterations to the vehicle • EVAP system fresh air line opening for blockage on canister (dirt, spider webbing, etc.) • canister blocked

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. Using a diagnostic scan tool, retrieve all Diagnostic Trouble Codes (DTCs). Refer to the appropriate DTC Chart in this section.

DTC Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. For information about these practices,

REFER to: Diagnostic Methods (100-00 General Information, Description and Operation) .

PCM DTC Chart

DTC	Description	Action
P0144A	Evaporative Emission System Purge Vapor Line Restricted/Blocked	GO to Pinpoint Test A
P0446	Evaporative Emission System Vent Control Circuit	GO to Pinpoint Test A
P0451	Evaporative Emission System Pressure Sensor/Switch Range/Performance	GO to Pinpoint Test A
P0452	Evaporative Emission System Pressure Sensor/Switch Low	GO to Pinpoint Test A
P0453	Evaporative Emission System Pressure Sensor/Switch High	GO to Pinpoint Test A
P0454	Evaporative Emission System Pressure Sensor/Switch Intermittent	GO to Pinpoint Test A
P0455	Evaporative Emission System Leak Detected (Gross Leak/No Flow)	GO to Pinpoint Test A
P1450	Unable to Bleed up Fuel Tank Vacuum	GO to Pinpoint Test A
P1451	Evaporative Emission System Vent Control Circuit	GO to Pinpoint Test A
P260F	Evaporative Emission System Vent Control Circuit	GO to Pinpoint Test A
P2418	EVAP System Switching Valve Control Circuit/Open	GO to Pinpoint Test A
All other DTCs	-	REFER to: Electronic Engine Controls (303-14 Electronic Engine Controls - 2.3L EcoBoost (201kW/273PS), Diagnosis and Testing) .

Symptom Chart(s)

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. For information about these practices,

REFER to: Diagnostic Methods (100-00 General Information, Description and Operation) .

Symptom Chart

Symptom	Possible Sources	Action
• Slow to fill	• Refer to the Pinpoint Test	• GO to Pinpoint Test A
• All other fuel system concerns	• Fuel system components	• Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.

Diagnostic Routine(s)

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. For information about these practices,

REFER to: Diagnostic Methods (100-00 General Information, Description and Operation) .

Slow to Fill

Normal Operation and Fault Conditions

The fuel tank filler pipe assembly is used to refuel the vehicle. The fuel tank inlet check valve prevents spitback of fuel during and after refueling. The fuel tank stores the fuel. The fuel tank contains a Fuel Pump and Sender Unit. The Fuel Pump and Sender Unit consists of a fuel level sender and a Fuel Pump. The fuel level sender sends a signal to the fuel gauge informing the driver of how much fuel is in the fuel tank. The Fuel Pump provides fuel to the fuel tubes, which supply the fuel rail.

During refueling, the fuel tank vents to the atmosphere through the vent and filler pipes, on vehicles without ORVR systems. In vehicles equipped with ORVR , the fuel tank and filler pipe are designed so that when the vehicle is being refueled, fuel vapors in the fuel tank travel to the EVAP canister, which absorbs the fuel vapors and vents the pressure from the fuel tank during refueling.

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.

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, if equipped
- EVAP system
- Fuel tank inlet check valve (part of the fuel tank)
- Fuel level vent valve (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 (EVAPORATIVE EMISSION) DTCS

- Using a diagnostic scan tool, perform the PCM self-test.
- Check the PCM for any of the following EVAP DTCs: P0144A, P0446, P0451, P0452, P0453, P0454, P0455, P1450, P1451, P2418 and P260F

Are any of these DTCs present?

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

A3 MONITOR THE FTP WHILE FILLING THE FUEL TANK

- Monitor the Fuel Tank Pressure (FTP) reference value while filling the fuel tank. For typical diagnostic reference values, Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.

Is FTP within specification?

Yes	GO to A5
No	GO to A4

A4 FILL THE FUEL TANK WITH THE EVAP SYSTEM DISCONNECTED

- Disconnect the fuel tank-to- EVAP canister quick connect coupling at the EVAP canister.
- Fill the fuel tank.

Are the slow to fill symptoms still present?

Yes	INSTALL a new fuel tank. REFER to: Fuel Tank (310-01 Fuel Tank and Lines - 2.3L EcoBoost (201kW/273PS), Removal and Installation) .
No	GO to A6

A5 CHECK THE FUEL TANK FILLER PIPE ASSEMBLY FOR BLOCKAGE OR RESTRICTION

- Remove the fuel tank filler pipe assembly.
REFER to: Fuel Tank Filler Pipe (310-01 Fuel Tank and Lines - 2.3L EcoBoost (201kW/273PS), Removal and Installation) .
- Inspect the fuel tank filler pipe and fuel tank filler pipe vent tube (if equipped) for a blockage or restriction.

Is the fuel tank filler pipe or fuel tank filler pipe vent tube blocked or restricted?

Yes	If possible, REPAIR the blockage or restriction. If the blockage or restriction cannot be repaired, INSTALL a new fuel tank filler pipe or fuel tank filler pipe vent tube. REFER to: Fuel Tank Filler Pipe (310-01 Fuel Tank and Lines - 2.3L EcoBoost (201kW/273PS), Removal and Installation) .
No	INSTALL a new fuel tank. REFER to: Fuel Tank (310-01 Fuel Tank and Lines - 2.3L EcoBoost (201kW/273PS), Removal and Installation) .

A6 CHECK CANISTER VENT PORT AND FRESH AIR LINE

- Check the Fresh Air Line and Charcoal Canister Vent Port for foreign material contamination/blockages (i.e. mud, spider nest, etc.)

Does the canister vent port and fresh air line show signs of contamination/blockage (i.e. mud, spider nests, etc.)?

Yes	Replace fresh air line.
No	GO to A7

A7 CHECK THE CANISTER VENT VALVE

- Check the canister vent valve (CVV) for blockage or sticking.

Is the CVV blocked or sticking?

Yes	Replace canister vent valve.
No	Check canister.

PINPOINT TEST A : SLOW TO FILL
