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2021 Ford Bronco Service and Repair Manual

[Go to manual page](#)

Sample

intake valves is present. An idle speed symptom may be present when the DTC (diagnostic trouble code) is set.

The fresh air hose connects the intake air system to the valve cover. The PCV (positive crankcase ventilation) monitor will detect a fresh air hose disconnection at the intake air system or the valve cover.

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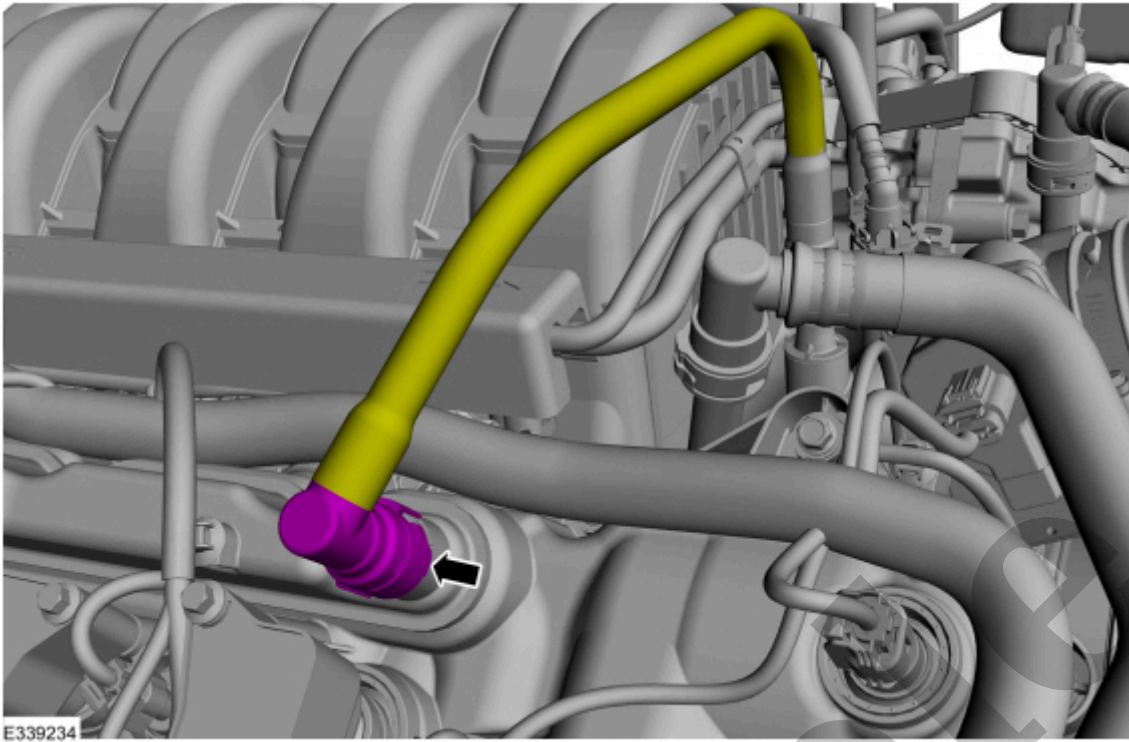
Sample

Start/Run/Move > Dipstick > Engine Oil > Missing	GO to Pinpoint Test HG
Start/Run/Move > Fluids > Engine Oil > Consumption	GO to Pinpoint Test HG
Start/Run/Move > Fluids > Engine Oil > Visible Leak	GO to Pinpoint Test HG
Driving Performance > Runs Rough > Acceleration > Always	GO to Pinpoint Test HG
Driving Performance > Runs Rough > Cruise/ Steady Speed > Always	GO to Pinpoint Test HG
Driving Performance > Runs Rough > Deceleration > Always	GO to Pinpoint Test HG
Driving Performance > Runs Rough > All Running Modes > Always	GO to Pinpoint Test HG
Driving Performance > Idle Quality > Fast > Always	GO to Pinpoint Test HG
Driving Performance > Idle Quality > Rolling > Always	GO to Pinpoint Test HG
Driving Performance > Idle Quality > Slow > Always	GO to Pinpoint Test HG
Driving Performance > Idle Quality > Rough > Always	GO to Pinpoint Test HG
Driving Performance > Idle Quality > Stationary Elevated Idle Control > Inoperative	GO to Pinpoint Test HG
Driving Performance > Stalls/Quits > At Idle > Always	GO to Pinpoint Test HG
Driving Performance > Stalls/Quits > Acceleration > Always	GO to Pinpoint Test HG
Driving Performance > Stalls/Quits > Cruise/ Steady Speed > Always	GO to Pinpoint Test HG
Driving Performance > Spark Knock > Acceleration > Always	GO to Pinpoint Test HG
Driving Performance > Spark Knock > Cruise/ Steady Speed > Always	GO to Pinpoint Test HG
Driving Performance > Poor Fuel Economy > City Driving > Unloaded	GO to Pinpoint Test HG
Driving Performance > Poor Fuel Economy > Highway Driving > Unloaded	GO to Pinpoint Test HG
Driving Performance > Poor Fuel Economy > Combined > Unloaded	GO to Pinpoint Test HG
Driving Performance > Hesitates/Stumble > Cruise/ Steady Speed > Always	GO to Pinpoint Test HG

Pinpoint Test Steps available in the on-line Workshop Manual.

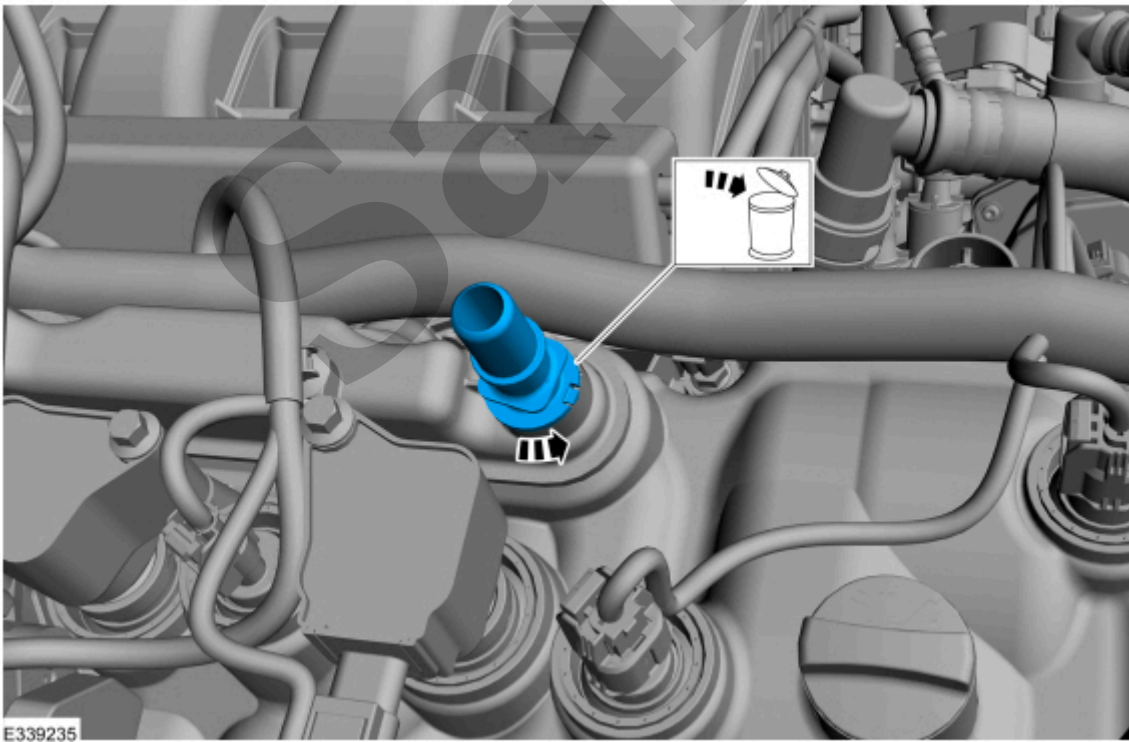
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Sample



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

2. Rotate the PCV (positive crankcase ventilation) valve counterclockwise, then remove and discard the PCV (positive crankcase ventilation) valve.



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

Evaporative Emissions - Overview

303-13A Evaporative Emissions - 2.7L EcoBoost (238kW/324PS)	2022 F-150
Description and Operation	Procedure revision date: 05/10/2021

Evaporative Emissions - Overview

The EVAP (evaporative emission) system prevents hydrocarbon emissions from entering the atmosphere by storing fuel vapors and routing the vapors to the engine to be consumed during normal engine operation.

Vehicles with 23 Gal and 26 Gal fuel tank

The EVAP (evaporative emission) system consists of:

- EVAP (evaporative emission) canister
- EVAP (evaporative emission) canister purge valve
- EVAP (evaporative emission) canister ventilation solenoid
- EVAP (evaporative emission) canister ventilation filter
- EVAP (evaporative emission) blocking valve
- Fuel Tank Pressure (FTP) sensor and tube
- Easy Fuel (capless) fuel tank filler pipe

Vehicles with 36 Gal fuel tank

The EVAP (evaporative emission) system consists of:

- EVAP (evaporative emission) canister
- EVAP (evaporative emission) canister purge valve
- EVAP (evaporative emission) canister ventilation filter

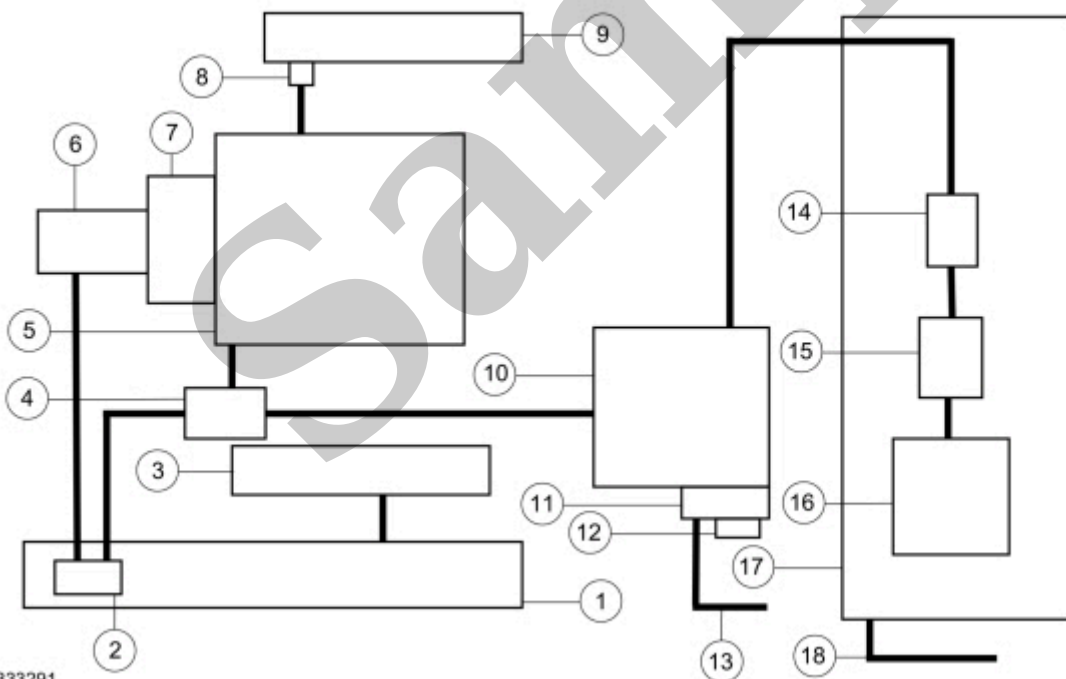
Evaporative Emissions - System Operation and Component Description

303-13A Evaporative Emissions - 2.7L EcoBoost (238kW/324PS)	2022 F-150
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Evaporative Emissions - System Operation and Component Description

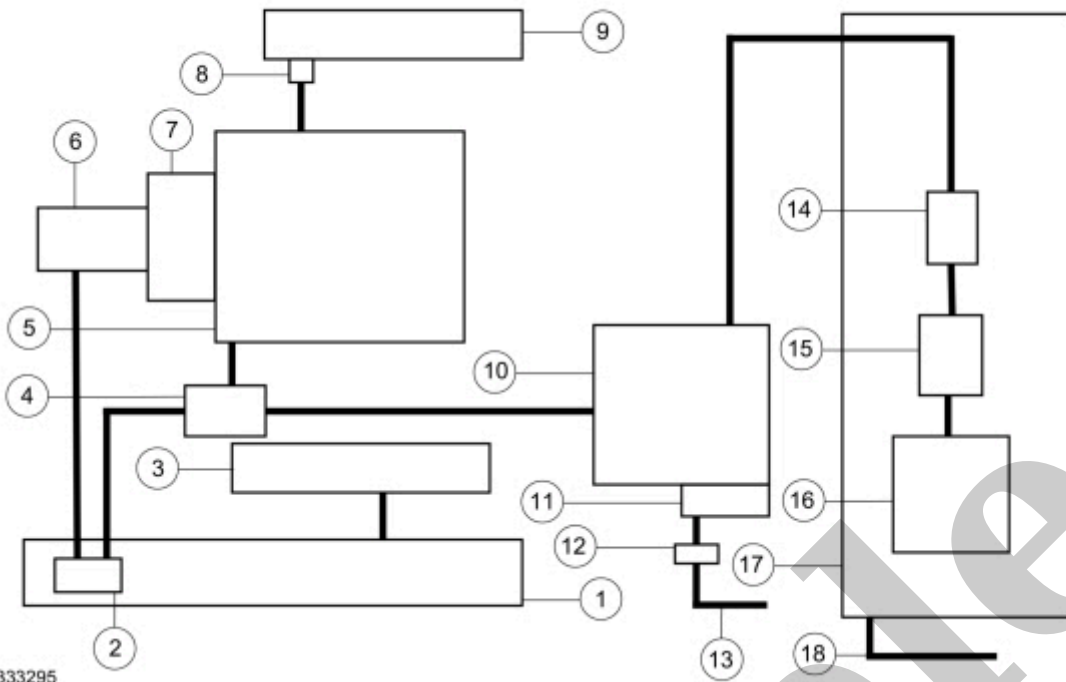
System Operation

Vehicles with 23 Gal and 26 Gal fuel tank



E333291

Item	Description
1	LH (left-hand) air cleaner outlet pipe



E333295

Item	Description
1	LH (left-hand) air cleaner outlet pipe
2	Vapor ejector
3	LH (left-hand) valve cover
4	EVAP (evaporative emission) canister purge valve
5	Upper intake manifold
6	CAC (charge air cooler) outlet tube
7	Throttle Body
8	PCV (positive crankcase ventilation) Valve
9	RH (right-hand) valve cover
10	EVAP (evaporative emission) canister
11	EVAP (evaporative emission) canister ventilation filter

The EVAP (evaporative emission) canister vent valve seals the EVAP (evaporative emission) system to atmosphere during the EVAP (evaporative emission) leak check monitor.

The PCM (powertrain control module) outputs a duty cycle between 0% and 100% to control the EVAP (evaporative emission) purge valve.

The FTP sensor monitors the fuel tank pressure during engine operation and continuously transmits an input signal to the PCM (powertrain control module). During the EVAP (evaporative emission) monitor testing, the FTP sensor monitors the fuel tank pressure or vacuum bleed up.

The vapor blocking valve is used to isolate the fuel tank from the rest of the EVAP (evaporative emission) system for more efficient canister purging.

A valve inside the fuel tank mounted fuel vapor tube assembly prevents liquid fuel from entering the EVAP (evaporative emission) canister and the EVAP (evaporative emission) purge valve under any vehicle altitude, handling, or rollover condition.

The EVAP (evaporative emission) check valve prevents boost pressure from entering the EVAP (evaporative emission) system.

The EVAP (evaporative emission) ejector is used to create a vacuum in the purge line during boost conditions. When in boost conditions a percentage of the boost pressure is applied to the EVAP (evaporative emission) ejector to create a vacuum. This vacuum draws purge vapors through the EVAP (evaporative emission) ejector into the intake air system upstream of the turbocharger.

The normally open VBV (vapor blocking valve) is a PCM (powertrain control module) controlled valve that blocks the flow of vapors from the fuel tank to the EVAP (evaporative emission) canister during engine operation. Closing the VBV (vapor blocking valve) during engine operation allows the EVAP (evaporative emission) system to purge the EVAP (evaporative emission) canister without purging the fuel tank. The VBV (vapor blocking valve) will open to relieve excess fuel tank pressure if the fuel tank pressure reaches a maximum calibrated value.

Evaporative Emission (EVAP) Leak Check Monitor

The EVAP (evaporative emission) leak check monitor is an on board strategy designed to detect a leak from an opening equal to or greater than 0.5 mm (0.020 inch) in the EVAP (evaporative emission) system. The correct function of the individual components of the EVAP (evaporative emission) system, as well as its ability to flow fuel vapor to the engine, is also examined. The EVAP (evaporative emission) leak check monitor relies on the individual components of the EVAP (evaporative emission) system to either allow a natural vacuum to occur in the fuel tank or apply engine vacuum to the fuel tank and then seal the entire EVAP (evaporative emission) system from the atmosphere. The fuel tank pressure is then monitored to determine the total vacuum lost (bleed up) for a calibrated period of time. Inputs from the CHT (cylinder head temperature) sensor or the ECT (engine coolant temperature) sensor, IAT (intake air temperature) sensor, MAF (mass air flow) sensor (if equipped), vehicle speed, fuel level input (FLI) and fuel tank pressure (FTP) sensor, are required to enable the EVAP (evaporative emission) leak check monitor.