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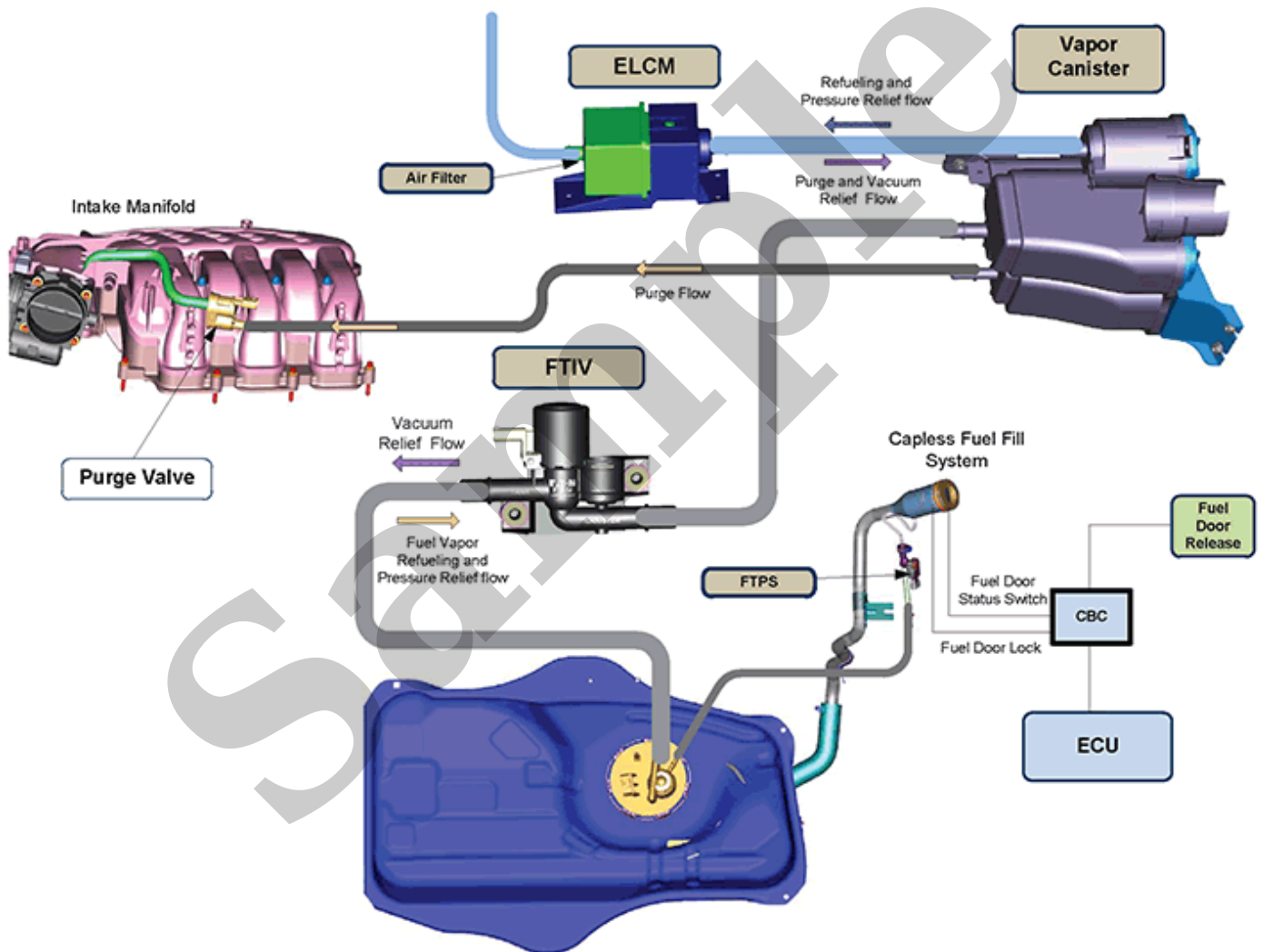
FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

2014 Jeep Cherokee Repair Manual & Service Guide

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Diagnostic Overview - EVAP Emissions - PHEV

DIAGNOSTIC OVERVIEW - EVAP EMISSIONS - PHEV



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The Evaporative Non-Integrated Leak Monitor (ENILM) diagnostics are performed in the engine off (after run) state. The diagnostic will run after the ignition is off for 6 hours. The reason for the wait time is that there are cases where the Fuel Tank pressure increases greatly after ignition off (due to high temperatures) and is too large for the vacuum pump in the Evaporative Leak Check Module (ELCM) to make the pressure negative. This could cause a false failure during small leak testing. After the calibrated wait time

- As the pressure stabilizes in the fresh air side, the PCM makes a determination if the system is leaking by comparing the ELCM Pressure Sensor reading to the 0.020" small leak threshold obtained during the first 0.020" Reference Orifice check. If the system vacuum created goes below the 0.020" small leak threshold, it is determined that there is no leak in the fresh air side of the system. If the system is determined to be leaking, the PCM determines the size of the leak (small leak or large leak) based on how far above the threshold the system stabilizes at. If the system vacuum (negative pressure) is equal to the small leak threshold, the fresh air side is determined to have a small leak (P04ED). If the vacuum stabilizes above the small leak threshold, then a large leak is detected (P04EF). The leak check will run for a maximum time of 180 seconds.

Phase 4: A determination is made of the system.

- If the fuel level is less than 95% and **ANY** of the following are true, the diagnostic will **continue on to Phase 5** :
 - Tank evaluation counter threshold met (calibrated threshold is set between 4 - 6 counts)
 - Fuel Tank evaluation failed in Phase 0 (Fuel Tank pressure was unstable or equal to atmospheric pressure, indicating a possible leak, faulty FTP Sensor, or unstable tank pressures)
 - Phase 3 leak detection evaluation failed
- If the fuel level is more than 95%, **or** the fuel level is less than 95% and **ALL** of the following are true, the diagnostic will **skip directly to Phase 7** :
 - Tank evaluation counter threshold has not been met
 - Fuel Tank evaluation passed in Phase 0
 - Phase 3 leak detection evaluation passed

Phase 5: The diagnostic checks the Fuel Tank side of the system for a leak and the FTIV for a stuck closed condition.

- When the FTIV is energized (opened), and the Change-Over Valve is de-energized (closed), the FTP Sensor reading should return back to atmospheric pressure. If the FTP Sensor reading does not return to atmospheric pressure within a calibrated period of time, the FTIV is determined to be stuck closed (P2451).
- The Change-Over Valve is then re-energized (opened) and the entire system is now evacuated and monitored for a leak. During this phase the leak check can run for a maximum time of 1850 seconds. Once the system pressure stabilizes, the pressure reading is again compared to the 0.020" small leak threshold obtained during the first 0.020" Reference Orifice check. If the system vacuum (negative pressure) is equal to the small leak threshold, the Fuel Tank side is determined to have a small leak (P04EE). If the vacuum stabilizes above the small leak threshold, then a large leak is detected (P04EC). If the system vacuum created goes below the 0.020" small leak threshold, it is determined that there is no leak in the Fuel Tank side of the system.

SMALL LEAK MONITOR

This is an accumulative monitor and the data from each valid event is recorded and added to the previously recorded events. The PCM timer records the engine ON/drive cycle and engine OFF time for each small leak monitor event. For an event to be valid the PCM must see the following:

1. An engine ON/drive cycle for a minimum of 2-5 minutes.

NOTE

The engine ON timer will stop counting after a maximum of 26 minutes.

2. And, when the engine is shut down, an engine OFF timer starts. There is a 12 minute delay time in which the PCM will ignore ESIM switch input. The engine OFF timer period will continue to count until one of these three conditions exist:

- The engine is started without a switch closure during the event.

NOTE

At the next key ON cycle, a determination is made as to whether the event was valid and the information is kept.

- An ESIM switch closed input is received after the 12 minute delay during the event.

NOTE

If the switch closed input is received, the PCM records that the switch has closed and stores the engine shut down time.

- After a maximum of 17.5 hours without an ESIM switch closure during the event.

This monitor will **increment** the **accumulation fail timers** until **both** have reached a calibrated threshold (engine ON - 100 minutes and engine OFF - 70 hours). When the monitor records a valid **switch closure (small leak passing event)**, the fail timers are reset.

LEAK SIZE DETERMINATION: If the PCM did not see an ESIM switch closed signal during the previous ignition OFF cycle and there is a cold start (the event was valid), an intrusive leak test is run to determine if a large leak is present. Immediately after start-up, while the engine is cold, the purge solenoid is opened to create vacuum in the evaporative system to a calibrated vacuum point that is beyond the ESIM switch closing threshold. **The pass/fail time will vary based on the total fuel volume at the time of the test.**

- If the switch does not close at all during purging because of a switch that is stuck open or vacuum cannot be created below -250 Pa within a calibrated time, it is determined to be a general evaporative system

Vent Valve . This should vent the vacuum in the Fuel Tank to atmosphere through hose D. If the switch opens, a pass flag is set and the PCM will power down. If the PCM detects that the ESIM Switch is still closed after a calibrated time, an error is detected and a switch stuck closed failure is set at the next engine run cycle.

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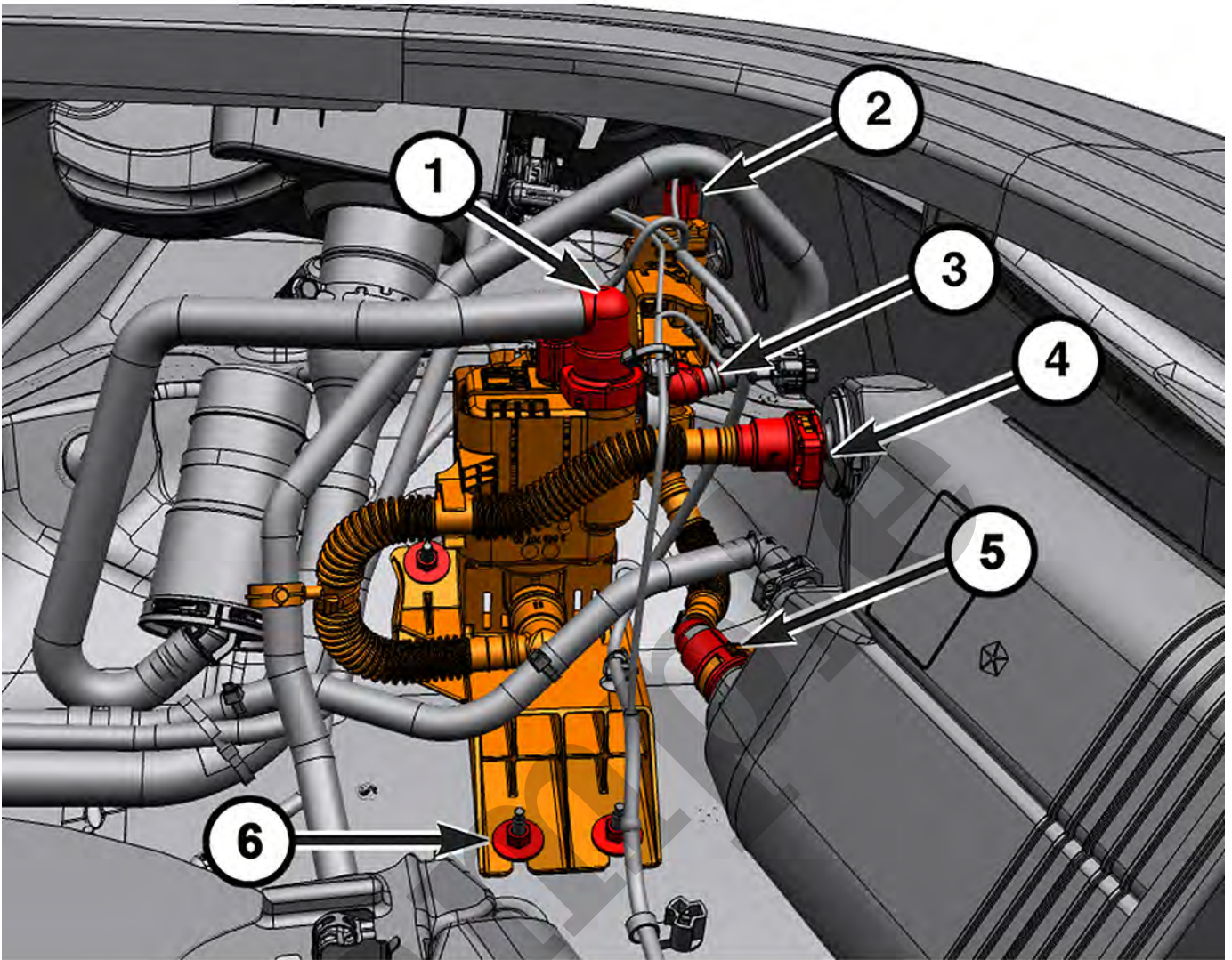
YOUR CURRENT VEHICLE

Vapor Canister Filter

VAPOR CANISTER FILTER

REMOVAL

1. Perform the fuel system pressure release procedure ([Refer to Engine/Fuel System/Standard Procedure \(Refer To List 1\)](#))
2. Remove the left rear wheelhouse splash shield ([Refer to 23 - Body/Exterior/SHIELD, Splash/Removal and Installation](#)).



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1 - ELCM Filter Quick-Connect Fitting

2 - Fuel Tank Isolation Valve (FTIV) Wire Harness Connector

3 - Fuel Tank Isolation Valve (FTIV) Quick-Connect Fitting

4 - Charcoal Canister to ELCM Quick-Connect Fitting

5 - Charcoal Canister to Fuel Tank Quick-Connect Fitting

6 - ELCM Bracket Nuts

3. Disconnect the canister ELCM quick-connect fitting(s).

4. Disconnect the Fuel Tank Isolation Valve (FTIV) wire harness connector.

Electronic Leak Check Module (ELCM)

ELECTRONIC LEAK CHECK MODULE (ELCM)

REMOVAL

WARNING

On vehicles equipped with the high voltage system, disconnecting the 12-volt battery negative cable alone will not power down the 12-volt system. You must perform the 12-volt Power Down procedure before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.

1. Perform the fuel system pressure release procedure ([Refer to Engine/Fuel System/Standard Procedure](#)) ([Refer To List 1](#)).
2. Remove the left rear wheelhouse splash shield ([Refer to 23 - Body/Exterior/SHIELD, Splash/Removal and Installation](#)).

List 1

- [09 - Engine, 2.0L / Fuel System / Standard Procedure](#)
- [09 - Engine, 3.6L / Fuel System / Standard Procedure](#)
- [09 - Engine, 5.7L / Fuel System / Standard Procedure](#)

Sample

YOUR CURRENT VEHICLE

Purge Solenoid

PURGE SOLENOID

REMOVAL

The duty cycle Evaporative Emission (EVAP) canister purge solenoid is located in the engine compartment mounted on the left side of the intake manifold.

1. Remove the engine cover.