Symptom:
P1494-LEAK DETECTION PUMP SW OR MECHANICAL FAULT

When Monitored and Set Condition:

P1494-LEAK DETECTION PUMP SW OR MECHANICAL FAULT
When Monitored: Immediately after a cold start, with battery/ambient temperature between 40 deg. F and 90 deg. F and coolant temperature within 10 deg. F of battery/ambient.
Set Condition: The state of the switch does not change when the solenoid is energized.

POSSIBLE CAUSES

VEHICLE HISTORY AND SERVICE BULLETIN INVESTIGATION
LDP SWITCH SENSE CIRCUIT SHORTED TO GROUND
WIRING HARNESS INTERMITTENT
LDP VACUUM SUPPLY
FAULTY LEAK DETECTION PUMP
LDP SWITCH SENSE CIRCUIT OPEN
POWERTRAIN CONTROL MODULE

TEST ACTION APPLICABILITY

1  Start by reading PCM DTC(s) and record the related Freeze Frame data if any DTC(s) are present. Check the vehicle repair history. If the vehicle has a repair history that pertains to the customer’s current complaint, review the repair. **NOTE: Replacing the PCM will not correct this problem.**
   Inspect the vehicle for any aftermarket accessories that may have been installed incorrectly. Check for any service bulletin(s) related to the customer’s complaint or DTC(s).
   If a service bulletin applies, follow the instructions per service bulletin. Did the service bulletin repair the customer’s complaint?
   No → Go To 2
   All

2  Ignition on, engine not running. With the DRBIII®, read DTCs and record the related Freeze Frame data. Is the DTC Good Trip Counter displayed and equal to zero for P-1494?
   Yes → Go To 3
   No → Go To 8
   All
### TEST ACTION APPLICABILITY

<table>
<thead>
<tr>
<th>TEST</th>
<th>ACTION</th>
<th>APPLICABILITY</th>
</tr>
</thead>
</table>
| 3    | Turn the ignition off.  
     Disconnect the vacuum supply hose at the Leak Detection Pump.  
     Connect a vacuum gauge to the disconnected vacuum supply hose at the Leak Detection Pump.  
     Start the engine and read the vacuum gauge.  
     Does the vacuum gauge read at least 13 in/Hg?  
     Yes → Go To 4  
     No → Repair leak or obstruction in vacuum hose as necessary.  
     Perform POWERTRAIN VERIFICATION TEST VER - 6. | All |
| 4    | Turn the ignition off.  
     Disconnect the Leak Detection Pump harness connector.  
     Disconnect the PCM harness connector(s).  
     Measure the resistance of the LDP Switch Sense Circuit from the PCM harness connector to LDP harness connector.  
     Is the resistance below 5.0 ohms?  
     Yes → Go To 5  
     No → Repair the Leak Detection Pump Switch Sense Circuit for an open.  
     Perform POWERTRAIN VERIFICATION TEST VER - 6. | All |
| 5    | Measure the resistance between ground and the LDP Switch Sense circuit.  
     Is the resistance below 100 ohms?  
     Yes → Repair the LDP Switch Sense Circuit for a short to ground.  
     Perform POWERTRAIN VERIFICATION TEST VER - 6.  
     No → Go To 6 | All |
| 6    | Connect the PCM harness connectors.  
     Ignition on, engine not running.  
     With the DRBIII® in Inputs/Outputs, read the Leak Detect Pump Sw state.  
     While observing the Leak Detect Pump Sw state, connect a jumper wire between a good 12 volt source (B+) and the LDP Switch Sense circuit.  
     Did the Leak Detect Pump Sw state change when the jumper was connected?  
     Yes → Replace the Leak Detection Pump.  
     Perform POWERTRAIN VERIFICATION TEST VER - 6.  
     No → Go To 7 | All |
| 7    | If there are no possible causes remaining, view repair.  
     Repair  
     Replace and program the Powertrain Control Module in accordance with the Service Information.  
     Perform POWERTRAIN VERIFICATION TEST VER - 6. | All |
At this time, the conditions required to set the DTC are not present.  
**Note:** Use the Freeze Frame Data to help you duplicate the conditions that set the DTC. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load.  
**Note:** Visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.  
**Note:** Visually inspect the related wire harness connectors. Look for broken, bent, pushed out, or corroded terminals.  
**Note:** Refer to any Technical Service Bulletins (TSB’s) that may apply.  
Perform a wiggle test of the LDP wiring while the circuit is actuated with the DRBIII®. Listen for the LDP to quit actuating. Also watch for the Good Trip Counter to change to 0.  
Were any problems found?  

<table>
<thead>
<tr>
<th>TEST</th>
<th>ACTION</th>
<th>APPLICABILITY</th>
</tr>
</thead>
</table>
| 8    | Yes → Repair wiring harness/connectors as necessary.  
      Perform POWERTRAIN VERIFICATION TEST VER - 6.  
      | All    |               |
|      | No → Test Complete. |          |