

Vehicle: 1998 Ford E350 Econoline

Engine: 2V, 5.4L V8

Concern- Customer states vehicle has CEL on and did not pass smog due to light.

Diag. Process: Visual Inspection- No visual concerns present at this time. Connected IDS to vehicle, KOEO- P0455 (Large leak/No flow) in PCM memory. Check Oasis- No TSBs or SSMs related. Reference DTC chart- Directed to PPT HX44. Unable to follow PPT fully due to the need of a Rotunda part unavailable at this time. Follow different routine for a better learning experience of an overall EVAP system.

Reference Description and Operation- EVAP System contents:

- Vapor Management valve (Purge valve- normally closed)
- EVAP Hoses and Lines
- EVAP Vapor Canister
- Canister Vent Valve (Normally open)
- Filler Neck/ Gas cap
- Fuel Tank Pressure Sensor (FTPS)

Ran EVAP Test using IDS- Failed test due to System not pulling or holding a vacuum on the Fuel Tank. FTPS not reaching desired .9V – 1.6V. Staying at 2.7V.

1.02

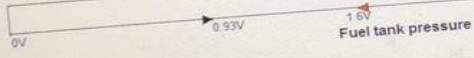


EVAP Test

FLI	CANP	EVAPCV	TIME
26%	100%	100%	0s

RPM	IAC
1390RPM	66%

FTPress 2.7V

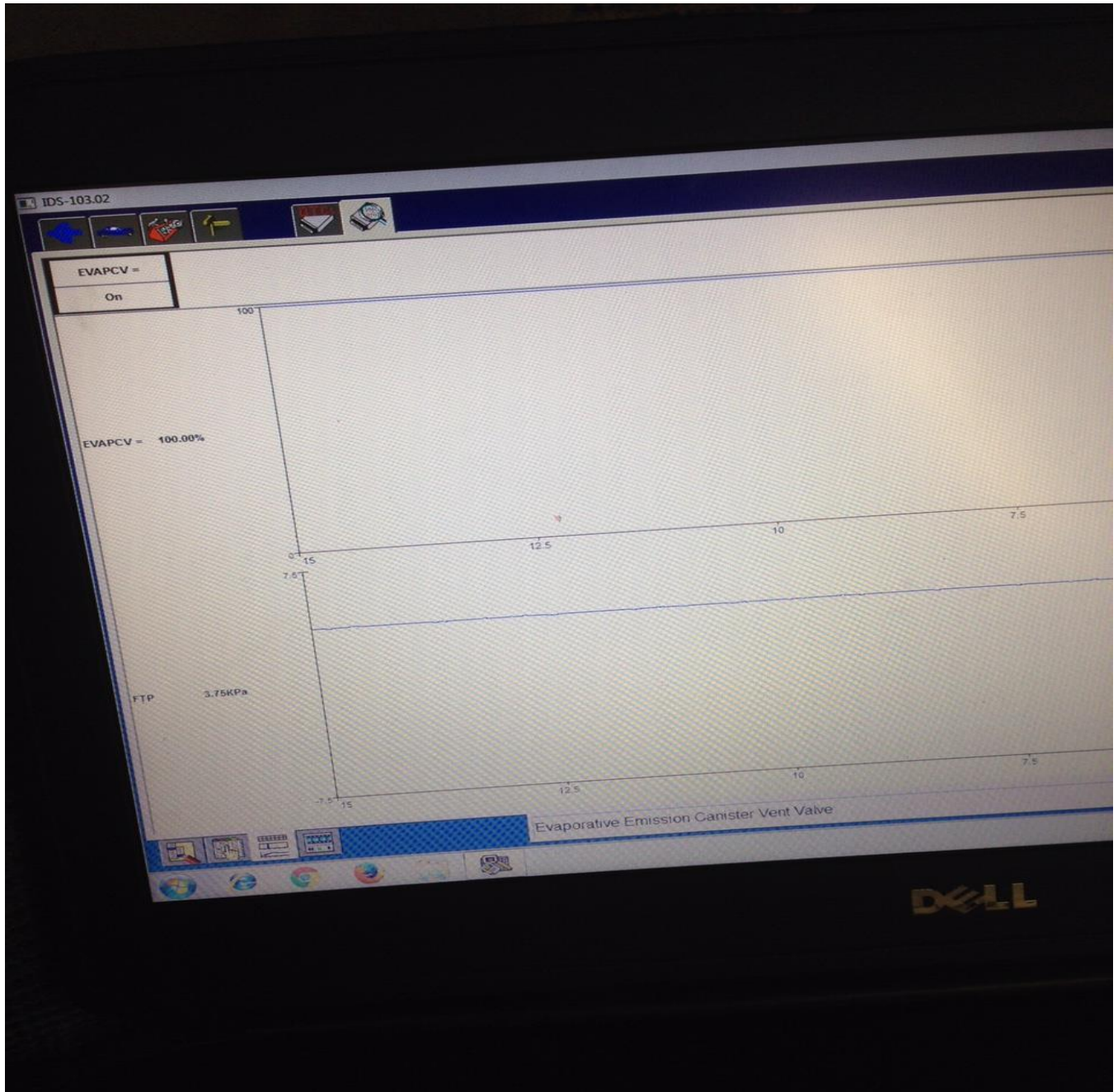


Pulling Target Vacuum



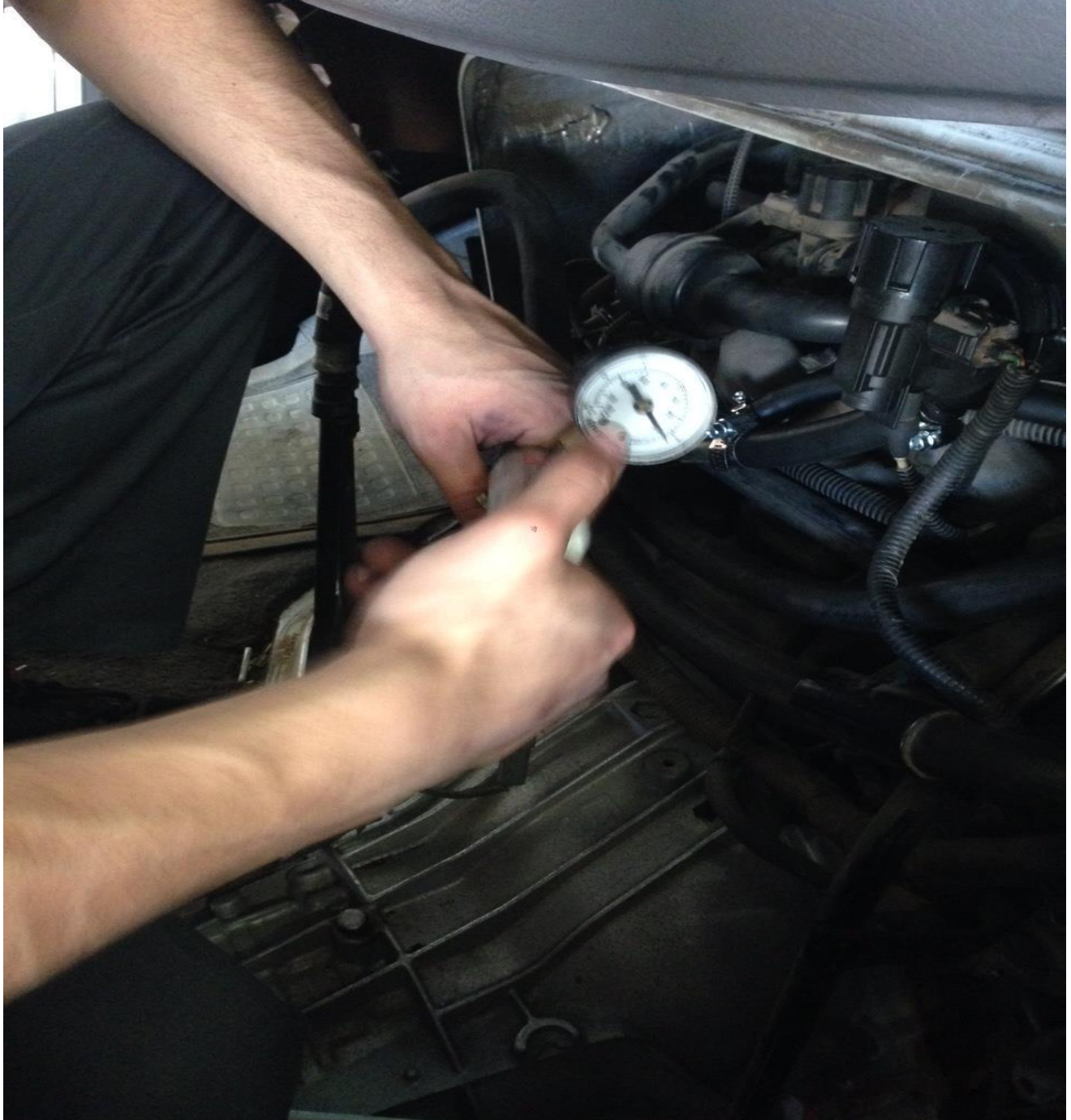
DELL

We then proceeded to pressurize the EVAP system with the leak detector (Smoke Machine). We by-passed the Purge valve and used the hose coming from the vapor canister to the purge valve to induce smoke. The smoke would then go all the way from the purge valve at the front of the van, back through the hoses, canister, tank, and vent valve thus to then look for a leak in the system. We closed the Vent Valve using IDS so the smoke would not escape through the Vent tube. After inducing smoke with the machine we did not see any leaks and we monitored the FTP using IDS to ensure the system was holding pressure.



PRESSURE CONSTANT AT 3.75KPa. (more or less 0.5 PSI)

Once we noticed that the entire system was holding pressure, we proceeded to check if we could manually apply a vacuum to the system. Using a manual hand vacuum pump, we placed a vacuum on the system and while monitoring the FTPS using IDS we confirmed the system was indeed capable of holding a vacuum.



FTPS – STAYED READING -3.75V. A NEGATIVE NUMBER MEANS A VACUUM IS PRESENT COMPARED TO A POSTIVE NUMBER WHICH MEANS PRESSURE.

After the passed vacuum test, we figured there was a problem with either our Purge Valve staying closed (causing no vacuum to be pulled from the intake manifold through the valve), or an issue with our vacuum supply to the valve. We then started with our vacuum supply by checking our vacuum lines and found no vacuum present to our Purge Valve. We then followed the lines and found where the main source of vacuum came through, and found a restricted main vacuum hose to our vacuum canister which holds the vacuum supply for the Purge Valve as well as one other valve which we did not identify at this time.

Repair- We replaced the main restricted vacuum line and blew out the other smaller lines. Ensured vacuum now present at the Purge Valve, Re-Test using IDS EVAP test, Clear CMDTCs, Reset KAM. All tests passed and all EVAP operation normal at this time.