What is Engine Polygraph®?

Engine Polygraph® is a procedure using a computer application that tells you the truth about what is the condition of your internal combustion engine's basic components while **in operation**. It does this using advanced mathematical analysis of data from SenX FirstLook® sensors (SenXtech.com) measuring pressure pulses from your engine's exhaust and crankcase.

With the **Engine Polygraph®,** we upload and analyze sensor data quickly and easily captured using the Engine Polygraph Diesel kit to determine the physical integrity of the engine and to provide "scores" for components (EnginePolygraph.com) on your report. The score rating system uses '1' to represent 'best possible' and '9' to represent 'worst case' – but still running.

In a 'perfect' engine, each cylinder produces the same pressure variation in the exhaust and into the crankcase. By analyzing the variation between cylinders in terms of pressure waves measured and the duration of the stroke associated with the wave, a score is assigned to the upper engine (primarily exhaust) and another score to the lower engine (primarily crankcase). The worse of the two is assigned as the health of the engine since it is the most likely to result in catastrophic failure (in which case, any other problem area is not of concern)

The power stroke is associated with the crankcase since most blow-by occurs during the power stroke of a cylinder; the exhaust stroke is associated with the maximum output pressure in the exhaust pipe. (There can be surprises when an exhaust valve cannot close, allowing the power stroke to blow directly into the exhaust pipe 'out of turn'.)

In addition, poorly seated valves produce high frequency waves that are detected in the exhaust. These waves can be mathematically extracted and measured, providing a measure of 'poor exhaust valve seating'. Similarly, Volumetric efficiency scores indicate fluctuations in the exhaust pressure wave that indicate troubles with moving the air smoothly from intake to exhaust.

Using the EnginePolygraph.com application, you can request an Assessment report to get an evaluation of the 'physical health' of your engine. This is useful if you are interested in buying or selling a used engine/vehicle. But the report is especially useful in diagnosing an engine with an observed problem, whether or not the engine has triggered an OBD code.

The concept of the **Engine Polygraph** takes full meaning when an Assessment report is generated before an engine 'repair' procedure, whether a cleaning treatment for carbon buildup or a mechanical tear-down and 'replace or fix' procedure. (Typically, that report was very helpful in the diagnosis.) Then, after the procedure is completed, another Assessment report can show the change of engine integrity – was the procedure effective at solving the problem, or not? In this way, the 'truth' of the diagnosis AND the fix can be documented!