

Adding an LED indicator light to check VOES (Vacuum Operated Electrical Switch) operation on your Harley Davidson motorcycle

Function: The VOES (Vacuum-Operated Electric Switch) senses intake manifold vacuum through a carburetor body opening. The switch is open when the engine is in low vacuum situations such as acceleration and high load. The switch is closed when engine vacuum is high during a low engine load condition. The VOES allows the ignition system to follow two spark advance curves. A maximum spark curve can be used during a high vacuum condition to provide improved fuel economy and performance. During heavy engine load and acceleration (low vacuum) conditions, the spark can be retarded to minimize ignition knock and still maintain performance.

Installation: By installing an LED, in series with the grounding lead, you can tell whether the VOES is functioning correctly (normally open – low vacuum, closed – high vacuum), plus not lug the engine by either down-shifting or rolling off the throttle.

The LED should light in high-vacuum situations (switch closed – idle & steady RPM) and go off in low-vacuum situations (switch open – acceleration & load).

To build the circuit, purchase Green LED from Radio Shack (part # 276-271) add it to the ground wire (in series) from the VOES using appropriate wire and connectors. Note the polarity of the LED - red (+) from VOES, black (-) to ground.

