

Tips & Technology

For Bosch Partners

Current topics for successful workshops No. 81/2014

Gasoline Injection



BOSCH

Invented for life

DECOS - Demand-controlled fuel delivery

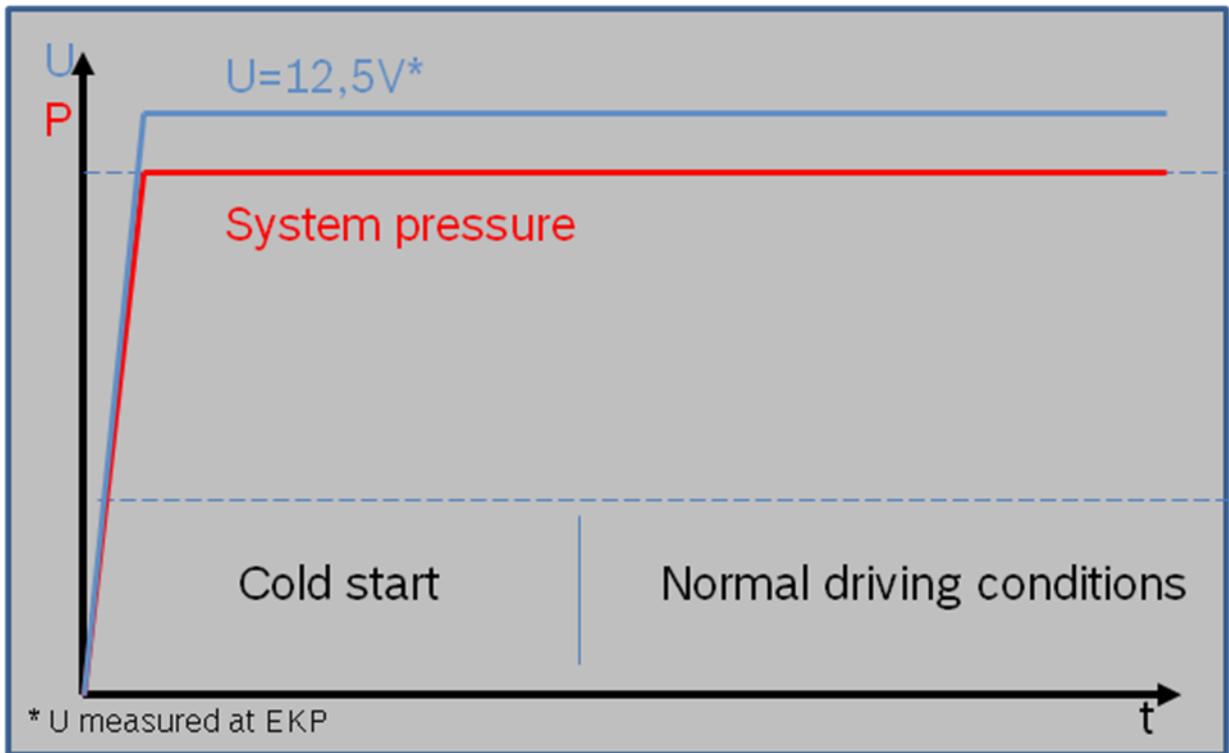


Following gravity-fed gasoline and the mechanical diaphragm pump, an electric fuel pump (EFP) to deliver fuel from the fuel tank to the engine has become commonplace in modern vehicles today. This pump has undergone continuous development in recent years, and an increasing number of vehicles, diesel- as well as gasoline-powered, now have a **demand-controlled** EFP. An additional component needed is a control module (PEM – Pump Electronic Module), which controls the EFP on the basis of signals from the engine control module or the engine temperature and load. The EFP is powered at full capacity only on demand, unnecessary recirculation of fuel is avoided, power consumption is reduced and overall fuel consumption of the vehicle drops by 0.1L/100 km or ~2.4 g/100 km CO₂.

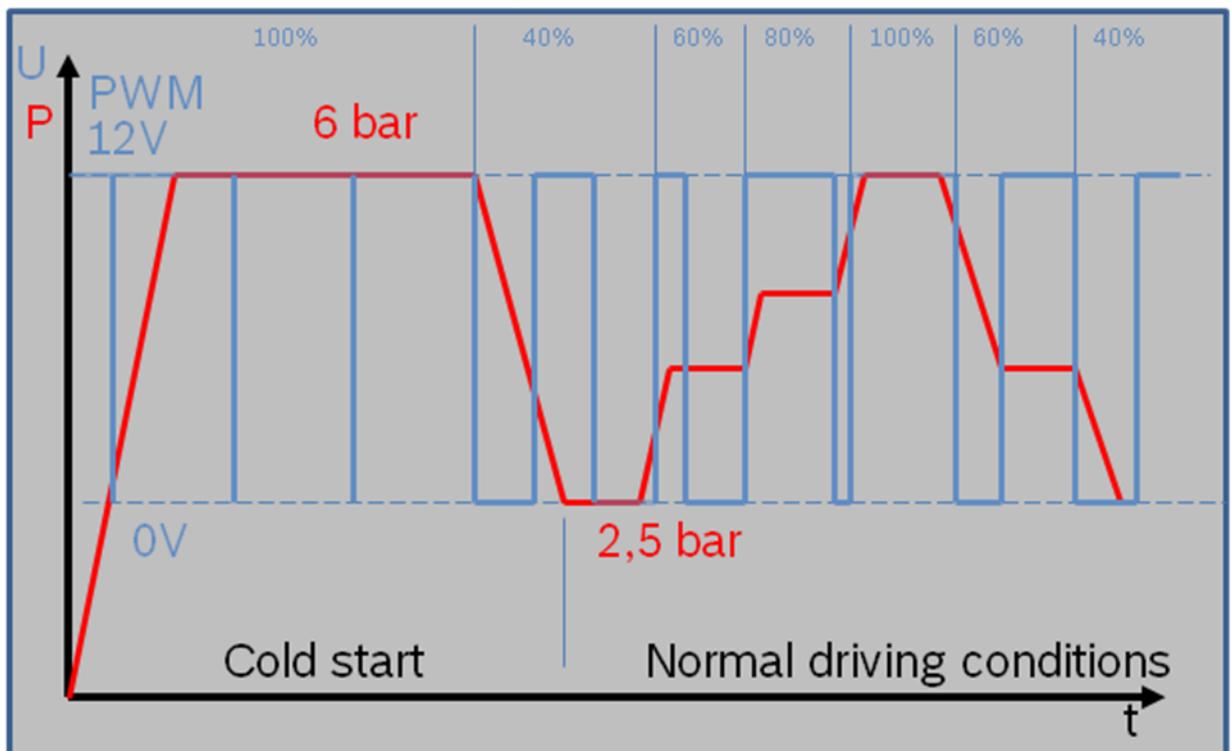
When troubleshooting the fuel circuit, the workshop can recognize a demand-controlled EFP if the fuel pressure fluctuates between 2.5 and 3.0 bar with the engine idling at operating temperature, or if the fuel pressure increases to 6.0 bar when the engine is cold or under full load. If the PEM is found, usually mounted directly on the tank insert module, or if a frequency signal is measured on the PEM with an oscilloscope (e.g. VAG: 20 Hz PWM) or at the EFP connector (e.g. VAG: 20 kHz), a demand-controlled electric fuel pump is certain to be installed.

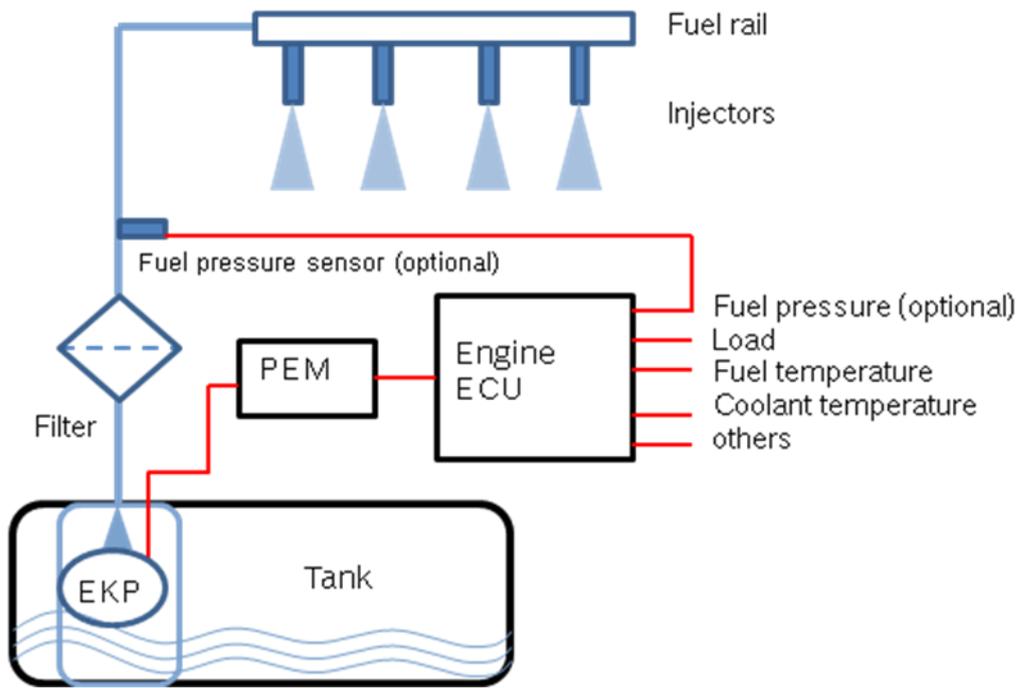
In addition, for some time automakers have been installing not only standard EFPs with brush commutation, but also EFPs with brushless synchronous motors that require three-phase control by the PEM. The first vehicles of this type have just recently appeared on the road.

Not demand controlled fuel pressure



Demand controlled fuel pressure





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