Tips & Technology
For Bosch business partners

Current topics for successful workshops No. 03/2016

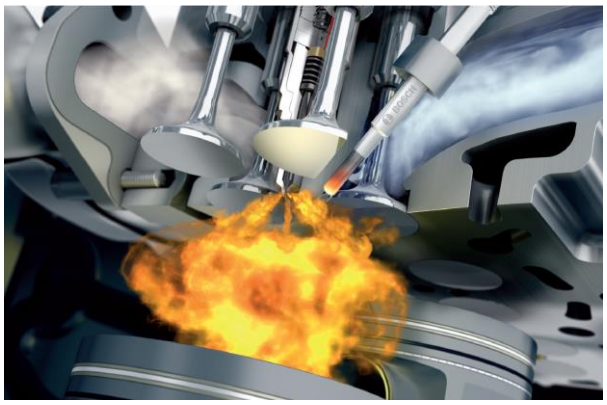
Diesel Injection

BOSCH
Invented for life

Multi-tasking glow plugs: Modern glow plugs are more than just a starting aid

Diesel: eco-friendly and attractive

Car drivers take a great interest in electric and hybrid vehicles. Up to the present day, however, these drive concepts do not manage to cover large distances independently and at reasonable expenses. Diesel engines, on the other hand, have become ever more attractive because of their robustness, a high power output and environmental friendliness through low fuel consumption. This won't change throughout the upcoming decades, either. Thanks to their comfortable driving style, diesel systems are the first choice for most drivers – especially in Europe.



Bosch technologies as driving forces

Its groundbreaking inventions, such as common rail or unit injector systems, made Bosch a pioneering and driving force for the progress of diesel engineering. As a worldwide leader in terms of diesel system development, this manufacturer also invests its diesel system competence in the conception of latest glow plugs.

Sheathed-element glow plugs take on several tasks inside engines

Glow plugs are of increasing importance for modern diesel engines. The reason: Due to the lower compression of innovative diesel engines, the diesel/air mixture does not ignite itself anymore in case of a cold engine. The glow system thus has to work even with the engine

running. This is known as “post glow”. In former times, glow plugs were only used for the preheating during the engine start. With modern direct-injection engines (DI), however, post glow becomes ever more important. It allows running the engine in a comfortable and fuel-efficient manner even in case of stop-and-go or city traffic.

Bosch DuraSpeed glow plug

Post glow protects the environment

At the warm-up phase, the glow plug continues to glow for up to 360 seconds. This prevents troublesome “knocking” during cold starts and reduces the pollutant content of exhaust gases – by up to 60 % in case of a cold engine.

Periodic regeneration of the diesel particle filter

Modern diesel particle filters are able to filter out almost all soot particles in exhaust gases. In order to prevent them from clogging, resulting in excessive exhaust-gas back pressures at the engine, the filtered particles have to be burned from time to time. The intermediate glow of Bosch DuraSpeed glow plugs contributes to this socalled periodic regeneration.

Checking glow plugs before winter

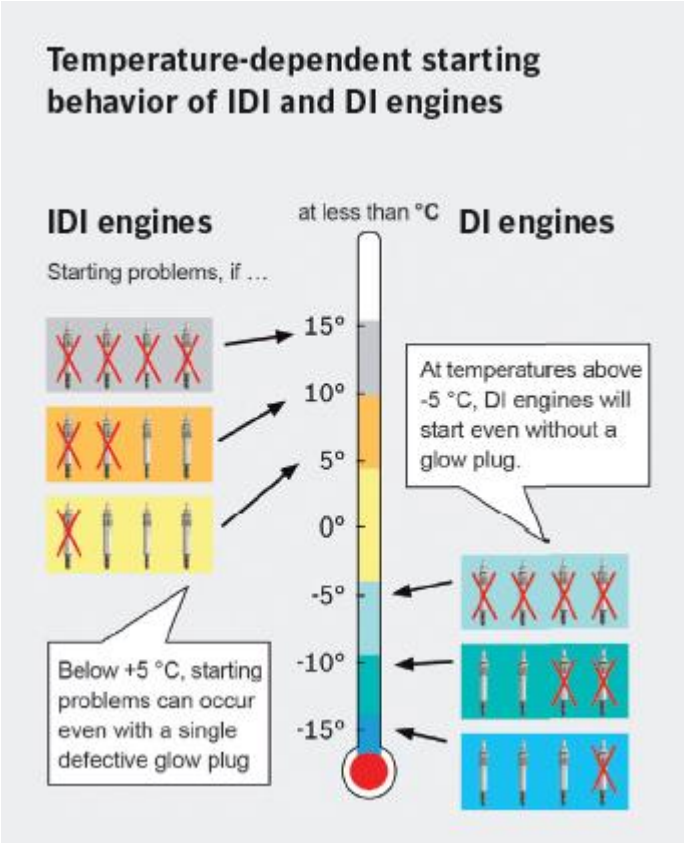
At summer temperatures, self-igniting diesel engines start up without any starting aid – even with one or several defective glow plugs. The driver won’t even notice. As temperatures drop, engines will no longer start that easy and the driver will have to try for longer. Maybe he gets the engine started on three of its cylinders, but as soon as temperatures fall below zero, only workshops can help on. To ensure reliable engine starts in winter as well, glow plugs should be checked on time before the start of the cold season.

Checks every 80 000 to 100 000 km

Bosch Duraterm glow plugs feature an average service life of 80 000 km. Ceramic glow plugs usually last for 250 000 to 300 000 km. And yet they are wearing parts as well. Workshops should thus regularly check their flawless operation as a part of the service. Glow plugs usually reach their wear limit in quick succession. Therefore, in general, it is cheaper for the customer to have the complete set replaced rather than replacing the glow plugs one by one – especially considering that the connection lines and conductor bars have to be removed for each replacement.

Checking glow plugs of loud, roughrunning and powerless engines

Defective glow plugs can cause failures. In case of increased smoke formation, loud and rough engine operation or customer complaints about a lack of power or increased fuel consumption, checking the glow plugs is thus well worth it.



The starting behavior of IDI and DI engines very much depends on the temperature. Especially in case of defective glow plugs during the cold season, this leads to starting problems. With one defective glow plug, IDI engines will experience starting problems already at 5 °C. Customers should thus be informed about this topic actively and on time.

Glow plugs should be checked regularly – particularly

- in case of increased smoke formation, especially after a cold start,
- if the combustion noise is louder than usual when the engine is cold,
- if the engine runs unevenly despite a warm engine,
- if the power output drops or fuel consumption increases.

Workshop advice: Stick to the following rule of thumb when replacing glow plugs:

- Less than 50 000 km: Replace only defective glow plugs.
- More than 60 000 km: Replace them all if one of them is defective. Although they might still be working, the other glow plugs are very likely to fail soon too. In this case, your customer would have to return to the workshop.