

CORRECT USE OF GLOW PLUGS

It is essential that the correct voltage and current are used in line with the vehicle manufacturers recommendations. If the voltage or battery capacity is too low, the glow plug will not get hot enough and the vehicle may fail to start. If the voltage is too high the heating coil may melt or the glow plugs service life will be reduced.

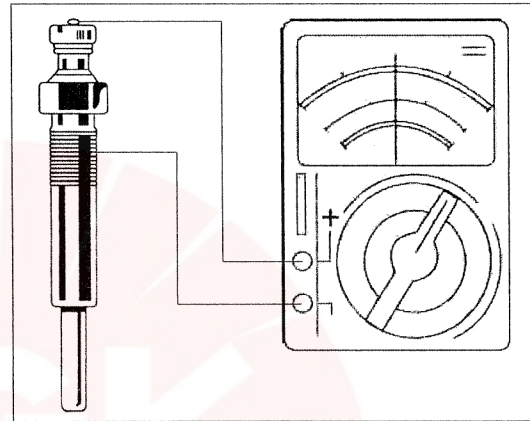
The pre-heating time of glow plugs can vary significantly, dependant upon the technology of the glow plug in use. For example, standard type glow plugs may take 20 seconds to reach 800°C, whereas the latest ceramic types can reach in excess of 1000°C in 2 seconds.

If starting difficulties are experienced, continuous cranking or leaving the ignition switched on without the engine running can lead to premature failure of the glow plugs and draining of the battery. A better method is to switch the power off and retry the starting procedure after a short period of time.

Thread Diameter	Tightening Torque
8mm	8-15Nm (0.8-1.5Kgm)
9mm	7.65-9.35Nm (0.7-0.9Kgm)
10mm	15-20Nm (1.5-2.0Kgm)
12mm	20-25Nm (2.0-2.5Kgm)
14mm	20-25Nm (2.0-2.5Kgm)
18mm	20-30Nm (2.0-3.0Kgm)

Testing Sheathed Type Glow Plugs

In order to check the heating coil, measure its resistance as shown in the diagram (excluding double insulated, YD, CX type part numbers). Some resistance values are extremely low (such as some QGS types) and should only be tested with an Ohmmeter capable of recording values down to 0.1Ω. Testing glow plugs by connecting directly across a battery is NOT recommended as, apart from risk to personal injury, damage can occur to the internal construction of the glow plug if it is not designed to have continuous voltage applied (e.g. QGS types).



Resistance value ∞ : The heating coil is broken

Resistance value less than 5 Ω : The heating coil is in good condition

INTERPRETATION OF GLOW PLUG APPEARANCE

Appearance	Causes	Recommended Counter Measure
Melted Heater Tube	1. Abnormal Overheating a) Incorrect fuel injection timing or volume flow rate. b) Abnormal combustion due to excessive lubricating oil entering the combustion chamber. 2. Excessive Voltage a) Incorrect glow plug has been fitted. b) Faulty controller relay or glow plugs switched on too long.	a) Check fuel injection. b) Check valve guides and piston rings. a) Confirm glow plug part number is correct. b) Check controller relay operation.
Heating Coil Broken ∞ Resistance	a) See excessive voltage above. b) See carbon build up below.	
Broken Heater Tube	Excessive turbulence or overheating due to incorrect fuel injection timing or volume flow rate.	Check fuel injection timing and volume flow rate.
Shiny appearance on heater tube Swirl marks on heater tube Carbon build up at taper seat area	Build up of carbon surrounding glow plug heater tube in combustion chamber.	Ream excessive carbon from glow plug hole prior to fitment.