

PDMCC

Pendle District Model Car Club

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Setup Guide

Guide to glow plugs

October 2009

Source: rchoobbies.org

Glow Plug Guide:

Without a glow plug, your engine won't run, simple enough. Now without the right glow plug, your engine just won't run properly, simple concept. But you are saying to yourself, "Well, how do I know what the proper glow plug is for me?" Well this is a fairly simple question to answer. Glow plugs work by adding compression, heat, and a catalytic reaction between the methanol in the fuel and the platinum in the coil.

Companies rate and sell their glow plugs by their "heat range". The different general heat ranges are cold, medium, and hot. The heat range of the glow plug is what determines the exact time that the fuel/air mixture being compressed in the cylinder ignites and pushes the piston down. While this sounds like a simple thing, it is absolutely vital to your engines performance. So let's go on to the function of each type of glow plug and their proper applications.

Hot Glow Plugs:

When you run an engine with a hot glow plug, the compressed fuel/air mixture in the cylinder ignites earlier (more advanced ignition) than a medium or a cold plug would. Hot glow plugs are normally used with low-nitro content (5-20%) fuels to advance the timing and igniter the fuel earlier. Lower nitro fuels burn slower, therefore the mixture must be ignited sooner for the engine to run properly. To hot of a glow plug for your certain nitro percentage can cause pre-detonation and permanent engine damage. An example of a hot glow plug would be the O.S. A3.

Medium Glow Plugs:

Medium glow plugs work the same way that hot glow plugs do, but the do not ignite the fuel as early (more retarded or delayed ignition). Medium glow plugs are often used in medium-nitro fuels (20-30%). An example of a medium glow plug would be the HPI R3.

Cold Glow Plugs:

Cold glow plugs are just like the other glow plugs, but instead, they are meant to be used in engines running high-nitro fuels (30%+). An example of a cold glow plug would be the HPI R5. Cold glow plugs typically have a thicker element in them than a medium or hot glow plug.

Turbo vs. Non-Turbo glow plugs:

Glow plugs come in 2 different styles, Turbo and Non-Turbo. Now before you start thinking "Oh turbo must mean fast, I need that" lets discuss the difference in them.

Turbo Glow Plugs:

Turbo glow plugs differ from standard, non-turbo plugs because they use a tapered edge to make a tight seal between the head button and the cylinder. This lets them to run without a copper washer for a gasket, and also allows them to have a smoother head button which adds a tiny bit of power. An example of a turbo glow plug would be the O.S. P3. Note that you can clearly see the tapered edge.

Non-turbo glow plugs do not have a tapered edge to form a seal between the cylinder and the head button, Instead they use a copper washer. Non-turbo glow plugs (commonly called standard glow plugs) use a different head button than a turbo plug would. The head button is not as smooth; this in turn takes away a tiny bit of power. A good example of a standard plug would be the O.S. 8

How To Read Glow Plugs:

If you know much about 1:1 scale car racing, you will know that teams examine the spark plugs that have been used in the engine while racing, then they use a method called "spark plug reading" to determine how the engine is tuned. Well for scale model cars running 2-stroke nitro engines, there is a method of doing this. It is called "glow plug reading". Here is a general how-to guide on reading glow plugs. (Note: this is meant for new glow plugs, it cannot be accurately done on glow plugs that have been run for a while)

- 1.** Wire and surrounding bottom of plug wet, with like new shiny wire = rich side of optimum power
- 2.** Wire and surrounding bottom of plug starting to dry and wire starting to gray = very close to optimum power
- 3.** Wire and surrounding bottom of plug dry, wire totally gray but not distorted optimum power
- 4.** Wire and surrounding bottom of pug dry, wire distorted = slightly lean "DANGER!"
- 5.** Wire and surrounding bottom of plug dry, wire broken and distorted or burnt up = extremely lean possible engine damage!