Glow Plugs – Why Do They Fail?

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The "ignition system" in our engines is in the main, the glow plug. The other vital ingredient, compression, actually determines the ignition timing, so it can't be totally ignored. But usually its the plug that gives us the problems.

Why DO glow plugs fail? There are four likely probabilities, five if you count old age. Yes, old age! The plugs operate by using a catalytic (chemical) reaction with the alcohol in our fuel to maintain their heat; as the plug gets "old", it gets more and more covered up with combustion byproducts (carbon, etc.) which hinders the whole process. Of the other four, LEAN RUNS is probably the most prevalent - not so much that the engine was running lean, as it was HOT. Too much heat, and the element fries and shatters, or even melts.

TOO MUCH BATTERY power is another failure mode - very related to the above paragraph. Your battery should heat the plug to a nice bright orange or red orange color; if the plug glows white hot, it just isn't going to last. It's bad enough that we subject a tiny little element glowing hot, to the pressures of combustion. But if we add more VIBRATION to the situation, we get trouble. Unbalanced props, loose engine mounts, etc. may all add up to plug failure, especially in combination with too much heat.

Another plug failure mode is from FOULING. The element is very small, and located down in a well. It doesn't take much trash flying around in your combustion chamber to foul (and ruin) the plug! Aside from the obvious dirt coming through the intake or with the fuel, the fouling can come from metallic sources, usually a result of bearings coming unglued, or from excess carbon deposits in the engine. If the combustion chamber is full of caked-on carbon, pieces of that can, and do, come adrift and end up fouling the plug.

A quality plug run in a sport engine should last for dozens of flights If they don't, its probably not the fault of the plugs - its time to look elsewhere for the source of the REAL problem