

PDMCC

Pendle District Model Car Club

www.pdmcc.co.uk

Setup Guide

How a nitro engine works

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Source: nitrotek.co.uk

The nitro engines we sell are two-stroke, air-cooled (water-cooled marine) engines. They feature a true "ABC" (Aluminum, Brass, Chrome) construction. The chrome sleeve has a slight taper so the aluminum piston fits tighter towards the top of the sleeve compared to the bottom. When the engine reaches proper operating temperature its perfect running tolerances will then be achieved. The piston will feel tighter when the engine is cold.

Fuel enters the engine through the carburetor where it is mixed with air. The fuel/air mixture is then drawn into the crankcase. The crankshaft has a rotating valve, which opens and closes the crankcase to let fuel into it. On the pistons down stroke, the crankcase becomes pressurized, and fuel is blown into the combustion chamber through intake ports cut into the sleeve. On the upstroke, the fuel is compressed and ignited. When first trying to start your engine, the electrically heated glow plug causes the fuel to ignite. Once the engine is running the fuel is ignited by rapid compression in the combustion chamber. The exhaust is then released through a third port in the sleeve.

The oil that is contained in the fuel mixture lubricates the surfaces of the piston and the sleeve. The oil in the fuel also helps to cool the engine while running. Some of the oil is burned when in the combustion process which is what creates the blue smoke trail from the car.

The air to fuel mixture is critically important. A mixture that is too "rich" means that there is too much fuel, a mixture that is too "lean" means that there is not enough fuel for the given amount of air. When the mixture is too rich, performance will be sluggish. There is also a high potential to foul the glow plug when running the car too rich. When the mixture is too lean, there is not enough oil to lubricate and cool the engine parts. Running too lean will almost certainly damage internal engine parts as well as foul the glow plug.