



Vortex MiniRok engine info.

You can ask us questions anytime by email ... [email us](#)

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We are an approved supplier of these new engines to Australian karting, located in Brompton , a suburb just near the Adelaide CBD, in South Australia.

With the use of the engines falling to categories that introduce new kids, and their parents, to the sport and to learning about mechanical things probably for the first time, we will try to pass on the information we gather to help you keep karting.

A dyno curve from a Vortex MiniRok engine in unrestricted Cadet 12 form is [here](#)

The complete Dell Orto carb tuning manual is [here](#)

NEW ... if you are looking for a guide to good oils to use, our own team drivers are currently running 30:1 ratio on either Maxima K2, or Rotax XPS oils.

Tuning the Dell Orto PHSB18 carb.

The Vortex Mini Rok engine uses a float bowl type carburetor with fixed jets similar to that in use on all of the Rotax Max family of engines. To a karter this seems odd after using carbs with jets that can be adjusted 'on the run', but to a newcomer or a motorcycle racer a fixed jet carb is quite a reasonable idea.

The difficulty with all racing engines is to keep them tuned to an optimal setting, and to do this with fixed jet carbs you need to know prior to a race what settings you will need so you can make the change in the pits and not out on the track. Specific to the Rotax Max engines the factory supplies a colourful jetting chart to do the same but so far I have not seen this done for the MiniRok.

In years past a calculator was used to put on paper a large chart of jet settings to cover all of the variables you might encounter at any given track or under any type of weather for one engine and carb setup. Put simply, the jet size is dependant on the weather conditions, and jet sizes can be mathematically calculated from an original size to a new size as required for any variable in the weather. The MiniRok class racing worldwide is done with engines that are not modified all that much from their standard settings, so the fuel requirements of the engine can be expected to remain the same from one day or one race meeting to the next, and every driver can expect to have close to the same jetting requirements as any other driver.

To make this easier , here is an excellent article describing the use of a RAD gauge to do that task. Put simply, it works

[.Dtec services.](#)

Jet Tech PRO tuning software.

If you were lucky enough to obtain a JetTech Pro jetting software package before that company closed down, here are the recommended settings.

Jet-Tech PRO is a PC based software and not available as an App.

Jet-Tech PRO using a temperature of 15°C, 50% humidity and 1013.2mb pressure. In the US the spec fuel used is VP MS98 with Motul 2T oil. Using the Fuel-Lab feature that combination gives an SG of 0.723 with a 25:1 fuel/oil ratio.

Settings as follows:

Venturi: 18
Needle: W23 (4clips)
Emulsion tube/Needle Jet: 262AU
Floats: 4g
Float height: 15mm to 16mm
Needle/idle change: No
Idle jet: 50
Fuel/Oil ratio 30:1
430 Needle Factor
150 Mainjet Factor

Re-arranging the fuel hoses with a return line for engines that suffer over-fuelling.

There are at times conditions that can make the MiniRok hard to start, like re-starting a very hot engine for instance does cause people some issues. One solution is to run a return line between the fuel pump and carburetor to release some of the pressure that causes the carb to overfill and even slightly pressurise, which has the effect of filling the engine crankcase with fuel.

As pictured below, a **t-piece** is included in the fuel hose between the fuel pump and the carb. **On the left** the **t-piece** is installed in an upside down fashion and fixed in position above the carb, with fuel leaving the pump and entering the **t-piece** from the drivers side of the engine and exiting to the outside of the kart. The fuel then always flows downhill from the outlet of the **t-piece** and back to the drivers side of the engine and into the carb.

The upright leg of the **t-piece** is in the vertical "up" position carrying a hose going straight upwards for 50mm to 70mm and then makes a U-turn back down to then run along the chassis and back to the fuel tank. The return hose line can have a restrictor included in it somewhere if the return flow needs to be restricted, but usually this is unnecessary. The best place to fit a restrictor is just before the fuel hose attaches to the tank fitting as it will be more easily accessible should it require change or removal. All of the hoses should be of the same internal diameter, it is not suggested to use combinations of larger and smaller hoses.

In the two pictures on the right the **t-piece** is fitted directly above the fuel inlet on the carb. This also requires a return line to go vertically upwards for 50mm to 70mm and then make a U-turn back down to then run along the chassis and back to the fuel tank. The return hose line **must** have a restrictor included in it somewhere in this instance. The best place to fit a restrictor is again just before the fuel hose attaches to the tank fitting, with a restrictor of 1.5mm to 1.7mm ID . And again all of the hoses should be of the same internal diameter, it is not suggested to use combinations of larger and smaller hoses.



Take a look at the Rotax Max jetting chart here for an idea of a simplified jetting solution ... [download macro enabled charts here](#)

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