

## **MVVS running instructions**

All engines are sold with a parts list. This list is needed in case you need replacement parts, so you should keep it in a safe place.

1. Breaking in an engine is done to mate all internal rubbing surfaces in order to achieve a low friction and wear. Because of that, at first there is some extra wear, which makes itself noted by black expelled oil. This is especially true for castor oil, and to a lesser degree for synthetic oil, which takes longer to complete the breaking in process.

For that reason, some manufacturers offer a special oil for breaking in.

Because the first high friction may lead to local overheating inside the engine, the engine must be run for short bursts, and with a rich mixture and ample oil content. The increased fluid flow carries away any extra heat and wear particles generated

Full power should not be asked of the engine for any sustained periods of time at this stage.

**Breaking in** should be performed as described below:

Using break-in fuel, we recommend a high castor content of 18% to 22%, run the engine with a large, and low-pitched propeller. Run the engine with this fuel, until the cold engine's piston is no longer tight in top dead centre.

Non-ringed ABC engines may still be a bit tight. The motor should be run for one-to minute bursts, and then stopped to cool down completely, before starting again.

**A basic fine tune setting** for the carb needles can not be provided because of differences in fuel used may have a large influence. Because of that, all adjustments must be made from a four-stroking rich base setting!!

It is important, that before setting the main needle, the idle needle must be opened completely, so there is no influence of the idle needle when setting the main needle.

Turn out the main needle 3 turns from the closed position, open the carb barrel to the full open position, then close the carb mouth with a finger, and turn over the propeller anti-clockwise until fuel is sucked up into the fuel line.

With the carb mouth still closed, flip the engine a couple of times until it feels loose, and wet with fuel. Now close the throttle barrel halfway, apply the glow battery, and smartly flip the engine counterclockwise. It should start.

Open the throttle completely, and adjust the main needle so the engine runs quickly, but not yet at maximum rpm. Further closing of the needle should cause an increase in rpm.

The idle needle can be set, as soon as the main needle is close enough to the final running position. One should consider that in flight, almost all engines lean out quite a bit. This must be accounted for when setting the needles before flight. A lean setting can, and will destroy the engine, especially in high strung powerful designs.

If the engine cannot be adjusted properly, the tuned pipe length, if present, may be too short.

A good start for setting the idle needle is, when with closed throttle, air just starts to escape when you blow on a short piece of fuel tubing that is attached to the carb fuel inlet. Finally adjust the idle needle, so that throttle response is quick and crisp when the throttle barrel is opened quickly.

## **2. Tuning the resonant exhaust pipe.**

When tuning a reso-pipe, it must be considered that a too short pipe will cause all sorts of problems, while a pipe that is too long only hurts top end power. With the pipe too long, cutting pieces off the header pipe will increase top end rpm. Sections of 2 cm at a time can safely be cut, until there is no increase any more. That will be about the right length.

With the pipe too short, the following problems may occur, all of which may damage the engine:

- The engine runs too hot, and may get damaged
- The carb cannot be tuned well
- The glowplug burn out frequently
- Increased blow-back of fuel from the carb.

A well tuned pipe will cause to increase the rpm when the model is in flight.

## **3. Fuel for MVVS engines.**

All MVVS engines are designed to run well on FAI fuel. That is methanol fuel without Nitromethane, and 20% Castor oil. Nitromethane in excess of 5% may be used, if the compression ratio is reduced by adding extra shims under the head. When the engine runs too hot, or burns out plugs, the Compression ratio is too high for that particular fuel.

## **4. Engine service and Warranty**

When you want your engine serviced, send it back to us, and add a precise description of the problems you have with that particular engine, so we can order the replacement parts required. Older engine types may have a different numbering, so also state the make and year of the engine.

Warranty is provided for manufacturing and material flaws. We will evaluate the damage to the engine. When under warranty, the faulty parts will be replaced free of charge. Shipping costs will be charged however.