

Mosquito ~~IVAG~~



**POWER
BY
SWEDISH AEROSPORT**



How it works

The Mosquito harness is a separate unit that allows a normal hang glider to become a foot-launched powered aircraft. Whilst on the ground 2 legs extend below the engine, keeping the propeller free from ground. Once airborne you close the leg zipper on the harness and the 2 legs automatically fold along the harness for least possible drag. No modification is needed to the glider apart from the keel being cut 1300mm from the hang-point. On several modern gliders the manufacturers already do this. The cut-off section can be refitted to help rig the wing and for free flight.

Rigging:

No tools are needed and rigging can be done in less than 5 min without hurrying: Firstly fix the fuel tank to the upright or, if the internal tank is used, put it in the back pocket of the Harness. Then hook the Mosquito to the wing. Finally attach the prop to the prop shaft and (if used) attach the limit lines to the wing.

Take off:

After pre-flight checks, starting and warming up the engine it is time for take off. Make sure you are directly into the wind, wings level, bite on the throttle and start to run until you have gained speed enough to be able to climb. The only extra weight you need to carry is the fuel on your downtube if you have the external tank and about 5 Kg on your hips. After a few steps your wing will carry itself, so the only thing the pilot needs to do is to keep the glider level and straight into wind whilst running. The take-off distance varies between 5 –100m depending on many factors such as headwind, type of glider, weight and take-off skills of the pilot. It is of course also possible to take off down a slope, which may be helpful for those first take-offs.

Flying:

Flying is not very different to free flight. However, under power the engine thrust will push the pilot forward. This means that the speed bar will be further back than with engine shut off. This is not difficult to get used to but is really important to keep in mind if full control is to be achieved. Due to the small extra weight and slim design of the harness your thermalling possibilities will hardly be affected.

Landing:

The landing is very easy. You can flair or run down your glider whichever is most convenient for you. Just remember to open the leg zipper - which extends the legs - and to switch off the engine.

Warranty:

The Mosquito is delivered with a 3-year warranty against production faults.

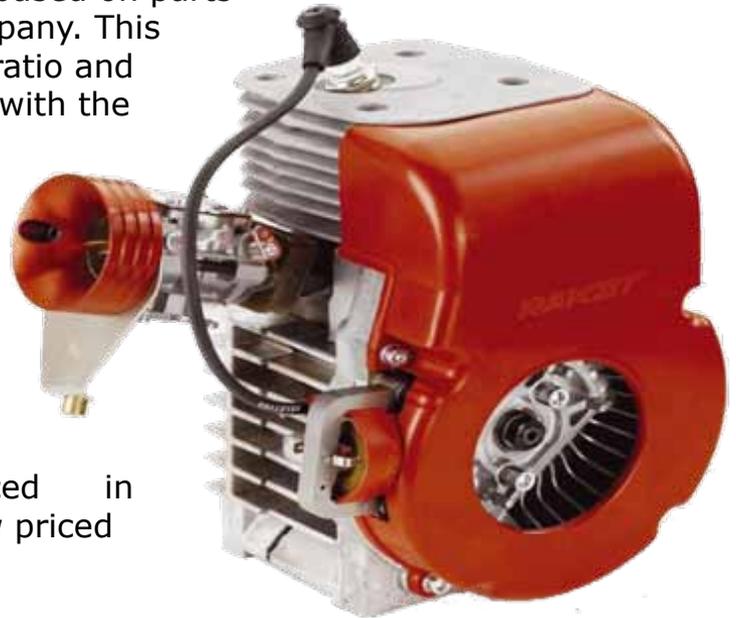
Technical information

The Mosquito Motor Harness uses a Swedish AeroSport designed power plant and drive system utilising an engine based on an original design by Husqvarna. This combination has been refined over 20 years and 1400 units to give the reliability expected by pilots the world over. The 120 cc engine produces 16 Hp, giving a climb rate of around 2 m/s (400 ft/m). A centrifugal clutch allows the propeller to remain stationary while the engine idles. This is a big safety factor and also reduces vibration. For the keen thermal snoopers an electric start version is available, affording lazy restarts in the air, as is a foldable prop for minimum drag.

The Mosquito will fit most modern gliders. The one permanent modification required is for the keel to be cut 1300 mm (51") behind the hang point. Using a short length of sleeving the cut off section can be refitted to help rig the wing and for free flight use.

Engine:

The well-proven and reliable engine is based on parts from the world famous Husqvarna company. This engine has an excellent power/weight ratio and tips the scales at just 7,5 Kg complete with the tuned exhaust system. We are often asked what the lifetime of this unit is but this is very difficult to put a figure on. Needless to say we don't know anyone who has actually worn out his or her engine! Of course components such as the spark plug, carburettor diaphragms and piston rings need to be changed periodically. Because it is an engine produced in large quantities the spare parts are low priced and easily obtainable.



Engine data:

One cylinder two-stroke engine, piston control of inlet
Cylinder volume 118,8 ccm
Stroke 42 mm
Bore 60 mm
Piston ring 2 pcs. 1,5mm
Cooling fan cooled
Ignition transistor
Power 12 kw 9000rpm
Carburettor Walbro
Clutch centrifugal
Starter magnapul rope start, electric or dual start
Fuel consumption 2-4l/hour

Exhaust system:

Tuned exhaust system in stainless steel or chromed steel with additional silencer as standard.



Inlet silencer:

A specially designed inlet silencer and high performance air filter is fitted as standard. Streamlined and made in polythene, it lowers the noise levels by approximately 4-5 dBa, equating to an overall reduction of around 40%.



Transmission:

The transmission is of toothed belt type. A reduction ratio of 1:3.54 enables the engine to swing a more effective, large diameter, propeller. A transmission of this type is also efficient, produces little noise and requires no lubrication. The large driven wheel is made out of high strength plastic for lightness while the small driving wheel is aluminum.



Propellers:

There are 2 propellers available: fixed or foldable. Many pilots who require minimum drag when soaring prefer the foldable version. For those pilots that intend to fly mostly under power then the fixed prop is probably the best choice. Both props are made out of carbon and epoxy, the foldable one also being reinforced with high strength aluminum. The thrust is about the same for both props. Attachment to the drive shaft is extremely simple, utilizing a pin and a locking ring and is done in seconds. The weight of the fixed prop is 800g and the foldable one only 950g.



Fuel tank:

There are 2 different fuel tanks available: The original external tank, which is mounted on one of the down tubes and an internal one, which is placed in the back pocket of the harness. Both tanks are made of semi-clear polythene, which is a very tough and petrol/oil resistant material. To increase the tank volume for those who wish to fly long distances it is possible to connect either 2 outer tanks together or 1 inner in combination with 1 or 2 outer. This will give the pilot a possible tank capacity of between 4.5 and 16 litres. All quick lock connections are of highest quality with non-return valves to prevent leakage when disconnected.



Quick lock coupling

External tank:

- Capacity: 4.5 litre, good for 1-2 hours.
- Attached to down tube with 2 straps plus a safety line.
- Fuel level can easily be checked visually.



Internal tank:

- Capacity 7.5 litre, good for 2-3 hours.
- Placed in the back pocket of the harness.
- A for the purpose designed plastic bag around the tank protects from unexpected fuel leakage.
- Less drag and less weight on your shoulders during take off.
- Tank stays connected when the harness is unhooked from the glider.
- Low fuel level indicated by a red blinking light.



Controls:

A lot of work has been put into the controls over the years. In fact the controls are one of the more difficult things to design and construct. We think we have found a very good solution in our latest design. Most controls are a combination of polyester/dyneema cords where it needs to be flexible (to prevent kinks) and steel wires on the straighter runs.

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Throttle:



The Mosquito is equipped with a dual throttle system. A mouth throttle to use during take-off and a hand throttle for setting revs during cruise etc. Using a mouth throttle is the safest way to control the power during take-off. You will have both your hands totally free to control the glider, and if something goes totally wrong in the running phase you can spit it out and still manage the situation. The mouth throttle is made in aluminium, stainless steel and plastic, covered by soft hygienic rubber on the mouthpiece. When not in use it simply slides out of the way under the harness cover. Once a safe altitude is reached the hand throttle, located on your right shoulder, can be used. The throttle is adjusted by pulling 2 balls, the smaller for more power and larger for less power. During take off the hand throttle is stored in a small pocket - eliminating the possibility of inadvertently applying power.



Choke:

On the electric start Mosquito the choke is placed on your left shoulder. You simply pull the ball and hold it as long as you wish to choke the engine. On the pull start Model it is placed on the right side of the harness, close to the starter handle. In this case it is possible to lock it closed or open. The dual start version is built with both ways to choke.



Propeller brake:



A propeller brake made in stainless steel is standard fitment on all Mosquitoes. A static propeller produces less drag than a freewheeling one when the engine is shut off. The Propeller brake is also necessary to enable the folding prop to function. A propeller locked in a fixed position also reduces the risk of damage during landing. A secondary function of the brake is to prevent the harness from being forced into the clutch by excessive foot pressure. The propeller brake is placed on the left side of the harness and can be locked in position.

Starter handle:

The starter handle is placed on the right side of the harness.

Electric starter:

To activate the electric starter you simply blow in a small tube located on your right shoulder. This sophisticated solution allows one hand to stay on the speed bar with none of the fumbling for a started button. It also prevents any danger of unintentionally starting the engine.

As standard the electric start Mosquito comes with a 14.4V, 2.4Ah Nicad battery pack, located on the back plate close to the CG. Nicad batteries are still be ones when it comes to low temperatures. The pack weighs only 800gram and easily supplies the high current required. The battery has a built-in fuse in case of a short circuit. Included is also a wall plug charger. The battery will last for more than 20 normal starts between charges.



Emergency kill switch:

The Mosquito has 2 emergency kill switches. One switch is built into the parachute pocket. If you ever need to deploy your parachute the engine will be stopped automatically. The second switch is placed directly in front of the parachute pocket and is there if the engine needs to be stopped quickly after, for example, an aborted take off. In normal use pulling the choke shuts off the engine.

Angle of dangle:

The angle of dangle is easy to alter and is achieved by adjusting the length of the rope between the karabiner and the back of the harness. The adjustment is hidden under the harness cover.

Harness:

The harness is exclusively made for Swedish AeroSport by the well renowned harness producer, Woody Valley. The harness is a modern flat back, front opening type with composite back plate. The special construction makes it easy to get in and out of prone. There are 2 big pockets, one on the back and one inside the harness. 2 small pockets are located in the front of the harness.

The parachute container with its integrated emergency kill switch is located on the chest. A separate top cover hides all cables, battery and controls. The harness can be ordered in a variety of sizes and colours. Only high quality materials such as Cordura are used.

