



## MOSQUITO MOTOR HARNESS

Now there is an alternative launch for thermal soaring and cross country hanggliding.

The hanggliding harness with a built in motor from Swedish AeroSport lets you take off and catch that first thermal from your nearest local field.

Swedish

**AeroSport**





**There is a light breeze in the air and the sun is slightly covered by clouds when we visit the small airstrip of Vallentuna, a small village north of Stockholm. As we arrive we can hear a faint humming sound in the air and after a couple of minutes Thomas Ojala arrives over the trees surrounding the strip.**

**As he glides down we can see him stop the engine and put down two aft landing gear struts. With a quiet whizz from the wing he softly touches down on the grass and greets us with a big grin.**

**He has been flying for over two hours, catching thermals over nearby wheat fields. He is using the Swedish motor harness "Mosquito".**

We are expecting another visitor. And by road in his Volvo arrives Johan Rasmussen from the Swedish firm AeroSport which is the manufacturer of the Mosquito. Johan is the chief designer and also the marketing man among the four dedicated people who have developed the Mosquito during an intensive test period of over two years.

Johan Rasmussen is of course eager to show us the advantages of the Mosquito, and he tells us about it when he takes out the pack from the baggage compartment of the car.

The Mosquito is transported in a bag, and weighs about 20 kg. It is easily carried and handled in cars or other transport media.

- I might even bring it here on a public transport, says Johan.

The wing is already assembled by Tomas. He has been waiting for Johan because they are going to spend

the afternoon together in the air.

- It will take me maximum five minutes from opening the bag until I am ready to climb into the harness and start the engine, he says to me.

I don't believe him.

- Watch me, he says with a smile.

#### **READY, SET, GO!**

In secrecy I start my wristwatch timer when he unzips the bag. Out of the bag comes the unit with the harness, the engine, the prop shaft, the gear and the propeller. Johan carries the unit to the wing, fastens the fuel tank to the vertical bars of the wing and folds out the retracts. He connects the fuel system to the tank. Then he attaches two limit wires to the wing, and makes the harness ready. He looks at me.

- I'm ready to climb in!

I look at my watch. 4 minutes and

35 seconds...

- OK, I say. I believe you. And you didn't use one single tool. Why? Hadn't it been safer to fasten the thing to the wing with some bolts?

- No, we don't believe in any changing of the original wing design at all. And we absolutely don't want to make any new holes in the wing tubing. Thus there will be no weak points in the tubing or the metal parts of the wing. And we have made a harness that may fit almost every wing on the market.

We don't find it necessary to use tools. With our method of attaching the harness to the wing it is quite all right to do it without tools. Those tools that you may forget at home

#### **WHY A MOTOR HARNESS?**

- Honestly spoken, what's the big advantage with the motorized hang-glider?

- With the Mosquito there is no need to arrange a tow and no need to make expensive journeys in order to get to mountains or hills. You may search for good thermal areas anywhere and just start your wing at the place. The extra weight and the motor and propeller puts a very small penalty on the prestanda of the wing. Besides, you may even restart the engine in the air and move to better thermal areas.

I walk up to him and look more closely at the equipment.

Materials in the harness are aluminium tubes, and parts of steel and plastic. The fabric parts are of very thick polyester.

The engine is a fan-cooled RAD-NE RAKET ("Rocket") go-cart mo-



tor, converted for aircraft use. The clogg belts and gears seem to have the right size to last for many years. I ask Johan about the noise level tests that he has done for the Swedish Aviation Authorities.

-They went very well. We are quite a bit under the 68 dB(A) limit of the weight class, I think we came up to a maximum of 57 dB(A). It is important that these microlights are quiet in order to keep them popular in the public's eye.

#### FLYING AWAY

Johan climbs into the harness and fastens the waist belt and straps very firmly. He is ready to start and floods the carburettor. He pulls out the choke and pulls the starting handle. After a couple of coughs the engine starts. He lets it run for 30 seconds according to the instruction and then takes a big bite over the mouth accelerator.

The start of a microlight wing is always fascinating and I watch Johan and Tomas (who also has started his engine) run a couple of steps and softly rise up in the air. After about 200 meters they are already at about 20 meters altitude and curve round to greet me before they zoom up and away.

#### ABOUT AEROSPORT

In October 1989 AeroSport got their manufacturing license from the Swedish Civil Aviation Administration. This was the proof that their two year development period had been successful.

Four people are included in the design and manufacturing process



*At the top is Tomas Ojala from AeroSport ready to start his Mosquito. Note the position of the tank and shortened keel of the wing. The landing gear makes it very easy to walk with the unit on the ground.*

*The motor mounts can be seen on the middle picture. Note the propeller, which is easily mounted and secured with a steel locker pin.*

by now and the market is rapidly expanding. Johan has told me earlier. There is a great need for this kind of motor harness. Many of the existing outfits are clumsy and difficult to manage in the air. They also often have poor soaring possibilities.

AeroSport has tried to catch the whole testing process in a professional way with CAD-aided design and very intensive test flying before really starting the manufacturing. The company also keeps a full support with spare parts and telephone support if necessary.

*The Mosquito was photographed and described by Bo Gardstad*

*The last picture shows Johan Rasmussen carrying the bag with the Mosquito from his car.*



# MOSQUITO MOTOR HARNESS

## Data and prestanda



*CAD technique is used in the design process.*

Especially made for thermal soaring.  
Assembled without tools.  
Retractable landing gear.  
Engine restartable in the air.  
No modifications to the hanglider are needed.  
Takes off from flat fields.  
Foot launched and landed.  
Included is a rugged, practical transportation bag.  
Certified for several high performance hanggliders.  
Full service in Sweden and world wide.

### Functions: Choke

- Propeller-brake
- Engine shut-off
- Mouth controlled accelerator
- Recoil starter
- Retractable landing gear coupled with harness-zipper
- Emergency exit from harness
- Fully adjustable harness
- Front parachute possible
- Back packsack
- Front packsack
- Camera pocket
- Steel carbine hook

**Weight:** 23.8 kg (including harness, tank, propeller and bag.)

**Engine:** Radne Raket 100  
Two-stroke  
100 ccm  
7.36 kW (10 hp)  
8800 rpm

**Gearing:** Cogbelt 4:1

**Propeller:** Diameter 1350 mm  
Pitch 530 mm  
Weight 750 g (incl. hub & bolt)  
Material Kevlar, carbon, glass

**Fuel capacity:** 4 litres / 5 min.  
98 octane petrol / 4% oil mixture

Typical prestanda with the Mosquito mounted to a normal high performance hang glider:

Climb:	1.5 m/s
Assembly time:	5 min.
Rising speed:	65-80 km/h
Maximum speed:	80-105 km/h
Stall speed:	27-30 km/h

Start climb to 15 m altitude is done at a distance of 170 m. Running distance on the ground is 35 m with no wind. Landing distance is 0-45 m.

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A video, showing the features of the Mosquito is available from Aerosport or via its representatives.

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Swedish  
**AeroSport**



### Technical data for Mosquito 95

Engine: Radne Raket 120  
Two-stroke  
120 ccm  
11 kW ( 15 hp )  
8800 rpm

Gearing: Cogbelt 3.5:1

Propeller: Diameter 1350 mm  
Pitch 530 mm  
Weight 750 g  
Material carbon, kevlar, epoxy

Fuel  
capacity: 4 litres consumption 3 l/hour  
98 octane petrol / 4% oil mixture

Typical prestanda with the Mosquito mounted to a normal high performance hang glider:

Climb: 2 m/s  
Assembly time 5 min.  
Cruising speed 65-80 km/h  
Maximum speed: 80-105 km/h  
Stall speed: 27-30 km/h



Dear Buyer,

I hope you like what you see.

Unfortunately the new owners manual is not finished yet which means that you have to read the old one between the lines, sorry about that, I hope I soon will have time to finish it.

A few things to think about before your first take off.

- Choose a day with smooth laminar head wind. 1-3 m/s head wind will make your first start much easier.
- Test run the engine a few times at home before your first flight, it is always 5 times harder on the field. Murphys law you know.
- When take off, keep your landing gears ( your legs ) out until you have reached a safe height. Some pilots think they have bought a moon rocket, takes to step and then jump into the harness without having reached the stall speed. Result, a stalled glider and a broken prop.
- Due to the extra weight of the engine the hang-point on the harness is moved a little bit backwards, this together with the thrust will place the pilot a little bit more forward related to the speed-bar. It is important to not give the glider a too high angle of attack, fly like hands off.
- Your Mosquito is equipped with a double accelerator system. Mouth control during take-off and hand control during flight.
- The two wire fittings is exchanged to two regular polyester wires.
- The engine shall be used with 91 to 98 octane leaded or unleaded petrol mixed with 3% fully synthetic 2-stroke oil of good quality.

How to start the engine.

- Connect the fuel line to the tank, tickle ( prime ) the carburettor by pressing the button under the carburettor while pumping.
- Activate the choke ( the upper control on your right side )
- Pull the decompression control, one pull, located on your right side ( lower control )
- Give the engine a little gas with the hand-accelerator on your left side.
- Pull the start handle as fast as you can until you can hear the engine almost starts.
- Deactivate the choke and give the decompression valve a pull again, pull the handle, now you can be prepared to give the engine a little bit throttle when you can hear it start. If it starts and stops again you have to activate the choke again and take the procedure once again. The engine is not possible to run with the choke activated, the choke is only a way to fill the system with enough fuel.
- The decompression valve will close automatically when the engine starts.
- Do not run the engine on ground with full power longer than half a minute or so, it will easily overheat.
- A good way to stop the engine in the air is to use the choke and full throttle, this will give the engine a little extra fuel and makes the restart easier.

As I told you the manual are old so please feel free to call me if you have trouble ore questions

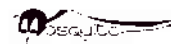
I wish you good luck.

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REG Nr. SE556341-1379



## New decompression valve

Your Mosquito is equipped with a fully automatic decompression valve. The valve is controlled by the vacuum in the carburettor and will be open when engine is stopped and closed as soon as the engine starts.

You can leave out of account all talk about pulling the decompression cable in the manual it will take care of it self.

## 1.7 Assembly directions for Mosquito A10.

### A. Suspension

The Mosquito is mounted in the hangglider's suspension and reserve strap with the steel carbine exactly as with a regular harness. Adjust the suspension straps as to length so that a fist fits in between the breast of the Mosquito and the bottom bar of the hangglider.

### B. Wire fittings

The two wire fittings are mounted on the same screw which is holding the lower wing wires. Place them between the screw washer and the plate of the wing wire. The wire guts must be directed in the same direction as the wing wires. After being mounted they should pierce out 1,5 thread round of the screw outside the nut, secured with Loctite 222. See figure 3, Appendix 2.

### C. The Limit lines

The limit lines are delivered in different lengths for different products and types of hanggliders and are meant to stop the propeller from reaching the sail at big rudder turns.

**IT IS OF OUTMOST IMPORTANCE THAT THE RIGHT KIND OF LIMIT LINES ARE USED TO EACH TYPE OF HANGGLIDER. IF YOU ARE NOT SURE, CHECK WITH SWEDISH AEROSPORT AB OR ITS REPRESENTATIVE TO SEE THAT YOU HAVE THE RIGHT MODEL.**

Check that the propeller cannot reach the sail in normal flying positions before the first flight. See figure 5, Appendix 2.

### D. Mouth gas

The mouth gas/accelerator is delivered without cut grips for the pilot's teeth. Before the first flight the pilot should himself cut out a grip suitable for him, so that the mouth gas fits safely and in a comfortable way.

### E. The keel pipe

**THE HANGGLIDER USED TOGETHER WITH MOSQUITO MUST HAVE A KEEL PIPE THAT CAN BE DETACHED IN ORDER THAT THE PROPELLER MIGHT RUN FREELY.**

Some hanggliders have this as a standard. Others must be modified according to figure 4, Appendix 2.

If you are not sure, contact Swedish AeroSport or its representative.

## 2. OPERATIVE LIMITATIONS

See the type specification for type certificate issued by the Aviation Authority. Appendix 6.

### Runway.

The most important when flying with Mosquito is to choose a suitable field to start from. It should be even and covered with grass or stubble of a height of no more than 200 mm.