



ASSEMBLY

OPERATION

MAINTENANCE



SNAP

MANUAL

FRESH  ***BREEZE***
POWERED PARAGLIDER

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This manual has been compiled to provide pilots and instructors with information contributing to the safe and efficient operation of this paratrike. Apart from important statutory information, this manual also contains additional information provided by the motor paraglider manufacturer.

To fly this air vehicle, you need to have the pilot's licence for motor paragliders. In addition, it is only permitted to start and land at approved landing places. Flights outside the uncontrolled flight space require a permit, which is mostly requested and granted via radio.

Further legal requirements such as taking out third party liability insurance have to be observed. The pilot has to acquaint himself with the particular properties and peculiarities of the motor paraglider prior to starting a flight.

It is compulsory to read the manuals and operating instructions and to become acquainted with motor, equipment and all other particulars. It is not permitted to perform air acrobatics with this motor paraglider.

The legal basis for the operation of ultralight paragliders is governed by air traffic laws. Particulars may be gathered from the associated ordinances. The provisions and requirements contained therein have to be observed during operation. The Snap has been designed, constructed, tested and approved in accordance with the airworthiness requirements for motor paragliders. The DULV (German Ultralight Flight Association) is responsible in this respect.

PRECAUTIONS

Read the flight safety messages in the different publications, for instance:

- Aviation journals
- Aviator pocket diaries
- News for aeronauts (NfLf)
- Federal Aviation Office (LBA) and Federal
- Office for Flight Safety (BFS) communications, etc.

Do not carry out any flights during turbulent weather conditions as a paraglider in principle only obtains its shape because of its internal pressure. This internal pressure can only be maintained during normal oncoming flow conditions.

Exercise particular caution in case there is a thunderstorm tendency. At any rate, avoid to fly too close to the storm front to prevent being sucked into the cloud. In case of emergency, carry out an off-field landing. Obtain information about low level flight zones of military aircraft and avoid these.

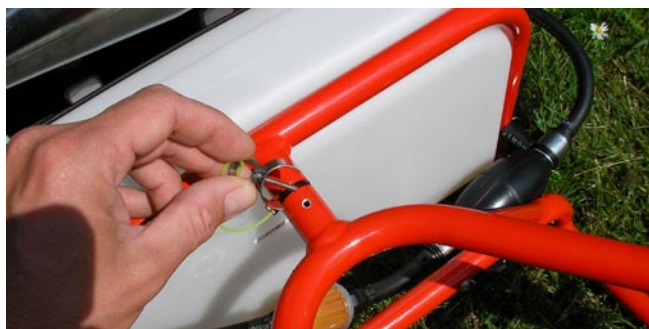
INTRODUCTION

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First of all, the pedestal should be pushed into the backframe and ...



... secured by means of the 3 clips. The motor can now stand on its own.



Now assemble respectively the left and right cage quarters and ...



... fasten them on the backframe.



ASSEMBLING THE MOTOR

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The cage is anchored in the black clips by means of the internal pins.



Fixation with the 4 Velcro® strips prevents the cage from unintentionally detaching from the frame.



The cage parts themselves are held together with the attached Velcro® strips.



The bottom Velcro® strip is passed through the guard rail and fastened.



ASSEMBLING THE MOTOR

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The starter handle is hooked into the steel loop that is located on the top right part of the cage.



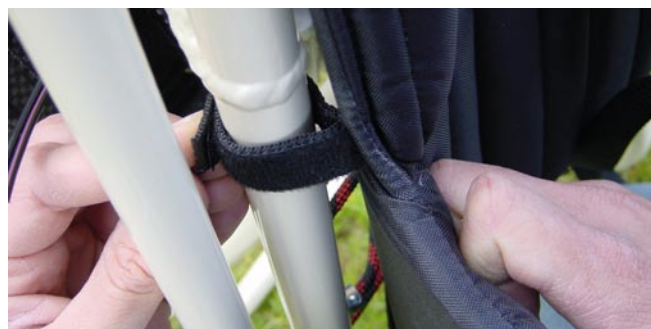
For the backframe pedestal to be detachable, the shoulder straps are equipped with push-in buckles. These have to be pushed together again during assembly.



The back pad is also held by means of a Velcro® fastener that is folded over the top and bottom frame bracing.



Velcro® fasteners are also used to fasten the back pad laterally on the frame.



ASSEMBLING THE MOTOR

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This special back pad prevents the motor from twisting too badly on the pilot's back due to the high torsional force generated by the motor.



The photo on the right shows the vehicle tool kit provided that can be used to perform the most important operations on the motor.

Content:

- Allen wrench 4/5/6 mm
- Combination wrench 8/10 mm
- Plug spanner with screw driver



ASSEMBLING THE MOTOR

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Motor	Snap Cisco
Type	two-stroke, 1 cylinder
Cooling	fan cooling
Starter	manual
Carburettor	Walbro
Exhaust	Resonator
Propeller	2-blade
Diameter	120 cm
Weight	21 Kg
Tank capacity	8 litres
Max. start weight	130 kg



THE FOLLOWING VALUES DEPEND ON:

WEATHER, CLIMATE, POSITION, PILOT WEIGHT, TYPE AND SIZE OF CANOPY AS WELL AS FLYING ALTITUDE .

Consumption	approx. 3 litres/hour
Flight duration	up to 2.5 hours
Rpm	8700 rpm
Propulsive force	up to 50 kg
Climbing rate	up to 2 m/sec

EFFECTS OF GAS LEVER POSITION, FLYING ALTITUDE, TYPE AND SIZE OF CANOPY AND PILOT WEIGHT ON CONSUMPTION.

Gas lever low output	low consumption	
Gas lever high output	high consumption	
Low flying altitude	low consumption	
High flying altitude	high consumption	
Small canopy	high consumption	high speed
Large canopy	low consumption	low speed
Light pilot	low consumption	low speed
Heavy pilot	high consumption	high speed

TECHNICAL SPECIFICATIONS

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The motor is supplied with 2 tank lids. The one with the vent hole is intended to be used for flying, while the closed lid is to be used for transport. Prior to a flight it has to be ensured that the vent lid has been screwed on, or else the motor will go out after a short flying time. This is because a vacuum is generated and the fuel flow is stopped.



From the tank, the fuel is channelled to the petrol filter via the angled outlet (to be checked before every flight).



After that, the fuel is taken through the ball pump and to the ...



... fuel tap and finally to the carburettor.

**The engine runs with a fuel-oil mix of 1:50
(2 % Castrol RS2T with 95 octan gas).**



FUEL AND OIL

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The diaphragm carburettor has no special choke system. However, a cold motor requires more fuel. To facilitate the starting process, press the ball pump with one hand for approx. 1 second. This causes the fuel to be channelled to the carburettor. The ball pump is located underneath the tank. **At the same time**, you need to press the pin (No. 3 on the carburettor illustration on page 10) on the carburettor.



Now you should take the motor on your back and reach for the starter handle on the top right. While doing so, hold the gas handle in your hand. The motor can now be started with a firm pull.

As a rule, the motor is started with gas. If the motor does not start, the process with the ball pump should be repeated. If the motor has been flooded, it must be started at full throttle.

Caution. The motor may never be started on the ground! There is a high risk of injury!



STARTING THE MOTOR

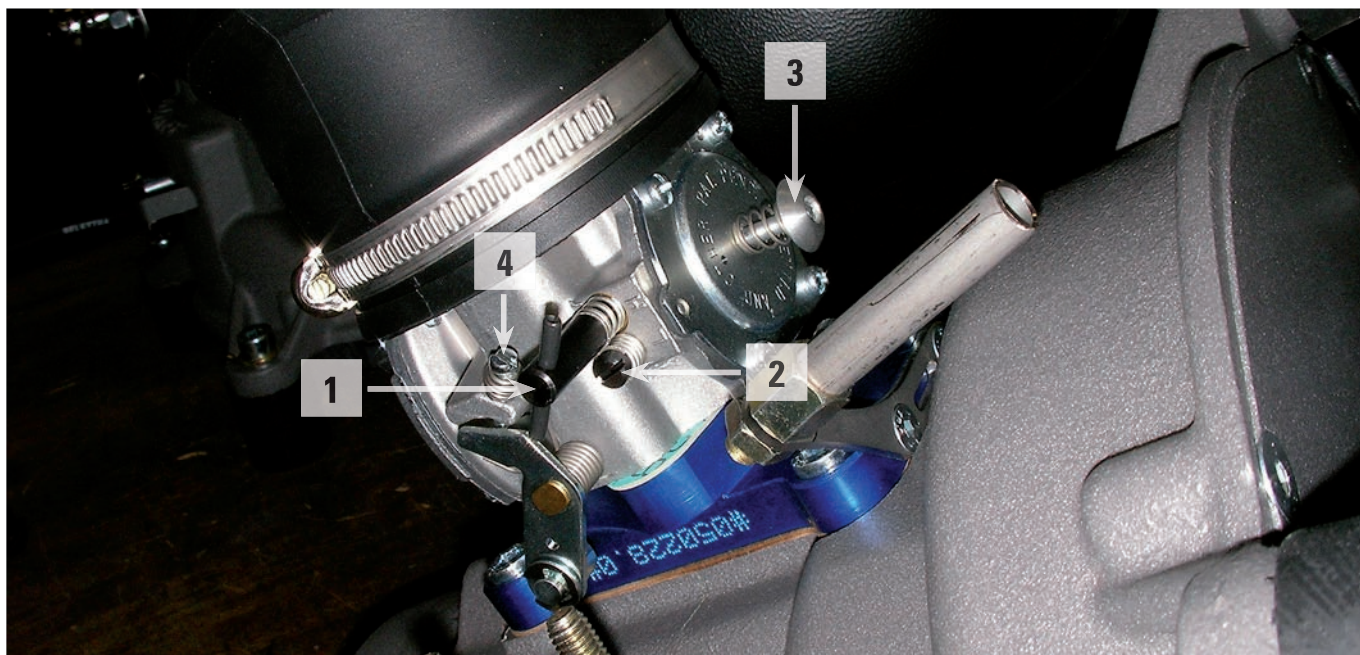
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2 adjusting screws are available to adjust the carburettor correctly:

Screw 1 controls the full throttle range. If the motor jerks at full throttle, the mixture is too rich. You then have to turn screw 1 clockwise by $\frac{1}{4}$ turn and check the result with a test run. If the motor still jerks, you have to repeat the procedure described above. If the motor stalls at full load, the motor is too lean. In that case you have to turn screw 1 anticlockwise by $\frac{1}{4}$ turn and check the result with a test run. If necessary, repeat this procedure until the desired result is obtained.

Screw 2 controls the partial-load range. If the motor jerks during partial-load operation, the motor is set too rich. Turn screw 2 clockwise by $\frac{1}{16}$ turn and check the result with a test run. If necessary, repeat the process until the desired result is obtained. If the motor stalls if you accelerate abruptly, the motor is set too lean. In that case turn screw 2 anticlockwise by $\frac{1}{16}$ turn. If necessary, repeat this procedure until the desired result is obtained. The idling speed is set with screw 4.



SETTING THE CARBURETTOR

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How do I replace the manual starter rope?

1. Remove the fan guard.



2. Unscrew the starter assembly.



3. Unscrew the rope pulley.



4. Remove the rope pulley while minding the return spring so as to avoid it being pulled out unintentionally.



MANUAL STARTER

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5. Pull out old starter rope.

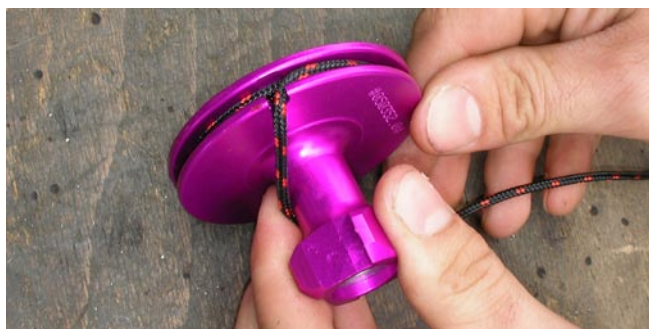


6. Insert new starter rope and secure in the recess with a knot.



7. Coil up the starter rope and let it end in the notch.

Carry out the remaining reassembly steps in reverse order. When inserting the rope pulley in the starter housing, you have to reapply pretension to the rope pulley.



8. When inserting the starter assembly, you have to spread the white starter catches apart against their spring tension. Thin rope ends are helpful in this regard.



MANUAL STARTER

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The propeller consists of two halves and when assembled has a length of 120 cm. Its weight is approx. 900 g. It is made of GRP, which allows you to carry out minor repairs. It is compulsory to rebalance the propeller in particular after repair.

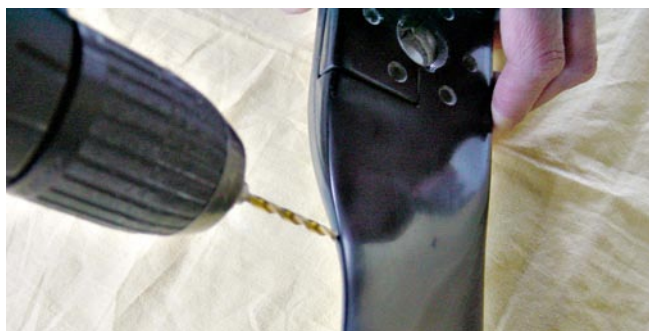


Fasten the propeller on the hub with 6 screws and tighten it with 12 Nm.



How do I balance the propeller?

Align the propeller vertically on the balancing device. If it turns to one side, drill a 3.5 mm hole into the lighter half of the propeller.



Now fill this hole with resin until the propeller no longer turns away to one side.



PROPELLER

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Now check the imbalance in the same manner in a horizontal position and if necessary, adjust the imbalance.



Caution: An imbalanced propeller subjects the motor to unnecessary vibrations so that many components could be destroyed within a short span of time.



Materials required to balance the propeller:
Balancing resin with curing agent, syringe and a pivoted shaft to allow free turning of the propeller (balancing device).

What do I need to repair the propeller?
Fibre glass spatula, spatula, abrasive paper.

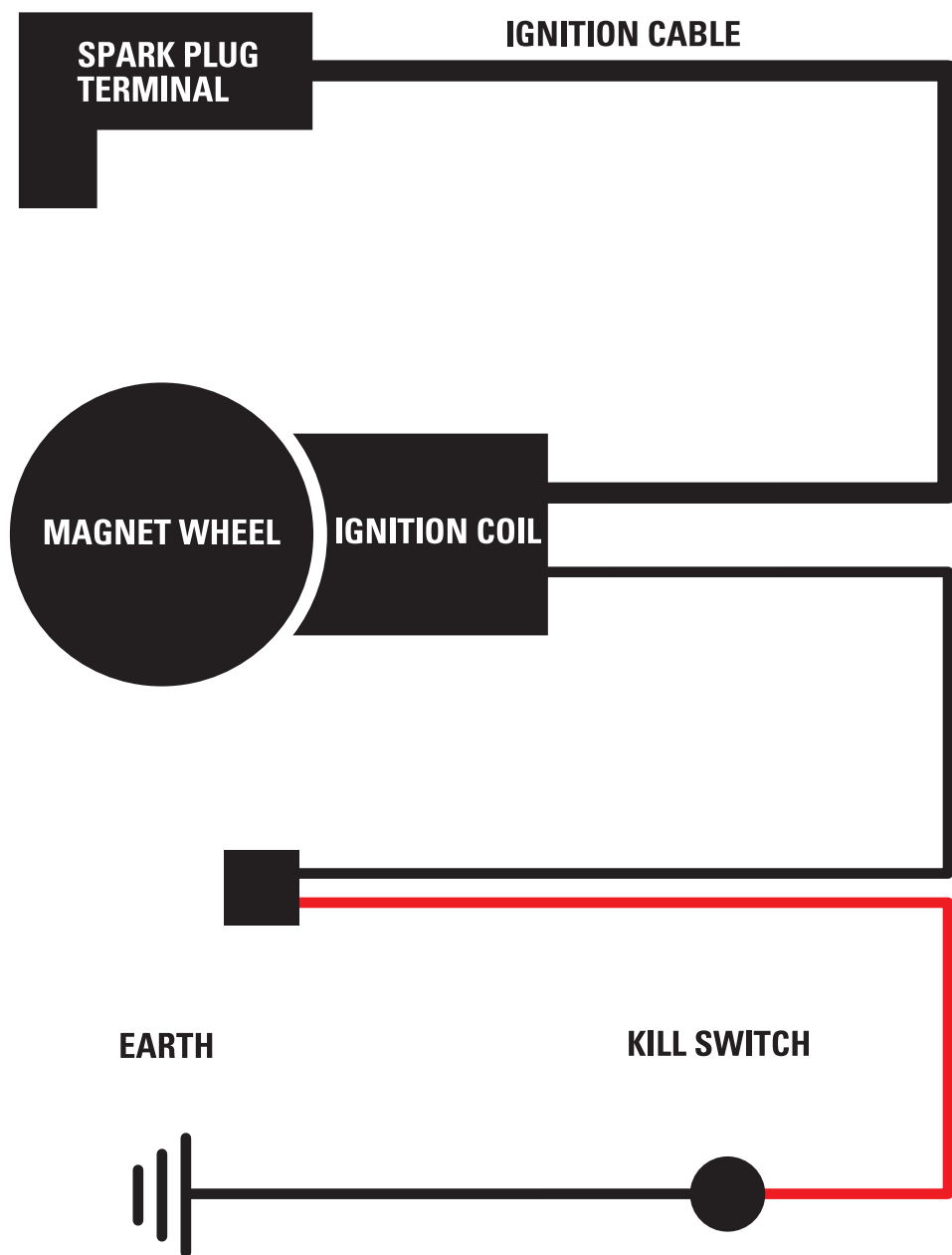


To the right an example of a propeller that may no longer be repaired. If the damage is too extensive, a repair would be dangerous. The repaired spot would have little adhesion and could detach from the propeller at high speeds – danger of injury.



PROPELLER

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CIRCUIT DIAGRAM

Depending on the type of mounting, the gas handle is gripped with the right or left hand. The retaining strap has a variable size adjustment. Before take-off, the strap should be firmly tightened.



The Respect gas handle is equipped with a switch at every end of the pipe. One is used for starting ...



... the other one for switching off the motor.



The gas handle is also equipped with a cruising speed lock. Once the cruising altitude is reached, it is possible to secure the gas handle by means of the clamping lever. As holding the gas lever in your hand for a long time is very strenuous, it can be put across your legs when it is in a locked position. Your hands are now free for other things.



GAS HANDLE RESPECT

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The Airboss gas handle is also equipped with a button to switch off the motor and where applicable a start button if an E-starter is available.



First take the gas handle in your hand ...



... then grab the steering line and finally the A-line.



This photograph shows how to handle the lines and the gas handle during take-off.



GAS HANDLE AIRBOSS

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This harness has been specially designed for motor operation. Care has to be taken that no loose parts can get into the propeller during operation. The pilot suspension can permanently remain in the snap hooks.



The harness is secured with 3 catches - two leg catches and one chest catch. It offers two different means of adjustment. The first one consists of the clasps attached to the front seat that are used to adjust the lowering and lifting of the seat. During take-off, these should be slightly tightened to facilitate sitting down into the harness after take-off. It is recommended to completely lower the seat before landing so as to be able to assume the most favourable landing stance. It is not necessary to tighten the leg loops very firmly.



The harness is in addition equipped with 2 pockets that are easy to reach while flying.



The other means of adjustment regulates the sitting stance during the flight. If it is very firmly tightened you sit more upright, if you slacken it somewhat you can achieve a slightly supine position.



HARNES AND SUSPENSION

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Now kneel in front of the motor and pull the shoulder straps over your shoulders.



After that, the pilot suspension is hooked into the motor's dropping device. Usually, the hindmost hole is used. The dropping device should be activated in case of imminent danger, e.g. water landing, fire at great altitudes or tree landing. The device is triggered by pulling the two ribbons on the dropping shackle outwards. As the motor is now no longer connected to the canopy by means of the suspension, the pilot is moved into an extremely supine position. Now the motor easily slips off your shoulders. The landing is then carried out without motor.



HARNES AND SUSPENSION

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Now get up with the entire motor and walk over to the canopy, which is hooked into the snap hook on the pilot suspension.

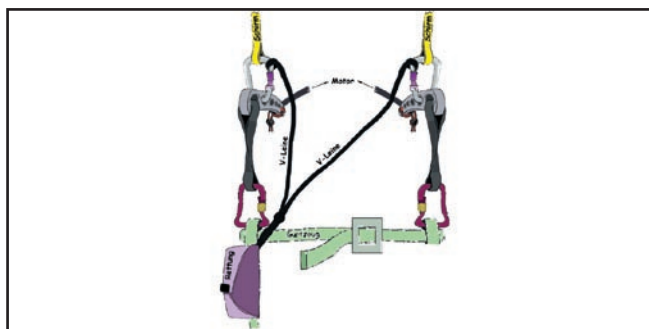


Now take the gas handle and the brake loops in your hand, start the motor, check the wind and commence your take-off run.



RESCUE SUSPENSION

To the right a sample drawing of how to fasten the rescue device using the V-line. The rescue device should be connected to the pilot suspension by means of the V-line. Thus, an optimum landing stance would be possible if the device was triggered. The rescue device should not be hooked into the harness snap hooks so that in case of an emergency release you are not at peril of being moved into a supine position.



HARNESS AND SUSPENSION

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THE FOLLOWING POINTS SHOULD BE CARRIED OUT BEFORE EVERY START!

01. VISUAL INSPECTION OF CAGE AND FRAME FOR FRACTURES!
02. PROPELLER HUB WITHOUT CLEARANCE?
03. EXHAUST SPRINGS OK?
04. EXAMINATION OF EXHAUST RUBBER ELEMENTS!
05. PETROL FILTER NOT SOILED?
06. MOTOR, CARBURETTOR AND TANK LEAK-PROOF?
07. SUFFICIENT SUPPLY OF PETROL?
08. PILOT SUSPENSION UNDAMAGED?
09. CANOPY UNDAMAGED?
10. GAS LEVER POSITION?
11. TRAVELLING LOCK RELEASED?
12. FUEL TAP OPEN?
13. VENTILATED TANK LID ON TANK?
14. PROPELLER CLEAR – START MOTOR!
15. CARRY OUT A TEST AT FULL THROTTLE!
16. TEST THE OFF-SWITCH FUNCTION
17. PILOT PROPERLY HOOKED IN?
18. WIND DIRECTION AND WIND FORCE?
19. TAKE-OFF STRETCH CLEAR?

EVERYTHING OK? -> CLEAR FOR TAKE-OFF!



PRE-FLIGHT CHECK

SNAP

MANUAL

THE FOLLOWING INSPECTIONS HAVE TO BE CARRIED OUT BEFORE THE START:

- ☐ CAGE SECURED ON FRAME
- ☐ LOOK FOR POSSIBLE CAGE DEFORMATIONS
- ☐ PROPELLER HUB WITHOUT CLEARANCE, PROPELLER WITHOUT DAMAGE AND SCREWS TIGHTENED
- ☐ CHECK RUBBER ELEMENT OF FLEXIBLE PILOT SUSPENSION FOR CRACKS
- ☐ CHECK STOP SWITCH AT FULL LOAD
- ☐ FULL LOAD TEST MIN. 8500 RPM
- ☐ USE PETROL WITH MIN. 95 OCTANE
- ☐ CHECK FUEL SYSTEM FOR LEAKS
- ☐ CHECK PILOT SUSPENSION FOR WEAR
- ☐ VENTILATED TANK LID SCREWED ON
- ☐ CHECK CANOPY, LINES AND SHOULDER STRAPS FOR DAMAGE

THE FOLLOWING INSPECTIONS HAVE TO BE CARRIED OUT AT LEAST EVERY 10 HOURS:

- ☐ PETROL FILTER SOILING
- ☐ CHECK EXHAUST SPRINGS FOR WEAR
- ☐ CHECK SUCTION SILENCER AND ESPECIALLY THE RUBBER ELEMENTS
- ☐ CHECK EXHAUST SYSTEM FOR FORMATION OF CRACKS
- ☐ CHECK TANK FOR CHAFE MARKS

THE FOLLOWING INSPECTIONS HAVE TO BE CARRIED OUT AT LEAST EVERY 50 HOURS:

- ☐ REPLACEMENT OF RUBBER ELEMENT ON REAR PILOT SUSPENSION
- ☐ CHECK CABLE JOINTS
- ☐ CHECK BOWDEN CABLE ON TOP THREADED NIPPLE FOR WEAR
- ☐ CHECK TANK FOR CHAFE MARKS
- ☐ REPLACE THE SPARK PLUG
- ☐ REPLACE THE EXHAUST'S RUBBER METAL JOINTS
- ☐ VISUAL INSPECTION OF SUCTION SILENCER, ESPECIALLY OF RUBBER PARTS
- ☐ CHECK ALL SCREWS AND BRACKETS FOR FIRM SEAT

INSPECTION CYCLES

THE FOLLOWING INSPECTION HAS TO BE CARRIED OUT EVERY 100 H

- ☐ CHECK THE PISTON RINGS ON THE CYLINDER OUTLET SIDE FOR SMOOTH RUNNING
- ☐ CHECK OIL CARBON DEPOSITS IN CYLINDER HEAD AND CLEAN IF NECESSARY
- ☐ OPEN GEARBOX AND EXAMINE GEAR WHEELS

PARAGLIDER

EVERY TWO YEARS, THE PARAGLIDER HAS TO BE SUBJECTED TO AN INSPECTION AT THE RESPECTIVE PARAGLIDER MANUFACTURER OR AT ANOTHER ACCREDITED AGENCY

MOTOR

ONCE A YEAR, THE MOTOR HAS TO BE EXAMINED IN ACCORDANCE WITH THE POINTS DESCRIBED ABOVE WITH RESPECT TO WEAR OR PREMATURE MATERIAL FATIGUE IRRESPECTIVE OF THE NUMBER OF OPERATING HOURS.

THE ANNUAL INSPECTION MAY ONLY BE CARRIED OUT AT THE FACTORY, AT OUR SALES PARTNERS OR BY CLASS 5 INSPECTORS. APART FROM THE REPLACEMENT OF SPARE PARTS, UPDATES ON THE MOTOR ARE PARTLY ALSO CARRIED OUT FREE OF CHARGE DURING THE FACTORY INSPECTION. THIS MAY CONSIDERABLY INCREASE THE MOTOR'S RELIABILITY.

TEST CYCLES