Manual

HERCULES 2

DGAC

SOL®
PARAGLIDERS

Version 2 5 / 2022

Summary

WELCOME TO THE SOL TEAM

You have just acquired a high-quality product, manufactured under one of the most demanding industry standards worldwide. We are certain that this equipment will allow you to learn, increase and amplify your knowledge and technique during your flights.

We hope your paratrike wing Hercules 2 will provide you with many nice flights and that you're experiencing moments that will last forever in your memory. This way our philosophy will proof right: security, performance, easy handling and innovation.

Please, read this manual carefully. All necessary information you'll need for your new equipment is right here.

In case of questions or doubts regarding your paratrike wing or in case you simply are interested in our new products - we are at your dispose.

Thank you very much for choosing SOL ParatrikeS.

Symbols

Warnings and important notes - pay attention and read carefully

Additional information

Notes regarding environment protection

IMPORTANT NOTES

- As owner of a Sol Paratrike wing you are responsible for all possible risks existing by using this equipment. The inappropriate and/or abusive use of your equipment increases this risks.

- It's not possible to transfer this responsibility of risks, using this equipment, to the producer, distributor or seller.

- A regular training, whenever possible, especially on the ground, is indispensable and necessary. A poor handling and control of the paratrike wing, especially on the ground, is one of the most frequent causes of accidents.

- Always be prepared to improve your skills. Attending special workshops will improve your skills and maintain your knowledge about materials and techniques, which always are developing, up to date.

- Only use a certified paratrike wing and reserve and use them within the described and certified limits. Remember, if you fly a paratrike wing outside the certified norms your insurance will not pay the damage. It is in your responsibility as a pilot to know what your insurance covers.

- Sol paragliders tests every produced paratrike wing, to assure our clients full quality and function of every paratrike wing. We recommend that every new or reviewed paratrike wing will be tested on the ground and flew from the training hill by his pilot.

- Never take off without helmet, hand-gloves and boots.

- Check all your equipment before each flight. Never take off with an inappropriate or damaged equipment.

- As pilot you only are allowed to use a paratrike wing in accordance to your skills and in accordance to the instruction level required in each country.

- Before each flight check your physical and mental state. Are you fit to fly?

- Before take off choose the right paratrike wing and environment, check the weather conditions, if you have any doubt - don't fly.

- Never fly during rain, snow, strong wind, turbulent conditions or if thunderstorm clouds are in the sky.

- If you are always flying with conscious - you'll be able to fly for many years your paratrike.

Hercules 2 - THE PROJECT

Hércules 2 extends the positive points of its predecessor, bringing ease of operations and more performance. Suitable for all Paratrike flyers - beginners to experienced.

Recommendation

With two sizes, the smallest indicated for monotrike pilots up to 240 kg and the largest for double paratrikes with up to 380 kg takeoff weight.

Certification

The Hercules 2 has a DGAC certification. The certification details are available on: www.solparagliders.com.br.

Special characteristics

Comfort - Security - Performance - Easy handling - Long life

Accessories

Along with your paratrike wing you receive:

REF - 04364


REF - 04379


REF - 04330


REF - 04047

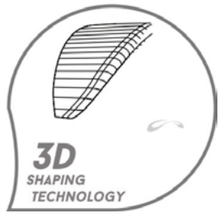

REF - 04311


REF - AC017


REF - 04350


REF - 04320

Tecnologias



Our double 3D Shaping is a three dimensions modeling technology that reduces wrinkles and imperfections on the leading edge construction, improving the overall aerodynamic performance.

Profiles between the cells of the trailing edge, which improve performance and handling.

is a hybrid system of risers and lines to guarantee stability, reduction in line consumption and a better load distribution on the canopy with significantly less deformation tendency over the time.

At the leading edge.

High Tech Lines.

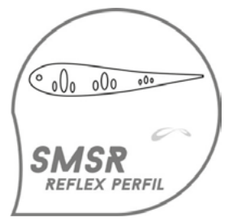
Tensile Power Tapes.

Higher Project Aspect Ratio.

Flexible nylon battens reinforcements.

Dual Control.

Cross X battens strengthening the nose profile.



Reflex profile with great stability and suspension. The reflex profile relocates the weight distribution to the front of the profile. This let the power glider fly in front of the pilot angle, creating speed, stability and safety in turbulence.

Greater lift (glide) due to optimization of the central area of the wing with less inclined profiles and a more homogeneous pressure distribution over the whole canopy wingspan resulting in gains of glide and speed.

New Air Foil design increases and keeps the internal pressure more estable and results in more performance in all speed range.

Is the hybrid utilization of various types of fabrics and lines. An optimised combination of durability and resistance with low deformation and less weight.

Cutting edge technology laser equipments prepare all molds and parts of the canopy.

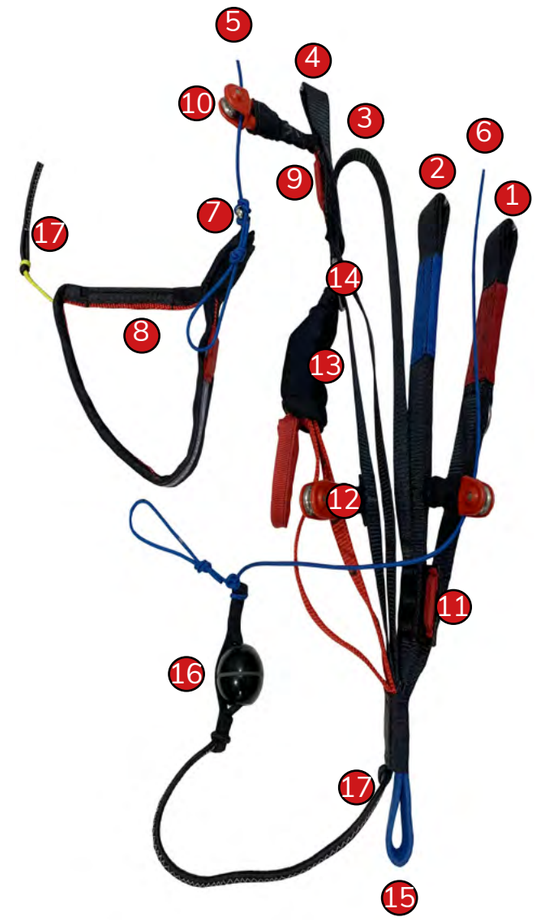
Load Distribution Tapes.

Paratrike wing

1. Trailing edge
2. Top
3. Leading edge
4. Bottom
5. Stabilo
6. Lines
7. Risers

Overview risers

1. Riser A.
2. Riser B.
3. Riser C1.
4. Riser C2.
5. Brake lines.
6. Auxiliary brake lines.
7. brake handle connection.
8. brake handle.
9. Magnetic button (opção 1).
10. Brake Pulley (opção 1).
11. Magnetic button (opção 2).
12. Brake Pulley (opção 2).
13. Trimmer.
14. Trimmer system.
15. Harness connection point.
16. Piloting aids.
17. Safety connection

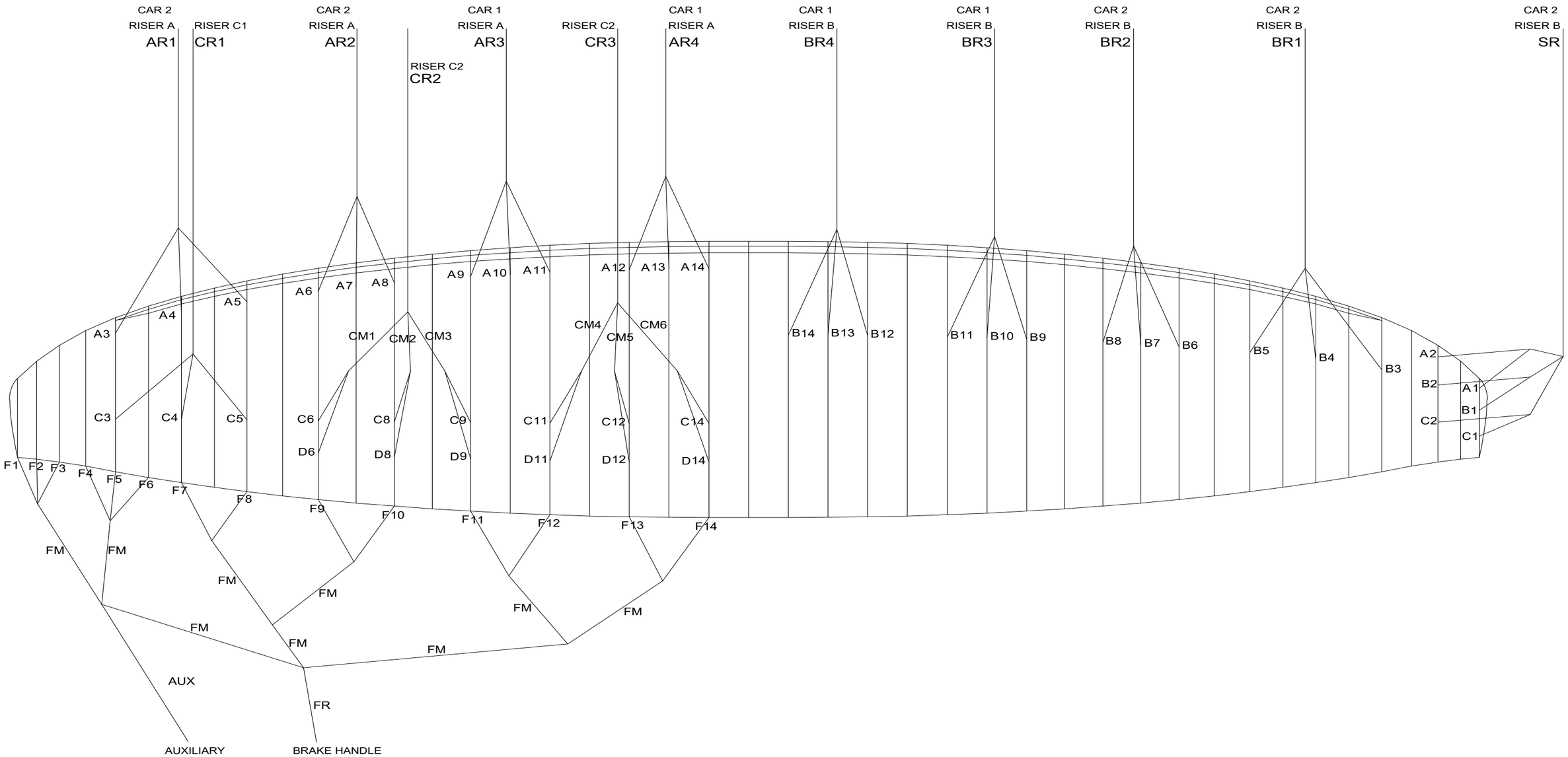


Line plan

The suspension point design was developed for an ideal weight distribution and long life. During all consideration and calculation, security always is our first goal.. The used material mix for the lines of the Hercules 2 forms an ideal combination: long life with little deformation and aerodynamic drag.

Never and under no circumstances the line length can be altered!

Hercules 2



THE Paratrike wing - INFORMATION

Take off weight

Each paratrike wing seize is dedicated to a certain weight range, from a minimum take off weight to a maximum. The take off weight is the sum of the weight of:

1. The pilot.
2. Paratrike wing.
3. The paratrike with reserve.
4. All flight accessories.

It’s not recommended to fly outside the weight range.

If your take off weight is between two weight ranges we suggest the following procedure:

With two sizes, the smallest indicated for monotrike pilots up to 240 kg and the largest for double paratrikes with up to 380 kg takeoff weight.

Tow release take off

The Hercules 2 can be used for towed flight. The used equipment must be certified, the team handling the equipment must be licensed and you must have done a workshop learning this take off. Always use the special tow connection. The take off only should be done if the canopy is filled completely and steady above the pilots head.

Tandem flight

The Hercules 2 size 240 is not designed and is not certified for dual flight.
The Hercules 2 size 380 is designed and certified for dual flight.

PREPARING FOR FLIGHT

Laying out the paratrike wing

- Choose an easy training elevation with less inclination for the first flight, without obstacles and a day with easy weather conditions.
- Open your canopy and lay him down in shape of a horseshoe.
- Check fabric and lines, if there is any damage or fatigue caused by wear.
- Check if all quick links are closed.
- Identify, separate and organize all risers A, B, C1, C2 and the brake lines.

It is extremely important that there are no entanglements and/or bunched lines present.

Harness

The regulated distance between the large clips (adjustable at the chest) is 50cm for the Hercules 2. Variations of more than 5 cm above these ones will alter the fundamental characteristics of the canopy and are potentially dangerous.

If the distance is not within the range, the glider could have extreme, dangerous or abnormal reaction in flight.

Connecting paratrike wing and harness

Without twisting the risers connect them with the carabiners of the paratrike. Check if they are connected and positioned in the right way without any twist. The A riser must be in front in flight direction.

Check if the carabiners are really looked and closed!

Trimmer

The Hercules 2 risers are equiped with trimmer. It can be used in different configurations. It’s very important pay attention for the best performance and safety that you wish.

A	B	C1	C2
33 CM	34 CM	37,5 CM	41 CM

Open Trimmer

Recommended for wind transitions

Measure without quick links

A	B	C1	C2
33 CM	34 CM	34 CM	34 CM

Closed Trimmer

Recommended for turbulent transitions

Measure without quick links

Brake handles

In case you switch do another power unit it might be that you have to readjust the lengths of the brake lines. This adjustment can easy be made on the riser, the original adjustment which works with most of the power units on the market.the brake handles by 10 cm.

Step 1. Open the brake handle knot.

Step 2. Remove the brake handle.

Step 3. Pass the main line inside the pulley

Step 4. Close the node with the main and auxiliary line.

Confirm that both sides are symmetric.

Make the necessary readjustments and fill the glider on the ground to make sure that the brakes are working fine before flying with your power glider.

COMMANDS WITH REFLEX PROFILE

Paratrike wings are generally made with reflex profile (auto stable), the degree of stability is determined by each paratrike wing model.

This stability helps to get through small turbulences, so you can take better advantage of wing speed without having to act on the controls.

By following the profile commands and their tightness, without first time, the paratrike wing has a tendency to advance, then slowing down with the trimmer open, is practically unnoticeable with the trimmer closed.

In stronger and turbulent flight conditions, closed trimmer flight is recommended to ensure better control of the paratrike wing.

With open trimmer

More speed, brakes are heavier, less passive security in case of collapse.

With closed trimmer

Less speed, brakes are easier, more passive security in case of collapse.

Start

Have the trimmer 2 (cm) open to improve the inflation, the start speed depends on brake use.

Using the brakes

Without using the brakes:
More stability because of the reflex profile, more speed.

With 10% brakes:
More sustention, less stability, less speed. “CG backs off a little”, profile more unstable cause the use of the brakes are causing deformation of the canopy.

With 50% brakes:
Used in heavy turbulence for reducing speed, increasing the attack angle to avoid an eventual collapse. Used during start to decrease speed and to start within reduced space.

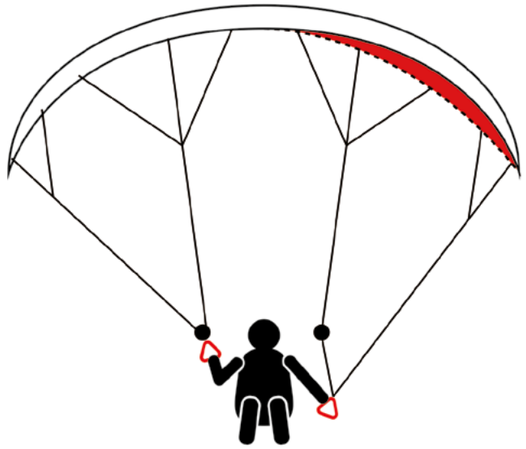
Double command

The Hercules 2 has an auxiliary command, this double command is used to make curves more open or closed in all conditions of use, regardless of the position of the trimmer.

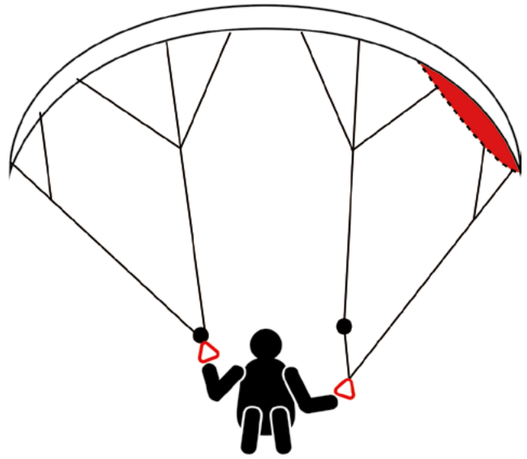
For more open bends, pull the bungs with your arm stretched out.

For more closed bends, pull the bung close to the body.

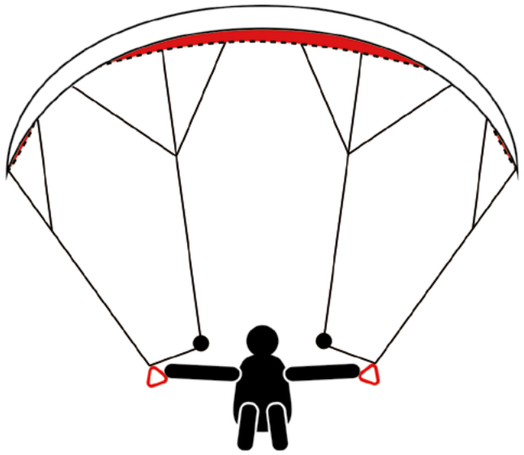
1. Brake lines.
2. Auxiliary brake lines.



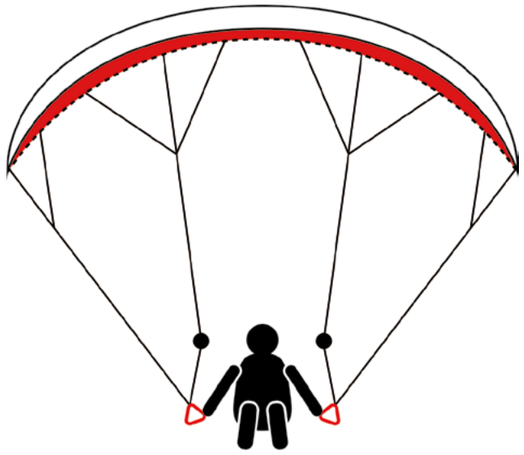
Normal turn - Pull one of the commands vertically downwards.



Closed turn – Pull one of the commands downwards close to your body.



Intense speed reduction - Recommended for landings and starts. Pull the two commands horizontally downwards to the side.



Normal speed reduction - Pull the two commands vertically downwards.

FLIGHT

Take Off Check List

- Helmet closed?
- Carabiners looked and closed?
- Harness all looks closed?
- Carabiner distance OK.?
- Risers A in hands?
- Brake lines free, brake handles in hand?
- Pilot stays in the midst of the canopy?
- Take off area free?
- Paratrike wing and pilot lined up against the wind?
- Air space in take off direction free?

Take off

It is easy to take off with Hercules 2.

The pilot, ready to take off, must hold only the controls (brake handles), before inflating, a last look of control over the extended equipment is mandatory.

Once this is done, slowly start taking off by gradually rotating the engine to approximately 50% of its capacity, bringing the paratrike wing over your head, with the possibility for an eventual correction in the direction. Make sure the paratrike wing is over your head and stabilized, at this point the pilot makes the decision to take off, or not. If the paratrike wing starts to sustain the trike, increase the engine speed by increasing its speed and consequently takeoff.

If the paratrike wing starts to sustain the trike, the pilot must progressively accelerate until he leaves the ground.

Sol Paratrikes does not recommend using the engine force to inflate the paratrike wing.

Climbing

After takeoff, continue driving for a while against the wind until you have a safe height for the first turn.

Avoid taking off at full throttle, the paratrike wing is in a more backward position compared to the trike, an excess of control during takeoff can stall, occasionally an accident.

It is possible that you feel a certain tendency of turning during the flight, depending on the strength of the engine. This is normal and is part of the mechanics of motorized flight. You can use the trimmer to compensate for the spin. Open the right trimmer a little to correct a turn to the right, or otherwise open the trimmer to the left a little to correct a turn to the left.

Turns

The Hercules 2 reacts easily and instantly to curve commands. Using the commands, flat curves are performed with minimal height loss.

A combination of weight shifting and breaking technique is the most efficient way of executing turns in any situation. The given brake utilized determines the radius of turns. By activating the brakes on the outside edge of the turns, as well as applying maximum weight shifting on the risers, the efficiency and resistance to collapse in turbulences (at the edge of thermals) is increased.

In case it becomes necessary to perform turns in a constrained space we recommend to release the outside brake in the given turn and pull a little more the brake on the inside of the turn. The paratrike wing glides best when no brakes are applied.

The pilot can use the double command to make more closed turns.

By pulling either brake too strongly or suddenly, there is a danger of creating a negative spiral!

Power induced oscillations

It is recommended to use the accelerator when flying against the wind or in zones with descending air. Due to a decreased angle of attack, the canopy may collapse easier than when set at the normal position. The pilot must remember that the higher the speed, the more dynamic the collapse response or symmetric closing will be.

Accelerated flight with trimmer

It is recommended to use the trimer when flying against the wind or in current zones descendants. Because it reduces the angle of attack, the paratrike wing can collapse more easily than in the normal position. The pilot must remember that the higher the speed, the more dynamic the reaction to a collapse.

- Exercise the use of the trimmer during calm conditions.
- Be careful when flying with an open trimmer in difficult or turbulent conditions.
- Remember: The higher the speed the higher the descent rate.
- Check always on all accelerator parts for good function and signs of wear.

Turbulent flight

In turbulent flight conditions it is not recommended to fly with an open trimmer, as Hercules 2 is more sensitive to deformation and closure. We recommend riding on the brake handles, the pilot must remember that the higher the speed, the more dynamic the collapse response or symmetrical closure will be.

Active flight

For your best performance during the flight it is important that you are always aware of what your paratrike wing is transmitting to you, the key elements of the active flight are the advances and pressure control.

These controls will keep your flight more stable and can certainly reduce the chances of a collapse.

No pilots and no paratrike wings are immune to collapses however active flight will lessen collapse trends.

Landing with paratrike

Always choose a secure and clean landing side with lots of space, great distance to natural obstacles and is not under the influence of turbulent air.

- The final approach stage must be done in straight line upwind.

- Switch off the engine.

- With less than 30m above ground avoid steer turns, they may result in dangerous pendulous movements and the pilot could crash to the ground with high velocity.

- Fly with hands up, without brakes, until more or less 1m over ground. In turbulent conditions fly active until the end. Than apply slowly and progressively the brakes to reduce velocity until you can almost without speed land on the ground.

- Always adapt your landing on space, circumstances and wind.

- Be careful with strong wind at the landing, so as not to be dragged.

FAST DESCENT MANEUVERS

In case of rapid descent, turn off the engine and look for a descending area.

Never forget that properly analyzing the conditions before taking off will help to avoid the need to use these techniques.

B-Stoll

Sol Paragliders does not recommend doing B-Stoll with the Hercules 2.

Positive spiral

Sol Paragliders does not recommend doing positive spiral with the Hercules 2.

Big ears

Sol Paragliders does not recommend doing big ears with the Hercules 2.

EXTREME FLIGHT SITUATIONS

Front-stall

Normally the paratrike wing opens on his own after a front-stall. In turbulent conditions it may happen that the canopy make a fast movement forward, in order to avoid another front-stall it is necessary to apply the brakes precisely.

Caution: If the brake lines are applied too much the glider could get into a full-stall.

In all extreme collapses remember: switch off the engine or with motor idling and don´t apply power.

Lateral closing

Active flying almost ever avoids lateral closing. If lateral closing happens, the canopy folds predictable and progressively from the tip to the center. This corresponds a collapse of 50% or more and results in a slight tendency for a turn. The paratrike wing can be held on course using the brake on the open side.
Normally the paratrike wing opens on his own. If the collapse happens during accelerated flight the canopy has a more dynamic reaction, but even than the turn can be controlled without problems.
To facilitate the closed side to fill the pilot has to pull down slowly (ca. 2 seconds) the brake on the closed side and let go again (pump). Shifting the weight to the open side helps to re-inflate the sail and increases security, cause the brake has to be used less and this avoids a full-stall.
Without action, the paratrike wing will begin a positive spiral. The pilot must lightly apply the brake on the external side to stop a spiral and at the same time shift his weight on the same side until the canopy is stabilized. Exactly at this stage of pendulum effect under the canopy, it is important that the pilot controls carefully the amount of force applied on the brakes, and often it is needed to decrease the force. Once a straight flight is achieved, the closed side can be re-inflated by the pumping action.

In all extreme collapses remember: switch off the engine or with motor idling and don´t apply power.

Parachutal

This paratrike wing does not have parachutal flight tendencies and recovers on its own from an intentional parachutal flight induced by braking commands. In case of a parachutal flight after an extreme situation loose the brakes and use the accelerator. Before using the brakes again make sure that the glider flies normally.

If the paratrike wing is wet or the regular inspections weren't made, the risk of a parachutal flight exists.

In all extreme collapses remember: switch off the engine or with motor idling and don´t apply power.

Full-stall

The Hercules 2 has a long way on the brakes before he enters a full-stall. A full-stall happens if the brakes are pulled symmetrically and excessively downwards. Normally the paratrike wing starts to fly backwards and deforms to a horseshoe, the opening on the front.
Before terminating the canopy must be stabilized. Afterwards both brake lines have to be loosened symmetrically and slowly, to avoid that the canopy kicks forward.

In all extreme collapses remember: switch off the engine or with motor idling and don´t apply power.

Negative spiral

The Hercules 2 has a long way on the brakes and difficulties to enter in a negative spiral. But if one of the brakes is extremely pulled downwards it can happen.
The side with the brake pulled down enters in a stall, while the other side maintains open. In this case the brake must be loosened at once, before the paratrike wing turns 180°, in order to get the paratrike wing back to normal flight. Depending on the situation in which the brake is loosened, the canopy can react quite dynamic and kick forward provoking a collapse.

In all extreme collapses remember: switch off the engine or with motor idling and don´t apply power.

Line Over

If the tip of the wing is trapped in lines it could cause a positive spiral, which is difficult to control. To get out of this situation, first stabilize your wing and get him into normal flight. In other words control direction. Than pump on the side of the Line Over. During this procedure lean on the opposite side, otherwise there is a risk to turn or increase the spiral.
You also may try to pull the stabilo lines (SR), the outer lines on the blue riser (B), to free the canopy. Watch out for the brake to avoid a stall on the clean side.
If the Line Over is big and all the counter action does not help and the paratrike wing is not to manage, release the reserve, whilst you are having height enough.

In all extreme collapses remember: switch off the engine or with motor idling and don´t apply power.

Emergency flying

In case of a brake line crack or the brake line is trapped or anything else happened and doesn't allow to use the brakes, use the (C2) risers and weight shifting to steer the glider. Land on the nearest possible side. This situation could happen in case of poor maintenance of the equipment or an extreme flight situation.

- Attention: the steering commands on C2 risers are much shorter than on the brake lines.

- In all extreme collapses remember: switch off the engine or with motor idling and don´t apply power.

PACKING YOUR Paratrike WING

There are different ways who can help to extend the life of your paratrike wing. One way is to fold the paratrike wing right. It's most important to watch out for the reinforcements to maintain the take off characteristics and the performance. We are recommending the (Origami Method) and the use of a folding cover (see below). Together with your paratrike wing you get a traditional pack sack who also protects your paratrike wing. How to use it we describe after the (Origami Method).

Origami - Method

Step 1: Open the folding cover and pull the partially in. The outside will look like a cabbage. This way you're avoiding that the glider drags over the ground during folding.

Step 2: Begin with the center of the trailing edge. Put one profile over the other. Each side separate.

Step 3: Now do it in the same way with the leading edge profiles. Put the reinforcements of top and bottom in the right way, don’t close the cell openings and push out the fabric.

Step 4: Fold the paratrike wing like an accordion from both sides and close the folding cover. Watch out for the lines and fabric closing the zipper.

Step 5: At last fold the folding cover as shown in the photo. This method is very gentle to the more stiffer parts of the paratrike wing.

Traditional - Method

Step 1: Bundle up your paratrike wing in form of a cabbage. This way you’re avoiding that the paratrike wing drags over the ground during folding.

Step 2: Begin with the center of the trailing edge. Put one profile over the other. Each side separate.

Step 3: Now do it in the same way with the leading edge profiles. Put the reinforcements of top and bottom in the right way, don’t close the cell openings and push out the fabric.

Step 4: Fold the paratrike wing like an accordion from both sides and put one side over the other. Now all reinforcements are laying side-wise one above the other.

Step 5: Fold the sack as shown in the photo. This method is very gentle to the more stiffer parts of the paratrike wing.

Step 6: At last put the paratrike wing into the protection bag.

Storing

Most part of the paratrike wing fabric is Nylon. As all other synthetic materials it suffers and deteriorates under the influence of ultraviolet radiation (UV). It looses his stiffness and gets more porous. Whenever it is possible avoid to submit your paratrike wing to the sun light, it has a high (UV) rate, especially in heights. It is recommended to store your paratrike wing very well whilst it not in use. It should be stored dry in a dry place, protected from (UV) rays, distant from chemical products. Avoid to store the paratrike wing in hot places like the trunk of a car.

Back Pack

We recommend that you store your equipment in the back pack. That way it is easy to transport and protect. Your back pack was designed to be useful and comfort. Do it this way:

Step 1: Open your back pack and put your paratrike wing in.

Step 2: Store your helmet and accessories in the upper part of the back pack.

Step 3: Close all parts and pockets of the back pack.

TIPS FOR CARE

- Over-stressing of individual lines, more than normal load in flight, should be avoided. An excessive deformation is irreversible and can't be undone. For the same reason avoid stepping on the lines, bending or folding them, especially the main lines.

- Always open the paratrike wing on clean ground, otherwise dirt could penetrate the fabric, shorten the lines or damage the canopy. Lines should not be entangled to objects during the phase of inflation, otherwise they could be deformed or damaged. Never step on the canopy, especially not on hard ground.

- Take offs and landings under strong wind conditions could force the paratrike wing to crash uncontrolled with high velocity on the ground, the crash could damage fabric and sewings.

- In case of a Line Over the brake lines could wear of or a main line could be cut by a brake line or crack by friction.

- Handling the paratrike wing on a earthy ground under strong wind conditions accelerates the aging process of your equipment.

- After a water or tree landing the paratrike wing must be sent for inspection to an authorized dealer's workshop.

- It must be avoided that sand, stones or snow enter in the cells, otherwise the weight on the trailing edge could brake the paratrike wing and cause a full-stall. Besides, the sharped edges could damage the sail's fabric.

- After the landing be careful, avoid crashing the leading edge on the ground. Otherwise the material and sewings of the cell openings could be damaged.

- In case the paratrike wing gets in contact with salty water, he must be washed with sweet water and dry in the shadow. Never use tools to accelerate the drying process. Salty water could reduce the line resistance and increase the porosity of the fabric, even washed out with sweet water.

- After any kind of accident: the equipment must be sent for inspection to an authorized dealer's workshop or to the manufacturer.

- Keep up to the required inspection data, to assure that your equipment is always save for use and within the certification requirements.

INSPECTION

Your paratrike wing has strictly to follow the required inspection intervals. The first inspection check is mandatory completing 24 months or 100 hours flights, whichever comes first.
After the first inspection any paratrike wing must be checked yearly or at each 100 hours flights, whichever comes first. In any of these inspections may occur that a shorter period for the next inspection will be defined (f. ex. 6 months or 50 hours flights).
Without performing the mandatory inspections, the paratrike wing loses its certification and the warranty becomes null and void.
After any kind of accident or a long period without use: sent the paratrike wing for inspection to an authorized dealer's workshop or to the manufacturer. It's for your own good.
Minor repairs (see below) you could do by yourself, but all other repairs must only be made by an authorized dealer's workshop or the manufacturer.

REPAIRS

Repairs must only be made by an authorized dealer's workshop or to the manufacturer. In case of minor repairs you are receiving with your paratrike wing a basic repair kit. It contains adhesive labels in case of minor tears and quick link sealing.

FABRIC TEARS

Small tears up to 10 cm away from the line suspension points may be fixed by yourself. Beyond that the maintenance must be made by an authorized dealer's workshop or the manufacturer.

- Clean the spot where the adhesive label will be applied with a humid cloth.
- The adhesive label has to be at least 2,5 cm larger than the tear.
- Round the edges, otherwise the adhesive label could loosen after the aplication.
- Apply on both sides of the tear.

LINE CRACK

In case of a line crack we recommend to contact your dealer, an authorized dealer's workshop or the manufacturer. After the repair test the paratrike wing on the ground and check if everything is alright.

QUICK LINK SEALING

Along with your kit you're get sealing for the quick links. Don't leave your risers without them, because they avoid the movement of the screw nut, making it impossible to open.

WARRANTY

Every Sol paramotor/paratrike wing has a Warranty of 1 Year, 100 Hours of Flight or 100 Flights, whichever comes first. Our development technology, through the utilization of quality materials and the adoption of new manufacturing processes, allows us to offer you, our client this added bonus. This warranty is defined as repair or substitution of the defective equipment parts determined by the producer.

NOTE: The paramotor/paratrike wings must undergo annual inspection, every 100 flight hours or 100 flights as they are subjected to conditions much more extreme than normal paragliders.

1. This warranty covers any materials, and manufacturing defects.

2. This Warranty covers every paramotor/paratrike wing certified DGAC / EN or LTF for leisure activities, excluding professional equipment (schools, competitions, acro, etc.).

3. Due to the extreme use situation, paragliders for competition, acro, protos and professional use are not covered by the SOL 3 year warranty (300 hours). Every SOL paraglider destined for competition and acro, has a 1 year warranty for manufacturing defects.

Warranty Pre-requisites:

1. You must fill-out form (Fill the form here) within 30 days after purchase;

2. All flights must be logged providing information on date, place and length of flight;

3. The equipment must be kept in accordance with the instructions provided in this manual. All the storage, folding, cleaning and care instructions must be carefully taken;

4. Maintenance and inspections can only be performed by the manufacturer or authorized shop and must be properly documented;

5. Paramotor/paratrike wing must follow the inspection schedule. The first mandatory inspection must be done after completing 24 months, 100 flight hours or 100 flights, whichever comes first. After the first inspection, a sail needs to be inspected every 12 months, 100 flight hours or every 100 flights (whichever comes first). It may happen that in the inspection a shorter period for the next inspection is defined (for example 6 months, 50 flight hours or 50 flights). Without mandatory inspections, the paraglider loses its certification and respective;

6. The owner is responsible for all shipping expenses to and from the manufacturer;

7. In order to make a plea for repair or equipment exchange, or equipment repair,

which shall be decided and performed only SOL Paragliders, the owner must send the manufacturer the following:

a) The wing in question, and copies of all previous inspections and flight registry;
b) Filled-out Warranty Registration Form SOL Paragliders. Fill the form here

This Warranty Does Not Cover:

1. Any alterations on original fabric colors, lines and risers;

2. Any damage caused by chemical products, sand, friction, cleaning products or salt water;

3. Any damage caused as a result of errors during operation of the product, incidents or emergency situations;

4. Any damage caused by inadequate operation of the product;

5. Products that may have been subjected of any alteration from the original design and without proper permission from SOL Paragliders;

6. Damages caused by inappropriate transport, storage or settings of the product;

7. Damages caused by the use of not compatible components with the product;

8. Damages caused by the use of inappropriate packaging for the transport;

9. Products without original identification label and serial number;

10. Handling inadequately to the instructions given in the owner´s manual.

ENVIRONMENT AND RECYCLING

Please be aware of our environment: don't toss your garbage into nature, respect the animals. Remember: nature is our paratrike wing engine. If your paratrike wing gets out of use remember it cannot be recycled. Please give it to your dealer or your flying-school, they should know how to handle it.

OPERATION LIMITS

Based on LTF standard:
- Temperatures from -30oC to +70 oC during the storage should not interfere with the security during the use of the equipment.
- Temperatures from -30oC to +50 oC and oscillation of the relative air humidity between 25% and 100% during use should not interfere with the security.
- Remember, you have acquired a high quality product which has been produced with carefully chosen materials. Think carefully about the storage and handling of your power glider.
- The permission of use expires with -30° C.

FINAL WORDS

Safety is the major theme of our sport. In order to fly safely, pilots must train, study, practice and be alert to the dangers around us. In order to achieve excellent safety levels, we must fly regularly as much as possible, don't go beyond our limitations and avoid exposing ourselves to unnecessary dangers. Learning to fly is a slow process and takes years, so don't pressure yourself. If conditions are not favorable, keep your equipment stored away.

Don't overestimate your skills and be honest with yourself. Every year we see many accidents which in most cases could be prevented with a minor adjustment.

We are a part of the community in which we live: friends, family and even people we don't necessarily know worry about us. Our obligation towards this community is to keep ourselves healthy and that at each landing we will be one landing happier than before. We fly so that we can feel more alive.

We wish you good and safe flights with your new paratrike.

SOL Paratrikes Team !!

TECHNICAL DATA

Weight, measure and data

Model	240	380	
Cells	44	44	
Real Surface	33,03	38,60	m²
Real Span	13,14	14,20	m
Real A/R	5,22	5,22	
Projected Surface	28,70	33,54	m²
Projected Span	10,69	11,56	m
Projected A/R	3,98	3,98	
Height	813	876	cm
Profile max.	307	332	cm
Profile min.	88	95	cm
Ventral distance (min - max)	45 - 55	45 - 55	cm
Paratrike wing weight	7,3	8,5	kg
Take off weight	140 - 240	180 - 380	Kg
Certification	DGAC	DGAC	
Risers	3 + 1	3 + 1	
Trimmer	7	7	cm

Parts and materials

Top	WTX 40 PU + Silicon 40 gr/sm
Bottom	WTX 40 PU + Silicon 40 gr/sm
Profiles/Diagonal tapes	Pro-Nyl High Tenacity Nylon rip-stop Hard finish 36 gr/sm
Reinforcements	Nylon Meada 2,5 mm
Reinforcements inside/outside	Cetim Polyester 25 mm
Loops	Fita Polyester / Polipropileno FRL0027 10 X 1.0 mm Ribana White
Sewing thread on canopy	Graal Polyester Filament Continuous 60 White
Sewing thread on risers	Dabond Polyester Filament Continuous 30 - 40 Black
Lines	Liros Dyneema PPSLS 125 - 180 / Cousin Dyneema CTL910420B / Cousin Technora 988 2,1
Quick Links	Ansung Precision 25 mm. 800 kg
Risers	Fita Poliéster Venus VII 19 mm Preta. 1.600 kg
Pulleys	Nylon Sol 12 mm Red
Magnet clip	Ima de Neodimio N35 20 X 10 X 3 mm

Lines

Model	PPSLS 125	PPSLS 180	CTL910420B	988
Manufacturer	Liros GER	Liros GER	Cousin FRA	Cousin FRA
Number resistance test	LKT 1630	LKT 1531		LT 949
Diameter	1,05 mm	1,25 mm	2,1 mm	2,1 mm
Material	Dyneema	Dyneema	Dyneema	Technora
Rope coating	Polyester	Polyester	Polyester	Polyester
Resistance after bending	121,4 daN	142,9 daN	162,6 daN	182,4 daN

Line lengths

Hercules 2 150

	A	B	C	D	F
1	7342	7343	7408		7410
2	7567	7513	7554		7468
3	7761	7738	7789		7574
4	7836	7798	7869		7674
5	7929	7878	7964		7713
6	7951	7891	8011	8115	7802
7	7931	7867			7891
8	7955	7889	7978	8098	7889
9	7956	7882	8021	8150	7947
10	7931	7854			8074
11	7962	7883	8031	8166	8201
12	7979	7897	7998	8139	8312
13	7967	7883			8515
14	8007	7924	8075	8213	8803

Measuring incl. risers and carabiners with 5 daN load
Brake line measuring without riser

Hercules 2 380

	A	B	C	D	F
1	7928	7931	8002		8018
2	8170	8114	8161		8082
3	8380	8356	8414		8195
4	8460	8420	8499		8304
5	8559	8504	8598		8349
6	8580	8515	8647	8759	8446
7	8558	8488			8542
8	8582	8510	8608	8738	8542
9	8580	8500	8652	8791	8602
10	8553	8468			8735
11	8584	8498	8659	8805	8866
12	8600	8510	8621	8773	8980
13	8585	8493			9191
14	8627	8536	8700	8850	9494

Measuring incl. risers and carabiners with 5 daN load
Brake line measuring without riser

Line lengths individually

Hercules 2 240

Name	Line reference		Diameter / mm	Length / mm	Number of lines
A1	LIROS PPSLS	125	1,05	1049	2
A2	LIROS PPSLS	125	1,05	1277	2
A3	LIROS PPSLS	180	1,2	2389	2
A4	LIROS PPSLS	180	1,2	2464	2
A5	LIROS PPSLS	180	1,2	2557	2
A6	LIROS PPSLS	180	1,2	1829	2
A7	LIROS PPSLS	180	1,2	1809	2
A8	LIROS PPSLS	180	1,2	1833	2
A9	LIROS PPSLS	180	1,2	1834	2
A10	LIROS PPSLS	180	1,2	1809	2
A11	LIROS PPSLS	180	1,2	1840	2
A12	LIROS PPSLS	180	1,2	1857	2
A13	LIROS PPSLS	180	1,2	1845	2
A14	LIROS PPSLS	180	1,2	1885	2
AR1	COUSIN / DYNEMA	CTL910420B	2,1	5000	2
AR2	COUSIN / DYNEMA	CTL910420B	2,1	5750	2
AR3	COUSIN / DYNEMA	CTL910420B	2,1	5750	2
AR4	COUSIN / DYNEMA	CTL910420B	2,1	5750	2
B1	LIROS PPSLS	125	1,05	1050	2
B2	LIROS PPSLS	125	1,05	1223	2
B3	LIROS PPSLS	180	1,2	2366	2
B4	LIROS PPSLS	180	1,2	2426	2
B5	LIROS PPSLS	180	1,2	2506	2
B6	LIROS PPSLS	180	1,2	1769	2
B7	LIROS PPSLS	180	1,2	1745	2
B8	LIROS PPSLS	180	1,2	1767	2
B9	LIROS PPSLS	180	1,2	1760	2
B10	LIROS PPSLS	180	1,2	1732	2
B11	LIROS PPSLS	180	1,2	1761	2
B12	LIROS PPSLS	180	1,2	1775	2
B13	LIROS PPSLS	180	1,2	1761	2
B14	LIROS PPSLS	180	1,2	1802	2
SM	LIROS PPSLS	125	1,05	920	6
SR	LIROS PPSLS	180	1,2	5000	2
BR1	COUSIN / DYNEMA	CTL910420B	2,1	5000	2
BR2	COUSIN / DYNEMA	CTL910420B	2,1	5750	2
BR3	COUSIN / DYNEMA	CTL910420B	2,1	5750	2
BR4	COUSIN / DYNEMA	CTL910420B	2,1	5750	2

Hercules 2 240

Name	Line reference		Diameter / mm	Length / mm	Number of lines
C1	LIROS PPSLS	125	1,05	1115	2
C2	LIROS PPSLS	125	1,05	1264	2
C3	LIROS PPSLS	180	1,2	2423	2
C4	LIROS PPSLS	180	1,2	2503	2
C5	LIROS PPSLS	180	1,2	2598	2
C6	LIROS PPSLS	180	1,2	1585	2
C8	LIROS PPSLS	180	1,2	1552	2
C9	LIROS PPSLS	180	1,2	1595	2
C11	LIROS PPSLS	180	1,2	1605	2
C12	LIROS PPSLS	180	1,2	1572	2
C14	LIROS PPSLS	180	1,2	1649	2
CM1	LIROS PPSLS	180	1,2	1445	2
CM2	LIROS PPSLS	180	1,2	1445	2
CM3	LIROS PPSLS	180	1,2	1445	2
CM4	LIROS PPSLS	180	1,2	1445	2
CM5	LIROS PPSLS	180	1,2	1445	2
CM6	LIROS PPSLS	180	1,2	1445	2
CR1	COUSIN / DYNEMA	CTL910420B	2,1	4625	2
CR2	COUSIN / DYNEMA	CTL910420B	2,1	4625	2
CR3	COUSIN / DYNEMA	CTL910420B	2,1	4625	2
D6	LIROS PPSLS	125	1,05	1688	2
D8	LIROS PPSLS	125	1,05	1671	2
D9	LIROS PPSLS	125	1,05	1723	2
D11	LIROS PPSLS	125	1,05	1739	2
D12	LIROS PPSLS	125	1,05	1712	2
D14	LIROS PPSLS	125	1,05	1786	2
F1	LIROS PPSLS	125	1,05	584	2
F2	LIROS PPSLS	125	1,05	642	2
F3	LIROS PPSLS	125	1,05	748	2
F4	LIROS PPSLS	125	1,05	848	2
F5	LIROS PPSLS	125	1,05	887	2
F6	LIROS PPSLS	125	1,05	976	2
F7	LIROS PPSLS	125	1,05	1055	2
F8	LIROS PPSLS	125	1,05	1053	2
F9	LIROS PPSLS	125	1,05	1111	2
F10	LIROS PPSLS	125	1,05	1238	2
F11	LIROS PPSLS	125	1,05	1365	2
F12	LIROS PPSLS	125	1,05	1476	2
F13	LIROS PPSLS	125	1,05	1679	2
F14	LIROS PPSLS	125	1,05	1967	2
FM	LIROS PPSLS	125	1,05	2000	18
AUX	COUSIN / TECHNORA	988	2,1	4835	2
FR	COUSIN / TECHNORA	988	2,1	2860	2

Hercules 2 380

Name	Line reference		Diameter / mm	Length / mm	Number of lines
A1	LIROS PPSLS	125	1,05	1155	2
A2	LIROS PPSLS	125	1,05	1400	2
A3	LIROS PPSLS	180	1,2	2608	2
A4	LIROS PPSLS	180	1,2	2688	2
A5	LIROS PPSLS	180	1,2	2787	2
A6	LIROS PPSLS	180	1,2	1988	2
A7	LIROS PPSLS	180	1,2	1966	2
A8	LIROS PPSLS	180	1,2	1990	2
A9	LIROS PPSLS	180	1,2	1988	2
A10	LIROS PPSLS	180	1,2	1961	2
A11	LIROS PPSLS	180	1,2	1992	2
A12	LIROS PPSLS	180	1,2	2008	2
A13	LIROS PPSLS	180	1,2	1993	2
A14	LIROS PPSLS	180	1,2	2035	2
AR1	COUSIN / DYNEMA	CTL910420B	2,1	5400	2
AR2	COUSIN / DYNEMA	CTL910420B	2,1	6220	2
AR3	COUSIN / DYNEMA	CTL910420B	2,1	6220	2
AR4	COUSIN / DYNEMA	CTL910420B	2,1	6220	2
B1	LIROS PPSLS	125	1,05	1158	2
B2	LIROS PPSLS	125	1,05	1344	2
B3	LIROS PPSLS	180	1,2	2584	2
B4	LIROS PPSLS	180	1,2	2648	2
B5	LIROS PPSLS	180	1,2	2732	2
B6	LIROS PPSLS	180	1,2	1923	2
B7	LIROS PPSLS	180	1,2	1896	2
B8	LIROS PPSLS	180	1,2	1918	2
B9	LIROS PPSLS	180	1,2	1908	2
B10	LIROS PPSLS	180	1,2	1876	2
B11	LIROS PPSLS	180	1,2	1906	2
B12	LIROS PPSLS	180	1,2	1918	2
B13	LIROS PPSLS	180	1,2	1901	2
B14	LIROS PPSLS	180	1,2	1944	2
SM	LIROS PPSLS	125	1,05	1000	6
SR	LIROS PPSLS	180	1,2	5400	2
BR1	COUSIN / DYNEMA	CTL910420B	2,1	5400	2
BR2	COUSIN / DYNEMA	CTL910420B	2,1	6220	2
BR3	COUSIN / DYNEMA	CTL910420B	2,1	6220	2
BR4	COUSIN / DYNEMA	CTL910420B	2,1	6220	2

Hercules 2 380

Name	Line reference		Diameter / mm	Length / mm	Number of lines
C1	LIROS PPSLS	125	1,05	1229	2
C2	LIROS PPSLS	125	1,05	1391	2
C3	LIROS PPSLS	180	1,2	2648	2
C4	LIROS PPSLS	180	1,2	2733	2
C5	LIROS PPSLS	180	1,2	2832	2
C6	LIROS PPSLS	180	1,2	1731	2
C8	LIROS PPSLS	180	1,2	1692	2
C9	LIROS PPSLS	180	1,2	1736	2
C11	LIROS PPSLS	180	1,2	1743	2
C12	LIROS PPSLS	180	1,2	1705	2
C14	LIROS PPSLS	180	1,2	1784	2
CM1	LIROS PPSLS	180	1,2	1560	2
CM2	LIROS PPSLS	180	1,2	1560	2
CM3	LIROS PPSLS	180	1,2	1560	2
CM4	LIROS PPSLS	180	1,2	1560	2
CM5	LIROS PPSLS	180	1,2	1560	2
CM6	LIROS PPSLS	180	1,2	1560	2
CR1	COUSIN / DYNEMA	CTL910420B	2,1	5000	2
CR2	COUSIN / DYNEMA	CTL910420B	2,1	5000	2
CR3	COUSIN / DYNEMA	CTL910420B	2,1	5000	2
D6	LIROS PPSLS	125	1,05	1842	2
D8	LIROS PPSLS	125	1,05	1821	2
D9	LIROS PPSLS	125	1,05	1874	2
D11	LIROS PPSLS	125	1,05	1888	2
D12	LIROS PPSLS	125	1,05	1856	2
D14	LIROS PPSLS	125	1,05	1933	2
F1	LIROS PPSLS	125	1,05	662	2
F2	LIROS PPSLS	125	1,05	726	2
F3	LIROS PPSLS	125	1,05	839	2
F4	LIROS PPSLS	125	1,05	948	2
F5	LIROS PPSLS	125	1,05	993	2
F6	LIROS PPSLS	125	1,05	1090	2
F7	LIROS PPSLS	125	1,05	1176	2
F8	LIROS PPSLS	125	1,05	1176	2
F9	LIROS PPSLS	125	1,05	1236	2
F10	LIROS PPSLS	125	1,05	1369	2
F11	LIROS PPSLS	125	1,05	1500	2
F12	LIROS PPSLS	125	1,05	1614	2
F13	LIROS PPSLS	125	1,05	1825	2
F14	LIROS PPSLS	125	1,05	2128	2
FM	LIROS PPSLS	125	1,05	2160	18
AUX	COUSIN / TECHNORA	988	2,1	5200	2
FR	COUSIN / TECHNORA	988	2,1	3070	2

MINISTÈRE CHARGÉ DES TRANSPORTS
Liberté Égalité Fraternité

dgac direction générale de l'Aviation civile
DSAC

FICHE D'IDENTIFICATION ULM DE CLASSE 1

(à joindre à la carte d'identification)

a	b	c		d		e					f	Rév n°
B	1	0	1	S	F	0	3	7	4	0	E	-

a) Construction en série : B - autres cas : A
b) Monoplace : 1 - Biplace : 2
c) Paramoteur : 01 - Pendulaire : 02 - Multiaxe : 03 - Autogire : 04 - Aérostat : 05 - ULM à motorisation auxiliaire : 1A - 2A - 3A - Hélicoptère : 06
d) Code de l'autorité aéronautique
e) Numéro d'ordre
f) Utilisation : Loisir : L - Activité particulière : T - Loisir et activité particulière : E

Appellation ou type d'ULM	HERCULES 2 - 240
Constructeur	SOL PARAGLIDERS
Adresse	Rua Walter Marquardt SC 89259-565 1180 JARAGUA DO SUL - BRESIL

DESCRIPTION DE L'ULM

Activités particulières prévues	**n/a**			
Options prévues	**n/a**			
Masse minimale	Masse maximale	Voilure		
		Fabricant	Modèle/Référence	
140 kg	**240 kg**	**SOL PARAGLIDERS**	**HERCULES 2 - 240**	
Référence manuel d'utilisation	Référence manuel d'entretien		Surface à plat	Résistance minimale d'ancrage
HERCULES 2	**HERCULES 2**		**33,03 m²**	**950 daN**
Limitations du constructeur de la voile vis-à-vis des GMP	**Puissance maximum : 65 kW**			

Pour le Ministre chargé de l'Aviation Civile
Document établi le : 1er Février 2021

Visa de l'autorité

Benoit PINON
DSAC/NO
Chef du pôle navigabilité

DIRECTION GÉNÉRALE DE L'AVIATION CIVILE

A remplir par le constructeur d'ULM en série ou par son représentant pour toute copie conforme remise à l'acheteur.

Je soussigné....., certifie que l'ULM, numéro de série :....., est conforme au dossier technique ayant fait l'objet de la présente fiche d'identification.

à ..... le : .....
signature et cachet de l'entreprise

MINISTÈRE CHARGÉ DES TRANSPORTS
Liberté Égalité Fraternité

dgac direction générale de l'Aviation civile
DSAC

FICHE D'IDENTIFICATION ULM DE CLASSE 1

(à joindre à la carte d'identification)

a	b	c		d		e					f	Rév n°
B	2	0	1	S	F	0	3	7	4	1	E	-

a) Construction en série : B - autres cas : A
b) Monoplace : 1 - Biplace : 2
c) Paramoteur : 01 - Pendulaire : 02 - Multiaxe : 03 - Autogire : 04 - Aérostat : 05 - ULM à motorisation auxiliaire : 1A - 2A - 3A - Hélicoptère : 06
d) Code de l'autorité aéronautique
e) Numéro d'ordre
f) Utilisation : Loisir : L - Activité particulière : T - Loisir et activité particulière : E

Appellation ou type d'ULM	HERCULES 2 - 380
Constructeur	SOL PARAGLIDERS
Adresse	Rua Walter Marquardt SC 89259-565 1180 JARAGUA DO SUL - BRESIL

DESCRIPTION DE L'ULM

Activités particulières prévues	**n/a**			
Options prévues	**n/a**			
Masse minimale	Masse maximale	Voilure		
		Fabricant	Modèle/Référence	
180 kg	**380 kg**	**SOL PARAGLIDERS**	**HERCULES 2 - 380**	
Référence manuel d'utilisation	Référence manuel d'entretien		Surface à plat	Résistance minimale d'ancrage
HERCULES 2	**HERCULES 2**		**38,60 m²**	**950 daN**
Limitations du constructeur de la voile vis-à-vis des GMP	**Puissance maximum : 65 kW**			

Pour le Ministre chargé de l'Aviation Civile
Document établi le : 1er Février 2021

Visa de l'autorité

Benoit PINON
DSAC/NO
Chef du pôle navigabilité

DIRECTION GÉNÉRALE DE L'AVIATION CIVILE

A remplir par le constructeur d'ULM en série ou par son représentant pour toute copie conforme remise à l'acheteur.

Je soussigné....., certifie que l'ULM, numéro de série :....., est conforme au dossier technique ayant fait l'objet de la présente fiche d'identification.

à ..... le : .....
signature et cachet de l'entreprise

HERCULES 2

MINISTÈRE
CHARGÉ
DES TRANSPORTS
Liberté
Égalité
Fraternité

dgac direction générale de l'Aviation civile
DSAC

Direction de la sécurité de l'Aviation civile
Direction navigabilité et opérations

Pôle navigabilité

Nos réf. : DSAC/NO/NAV

Affaire suivie par : Clément CAZAENTRE

clément.cazaentre@aviation-civile.gouv.fr

Tél.** 01 58 09 43 60 - **Fax :

Paris, le 1 Février 2021

SOL PARAGLIDERS
Rua Walter
Marquardt SC 89259-565
1180 JARAGUA DO SUL
BRESIL

Objet 2 fiches d'identification ULM.

Madame, Monsieur,

Je vous prie de bien vouloir trouver ci-joint les fiches d'identification pour les ULM suivants :

HERCULES 2 - 240	B101SF03740E
HERCULES 2 - 380	B201SF03741E

Ces fiches ont été visées attestant de la conformité du dossier technique avec l'instruction associée relative aux ultra légers motorisés (ULM). Les éléments du dossier que vous avez bien voulu déposer avec la déclaration n'ont pas été étudiés par la DGAC et sont simplement archivés.

Je me dois de vous rappeler que toute fiche d'identification est délivrée en considération de la déclaration du postulant et qu'en cas de fausse déclaration il est passible des dispositions de l'article 441-1 du code pénal.Le Ministre chargé de l'aviation civile peut faire effectuer la surveillance qu'il juge nécessaire, par des personnes ou des organismes habilités à cet effet, pour s'assurer de la conformité de l'ULM pour lequel la fiche est visée.

Vous voudrez bien remettre une copie de ce document, que vous certifierez conforme, à l'acquéreur, afin d'identification par les autorités compétentes.
Vous trouverez tout renseignement complémentaire sur le site du ministère (**https://www.ecologie.gouv.fr/ulm-introduction)**

Je vous prie d'agréer, Madame, Monsieur, l'expression de ma considération distinguée.

PJ :

2 fiches d'identification ULM.

HERCULES 2

Sol Sports Ind. e Com. Ltda.
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