



NAJA

Manual

Dear **POWERPLAY** customer,

You have just purchased a sophisticated product. We place great importance on our workmanship and the high quality of the materials used.

If you have any questions which are not answered in this manual, please do not hesitate to contact us directly (00 49 8141 3 27 78 88 or info@powerplay-gliders.de), or your Powerplay dealer.

from

the Powerplay Team

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1. DISCLAIMER AND EXCLUSION OF LIABILITY

Use of this paraglider is in all cases at the USER'S OWN RISK. THE CERTIFICATION AND THE WARRANTY SHALL BE RENDERED INVALID if changes of any kind (including changes to the brake lines) or improper repairs are made to this paraglider or if any inspections are missed (annual and 2-yearly check).

Pilots are responsible for their own safety. Before every flight, the pilot must check the glider's airworthiness and should only launch if it is fit to fly. The pilot must check the weather forecast and only fly if both current and forecasted conditions guarantee a safe flight.

The glider may only be used with a pilot's licence which is valid for the area or under the supervision of an approved flying instructor. There shall be no liability on the part of third parties, in particular the manufacturer and distributor.

In terms of the warranty and guarantee conditions, the paraglider may not be flown if any of the following situations exists:

1. the inspection period has expired, you have carried out the inspection yourself, or the inspection has been carried out by an unauthorised inspector;
2. the take-off weight does not fall within the permissible overall take-off weight range;
3. the glider is flown in rain or cloud or when there is fog or snow;
4. there are turbulent weather conditions or wind speeds on launch higher than 2/3 of the maximum flyable airspeed of the glider. This speed will also depend on the total take-off weight;
5. the glider is used for aerobatics / extreme flying or flight manoeuvres at an angle greater than 90°;
6. the pilot has insufficient experience or training;
7. the wrong equipment or inadequate equipment (reserve, helmet, footwear etc) is used;
8. the glider is used in connection with a propulsion unit which has not been certified as compatible;
9. modifications have been made to the canopy, lines or risers which have not been approved;
10. the glider is opened in free fall - this is not a parachute.

2. FOR YOUR SAFETY

- ∅ In Germany, paramotor gliders are subject to the relevant civil aviation laws for aerial sports equipment exempt from testing (see in particular LuftVZO (Air Traffic Licensing Ordinance) §1 Para. 4 and LuftGerPV (Ordinance on Aircraft and Aeronautical Products) §10a). Check the situation in your country. The NAJA is intended solely for motorised use and may only be used by a pilot with a valid certificate of proficiency and connected to a propulsion unit which has been certified as compatible. Any attempt to fly is highly dangerous.
- ∅ This manual does not replace the need to attend a paragliding school.
- ∅ A paramotor glider may only be used for the purpose for which it is designed. It should only be used for free flying if it can also be shown to have type certification in accordance with the provisions of the rules of operation for paragliders (DHV, CEN etc). Under no circumstances should it be used as a parachute.
- ∅ Use of the paraglider is at your own risk. The manufacturer is not liable for any personal injury or material damage which occurs in connection with POWERPLAY paragliders. This applies in particular to injuries to the pilot or third parties which are caused by propeller parts or inflammable materials (e.g. fuel).
- ∅ A specialist must test-fly the paraglider. The test-flight must be recorded on the paraglider information label.
- ∅ Aerobatics are prohibited.
- ∅ Flying with a wet canopy or when it is raining is prohibited; it may cause the glider to stall.
- ∅ Do not under any circumstances alter the construction of your paraglider. If you do, any claims under the warranty will not be accepted and the certification will lapse.
- ∅ When you fly for the first time, make sure that you receive instructions from a flight instructor or an experienced pilot.
- ∅ When flying, always wear a helmet, gloves, suitable clothing and shoes which protect your ankles.
- ∅ Only fly from approved flying areas and if the wind speed, direction and weather conditions allow a safe flight.

This manual contains additional information in various places concerning your safety. This information is indicated by two symbols:

M

Caution - accident risk

This symbol indicates risks which may arise. If possible, we also explain how to avoid the risk or how you should react if the situation arises.

F

Tip

This symbol is used when we give advice on correct handling of the paraglider, how to protect it from damage and general information.

3. FEATURES OF THE PARAGLIDER

3.1 Description of the NAJA

The NAJA is another high-end quality product from SWING.

The NAJA was developed in close cooperation with paramotor manufacturers and experienced paramotor pilots, whose collective experience went into this paramotor wing.

The result is a sophisticated product, whose dynamics and speed will give every paramotor pilot something to get excited about.

We congratulate you on purchasing this product, which combines the experience of decades of paraglider development with the specialised knowledge of experts in the still new sport of paramotoring – the NAJA!

Our design goal was to achieve a small surface area with high wing-loading.

The advantages of this are:

- simple launch behaviour
- high canopy stability
- high speed
- good dynamics and a high level of agility

Furthermore, the thrust exerted by the motor was factored into computer calculations of the pilot's position, and the canopy geometry was optimised to meet the particular requirements of paramotoring. This means that during flight the NAJA is only minimally behind the pilot.

Combined with low line drag, excellent flight characteristics are the result.

Despite our high expectations for the glider's performance, we also put great importance on safety.

All of the relevant manoeuvres were flown by our test pilots (naturally with the trimmers both open and closed, and at the maximum permissible take-off weight) and adjusted to meet the latest regulations from the DULV (German Ultralight Association).

They were then verified and confirmed by the DULV test pilots.

The latest trimmer system ensures a huge increase in speed by effectively altering the angle of attack through all riser levels (no change in profile).

Maximum flexibility is ensured when adjusting the glider to the particular propulsion system, and the special demands of paramotor pilots are satisfied by useful features in the riser system such as

- interchangeable trimmer band
- two attachment points
- two pulleys for the brake lines

As with all paramotor wings from SWING, the NAJA is marketed under its paramotor label POWERPLAY.

3.2 Who is the NAJA suitable for?

As pilots ourselves, we believe that all paramotor pilots will continue to develop their flying expertise with the NAJA over many years and, the longer this performance wing is flown, the more fun the pilot will have with it.

The NAJA covers all aspects of powered paragliding and offers many adjustment options, allowing it to be adjusted according to the pilot's preferences and the various conditions. However, the pilot must also be willing to adapt to the NAJA to become fully at one with the glider and to be able to experience its full performance range.

We recommend that pilots have at least 50 hours flight time and one year's flying experience as a condition for flying the NAJA. Pilots should also have practical knowledge about active correction of tucks and front stalls.

Classifi- cation

- DULV Advanced Class

3.3 Connecting a harness to the NAJA

In Germany, the harness used (and reserve) must be registered with the DULV (German Ultralight Association), along with the paraglider and the motor.

To achieve a satisfactory level of performance with the NAJA, conscientious thought and consideration must be given to the appropriate harness, motor and propeller.

We are only able to give suggestions in this respect. The pilot is responsible for the final decisions made.

3.4 Description of the riser

The NAJA riser is fitted with two hang points at different heights.

The riser can be either long or short depending on the suspension point of the motor, so as to ensure that the lines and the brake handles can be reached more easily.

The factory setting for the brake lines is through both pulleys on the D-risers.

Alternatively it can also be fed through just the upper pulley. In this case, the brake handle should be tied to the upper mark on the brake lines, so that there is not too much travel when braking.

In case the excess of the main brake lines will be more than 10 cm from the knot after final adjustment, the additional length must be cut of.

The brake line sheathing should then be pushed back to expose about 3-5mm of the core and "sealed" with a lighter.

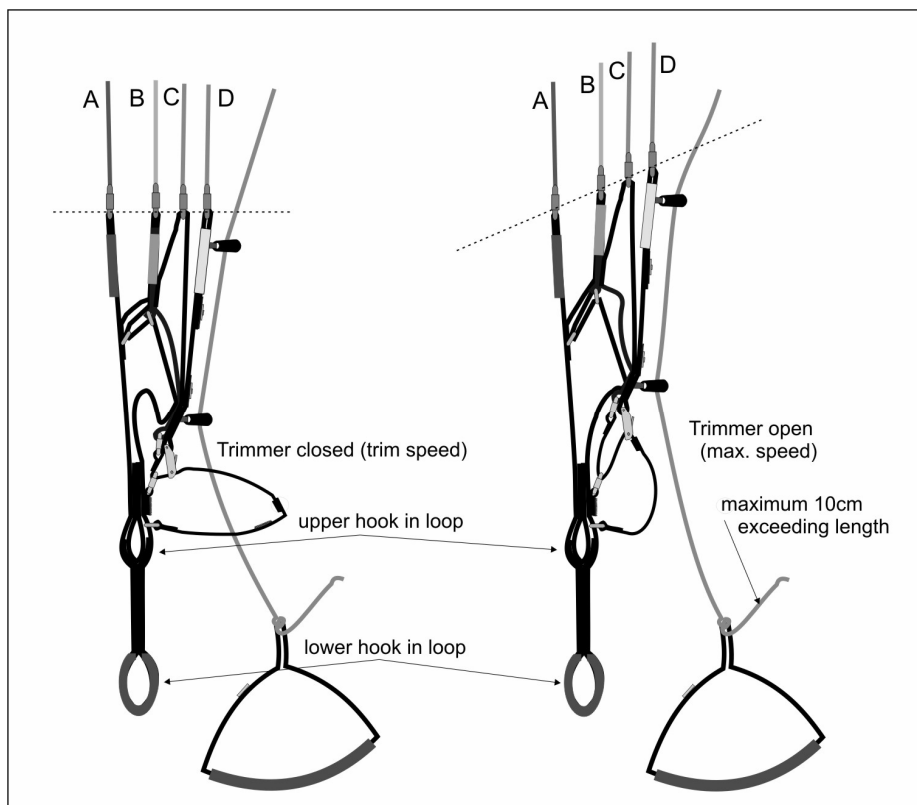
F

Tip

It is crucial to ensure that changes to the brakes do not cause them to be activated at the wrong time (even if the trimmers are open). The paraglider should be inflated and ground-handled whenever the brake line position is changed to ensure correct brake line length.

Note that the available braking distance is reduced if the brake lines are also fed through the lower pulley.

The trimmer allows the pilot to increase the cruising speed and to counter the torque effect. We recommend that you always have the trimmers closed when launching or landing.



4. SETTING UP THE NAJA AND TEST-FLYING

4.1 Laying out the paraglider and pre-flight check

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Tip

Before your first flight with the NAJA, we strongly recommend that you first suspend yourself with the whole propulsion unit on a stationary device or framework, to check whether you are able to reach the brakes and to fine-tune the harness adjustment. Ideally this should be done under the supervision of a flying instructor or, failing that, at least with a very experienced paramotor pilot.

Laying out the paraglider

Place the paraglider with its upper surface against the ground and spread it out so that the leading edge is slightly curved.

Carefully separate all the rigging-lines and take care that no lines are underneath the canopy, tangled or caught up in any way.

The NAJA can be reverse-launched easily with a wind speed of just 3 m/s.

Pre-flight check

Before launching, always check the following:

- 1) Are there any tears in the glider or other damage?
- 2) Have all the lines been untangled?
- 3) Are the brake lines clear and tightly connected to the handle?
- 4) Are the brake lines properly adjusted?
- 5) Are the quick links fastened securely to the lines and to the risers?
- 6) Is the canopy dry?
- 7) Are the risers and seams in good condition?
- 8) Is the harness in good condition?
- 9) Is the handle for the reserve chute secure?
- 10) Was the pre-flight check on the propulsion unit carried out?

4.2 Launch check

We recommend that you carry out the following checks immediately prior to launch:

- 1) Is the glider spread out in a slight curve and are all of the cell-openings clear?
- 2) Are the lines all untangled and free of knots or twists? Are there any lines under the canopy? Are any lines hooked up on the trimmer clamp, the risers or on the throttle? Do all of the lines go cleanly past the cage?
- 3) Has the trimmer position been selected correctly?
- 4) Is your equipment in order (motor, harness, carabiners, reserve and helmet)? Are the leg straps done up?
- 5) Do the wind direction and wind strength ensure a safe flight?
- 6) Is the propeller clear?
- 7) Is the motor performing properly?
- 8) Are the airspace and launch area clear?

4.3 The first flight

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Tip

Carry out your first few flights only during stable weather conditions and in a familiar area or in the (aerodrome) circuit.

To start with, you should steer gently and carefully so that you can get used to the reactions of the glider while you are not under stress.

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Caution – accident risk.

Do not overestimate your abilities. Don't let a paraglider that can be easily manoeuvred or the behaviour of other pilots make you careless.

4.4 Adjusting the main brake lines

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Tip

The main brake lines are checked by an expert prior to test-flying the glider.

The main brake lines must be adjusted if you change the propulsion system used.

Any adjustments must be carried out with the trimmers closed.

Securing the main brake lines

The main brake lines must be fastened so that the mark is visible slightly above the knot (about 5mm). Cut off the additional length of the main brake lines 10 cm from the knot.

Correct adjustment Correctly installed brake lines have about 10cm of feed. This is how far you must pull down the brake lines before the trailing edge of the canopy begins to move downwards and start braking.

The length of the brake line is indicated by two reference marks (one for the upper pulley and one for the lower pulley) on the lower end of the brake line. This mark must be on the ring of the brake handle. If the pilot has shorter arms, the length of the brake lines can be increased in relation to the reference mark.

Too long If the brake lines are too long, the glider reacts slowly and it is difficult to land. However, during flight you can wrap the brake lines around your hands to minimise the problem. Adjust the brake lines to a suitable length after you have landed.

M

Caution – accident risk.

If the brake lines are too short, the following risks could arise:

- Ø the risk of early stall
- Ø the paraglider does not launch well and there is a risk of deep-stall
- Ø the paraglider's behaviour in extreme flying is dangerous.

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Caution – accident risk.

With increased speed, problems (such as collapses or tucks) have a more drastic effect than in unaccelerated flight. Generally it is strongly recommended that you do not use the trimmers in turbulent areas and when flying close to the ground, because of the increased risk of collapse.

5. MOTORISED FLIGHT

POWERPLAY cannot guarantee that the procedure described below will apply absolutely to all conceivable combinations of propulsion unit and glider. The compatibility of a new combination must therefore be verified and confirmed by a test flight by the DULV.

Compatibility flights can be requested from the DULV either by the manufacturer of the propulsion unit or by the pilot himself by way of an individual test.

Combinations which have already been tested will be published by the DULV on www.dulv.de.

5.1 Normal flight

Launch The NAJA has excellent launch characteristics. It has little tendency to shoot forward and therefore requires hardly any braking.

The glider should rise up without any delay and in a controlled way. In normal conditions, the NAJA rises smoothly and consistently through all stages of launch and this considerably facilitates the launch process.

If you are starting from a standing position, we recommend that you do not accelerate until the canopy has risen above the propeller stream. The thrust from the motor should be as horizontal as possible (pay attention to the position of your body).

The NAJA also has excellent rising behaviour and is easy to control when it is used with a paramotor trike.

We recommend that you keep the trimmers closed and brake slightly when launching, to help the glider become airborne.

If there is a strong headwind, the NAJA must be gradually braked.

Climbing Once you are airborne, first allow the NAJA to pick up speed. You may notice the counter-torque after you have become airborne i.e. the glider wants to turn against the propeller's direction of rotation. Focus on a fixed point in the distance and maintain your direction by counter-steering.

Do not climb with too great an angle of attack. Take care when selecting the rev speed (rpm) and do not apply too much brake or you will risk stalling.

If the angle of attack is too high when you are climbing, the glider could stall if there is any further increase in the angle of attack, e.g., by a vertical gust.

Furthermore, if the motor fails and the canopy shoots forward, this will be much less dangerous if the angle of attack is lower.

Counter-torque oscillation Certain combinations of take-off weight, thrust from the motor and propeller size can cause pendulum motions. If this happens, the pilot can be pushed to one side during flight because of the counter-torque and the gyroscope effect. The pilot then swings back into his original position because of his weight, only to then swing up even further. The pilot can do the following to counter a pendulum effect:

- change the throttle setting
- counter the pendulum effect by pulling on the brakes slightly
- weight-shift in the harness and/or adjust the harness position if it has adjustment opportunities (cross-strap)

Pendulum motions usually occur at high revs and if the propeller has a large diameter. Attempts to steer by the pilot can increase the pendulum motion if they are over-exaggerated and not synchronised.

If there is uncontrolled swinging, the pilot should simply reduce speed and not steer at all.

Cruising The NAJA is most efficient when cruising if the trimmers are slightly open. A trimmer can be closed again as much as is needed to counter the torque effect of the motor. If there are very turbulent conditions, the trimmers should not be used, since the canopy stability decreases because of the lower angle of attack.

Turns The NAJA has very direct and agile turn behaviour without any negative tendency, which allows very dynamic flying.
The NAJA has not been trimmed for flat turns like a thermalling glider, so it makes little difference whether a turn is flown with or against the counter-torque of the motor.

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Tip

Be careful when flying in your own wake.
Be careful when turning near the ground (sink during turns).

Flying in turbulence

Although there is less susceptibility to collapse with a motor running than in free flight because of the higher surface loading and the increased angle of attack, the trimmers should always be closed in strong turbulence.

When flying in turbulence, apply the brakes slightly (about 20%) and try to keep the canopy above you by actively working the brakes. This helps you to stop the wing tips collapsing. If a wing tip should nevertheless collapse, it is important to maintain your direction and, if necessary, to steer away from any obstacles. You should not 'pump' the wing to make it reopen more quickly until your flight is stable again. This must be done somewhat more energetically because of the generally higher wing-loading with a paramotor wing.

When flying in strong thermals, release the brakes and reduce the motor's revs per minute so that you do not go into a dynamic stall. However, when you are leaving a thermal, brake the canopy well and increase the rpm so as to avoid pitching forward and a possible frontal tuck.

Tip: If you experience a collapse, counter-brake the canopy until you stabilise the glider in level flight. Too little counter-brake is better than too much.

Landing with stationary propeller

You should not brake the NAJA too strongly before landing because of the comparatively high surface-loading. We recommend that you completely release the brakes in the final approach and then, when you are approx. 1-2 m above the ground, you gradually apply them until they are completely on (flare).

Please ensure that the length of the brake lines was set to the optimum level for your motor before the first flight to allow sufficient braking distance for landing.

Landing with motor running

You have the option of using the motor to assist the landing approach.
The height and speed can be controlled using the brakes and the rpm until you touch the ground.

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Caution – accident risk.

When you are flying near the ground, always maintain enough speed (well above the stall limit).

5.2 Rapid descents

There are many situations when you need to lose height rapidly to avoid potential dangers e.g. the up-current from a cumulus cloud, an approaching cold front, a storm front etc. Below we explain various ways to make a rapid descent which can also be carried out safely with a motor if the pilot has the necessary knowledge and if they are correctly executed.

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Tip

With all rapid descent methods, the trimmers should be completely closed and the rpm's reduced to zero.

All of the manoeuvres are more dynamic than when you fly without a motor because of the increased take-off weight with the motor.

Spiral dives The spiral dive is the classic method for making a rapid descent with a sink rate of up to 14 m/s in normal flight situations, and up to 20 m/s in extreme flight situations. It is particularly suitable where there is a high ascent rate and little wind. Spiral dives with a sink rate above 14 m/s are not tested on certification; this exceeds the manufacturer's limits. Even with sink rates under 14m/s, it may be necessary to recover actively from the spiral dive on the NAJA depending on the propulsion unit used.

Starting the manoeuvre Whilst flying at full speed, start to apply the brake continually on one side. This will steer the paraglider into a turn with a strong bank. You can tell that you are in a spiral dive if you are being pressed hard against your seat (high centrifugal force).
When you are in a spiral dive, you should steer very carefully because the paraglider will react immediately. Banking and rate of turn increase if braking efficiency increases. Look down before and during a spiral dive so that you can tell how far you are from the ground.

Recovery Recover from the spiral dive slowly and carefully. If you release the brakes too quickly, the increased speed can cause the wing to climb, become unsettled, or partly collapse. Because of the reduced opportunity in motorised flight to use weight-shifting, in some circumstances you may need to recover actively from the spiral dive using the outside brake.

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Caution – accident risk.

- Ø Very high turn speeds can be reached with spiral dives, with an increase in acceleration due to gravity. So be careful when you try this manoeuvre.
- Ø Do not continue the spiral dive too long; you could lose consciousness.
- Ø Never attempt this with less than 150 to 200 meters ground-clearance.
- Ø Spiral dives with "big ears" lead to extreme loading of the open section of the canopy. This move is prohibited in Germany.

B-line stall The B-line stall is another way to descend rapidly and has a sink rate of approximately 8 m/s. It can be used where there is an average ascent rate and little wind, however, it has limited use as a rapid descent method in motorised flight.

Starting the manoeuvre Grasp both of the B-risers at the coloured mark. Pull them down slowly and evenly until the airflow is gone and the wing goes into a vertical descent flight mode. The B-risers should then be held in the same position to ensure a gentle descent.

Check before and during the B-line-stall that the airspace beneath you is free.

Recovery Return the B-risers to their normal position quickly and evenly. If you release the B-risers too slowly, a deep stall or negative spin could occur because of asymmetries.

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Caution – accident risk.

The canopy speeds up after the B-risers have been released. Under no circumstances should you apply the brakes at this time.

Do not under any circumstances accelerate when performing this manoeuvre – this could cause the lines to twist.

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Tip

If the paraglider does not speed up immediately because recovery is too slow or for some other reason, take hold of the A-risers from outside (palms facing in the direction you are flying) and shorten them by twisting them by about 90°.

Big ears

"Big ears" is another way to descend quickly and has a sink rate of approximately 3 to 5 m/s. The forward speed stays the same. It is suitable for avoiding a dangerous situation where there are high ascent rates and strong wind.

Starting the manoeuvre Pull both outer A-risers downwards. The glider does not have split A-risers for handling reasons. You can now descend safely on the stable middle part of the wing. Steer by weight-shifting. The brakes must not be applied during the manoeuvre, e.g. by wrapping the brakes.

Recovery The "ears" will usually open automatically when you release the A-risers. You can assist this by pumping the brakes.

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Caution – accident risk.

When the technique of "big ears" is used, there is a higher load for the line groups which are still weight-bearing. Do not fly any extreme manoeuvres with "big ears".

6. INSTRUCTIONS FOR EXTREME FLYING AND DANGEROUS SITUATIONS

Dangerous situations

The NAJA was specifically designed for use in motorised flight.

The DULV regulations were the basis for our new product, because the safety requirements for a paramotor wing are different from those for a wing used for thermalling.

Even though numerous test flights during the development work were carried out without using a motor, we specifically do not recommend the NAJA for free flight. It does not have the appropriate certification for free flight.

Pilot error during the flight or extreme wind conditions may leave the wing in an unusual flying position. This may require the pilot to make corrections during flight to which he is unaccustomed.

In this section we explain how to correct any extreme situations you may get into. The manoeuvres described below relate to the DULV take-off weight and should help to understand the behaviour of the NAJA.

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Tip

These instructions do not replace safety training or specialised literature. We recommend that you undertake special safety training which will prepare you for extreme situations.

Deep stall

We were not able to put the NAJA into a deep stall during test flights.

However various things can cause a paraglider to deep stall, e.g. shrinkage of the C and D lines as a result of dampness or flying in the rain. The airflow from the front of the glider gradually breaks away towards the back and the canopy sags, with the glider remaining upright. Paragliders are particularly susceptible to deep stalls if the wing-loading is too low.

It is often possible to recognise that C and D lines are too short, for example, because launch behaviour deteriorates.

You can recognise a deep stall because there is less flight noise than normal. In addition, your sink rate will increase (4-5 m/s).

Recovery

Open the trimmers. If this is not possible or if the paraglider does not speed up immediately, take hold of the A-risers from outside (palms facing in the direction you are flying) and shorten them by twisting them by about 90° forwards. Do not under any circumstances accelerate when doing this.

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Caution! Accident risk when canopy is wet or in rain!

A wet canopy or flying in the rain increase the risk of stall. In these circumstances, you will be outside of the normal operating limits of the paraglider. If you are unable to avoid flying in the rain for any reason, you should observe the following:

1. during the rain and after it has stopped, we strongly recommend that you continue flying with slight acceleration (at least 30% or more)
2. in general, apply the brakes as little as possible
3. do not use "big ears"
4. the control travel will be reduced
5. avoid making tight turns, particularly in your final approach. It is recommended to continue flying with slight acceleration even during this stage of your flight, as long as conditions permit
6. in any event, avoid a high angle of attack (do not accelerate abrupt; close trimmers slowly)

Front stall Strong turbulence can cause part or all of the leading edge of the glider to fold or tuck under.

Normally the NAJA will immediately recover its normal flight position. Front stalls can affect a larger surface area if the trimmers are open. A short symmetrical braking action is required to reopen the glider, particularly if there is low wing-loading. The brakes must be completely released after the glider has re-inflated so that it can continue flying again.

Recovery If the NAJA does not immediately recover from a frontal tuck, brake quickly and strongly with both control lines (brake lines) to re-inflate the glide.

M

Caution – accident risk.

If you are not able to avoid a front stall, under no circumstances should you accelerate. This could cause the lines to twist.

However, there is less risk of front stall than there is in free flying because of the increased wing-loading and the greater angle of attack due to the thrust from the motor.

Asym-metric tucks

If there is turbulence, one side of the paraglider may collapse. Some of the cells deflate and the paraglider could collapse or spin.

The NAJA inflates quickly and spontaneously if there is a small collapse on one side. If there is a major collapse with open trimmers, the NAJA can abruptly turn more than 360° if the pilot does not take action. There is a risk of twisting. However the NAJA nevertheless still allows the pilot enough time to react. The glider has minimal tendency to hang and it can still be steered on the side which has not collapsed.

Recovery

- Ø Counter-brake slightly on the side of the paraglider that is still inflated to stop it turning away and to stabilise it.
- Ø Counter-brake just enough that the paraglider continues to fly straight ahead.
- Ø If the wing has not yet self-recovered, pump with the brake on the side that has collapsed in order to open it, making use of the full braking distance.

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Caution – accident risk.

Counter-braking too strongly can result in a stall on the inflated side.

Full stall

The full stall occurs when the brakes are pulled down fully during flight. The special design of the NAJA means that it has only minimal tendency to hang back, even with the motor running under full throttle, and has about only 45cm braking distance. You can tell when you are reaching stall point by the increasing control pressure. If the brakes suddenly become soft again, you have stalled the NAJA. If the pilot immediately releases the brakes again, the NAJA resumes flying straight away. If the brakes are held down, the glider tips back and deflates. A slight horseshoe will form. If the full stall continues, the pilot swings back under the canopy. The wing tips then continue to go forwards and touch, and the pilot reaches sink speeds on an almost vertical flight path of approx. 8-10 m/s.

Recovery To prevent the canopy shooting forwards on recovery, the glider should be inflated before the brakes are released fully. The pilot releases the brakes enough that the canopy re-inflates but does not yet resume flight, then quickly releases the brakes fully. The glider will shoot forwards, but not nearly as much as if the pilot attempted recovery without first inflating the glider. If the brakes are released too slowly, it may result in a spin. The spin will end spontaneously by fully opening the brakes.

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Caution – accident risk.

- If the canopy has gone backwards, the brakes must be held down. Otherwise the canopy can surge forward and, in an extreme case, end up underneath the pilot. Hold the brakes down until the canopy is above you again.
- Do not under any circumstances accelerate in a stall – this could cause the lines to twist.

Spins

Spins occur when one side of the canopy stalls. The stalled part of the canopy continues to fly forward while the other side turns in the opposite direction.

The NAJA showed no tendency to spin, meaning that an unintentional stall is largely unlikely. During our tests, abruptly pulling a brake down fully from level flight did not cause a stall either.

Recovery

If the NAJA should nevertheless start to spin, quickly release the brakes.

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Tip

If the spin does not stop:

- Check whether you have released the brakes fully.
- If this does not work, use your reserve.

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Caution – accident risk.

- As with all manoeuvres where the canopy is not flying smoothly, under no circumstances should you accelerate. This could cause the lines to twist.
- Do not hold onto the brakes.

7. LOOKING AFTER YOUR PARAGLIDER

7.1 Transporting and storing the paraglider

Transport

Always transport your paragliding equipment in the special backpack and/or in the inner bag.

Storing

Store all of your paragliding equipment away from UV light in a dry room which is well-aired and has a constant temperature. Open the backpack and/or inner bag and the belt a little so that air can get in.

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Tip

- Ø Sunlight, warmth and humidity can damage your equipment.
- Ø Temperatures lower than -10°C and higher than 50°C can make the wing unfit to fly. The manufacturer's warranty will not apply if the paraglider is not stored at the correct temperature.
- Ø Never store a paraglider which was packed up while still wet.

If the paraglider gets wet, spread it out immediately so that air reaches all parts of it. Since the fibres absorb water, it can take several days until it is completely dry. If a

paraglider is stored wet, it can become unsuitable for flying after a short time.

7.2 Checking the lines

Measuring Measuring the length of the lines is part of the regular paraglider inspection.

The lines must be measured with a load of 5kg to get comparable results. You will find the original line measurements in the service and inspection manual.

Have your paraglider checked at least every two years by the manufacturer or an authorised inspector. In Germany, pilots have been able to carry out the inspection themselves since 01.07.2001 provided that they fulfil all requirements. See part 7, "Inspections" for more information.

F

Tip

We recommend an inspection every 50 to 100 flight hours or once a year.

7.3 Cleaning and repairing the paraglider

Cleaning Only clean the paraglider with a soft sponge and clean water.

F

Tip

Harsh chemical substances, high-pressure cleaners or steamers will destroy the paraglider's surface layer. Clean the paraglider only if it is absolutely necessary.

Repairs

Repairs should only be carried out by the manufacturer or a specialist recommended by the manufacturer.

You can repair small tears in the wing yourself using self-adhesive sail material, as long as they are in places which do not bear heavy loads, are not at the seams and are not bigger than 3 cm.

F

Tip

Always replace lines that are damaged.

If you need to replace damaged or worn-out parts, use only original parts or parts that have been authorised by the manufacturer.

8. INSPECTIONS

General

Failure to observe the inspection periods shall invalidate the warranty and certification.

A properly completed logbook will help you to comply with these periods.

There is more information on inspections and technical data in two separate booklets, both of which form part of this manual

- 1) Inspection instructions for Swing gliders (required only in Germany and Austria)
- 2) Service papers (1 booklet for each size and model. These can be downloaded from our website: www.powerplay-gliders.de → Gliders → NAJA)

- Inspection periods** In Germany, Swing gliders must be inspected as follows (check the situation in your country):
- A) For tandem gliders (if used commercially) and gliders used by schools an inspection (the same as the 2-yearly check) must be carried out every 12 months from the purchase date.
 - B) Gliders for personal use and tandem gliders (not used commercially) must be inspected every 2 years from the purchase date.
 - C) The paraglider must be inspected after 150 hours of use (including ground handling) if this occurs prior to the periods in A) and B) above.
- Ground handling time must be at least doubled when working out the total hours of use because of the increased wear and tear on the glider.
- Validity of inspection** If Swing is to accept guaranty and warranty claims, all inspections must be carried out by SWING, or an inspection agent authorised by SWING. The documentation and the result of the inspection must be clearly identifiable by the inspector (date and place / name of inspector) and be entered near the glider information/certification sticker.
- Inspections by the pilot** Pilots in Germany have been able to carry out the inspection themselves since 01.07.2001 provided that they fulfil all requirements. However, in this event, SWING's liability and warranty lapse. There are more details on these inspections in a separate booklet (Swing paragliders inspection instructions)

9. WARRANTY

General The terms of the warranty are in the enclosed warranty card. Here is how online-warranty registration works:

Online warranty registration:

You can complete your warranty registration quickly and easily online. Go to www.swing.de → Service → Online-Garantie.

Please complete the registration within 14 days after you purchase the paraglider. After you have registered, you will receive a confirmation email. If you do not have an email address, enter info@swing.de as the email address in the mandatory field.

The manufacturer must be notified immediately of any defects in the product, variations or changes in flight behaviour and any warranty claims and, if necessary, the glider must be made available for inspection by the manufacturer.

10. INTERNET – PRODUCT INFORMATION AND SAFETY NOTICES

swing.de Swing now sends relevant product and safety information by email to all registered customers. If you would like to receive this, please register your name through our website.

powerplay-gliders.de Swing generally includes all email addresses provided in the warranty cards in the distribution list. If you do not wish to be included, please do not give your email address on the warranty card. We will not use your e-mail address for any advertising or promotional purposes or provide it to any third parties.

Our websites: www.swing.de and powerplay-gliders.de.

dulv.de There is also data and information about our products on the DHV website www.dhv.de
dhv.de as well as on the DULV website www.dulv.de .

We hope you have many enjoyable and successful flights

The POWERPLAY Team