Manual
Paraglider F1RST
LTF 1 / EN A

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Congratulations first: Now you are the happy owner of a FIREBIRD F1RST! We have contributed our long years of experience into the development and production of the F1RST to unify maximum security with the handling of a fun wing. And we’re sure you’ll love it.

Please read this manual very carefully!

This manual contains important information about flying and handling your new F1RST. It has been compiled carefully by us and it’s not allowed to start with this wing without reading the manual. We will not accept any responsibility for the consequences of not adequate handling!

This glider is built according to the terms of the German LFT 1 GH and to the European norm EN 926-2.

New gliders have to be flown by the dealer. This first flight has to be approved on the documents and on the name plate of the wing with date and signature.

Every unauthorized change on the paraglider causes the termination of the type approval! The pilot is responsible for the airworthiness of his aircraft and for the compliance with all legal regulations and terms.

The skills of the user have to fit the requirements of the paraglider!

Using the paraglider is on your own risk. Neither manufacturer nor dealer will accept any responsibility!
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1. Overview
2. Technical Description

2.1. Construction of the Glider

The material of the upper sail is made of Porcher Marine Skytex Ripstop Nylon webbing (Art. 9092E85a) with 44 g on the front and (Art. 9017E77a) with 40 g on the back side. The lower sail and the profiles consist of Skylight 20D with 31 g. In this synthetic material is an additional net weaving that stops rips and enhances the tensile strength of the seams. A special coating makes the wing water-repellent, UV resistant and airtight.

The F1rst consists of 36 cells. The end of the wing (stabilizer) is bent down and seamlessly integrated in the rest.

The aeration works through openings on the lower side of the profile nose and the precise dimensioned overtopping openings in the profile ribs (Cross Ports). Every bearing profile rib is fixed on 4 line attachments which are reinforced in the profile. Between the main line groups are sewed in tightening straps that set the tension of the sail. On the profile nose, too, are enhancements which bring about a high contour accuracy and stability. We have also fixed a reel with minimal strain on the flow-against- and the flow-off-edge of the wing that equalizes the tension over the glider. This tension distribution has been calculated sophisticatedly by our construction software.

2.2 Line Suspension

The lines of the F1RST consist either of polyester coated HMA-Aramid or of polyester coated PES / Dynema. The material and the tensile strength of the lines depend on their specific place of installation.

The lines are differed in top lines (on top of the glider), intermediate lines (in the middle), and main lines (at the riser), stabilizer lines (on the end of the wing), brake lines (up at the rear edge) and main breaking lines (on the brake handle). The classification of the lines is: A-, B-, C-, D- level and brakes.

In every level 2-3 top lines are united into one intermediate line. In the A- and B-level every 2 intermediate lines unite to the overall 6 main lines per level and are fixed to the line shackles on the specific riser.

In the C- and D-level every 2 C and D top lines unite to one main line.

The stabilizers get fixed on the B-riser together with the lines of the B-level. The brake or steering lines unite to the main brake line in the same way.

The lines of every level differ in color so that it’s easier to control them.

The main riser of the F1RST has 5 risers on every side.
The A-riser is separated in a main (A) - and a by-riser (A’). 2 main lines hooked in the A-riser, one in the A’-riser.
To the B-riser are fitted 3 B main lines and one stabilizer line each.
To the C-riser are fitted 3 C main lines each.
To the D-riser are fitted 2 D main lines each.
The main brake line is lead to the brake handle trough a deflection pulley. The line shackles are made of stainless steel and protected against unintentional opening by a plastic insert.

For line arrangement see line plan on page

2.3 Acceleration System

The F1RST has an acceleration system, which automatically returns to base position after use. The riser does not have a lockable trimmer.

Use of the acceleration system shortens the A, B and C risers and the angle of attack will be reduced.

In normal flight all risers have the same length (53 cm without line shackles).

2.3.1 Function and Handling

Before the start the brummel-hooks of the foot-acceleration system of the harness have to be hooked to the brummel-hook of the acceleration system of the glider. It’s important to make sure, that the line runs free and is not tangled up around the riser!

2.3.2 Overview Riser
### 4. Technical Data

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5. Line Plans

5.1 F1RST S

F1RST S

[Diagram of F1RST S line plans]
5.2 F1RST M

F1RST M
5.3 F1RST L

F1RST L
## 6. Measurement

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7. Harness

The F1RST has been developed and authorized with harnesses according to the LTF type “GH”. Nearly all harnesses recently produced are type GH harnesses and suitable for the F1RST. They differ from the GX harness due to their low suspension and not very effective (if at all included) cross straps. Cross straps have not proven themselves in combination with modern paragliders.

8. Check

Every paraglider delivered is tested and measured by us. Nevertheless we advise you to check your paraglider for the following criteria. You should also follow these instructions after a long intensive flight, hard maneuvers or an accident on landing, e.g.: tree landing.

**Check:**

- the seams where the lines attach, at the risers and at the canopy for any damage
- that all the lines have been sewn correctly and are free of damage
- that all the line locks have been screwed up properly and the plastic inlets are tight
- that all width of cloth, the ribs and V-attachments are free of rips
- Every fault - no matter how small - must be checked and repaired by a professional.

A damaged paraglider is not air-worthy!
9. Adjusting the Brake / Steering Lines

The two main steering/brake lines lead up to a line cascade which is fixed to the trailing edge. On the risers the steering lines run through a pulley and are connected to a handle. These handles are fixed to the risers with a magnetic clip when not in use. The length of the steering lines is set correctly at the factory. They have to have at least 5cm of free play and must only be adjusted by a qualified flying instructor or the dealer. The improper adjustment of the steering lines can cause severe changes to in-flight behavior.

10. In-flight

The following pages are not intended to describe how to fly a paraglider. Rather we want to show you the F1RST specialties and give you important information regarding in-flight behavior.

10.1 Take off Preparation

Before every take-off you have to do an accurate pre-flight check. You have to check the risers, lines and the canopy is not damaged in any way. Also you have to make sure that the line locks (carabiners) are closed firmly and are fixed against turning by its plastic inlays.

The harness has to be put on with a maximum of attention. After you have put your harness on you have to check again if all buckles are closed correctly. Also you have to make sure that the rescue-container is closed correctly and the release-handle of the rescue-system is placed correctly (see in the manual of the harness). If there is any defect, you are definitely not allowed to take-off!

The easiest way to take off with the F1RST is to lay it out in an arc. You have to lay it out against the wind.

The line-levels as well as the brake-lines have to be sorted accurately; also the risers have to be sorted. All lines have to run free without any twisting or knots. No lines are allowed to lie under the canopy.

When all preparations are done the main carabiners of the harness are connected to the risers. You have to take care that the carabiners are closed correctly. If you are using a speed-bar, also the brummel-hooks of the speedbar`s line are connected to the brummel-hooks of the speed-system on the risers. You have to take care that the speed-system is running free.

10.2 Checklist

10.2.1 Paraglider

- Canopy free of damages?
- Risers free of damages?
- Line locks closed tightly and fixed against twisting by its plastic inlays?
- Lines free of damages?
- All lines including brake-lines free running and without any twists?
10.2.2 Harness

- Rescue-container closed?
- Release-handle of the rescue-system attached correctly?
- All buckles closed correctly?
- Main carabiners closed correctly?

10.2.3 Before Take-Off

- Risers mounted correctly? Without twists?
- Speed-system mounted correctly? Without twists?
- Brake-handle and the correct level of riser taken in hand?
- Pilot in the middle of the canopy, that all lines are stretched symmetrically?
- Wind direction o.k.?
- Obstacles on the ground?
- Airspace free?

11. Flight

11.1. Take-Off

The take-off with the F1RST is quite easy. Generally we recommend to take both A-risers (A and A’) for starting the F1RST. Depending on the starting-technique, the wind-situation and the terrain you can alternatively use only the inner A-risers (A) for lifting up the glider. For a better orientation the different risers are marked with different colors.

The pilot, who is ready for take-off, holds the A-risers and the brake-handles of each side in his hands. The A-lines are already stretched a little bit. On flat take-off areas or at low-wind conditions you can also go one step backwards to the canopy, to lift up the glider with more impulse. During the take-off run the arms of the pilot are first stretched sideways backwards in elongation of the A-risers. When the glider then lifts up, the arms are moving upwards. The most important thing during the take-off is, like at all other gliders too, not the force but the constancy of the pull. Because the F1RST is very easy to lift up, you have to brake it a little bit on steep takeoff areas or in strong wind conditions, to avoid that the glider is overtaking you.

If you are starting the glider backwards (face the glider while lifting it up) in strong wind conditions, you can avoid a too early take-off if you simply go along with the glider. The best way to train for taking off in strong wind conditions is by regular ground handling practice.

11.2. Accelerated Flight

When using the speed system with your feet, the angle of attack is reduced and the F1RST flies up to 12 km/h faster. Due to the increased speed the reaction of the canopy is more dynamic in collapses. For your own safety you should only accelerate in calm wind conditions with ample ground clearance. Never let loose the brake handles while flying accelerated. If you are flying in turbulent air, immediately release the speed-system! Sharp reactions during accelerated flight must be avoided, as the low angle of attack increases the chance of a collapse.

If the glider collapses you have to release the speed-system immediately, then you use the brake-lines to stabilize the glider first and reopen it.
11.3. Turning

The F1RST has because of its steering-characteristics a very high agility: It reacts very directly and without delays on brake-line inputs. By weight-shift (pilot leaning on the curve’s inner side) it’s possible to fly very flat turns with a very little loss of height. Weight-shift and pulling the brake on the curve’s inner side enables the pilot to fly sharp turns. For flying in thermals we recommend a combination of weight-shift, braking the curve’s inner side and stabilization of the curve’s outer side by braking the outer side a little bit as well. By varying the brake line pulls and the weight-shift (active flying), the pilot can change the radius and the bank, what is optimizing the centering in the thermals.

**Attention:** If the brake lines are pulled too fast or too far the glider will be stalled. A one-sided stall is signalized clearly by: The curve’s inner side of the wing is getting soft, and nearly stops. In this case you have to release the brake-line.

11.4. Active Flying

By flying actively you can avoid most collapses before they occur!
Active flying means that you fly the paraglider as stable and as effective as possible by correct weight-shift and brake-line inputs. In turbulent air and rough thermals the canopy should be kept vertically above the pilot as good as possible. Therefore the pilot is using well dosed brake-line inputs.
If you fly into strong thermals (upwind) the glider’s angle of attack increases. If you release the brake-line while flying into the thermals the canopy can accelerate and the glider stays more or less vertically above the pilot.
The opposite if you fly in downwashes (down winds): Here you pull the brake-lines dosed.

12. Winch-Launching (Towing)

The F1RST is certified for tow launches. You should however discuss the requirements of towing with a flying instructor or the person in charge of the winch. Towing is only permitted when the person in charge of the winch has a valid winch license.
The equipment needed for the tow must also be certified.
For best performance and easiest take off we recommend a pre-acceleration system!

13. Using a Motor

At the moment the F1RST is not yet certified for flying with a paramotor. But several manufacturers of paramotors are planning to do this certification. The current status of the certification can be inquired from the paramotor manufacturer or directly from us.
14. Extreme Flight Maneuvers

14.1. Asymmetric (lateral) collapse

An asymmetric or lateral collapse is most probably the most common accident which can occur while flying a paraglider. If the F1RST collapses laterally in turbulent air, this usually happens only on the wing's outer side. To keep the flying direction during this incident, you have to brake the opposing open part of the wing. If the collapsed part of the canopy is very big, you have to brake the open side very close (not too much!) to avoid a stall. After you have stopped the turning of the collapsed glider by braking the open side, you can open the collapsed side by pumping with the brake-line on the collapsed side. If you do not react actively on the asymmetric collapse by braking the open side, the F1RST mostly opens automatically within a half turn or less. If the glider does not open again - because of strong turbulences or other influences (e.g. cravats) - the glider will get into a steep-spiral.

14.2. Cravats

Very big collapses or other extreme flight situations can cause on every paraglider so called cravats. The collapsed cells get caught up in the lines. Without a reaction of the pilot the glider is getting in a steep-spiral. If this happens you have to stop the rotation by dosed opposite braking. If the rotation is increasing despite breaking you have to release the rescue-parachute immediately, especially if you are already flying in low altitude. If you have enough altitude you can try to correct the cravat by the following possibilities:
- Well dosed opposite breaking (to slow down the rotation) and very fast, deep and resolute pumping of the steering-line on the collapsed side to try to get the cravat loose.
- Pulling down the stabilizer-line.

If these both tips do not work, you can try to release the cravat by doing a full stall, if you have enough height!

Attention:
The flying maneuvers mentioned above are very difficult and could waste a lot of height! If the pilot is overextended or has not enough height the rescue-parachute has to be thrown immediately!

14.3. Symmetric or Front Tuck (Frontals)

A collapse of the complete frontal edge (leading edge) mostly happens by too deep pulling of the A-risers or during accelerated flying or by suddenly appearing strong downwashes (down winds). A fold of the complete leading edge might look spectacular however it is not really dangerous, as far as the collapsed part is not too big. Normally no rotations occur during a frontal collapse and the paraglider quickly reopens unassisted, to return to normal flight again. Braking evenly on both sides will speed up the opening of the leading edge.
Early recognizing of the situation and a fast reaction by evenly dosed breaking of both sides helps you to keep the loss of height very small and avoids an escalation of this flying incident.

14.4. Parachutal Stalls

During a stall a paraglider has no forward movement anymore but very big sink rates. Letting go of the B-risers too slowly exiting a B-stall with old porous material, damaged lines or ribs, pulling the C or D-riser or incorrect take off weight can result in the glider falling vertically but still holding its shape.

The tendency for a stall is also increasing if the canopy is wet or the air-temperature is very low.

You can tell whether or not your paraglider is parachutal, as the flying noise can hardly be heard even though the brakes are free and you are sitting in your unusual position under the canopy. Normally, letting up on the steering lines will allow the glider to resume normal flight.

If the canopy and the lines are in good condition, the F1RST will speed up again automatically after 2-3 seconds. If this does not happen you must push the A-risers forward or use the speed-system of the glider.

Does the glider stay in a repetitively parachutal stall without any noticeable reason (e.g.: wet canopy, wrong take-off weight), the glider has to be checked before the next flight by your dealer or by the manufacturer.

**Attention:** Never pull the brake-lines during a parachutal stall, because the glider would go into a full stall immediately. Near the ground a parachutal stall should not be released because of possible pendulum movements. Instead the pilot should prepare for a hard touch down.

14.5. Full Stall

You can only induce a full stall if the both brake lines are completely pulled through and remaining in this position for more than one second. When stall speed is reached the canopy will empty itself at once, the pilot is hurled forward and the impression is given that the canopy falls backwards.

It is vital to keep the brakes pulled down until the empty canopy is above the pilot again (this will take 3-6 seconds). If you let go of the steering lines with the paraglider still behind you, the glider will shoot forward and dive in front. Not until the glider is above the pilot again the steering lines can be released moderately quick and symmetrically. The perfect ending to a full stall should take place in two steps:

- slow refilling of canopy (slow loosening of brakes, approx. up to the shoulder) until the canopy is reopened completely, then
- releasing the brakes altogether

If you release this maneuver too fast or asymmetrically, the glider can collapse frontally or asymmetrically.

**Attention:** A wrong, too early, asymmetrically or too fast released full stall can cause an extreme forward movement of the canopy. In an extreme case the canopy will shoot and dive under the pilot.
14.6. Negative Spin

Pulling down hard on one brake can cause the air stream to break away on that half of the wing. A reversion of the air-stream direction can occur. The slowed half flies in the opposite direction. The paraglider then turns around its vertical axis. For negative spins there can be two reasons:

- one brake-line is pulled too fast and too far. (e.g. while entering a deep spiral)
- during slow flying one side is braked too much (e.g. while flying circles in thermals)

If an unintentional negative spin is released immediately during its beginning, the glider normally goes back into normal flight without losing lots of height. But if the negative spin is kept for a longer time and the glider can accelerate in this negative spin the release of the spin can cause the canopy to move extremely asymmetrically in front of the pilot. Big collapses and cravats can be the result!

14.7. Wingover

Narrow turns to the left and to the right are flown alternately. During that moves the bank is increasing more and more. If there is too much dynamic and bank the wing’s outer side can lose pressure. If the bank is increased further and the pilot reacts wrong (timing!) a big part of the glider can collapse impulsively! Full stall, Negative Spins and Wingover (over 90 degrees) are prohibited aerobatic (acro-) moves!!! Doing these maneuvers wrong or a wrong reaction of the pilot can generally be very dangerous and life-endangering with all paragliders!

14.8. Emergency Steering

In the event of losing control of the steering lines, the F1RST can be flown easily with the rear risers (D lines). A stall happens quicker when steering with the rear risers, as if steered with the brake lines. The way of steering with the rear risers is at approx. 20cm with the F1RST. Light turns can be flown using the stabilizer lines or by shifting your weight.

15. Descending Maneuvers

15.1. Spiraling

Spiraling is the most efficient way to descend quickly. However, this causes a lot of strain for the paraglider as well as the pilot. Please be aware that, according to your fitness, outside temperature (cold) and descent rate, you could lose consciousness. Many pilots lower their breathing rate or start hyper ventilating, both of which heighten the risk of losing control.

With the first signs of sickness, weariness or blurred eye sight you must stop spiraling immediately.
To enter a spiral you carefully but constantly pull at the brake-line on one side and move your weight-shift to the curve’s inner side. By its direct handling the F1RST fast increases bank and flies a steep curve. As soon as the glider gets in front of the pilot (glider is “getting on its nose”) there is an impulse which the pilot should follow and move his weight...
to the curve’s outer side.
Sink-speed and bank during the spiral can be varied by dosed pull on the curve inner-side’s brake-line.
A light braking of the curve’s outer side gives the wing more stability and avoids a folding of the outer wing-tip.
To exit a spiral the brake-line on the curve’s inner side is released slowly.
A too fast release will have the consequence that the high flying-speed (up to more than 100km/h) will be transformed into height by a massive oscillating motion. An extreme deceleration at the end of this oscillation motion will occur, which causes the canopy to move far backwards. Also you have to be prepared that you fly in your own wake turbulence. Because such spirals are wasting lots of height you always have to take care that you have still enough safety height!

Attention: Nearly every paraglider at some point reaches a sink-speed at which the canopy moves with its frontal edge downwards (glider is “getting on its nose”) and stays in this position and keep spiraling (stabile steep-spiral), even if the brake-line is released. This can happen caused by disadvantageous influences, even earlier than at the sink rate of 14m/sec which is tested during the certification flights. The reasons therefore can be complex, some examples: Geometry of the harness, cross-belts at the harness, moving of the pilot's weight to the inner side of the curve, and some more. Should against all expectations a stabile steep-spiral occur, you can stop it by moving the pilot’s weight to the curve’s outer side and dosed braking of the outer side.

Attention: during a stabile steep-spiral very high G-forces will occur, which require a high strain of a physical fit pilot!

15.3. B-Line Stall

The B-Stall with the F1RST is easy to enter. Both B-risers are pulled down slowly and symmetrically up to 20cm. The glider stalls and gets into a vertical descent flight. To end the B-stall you simply release the risers within one second.
If the glider starts to turn during the B-stall or the wing-tips are moving forward you have to release the B-stall immediately. Possible reasons for turning or moving of the wing-tips could be:
- Turning: asymmetrical pulling of the B-riser, or one B- and one C-riser are pulled down.
- Frontal moving of the wing-tips (horseshoe): the B-risers are pulled down too far.

All descending maneuvers should be practiced in calm air with enough safety height, so that you are able to control it perfectly in cases of emergency!

For all extreme flight and fast descending maneuvers it’s important that you:
- Train it first under instruction of a flying instructor or during a safety course.
- Are sure that the air space under you is free before and while you are doing the flying maneuver.
- Have a look on the canopy during the maneuver and also look on the distance to the ground.
16. Care, Storage, Repairs and Disposal

Your safety in the air depends on the condition of your paraglider. A maintained and properly used paraglider will last a long time. In order to maintain your F1RST’s condition for a long time we would like to give you the following advice:

16.1. Care

In time the UV rays will damage the material of the paraglider. Therefore don’t leave the F1RST out in the sun unnecessarily. Take care that the paraglider will not get dirty while laying it out. The dirt particles can damage the material.

The line length should be checked after landing in a tree or in water.

Don’t pull around your glider while it is lying on the ground. This could damage the coating of the fabric.

Wetness damages the coating of the fabric and can reduce its lifespan.

If the lines draggle on the ground while staring the glider, they can be stretched or can tear off.

Don’t step on the lines!

Put the cloth bag that comes with the glider underneath it when folding it up to ensure that the material of the glider is not damaged.

Curl up the lines as little as possible with no sharp wrinkles.

If the glider gets contact with salt water clean it immediately with fresh water!

Insects in the cells should be removed alive, not just only for animal care reasons, but the insect secretion is acid and can damage the fabric.

Clean your paraglider only with clean water and do not use brushes or hard rubbing. Chemical detergents will damage the fabric and the lines.

16.2. Storage

The glider must always be stored in dry condition. If the glider should have got wet, you have to spread it out to dry it as soon as possible. (But do not lay it in the direct sunlight).

Do not store your paraglide near chemical fumes of gases.

Avoid unnecessary high temperatures during storage or during transport (especially in cars).

16.3. Repair

Small cuts in the material, if they are not along the seams, can be mended provisionally with special self-sticky repair-tape which you get at paragliding specialized stores.

All other kinds of damages, like large cuts, cuts along the seam, ripped line loops, torn or damaged lines must only be repaired by an authorized dealer or the manufacturer. Use only original spare-parts!

Every alteration of the glider, unless authorized by the manufacturer, causes the termination of the glider’s authorization.

Attention: The inspection and maintenance is done according to our handbook of 10.03.2008 Revision 0.
16.4. Disposal

The materials of which a paraglider is made require a special disposal. So please send disused gliders back to us. We will care about a professional disposal.

17. Nature and Environment

Actually it's self-evident, but nevertheless mentioned particularly: Please practise our nature-near sport in a way which does not stress nature and environment! Please do not walk beside the marked ways, don’t leave your litter, don’t make unnecessary loud noises and respect the sensitive balance in the mountains. Especially at the take-off we have to take care for the nature!

Thank you for your confidence in our product!

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