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Version: 1.0
Date: 06.02.2019

MIRAGE R+S

Manual (EN)

Dear SWING 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 (phone: +49 81 41 32 77 888 or e-mail: info@SWING.de) or your SWING dealer.

SWING Team

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WARNING

Read this Manual before use!

01 Disclaimer and exclusion of liability

Exemption from liability, waiver of claims, assumption of risk

You agree that, before using the SWING speed rider for the first time, you have read and understood the manual in its entirety, including all instructions and warnings which are contained herein.

Furthermore, you agree to ensure that, before you allow any other person to use your SWING speed rider, this additional or subsequent user has read and understood the SWING speed rider manual in its entirety, including all instructions and warnings which are contained.

Assumption of risk

Use of the SWING speed rider and of its component parts involves certain risks of personal injury or death for the user of the product and for third parties.

By using the SWING speed rider, you agree to assume and accept any and all known and unknown, and likely and unlikely risks of injury.

The risks associated with the practice of this sport can be reduced, to the extent of the care required in a particular case, by observing the warnings contained in this manual.

The risks inherent in this sport can be reduced to a large extent by observing the warning guidelines contained in this manual and by using common sense.

Exclusion of liability, waiver of claims

By making a purchase of the SWING speed rider, you agree to the following points, to the extent permitted by law.

To waive any and all claims however they arise

from use of the SWING speed rider and any of its components, which you have or may in the future have against SWING Flugsportgeräte GmbH and any other parties.

To release

SWING Flugsportgeräte GmbH and any other parties from any and all claims for loss, damage, injury or expense that you, your next of kin or relations or any other user of your SWING speed rider may suffer as a result of use of the SWING speed rider, including liability arising under law and contract on the part of SWING Flugsportgeräte GmbH and any other parties in the design and manufacture of the SWING speed rider and any of its components.

In the event of death or disability, all of the provisions contained herein shall be effective and binding upon the user's heirs, next of kin and relatives, executors, administrators, assigns and legal representatives. SWING Flugsportgeräte GmbH and all other parties have not made any oral or written representations and expressly deny having done so, with the exception of what is set out herein and in the SWING speed rider manual.

02 Ten safety rules

The greatest risk in Speedflying and Speedriding is their simplicity. This can cause users to be tempted into forgetting or ignoring risks. Exercise particular care if it starts to feel too “normal”.

1) Assess objective risks!

Weather: Never fly if there is a föhn wind, storm or cold front. Your speed rider may offer maximum safety, but the risks caused by extreme turbulence are unpredictable.

Avalanche: In unstable areas, make sure you have the appropriate skills/training and equipment (avalanche transceiver, snow shovel etc.)

2) Inspect your equipment!

Inspect your equipment thoroughly prior to each launch, and do not launch if you discover any damage. Adjust your equipment according to the conditions – we recommend that you have a reserve chute for bigger slope distances.

3) Assess your own well-being!

– never fly if you are unwell, whether you are physically unwell or have other concerns. Take a rest day - the mountains will always be there.

4) WHAT IF? - Plan B!

Do not make any impulsive decisions. Take time to analyze the situation. Always make a plan B (e.g. choice of route, emergency landing areas etc.).

5) ALWAYS CARRY OUT A “safety run”!

Reconnoitre a new route by making a flight with sufficient height. Be on the look-out for potential obstacles. Ensure when flying near ground level that no third parties will be injured.

6) FOOT LAUNCH = INCREASED RISIK!

Please bear in mind that the MIRAGE RS PLUS was designed for flying on skis.

7) Do not be afraid to speak out!

If you feel that others are overestimating their abilities.

Likewise, accept comments from others, even if it is unpleasant to acknowledge mistakes.

8) ANALYSE YOUR MISTAKES!

Analyse any near-accidents as if they had been actual accidents and learn the necessary lessons. Avoid a repetition, because next time it could be too late.

9) NO FRONTRISER TURNS!

The 3-line design does not allow front riser turns to be made! Pulling on the front risers invariably results in a stall, the consequences of which can be fatal!

10) NO RISK – NO FUN, NO LIMIT – NO LIFE.

Respect your limits and do not go beyond them just because you are with more experienced pilots. Have the courage to say “enough”!

WARNING: SPEEDRIDING AND SPEEDFLYING ARE DANGEROUS!

This speed rider is an item of sporting equipment and NOT a piece of aviation equipment and therefore it does not have aviation certification.

For this reason, SWING Flugsportgeräte GmbH expressly states that it accepts no liability for its use.

- 1) Extreme care is called for when using the equipment.
- 2) This product should only be used by people who are in good physical condition.
- 3) The product must at no time be used in a manner which is careless, frivolous or negligent.
- 4) Users are responsible for their own safety and there must be no danger to third parties.
- 5) The product must not be used for aerobatics!
- 6) The user alone takes full responsibility for any injury which might arise as a result of use of this product.
- 7) The instruction manual must be read carefully before first use.
- 8) The laws applying to use of this product in the relevant country must be observed.

This manual contains additional information in various places concerning your safety. This information is indicated.

03 Use of the SWING MIRAGE RS PLUS

Caution! It is imperative that the instructions contained in this Manual are followed at all times.

Failure to do so renders invalid the glider's certification and/or results in loss of insurance cover. Furthermore, it could lead to serious injuries or even death.

- The instruction manual must be read carefully before first use and passed on to any other user or subsequent owner.
- The SWING MIRAGE RS PLUS is designed to be used with skis. We recommend using the speed rider with skis.
- The only form of launch permissible is to gather speed whilst still on land, with the canopy fully inflated, until the pilot becomes airborne (no cliff, D-bag or similar launches).
- The product must never be used carelessly or negligently.
- Extreme care is required when using the product.
- This product should only be used by people who are in good physical condition.
- Use of the product is at your own risk. The manufacturer is not liable for any personal injury or material damage which should occur in connection with SWING speed riders. There must be no danger caused to third parties.
- Do not under any circumstances alter the construction of the SWING MIRAGE RS PLUS. If you do, any claims under the warranty will not be accepted and the type certification will lapse.
- Familiarise yourself with the SWING MIRAGE RS PLUS on training slopes before first use.
- The laws applying to use of this product in the relevant country must be observed.
- If you do not already hold a paraglider or parachute licence, we recommend that you carry out appropriate training and then move on to the speed rider.
- The SWING MIRAGE RS PLUS must not be used for aerobatics. The MIRAGE RS PLUS was not developed and tested for this. This includes any flying or flight manoeuvres at an angle greater than 90° around the longitudinal or latitudinal axes and any flight manoeuvres involving stall.

Operating limits

The SWING MIRAGE RS PLUS may only be used within the operating limits. A pilot has gone beyond those limits if any one or more of the following points apply:

- the take-off weight is not within the permissible weight range
- the glider is flown in rain or drizzle, cloud, fog and / or snow
- the canopy is wet
- there are turbulent weather conditions or wind speeds on launch higher than 2/3 of the maximum flyable airspeed of the glider (varies according to the total take-off weight)
- the air temperature is below -15°C or above 50 °C
- the glider is used for aerobatics/extreme flying or flight manoeuvres at an angle greater than 135°
- manoeuvres are carried out with loads below 0g or above 4g
- the glider is used for spiral dives
- modifications are made to the canopy, lines or risers which are not approved

Technical Data

| MIRAGE RS PLUS | PRO | 8,5 | 9,5 | 11 | 13 | 15 | 17 |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Nr. Cells | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Flat Area (m ²) | 8 | 8,5 | 9,5 | 11 | 13 | 15 | 17 |
| Projected Area (m ²) | 7,1 | 7,5 | 8,4 | 9,7 | 11,4 | 13,5 | 15,3 |
| Wingspan (m) | 5,4 | 5,6 | 5,9 | 6,3 | 6,9 | 7,5 | 8,0 |
| Projected Span (m) | 4,4 | 4,6 | 4,8 | 5,2 | 5,6 | 6,1 | 6,5 |
| Aspect Ratio | 3,6 | 3,6 | 3,6 | 3,6 | 3,6 | 3,6 | 3,6 |
| Protected AR | 2,8 | 2,8 | 2,8 | 2,8 | 2,8 | 2,8 | 2,8 |
| Take Off weight (kg) | 50-119 | 50-119 | 50-119 | 50-119 | 60-119 | 60-119 | 80-180 |

04 Your SWING MIRAGE RS PLUS

What does the SWING MIRAGE RS PLUS look like?



Fig. 1: Mirage RS PLUS

Manufacture of the SWING MIRAGE RS PLUS

Your SWING MIRAGE RS PLUS was manufactured in SWING's production facility using the latest machines and manufacturing techniques.

A thorough quality control is carried out after every stage in manufacture.

The quality control of course includes inspection of the materials used as well.

This allows us to all but exclude the possibility of any material defects and to trace the exact origin of all materials used.

Development objectives

Our development team focussed on these objectives during the development and test stages for the MIRAGE RS PLUS:

- RAST technology
- new canopy profile
- shark-nose technology
- 3D-shaping
- higher cell density for a stable profile with increased performance
- new glider radius with shorter line length
- reduced line diameter
- reworked and even lighter combination of materials
- completely new glider design
- MIRAGE RS PLUS sizes: PRO, 8.5, 9.5, 11, 13, 15

The RAST technology developed by SWING provides noticeable stabilisation for the canopy to increase safety for foot launching and during flight. The MIRAGE RS PLUS stands out from other gliders because of its precise and direct handling, along with high speed and excellent glide performance. The previous model had many features that were greatly appreciated by speed rider pilots, none of which were sacrificed here!

All of this makes the MIRAGE RS PLUS the ultimate all-mountain speed flyer for the toughest runs and lines.

More about RAST technology: <http://SWING.technology.de>

Tests

In addition to our extensive flight tests, we also tested the structural strength of the MIRAGE RS PLUS in accordance with the DIN EN 926-1 standard.

The maximum permissible mass is 119 kg, tested at 8g.

NO FRONTRISER TURNS!

Caution: The 3-line design does not allow front riser turns to be made! Pulling on the front risers invariably results in a stall, the consequences of which can be fatal! The MIRAGE RS PLUS has brake handles for steering (toggles!).

Harnesses

The SWING MIRAGE RS PLUS can be used with any Speedriding harness.

Caution: Never use a harness with seat-board or even a reclined harness when flying the MIRAGE RS PLUS! Using the MIRAGE RS PLUS in combination with such harnesses can make it extremely difficult or impossible to control!

05 Before first launch

Familiarise yourself with your equipment!

Adjusting the brakes

The brakes of the SWING MIRAGE RS PLUS have been adjusted by the manufacturer in such a way that the brake handles can be held as shown in the photo. In this way, they are ideally adjusted for the SWING MIRAGE RS PLUS. For safety reasons, in general we recommend that you loop your hands through the brake handles (see Fig.2 and 3).



Fig. 2 & 3 Recommendation: Hand looped through the brake handles

Riser and trimmer



WARNING

NO FRONT RISER TURNS!

The 3-line design does not allow front riser turns. Pulling down the front risers will inevitably lead to a collapse, which can have fatal consequences.

The MIRAGE RS PLUS has brake handles (toggles) for steering.

The riser for the MIRAGE RS PLUS is designed in such a way that it can be operated while wearing gloves. There is an anti-rotation device on the B-level. In addition, the B-level deflector alters the profile and the angle of attack more effectively when opening the trimmers, which counters any vibration of the canopy. The SWING Speedflying Team advises pilots wishing to fly the MIRAGE RS PLUS through the back risers, to do so between the B- and C- riser.

The MIRAGE RS PLUS is fitted with trimmers, which prevent, e.g. your helmet camera from getting tangled. (see Fig. 4)

Trimmer travel itself has a significant impact on the dive & speed of the MIRAGE RS PLUS.

You should therefore keep the trimmers closed for your first flights and slowly familiarize yourself with that position.

The trimmers allow you to fly with best glider when closed. Open the trimmers to use “dive” or to lose height. To adjust the trimmers in flight, hold the brake handles and open the trimmers symmetrically. If you open the trimmers asymmetrically (e.g. if you open them one after the other) the MIRAGE RS will fly a sharp turn towards the side of the closed trimmer. There are magnets on the trimmer webbing and on the riser which prevent the trimmers opening

fully. The magnets must be separated before full trimmer travel can be used. When the trimmers are closed, the magnets also stop the trimmer webbing from flapping, as it can then be secured.



Fig 4

However, bear in mind too that, when the trimmers are being opened gradually, they can suddenly and unintentionally unfasten completely. If that happens, simply return the trimmers to the desired position.

Take a gradual approach to opening the trimmers fully. “Speed & dive” increase considerably when the trimmers are opened. Once you have familiarized yourself with the MIRAGE RS PLUS with trimmers closed, you should then slowly and gradually test out the full trimmer travel, as the glide angle in “dive” decreases sharply. Bear in mind that the sink in turns increases significantly when the trimmers are opened!

Trimmer positions

- best glide: trimmers fully closed and approx. 15% brake (let your arms hang)
- maximum stability in turbulent conditions: trimmers fully closed and “active flying” using the brake handles
- maximum speed, steepest flight path: trimmers fully open, 0% brake
- minimum sink: approx. 50% brake
- minimum sink in turns: trimmers fully closed
- maximum loss of altitude in turns: trimmers fully open

Facts on trimmer positions

- The trimmers alter not only sink in turns, but also how much the MIRAGE RS PLUS responds to weight-shifting. The MIRAGE RS PLUS responds best to weight-shifting with trimmers closed, and responds least with trimmers fully open.
- The more you open the trimmers, the longer braking distance becomes. The position of the brake handles in zero position is then higher up.
- The trimmers affect braking distance, but not your minimum flight speed. This means that your touch-down speed is not affected by trimmer position.
- The MIRAGE RS PLUS becomes more “pitchy” the more the trimmers are opened. This means, e.g., that it can shoot forwards further on launch.
- Avoid flying for lengthy periods with trimmers fully open while braking strongly. You may feel a slight vibration on the brakes.

Basic rule: Trimmer closed (Fig. 5): normal flight
 Trimmer open (Fig. 6): more “speed & dive”
 (Descent with open brakes)



WARNING

Never fly with trimmers fully open in turbulent conditions!

Fig. 5 Trimmer closed



Fig. 6 Trimmer open



The speed bag



The speed bag considerably facilitates use of the speed rider and its use is **COMPULSORY** in most speedriding areas.

On launch, simply take the glider out of the speed bag, roll up the speed bag and put it into the side pocket.

After you have finished riding, gather together the SWING MIRAGE RS PLUS, take out the speed bag and lay it out open beside the glider. Place the gathered-up glider on the outspread speed bag, put away the glider into the speed bag and close up the speed bag. Hang the speed bag over your shoulder and you can make your way to the lift.

Always check when you are putting away the SWING MIRAGE RS PLUS that you have put all of the lines and straps into the speed bag and that nothing is hanging out which could get caught.

After you have finished speedriding for the day, you can also attach the risers to the strap on the speed bag, by feeding the strap through the riser loops.

Fig. 7 pocket for your Speedbag 2

06 First launch

The 10 Safety Rules above should be second nature!

Conduct at skiing areas:

Here are a few important rules which must be followed at all times in skiing areas:

- First clarify local conditions, e.g. with the lift operator.
- In general, keep to the side of the slopes when speedriding.
- If there are designated speedriding areas, then use those.
- Pack away your SWING MIRAGE RS PLUS into the speed bag before you go back to the ski slope.
- Ensure that you do not get caught up anywhere with the Harness or speed bag, so that it does not interfere with the lift operation. In developing the Brave 4 and the speed bag, we have taken care that no unnecessary straps or loops could interfere with the lift or gondola.
- Never put any third parties at risk, especially skiers.

Please observe these rules so that other speed rider pilots can continue to enjoy the areas too.

Launch preparations

- Familiarise yourself with the SWING MIRAGE RS PLUS before you launch for the first time by carrying out some practice inflations and trying out some runs on a training slope.
- Your first runs should take place in a straightforward area which is familiar to you

Launch

Before every launch, ensure that the trimmers are adjusted the way you want. The extremely high effectiveness of the trimmers means that incorrect adjustment on launch can have fatal consequences.

On the contrary, if you hold the A-risers on launch, the MIRAGE RS PLUS may surge forward.



Fig. 8 Ueli Kestenholz launches with the brakes applied only about 30%



Fig. 9 Slowing down while controlling your wing

Brake the MIRAGE RS PLUS briefly and strongly as soon as it is above you, to prevent it shooting forward. While you are doing this, you can carry out the essential safety check of the glider. The MIRAGE RS PLUS has relatively long lines, which can cause it to build up a lot of energy during launch and it may want to overtake the pilot or swerve more strongly to the side.

Tip: Do not be too fast when starting! Give the MIRAGE RS PLUS a little time during the inflation and launch phase until the canopy has filled and then accelerate consistently until you take off. RAST will be of assistance here.

Landing

After you have landed, simply remain attached, take the speed bag out of the side pocket and pack away the gathered-up speed rider so that there are no lines hanging out.

Take the speed bag under your arm and make your way back to the lift.

We refer once again to the rules at the start of this section.

Safetytip: After every landing, adjust the trimmers to the position you would like them in for your next launch!

07 Storing and looking after the glider

Always transport your SWING MIRAGE RS PLUS in the speed bag provided.

Store your speedriding equipment away from UV light in a dry room which is well-ventilated and has a constant temperature. Remove it from the convertible harness backpack and open the speed bag so that air can get in.

Make sure that you do not store the SWING MIRAGE RS PLUS while it is wet. It should always be dried out after use, preferably overnight in a room as described above.

If you do need to clean the speed rider, then use only a soft sponge and clear water.

Important:

Harsh chemical cleaners, high-pressure cleaners/steamers will destroy the speed rider.

Clean the speed rider only if it is absolutely necessary.

Repairs should only be carried out by SWING Flugsportgeräte GmbH or a specialist we recommend.

Small tears in the wing can be repaired using self-adhesive rip-stop material, provided that they are in places which do not bear heavy loads, are not at the seams and are no bigger than 3 cm.

Replace damaged lines immediately!!!

The MIRAGE RS PLUS has to be inspected every 100 flight hours or once a year, depending what comes first. If any damaged or worn-out parts need to be replaced, use only original parts from SWING Flugsportgeräte GmbH.

08 Internet product information and safety notices

SWING sends any 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.

SWING generally includes all email addresses provided in warranty cards in its distribution list. If you do not wish your address to be included, please do not give it on the warranty card. Your email address will not be provided to any third parties.

<http://www.facebook.com/pages/SWING-Speedflying-Team/150047078156>

Instagram: <https://www.instagram.com/SWINGparagliders/>

Tag your SWING MIRAGE RS PLUS online with:

#SWINGParagliders #SWINGSpeedflyingTeam #MIRAGERS+

<http://twitter.com/SSTspitfire>

We hope you enjoy using your SWING MIRAGE RS PLUS!

SWING Team

Glider details

| | | | |
|----------------|-------|---------------------|-----------------|
| Model: | Size: | Manufacturing Date: | Serial number: |
| Mirage RS PLUS | | __/__/20__ | __-__-____-____ |

Proof of ownership**1. Owner:**

| | |
|------------|--|
| Name: | |
| Address: | |
| Telephone: | |
| Email: | |

2. Owner:

| | |
|------------|--|
| Name: | |
| Adress: | |
| Telephone: | |
| Email: | |

3. Owner:

| | |
|------------|--|
| Name: | |
| Address: | |
| Telephone: | |
| Email: | |

Inspection and repairs carried out:

| Date: | Work carried out: | General condition on delivery: | Completed by (Name): | Stamp and signature |
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