



NOVA

GLITCH

Manual

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No compromises acro flying

Thank you for your trust

Many thanks for choosing a NOVA wing. NOVA stands for innovative, technically sophisticated, high quality products. Your paraglider was developed using modern design and simulation software, it was intensively tested and during and after production it underwent stringent quality control procedures.

This manual contains important information on using your paraglider. We recommend reading it carefully in advance of your first flight with the wing. Please contact us or your NOVA partner with any queries or suggestions.

Further information on this wing and other products can be found at www.nova.eu.

We wish you great flights and safe landings.

Your NOVA development team



Philipp Medicus
Chief designer

NOVA offers comprehensive guarantees and services. To claim or use these services, you must register your wing at our myNOVA web site within 14 days of purchase (invoice date).

About NOVA

Driven by the idea of creating better wings, we founded NOVA in 1989. The company quickly grew into a significant manufacturer.

We rapidly consolidated and expanded our market position.

Our headquarters are in Terfens, near Innsbruck. Thanks to this location we are 20 minutes from our local flying site, the Rofan. Due to its proximity to lake Achensee, it is ideal for glider testing. Alternatively, the Zillertal, the Stubaital or the southern Alps are close by.

As a paragliding manufacturer, being close to mountains is essential.

Firstly we need appropriate terrain for good development work.

Secondly, we need to have our finger on the pulse and need to be closely connected to our customers. In Tyrol and the surrounding areas paragliding is more than a sport. This positive attitude translates into our products, which assists us to keep making better paragliders.

NOVA has a highly qualified staff team, nearly all of whom share the same passion for flight as the pilots who choose to fly NOVA wings. This passion and our know-how are the drivers of our innovation. The starting point of our mission is to build paragliders which are safe and simultaneously high performance. Performance and safety, or rather the correct ratio between the two, make for lots of flying fun – and that is what it is all about!



Quality

When discussing quality in paragliding, often the focus is on externally visible issues: seams, fabric or symmetry. These are all important indicators for us too, but at NOVA we feel the term quality encompasses more. Quality means a cycle of processes which begins with the right idea and ends in comprehensive customer service. In between lies responsible development and testing; serial production with routine inspection and a network of responsible dealers and approved service centres.

We don't just want to offer you a good wing – we want to give you the right one. Our highest priority is earning and maintaining the long-term trust of our customers. We equate quality with the satisfaction of our customers. If we matched your expectations, then we have provided a quality service.

Flying and nature

On the one hand, flying means experiencing a particular form of freedom.

On the other, there is a requirement to follow laws and ethical groundrules. Please show respect to your fellow pilots, but also consider the interests of landowners (both take-off and landing), air law and your impact on the environment.

For the sake of our sport and our environment, we ask you to undertake paragliding in an environmentally-friendly way. Please do not litter and please avoid scaring animals by flying too close to them. Especially in winter, this stress can be life-threatening for wild animals. Being considerate to the needs of animals is your contribution to the preservation of their habitat. At the same time, respectful behaviour also avoids conflict with other interest groups like landowners, whose income is reliant on healthy numbers of wild and domesticated animals.

The GLITCH



Introduction

The GLITCH is the result of more than five years of development with Théo de Blic. What began with nearly unflyable prototypes has evolved into the most well-rounded acro-paraglider for competitions.

Development

Like an elite XC-pilot benefiting from an easy-to-fly and reliable glider, the same holds true for an elite acro-pilot. Although Théo de Blic was able to manage the initial versions of the GLITCH, we continually pushed to make the wing as easy to fly as possible. Finally, after eight prototypes and countless trim versions, Théo concluded that we had developed the best acro glider on the market. We then built several GLITCHes for team pilots and friends, and after their overwhelmingly positive feedback, we decided to make the GLITCH a serial glider.

Characteristics

A great acro glider must reliably perform all tricks. Yet, Théo specifically emphasised heli-connections. The GLITCH performs these manoeuvres aggressively yet remains easily manageable. Its moderate brake pressure makes it ideal for multi-hour training sessions, for example in Organya – a critical feature for maximising training time.

Size and wingloading

The GLITCH executes all acro tricks (including stall to infinite) with very low wing loading. Thus, you don't need a smaller glider to perform specific tricks. Don't assume that you necessarily must fly the GLITCH smaller than your current glider to advance. Several experienced pilots have enjoyed flying the GLITCH even larger than their previous acro gliders. The enhanced climbing ability in thermals is just one of the many advantages you gain.

Target Group

The GLITCH is designed to perform all the tricks required in today's acro competitions. It is not suited to be your first acro glider. If you can't yet perform basic helico connections such as Sat to Heli or Misty to Heli, we don't recommend learning them on the GLITCH, because it's too aggressive. However, if you are confident in those tricks and are starting to get decent new school tricks such as Joker Cork and Cowboy and you want to refine your connections and progress further, the GLITCH is the glider to look for.

General information

As an aircraft, paragliders must conform to applicable air law.

Depending on your country of origin, instruction may be compulsory. Additionally, there are statutory requirements (for example air law) which must be adhered to.

The GLITCH is designed and certified to carry one pilot. It may not be used as a tandem wing.

Paraglider pilots must be able to prove that they have the valid licences and must have insurance as is required by their country of origin.

Pilots must be capable of judging meteorological conditions correctly. Depending on a country's applicable regulations, the use of a helmet and back protector, as well as carrying a parachute, is mandatory and highly advisable.

Pilots must accept responsibility for the risk inherent in participating in the sport. Paragliding is an adventure sport and can lead to severe injuries and death.

We recommend that inexperienced pilots and those with a heightened desire for safety should undertake paragliding under the auspices of an accredited school or instructor. Many of our NOVA Partners can offer this service.

Recommendations

We advise pilots to choose their wings conservatively: it is preferable to fly a lower class wing than to overstretch yourself. One can only get the full potential from a wing if it feels comfortable. If the wing is too demanding, this does not lead to increased performance and it can increase the risks.

After buying a new wing we recommend undertaking an SIV/pilotage course. On this course we recommend practising the manoeuvres which simulate the incidents which most commonly occur during everyday flying – in particular asymmetric and frontal collapses. Furthermore we recommend regular flying, ground handling, as well as further theoretical training. We advise that you continuously study flight theory and practice and that you also study the particulars of your chosen flying equipment. As the owner of your equipment it is your responsibility to comply with checking and maintenance requirements. More information on this in the »Care and maintenance« section.

Operating limits

The following flying conditions and situations are outside the permitted operating limits of the wing:

- Flying with precipitation (rain, snow, hail) must be avoided at all costs. Precipitation has a negative impact on the flying characteristics of the wing. Amongst other things, the stall point and parachutal stall behaviour changes.
- Low temperatures combined with high humidity can lead to icing, which also has a negative impact on the wing's flying characteristics (parachutal/deep stall, shortening of the brake travel).
- Operating the paraglider is only permissible within the recommended weight range. The weight range can be found in the technical data.
- Sand, dirt and snow (especially in large quantities) have a very negative effect on the flying behaviour of the wing. Before each launch, check your glider for foreign matter and execute a proper pre-flight checking sequence.



On receiving your paraglider

Initial flight

Before sale, every NOVA wing is checked and flown by a NOVA dealer.

The name of the pilot and date of this first flight must be written on the paraglider's information label. Generally this will be situated in the centre cell (at the profile rib).

Registration

In order to take advantage of the full guarantee and services you must register the paraglider at our web site: my.nova.eu ↗



This registration must be completed within 14 days of purchase (invoice date).

Accessories included

Your GLITCH is delivered with a Stuff Sack, Windsock and Repair Tape.

Glider modification

At delivery, the specifications of a new paraglider conform to those used during the load-test process. Any user modification (for example, change of line materials, modification of the riser) means the glider no longer conforms to its certification. We recommend consulting NOVA before any modification.

Care and maintenance

With care and careful handling, a paraglider can remain in a technically perfect state for many years – even if used intensively. An exception to this are lightweight paragliders which degrade more rapidly with intensive use. We recommend the following:

- The wing should not be unnecessarily exposed to UV radiation, for example if left for a long time in direct sunlight on take-off or landing.
- When folding the glider it is advisable not to bend the rods in the leading edge.
- If the wing is wet or even only damp when being packed, it should be fully dried as soon as possible. Storing the glider damp can lead to permanent damage.
- When landing or groundhandling, try to avoid hitting the leading edge hard on the ground. This can lead to damage.
- The lines should be protected from dirt and sharp rocks. Never step on the lines if on stony ground.
- Over a period of time, dampness in combination with dirt can lead to lines shrinking and the glider going out of trim.
- Salt water (including sweat) and sand damage lines and sail cloth. This has a negative effect on their durability and strength.
- Do not drag your wing across the ground – particularly not the rods in the leading edge.

Packing the glider

Keep it simple! NOVA paragliders can be stored in a concertina bag, but it is not essential (we haven't found that concertina bags prolong the life of the wing). If in a hurry, they can be stuffed into the inner bag (but please don't store them like this in the long-term!).

We use the conventional packing method for our own wings: lay the wing flat with lines on top and then fold towards the middle. The cell openings should be in line and can then be used as a reference. Then fold, rather than roll, the glider as this improves the comfort when carrying it in the glider bag. When folding the wing, please ensure that the rods in the leading edge are not bent. This simple and comfortable packing method is made possible by our conservative use of rods.

Storage

It is best to store paragliders in a dry place, away from direct sunlight. Permanently storing the wing at high temperatures (for example, in a car during summer) should be avoided. The wing should not be tightly packed when stored for long periods. It is preferable to leave it more loosely packed in the inner bag.

Cleaning

To clean the canopy, use only water and a soft cloth/sponge (no detergents!).

Remove sand, dirt or little stones from the inside of the canopy. Sand is abrasive and this accelerates the aging of the wing. To remove dirt from the trailing edge, we have fitted Velcro to the ends of the wing tips. Open this to shake out unwanted dust/dirt.

Repair

Repairs should only be performed by the manufacturer or authorised service centres. A list of authorised service centres can be found at our web site at: nova.eu/en/try-buy/ Exceptions are replacing lines, the repair of small tears (up to 5 centimetres which do not require stitching) or holes in the sail cloth which can be fixed with original NOVA repair tape (supplied with the glider).

Spare parts, like additional repair tape or replacement lines, are available from authorised service centres or directly from NOVA.

Disposal

The synthetic materials used in the construction of a paraglider should be responsibly disposed of. When you wish to dispose of your glider, please return it to NOVA or to your local NOVA partner, where it will be dismantled into its individual components and properly disposed of.



Service and guarantee¹

After purchase, please register your wing within 14 days in our database: my.nova.eu [↗]
Registration is required if you wish to take advantage of our extended warranties and guarantees. More information on our warranty and guarantee terms and conditions can be seen here: www.nova.eu/en/guarantee-conditions/

Our services

Optimise your wing.

Through use, paraglider lines shrink or stretch. Generally, A and B-lines stretch, whereas C-lines shrink. As a result the wing flies slower and the handling is less agile. All lines are subject to shrinkage – regardless of which material they are made from or which manufacturer produced them. To ensure your complete flying fun and your safety, we developed NOVA Trim Tuning (NTT)² with the help of paragliding instructor and mathematician Ralf Antz. After 15 to 20 operating hours this stretching or shrinking is basically complete. We recommend that you then immediately send the wing to us or an authorised partner. We will measure all the lines, analyse the trimming using special software and then put your wing back to its optimal flying condition.

If you take the opportunity of this service, you will benefit from the 3 Years No Full Service Required: after the NTT your wing only needs to be checked again three years after the date of purchase (provided you do not exceed the number of operating hours stated in the manual).

¹ The guarantee and service provision is limited, subject to conditions and not offered to the same extent in all countries. Detailed information is available can be seen here: www.nova.eu/en/guarantee-conditions/

² The warranty is only included in the purchase price in selected countries and, if included, may only be redeemed in the country of purchase.

The three-year-no-worry offer.

Imagine two years have passed and you don't have to do your 2 year check. Then you fly a wing from NOVA! If your wing has had the NOVA Trim Tuning, then we will extend the period until the next service check from two to three years (from date of purchase) – provided you do not exceed the number of operating hours before a service is needed, as stated in this manual. The extension of the interval before the next service is due allows you to concentrate on what you enjoy: the flying. We at NOVA wish you great flights!

More than a check.

When it comes to checks we are very particular – that's why we don't just call it a check, but a NOVA Full Service. We check all the details of the paraglider: porosity, line lengths, correct trimming, etc. With our in-house developed software package, the Quality Assurance Database (NOVA QAD), the person servicing the wing can view previous checks. You too can view your glider's service history – which is obviously protected by a password. Like during the NOVA Trim Tuning, the person servicing the glider will measure all the lines and feeds the data automatically into the diagnostic software. Using the measurements, the software calculates the sail trim and suggests possible trim corrections. These are evaluated by the person servicing the glider and then implemented through loops at the carabiners. All measurement and check data is held centrally and we can download and analyse this data at any time. This allows us to determine how, in what distribution and to what extent the lines go out of trim. Using this data we can draw conclusions and improve our know-how on lines for future gliders. As a technical and innovative company we are always concerned with further development and safety.

Everything available, anytime.

To us, a paraglider is more than just a few kilograms of plastic. We breathe digital life into it. Registration at myNOVA is its birth certificate; and the service data for its entire life is collected in our Quality Assurance Database. For the following two reasons our long-running system is not only practical, it is also vital for continuing quality assurance: Firstly, thanks to a user account our clients have unlimited access to all their important data – for example, the NOVA Full Service log, Trim Tuning data or even a change of owner.

Secondly, we gain a deeper insight into the durability of the material and lines through the collection of this data. This helps us inform our clients quickly in case of problems. Also, it helped/helps us to decide which materials are most suitable for everyday paragliding. It assists us to keep producing better paragliders.

NOVA approved service centres also have access to the database. The person responsible for the service can gain information on the wing before even opening it up. The Quality Assurance Database therefore improves the knowledge transfer – in the interest of our customers.

*All the service and guarantee conditions are linked to terms and conditions.
Details on our services are available at: www.nova.eu/en/guarantee-conditions/*

Specific procedures and inspection interval

The inspection interval is two years. Unless the checker sets the inspection interval to one year due to a borderline condition, or the NTT was performed by the due date in the first year. In this case the first inspection is only due three years after the date of purchase. If the wing has either 100 operating hours or 200 take offs before the above mentioned deadlines, then the glider must be checked.

The inspection must be carried out by a NOVA authorised service partner. These are the only companies where all inspections and trim corrections meet our quality standards. You can find authorised service partners on our website: www.nova.eu/en/try-buy/

During the NTT and NFS, the software calculates the wing trim and suggests possible trim corrections. These are evaluated by the person servicing the glider and then implemented through loops at the maillons. The line lengths are not set to absolute target values but in relation to the other line lengths. For this reason, no absolute tolerances can be specified in the manual.

The tolerances for trim changes and the conditions and detailed instructions for the check are defined in the check instruction and the analysis software.

The NOVA Full Service is confirmed with an official stamp. Failure to comply with the inspection interval will invalidate the airworthiness of the paraglider.

We also recommend that gliders which are flown in areas where the cloth may be stressed (e.g. rocky areas, coastal areas with salty air or if the wing has been immersed in salt water), should be checked annually. Anyone who regularly flies aerobatics should submit their glider for an annual check. In this case there is an even greater responsibility on the pilot to regularly check the wing for damage.

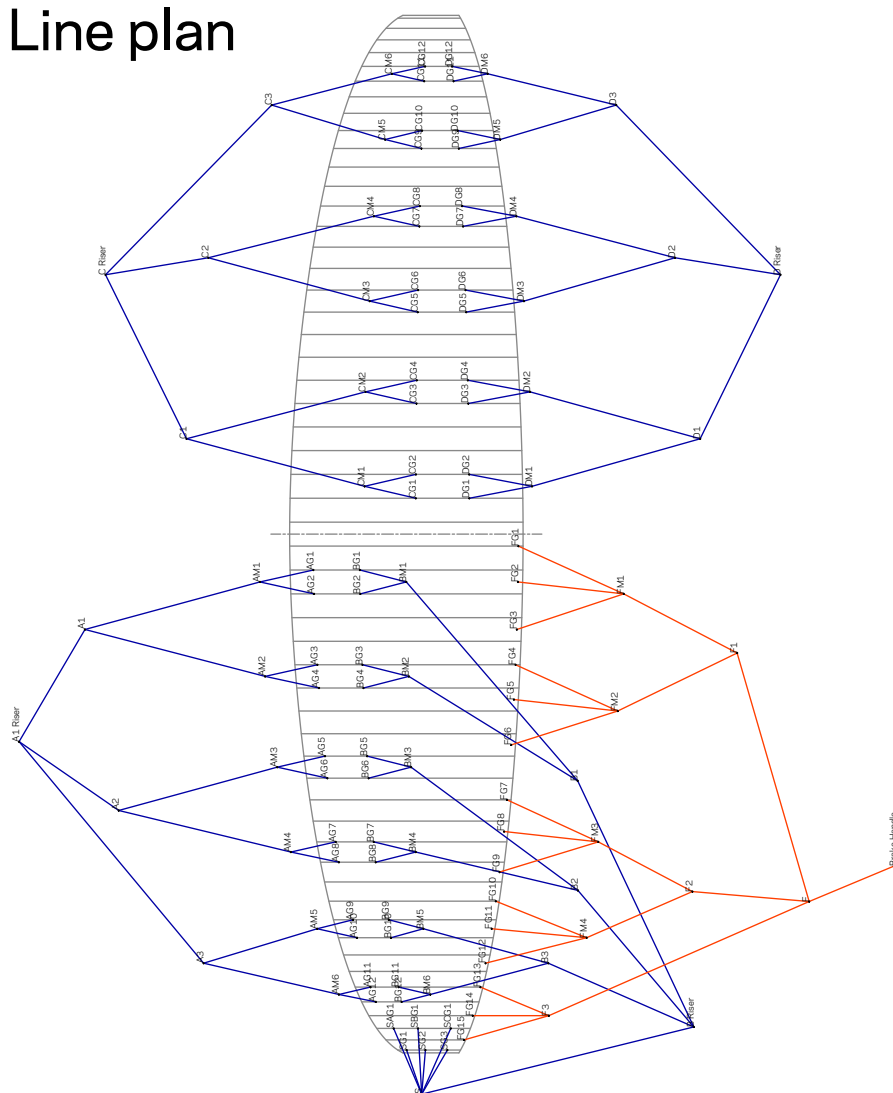
Technical data

GLITCH		13	14,5	16	18	20	22
Number of cells		55					
Projected span	m	6,88	7,27	7,64	8,10	8,54	8,95
Projected area	m²	11,21	12,50	13,80	15,52	17,24	18,97
Projected aspect ratio		4,23					
Flat span	m	8,48	8,96	9,41	9,98	10,52	11,04
Flat area	m²	12,98	14,48	15,98	17,98	19,98	21,97
Flat aspect ratio		5,50					
Distance pilot - canopy	m	6,26	6,61	6,94	7,36	7,76	8,14
Total line length	m	254	269	284	302	319	336
Max. chord	m	1,91	2,01	2,12	2,25	2,37	2,48
Min. chord	m	0,47	0,50	0,52	0,56	0,59	0,61
Weight	kg	3,9	4,2	4,4	4,8	5,2	5,5
Max. take off weight / Load test*	kg	120	120	120	120	120	130

*) Pilot incl. equipment and wing | Subject to change without notice

All current sizes and technical data can be found on our website www.nova.eu

Line plan



The current line measurements of all sizes can be found in the online version of the manual, which is available from our web site.

Every NOVA paraglider comes with a big package of extra services and guarantees.

When you buy the wing you get more than just the product.

Imprint

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Changes, print and typographical errors reserved.

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