



# HAWAII



## PARAGLIDING HARNESS

Please read this manual before flying with the Hawaii for the first time.

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## Thank You...

Thank you for choosing the Hawaii harness. We are confident that this harness will provide you with enhanced comfort, control, performance and fun in flight. This manual contains all the information you need to set up, trim, fly and maintain your harness. A thorough knowledge of your equipment will keep you safe and enable you to maximize your full potential.

Please pass on this manual to the new owner if you do resell your harness. Happy Flights and Safe Landings,

The MAC PARA Team

## Safety Notice

By the purchase of our equipment, you are responsible for being a certified paraglider pilot and you accept all risks inherent with paragliding activities including injury and death. Improper use or misuse of MAC PARA equipment greatly increases these risks. Neither MAC PARA Ltd nor the seller of MAC PARA equipment shall be held liable for personal or third party injuries or damages under any circumstances. If any aspect of the use of our equipment remains unclear, please contact your local MAC PARA reseller or importer in your country.

## Introducing the Hawaii

The Hawaii meets the highest standards of the most demanding pilots and is used by many competition pilots. Covered harnesses have a positive influence to the glide ratio increase. The Hawaii is suitable from the experienced pilot to the cross country or competition pilot. The Hawaii harness was developed together with Gin Gliders Inc. and is build on Gin's Genie Race harness. It features a number of changes. The height of the chest strap, the shoulder strap system and side straps to control angle of seat are similar to other MAC PARA harnesses. The Hawaii is manufactured in the Gin factory.



The Hawaii can be flown with all types of paragliders unless the manufacturer of your paraglider requires a specific harness to be used with his paraglider. Please refer to the manual of your paraglider to find out if this might be the case. The Hawaii is a sleek and easy harness, designed for maximum comfort and ease of use. The elegant design focuses on simplicity, eliminating the need for complicated adjustments.

The overall geometry of the harness enables the pilot to feel the feedback from the glider sensitively, whilst retaining a secure feeling in flight. This increases the precision of turns while thermaling and aids active flying. On long flights, the comfort of the Hawaii is second to none.

### Features of the Hawaii:

- Polycarbonate sheet to protect back protection
- Aerocone Inflatable Fairing system (AIF) Rescue attachment bridle
- certified Back protection, INOX Carabiners
- Large dorsal storage pocket and numerous small pockets for long flight convenience
- Ballast Cockpit that takes up to 10L ballast
- 3 step speed bar, lines and Brummel hooks
- light Kevlar/Carbon rest plate



The Hawaii is available in sizes S, M and L.

Weight: 8.6 kg (L size complete with HAWAII back protection, carabiners, 3 step speed system and cockpit).

Weight: 8.0 kg ( L size with carbon plate and alluminium carabineers).

Weight of Hawaii back protection: 0.8 Kg

Volume space for the rescue: 9.4 dm<sup>3</sup>

Leg and chest straps are integrated into the "Get-up system" to prevent the pilot from falling out of the harness if he forgets to fasten the leg straps. The pilot has to fasten the leg straps first in order to fasten the chest strap, so it helps the pilot not to forget fastening the leg straps.



The safety has also been improved by optimising the position of the back protection; the rear pocket has been moved upwards, offering protection for the pilot in case he accidentally falls on his back.

The bottom rescue container is designed to enable a fast and easy deployment of the parachute. The bottom position is ideal because the weight of the rescue stays near the centre of gravity and therefore provides you with the most balanced comfort and feeling in flight.

The cocoon covers the legs with neoprene in an aerodynamic shape to reduce the drag during flight. You can adjust the angle of the cocoon to be optimized compare to the wing's angle of attack with the 4 attached straps. The Aerocone (AIF system) helps to push away the turbulence from the back of the harness that would normally create drag, and it also enhances stability during flight.

The speed system works through a large ball bearing pulley that helps to greatly reduce friction when using the speedbar, it also reduces wear when used often and reduces pilot fatigue during long flights.



The ballast container can be emptied during flight through the big hole and is covered with a flap on the side when not in use.

## Back protection

The Hawaii is equipped with a new Ginsoft R back protector with 17cm thickness. A hard foam layer to protect the protector against punctures is integrated into the Hawaii harness. The back protector is divided into separate compartments, to prevent air being dissipated too rapidly in the event of a hard impact.

The Ginsoft R is designed to protect the pilot in case of an impact and to reduce the energy of the impact as much as possible, but it cannot completely eliminate the risk of injury.

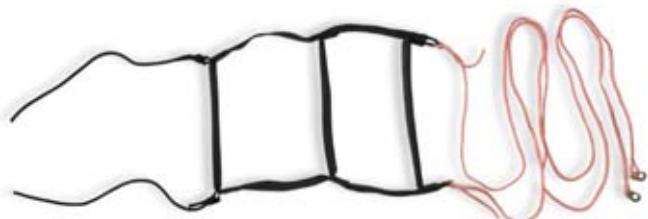
## Aerocone Inflatable Fairing system (AIF)

The Aero-cone maintain the aerodynamic shape when the air goes in through the air inlet on each side. The Aero-cone can be attached or removed with the zipper and the velcro for the storage or transportation. The Hawaii also can be flown without the Aero-cone.



## Speed bar

The Hawaii is compatible with all common types of speed systems. The Hawaii is supplied with a 3 step speed bar that allows more accurate speed control for acceleration.





## Cockpit

The Cockpit remains comfortable during take off due to its direct connection to the shoulder straps of Hawaii. The angle of view is automatically adjusted and remains optimally positioned through all positions in flight.

This Flight Deck is also compatible with all other common types of harness.



## Optional Extras

The following items are available as optional extras.

### Rescue parachute

The Hawaii is designed for use with MAC PARA rescue parachutes, like the Aegis. Other manufacturers' rescue systems may also be used. Every first installation of a rescue system into the harness (that means every new combination of harness and rescue system) must be checked by a qualified paragliding professional. This is called a "compatibility check". In this compatibility check the pilot himself, who will be flying with this harness, must always sit in the harness hanging on a simulator and deploy the rescue from the harness container. This check must also be done each time after the rescue has been repacked and re-installed.



## Other Accessories

For up-to-date information on additional accessories, visit [www.macpara.com](http://www.macpara.com) or contact your local MAC PARA dealer or the distributor in your country.

## Before you fly

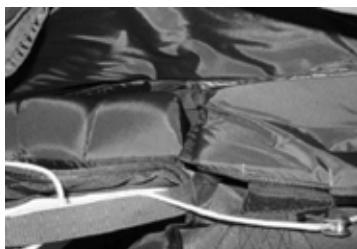
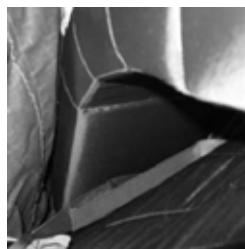
The Hawaii must be assembled by a suitably qualified paragliding professional, for example your instructor. In particular great care and attention must be paid to the fitting of the rescue parachute in the harness. The pilot should then adjust the harness for comfort.

## Assembly

Hawaii is delivered with the back protection, speedbar and the aero-cone already installed from the factory. But when it is necessary to assemble the harness by yourself, MAC PARA recommend that assembly be carried out in the order below. If there is any doubt whatsoever about this procedure, please seek professional advice from your instructor, MAC PARA dealer or importer.

### Back and Lateral Protection

When you receive the Ginsoft R it may be folded in two. Please let it lay open for several hours before you install it in the harness. To install it, open the zipper on the opposite side to the rescue bridle cover and slide the Ginsoft 17 back protection inside. It needs to slide into the space underneath the seat plate and behind the back support. Do not put it underneath the cross straps in the back of the harness. Attach the Velcro tapes to each other, which are on back of the Ginsoft 17 and on the inside of the Hawaii. The protection should be not compressed in normal use and should not hamper the space of the rescue or move into an incorrect position.



### Rescue Installation

The Hawaii is compatible with MAC PARA rescue parachutes. Other manufacturer's rescues may be used as well, but as already mentioned earlier in this manual:

Every first installation of a rescue system into the harness (that means every new combination of harness and rescue system) must be checked by a qualified paragliding professional. Prior to the installation, you should also ensure that you have the necessary materials to complete the procedure, for example, suitable maillons and thread.

Rescue parachutes should be repacked at least once every 6 months or as recommended by the manufacturer of your reserve; so installing your rescue in a new harness may also provide a good opportunity for a repack. Check your rescue manual for further details.



## To attach the rescue bridle to the harness webbing

A Maillon Rapide type connector is recommended. The connector should be rated at least 15 times the maximum weight, for example, a 7mm Stainless Steel square Maillon – 3125 Kg - provides a suitable connection.

**The Maillon should be held in place with rubber bands, tape or plastic heat shrink tube.**

Webbing to webbing connections are not recommended, due to the potential danger of friction and melting of the webbing during a deployment, which would significantly weaken or even cut the connection.

## Attaching rescue deployment bag to the harness deployment handle

The rescue container of the Hawaii comes with its own deployment handle. This handle and its strap must be connected to the deployment bag of the parachute. Connect it with the loop at the side of the deployment bag when installing it into the Hawaii harness. If your parachute's deployment bag does not have the proper loop, please contact your parachute dealer or a qualified professional to attach the deployment handle by sewing or to add a new loop in the correct position on the deployment bag.



In any case a qualified professional must check the compatibility of the system; harness and rescue parachute, when a rescue parachute is installed for the first time. After every repack of the rescue parachute you can do this compatibility check yourself. Please observe carefully how the professional installs the rescue system, so that you can remember the procedure when you have to do it yourself the next time.

This compatibility check - that means to test if the rescue can be released from the rescue container in the harness - must be done by the pilot himself, sitting in the harness hanging on a simulator. It must be done after every repack of the rescue parachute to be sure that the rescue can be released without problems in case of an emergency



## Rescue Installation guide

Take special care: The deployment handle must be attached to the side loop on the deployment bag, not to the centre loop.





## Speed system

The speed system should be connected from the seat end upwards. Pass the speed bar line from the foot end, through the seat pulley, under the side straps, through the big pulley and up through the slot in the neoprene, adjust the length and tie the line to the hook. Be careful that the lines run freely and are not tangled.

## Adjustments

The Hawaii should be adjusted to suit your physique and flying style. It is important to adjust it correctly to ensure you can easily slide into the sitting position after take off.

Adjustments should ideally be tested by hanging on a simulator prior to the first flight. Additional fine-tuning can be done during your first few flights.

Ensure that the rescue system, back and side protection have been installed before making adjustments.

Height of main attachment points above seat plate varies from 41 up to 43 cm depending on the size of the harness.

## Shoulder straps

The optimum setting for the shoulder straps depends on the height of the pilot. Stand upright with the chest/leg straps closed and symmetrically adjust the shoulder straps until they are just tight. To loosen the shoulder straps, pull the narrow webbing loop that protrudes backwards from the neoprene buckle cover on the shoulder strap. The shoulder straps don't slip down thanks to an auxiliary strap with a plastic clip. A well-designed back pocket system enables easy assembly of the harness and packing in a rucksack.

## Lateral straps

The lateral straps adjust the angle between the thighs and the back. This angle can be set between 110° and 130°. Lengthening the straps increases the angle and vice-versa. The easiest way to adjust them correctly is during a flight in calm air. Remember that flying in the "supine position", that means leaning back, reduces the stability of the harness and increases the risk of twisting after an asymmetric deflation.



## Seat adjustment straps

The seat adjustment straps allow you to adjust the depth of the seat. You can control the angle of the seat in the seating position with the straps close to the side pockets. To get the optimum setting you can loosen these straps to the maximum in the sitting position and start pulling the straps until you get the comfort from the back support depending on the flying style of the pilot.

## Side straps to control angle of seat

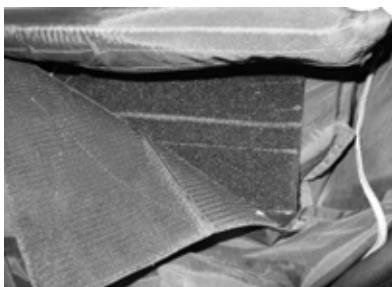
Side straps to control angle of seat The seat adjustment straps allow you to adjust the angle of the front seat. You can control the angle of the seat in the seating position with the straps beside the seat. To get the optimum setting you can loosen these straps to the maximum in the sitting position and start pulling the straps until you get the comfort from the leg support depending on the flying style of the pilot. Don't tighten this strap too much; otherwise you take the load from the main straps. In this case the strap can slip out or break out of the material during flight.

## Leg straps

The correct adjustment of the leg straps allows the pilot to easily reach the sitting position after take-off without using his hands. In the standing position, use the buckles under the chest strap to adjust the leg straps so that they fit comfortably without being tight; make sure you do it symmetrically. If it is necessary to lengthen the leg straps, first check that the shoulder straps are not too tight. It is not normally necessary to make large adjustments from the default leg strap setting.

## Side straps to foot support

These straps help you to adjust the angle of the foot support and give support for your legs on long flights. They also help you to feel more feedback from the glider by feeling the gliders movements. To adjust these straps you first must adjust the length of the fabric which is under seat attached with the Velcro. You may need some assistance to save time to get the correct adjustment. For best results the 4 straps at each side of the harness should be pulled at the same time, pull the upper straps to raise the angle of the legs and pull the lower straps to lower the angle of the legs depending on the flying position of the pilot.





## Chest strap

The adjustment of the chest strap controls the distance between the carabiners and affects the handling and stability of the glider. Widening the distance between the carabiners increases feedback from the wing and allows for easier weight shifting. Closing the strap gives you a more stable feeling in turbulence but increases the risk of stable spiral and also the risk of twisting!

We advise pilots of MAC PARA paragliders to fly with a distance between the carabiners of approximately 44 to 48 cm.

The chest strap may also be adjusted in flight according to the conditions; for example, it may be tightened in turbulent air and flown at a looser setting in more stable or weak conditions.

## Speed bar

Hanging on the simulator, adjust the length of the speed bar cord so that the bar hangs at least 15cm below the front of the harness. Making the cord too short could result in the speed system being constantly and unintentionally engaged during flight. It is safer to start with the speed bar a little long and shorten it following your first flights. Test the speed bar in flight only after you are comfortable with your new harness, and always do so in calm conditions with ample clearance above the ground.



## Flying with the Hawaii

### Pre-flight checks

For maximum safety, use a complete and consistent system of pre-flight checks and repeat the same mental sequence every flight.

#### Check that:

- There is no visible damage to the harness or carabiners that could affect its airworthiness. The rescue parachute container is closed correctly and the pins are in the right position. The deployment handle is completely inserted into the elastic pockets.
- All buckles, belts, zips are securely fastened. Buckles should click into place as you close them, and a gentle pull on the fastened buckle verifies this. Secure any zips after fastening the buckles. Take extra care in snowy or sandy environments.
- The paraglider is connected correctly to the harness and both carabiners are secured by their locking mechanisms.
- The speed bar is attached correctly to the glider.
- All pockets are closed properly and any loose items are tied down safely. Check the Aerocone air intake is open and free from obstruction.
- Check again that you have closed your leg and chest straps before you take off!

### Take off with Hawaii

Check that the cocoon straps are loose enough so that you can put your legs inside the cocoon without any problem after take off. Fasten the straps during flight in calm conditions.





## Rescue Deployment

It is vital to periodically feel the position of the rescue handle in normal flight, so that the action of reaching for the rescue handle is instinctive in an emergency.

In the event of an emergency, the pilot must quickly evaluate his or her height and the seriousness of the incident. Deploying the rescue when the glider is recoverable may increase the danger of injury. If you have sufficient height and the glider is in a flat spin, it is preferable to first try to stop the spin (e.g. full stall), due to the risk of entanglement. On the other hand, a second's hesitation in deploying the reserve could prove costly if there is insufficient height.



If the rescue is to be deployed, the procedure is as follows:

- Look for the rescue handle and grasp it firmly with one hand
- Pull sideways / upwards on the handle to release the deployment bag from the harness container
- Look for a clear area, and in a continuous motion, throw (and RELEASE!) the rescue away from yourself and the glider, preferably into the air stream and against the direction of spin
- After deployment, avoid entanglement and pendulum motions by pulling in the glider as symmetrically as possible with the B, C, D or brake lines
- On landing take an upright body position and be sure to do a PLF (Parachute Landing Fall) to minimize the risk of injury

## Storage/Pockets

The Hawaii contains a large back pocket and smaller side pockets. They are positioned to prevent contents from falling out during flight if the pocket is opened. There is also a radio compartment inside the back pocket and a hole to pass the cable through for a handheld speaker-microphone or a Camel Bak.



## **Landing with the Hawaii**

Before landing, slide your legs forward in the harness so that you adopt the standing position. NEVER land in the sitting position; it is very dangerous for your back even if you have back protection. Standing up before landing is an active safety system, and is much more effective than the passive system of back protection.

## **Miscellaneous**

### **Towing**

The Hawaii is ideal for towing. The tow release system is placed in main karabineers or at the lower end of risers. Read the instructions in the user manual for your tow release and the tow adapter or ask for help your flight instructor who has experience with paraglider towing.

### **Tandem flying**

The Hawaii is not recommended for tandem flying.

### **Flying over water**

The Genie Race is not recommended for the extreme manoeuvres. But in any case all other flights over water, the back protection should be removed, due to the increased possibility of drowning after a water landing.

### **Behaviour in the nature and preservation of flying site**

Please observe the local rules at the respective flying site which you use. This is important not to endanger the preservation of flying sites which are necessary to maintain the possibility to execute our beautiful sport.

## Care, Maintenance and Repairs

The materials used in the Hawaii have been carefully selected for maximum durability. Nevertheless, keeping your harness clean and airworthy will ensure a long period of continuous safe operation.

### Care and Maintenance

Avoid dragging your harness over rough or rocky ground.

Unnecessary exposure to UV rays, heat and humidity should be always avoided. Keep the harness in your rucksack when not in use.

Store all your paragliding equipment in a cool, dry place, and never put it away while damp or wet.

Keep your harness as clean as possible by regularly cleaning off dirt with a plastic bristled brush and/or a damp cloth. If the harness gets exceptionally dirty, wash it with water and a mild soap. Make sure you first remove all the sub-components: seat board, back plate, back protection, rescue parachute etc. Allow the harness to dry naturally in a well ventilated area away from direct sunlight.

If your rescue parachute ever gets wet (e.g. in a water landing) you must remove it from the harness, dry it and repack it before putting it back in the container.

After a hard landing you must check your back protection for damage. A tear in the Ginsoft R protection could significantly reduce the efficiency of the protection it provides.

The zips and buckles may be occasionally lubricated with silicone spray, no more than once a year.

When storing the AIF system, insert the cardboard tubes supplied with the harness, or something like foam or your gloves, into the air intake to maintain their shape. The Aerocone air intakes are made from plastic and it is important to take good care of them. Do not forget to remove the obstruction before flight.

### Inspection checklist

In addition to regular pre-flight checks, the Hawaii should be inspected thoroughly on every rescue repack, normally every 150 days. Additional inspections should be performed after any crash, bad landing or take off, or if there are any signs of damage or undue wear. Every 2 years or 200 hours your harness has to be inspected from your dealer or a professional repair shop. Always seek professional advice whenever in doubt.

The following checks should be carried out:

- Check all webbing, straps and buckles for wear and damage, especially the areas that are not easily seen, such as the inside of the carabiner hook-in points.
- All sewing must be intact and any anomalies attended to immediately to avoid exacerbation of the problem. Special attention should be paid to the rescue installation, particularly the elastic and Velcro parts.



- The seat and back plates must be free from cracks.
- The main carabiners must be replaced if they have suffered any damage no matter how slight. Impacts may create undetectable cracks that could result in structural failure under continuous load.

## Repairs

The manufacturer or an approved specialist should carry out any repair that involves critical parts of the harness. This will ensure that the correct materials and repair techniques are used.

Contact your dealer to buy a replacement AIF system if your's becomes damaged or worn after use.

## Environmentally friendly disposal of the harness

When this paragliding harness cannot be used any longer after an extended period of life time, then you must ensure that it will be disposed in an environmentally friendly way. Please observe the existing regulations and laws in your country.

## CHECKS

Hawaii harness must be checked at least every 24 months.

Name	Company	Date	Signature & Stamp

# Technical Data

## Specification

Size	S	M	L
Pilot Height (cm)	Below 170	170~180	Over 180
Height of main attachment points above seat plate (cm)	41	42	43
Weight (without parachute) Kg	8.1	8.4	8.6
Carabineer Distance	35-55 cm		
Parachute Container	Integrated container underneath the seat plate		
Back protection	Ginsoft R – 17 cm Foam protector		

Certification : Type testing Report confirmation EN 1651:1999

Hawaii harness: Nr. EAPR-GZ-7373/11

 <p><b>Musterprüfungsbescheinigung gem. LTF 91/09</b> Type Certificate under LTF 91/09</p> <p>Von Luftfahrtgerätekonsortium Nr.: EAPR-GZ-7373/11 Aussteller: <b>MAC PARA</b>, A-10 "Hawaii" 116 Rossaustrasse, 1160 Wien, Oesterreich</p> <p>Die nachstehend beschriebene Luftfahrtgerätekonsortium ist als Muster geprüft worden. Dieser Musterprüfung ist auf Grund der bestehenden Bedürfnisse des Musterprüflinge in den am Tag der Ausstellung gegebenen Ausführungen.</p> <p>Das unterschlagene Dokument entspricht dem Musterprüfungskriterium unter der Bezeichnung "Requirements of the Type Certificate" (siehe Seite 10).</p> <p>(Die Musterprüfung gilt gemäß ausgestrahlter Erteilung ihrer Bewilligung und Leistung (BBL). Das Type-Certificate ist nur eine Übereinkunft mit dem Aussteller und somit nicht in der Dokumentation oder anderen technischen Dokumenten verbindlich.)</p> <p>1.8.-11.01.2011 Bewilligung der Luftfahrtgerätekonsortium ausgestellt von: <b>Hawaii</b> Unterschrift: Gleichermaßen Gültig für eine Person Prüfungsergebnis siehe unten</p> <p>Die Musterprüfung kann in einem von der Musterprüfung eingesetzten Flügel, die in den Nachdruck zur Musterprüfung beschreiten und weiterleiten werden.</p> <p>The Type-Certificate may be issued by the assessing agency. It must be left in the Name of the responsible organization, which may issue a copy to another agency.</p> <p>Bei Unterschrift, am 11.01.2011 Durch den Aussteller: </p>	 <p><b>Type Report nach EN 1651:1999</b> Type Testing Report under EN 1651:1999</p> <p>Von Luftfahrtgerätekonsortium Nr.: EAPR-GZ-7373/11 Aussteller: <b>MAC PARA</b>, A-10 "Hawaii" 116 Rossaustrasse, 1160 Wien, Oesterreich</p> <p>Die nachstehend beschriebene Luftfahrtgerätekonsortium ist als Muster geprüft worden. Dieser Musterprüfung ist auf Grund der bestehenden Bedürfnisse des Musterprüflinge in den am Tag der Ausstellung gegebenen Ausführungen.</p> <p>Das unterschlagene Dokument entspricht dem Musterprüfungskriterium unter der Bezeichnung "Requirements of the Type-Certificate" (siehe Seite 10).</p> <p>Die Musterprüfung gilt gemäß ausgestrahlter Erteilung ihrer Bewilligung und Leistung (BBL). Das Type-Certificate ist nur eine Übereinkunft mit dem Aussteller und somit nicht in der Dokumentation oder anderen technischen Dokumenten verbindlich.)</p> <p>1.8.-11.01.2011 Bewilligung der Luftfahrtgerätekonsortium ausgestellt von: <b>Hawaii</b> Unterschrift: Gleichermaßen Gültig für eine Person Prüfungsergebnis siehe unten</p> <p>Die Musterprüfung kann in einem von der Musterprüfung eingesetzten Flügel, die in den Nachdruck zur Musterprüfung beschreiten und weiterleiten werden.</p> <p>The Type-Certificate may be issued by the assessing agency. It must be left in the Name of the responsible organization, which may issue a copy to another agency.</p> <p>Bei Unterschrift, am 11.01.2011 Durch den Aussteller: </p>
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Every effort has been made to ensure that the information in this manual is correct, but please remember that it has been produced for guidance only.

This owner's manual is subject to changes without prior notice. Please check with [www.macpara.com](http://www.macpara.com) for the latest information regarding the Hawaii and other MAC PARA products.



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