

EN



Energy SP

MANUAL

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VERSION 1.0/2015 ©

Verification of Checks and repairs

<p>ENERGY SP</p> <p>Serial number:</p> <p>First check by ICARO / date:</p>	<p>.....</p> <p>Name/ Stamp</p>
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Check (C) Repair (R)	Which repair/ Check? Check valid until?	Performed by/ date

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Congratulations on buying your
ENERGY SP
harness and welcome the family
of ICARO - pilots!

Before you get to know your system please read the manual, there is important information inside.

This manual gives you information on the entire specific and general characteristics of the harness.

All technical data and instructions in this manual were drawn up with great care. ICARO Paragliders cannot be made responsible for any possible errors in this manual.

Should you decide to sell this harness at a later date, please pass on this manual to the new owner.

No guarantee of any kind can be made against accidents, injury, equipment failure, and/or death. It is assumed that the pilot is in possession of the necessary qualifications and provisions of any relevant laws are observed.

The use of this harness is entirely at your own risk.

Every pilot bears the responsibility of his/her own safety. The manufacturer or distributor assumes no responsibility for accidents occurring while using it.

Do not fly unless you are personally willing to assume all risks inherent in the sport of paragliding and all responsibility for any property damage, injury, or death, which may result from use of this sport.

Your harness is made with great care and state of the art, tested according European Standards EN 1651:1999¹, and Notification of the Federal Aviation Administration of Germany² Is pattern tested as harness with foamed rubber protector is suitable for training and tandem flying.

It is strictly prohibited to fly the harness

- ***with damaged carabines, belts, buckles or protector***
- ***outside the specified weight range***
- ***in aerobatics***

All technical data and instructions in this manual were drawn up with great care. ICARO Paragliders cannot be made responsible for any possible errors in this manual.

Important information in this manual is written in ***fat cursive writing***.

¹ *Harnesses -Requirements and test methods*

² *„Directives about airworthiness for hang- and paragliders (LTF NfL II 91/09)“.*

Any important changes to this manual will be published in our homepage (www.icaro-paragliders.de).

Should you decide to sell this harness at a later date, please pass on this manual to the new owner.

Each alteration is dangerous and reactions are not predictable. Your harness will lose its pattern test result and guarantee.

The manufacturer or distributor assumes no responsibility for accidents occurring while using it.

Every pilot must ensure that the harness is properly checked at regular intervals.

Environmental aspects:

The materials of which a harness is made require a special waste disposal. So please send disused ICARO - harnesses back to us. We will care about a professional waste disposal without costing for you.

Please do our nature-near sport in a way which does not stress nature and environment!

Please do not walk beside the marked ways, do not leave your litter, do not make unnecessary loud noises and respect the sensitive balance in the mountains.

Especially at the launch site consideration is needed!

To get to know your Your ENERGY SP

Allowed for training	yes
Allowed /certified for aerobatics	no/ no
Allowed /certified for flying with passengers	yes/ not tested
Allowed /certified for towing	yes / not tested
Allowed /certified for flying with motor drive	no / not tested

Technical data			
Designated use	Harness for paragliders, pattern tested GH		
Size	S	M	L
Total weight without rescue system (kg)	3,9	4,2	4,5
Maximum loading (kg)	120		
Type of protection	Self-inflating airbag, seconding by a spring and additional a 3cm foamed protector		
Reserve parachute	Integrated container under the seat with handle on the right side		
Check interval	24 month		

		Gewicht in kg													
		45	50	55	60	65	70	75	80	85	90	95	100		
Größe in cm	155													5'1"	Height inches
	160	S												5'3"	
	165													5'5"	
	170			S or M										5'7"	
	175						M							5'9"	
	180													5'11"	
	185							M or L						6'1"	
	190											L		6'3"	
	195													6'5"	
		99	110	121	132	143	154	165	176	187	198	209	220		
		Weight Lbs													

With the ENERGY SP it is launched a new concept in spinal protection which is defined as a self-inflating airbag. The innovation of this self-inflating system lies in the use of a steel light which does not serve the purpose of protecting from impact, but generates the force needed to expand the airbag and make it immediately ready for potential impact. This means that your protective capacities are at 100% before you even start your take-off run, and that they remain as such for the entire flight, until you fold up the harness to stow it in the rucksack.

The light also guarantees a consistent form for the airbag and therefore performance over long periods of time, in any humidity, temperature or prolonged storage in the rucksack. Light weight and reduced volume (once the harness is folded) are two more advantages provided by the self-inflating light system. This

system combines the best characteristics of current protection systems (airbag and foam protection).

Side protection is available as an option to protect the pelvis. The two side protection pieces are connected to one another and made in a single piece which prevents shifting during impact.

In order to prevent the pilot from coming out of the harness if he forgets to fasten the leg-straps, the harness is equipped with the most effective safety system. The ENERGY SP is provided with a big rear bag and two side pockets. All equipment not needed during can be placed in the rear bag. Bothe pockets are closed with a zip so that nothing can fall out during flight.

Speed system

All necessary deflection pulleys to install the speed system are mounted. The rope guide was chosen to provide easy and comfortable use of the speed system also for longer periods of time.

Put the ropes which are attached at the foot bar through the rings at the front right and left of the harness from the outside and then through the eyelets on the side.

Afterwards put the ropes which are now running inside the harness through the pulley which can be found at the left and right of the sitting board.

The ropes which have been put through the eyelets and the pulley need to be bypassed on the outside along the harness bands and fastened with the brummel hook.

Adjust the length of the rope in this way that both legs are straightened completely when flying maximum speed (both pulley of the risers are laying on top of each other).

Please pay attention that the glider will not be pre-accelerated, while the accelerator is loosened, when the acceleration ropes are set too short.

At the start we advice to fix the accelerator with the Velcro which is attached at the front of the sitting board, in order to avoid tripping while pulling up the glider or when starting up.

The description refers to the rope characteristics of an ICARO harness. When using a different harness the application can be different.

Before starting the brummel hook (foot accelerator-glider-riser) are stuck together. When flying normal all risers have the same length. When using the accelerator system the risers A, B and C are shortened by a constructive exactly defined length and therefore the angle of attack of the canopy is smaller. The length of the D-riser however is not changed. This causes a reduction of the angle of attack of the whole glider and results to an increase of speed.

Adjustment of ENERGY SP

The harness can be adjusted in many ways to the individual needs and likings of each pilot. We advise each pilot to take time to get acquainted to the harness. This will reward the pilot with an excellent sitting comfort. To carry out the adjustments we advise to hang the harness in a simulator.

Conduct the adjustments with the rescue system installed.

Adjustment of shoulder straps

Shoulder-strap adjustment enables the harness to be adjusted to the pilot's height. The adjustment buckle is situated low down, near the rear edge of the seat. The shoulder-straps also support part of the torso weight to improve comfort.

After that you have determined the correct position for the seat and back, adjust the shoulder straps so that they are in contact with your shoulders, neither too loose nor too tight.

Adjustment of leg straps

Pull the leg straps tight before starting, but make sure they do not cut in or squeeze.

Due to a special design the leg straps will not hinder your running at the start. Because they are tied tight, the front of the seat is lifted up and helps you getting into the harness.

By slipping back in the gear, the leg straps loosen a bit after start.

Adjustment of chest straps

The adjustment of the harness chest strap controls the distance between karabiners and affects the handling and stability of the glider.

Excessive tightening the chest strap increases stability but also the risk of twists following glider collapse, and it also increases the frequency of getting collapses due to poor feedback from the glider.

The risk of twisting is also strongly affected by the seating position of pilot. Flying in a laid back (reclined) position makes it much more difficult to react in time to prevent riser twisting.

With the chest strap in a more closed position the glider also has more tendency to maintain a stable spiral, lengthening of the chest strap gives more feedback from the glider but decreases stability.

ICARO paragliders recommends following settings:

Take off weight	< 80kg	80 kg -100 kg	> 100kg
Horizontal distance of the main karabiners	38 cm – 42 cm	42 cm – 46 cm	46 cm – 50 cm

Seating position and back adjustment:

In this photo you can see how the back and seat depth adjustments are each subdivided on two points.

The adjustment that allows you to select the inclination of the torso with respect to the vertical flight axis is No. 1.

Adjustment No. 2 varies the angle between the legs and the back (seating depth), distributing the loads between the seat and the lumbar, thereby providing the pilot with greater comfort.



Stabilizer

This small but important adjustment makes it possible to stabilize the harness when you exert pressure on the speed-bar, preventing excessive tilt of the back.

Its mode of operation is very simple: when you push the speed-bar, this small plastic buckle blocks the shoulder-straps at the point at which they slide in the chest strap, making the entire strap system more rigid and improving overall harness stability.

This adjustment is correctly set by the manufacturer.



Each setting the harness must be done with mounted protector, rescue system and be symmetrical on both sides.

Mounting the camelbag

The harness is installation-ready for a camel-bag. Position your camel-bag in the container pocket located in the rear pocket.

Pass the hose through the hole which is already predisposed at the top left of the rear pocket, pass it under the Lycra cover of the left shoulder-pad and bring it out the front from the specific hole as shown in the photo.

Relax bar (optional)

A relax-bar can be fitted to all our harnesses, except for those already incorporating this accessory. The relax-bar is used to keep the legs stretched out and the feet resting on a support. Some pilots consider this flying position as more comfortable than the classic seated position with legs hanging.

To attach the relax bar to the harness, follow the instructions provided in the relax-bar instruction manual.

Installation of the side protection (optional)

ENERGY SP provides the possibility of installing a side protection developed specifically for this harness. To install it you must lift the harness seat in order to create the space to work through (photo 1).

Remove the standard protection positioned under the seat in two special bags (photo 2). Use the same housing to introduce the side protection once arranged in the two central bags (photo 3), introduce the side ends of the protection in the elastic bags located on the sides (photo 4).

Restore the seat to its original position.



Fitting the rescue system

The housing for the reserve parachute is below the seat in the front part of the harness. The container is large enough for most reserve parachutes on the market today. The reserve parachute has to be linked to the harness before it is inserted into the built-in pocket. This connection takes the form of a dual bridle fixed to the harness at shoulder height, for better load distribution and to ensure a correct landing position in the case that the reserve parachute is deployed. This helps reduce the risk of injury to a minimum.

The reserve chute bridle has a large central loop colored red, and this is reinforced with a cover in Cordura 500. At the extremity of the loop, there is a Velcro band which enables the link with the reserve parachute to be held firmly in position.

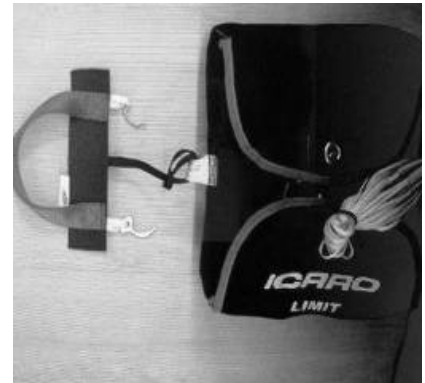
ENERGY SP is supplied with a handle for reserve parachute extraction. It is identified with the number 6; this handle alone should be used for this purpose.

Connecting the deployment handle to the float bag

The black loop attached to the handle itself should be passed into the loop on the deployment bag, and then the entire handle should be passed through its own loop and pulled tight.

For easier extraction, the loop attached to the deployment bag should be positioned laterally with respect to the centre of the reserve parachute.

If your deployment bag does not have this loop, please contact the retailer from whom you purchased the reserve parachute.



There are three different methods of attaching the reserve parachute bridle to the harness bridle.

First system

Use a screw-lock karabiner with a breaking strength of at least 2,400 kg. In this case, the bridles should be held in position within the karabiner using elastic bands, to prevent the karabiner from rotating and taking the strain laterally instead of vertically.



The karabiner's screw-lock should be tightly screwed shut to avoid any possibility of it opening accidentally.

This type of connection can absorb a higher opening shock than the second system, and for this reason this is without doubt the recommended system.

Second system:

The reserve parachute bridle is passed through the loop at the end of the harness reserve parachute bridle.



The reserve parachute itself is then passed through the large loop in the reserve parachute bridle.



This connects the two bridles. The loops should be pulled as tight as possible to avoid any chance of dangerous friction developing between the two bridles during the shock caused when the reserve parachute opens.



To ensure that the link between the two bridles remains tight, remember to fasten the knot using the Velcro strip on the harness reserve parachute bridle.

Third system

If you are using a reserve parachute with directional control and dual bridle, or if your reserve parachutes in any case has a double-riser bridle,



It can be connected to the harness using the two loops positioned at the base of the harness bridle, near the padded shoulder straps. In this case, the harness' reserve parachute bridle will not be used, and so it should be folded, fastened using two elastic bands, and positioned under the cover behind the pilot's neck.



The two connections should be made using screw-lock karabiners with a breaking strength of at least 1,400 kg. In any case,

It is important to verify that the length of the bridle is sufficient to position the reserve parachute inside the harness pocket, and that there is sufficient play to enable the parachute to be taken out of the pocket without causing the reserve parachute deployment bag itself to open during extraction.

To prevent anomalous lateral loads, the bridle should be attached to both the loops on the shoulder straps. Not to just one of them.

Inserting the reserve parachute:

Insert the parachute in the harness container with the handle visible toward the outside and with the handle coupling loop to the float bag facing upward. Immediately position the handle in its specific housing. Introduce a thin rope



(paragliding funicular strip type) into each elastic loop which you will use to help close the container.

Introduce the elastic loops into the smallest of the eyelets on the flaps of the container. Take the bridle cover zip all the way to the right to then close it, moving the zip about 20 cm leftward.



Then begin to close the various parachute container flaps, following the progressive order in the photographs, taking care during this phase that the zip does not open back up at the right end.

Introduce the handle's metallic pins into the elastic loops and under the transparent cover. The cord must absolutely be removed at the end of this phase, and must be extracted slowly in order to avoid damaging the elastic loops due to excessive friction between the parts.

In the end the zip should be completely closed until introducing the zip pull under the cover behind the left shoulder-strap.

Remove the cords used to help pack the rescue system!

In order to avoid unwanted release of the rescue system, the closing splint must be held with a special thread (50 N) which is made with certified material.



This special thread can be purchased from ICARO.

A higher breaking force could otherwise endanger the release of the rescue system! After installing the first rescue system it is essential to conduct test activation (in flight position, sitting in the harness).

Compatibility- check

A control of every new combination of rescue system and harness/outer container has to be carried out by either the producer of the harness or the rescue system or an authorized person (dealer or flight instructor). The activation of the rescue system in flight position has to be correct and in conformity to the construction guidelines.

The check has to be recorded in the documentation of the rescue system. The throwing movement should be practiced every time the rescue system is repacked.

IMPORTANT POINTS TO LOOK OUT FOR:

☞ Check (steady)

- connection of the rescue system to your harness
- connection of the harness and deployment handle
- the closing splint must be held with a special thread
- aluminum karabiners; aluminum might get micro cracks from impacts during use

☞ line from the fixing loops is removed (after each packing)

☞ Check compatibility of rescue system and harness

☞ Before each start with your glider you have to check the container is closed!!!

Flying with the ENERGY SP

Flight Preparation

It is important to perform a pre flight check before taking off. Please give the following points your special attention. Check your harness and make sure that all connections to pilot are correctly closed. Check that all karabiners are closed and can not be opened accidentally in flight and that the risers are not twisted.

The harness is very well suited for tandem flights. It can be used both for the pilot and the passenger. Due to its special construction, it allows a maximum freedom of leg movement, which makes the start easier for the pilot and the passenger.

The passenger should not have a rescue system in his harness to avoid unwanted activation of the rescue system.

The harness is also very suitable for towing. For this you either need a towing attachment or two screw-in trapeze shackles. The towing attachment is available from specialized dealers and is mounted to the main karabiner with the straps. The trapeze shackles are available from flight schools and should be placed at the chest belt between the shoulder belt and main suspension. The towing link is attached to this.

Care instructions, repairs, inspection

Care Instructions

Packing the harness is similar to all the other harnesses with the only difference being in folding the rear part of the airbag which, in order to keep it intact, should be folding last above the rear part of the harness.



To maintain your harness in good condition, please ensure that the harness does not get dragged along the ground, the karabiner does not get hit against rocks and avoid over exposure to sunlight, heat or humidity.

If you wish to clean your harness it is best to use warm water and a soft sponge.

Store your harness in a dry and dark place, ideally between 5° and 30° Celsius. Do not store it near chemicals or petrol.

If you will not fly for longer period, take it out of its pack.

Avoid storing your harness for days at a time in a hot car.

If the harness has become wet, lay it out so that air can get to all areas of the fabric, also your second chance.

It may take several days for your harness and your rescue system to dry out completely especially the lines of the rescue system, which take longer than the fabric. Do not fold and store your rescue system prematurely if it not completely dry. Mildew may damage your harness and your rescue system.

Repairs

The seal of approval can only be preserved if original parts are used. If you discover any damaged parts to the harness which might impede deployment, please end it back to the manufacturer to be repaired.

Repairs can only be carried out by the manufacturer or from the manufacturer authorized persons.

The aluminum karabiners should be changed every two years at the latest as the aluminum might get micro cracks from impacts during use.

Inspection

After 24 months, it is important to have your harness inspected by a trained ICARO technician.

Without regular certified inspections, your harness will lose its certification and guarantee.

Only an authorized technician who has been trained by ICARO paragliders is authorized to sign and date the harness certification label and sign the manual.

Terms of guarantee

ICARO paragliders guarantees 24 month for the proper processing, an operation within the allowable limits of proper operation and the fulfillment of the eligibility criteria of harness equipment at the time of first delivery by ICARO paragliders.

Guarantee is only guilty for ICARO products with LTF/ EN certification ³.

What is covered by the guarantee?

Provided that ICARO paragliders accept the fault the guarantee contains all necessary spare parts related to the replacement or repair of defective parts and working time.

ICARO paragliders accept no freight costs (outbound and return transportation).

What are the conditions of the guarantee?

Provided that ICARO paragliders accept the fault the guarantee contains all necessary spare parts related to the replacement or repair of defective parts and working time.

- ICARO paragliders needs to be informed immediately after the discovery of a defect and the defective product must be sent to us for testing.
- The harness was used in normal circumstances and maintained according to the instructions. This includes in particular the careful drying, cleaning and storage.
- The the harness were used only within the applicable guidelines and all rules have been complied with all times.
- All flights must be accounted for within the flight book.

³ - EN 926-1 und EN 926-2 for gliders, EN 1651 for rescue systems , EN 12491 for harnesses, all at the time guilty version
- LTF/ NfL II 91/09 und NfL 2-60-14

- There were only original spare parts used and checks, exchange and / or repairs were conducted by an authorized dealer or by ICARO paragliders company / person and properly documented.
- A fully and correctly completed guarantee card must be sent at least 6 weeks after buying the glider to ICARO paragliders commercial. Alternatively can this be sent via the appropriate online form on www.icaro-paragliders.com.

What is excluded from guarantee?

- Harnesses
 - that are used for training purposes, Acro or other official competitions,
 - which were involved in an accident,
 - which have been changed by yourself,
 - that were not purchased from an authorized dealer / flight school,
 - where the required inspection intervals were not met and the verification of the harness was not conducted by a ICARO paragliders authorized operation / person
- Damage
 - which has occurred due to improper treatment (i.e. storage in humidity, heat or direct sunlight)
 - caused by solvents, salt water, insects, sun, sand, humidity or “debag-jumps”.
 - caused by force majeure.
 - caused by the paramotor (Oil, fuel, damage in cause of the prop)
- Parts that need to be replaced due to normal wear and tear,
- Discoloration of the cloth material used,

In case of a concluded claim the period of guarantee carries on.

The period of guarantee and the connected claim are not prolonged and are only valid until the original date of expiry.

The freight costs (transport to and from) are not paid by ICARO paragliders.

Team ICARO thank you for your trust in our products.

Should you have any questions, ideas or criticism

please contact us.

This paraglider has been developed and produced by modern technology and will give you years of pleasurable and unforgettable flight experiences

PARAGLIDERS

Annex

Please fill in the guarantee card which you find on our homepage www.icaro-paragliders.com and send it to us.

Check sheet for harnesses					
Client (Name, Address):					
Type / size / year of construction :			Serial number:		
Certification number:			Date of last inspection:		
			Memos	yes	no
Seat strap system	Visible damages?				
	Areas of abrasion?				
Seat board	Visible damages?				
	Positioning of the straps ok?				
Straps	Visible damages?				
	Course of the straps?				
	Seams ok?				
Buckles and carabines	Visible damages?				
	Condition (closing properties, operation) ok?				
	main carabines (condition, age)				
	Operativeness ok?				
Protectors Airbag -/ Foamed material	Visible damages?				
	Seams ok?				
	Valve ok?				
	Tightness airbag/ foam protector sheeting?				
	Conditions of any reinforcements ok?				
Speed bar	Visible damages?				
	Fixing rubber ok??				
	Return pulleys ok?				
	Lines ok?				
Rescue system	Visible damages?				
	Identification plate ok?				
	V-lines				
	Handle fitted and connected?				
Backpack (reversible harnesses)	Visible damages?				
	Zip ok?				
	Buckles ok?				
	Seams ok?				
Compatibility check effected?			Additional repairs carried out? Which?		
Type label affixed?					
Inspection stamp affixed?					
Overall result			Next inspection:		
As new					
Very good			Next inspection when using the harness commercial:		
Used					
Much used			Date, name and signature of the checker		
certification only for one year					
not airworthy					

Dispatch protocol / Delivery content

Handle

Seat Board

Carbine

Manual

.....

Date

.....

Signature