SQUARE
light

MANUAL

Version 1/2023

ICARO Paragliders a brand of FLY & MORE GmbH
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Congratulations on buying your SQUARE light rescue system and welcome to the family of ICARO - pilots!

Before you get to know your system please read the manual which includes important information.

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

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 rescue system later, 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 rescue system 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 paraglider.

It is strictly prohibited to use the SQUARE light

- ***beyond the maximum recommended weight***
- ***with damaged canopy, lines, connection belt or seams or***
- ***without regular check (check interval).***

This rescue system was developed exclusively for paragliding, must not be used as a parachute jump and is not suitable for use at speeds of more than 32 m/s (115 km/h).

This system has been tested and found compliant using the original manufacturer´s inner container. Use of any other inner container may produce different results, including failures.

Our products are manufactured with the greatest care using state-of-the-art technology. Before delivery to our dealers and flight schools, each individual rescue device is individually tested by ICARO paragliders.

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

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

Should you decide to sell this rescue system later, please pass on this manual to the new owner.

Each alteration (lines, canopy) is dangerous, and reactions are not predictable. Your glider 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 rescue system is properly checked at regular intervals.

When our reserve parachutes leave production, they are within the permissible tolerance range. This is very narrow and must not be changed under any circumstances, as this means that the optimal relationship between performance and safety is no longer guaranteed, no longer corresponds to the type-approved rescue parachute and is therefore no longer type-approved.

Environmental aspects

The materials of which a paraglider is made require a special waste disposal. So please send disused gliders 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 **SQUARE** light

Technical data	90	110	130
Certification number	EP_343.2023	EP_344.2023	EP_345.2023
Area (m^2)	18,75	22,9	27,2
Middle line length (mm)	4660	5150	5610
Weight with Container (kg)	0,9	1,05	1,2
Volume of the packed RS (ccm^3)	2600	2900	3700
Minimum payload (kg)	60	73	87
Maximum payload (kg)	90	110	130
Sinking rate / maximum payload (m/sec)	< 5. 5		
Material	Canopy: Nylon 6.6, 22 dTEX Lines: Edelrid Dyneema / Edelrid PAD Riser: Liros Dyneema line 5 mm		
Packing interval	Min. 1 x / year		
Check interval	2 years after each use		
Operation time	Maximum 10 years, also without use		

The SQUARE light is a manually deployable rescue system, is suitable paragliding pilots in an emergency, is made by high quality light materials, has a quadratic canopy with middle line which pull down apex and is NOT STEERABLE.

Rescue systems from ICARO are characterized by a high level of reliability and maximum material strength. Fastest inflation while maintaining moderate sink rates are features of these systems.

The material is produced with air-permeable, tear-resistant, stretch-resistant fabric. There are bands sewn into the main seams to strengthen the canopy. The base and side edges are reinforced with bands. The apex is pulled. The lines are grouped into a strap. This strap generates the connection between rescue system and harness.

The rescue system is sewn to NATO standards which means that all rescue systems are sewn by professionals and delivered only after inspection and approvals.

The specially designed inner container prevents the lines cannot get caught up in the cap and the opening speed is accelerated with this inner container.

When using a different inner container is important to ensure that the rescue system can be thrown without deceleration.

What to do when it happens?

If you find yourself in an uncontrollable situation in the air pull hard on the deployment handle. This will open the outer reserve container and release the reserve parachute.

Then throw the reserve package forcefully away from you. As the suspension lines become tight, the container will fall away, and the reserve will open.

If your glider is rotating it pays to throw the reserve against the rotation as this will speed up the inflating process. If you have had a collision and find yourself

entangled with someone else's glider, try to make sure you don't throw the canopy into the entanglement, as this will delay the opening.

When you are flying recurrently grab the position of the handle so you can find it in an emergency!

If you have enough height, first try to resolve the problem and stabilize the gliderg as far as possible (danger of screwing of the bailout).

If you have not enough height don´t hesitate for pulling the rescue. Do not forget to unhand the rescue handle!

Packing Instructions

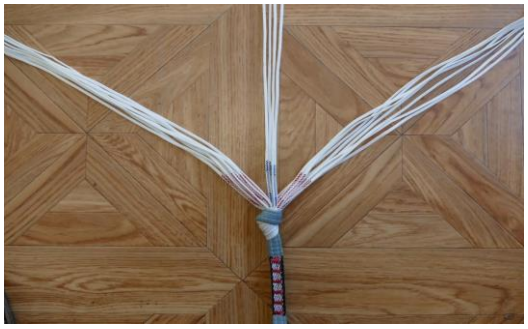
The following manual is aimed at pilots who are competent in folding modern square reserve parachutes. The manual itself cannot serve as a substitute of proper training in folding a parachute. ICARO Paragliders can ensure the safety and reliability of the system only in cases where it was packed by a trained professional who followed a proper packing process.

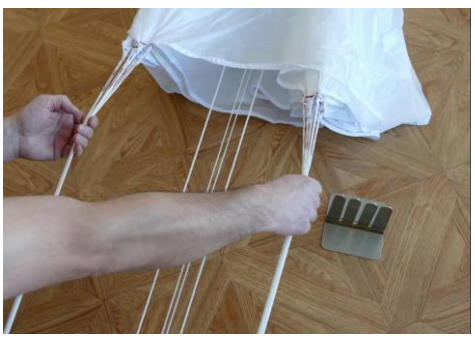
Before the packing it is necessary thoroughly inspect it:

Before repacking, the reserve chute must be aired out, ideally for 12 hours in a cool, dry room.
The packing area must be large enough, clean, level, and dry.
The reserve chute must be subjected to visual inspection and checked for damage to the canopy, the lines, the suspension points, the main riser and the screw shackle.
Make sure that the parachute lines are completely disentangled and that both the lower line and the upper of the reef knot run freely from the risers to the canopy.

1. Use a piece of line to thread the packing loops together. Do not forget the four corner loops mounted slightly further back on the panels.

2. Secure the packing loops for now and pull on the main riser and the attached loops until it is taut (no slack).





3. Ensure that the lines are free of twists and tangles - start at the bridle and work towards the parachute keeping the 'apex' lines central and the lines on either side separated. Double check that none of the lines are twisted around the 'apex' lines or each other.

4. The SQUARE light is a square rescue parachute with four corner points, so lay out the canopy with one corner at the bottom, one on the left, one on the right and one on top. Start with the first corner at the bottom and smooth the material by running your hand along it on the table

5. Pull the base from each line attachment point to the next along the seam to the side you are sorting and smooth out the crossed panel.
   A line separator and a weight will help to secure the already sorted lines.

6. Lay out the next panels in a rectangular fashion. They will be slightly easier to lay out.

7. Identify the corner that points to one of the sides. This is also to be laid out in a crossed fashion, as shown.

8. Continue with rectangular panels until the next corner is reached, which is now the uppermost one and last on this side. Make sure to leave an open channel through so that the table underneath is visible.

9. Repeat steps 4 to 8 for the second side.

10. Return to the channel and run hands along the connecting points of the middle lines until they are free of the material.

11. The extra material simply can be pushed up inside the channel as shown.
    The reason for this is to prevent the mate…. .rom burning during a deployment

12. Panel sorting is now complete.

13. Inspect the middle line towards the main riser to see if the middle line is free.

14. Fold the reserve chute with a “double-S fold “as shown and place the reserve container with the line pocket in the direction of the base/main riser.

Now place the reserve chute like a snake in the container. Take care to use the full length and width.

15. Close the first three rescue flaps and secure them with a small line loop.
    This method will avoid burns from a deployment since the bundle of lines will be released first and will not encounter the material.
16. Starting at the main riser, loop the line bundles in the shape of a figure-eight. **Use silicone-based rubber rings to fix the line bundles**. Make sure that there is no line knot in the line loop.
17. Make sure to leave approximately 30 cm free to the first figure-eight. This length is needed for the final line loop.
18. Place the line bundles in the designated line pocket inside the reserve container.
19. Secure the fourth and final rescue flap with the remaining line length (30 cm).

Your rescue system is now packed!

Use of this parachute with any alternative inner container: Speed of opening and opening shock test has been completed using the inner container supplied. Use of any other container may produce different results (including failure).
Make sure that no tools used for packing (e.g. packing cord) remain in the packed reserve.

Installing your rescue handle

Most harnesses have a handle for the harness containers. This handle must be connected to the inner container. Handles for front and back containers are generally suspended in the central loop, container on side or under the seat, the side strap used.

The inner container of ICARO rescue systems has two loops, in which the handle of the harness can be attached (center, side).

Note the instructions for the rescue unit in the operating instructions of your harness. If there is no handle of the harness or it does not fit with your inner container, please ask the dealer of your harness or your paragliding school.

Attachment of the connection belt with the harness

For connecting the two belts use a fixable 24 kN- snap hook with a diameter of 8 mm. It is very important that the snap hook cannot twist to prevent rotation stress of the snap hook. Therefore, use cable fixer, adhesive tape or strong rubber bands and pull it **above and below the snap hook** around the belts.

It is essential to ensure that the shackles or carabiners are firmly closed after connecting the rescue to the paraglider harness.

Another fixing method is to put the belt of the rescue system through the connection belt of the harness and than the rescue system through the harness belt. ***It is just as very important that the knot is very tightly fastened.*** Therefore, use cable fixer, adhesive tape or strong rubber bands and pull it **above and below the knot** around the belts.

Pay attention to the symmetry of both lines. Neither side of the loop must be longer than the other.

Compatibility- check

A control of every new combination of rescue system and harness/outer container must 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 must be correct and in conformity to the construction guidelines.

The pulling force for triggering must not exceed 70N. The throwing movement should be practiced under conditions that are as realistic as possible each time the rescue system is repacked.

IMPORTANT POINTS TO LOOK OUT FOR:

- ➲ **Check (regularly)**
  - 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.
- ➲ **Packing line from the fixing loops is removed (after each packing)**
- ➲ **Check compatibility of rescue system and harness**

Before each start with your glider, you must check the container is closed!

Care, maintenance, and repair

Care Instructions

- Please do not store your rescue system in the vicinity of acids, grease, oils or paint. To ensure safe operation, the system needs proper maintenance and care.
- Do not store your rescue system in extreme temperatures or humidity (more than 30^0 C 0r 55-65% humidity).
- A humid or wet canopy needs repacking.
- Exposure to UV-rays causes deterioration the fabric.
- Please only use clean and fresh water to clean your rescue system or container.
- Wet cloth stored in warm conditions will begin to mould and significantly lose structural strength. Rescue systems in this condition must be brought to the manufacturer to be checked out.

It may take several days your second chance 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 rescue system which might impede deployment, pleases end it back to the manufacturer to be repaired.

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

Your reserve parachute consists of many high-quality, long-life components. When replacing parts (lines, risers, fabric panels, etc.) only original parts may be used. This is important to the continued airworthiness of your reserve chute and your safety as well.

Spare parts (material):

Canopy	Ortex 22 (Nylon 6.6 HT, 22 dtex)
Lines	Edelrid PAX 2 9100 160 & A-6798-150
Riser	Dyneema 5 mm
Rubber rings	silicon based

Use limitations, packing- and check intervals

Packing interval

12 months; the rescue system also must be aired recurrent.

Why? The paraglider harness is usually laid down before take-off and after landing on the grassy ground, which contains moisture in all seasons. This creates the risk of the rescuer's fabric becoming damp. Furthermore, the paragliding harness is stowed in the hot trunk in summer, which means that the individual panels can stick together under the influence of moisture and heat. This can lead to an enormous time delay in opening the rescue.

The more often the rescuer is grabbed, the higher the probability that it will open quickly.

The rescue system is your life insurance, and you should therefore take this into account and avoid anything that can prevent a quick and successful emergency opening.

Check interval

2 years; when the rescue system was opened after a flight accident the rescue system is to be checked.

Without regular certified inspections, your glider will lose its pattern test result and guarantee.

If you fly often at sea, in the sand, in salty air, we recommend a check interval of 12 months for safety reasons.

Use limitation

10 years; The rescue system is allowed to be used for a time span of 10 Years by observance of the regulations for packing and checking. Certification is no longer valid thereafter.

The certified life span can be extended by a further three years, if the rescue system is checked by the manufacturer every year.

Important: ***Packing and checks of the rescue system must be documented otherwise guarantee is cancelled.***

Terms of the guarantee

ICARO paragliders guarantees the proper processing, an operation within the allowable limits of proper operation and the fulfillment of the eligibility criteria of rescue equipment for **24** months at the time of first delivery by ICARO paragliders. Guarantee is only valid for ICARO products with LTF/ EN certification.

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.
- All flights must be accounted for within the flight book.
- 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?

- Rescue equipment,
  - which has been thrown for a emergency,
  - 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 rescue system 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, or humidity.
  - caused by force majeure.
  - caused by the paramotor (Oil, fuel, damage in cause of the prop)
- 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 prolongated and are only valid until the original date of expiry. The freight costs (transport to and from) are not paid by ICARO paragliders.

Annex

Warranty Card

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

Airworthiness Checking Specifications / Procedure

If a packed rescue package to be repackaged, is a trigger control perform. It must be determined whether the release force is a maximum of 5 kp. For this purpose, a spring balance is to be used.

The cap must be checked web for web for holes small or large cracks, strains and chafing as well as other abnormalities on the cap (for example, old repair shops).

Likewise, every single lanyard, its sewn on the round cap and on the loops to the main suspension must be checked for damage.

In the case of major damage (eg holes), the affected sail sheets must be replaced.

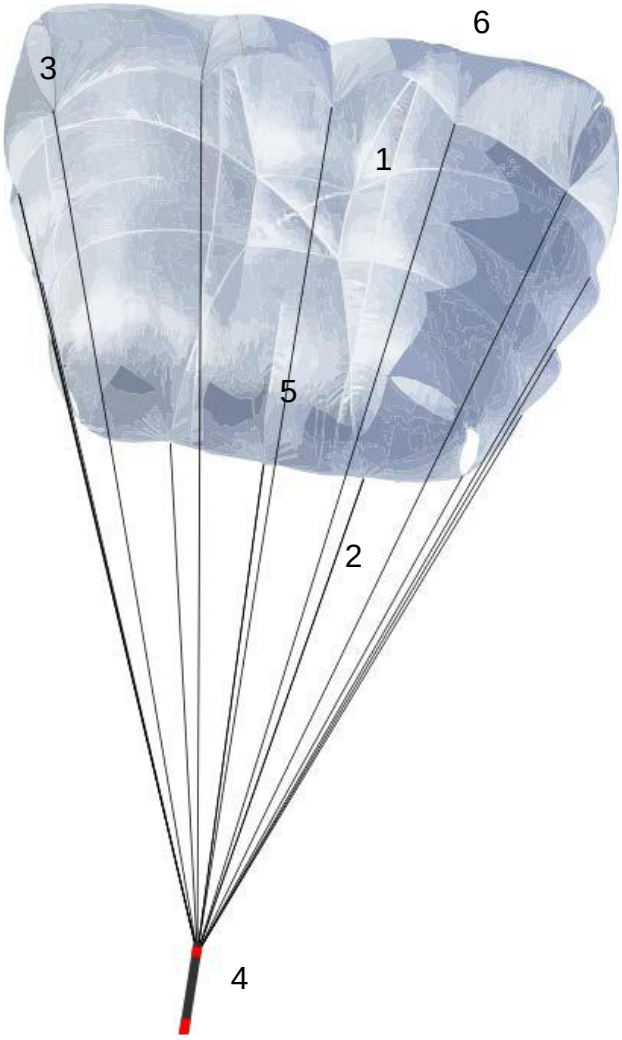
No repairs should be done with glue sails.

If the rescue equipment has been independently verified, then from this point on the warranty and sample inspection are excluded. The same applies when selling the devices.

The inspection must be noted on the device next to the type plate with the corresponding verification stamp.

The packs and inspections carried out must also be documented in the proof of pack.

Description of the Rescue System



The SQUARE light rescue system can be mounted either

- inside the harness (according to the harness manufacturer's instructions) or
- outside the harness (if an external container is used).

- 1 – Canopy
- 2 – Lines
- 3 – Corner openings
- 4 – Main risers
- 5 – Centre lines
- 6 – Packing loops (on the top side)

ANNEX

Checksheet for rescue systems	
Client (Name, Address):	
Type / size / year of construction:	Serial number:
Certification number:	Date of last inspection:

		Memos	yes	no
Was an emergency tripping necessary?				
Where did you land after this emergency tripping?				
Necessary repairs?				
Was there a splashdown?				
Canopy	Visible damages?			
	Any dirt on the canopy?			
	Holes in the canopy?			
	Seams, ok?			
	Notations on the panels, ok?			
	Certification stamp readably?			
	Apex fixing loops, ok?			
Lines	Visible damages?			
	Seams, ok?			
	Middle lines frayed?			
	Connection middle line to suspension lines on the top, ok?			
	Suspension lines frayed?			
Inner container	Visible damages?			
	Loops for the deployment handle, ok?			
	Rubber loop, ok?			
	Eyelets, ok?			
	Deployment handles correct fixed?			
	Containers correct closed?			

Compatibility check effected?		Additional repairs carried out? Which?
Pack control booklet noted?		
Inspection stamp affixed?		
Overall result of the rescue system		**Next inspection:**
As new		
Very good		
Used		
Much used		
certification only for one year		
not airworthy		Date, name and signature of the checker