

# JET/LIMIT/ BIPLANCE MANUAL

Version 1/ 2015 ©



### Verification of Checks and repairs

<p><b>JET/LIMIT/TANDEM</b></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

Check (C) Repair (R)	Which repair/ Check? Check valid until?	Performed by/ date

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## **TABLE OF CONTENTS**

<u>VERIFICATION OF CHECKS AND REPAIRS .....</u>	<u>1</u>
<u>TO GET TO KNOW YOUR JET/LIMIT/BIPLACE .....</u>	<u>5</u>
<u>WHAT TO DO WHEN IT HAPPENS? .....</u>	<u>5</u>
<u>PACKING INSTRUCTIONS .....</u>	<u>5</u>
<u>CARE, MAINTENANCE AND REPAIR .....</u>	<u>11</u>
CARE INSTRUCTIONS .....	11
REPAIRS.....	11
USE LIMITATIONS, PACKING- AND CHECK INTERVALS .....	11
<u>TERMS OF THE GUARANTEE .....</u>	<u>12</u>
<u>ANNEX .....</u>	<u>14</u>
GUARANTEE CARD .....	14
DESCRIPTION OF THE RESCUE SYSTEM .....	14

Congratulations on buying your  
**JET/LIMIT/BIPLACE**  
Rescue system and welcome to 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 rescue system.

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 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 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.

Your rescue system is made with great care and state of the art, is tested according EN 12491:2011<sup>1</sup>, and Notification of the Federal Aviation Administration of Germany<sup>2</sup> is pattern tested as an light rescue system light and not suitable for tandem- flying.

***It is strictly prohibited to use the JET/LIMIT/BIPLACE***

- ***beyond the maximum recommended weight***
- ***for skydiving***
- ***with damaged canopy, lines, connection belt or seams.***

All technical data and instructions 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***.

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<sup>1</sup> *Paragliding equipment – rescue systems – Requirements and test methods*

<sup>2</sup> *„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](http://www.icaro-paragliders.de)).

Should you decide to sell this rescue system at a later date, 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.

### **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!**

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ICARO paragliders, all other rights are reserved.

## To get to know your **JET/LIMIT/BIPLACE**

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<b>ICARO Rescue Systems</b>	<b>JET</b>	<b>LIMIT</b>	<b>LIMIT</b>	<b>LIMIT</b>
		<b>L</b>	<b>XL</b>	<b>Biplace</b>
Area (m <sup>2</sup> )	34	38,5	40,5	69
Weight including container (kg)	1,9	2,3	2,6	4,0
Maximum load allowed (kg)	100	120	148	220
Maximum payload (kg) at 6,8 m/sec.	110	135	165	245
Number of panels	16	22	24	36

The rescue system is made from high quality material and has a circular canopy with pulled down apex. Manually deployable rescue system is suitable for hang gliding and paragliding pilots in an emergency situation. 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 air permeable, strong nylon. There are bands sewn into the main seams to strengthen the canopy. The base and side edges are reinforced with bands.

### What to do when it happens?

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In an emergency situation, the handle of the rescue system is given a sharp pull. The special thread which holds the closing splint breaks.

The pilot throws the container into the air. As the suspension lines become tight, the container will fall away and the reserve will open.

***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 glider 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

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#### **Packing Preparations**

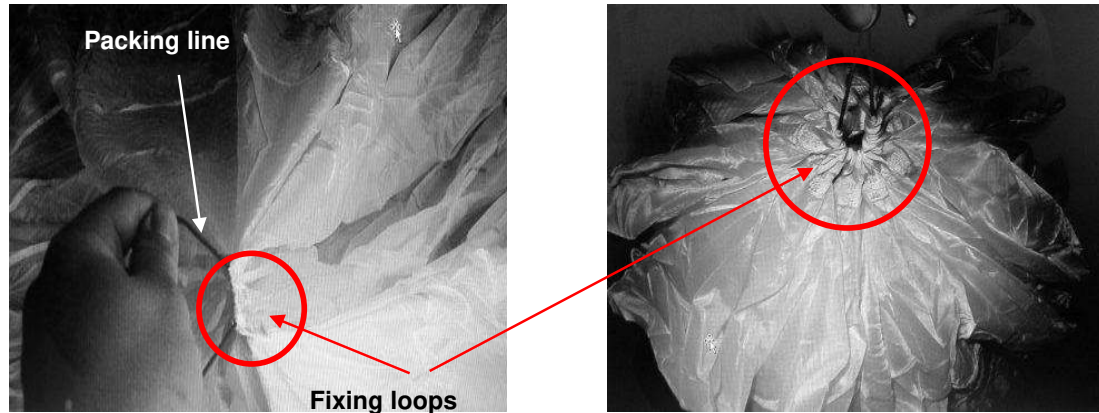
Before packing the rescue system it is important that the canopy is spread out on the ground for about six hours.

If possible, it would be even better to hang it in the air one night long. Before the rescue system gets packed, it must be looked over. If it has been deployed, it must be properly checked.

After having the rescue system packed, please ensure that rescue system and harness fit to each other. The force measured in the deployment handle should be between 50 and 80 N.

### **Pulling the packing line trough the fixing loops**

To help you pack the rescue system, use a short piece of old paraglider line and thread it through all the apex fixing loops. The fixing loops are on the upper third of the canopy.



Attach the apex to a stable fixed point.



### **Dividing and sorting the Suspension lines**

Next sort out the suspension lines.

Please make sure that the middle lines are in the middle and the other lines to the side. There must not be any tangles or knots in the lines.



### Sorting the panels

Take the lines in your hand as shown in the photo and fold over each panel from left to right like turning the pages in a book.



### Division of panels

Lay down the canopy so that there are the same numbers of panels on each side (keep the canopy under tension).  
Use sand sacks to weight down the base of the canopy.



### Laying out the panels

Fold the left side onto the right side. Then lay each panel separately and precisely back to the original side.  
Do the same with the other side.



***Remove the line from the fixing loops!***



### Folding the canopy into thirds

The left third is folded onto the middle and then the right third is folded under the middle.



### S-folding canopy to fit into Inner container

Fold the canopy in "S" folds from the top right down to the base, so that it fits into the inner container.



### Folding the suspension lines

Fold the suspension lines using two fingers in "S" bundles and fix with special rubber bands.

***Please use new rubber bands each time you repack.***

***These are special rubber bands which you can buy from the manufacturer.***

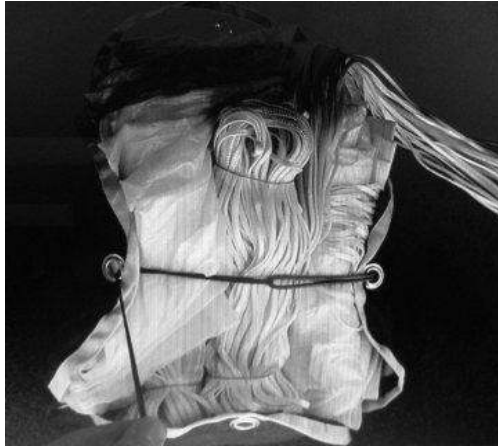


### Fitting the rescue system into the inner container

The folded suspension lines are placed on the rescue chute as shown.

Use a packing thread to pull the rubber loop through the eyelets of the inner container. The rest of the suspension lines are secured with the rubber loop.

Make a note of the date of packing in the pack control booklet.

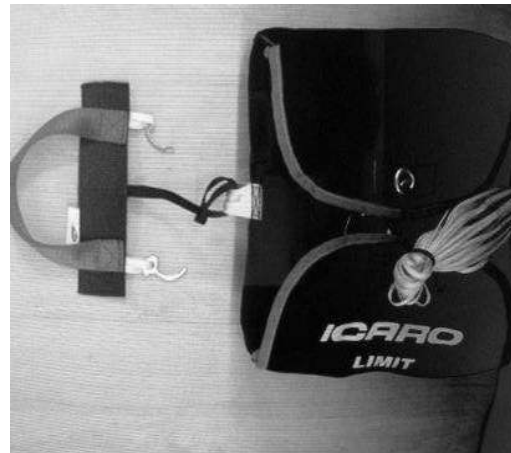


### Installing your rescue system

Most harnesses have a handle for the harness containers. This handle must be connected to the inner container.

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

Handles for front and back containers are generally suspended in the central loop, container on side or under the seat, the side strap used.



***Note the instructions for the rescue unit in the operating instructions of your harness.***

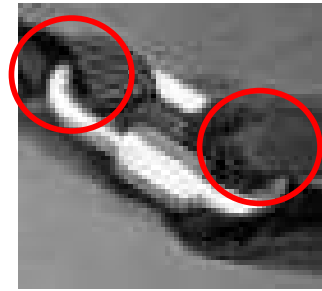
***If there is no handle of the harness or it does not fit with your inner container, please ask the dealer of your harness or your paragliding school.***

***The handle must be firmly connected to the loop on the inner container (opening strength < 70 N).***

### 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 traverse 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.



Another fixing method is to put the belt of the rescue system through the connection belt of the harness and then the rescue system through the harness belt as shown in the photo.



It is just as very important that the knot is very tight fastened.

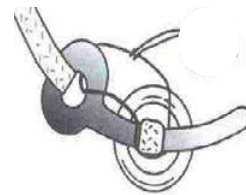
Therefore use cable fixer, adhesive tape or strong rubber bands and pull it **above and below the knot** around the belts.



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

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!***



### 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
- ☞ 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!!

## Care, Maintenance and repair

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### 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° C or 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, 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.***

### ***Use Limitations, packing- and check intervals***

#### **Packing interval**

**6 month;** the rescue system also must be aired recurrent

#### **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 loose its pattern test result and guarantee.***

### **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**

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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** month at the time of first delivery by ICARO paragliders.

***Guarantee is only guilty for ICARO products with LTF/ EN certification <sup>3</sup>.***

#### **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](http://www.icaro-paragliders.com).

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<sup>3</sup> - 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



### **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 prolonged and are only valid until the original date of expiry.***

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

ICARO

Team ICARO thank you for your trust in our products.

Should you have any questions, ideas or criticisms 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

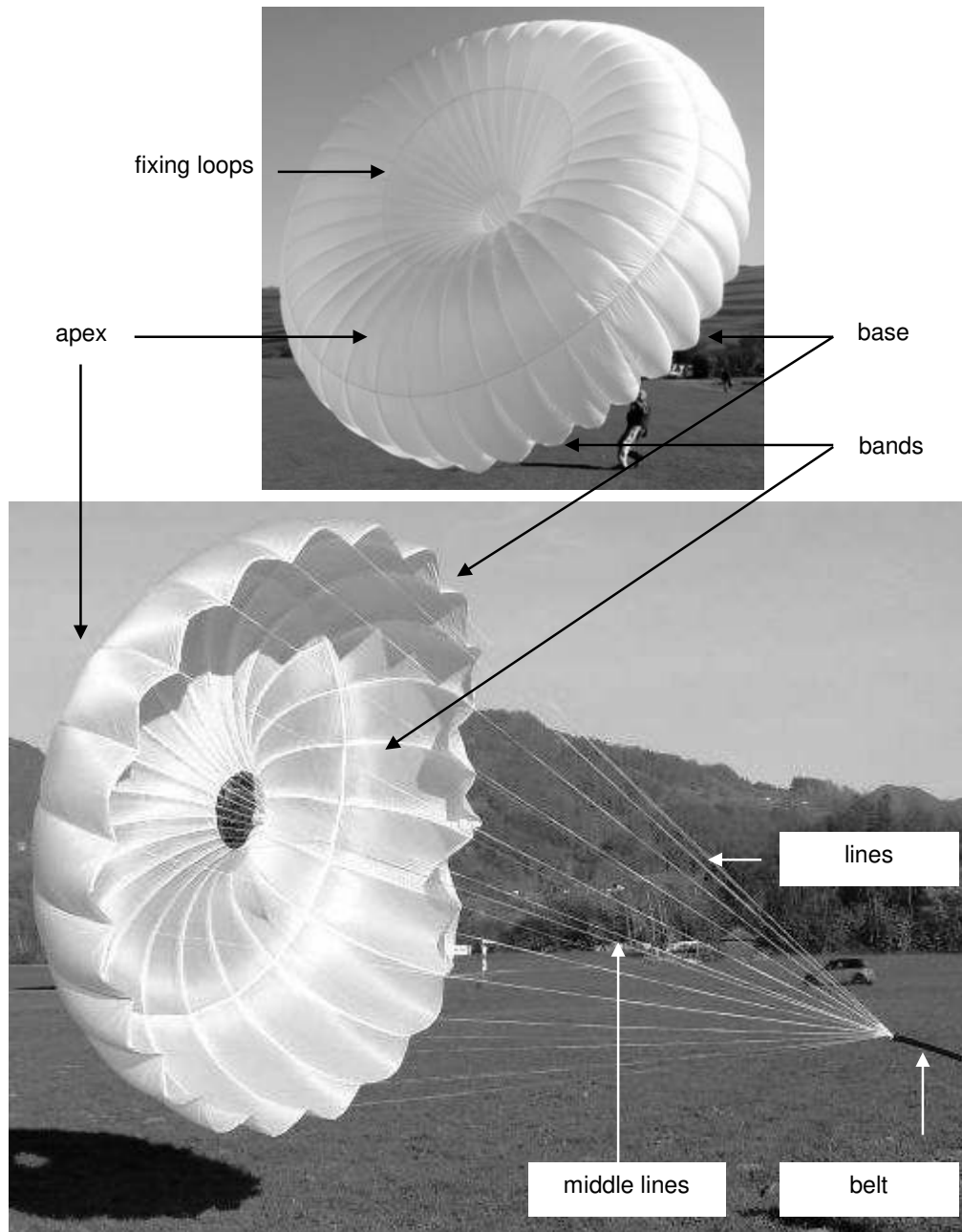
## Annex

### Guarantee Card

Please fill in the guarantee card which you find on our homepage [www.icaro-paragliders.com](http://www.icaro-paragliders.com) and send it.

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?				
Lines	Apex fixing loops ok?				
	Visible damages?				
	Seams ok?				
	Middle lines frayed?				
	Connection middle line to suspension lines on the top ok?				
Inner container	Suspension lines frayed?				
	Visible damages?				
	Loops for the deployment handle ok?				
	Rubber loop ok?				
	Eyelets ok?				
Deployment handle correct fixed?					
Container correct closed?					
Compatibility check effected?			Additional repairs carried out? Which?		
Pack control booklet noted?					
Inspection stamp affixed?					
<b>Overall result of the rescue system</b>			<b>Next inspection:</b>		
As new					
Very good			Date, name and signature of the checker		
Used					
Much used					
certification only for one year					
not airworthy					

## Description of the rescue system





**Dispatch protocol/ Delivery content**

- Piece check complete
- Inner bag
- Manual
- Sticker

.....  
Date

.....  
Signature