



Instruction manual for rescue system

Expert 100 Expert 120

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This instruction manual must be carefully studied before fitting the rescue reserve !

It has been written to inform you comprehensively about the correct use of your CHARLY rescue reserve. Should any questions arise related to the use of this rescue reserve then please contact CHARLY PRODUCTS directly. If you require a professional packing and / or repair service then please contact your local dealer, or likewise CHARLY PRODUCTS.

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Safety advice

This rescue system must not be used when springing from an aircraft !

The rescue reserve Charly Expert 120 corresponds to the German construction specifications LTF 35/03. The use of this rescue reserve is at the owners (users) risk. The manufacturer cannot be held liable for personal or material damage arising in conjunction with the use of this rescue system.

It is imperative that attention is given to the correct fitting of the rescue reserve into the harness, and that a compatibility test is carried out by a trained specialist. Only a correctly fitted rescue reserve functions properly and thus contributes to safety.

Technical data

Type	Charly Expert 100	Charly Expert 120
Surface area	30 m ²	38 m ²
Suspension line length	3,40 m	4,50 m
Length of apex lines	4,00 m	5,05 m
Nr. of suspension lines / panels	16	18
Nr. of apex lines	1	1
Full stretched length	5,30 m	6,80 m
Max. loading according to LTF	100 kg	120 kg
Min. certified loading	50 kg	60 kg
Sink speed b. 120 kg loading	m/s	5,55 m/s
Volume	250x220x80 mm	250x220x90 mm
Type inspection #		EAPR-RG-7094/09
Weight	1,38 kg	1,7 kg

Manufacturer

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Intended purpose

Rescue reserve for single seat paraglider pilots to be manually deployed in cases of emergency.

Operating limits

Maximum usage speed: 115 km/h (32 m/s)

Packing interval: 12 months, thereafter repacking is necessary and must be noted in the packing document.

Re-inspection interval: We recommend that the rescue reserve should be completely inspected every 24 months. The re-inspection must be noted in the packing document.

Certified duration of operation: 10 years, thereafter up to 12 years by annual re-inspections.

Necessary equipment documents

- Instruction manual
- Packing - and Inspection proof document
- The accompanying aviation sport equipment specification is a component part of this instruction manual

Mode of functioning of the rescue reserve

In emergency situations the release handle is pulled up with a powerful jolt. In this manner the outer container is opened and the rescue reserve released. Subsequently the reserve packet (still packed in the inner container) must be thrown boldly into free air space. The release handle is thrown away together with the reserve !

The inner container is constructed in such a way that the suspension lines and the reserve canopy are first released after being thrown.

A premature and undesired opening is thus prevented. This minimises the risk of the reserve becoming tangled up with the paraglider / pilot / or any other reason for the emergency situation (eg. collision with other pilots etc). In addition, the maximum speed of the inner container necessary for a fast opening of the rescue reserve is first reached after it has left the hand of the pilot.

As a general rule: the faster the reserve is thrown, the quicker it will stretch and open.

After being thrown, the aid chute on the inner container opens first, and immediately afterwards the inner container itself. The powerful throw and/or the flow of air stretches the suspension lines and open the canopy.

When the reserve has completely opened, then the remaining height above ground must be ascertained. If sufficient height allows, an attempt should be made to make the paraglider inoperable in order to avoid a V – attitude from the reserve and the paraglider.

By insufficient height, the pilot should keep his eyes on the ground and prepare to touch down.

Care & maintenance

The CHARLY Expert 18 rescue reserve has been conceived for high loading and extreme operational demands. Accordingly, only especially durable materials were chosen, that have proven their worth over many years. Since the service life is dependant to a great extent upon the care of the owner however, we recommend that the reserve be regularly examined for wear and tear, and where necessary, damaged components should be immediately repaired directly by CHARLY or by a CHARLY authorised service centre.

Special attention should be paid to the following points:

- The reserve should not be unnecessarily exposed to the sun (ultraviolet rays).
- A damp or wet reserve should be completely unpacked & dried at room temperature or outside in the shade.
- Do not subject the packed reserve to large changes in temperature. Make sure that sufficient air circulation is present to avoid condensation.
- If the reserve has come into contact with salt water then rinse thoroughly with fresh water.
- Only clean the reserve with fresh water, at the most with neutral soap. Under no circumstances should solvent be used.
- **Warning:** Chemicals, cleaning agents, insects, mildew etc can reduce the strength of the construction parts just the same as mechanical influences can.

Storage

Oils, fats, acids and paints must not be stored in the immediate vicinity of the reserve. Storage should be in a well ventilated & dry room. Rescue reserves that are not to be used for longer periods of time should be stored unpacked.

Cleaning

Soiled reserve canopies and containers can be washed with clean tap water. Acids or mildew can affect the strength of the reserve. Rescue reserves that are soiled in such a manner must be returned to the manufacturer for re-inspection and repair where necessary. Reserves that have come into contact with salt water must be thoroughly rinsed with fresh water as soon as possible ! Never wring out or brush the canopy!

Packing & inspection intervals

In order to guarantee a trustworthy and rapid opening at all times, the rescue reserve must be aired and repacked according to current packing instructions every 12 months. If the reserve has been exposed to moisture, dampness or extreme heat then it has to be immediately repacked.

If the reserve has been subject to an emergency deployment, or a deployment during safety training, then it must be re-inspected by the manufacturer or by an authorised service centre. Likewise the reserve must be thoroughly inspected from trained persons following increased stress (eg. landing in a tree).

In the case of established damage

Should damage be ascertained whilst checking, then the reserve should be sent to Charly Products to be repaired. This also applies in cases when the affect on the airworthiness cannot be clearly established. Repairs must be undertaken only by the manufacturer !

Repairs

As a matter of principle, repairs to rescue reserves must never be carried out oneself. The various seams and lines have been manufactured with the utmost precision. For this reason, only the manufacturer or an authorised service centre should undertake repairs using original materials.

Acids and mildew can influence the strength of the construction parts. Rescue reserves that are soiled in such a manner must be returned to the manufacturer for re-inspection and repair where necessary.

Control and preparation of the rescue reserve

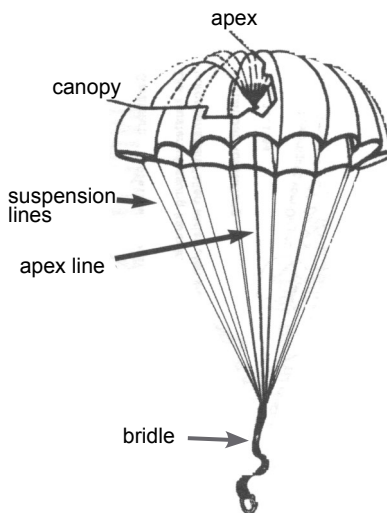
Prior to packing, the reserve canopy must be hung up off the ground in a well ventilated room, out of direct sunlight (ultra-violet rays) for at least 6 hours. If the reserve canopy has become wet , always ensure that the canopy lines (which are considerably heavier when wet) are supported & cannot be stretched. Do not dry using a heater / radiator!

The packer has to inspect the reserve for possible damage. A re-inspection either by the manufacturer or by an authorised service centre must be carried out after an emergency deployment and before the reserve is re-packed.

A release check should be undertaken when fitting in the outer container, and it should be determined that a deployment strength of 70 N is not exceeded.

Unit construction

The rescue reserve canopy of the CHARLY Expert 120 consists of 18 panels. The panels are made from gas-permeable, tear-resistant nylon material weighing a mere 30g/m². The middle apex is drawn down and positioned with an elastic apex line. The bridle line has a strength of approx. 2300 kg. The apex line has a strength of approx. 400 kg and it is spliced to the apex lines and the bridle.



Inner container

The accompanying inner container is from tear retardant nylon material, the edges of the inner container are reinforced. The „envelope“ inner container has a three-point fastening. On the flat side of the inner container are 2 places where the deployment handle of the outer container / harness can be attached.



Inner container with attachment (loop-through) points for the deployment handle



Inner container

Outer container

The outer container is made from strong, water-repellent nylon material. It consists of 2 side fastening flaps, upper and lower fastening flaps, and a deployment handle with 2 release pins which are used to fasten the container.



Outer container open with deployment handle



Outer container closed

Packing instructions

Before packing, the reserve should be visibly inspected by the packer. The reserve must then be aired over a period of 24 hours by an air humidity of 60 – 65 %. Packing should at best be carried out on a packing table, but at the least on a clean, antistatic underlay. Necessary aids to packing are : 2 meters of draw cord, several small sacks filled with sand or lead shot for weighing down. All special rubber bands must be renewed at every repacking, and these are available by Charly Products.

The reserve should only be packed by a registered packer.

1. Laying out and unravelling

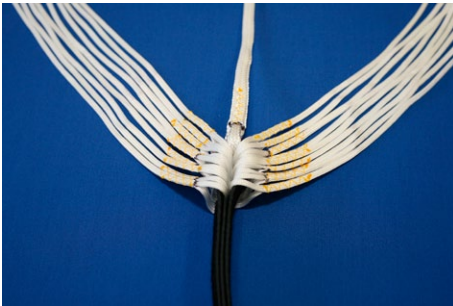
The reserve is stretched out to its full length on the packing underlay.



1.1. Inspect the middle apex for symmetry



1.2. Pull a draw cord through the packing loops and attach to the upper end of the packing table:



1.3. Check the loops of the suspension lines on the end of the bridle, and ensure that these are centred.



1.4. The bridle line is fixed to the lower end of the packing table and the reserve is stretched. The suspension lines are checked to ensure that their course is straight.

2. Laying of the panels

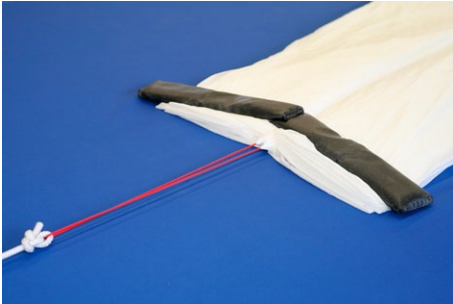
Take panel # 1 and count off half of the panels. By the Expert 100 (120) which has a total of 16 (18) panels, 8 (9) panels lie on the right hand side, and 8 (9) panels on the left hand side. They are held down with a packing weight.



2.1. The panels 1-8 (1-9) now lie on the right, the panels 10-18 now lie on the left.



2.2. Panel 1 lies on the top right, and panel 16 (18) lies on the top left.



2.3. Now the apex which is pulled down on the packing loops must be sorted and held down with a packing weight.



2.4. Before laying out the suspension lines in an S-shape, ensure once again that all lines are untangled and do not cross over one another.



2.5. In order to lay the canopy in S-shapes, the complete bundle of suspension lines and the left hand panels must be lifted slightly and laid 2/3 over the right hand panels.



2.6. Now the complete bundle of suspension lines together with the left hand panels must be carried back over to the middle of the first laid panel.



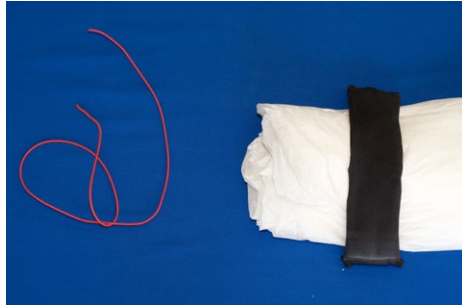
2.7. Next lay the complete left hand panels back over the middle (suspension lines).



2.8. Now lay the rest of the panels back into the middle.



2.9. Carry out S-shapes up to the draw cord.



2.10. **Warning:** Remove draw cord ! otherwise the reserve cannot open !

3. Insertion of the canopy in the inner container

Very important :Before proceeding to the next step, ensure once again that the drawing cord have been removed.



3.1. Now release the attachment of the bridle line. Lay the top part of the canopy into the inner container.



3.2. Sort the rest of the canopy into small S-shapes in front of the inner container.



3.3. Lay the s-shaped canopy in the inner container and use a packing weight to prevent the canopy from sliding out.



3.4. The suspension lines are now placed in figure eights and held in place using the new special rubber bands. Pay attention that the width of the inner container is not exceeded. The last 50cm of the suspension lines are used to close the container and must remain free from rubber bands.



3.5. Lay the 3 x 8 bundles of suspension lines on the canopy in the inner container, and fasten the container lid from the middle to the outside using the remaining suspension lines.



3.6. Check that all packing tools / aids / draw cords that were used, have really been removed.

Attention: The inner container has been fastened using the suspension lines. The tension of the packing rubber bands on the inner container must not be too great. This can be tested by lifting the reserve using the main bridle. The suspension lines must now release out of the packing rubbers bands independently.

4. Entry in the packing & inspection document

An entry must now be made in the packing and inspection proof document. With date, name, and signature of the packer, in addition to the work carried out.



Insertion in the outer container

The insertion in the Charly Light container (compressible) Art.# HFa187 now follows. By insertion in a different, suitable container, or in a harness- integrated container, close attention absolutely must be paid to the valid instruction manual.



Loop the deployment handle through the middle loop of the inner container. Lead the bridle line out of the outer container on the chosen side.



Thread two draw cords firstly through the loops and then through the eyelets of the container flaps as indicated on the numbered diagram.



Pull the loops through all the eyelets and fasten with the release pins from the deployment handle. Insert the end of the release pins into the intended pockets. Remove the draw cords !



Pull on the elastic cords (positioned on the sides) and position using the cord stopper.



The container can be compressed using the two webbing straps on the rear side !



No extra weak link threads are needed to secure the release pins, as the Charly Loop-tensioner system is integrated in the container described here !

Attachment to the harness

If you own a harness without an integrated reserve container, you can attach the Charly Expert 18 to the harness with an outer container as described on page 11. Firstly the bridle line of the reserve is connected to the bridle line of the paraglider harness using a rapid link (Art.# Be31) or alternatively by lopping the two bridle lines into one another. Care must be taken that the connection is symmetrical and secure. The reserve can now be attached to the side or to the chest strap of the harness by means of rapid links (Art. # Be29) through the bands on the rear side of the outer container.

When mounting the reserve container, follow the instructions in your harness handbook and use the attachment points described therein. It is imperative that the container sits snug & safely. Besides, moveable parts such as accelerator, free running straps etc may not be impeded.



Insertion in the rescue reserve container of a harness

Follow the instructions in the handbook of your harness when inserting the reserve container. In all cases attention must be paid to the following tips when inserting the reserve.

- Only use the original deployment handle that came with the harness. Other deployment handles should not be used as they do not guarantee perfect functioning!
- Container must have a suitable capacity.
- By inner containers with asymmetrical attachment loops, the container must be packed so that the attachment loops are as near as possible to the deployment handle, and that the reserve does not become twisted around during employment.
- When packing the reserve into the container, pay close attention that the connection between deployment handle and security pins is shorter than the connection between the deployment handle and the inner container.
- The deployment handle is attached to the intended place on the Velcro fastener such that the suspension lines are not under tension and the security splints are not pulled out of the fastening loops.
- A test deployment should be undertaken after every re-packing to ensure the correct functioning of the rescue reserve! Operating the rescue reserve must be possible in the flight position and must function perfectly according to the guidelines of the construction specifications.

Compatibility test

Every new combination of rescue reserve and harness has to be retested by the manufacturer or someone schooled and instructed by the manufacturer after the initial packing.

The operation of the rescue reserve must be possible in the flight position and must function perfectly according to the guidelines of the construction specifications. It must be ascertained that the deployment strength does not exceed 7kg.

The inspector has to confirm that a compatibility test has been carried out by entering this in the packing and inspection document.

Speciality for winch towing

For winch towing pay attention to the conditions of the harness, paraglider and winch release manufacturers! When using a front container, make certain that a deployment of the rescue reserve can be guaranteed at all times.

Pre-flight check

In addition to the normal pre-flight check (see instruction manual for paraglider, harness, tow release etc), the correct fastening of the rescue reserve and the deployment handle should also be controlled before every flight.

If the reserve bridle line is disengaged after every flight (as with front container systems), then the pre-flight check must also include ensuring that the bridle line is correctly attached!

Transport

When transporting the reserve, pay attention that it is not subject to extreme heat (eg. the boot of a car in summer). Further, the reserve should be transported carefully (clean, no objects lain on top etc.). When packing the Expert 18 into a paraglider backpack, take care not to damage it with buckles or other objects, and not to inadvertently release the deployment handle.

Flying on the coast

If the reserve is flown for long periods of time on the coast or in salty air, this can result in a premature aging of the materials. In such cases the reserve should be checked more often and inspected for its airworthiness.

Environment- friendly disposal

After the end of the service life, the reserve should be disposed of in an environment-friendly manner. CHARLY Products will gladly dispose of your reserves appropriately if you return them to us.

Behaviour reconcilable with nature & the landscape

And finally a word or two from us, requesting that you practice our fantastic sport with as much consideration for nature and the landscape as possible !

Please do not walk beyond the marked paths, do not leave litter, do not make unnecessary noise, and try to respect the sensitive biological balance in the mountains. Consideration for nature is required not only when launching and landing !