



**Operating manual for emergency  
parachute RE-5L Series 5<sup>+</sup>**

**Object-no.: 50-216/08:00**



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## 1. Technical Description

### 1.1 Intended purpose

The RE-5L Series 5+ parachute is a steerable personal parachute for aerial emergency purposes. As per its classification, it is intended as an emergency parachute for glider and motor-propelled aircraft as well as balloon pilots. Furthermore, it may be used by the control and accompanying personnel in aircraft.

### 1.2 Technical information

The RE-5L Series 5+ emergency parachute is a back-borne parachute. The device fulfils the minimum requirements of the TSO/JTSC-C 23d.

It can either be manually opened thanks to the opening cord or automatically via a static line.

The RE-5L Series 5+ may be equipped with only the manual opening variant upon request. The parachute is then supplied without static line and the information pertaining to automatic opening contained in the parachute handbook do not apply.

### Specifications

maximum use speeds at maximum operating mass:			
a)	327 km/h (176 kts/203 mph)	at	115 kg (254 lbs)
b)	278 km/h (150 kts/172 mph)	at	122 kg (270 lbs)
Minimum operating mass			45 kg (100 lbs)
Minimum jump height for horizontal flight or immediate opening:			
a)	for V = 60 - 110 km/h		80 m
b)	for V = 110 - 327 km/h		60 m
Minimum opening height for vertical fall:			
	for V = 0 - 220 km/h		125 m
Packed lifespan:			360 days
Operating lifespan:			20 years
Temperature range:			-40°C to +94°C
Parachute canopy surface area:			41,5 m <sup>2</sup>
Number of gores and suspension lines:			24
Dimensions of the packed parachute:			530x340x60 mm
Force for opening the fasteners:			7-15 daN
Rotation speed:			approx. 30 degrees/s
Propulsion:			1-2 m/s
Sinking speed in proximity to the ground:			
at 77 kg operating mass			6,1 m/s
at 122 kg operating mass			7,3 m/s

### 1.3 Scope of delivery and article code directory

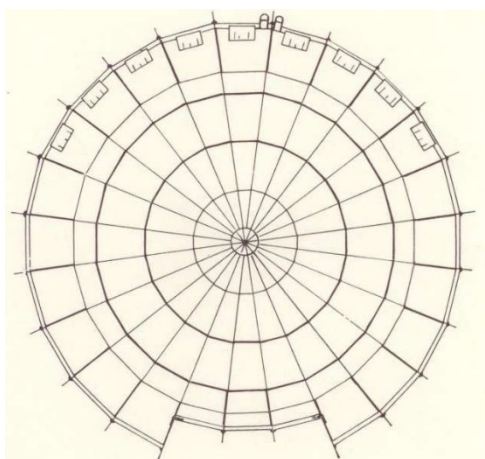
Component	Object-no.:	Comments
Parachute canopy	50-186/10:00	
Pilot chute	50-144/16:00	
Packing bag	50-290/15:00	
Harness	50-291/09:00	
Static line	50-12/03:00	
Stainless steel handle with opening cord	500-50-143	
Standard back cushion	50-292/12:00	
Comfort back cushion	50-292/13:00	on customer request
Fastening strap	50-164/05:00	
Emergency parachute carrying bag	50-138/08:00	on customer request
Parachute log book		

### 1.4 Description of the parachute

#### 1.4.1 Canopy with suspension lines

The parachute canopy is a round canopy designed as a single-cone canopy. It consists of 24 gores and is manufactured from nylon fabric of varying air permeability, whereby it is lower in the apex and base areas. The parachute canopy surface is of 41,5 m<sup>2</sup>.

The gores 24, 1 and 2 are shortened at the base, giving the parachute canopy forward propulsion (see picture).



The upper and lower edge of the parachute canopy (apex and base) are reinforced with bands. Every third gore seam is reinforced with a longitudinal band.

Ring-shaped reinforcements are installed between fields 2-3, 3-4 and 4-5. At the base of the parachute canopy, gores 9 to 17 have air bags sewn on to support the unfolding process.

Two base support bands are sewn at the right side of the base, next to suspension line 12. Their task is to encircle the base region for a short time in order to counteract irregularities in the opening during the stretching process of the parachute canopy.

The apex opening has a diameter of approx. 550 mm and is tensioned with 6 apex lines.

The suspension lines connect the parachute canopy to the harness. The free length of the suspension lines from the base of the parachute canopy up to the connection armature at the free belt ends is approx. 4,75 m, that of suspension lines 1 and 24 is 5,40 m. Suspension lines 2 and 23 are marked in colour at the connection armatures and simultaneously serve as steering lines.

#### 1.4.2 Pilot chute with pilot chute connection line

The pilot chute consists of an eight-part canopy, the outside and inside cones, the conical spring as well as the pilot chute connection line.

A nylon mesh with low air permeability is used for the canopy. On the other hand, the mesh of the cone parts has a high air permeability. The canopy and cone parts are reinforced with bands.

The conical spring is located within the inside cone.

The apex region of the canopy is reinforced to cover the spring and equipped with two tent lugs for fixation to the packing bag.

The longitudinal bands of the outer cone form a thimble in which the connection line is hung in at the lower end. It connects the pilot chute to the apex lines of the parachute canopy and is approx. 760 mm long.

#### 1.4.3 Packing bag

The packing bag is flexibly designed. It is permanently connected to the harness and manufactured from wear-resistant nylon mesh. The most important components of the packing bag are:

- a main cut-out with four fastening flaps,
- two loop belts with flat rubber loops to strap the suspension lines on the inside of the packaging floor,
- four inside holding flaps for attaching the individual flaps of the inserted parachute canopy,
- a bottom part with reinforcement plate,
- a closing strap,
- a standard back cushion
- optionally, a comfort back cushion with incorporated lumbar support
- a cable protection tube for the manual opening cord,
- a static line

The indication plate is located on the outside of the packing bag floor. It is covered by the back cushion. The back cushion can be exchanged and consists of a breathing-active spacer fabric - a special textile fabric sheeting. This avoids heat accumulation and evacuates perspiration humidity from the body.

#### 1.4.4 Harness

The harness connects the parachute canopy to the user. When correctly adjusted, it distributes the unfolding impact equally onto the body.

The harness consists of the following main parts:

- Main belts
- Leg belts
- Transverse belt
- Chest belt
- Chest and leg cushions
- Harness fasteners
- Grip pocket

The main belts are connected to the packing bag in a fixed manner. The ends of the main belts form the connection to the suspension lines of the parachute canopy via the connection armatures.

The size adjustment of the main belts occurs via clamping buckles at the level of the waist. In the lower part of the harness, the leg belts and the transverse belt form two leg loops. The length of the transverse belt and the size of the leg loops are also adjustable.

The chest belt can be slightly moved in the area of the chest and is adjustable in length.

Plug locks serve as fasteners. The grip pocket is located on the left main belt and receives the manual opening handle.

#### 1.4.5 Opening installation

On customer request, the RE-5L Serie 5+ can be provided either with only manual opening variant or with both manual/automatic opening variants.

The opening installation consists solely of the manual opening cord for the manual design, and of the opening cord and static line for the manual/automatic variant. The static line has a snap hook at the end for fixation to the aircraft and a ring for additional fixation into the manual opening cord on the other end.

## 2. Operating manual

### 2.1 General guidelines

The manual should provide important information on the use and maintenance of the operational readiness of the emergency parachute to the user. Reading this manual does not replace the training of maintenance and inspection personnel. It should put the user in a position where he is capable of packing the emergency parachute by himself without training.

In case of questions, please contact us as the manufacturer! We would be glad to give you expert information.

All emergency parachutes supplied by us as manufactured and tested as per the quality management system implemented in our company.

## 2.2 Documents required for operation

- Current edition of the user manual for the RE-5L Series 5+ emergency parachute
- Parachute log book
- Release certification EASA Form One
- Certificate after annual maintenance

## 2.3 Donning and adjusting the harness

The harness is designed so as to allow for comfortable wearing along with the packing bag.

The correct guiding of the belts is checked before donning the harness. The left and right arm are then placed in the respective openings formed by the main belt and the back belt. The parachute now hangs loosely on the back.

The leg belts are placed as loops around the thighs and the plug locks are closed.

The harness is adjusted to the body after closing, without impeding freedom of movement. The size adjustment of the main belts is made using clamping buckles at waist height. An identical length of the belts should thereby be ensured.

The size of the leg loops and the length of the transverse belts are also adjustable.

Tightening the transverse belts allows for additional fixation of the packing bag to the body. Both chest straps are connected by closing the plug lock and can be adjusted in length using the right chest strap.

### **Warning:**

**When closing the chest strap, it should imperatively be ensured that the trigger handle of the opening cord lies freely over the closed chest strap.**

**Otherwise the chest strap may block the trigger handle.**

## 2.4 Fixation of the static line

The upper closing cap is opened in case of automatic triggering.

The snap hook is pulled out of the rubber bag and the static line is unstrapped in the required length and guided outward through the upper opening in the closing cap. The cap is then closed again.

The snap hook is hooked into the fixation point of the aircraft. The fixation point must display a sufficient material resistance and should be determined with the aircraft manufacturer.

## 2.5 Installation of the back cushion with lumbar support

As a standard, the emergency parachute is equipped with a back cushion without lumbar support.

Optionally, a back cushion with fixed sewn lumbar support may be used. The back cushions are easy to change by opening and closing the push-buttons.

The manual pump is removed from the air tube, the tube is then guided through the fabric loop of the right belt cover and the manual pump is then plugged back on.

The belt cover is then closed again.



**Fig. 1**  
Install manual pump

**Warning:**

**In the event of an accident, the air in the lumbar support may act as a spring and thereby increase the load on the spinal vertebrae.**

## **2.6 Parachute function**

### **2.6.1 Triggering the opening installation**

Depending on the packing variant, the opening of the packing bag occurs either manually by pulling the opening handle or automatically thanks to a static line attached to the aircraft.

This opens both loop-peg fasteners at the packing bags and the pilot shoot pops out of the pack thanks to its spring force, getting caught in the air flow.

The pilot chute unfolds and pulls the individual flaps of the parachute canopy and the suspension lines out of the packing bag until they reach tension.

### **2.6.2 Flight phase and steering the parachute**

Once the canopy and suspension lines are stretched, the parachute canopy fills with air and the sinking process begins. The sinking speed is approx. 6 m/s for a load of 77 kg.

The wind direction should be determined (smoke, trees, waves, grass etc.) as soon as a stable sinking state is reached, and an appropriate landing spot should be sought out. The three shortened canopy gores in the rear part of the parachute canopy make the air flow out of the canopy in a targeted manner and give the canopy a 1-2 m/s propulsion.

To steer the parachute, the red-marked suspension line of the right supporting belt is pulled for a right turn and the red-marked suspension line of the left supporting belt is pulled for a left turn. The rotation speed is thereby approx. 30 degrees/s

### **2.6.3 Landing**

If the landing spot is free of obstacles, the jumper may execute a normal landing drop:

- from a height of 30 m over the ground, only execute small control movements,
- no landing while turning,

- after impacting the ground, let yourself fall slightly to the side and transform the falling energy into a rolling movement of the body,
- in case of wind speeds above 3 m/s, place the parachute canopy against the wind from a height of 50 m over the ground all the way to the landing.

If an emergency landing is unavoidable, observe the following tips in order to minimize the risk of injury.

Water landing:

- Steer the parachute against the wind,
- open the chest strap shortly before landing,
- release leg belts immediately after landing and swim away from the parachute.

Tree landing:

- Pull feet together, place the elbows against the stomach and press hands over face,
- if you remain hanging in a tree at a height above 1,5 m, further rescue should ideally be conducted with the assistance of helping persons.

Landing approach through power lines:

- Pull feet together,
- straighten out your body, head to the side and arms up in the air,
- if you remain hanging in the lines, further rescue should only be performed after the corresponding line segments have been disconnected.

## 2.7 Storage

The parachutes are to be stored in dry, dust-free and easily ventilated rooms protected against direct sunlight. A temperature between 5 and 35°C (41°F - 95°F) and a relative air humidity of 25 to 75% should be maintained in the rooms.

The rooms are to be kept free of vermin.

No materials whose properties may affect or destroy the parachute materials may be stored along with the parachutes (e.g. greases, acids, oils or other chemicals).

The parachutes should be stored in cabinets or shelves under observance of the following minimum distances:

- |                           |        |
|---------------------------|--------|
| - from the floor          | 25 cm  |
| - from heating bodies     | 100 cm |
| - from outside walls      | 100 cm |
| - from intermediary walls | 50 cm  |

The parachute documents should be stored together with the parachutes. If a parachute is not required for flight, it should be stored packed appropriately for storage. For this, the parachute is opened, the canopy stretched out and then folded in three. The suspension lines are linked to a braid. The parachute prepared in this manner is rolled up and pushed into the carrying bag.

The harness is pushed into the carrying bag so that the canopy does not come into contact with the armature parts of the harness and the spring pilot chute lies free without pre-tension.

### 3. Packing instructions

Packing of the emergency parachute may only be performed by personnel authorized for this in the country of the owner.

#### 3.1 Aids and appliances for packing

Packing may be done on a packing table or on a field packing tarpaulin. Two cotter pins, two packing strings and four shotbags are required for packing.

#### 3.2 Revision

The emergency parachute should be subjected to a thorough revision before each packing.

The complete parachute is laid down on the packing surface and stretched from the harness up to the apex of the parachute canopy. Intertwined and rotated parts are sorted. The correct state should be checked by grasping suspension cords 1 and 24 at the base and guiding them up to the D-rings with crossbars. If both suspension lines are free and lie in the inside of the upper free belt ends, they are in their correct position (Fig. 2). The inside of the packing bag floor should thereby point upwards.



**Fig. 2**  
Suspension line inspection

The following sequence is mandatory for a revision:

- Parachute log book
- Opening installation components
- Parachute canopy with suspension lines and pilot chute
- Packing bag with harness, plug locks

In particular, the following should be checked during a revision:

- Parachute log book for adequate entries
- textile components for tears, dirt spots, seam tears or other damages
- metallic parts for functionality, breaking, tearing or rust spots
- Opening installation components
- Opening handle for cracks, cables for tears of individual fibres, fastening pegs for deformation, tent lugs and locking loops for fault-free state
- Connection between pilot chute - connection line - parachute canopy for fault-free state at the connection places, secured by hand stitches at the pilot chute
- Plug locks for fault-free latching of the plugs in the locks and snapping back of both rotating locks, movement of the safety flap, completeness of the riveting and balls

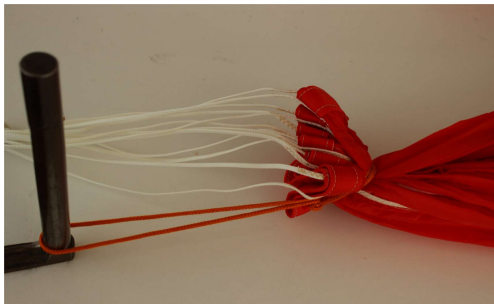
The faults observed during revision are to be remedied.

The current "Repair directive for emergency and personal parachutes" (Publisher: SPEKON Sächsische Spezialkonfektion GmbH) is to be observed during repairs.

### 3.3 Packing process

#### 3.3.1 Preliminary work for packing

The parachute canopy is attached to the apex thanks to an auxiliary loop at the front side of the packing table (Fig. 3).



**Fig. 3**  
Fixation of the apex

The packing bag is laid on the packing table with the back cushion facing up and the back cushion is folded back.

Respectively one end of the fastening loop is guided through each of both tent lugs on the floor of the packing bag

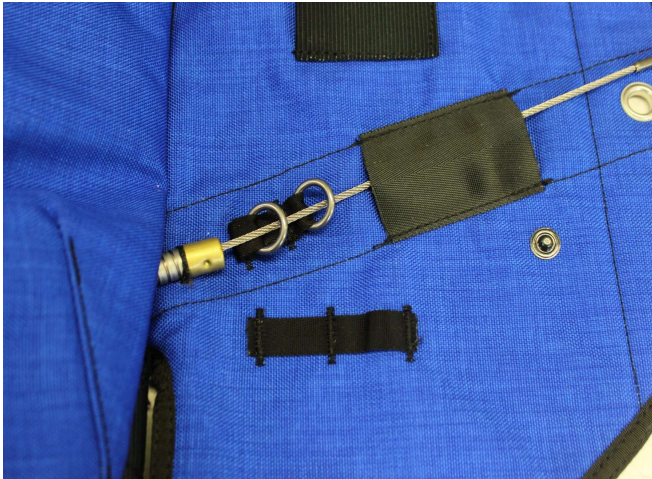
The back cushion is then closed again and the packing bag is rotated so that the inside lies facing up on the packing table. (Fig. 4).



**Fig. 4**  
Fixation of the fastening loop

Only manual opening via opening cord:

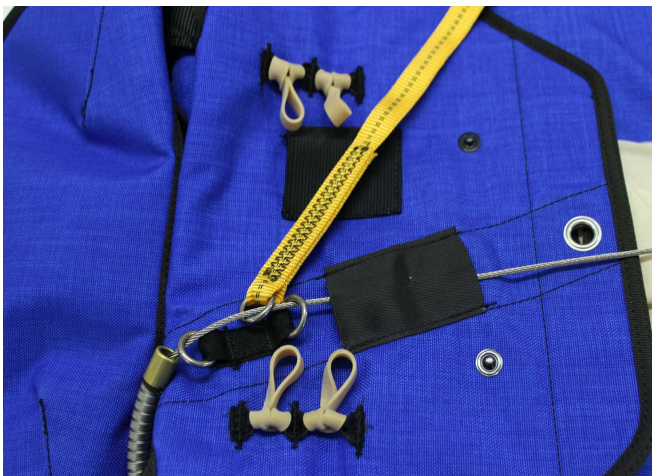
One after the other, both fastening pegs of the opening cord are then guided to the upper fastening cap through the cable protection tube, both guiding rings and the fabric guide channel (Fig. 5).



**Fig. 5** Only manual  
Pulling in the opening cord

Manual/automatic opening through opening cord and static line:

The opening cord is additionally guided through the ring of the static line via both guide rings on the upper fastening cap (Fig. 6).



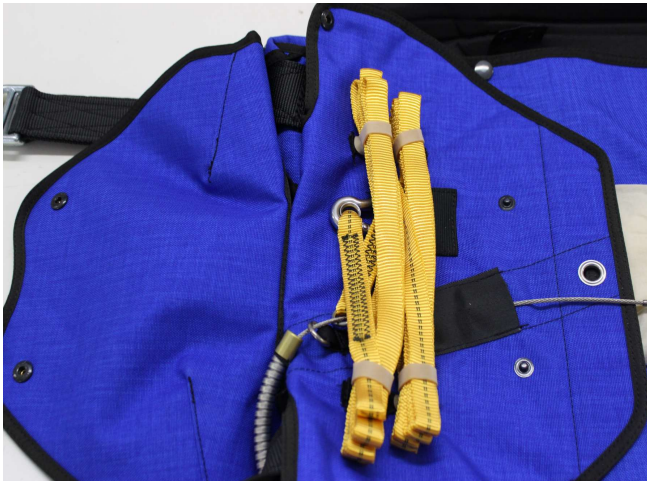
**Fig. 6** Opening man./automatic:  
Pulling in the opening cord and  
attaching the static line

**Warning:**

**Guiding the opening cord through the ring of the static line above both guiding rings significantly increases the required opening force and should therefore be avoided!**

The static line is laid in the flat rubber loops in S-folds, whereby the first pair of loops. The pull-up line is inserted into the flat rubber tracks in S-strokes, with 4 folds in each pair of loop. The snap hook of the static line is plugged into the rubber pocket on the upper fastening flap (Fig. 7).

The upper cover flap is folded back.



**Fig. 7**  
Stapping the static line

The inner four holding flaps and the suspension line cover flap are subsequently folded towards the middle of the packing bag and fixed with a shotbag (Fig. 8).



**Fig. 8**  
Fold inner flaps and suspension  
line cover towards the middle

### 3.3.2 Laying down the parachute canopy

The complete system of parachute canopy-suspension lines-packing bag is then tautened and another suspension line inspection is performed.

The packer lifts up the left pair of belts at the D-rings with crossbars and catches suspension line 13 located at the left lower belt, pulling it out towards the lower left. He goes towards the base of the parachute canopy by guiding this suspension line in the left hand and all the others of the left belt pair in the right hand.

Once there, he pulls suspension line 13 out towards the lower left and places the left canopy half over the right canopy half. He catches suspension line 14 with his right hand and pulls it out towards the upper right. The entire gore is thereby tautened (Fig.9).



**Fig. 9**  
Laying down the parachute  
canopy: tautening the gores

The right hand is then swiftly moved to the left and suspension line 14 is handed over to the left hand (Fig. 10).



**Fig. 10**  
Laying down the parachute  
canopy: folding the gores

In the same manner, all gores are folded one after the other. The complete arranged parachute canopy is then placed on its left side on the packing table (Fig. 11).



**Fig. 11**  
Laying down the parachute  
canopy: Laying down the  
canopy on its left side

The parachute canopy are now placed once more gore by gore. The placement scheme is



shown in the following schematic:

This schematic shows a view on the base of the placed parachute canopy from the direction of the packing bag. The points designated using numbers correspond to the respective suspension lines.

The base and suspension lines are sorted when placing the individual gores.

Placing the individual gores of the right canopy half begins with folding gore 12 and is continued up to gore 1.

The right canopy half is subsequently weighed down using two shotbags and the left canopy half is folded over the already sorted right half. Similarly, the left half is folded over the right half gore by gore in identical fashion and sorted, so that gores 24 and 1 lie next to one another at the top once finished (Fig. 12).



**Fig. 12**

Placing the parachute canopy:  
Sorting the gores of the left and right canopy halves

When placing the individual gores, it should be ensured that the air bags at the bases of gores 9 to 17 are placed taut outward.

After another suspension line inspection, gore 24 is deposited on the right canopy half. Subsequently, all gores with control opening (gores 24, 1 and 2) are halved by folding them over in the middle (Fig. 13).



**Fig. 13**

Laying down the parachute canopy:  
Folding control gores 1, 2 and 24

Gore 23 is now placed over the halved control gores in order to cover the control opening on the right canopy half and the base fixation bands are folded over (Fig. 14).



**Fig. 14**  
Laying down the parachute canopy: Folding the base fixation bands

The base edges of the left and right canopy half are folded inward so that they lie parallel to the suspension lines. This can be done standing up straight or lying down with a slight fanning towards the centre of the chute (Fig. 15).



**Fig. 15**  
Laying down the parachute canopy: Folding the base of the left and right canopy halves parallel to the suspension lines

The parachute canopy is then folded in three, beginning by folding the right and then the left canopy halves inward towards the middle (Fig. 16).



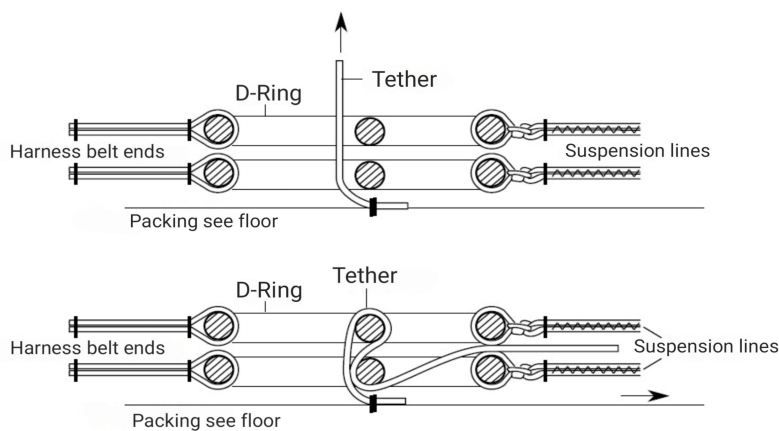
**Fig. 16**  
Laying down the parachute canopy: Folding the parachute canopy in three

The parachute canopy folded in this manner is weighed down with shotbags. The auxiliary loop at the apex of the parachute canopy is opened.

### 3.3.3 Inserting the belt ends

The ends of the harness are placed in the packing bag in such a manner that the D-rings with crossbars lie in pairs next to the free ends of the fixation belts that are sewn on the floor of the packing bag. The free ends of the holding belts are guided through the D-rings in the following sequence as per Fig. 17:

- plug from below between the straight side and crossbars of the pairwise superposed D-rings,
- guide around the crossbar of the upper D-ring,
- guide through the lower D-ring from top to bottom between the crossbar and straight side of the D-ring,
- plug upward between the crossbar and convex side of the lower D-ring, guide outward between both D-rings and pull taut in the direction of the suspension lines.

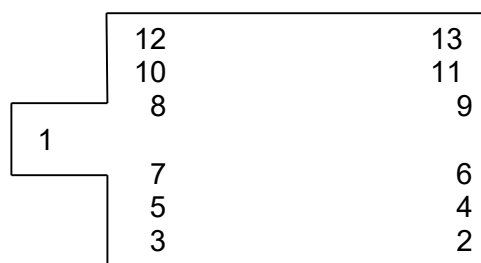


**Fig. 17**  
Fixation of the D-rings to  
the tethers

With the packing bag closed, this holding installation creates a jamming effect between the tether and D-rings, preventing an unintentional pulling out of the belt ends from the packing bag.

### 3.3.4 Strapping the suspension lines

The suspension lines are strapped in the flat rubber loops in the floor of the packing bag. Strapping of the suspension lines is done as follows:



In accordance with the diagram, both suspension line bundles are grouped starting from the tethers and strapped in the central loop (1) in the middle of the packing bag. From there, the suspension lines bundle is guided to the left packing bag side and strapped in the lower outer flat rubber loop (2). Further strapping occurs as per the diagram shown above (Fig. 18).



**Fig. 18**  
Strapping the suspension lines

Subsequently, the strapped suspension lines are covered with the protection flap held in place by the pressure locks (Fig. 19).



**Fig. 19**  
Covering the suspension lines

### 3.3.5 Inserting the parachute canopy in the packing bag

Inserting the first fold:

The parachute canopy is placed on the right side of the packing floor so that the base of the canopy closes off the packing bag with its upper edge. The base is thereby pivoted by 180° towards the packing bag floor.

The canopy is then guided back to the left side of the packing bag floor so that the first ring band of the canopy lies at the upper edge within the second holding flap. This creates a fixed defined excess length of the inserted canopy in the lower part of the packing (Fig. 20).



**Fig. 20**

Inserting the first canopy fold: First loop band of the canopy at the upper edge within the second holding flap

The first and second holding flap are attached using pressure buttons (Fig. 21).



**Fig. 21**

Inserting the first canopy fold: Closing the first and second holding flap

The excess length of the canopy is inserted as a "W" in the lower part of the pack (Fig. 22).



**Fig. 22**

Inserting the first canopy fold: Insert excess length as a "W" in the lower part of the pack

Inserting the second fold:

The second fold is placed on the already fixed first layer. The second ring band of the canopy thereby lies on the second holding flap directly beneath the first ring band. The third ring band of the canopy is located at the upper edge outside of the fourth holding flap (Fig. 23).



**Fig. 23**

Inserting the second canopy fold: The third ring band of the canopy lies next to the upper edge outside of the fourth holding flap.

The second ring band of the canopy lies next to the first ring band on the second holding flap.

The third and fourth holding flaps are attached using pressure buttons (Fig. 24).



**Fig. 24**

Inserting the second canopy fold: Closing the third and fourth holding flaps

The resulting excess length of the canopy in the upper left part of the packing is inserted as a "W" (Fig. 25).



**Fig. 25**

Inserting the second canopy fold: Insert excess length as a "W" in the upper left part of the packing

The remaining length of the canopy from the third ring band up to the apex is placed in the middle of the upper part of the pack in short S-shaped folds (Fig. 26).



**Fig. 26**  
Insert the remaining canopy length in an S-shape in the middle of the upper part of the packing

- 3.3.6 Inserting the pilot chute and closing the packing bag  
Respectively one packing string is pulled through both free ends of the fastening loop. Using the packing strings, both ends of the fastening loop are pulled through the respective tent lugs of the upper and fastening cap and secured with a cotter pin each. Approximately two thirds of the pilot chute connection cord is thereby laid beneath the upper fastening cap (Fig. 27).



**Fig. 27**  
Closing the upper and lower fastening cap

The right and left corner of the upper fastening cap are pulled into the inserted canopy and attached to the floor of the pack using pressure buttons (Fig. 28).



**Fig. 28**  
Closing the pressure buttons at the upper fastening cap

The pilot chute is placed with the lower ring of the conical spring on the sewn guide ring in the middle of the packing bag floor. Both tent lugs on the pilot chute should thereby be located over both tent lugs on the floor of the packing bag. When the conical spring is uncompressed, the fabric of the pilot chute is inserted between the windings of the conical spring. The spring is compressed and both fastening loops are guided through the tent lugs using the packing strings and secured with the cotter pins (Fig. 29).



**Fig. 29**  
Inserting the pilot chute

The left and right side caps are consecutively pulled over the pilot chute and the fastening pins of the opening cord are guided through both ends of the fastening loop. Remove cotter pins and packing strings (Fig. 30).



**Fig. 30**  
Closing the lateral fastening caps

The lower fastening pin is sealed and the parachute log book is placed in the pocket integrated inside the middle cover cap once all required information has been entered (Fig. 31).



**Fig. 31**  
Sealing the opening cord.  
Inserting the parachute log  
book

The upper and the middle cover caps are closed by two pressure buttons each.



**Fig. 32**  
Closing the upper and the  
middle cover caps

The upper cover cap is connected with the inside belt cover using a pressure button in the area of the shoulder (Fig. 33).



**Fig. 33**  
Closing the upper fastening  
cap with the shoulder cover

The outer belt cover is pulled over the inside belt cover and closed using two pressure buttons (Fig. 34).



**Fig. 34**  
Closing the shoulder covers

Figs. 35 and 36 show the front and rear of the packed, ready parachute RE-5L Series 5+



**Fig. 35**



**Fig. 36**

**Important:**

- For sealing, use a red sealing yarn (Resistance 20-30N) and a lead seal with a diameter of at least 10 mm!
- The performed subsequent inspection and packing are to be entered in the packing certification booklet!

## 4. Maintenance

The maintenance encompasses the inspection of the RE-5L Series 5+ emergency parachute for flight capability as well as any required repairs.

Maintenance of the emergency parachute may only be performed by personnel authorized for this in the country of the owner. The owner should be informed of the respectively applicable laws and directives.

SPEKON GmbH only provides minimum requirements in this operating manual.

After inspection, a certificate after annual maintenance must be created.

**All activities listed in this manual may only be performed by trained personnel. Non-observance or deviation from the manual may lead to serious accidents!**

### 4.1 Inspection intervals

Inspections should be performed at the latest 12 months after expiry of the previous inspection. If the inspection interval is exceeded, a comprehensive inspection must be performed.

Furthermore, a comprehensive inspection is required after an emergency jump, after large repairs and modifications as well as in the case of instruction by the aeronautical authority.

### 4.2 Scope of testing

#### 4.2.1 Canopy with suspension lines

- Visual inspection of the gores and fields for fabric distortion, tears, holes, burnt spots, stains and other damages,
- Visual inspection of all gores for holes, burn marks, tears and other damages,
- Visual inspection of the seams for thread breakage, missing or loose sewing and burn marks,
- Visual inspection of the suspension lines for corrosion and burn marks, torn threads, knots or slings and other damages,
- Visual inspection of the zigzag seams,
- The canopy must be ventilated for at least 6 hours for packed parachutes. For this, the canopy should be hung by the apex in such a manner that its entire length is free.

#### 4.2.2 Pilot chute

- Visual inspection of the canopy for fabric damages such as distortions, holes and burn marks,
- Visual inspection of the reinforcement bands and the pilot chute connection cord for damages,
- Inspection of the knotting Pilot chute - Pilot chute connection cord - Parachute canopy,
- Visual inspection of the seams
- Verification of the conical spring for pressing force deformation and tight seat of the pressing sleeves,
- Verification of the hand stitches at the lower (small) ring of the conical spring,
- Verification of the tent lugs for damages and tight seat.

#### 4.2.3 Packing bag with harness

- Visual inspection of the fabric, the cushions and the grip pocket as well as of the bands and belts for tears, holes, corrosion spots, stains and other damages,
- Visual inspection of all seams for missing or loose stitches, thread breakages and general state,
- Verification of the rubber loops for strapping the suspension lines or the static line for completeness and damages,
- Visual inspection of the fastening loop for damages,
- Verification of all armatures for corrosion,
- Verification of the cable protection tube for pressure marks and damages,
- Verification of the tent lugs for tight seat and deformation,
- Functional verification of the pressure buttons and plug locks.

#### 4.2.4 Opening installation

- Visual inspection of the opening cord for loose or broken threads,
- Visual inspection of the fastening pins for deformation and tight seat,
- Visual inspection of the opening handle for deformation, tears or breakage,
- Verification of the static line for damages and state of the seams
- Verification of the snap hook for functionality, damages and corrosion

The functioning of the opening installation should be checked on the packed parachute. The opening force should be of at least 7 daN and may not exceed 15 daN.

#### 4.2.5 Other information

- Verification of the omission-free documentation of the operating records,
- Verification of the designation of the parachute and verification of correspondence with the factory documentation.
- Maintenance should be documented in the parachute log book. A certificate after annual maintenance must be compiled for this.

This also applies for the execution of airworthiness directive (AD) is their proof as per AD is demanded in a test certificate.

#### 4.2.6 Repairs

In case of repairs to the emergency parachute RE-5L Series 5+, the current „Repair directive for emergency and personal parachutes“ (Publisher: SPEKON Sächsische Spezialkonfektion GmbH) is binding.

##### Note

The manufacturer assumes no responsibility for the functionality of the emergency parachute if

- it is used outside of the scope the conditions and operating limits defined here without prior agreement,
- the instructions for packing and commissioning, the general guidelines or the inspection intervals were not complied with.

### **4.3 Cleaning**

If the parachute was polluted by dirty water, swampy or muddy ground, it must be rinsed using tap water with several water changes and subsequently dried without thereby squeezing out the parachute canopy.

The procedure is identical in case of contact with salt water.

Pollution through oil and grease should be carefully treated with fine cleaning liquid and the affected areas must be subsequently rinsed with water and dried.

The canopy requiring drying should be stretched out in its entire length. Canopies that have been hung up by the apex lines for drying may not be weighed down by the harness and packing bag.

Mould spots may affect material resistance. Parachutes polluted in this fashion must be inspected and if necessary repaired by SPEKON or an approved aeronautical repair organisation for emergency parachutes.