



## Emergency Parachute System PILOT BACK C9

### Technical Description and Owner's Manual



**Kyiv, Ukraine**

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## MANUAL REVISION HISTORY

<b>Revision</b>	<b>Date</b>	<b>Author</b>	<b>Description</b>
1	02-10-2018	Oleksiy Sharadkin, company owner, constructor	The initial issue

# WARNING

## **!!! Warning – Disclaimer !!!**

Because of the unavoidable danger associated with the parachuting activities and the use of parachute equipment, SkyWideSystems (SWS) company makes no warranties either expressed or implied.

This rig is sold as it is with all faults and without any warranty of safety. The manufacturer (SkyWideSystems company) also disclaims any liability for injuries resulting from a malfunction or from a defect in design, material, workmanship or manufacturing.

By using this rig, or allowing it to be used by others, the buyer waives any liability for personal injuries or other damages arising from such use.

If the buyer declines to wave the liability on the part of the manufacturer, buyer may obtain the full refund the purchase price by returning the parachute harness and container, before it is used, to the manufacturer within 30 days from the date of original purchase with a letter stating why it was returned.

In case if you started operating the rig, or did not return it within 30 days from the date of purchase – you assume risk and wave any claims against the manufacturer.

## **!!! The user assumes the risk !!!**

The deployment of the emergency parachute system Pilot Back C9 at the airspeed exceeding the maximum speed limit, or at the position unlike “horizontal, face down” may result in the following consequences:

- extremely hard deployment with gear damage
- the eventual falling out of harness
- harness destruction
- canopy damage or malfunction
- injury or death of the parachutist

## **!!! Do not violate the manual requirements !!!**

Be aware and follow the parachute equipment related guidelines and regulations.

Use only equipment that have been assembled from original components in strict accordance with the manual by a skilled parachute rigger.

Replace damaged, worn out or obsolete components and equipment.

Never exceed the maximum weight or speed approved to your rig as well as the other requirements of the manual.

## **!!! You and only you are responsible for your life !!!**

## MANUAL INFORMATION

This manual is written to make the user and rigger aware of the performance and operation features of Pilot Back C9 Emergency Parachute System.

The manual does not substitute a parachuting training course for the owner/user and shall only be used for an assistance in training and control.

The manual does not substitute the emergency parachute packing training course for a rigger and shall only be used as a source of information about the details of the parachute system packing.

Assembling, inspecting and packing the parachute system strictly in accordance with the instructions and recommendations of the manufacturer is the responsibility of each skilled and qualified rigger.

The owner of the parachute system is responsible for meeting the manufacturer's requirements concerning the technical inspection and packing terms, exit weight and airspeed in order to secure oneself and other people.

This manual is a compact source of information for you and your rigger. Please save this manual as your rigger will need it while inspection and packing.

# PRODUCT INFORMATION

## 1 GENERAL

Emergency parachute system Pilot Back C9 is a personal safety device for an emergency parachute jump.

### 1.1. Pilot Back C9 emergency parachute system

Picture 1. Emergency Parachute System Pilot Back C9

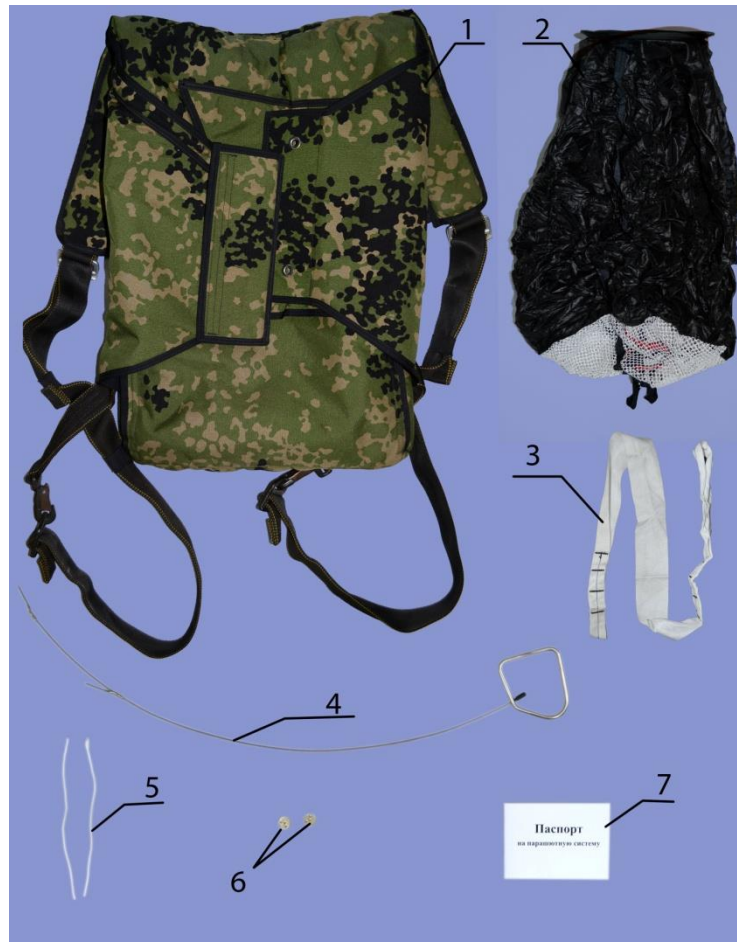


### 1.2 Technical Data

Parachute, surface area	55 sq. m
Number of lines	28
Lines	PIA-C-5040 nylon, strength 181 kg
Harness webbing	MIL-W-4088 Type 7, strength 2700 kg
Overall weight of the system	up to 9,75 kg
Range of adjustment	from: height 150 cm, weight 50 kg to: height 210 cm, weight 135 kg
Maximum flight weight	up to 136 kg
Maximum airspeed	400 km/h
Deployment method	manual
Descent rate	maximum weight 136 kg - 6,7 m/s
Minimum exit altitude	70 m
Repack interval	6 months
Warranty	12 months for manufacturing defect. Warranty does not cover ordinary wear, mechanic damage and defects, resulted from improper operation and/or storage.

## 1.3 System Components

Picture 2. System Components



1. harness and container system
2. pilot chute\*
3. bridle
4. 2-pin deployment handle\*
5. two closing loops\*\*
6. Cypres Washer – 2 pcs.
7. packing data card

\* **Warning!** Replacing the indicated elements may effect on safety in a critical way. You are allowed to use the original parts only. Use of any other components is **strictly prohibited**.

\*\* Use only 2,3 mm thick Microline CYPRES cord. Use of any other material as a closing loop is **strictly prohibited**.

## 2 ASSEMBLY AND PACKING

### 2.1. Packing Preparations

#### 2.1.1. Installing the Emergency Parachute

Attach the canopy to the risers of the emergency parachute system according to the canopy manufacturer's instructions.

#### 2.1.2. Pilot Chute Assembly

Picture 3. Pilot Chute Assembly



Attach the bridle to the top of the emergency parachute. Attach pilot chute to the bridle.

#### 2.1.3. Attaching the Steering Toggles

Picture 4. Attaching the Steering Toggles



Pull the steering line through the channel on the riser.

**Picture 5. Attaching the Steering Toggles**

Thread the steering line through the loop at the upper end of the toggle and then the toggle through the loop on the steering line. Straighten and tighten the steering line. Repeat these steps for the other toggle.

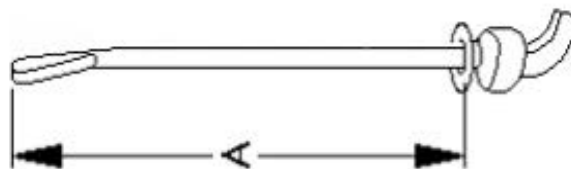
## 2.2. Attaching the Closing Loop

**WARNING! Closing loops are to be replaced each time you repack the emergency parachute system.**

The closing loop is made of Microline Cypres Cord 2,3 mm thick. The size of the “eye” is 1,5-2 cm. The use of any other material with any other size is strictly prohibited.

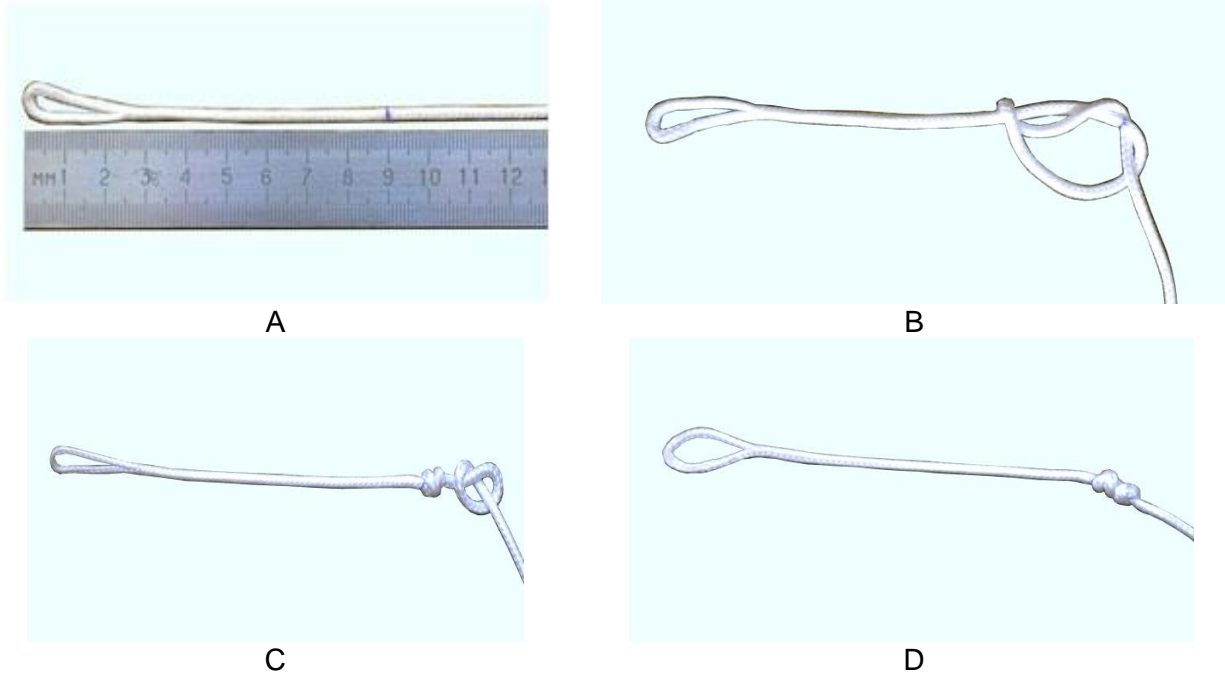
**Picture 6. Closing Loop**

Make two closing loops for the emergency parachute system. Closing loop has 70 mm “A length”. The indicated measures are valid for pre-stretched loops.

**Picture 7 “A length” of the closing loop**

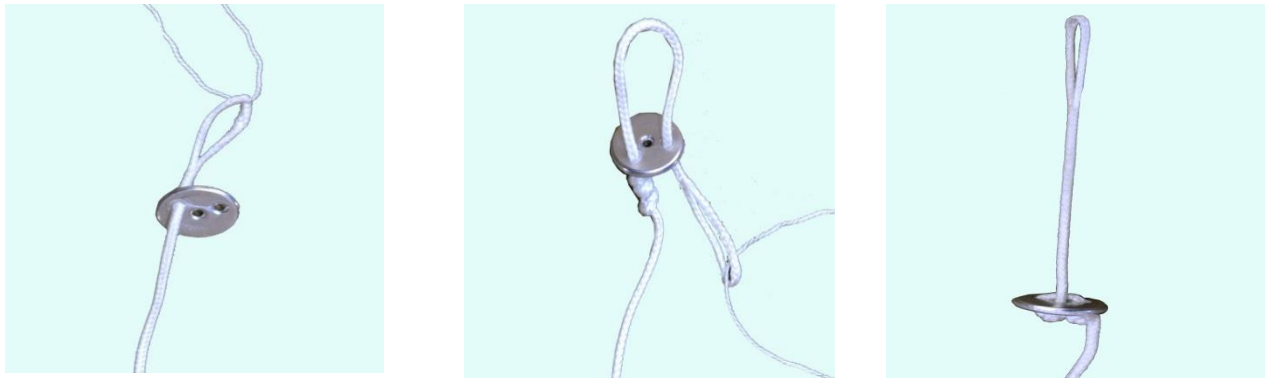
Take a loop and a Cypres washer. Mark 70mm length of the loop + 20 mm (it takes 20 mm to attach the loop to the washer). Tie a double knot on the mark and secure with a single knot as shown below.

**Picture 8. Closing Loop Preparation**



Thread the loop through the holes on the washer as shown in picture 9.

**Picture 9. Tying the Closing Loop to Cypres Washer**



Remove the thread and place a smooth metalbar in the loop and pre-stretch as shown. Inspect the length of the loop.

**Picture 10. Pre-stretching the Closing Loop**



If you use self-made loops, lubricate 5 cm from the end of the loop with silicon (a silicon pad comes with Cypres Packer's Kit).

**Picture 11. Lubricating the Closing Loop**



Thread the closing loops through grommets of upper and lower anchor.

**Picture 12. Installing the Closing Loops**



### **2.3. Installing the Ripcord Handle**

Take the ripcord handle and inspect it. Insert the ripcord cable into housing and place the handle into pocket.

**Picture 13. Ripcord Handle**



## 3. PACKING INSTRUCTION

### 3.1. Technical Inspection

Technical inspection is required to be carried out:

- While assembling the parachute system
- Before each re-pack of the parachute system (regardless whether it was used or not)
- After using and keeping the parachute system in unusual conditions
- In connection with the re-pack of the parachute according to the regulations of the country where the equipment is used, however at least once a year

The inspection may be carried out by an appropriately certified parachute rigger (or equivalent).  
Read the manual carefully before the inspection.

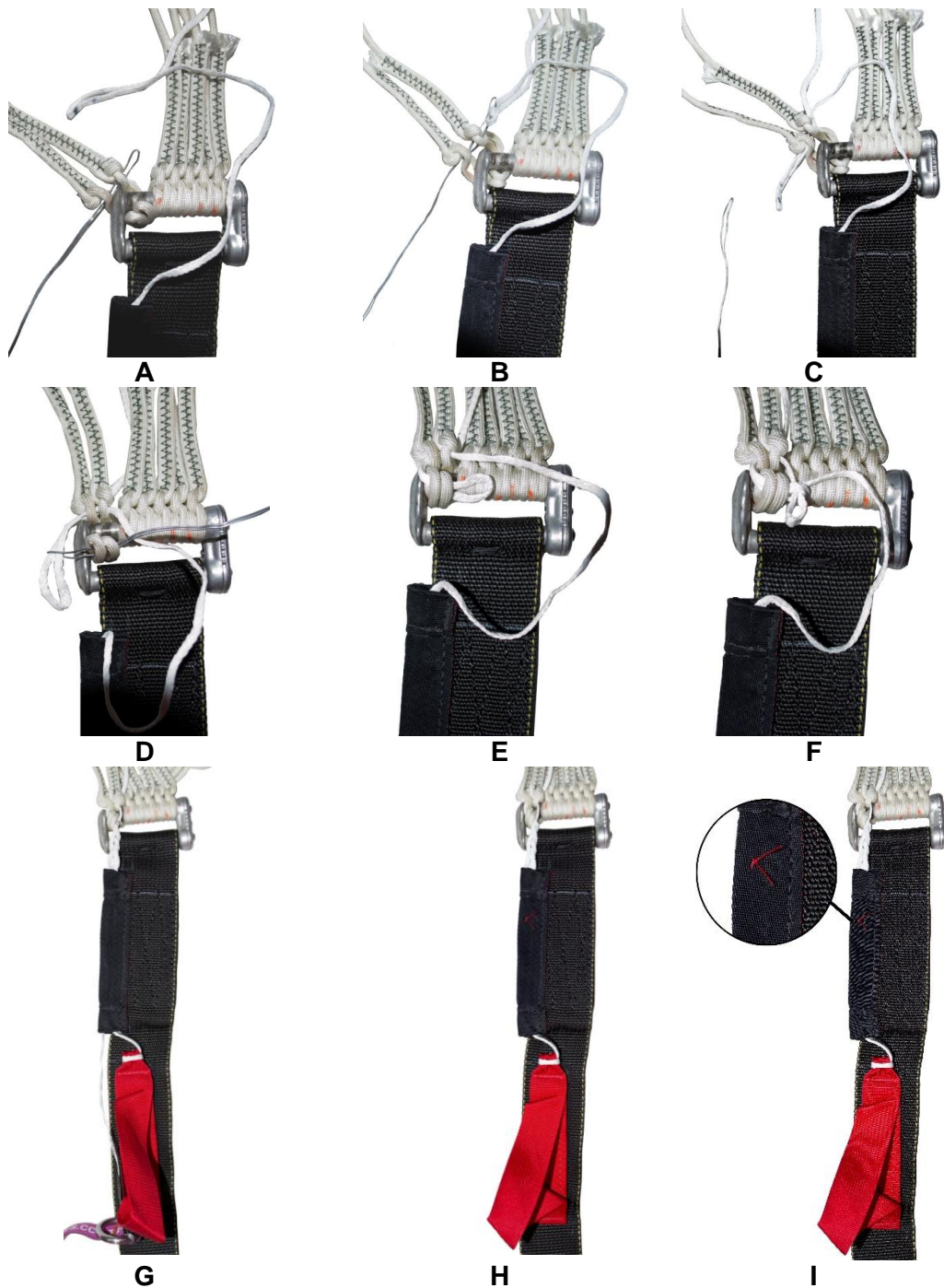
Object	Priority
Harness	Damaged edges, frayed webbing, broken stitches, condition of elastic bands
Ripcord: handle, pocket, cable and housing, ripcord pins	Handle pocket, cable damage, bent pins, enough slack in cable, Velcro, broken stitches, damaged housing and its attachments
Container flaps	Damaged stiffeners, bent or damaged grommets, sharp and burred edges, improper installation
Risers	Damages: bent connectors, brake and toggle attachments, slack of steering lines
Pilot chute and bridle	Damages: bridle, pilot chute fabric, pilot chute spring, pilot chute attachment to bridle
Hardware	Rust, burrs, sharp edges, proper installation
Closing loops	To be replaced at every re-pack, proper length



### 3.3. Setting the Brakes

Make sure that parachute and toggles have been properly attached.

Picture 15 Setting the Brakes



Insert the pull-thru rod through the loops of the lines. Bend the steering line at the marked place (picture 15 A). Pull the steering line through the loops of the lines (pictures 15 B and 15 C). Wrap the line loops around the buckle and insert the pull-thru rod into the lines as shown in picture 15 D. Pull the steering line through the line loops of the lines (picture 15 F). Secure the steering line in the loops of the lines by pulling the slack of the steering line (picture 15 H). Daisy-chain the slack (7-8 times). Insert the chain into the channel of the riser with the help of thread-thru rod (picture 15 G).

Remove the thread thru rod. In order to prevent unintentional releasing, secure the last chain loop with safety tie (picture 15 I).

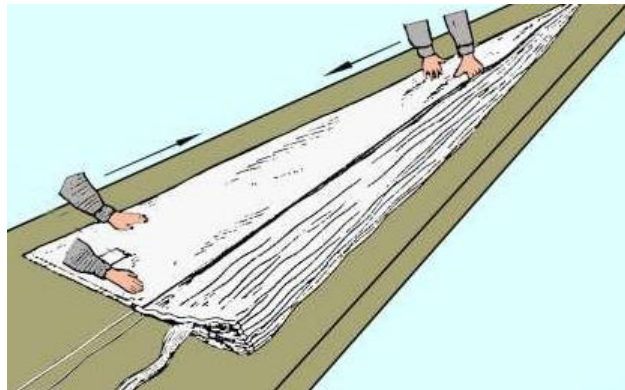
### 3.4. Parachute Packing

Prepare the parachute to the packing. Extend the canopy to its full length. Spread out the container flaps and insert the pull-up cords into the closing loops.

**Picture 16. Preparing the Container to the Packing**

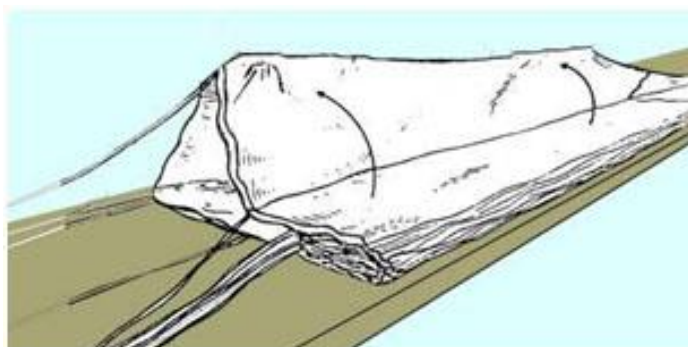


**Picture 17. Straightening the Canopy**



Place canopy on packing table and apply tension. Verify that canopy is not inverted, check suspension line continuity and align the apex band. Verify that all inspections are complete to ensure the airworthiness of the parachute. Flake the canopy in the normal manner and position the last panel with diaper centered on top. Set canopy back on table with diaper against the table.

**Picture 18. Flaking the Canopy**



With equal number of gores on each side, clear wind channel and install line separator.  
 Note: diaper must be facing the table. Straighten out each panel and stack skirt bands neatly one on top of the other.

**Picture 19. Pleated Canopy**

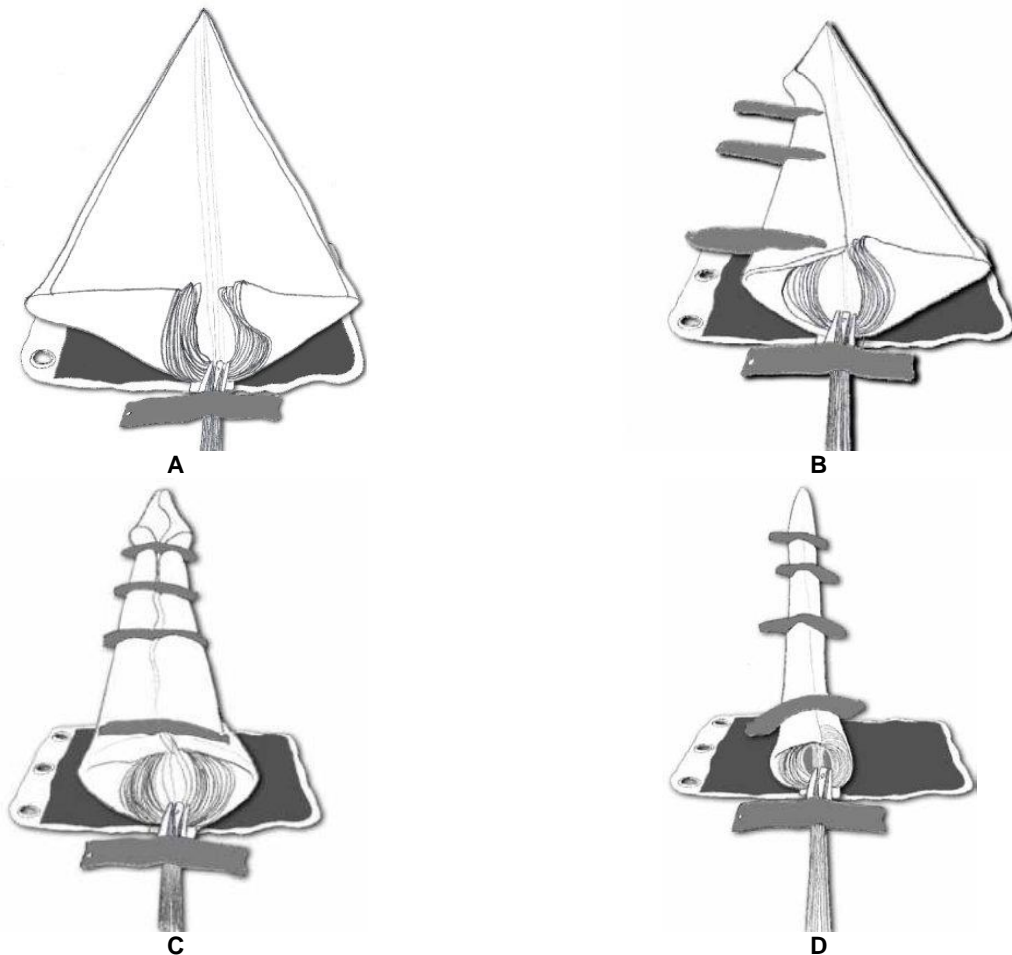


Fold the left side of the skirt 90° – skirt has to be in the center, parallel with radial seam tapes. Repeat for right side (picture 20 A).

Long fold each side of canopy to center – DO NOT OVERLAP (pictures A, B, C).

Take each side of folded canopy and fold again past center. OVERLAP this time. Place shotbags on folded canopy (picture 20 D).

**Picture 20. Folding the Canopy**

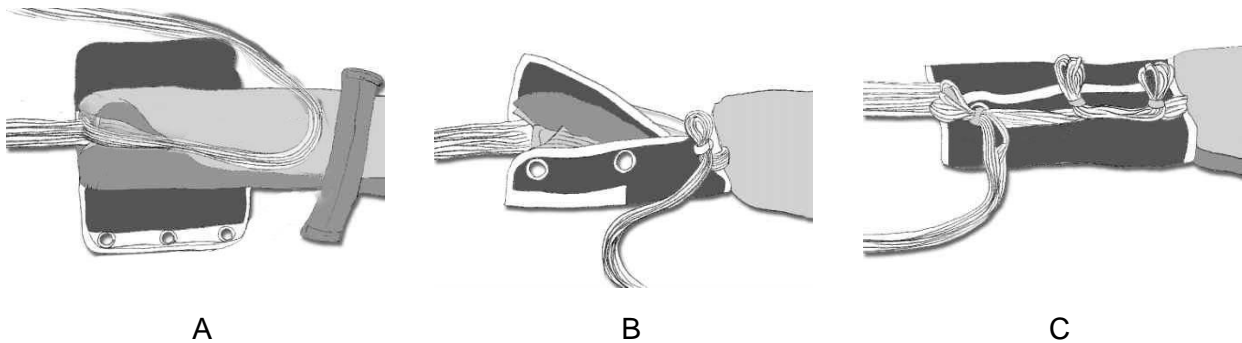


Check all rubber bands. Replace if damaged or stretched out.

Release the harness from the tension board. Bring lines of the LEFT line group loosely round the diaper (as shown in pic A).

Close the diaper using the left line group, make first two stows to lock diaper by passing rubber bands inserted in the grommets (picture 21 B-C). Bights should not be longer than 4-5 cm.

**Picture 21. Closing the Diaper**



### 3.5. Placing the Lines Into the Container

Route the risers to the inside of the pack tray. Tuck the risers underneath the protector flap (picture 22 A).

Take left group of suspension lines and stow as shown in picture 22 B.  
Repeat for the right group.

Take right group of the lines at the rubber bands placed at the upper protector flap, stow the lines.

Take the lines at the rubber bands placed at the bottom of container, stow the lines (picture 22 C).

Take left group of the lines at the rubber bands placed at the upper protector flap, stow the lines as shown in picture 22 D.

Remove the slack of right group of lines and stow the lines with the central rubber band placed at the upper protector flap (picture 22 E).

Join and straighten both left and right groups of the lines and stow the lines with the rubber band at the bottom of container (picture 22 F).

Stow the remaining suspension lines until you reach diaper (pictures 22 G, H, I).

Picture 22. Stowing the Lines



A



B



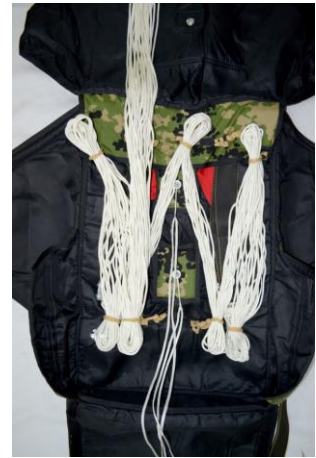
C



D



E



F



G



H

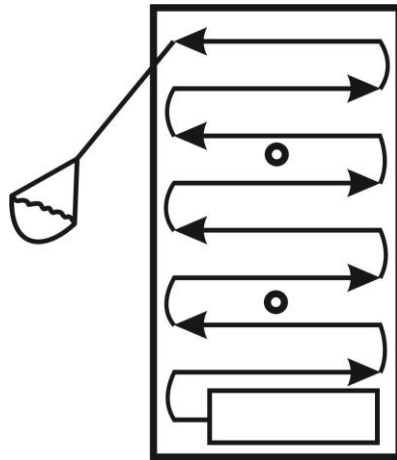


I

### 3.6. Placing the canopy into the Container

Fold the canopy on the pack tray as shown in picture 23.

**Picture 23. Placing the canopy in the Container**



Place the diaper to the bottom of the container. Diaper with line stows is to be directed to the lower flap of the container (picture 24 A). S-fold the canopy twice as shown in picture 24 B.

Cover the folds with the lower flap and thread the pull-up cord and closing loop through the grommet (picture 24 C).

Make next two S-folds as shown below. Pull up the pull-up cord, then make two more S-folds.

Position the top part of the canopy lengthwise the container side wall (picture 24 D).

**Picture 24. Placing the Canopy into the Container**



A



B



C

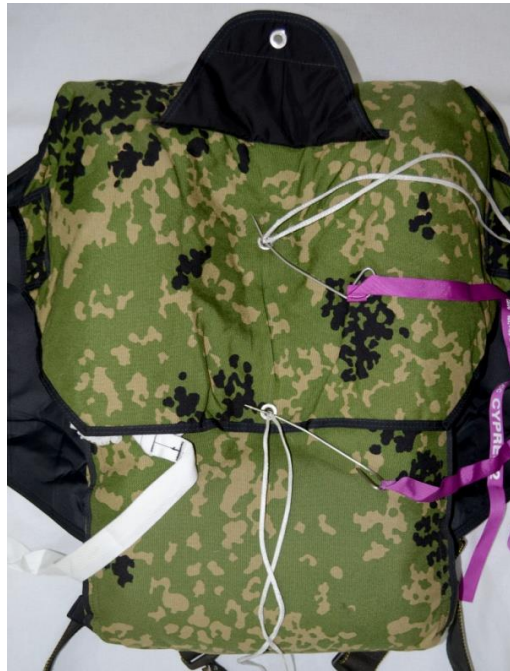


D

### 3.7. Closing the Container

Turn down the upper flap. Insert the pull-up cords through the grommets. Starting with the upper grommet, secure the closing loops with temporary pins (picture 25).

**Picture 25. Closing the Container**



Insert the thread-thru rod in the pilot chute. Make sure that the rod does not interfere with the spring coils and goes straight through the center of the spring.

Insert the upper pull-up cord in the rod and pull the pull-up cord through the top of the pilot chute.

Place the pilot chute on the upper grommet with the grommet accurately in the center.

Make sure the pilot chute is centered over the loop, then compress it straight down and lock it with the temporary pin (picture 26). While compressing, squeeze the pilot chute fabric between the coils.

**Picture 26. Closing the Pilot Chute**



Insert the pull-up cord in the upper flap grommet. Close the upper flap using the packing plate and positive leverage device. Grommets of the upper flap and pilot chute top plate must be in line.

Secure it with a temporary pin (picture 27).

**Picture 27. Closing the Upper PC Protector Flap**



Tuck in the left and right protector flaps of the upper flap. Fold the bridle lengthwise. Position the bridle on the upper flap as shown in the picture 28.

**Picture 28. Folding the bridle**



Close the right side flap of the container. Secure with temporary pins (picture 29).

**Picture 29. Closing the Right Side Flap**



Repeat on the left side flap (picture 30).

**Picture 30. Closing the Left Side Flap**



After securing all the flaps of container extract the temporary pins and close the container with the ripcord pins (picture 31).

Seal the lower ripcord pin. Close the protective flap (picture 31).

**Picture 31. Closing the Container with ripcord pins**



**After the packing count your tools and fill the packing data card!**

#### 4.1. Equipment Adjustment and Donning

Put the rig on and thread your feet through the leg straps. Make sure the straps are not twisted.

Thread the chest strap into the friction adapter; make sure that it's not twisted.

Tighten the chest strap so that it is snug, but not over tight to bend the Main Lift Webbing inside. After tightening stow the excess strap in the elastic keeper.

Tighten your leg straps (simultaneously) until they are snug, make sure both straps are evenly tightened. Uneven tightening of the leg straps may seriously affect the emergency parachute opening and flight.

After tightening stow the excess strap in the elastic keepers.

Properly adjusted and donned harness is not loose – nor does it restrict normal movement.

#### 4.2. Opening the Parachute

To deploy the emergency parachute, look at the handle, take a firm grip with your thumb inside the handle and fingers around the handle. Take the handle out of the pocket with turning motion to break the velcro and pull the ripcord along the housing (downwards) with the entire length of your arm.

It is extremely important to take a proper grip on the ripcord before the pull. If the grip is not good, the handle may slip from your hand.

### 5. MAINTENANCE AND CARE

#### 5.1. Repack Cycle

When cared properly the emergency canopies repack cycles are authorized for one year (12 months).

Proper care includes keeping the entire system clean, dry, limited exposure to UV light, not overheating, and no exposure to degrading substances.

**You must use the shortest repack cycle according to your country's regulations and canopy manufacturer's requirements.**

#### 5.2. Service Life

There is no set service life for Pilot Back C9 emergency parachute. It can be in service as long as it has been deemed airworthy by the rigger. However, the rigger/owner must follow his country's regulations in terms of maximum service life of emergency parachutes.

#### 5.3. Periodical Inspection

Performing a periodic inspection and maintenance are essential for safe and long-lasting operation of your rig.

Usually the parachute system requires very little maintenance unless it is subjected to abnormal or harsh conditions. Remember, you trust your life to the parachute equipment you have chosen. It is your responsibility to ensure that equipment remains in optimum serviceable condition.

The best approach to rig maintenance is to spend a few minutes performing a periodic, detailed inspection of the rig. The inspection should be performed by the owner at least once a month. Obviously, the more you use your equipment, the more often you should inspect it. If any wear or damage is found, contact your rigger and have it repaired without delay. If you have any suspicions or questions, do not hesitate to call and ask a rigger or the manufacturer for advice.

Periodic inspection should cover all parts of the harness and container system while paying particularly close attention to following areas:

**Harness.** Inspected all webbing for broken stitching or fraying.

**Container.** Inspect the plastic stiffeners in the container flaps and have replaced if broken. Replace any grommets that are deformed, nicked, damaged, or pulled out of setting. Inspect ripcord housing, cable as much as can be seen, handle and pins, closing loops, container fabric.

**Velcro.** The “hook” side of Velcro attracts bits of grass, hair and other dirt. You can clean the hook portion using a hair comb. The “loop” section generally remains clean but the nylon fibers sometimes tend to get pulled out of place. When you find that your Velcro fastener is losing its keeping qualities, replace it.

You cannot make any improvements or repair on the parts listed above if you are not a qualified rigger. You can, however, identify smaller problems before they become big. Some items to look for would include kinks in the ripcord cable, frayed or worn closing loop, frayed stitching on the harness and container.

**6. CUSTOMER SERVICE**

**6.1 Modification and Repair**

The container is designed in a way that the rigger can repair the system in the field to the fullest extent possible. If you need a repair, please contact SWS company. We can produce all necessary parts and provide a rigger with the instructions so he can replace them easily.

**6.2 Spare Parts**

Much of the spare parts of the parachute system you may need are available to the immediate shipping on order. It is advisable not to use any off-brand spare parts. If you have to do that in some case, make sure they are identical by the size, manufacturing standards and material.

To order the spare parts you need a serial number and date of the manufacture. These are found on the label at the right riser.

**6.3 Materials**

Materials listed below are used in production:

Usage	Name	Features
<b>Webbings:</b>		
Harness webbing	Type 7, MIL-W-4088	Width 43 mm Strength 2715 kg
Harness webbing	Type 8, MIL-W-4088	Width 43 mm Strength 1814 kg
Riser webbing, «narrow»	Type 17, MIL-W-4088	Width 25,4 mm Strength 1134 kg
Webbing	Type 4, MIL-W-4088	Width 76 mm Strength 816 kg
Webbing	Type 12, MIL-W-4088	Width 43 mm Strength 544 kg
<b>Binding and Reinforcement:</b>		
Pilot chute reinforcement	Type III, MIL-T-5038	Width 12,7 mm Strength 114 kg
Binding tape	Type III, MIL-T-5038	Width 19 mm Strength 190 kg
Toggles reinforcement	Type IV, MIL-T-5038	Width 25,4 mm Strength 455 kg
Bridle	2” Polyester webbing	Width 50 mm Strength 795 kg
<b>Fabrics:</b>		
Basic fabric of the container	Cordura	1000 den

Freebag fabric	ParaPack	420 den
Inner surface of container	ParaPack Foam Laminated	
Spacer Foam	Spacer Foam	
Stiffeners	Ballistic, MIL-C-3953	
F-111	Type IV, MIL-C-44378	
Pilot chute mesh	High Drag Netting	
<b>Lines:</b>		
Closing loop	Microline Cypres Cord	
<b>Threads:</b>		
Threads of container	VT-295E Size «E»	4 kg
Threads of harness	VT-295E Size «5»	19 kg
<b>Hardware:</b>		
Chest buckle, «narrow»	101	225 kg
Chest buckle, «wide»	PS70101	225 kg
Leg strap buckle, standard	PS22040-1(2)	1130 kg
Leg buckle, Flip-Flop	HSP888	1130 kg
Carabine B-12	PS22044-1(2)	1130 kg
Grommet 0, 0L SS	Grommet, stainless	0,01L
Grommet 0, 4 Nick	Grommet brass Nickel finish	0,4 L
Ripcord housings	Ripcord housings	260 I.D.
Oval sleeve	Oval sleeve	
Ripcord cable	Stainless steel aircraft cable	
Pilot chute spring	MA – 1	Length 50 cm Strength 12 kg
<b>Additional Materials:</b>		
Plastic stiffeners	Nylon MDS 0,06; 0,04	Thickness 1,6 mm; 1,0 mm
Foam inserts	Closed Cell Mem Foam 1\3"	Thickness 8,5 mm
Shock cord (safetystow)	1\8" Shock cord nylon covered	Thickness 3,2 mm
Elastic strap holders	1" Cotton Elastic, MIL-W-5664	Width 25,4 mm

In case if you need materials listed above for the parachute system repair and maintenance, you can order any of them at SWS company.

## STORAGE

Parachute systems are manufactured primarily from nylon. Nylon is very durable, but is still can get damaged from several sources:

**Sunlight.** The ultraviolet radiation in sunlight weaken nylon quickly and permanently. Keep your parachute out of direct sunlight as much as possible.

**Acids.** Acids damage nylon. Do not spill acid on your parachute. Keep your rig away from hangar floors, close to acid batteries or similar areas where acids may be present. If such contamination does occur, immediately and thoroughly wash the rig with plenty of warm soapy water. Until a rig can be washed, baking soda will quickly neutralize most acids. If acid damage occurs or is suspected, a rigger should thoroughly inspect your rig.

**Oils and Grease.** Most petroleum compounds do not weaken nylon; they simply stain it. A rigger using the proper petroleum solvent should promptly remove such stains.

**Water.** Water will not structurally damage nylon, but prolonged agitation in fresh water weakens webbing or may cause some fabric and tape colors to bleed. Salt water may damage nylon, because when drying it creates small salt crystals inside the fibres. If the parachute has been in salty water, it must be promptly and thoroughly washed off with plenty of fresh water.

Drying the wet parachute must be done by hanging it to dry out of the direct sunlight in a well ventilated area.

**Soil.** Soil may damage nylon. Brush off the soil after it has dried. Be sure that the soil is not in the cable housings or ripcord pins or closing loops. Consult a rigger if your rig is heavily soiled or extremely dirty.

**Sand.** Fine sand will weaken and cut webbing and fabrics of all types. Prolonged exposure to sand will shorten the life of the entire parachute assembly.

**Abrasion.** Nylon quickly frays if dragged over concrete or other rough surfaces.

## NOTICE

Information and the certifications set out in this Manual are efficient at the time of publication.

SWS company reserves the right to make changes in the emergency parachute system Pilot Back C9 without additional notifications.

## CONTACT INFORMATION

Postal address	p.o. box 77, 02175 Kyiv, Ukraine
Actual address of the manufacture	9 Boryspilska str., block 111, office 603 Kyiv, Ukraine
Telephone	+380 67 210-00-44
Email	<a href="mailto:order@sws.aero">order@sws.aero</a>
www	<a href="http://www.sws.aero">www.sws.aero</a>