

Thank you for choosing our **Vortex II** Harness Container. We worked hard to develop the **Vortex II** to give you the advantage of using one container for all disciplines of skydiving. The **Vortex II** Harness Container sports the latest in design features. We strive to offer you comfort, strength, reliability and many options to choose from to personalize your system and give you peace of mind. **parachutesystems** owners and design team wish you and your equipment many hours of Blue Skies and Safe Skydives.

Vortex II



Chute Shop T/A Parachute Systems

Designed and Manufactured by

parachutesystems



P.O. Box 181016, Dalbridge, Durban, 4014, South Africa

Tel: (0027) (31) 304 8038, Fax: (0027) (31) 304 8082

email: info@parachutesystems.com

Owners Manual & Packing Instructions

Vortex Serial No:

Date of Manuf:

Decelerator Serial No:

Date of Manuf:



You must be a qualified Reserve Packer before attempting to pack the Vortex Harness/Container. Read and understand the packing manuals thoroughly and apply the proper techniques.

FAA TSO Approved C23d



U.S. Department
of Transportation

Federal Aviation
Administration

In reply refer to: GE/vk01/05/99/C23d

Mr. van der Plaats
Deputy Chief Engineer/Airworthiness
South African Civil Aviation Authority
Private Bag x08
Waterkloof 0145
South Africa

Dear Mr. van der Plaats:

This letter refers to Chute Shop C.C. letter and Statement of Conformance, dated June 22, 1998, by which they made application for Technical Standard Order (TSO) design approval. This letter also acknowledges receipt of Republic of South Africa CAA letter Ref. 11513/10/1: J44/431, certifying in accordance with FAR 21.617, that the personnel parachute assemblies listed below comply with the requirements of TSO C23d, as designated in FAR 21.305(h).

Based on the RSA CAA certification and receipt of the required data, we hereby accept Chute Shop C.C. TSO design approval to include personnel parachute assemblies listed below for manufacture at Chute Shop C.C. located at P.O. Box 181016 Dalbridge, Durban 4014, South Africa.

Type	Part No	Description
Decelerator Reserves	Decel/Res	Reserve Parachute Assemblies
Vortex Harness Containers	Vor/Hc	Storage Container

This letter of TSO design approval, together with the RSA CAA Certificate of Airworthiness for Export, will authorize Chute Shop C.C. to identify the personnel parachute assemblies with the TSO marking requirements described in FAR 21.607(d) and in TSO C23d and is issued in accordance with FAR 21.617 governing issuance of TSO design approval for import appliances. Each item must be accompanied by a Certificate of Airworthiness for Export issued by the RSA CAA or a duly authorized designee/organization (FAR 21.502(a)).

Any deviations from the established design approval should be accomplished in accordance with FAR 21.609. The request for approval to deviate, together with all pertinent data, should be submitted to the Federal Aviation Administration (FAA) through the RSA CAA and should contain information to show that the particular deviation is compensated for by factors or design features providing an equivalent level of safety.

A letter of TSO design approval issued under FAR 21.617 is not transferable and is effective until surrendered, withdrawn or otherwise terminated by the FAA (FAR 21.621).

The FAA may, upon notice, withdraw the letter of TSO design approval of any manufacturer who identifies with a TSO marking any article not meeting the performance standard of the applicable TSO (FAR 21.619). The RSA CAA airworthiness certification is essential to the determination that the item meets the performance standards of the applicable TSO.

If there are any questions, please feel free to have your staff contact Gregory A. Edwards (Tel. 322.508.2714) or William J. Timbolaku (Tel. 322.508.2718).

Sincerely

John R. Colomy
Manager, Aircraft Certification Staff
FAA-Brussels

Reference: GE/vk01/05/99/C23d

AIRCRAFT CERTIFICATION STAFF
c/o American Embassy
27, Boulevard du Regent
B-1000 Brussels, Belgium



**SKYDIVING IS
A SPORT IN WHICH
THE RISK OF INJURY AND DEATH
IS INHERENT!**

**IN SPITE OF ALL THAT IS
DONE TO ENSURE THAT
THIS PRODUCT WILL
OPERATE SAFELY, NO
ONE CAN ENSURE THAT
INJURY OR DEATH WILL
NOT OCCUR AS A RESULT
OF ITS USE.**

parachutesystems



**DISCLAIMS
ANY LIABILITY FOR
PERSONAL INJURY OR
OTHER DAMAGES ARISING
FROM THE USE OF THIS
EQUIPMENT.**

**PAY CAREFUL ATTENTION TO THE FOLLOWING ITEMS
FOR THE SAFE OPERATION AND USE OF YOUR
NEW EQUIPMENT.**

3-RING SYSTEM

Thread the 3 rings through each other in the correct sequence. Pass the soft white nylon loop through the small ring only.

Insert it through the riser tab grommet then through the housing grommet and lock in place with the yellow cut away cable.

Check both sides to make sure the white loop passes through the small ring only (repeat on the other side)

RISERS AND TOGGLES

Make sure the risers are not twisted. Do a proper line continuity check on the main parachute. The brake lines must run clear all the way down through the slider grommets and the riser guide ring.

Attach the toggles in the correct manner. Put the loop (at the end of the steering line) through the zero grommet on the toggle. Loop the bottom end of the toggle through the steering line loop and pull it tight.

RAPIED LINKS AND BUMPER STOPS

The rapied link must be finger tight, then tweaked by no more than one quarter turn with a spanner.

Pull the bumper stops securely down over the rapied links. Keep a constant check on the bumper stops, making sure that they do not move off the links and check for wear and tear on the lines and line bar tacks.

CHECK YOUR EQUIPMENT ON A REGULAR BASIS.

1. Make sure the cut away cable is cleaned & lubricated. This should be done once a month or after every 50 jump. Check the reserve closure loop. Do a full inspection of the reserve and follow the manufacturers packing instructions carefully. Check the 3 ring and flex the webbing.
2. Check the reserve packing card and make sure that the reserve is current.
3. Check the main closure loop regularly and replace if it is worn.
4. Check the bumper stops for wear. Make sure the connectors are secure and the lines are undamaged. (Do not over tighten)
5. Keep an eye on the slider grommets and make sure they are smooth and firmly in place. Check the stitching on the slider and the bar tacks on the lines.
6. Use the correct stow bands on the deployment bag. Do not use standard elastics or tube stows on spectra or micro lines. Use the correct tube stows or elastics. Replace worn elastics or tube stows.
7. Do frequent line checks. Pay attention to the line attachment points and the link attachment points.
8. Inspect the main deployment bag, bridle and pilot chute thoroughly. Replace worn or torn equipment.
9. Check the reserve pin frequently and make sure it is not bent.
10. Keep your equipment dry and out of the sun and heat. Do not keep your equipment in the trunk of your car.

FOR MORE INFORMATION, PLEASE CONTACT YOUR DEALER OR CHUTE SHOP :

PARACHUTE SYSTEMS
P.O. Box 181016
Dalbridge, Durban
South Africa

Tel: (0027) (031) 304 8038
Fax: (0027) (031) 304 8038
email: info@parachutesystems.com

RESERVE PACKING TOOLS

1. Approx 1.5m pull up cord.
2. Cypres packing pin attached to a bright ribbon
3. Packing Paddle
4. Small Twister Bar and Plate
5. Approx. 40cm, 1" Loop Velcro
6. Data Card with weight, speed and AAD info.
7. Rifle Rod

RESERVE CLOSURE LOOP INFORMATION:

Vortex 100	-	50. mm
Vortex 120	-	50. mm
Vortex 135	-	50. mm
Vortex 150	-	55. mm
Vortex 170	-	60. mm
Vortex 185	-	60. mm
Vortex 215	-	75. mm
Vortex 285	-	75. mm

NOTE: All measurement are taken from the knot to the top of a pre-stretched closure loop.

How to pack a Decelerator Reserve

Always inspect the canopy before you start packing.

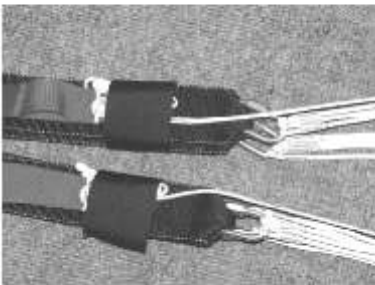
Hang the reserve on the Inspection bar and do a thorough inspection. Make sure the links are finger tight with a quarter spanner turn. Make sure the toggles are attached correctly and the steering lines are clear. Do a line continuity check. Lay the canopy nose down in a clean area.



Start by tying the base rings together with a pul up cord.



Stow the brakes and the excess line. Check that the steering lines run clear to the tail.



Separate the line groups as per our diagram and walk the lines up to the canopy. Place a weight on the container to get good and even line tension.



Put the lines over your shoulder and gather the nose together.

Page 2



Place the nose in front of your body.



Find the middle of the canopy and work on one side first. Start by pulling tension between the A and B line groups and pushing the fabric back to form a loop. Repeat between B and C, C and D etc. Now repeat the whole process on the other side.



Clear the stabilizers



Make sure the canopy is neat and equal on both sides.



Pull the slider down into the middle of the canopy.

Page 3



Bring the center of the tail up and over the grommets of the slider.



Place your forearm across the nose of the canopy and gently lay it down, whilst keeping tension on the lines.



Pull the center of the tail away to expose the line groups.

Page 4



Pull the slider out of the way.



Neatly separate the folds of the canopy outwards between the line groups again.



Make sure both sides are equal and neat.



Pull the slider up against the slider stops and quarter it.

Page 5



Clear the stabilisers on both sides
without disturbing the lines.



Flake the tail on both sides



Fold the stabilizers in by 45 degrees.



Bring the tail down to line up with
the grommets. (Keep it centered
as per the diagram)

Page 6



Fold the tail under and push the air out.



Lift the canopy up, exposing the nose. Clear the nose and separate the canopy equally both sides, leaving the center cell in the middle.



Carefully lay the canopy down again.



Push the remaining nose cells underneath the dressed pack job
(Repeat on the other side)

How to put the Reserve into the Vortex Freebag



Pack the reserve according to the manufacturers instructions and dress to the width of the freebag.



Split the canopy in the center and share the center cell equally on both sides while making bunny ears.



Dress the bunny ears equally on both sides.



"S" stack fold the one side of the bunny ear.



Pull the free bag underneath the "S" stock fold.

Page 2



Grasp the top of the bunny ear and insert into the top corner of the freebag. Now push the "S" stack fold up behind the ear, level with the mouth of the freebag opening. (Repeat same procedure on the other side.)



Spread the slider grommets and equalize the pack job on both sides of the freebag.



Pull equal tension on both line groups and close the mouth of the free bag using 1.5 inch bites thru the shock cord elastic on each side.



Stow the remaining lines by Zig zagging them into the line stow pocket. Place the pull up cord thru the closure loop and hold the top reserve flaps in position.



Bring the free bag up over the reserve container.

Page 3



Place the Risers neatly into the pack tray. Push the Risers slightly up on the side walls.



Place the Pull up cord through the grommet in the molar bag. Make sure that the suspension lines are clear of the closure loop.



Make sure you push the corners of the freebag all the way into the bottom corners of the reserve container. The two locking line stows should be pushed into position and covered by the protection flap.



Pull on the pull up cord and pin the closing loop in place.

Put two "S" folds in the freebag bridle. Lay them from top to bottom, on the right hand side of the reserve container.

Page 4



Pull the right flap over and lock the Cypres pin in place.



"S" fold the bridle on the opposite side, finishing to the bottom of the container. Making sure that you have at least two meters of bridle left over.



Pull the left flap over and put pin in place.



Push the tuck tab on flap number 1 underneath the freebag.



Repeat on the other side.



"S" stack the remaining bridle neatly on top of the line stow protection flap in the center of the container.



Spread the "S" fold slightly towards the closure loop. thread the pull up cord up through the center of the pilot chute and position the base of the pilot chute over the grommet on flap number 2.



Make sure the overlap on the pilot chute binding is positioned to the top of the reserve container. Slowly compress the spring down. Clear the fabric and mesh from the spring as you compress it.

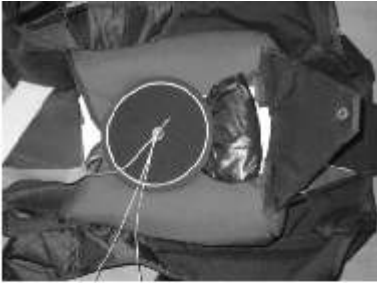


Fold the left side of the pilot chute fabric and mesh over the right hand side and cross pull the fabric under the pilot chute cap./



Pin the spring in place. Roll fold the material and mesh under the top half of the pilot chute cap and pull down towards the bottom of the container.

Page 6



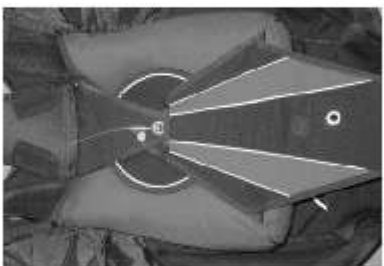
Fold up the excess fabric and mesh and make sure that it is clear of the "S" folded freebag material. Place the folded fabric on top of the freebag bridle.



Pull the bottom flap into position and pin



Close top flap



Insert the Ripcord Pin. Carefully remove the pull up cord. Use the packing paddle to tidy your pack job.



Count your packing tools, making sure they are all accounted for. Seal the reserve, sign the data card and close the pin protector flap.

How to insert your parachute into the **VORTEX II** Harness Container

PACKING MANUAL

Chute Shop T/A Parachute Systems

Designed and Manufactured by

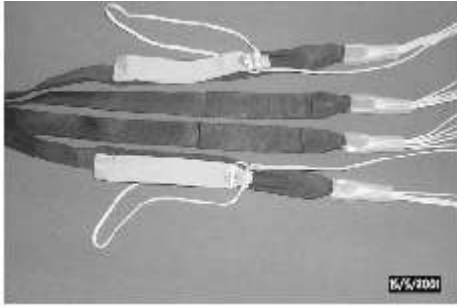
parachutesystems



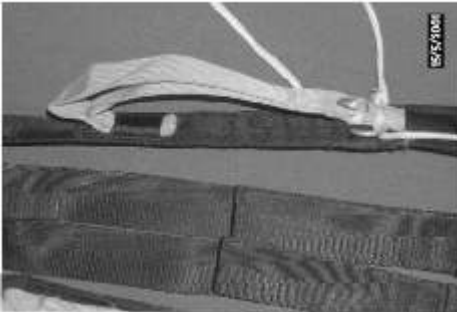
P.O. Box 181016, Dalbridge, Durban, 4014, South Africa

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email: info@parachutesystems.co.za



Set brakes as shown



Insert toggles



Dress the canopy two inches wider than the deployment bag.



Place knees where the first fold would be.



Lift the parachute tightly over your knees towards your chest. Start rolling the parachute tightly.



Clear the bridle as you roll the parachute and roll to the floor.



Release left knee and push your left hand into the fold as shown.



Rotate the roll towards you, keeping pressure from the top.



Get both knees on the roll.



Prep the bag with no twists in the bridle and kill line.



Cock the Pilotchute before bagging the canopy.



Hold the parachute firmly between both hands. Pull the bag towards the container as shown.



Rotate the parachute slightly and place on the flap as shown.



Keep one knee in the center of the flap to prevent the bag moving away. Note, the line group is slightly slack.



Check inner bridle and kill line are clear.



Rotate the parachute forward into the bag.



Insert the right hand side first.



Use the lip of the bag to pull on, insert the left side.



Aggressively rotate the top of the deployment bag towards the floor, whilst trapping the bag between your knees and hands.



Start stowing the lines from the center.



Complete the line stows using one and half inch bites.
NB. Use the correct size elastics.



Leave at least half a meter lines un stowed.



Prep the container



Bring the bag over the container and place on the floor with the lines towards the container.



Stack the risers side by side as shown.



Stow the lines neatly down the sides of the container as shown.



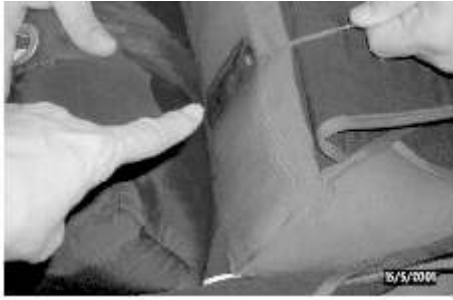
Keep the loop clear while placing the bag into the container as shown.



Keep the loop clear while placing the bag into the container



Place the bag in the container.



N.B. Check that the loop holder is clear



Rotate the bag into the container, with the lines towards the bottom of the container.



Route the bridle out to the right.



Close the bottom flap.



Close the top flap.



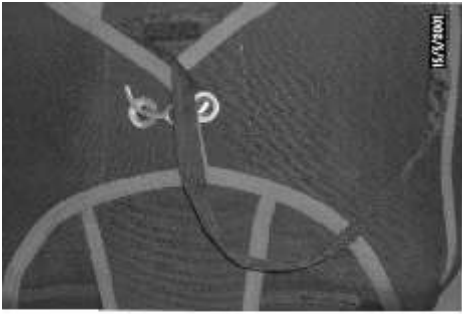
Now route the bridle to the left and close the right flap.



Close the left flap



Close with the pin.



N.B. Don't push the pin more than half way in.



Lay the pilot chute out as shown. Note the position relative to the container.



Fold the pilot chute in half.



Note the position of the pilot chute relative to the container. Fold the bridle as shown.



Stow the bridle as shown.



Fold one side of the pilot chute in half towards the centre.



Fold in half again.



Fold to the middle.



Repeat on the other side.



Route the bridle as shown.



Insert pilot chute into the pocket.



Route the bridle as shown.



Tuck the excess bridle away.



**Your Vortex Harness Container
is now ready.
We wish you blue skies and
safe skydiving.**

