MANUAL

Performance Tandem

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Personnel parachutes and their components must be examined and approved!

According to LuftVZO § 1 Abs.4, parachute systems must be examined and approved.

The manufacturer is responsible for proving the fulfillment of the airworthiness requirements detailed in § 10a of the regulations for the inspection of parachutes.

In an examination carried out by the manufacturer, the parachute equipment is checked for compliance with the specifications in the registered approval.

The useful life of our reserve parachute and harness-container system is limited to a duration of 15 years. The useful life of our main canopies is unlimited.

The OMEGA Tandem Harness-Container may only be jumped with reserve and main canopies manufactured and licensed by Performance Variable.

PERFORMANCE VARIABLE
German Flight Technology

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! WARNING !

The use of the tandem system requires the appropriate parachute license. In Germany this must be issued by the DAec or its equivalent recognized in Germany.
Iin order to reduce reduce the risk of injury or death, it is absolutely necessary to complete an instructional course for this parachute system.
The use of the tandem system may take place only with a complete understanding of the operating instructions and after the successful instruction, examination and attainment of the authorization to use this tandem system.
In order to guard against the risk of death, serious injury, damage to the parachute and hard openings, the following speeds at opening should not be exceeded.

Description	Omega	Contrail 390	Quick 400
Maximum Speed at Opening	130 KIAS / 240 km/h	130 KIAS / 240 km/h	130 KIAS / 240 km/h
Maximum Exit Weight	225 kg / 496 lbs.	225 kg / 496 lbs.	225 kg / 496 lbs.
Serial Number			
Equipment Number			
Date of Mftr. (Mon/Yr)			

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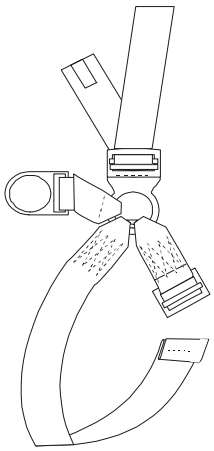
Description of Construction

Tandem Container System	
Ω omega	
Container Model	Main & Reserve Parachute Container
Number of Reserve Flaps	7
Reserve Pilot Chute	Inside
Manufacturer	Performance Variable, Germany
Reserve Automatic Activation Device	Cypres Ready
Passenger Attachment Points	4
Drogue Chute	Zero-P / or F111
Harness Material	Nylon Webbing Type 7 / Type 8
Approval	DAeC 1996, Representative of the NAA



A new feature of this tandem system is the built-in **hip ring with harness adjustment**. This allows a better distribution of the forces experienced by the harness and the sky-diver. The harness is more comfortable and the leg straps can be more easily replaced if damaged.

Description of Construction

Reserve Parachute	
Quick Reserve 400	
Parachute Model	Main & Reserve Parachute Rechteck
Number of Cells	9
Production Technique	I-Beam Chord-Wise
Manufacturer	Performance Variable, Germany
Suspension Line Connections	Double-L Bars
Canopy Fabric	F111
Suspension Lines	Dacron Lines & Vectran Lines
Approval	DAeC 1996

Tandem Main Parachute	
Contrail 390	
Parachute Model	Main Parachute—Semi-elliptical
Number of Cells	9
Production Technique	I-Beam Chord-Wise
Manufacturer	Performance Variable, Germany
Suspension Line Connections	Stainless-steel Links
Canopy Fabric	Nylon Zero-P / F111
Suspension Lines	Dacron Lines & Vectran Lines
Approval	DAeC 1996

Technical Data

Type	Size	Span	Chord	Volume	Weight	Exit Weight	Lines
	ft²	ft.	ft.	in³	lbs.	lbs.	Dacron Vectran
Contrail 390	390	31.79	12.27	1140	18.6	496	D 900 lbs. V 700 lbs. V 1050 lbs.
Quick 400	400	30.70	13.03	900	15.4	496	D 900 lbs.

Contrail 390 Suspension Line Trim in cm		
	Dacron	Vectran
AB 1	09	10
AB 2	09	10
AB 3	01	03
AB 4 – 5	10	11
AC 1	34	34
AC 2	32	32
AC 3	27	29
AC 4 – 5	35	36
AD 1	68	70
AD 2	62	66
AD 3	52	56
AD 4– 5	71	75
SLIDER 80cm x 73cm		

Quick 400 Suspension Line Trim in cm / Dacron	
AB	13.00
AC	36.00
AD	67.00
BC	23.00
CD	31.00
SLIDER 90cm x 78cm	

Contrail 390 Suspension Line Trim in cm		
	Dacron	Vectran
BC 1	25	24
BC 2	23	22
BC 3	26	26
BC 4 – 5	25	25
BD 1	59	60
BD 2	53	56
BD 3	51	53
BD 4 – 5	61	64
CD 1	34	36
CD 2	30	34
CD 3	25	27
CD 4 – 5	36	39
SLIDER 80cm x 73cm		

Steering Line Cascades		Main Brake Lines (fingertrapped)		Steering Lines	
Outer # 1-4	Inner # 5-7	Outer	Inner	Outer	Inner
SK 1 = 163	SK 5 = 135	365	388	55	46,5
SK 2 = 157	SK 6 = 141	*All measurements in cm.*			
SK 3 = 151	SK 7 = 151				
SK 4 = 142					

Assembly

The canopies may only be assembled by expert, qualified personnel who have been trained for the task.

Before assembly, the canopies should be checked that they are in a serviceable condition.

The system may only be assembled in accordance with the manufacturer‘s equipment handbook.

Instructions for Periodic Inspections

We recommend that our harness-containers and main and reserve parachutes be evaluated every two years.

At least once every 12 months, the reserve parachute should be opened, aired and thoroughly inspected before being re-packed by a certified expert.

The area in which the parachutes and container are examined must be clean, dry, well lighted and large enough that the parachutes can be completely stretched out.

Should something unusual be noticed during the inspection, contact the manufacturer immediately.

When in doubt - play it safe and contact us!

The following inspection procedure is both systematic and meaningful:

1. Drogue Chute, Drogue Chute Bridle and POD

Check the drogue chute and its bridle for secure attachment to the top skin of the canopy as well as for damage.
The parachute fabric and the reinforcment tapes, as well as their stitching, should not be damaged. Check for perfect function of the drogue-chute kill line. If the kill line is twisted, straighten it. The grommets on the POD (Pack Opening Device—also known as the deployment bag), including the grommet at the bottom of the POD, should be free of damage, have no sharp edges and be firmly attached to the POD material. Replace old packing rubber bands.

Performance Variable prescribes TandemTube Stoes for the POD.

2. Canopy Top Skin

The canopy should be completely spread out. Pay attention to all seams, potential tears, burns and separations.

3. Canopy Bottom Skin

Turn the canopy over and check it in the same manner the top skin was inspected. In addition, pay special attention to the suspension line attachments.

4. Interior Ribs

Each rib of the canopy, from the nose to the trailing edge, should be examined. This requires crawling into each cell. Pay special attention to the reinforcement tapes, the suspension line attachment points and the pilot-chute attachment. Also check that the crossports are not frayed.

5. Outer Side of Canopy

Lay the canopy on its side, so that the cells are stacked one on top of the other. In this way the condition of the stabilizers and slider stops can be examined.

6. Suspension Lines

The entire length of the lines should be examined for damage. Pay special attention to the cascades and the connector links. Check that the connector links are securely fastened.

7. Slider

The slider should be checked for damage to the fabric, the reinforcement tapes and the seams. The grommets should have no sharp edges, must be tight and securely attached to the slider.

8. Steering Lines

Check that the steering lines and secondary flairs run straight and orderly through the slider and also through the small ring on the main riser and are correctly fastened to the steering toggles. If the steering lines or secondary flairs are twisted, they should be straightened by twisting in the opposite direction.

9. Main Risers

There should be no apparent damage to the material, grommets or rings of the main risers. Check the performance of the Velcro and clean it if necessary.

10. 3-Ring System

The 3-ring system must perform flawlessly; the rings must be round and undamaged. The closing loop should also show no apparent damage. The 3-ring system should funtion with a light pull, as soon as the cable is released.

11. Release Device, Reserve Ripcord, RSL und Release Cable

Check that the release device as well as both release cables run freely and unobstructed. The Velcro should be clean and close securely. The reserve ripcord cable should also run smoothly and unobstructed in its housing. Check the function of the RSL, its attachment points and the ease with which it is released and attached.

12. Harness, Hardware and Stitching

An examination of the harness, hardware and stitching can only be performed visually. Pay attention that the type-7 webbing (with a yellow fiber running along the outside edges) is not damaged and that no stitching is broken. All hardware must be free of corrosion and move freely as designed.

13. Container Material

Examine the container for possible tears or separations. The grommets should have no sharp edges or separation. The loop should be flawless. It is better to replace the loop too soon rather than too late. The interior of the container should be clean.

14. Passenger Harness

An examination of the harness, hardware and stitching can only be performed visually. Pay attention that the type-7 webbing (with a yellow fiber running along the outside edge) is not damaged and that there are no broken stitches. All hardware must be free of corrosion and move freely as designed. Check that the padding is in good condition and is easily moved. Examine the attachment hooks for perfect functioning.

Safekeeping and Storage

The container system should be kept dry (at 45-70% relative humidity) and cool (10-15°C / 50-60°F), in a container through which light will not pass. Ultraviolet light can cause invisible damage to the fabric through decay of the nylon fibers. The parachute canopies and the harness-container should be kept away from all types of corrosive substances such as lye, acids, fuels, varnishes and solvents. Also, storage in areas with operating electric motors (electrosmog—O^3—ozone forming) should be avoided.

In extremely hot and humid climates the canopies should be re-packed every 30 days.

Cleaning

Basically, parachute canopies and containers should only be cleaned with fresh water. The use of brushes or rough sponges should be avoided.
After contact with salt water, the parachutes and container should be rinsed with fresh water at least three times withing the first 24 hours.

The removal or oil, tar or similiar substances should be discussed with the manufacturer. The equipment should not be cleaned in a washing machine.

Only dry the canopies and container by hanging them in the shade. After cleaning the canopies and container should be subject to a thorough re-examination.

Repair, Alteration and Replacement

When repairs are necessary, they should be performed only by the manufacturer or by a facility authorized by the manufacturer.

Repairs, alterations and modifications may only be performed by the manufacturer or by arrangement with the manufacturer. Only official replacement parts or those approved by the manufacturer may be used.

Disregard for these procedures
can void the airworthiness!

Packing Instructions for the Quick Reserve 400

The modern, ram-air parachutes produced today are very reliable canopies. As long as the parachute is packed with straight and untangled lines, it will usually open.

Nevertheless, we recommend the packing instructions illustrated on the following pages in order to achieve consistently good, soft openings that are better for the fabric and the skydiver.

The parachute should be packed carefully and in the same manner after each jump or according to the periodic re-pack cycle. Part of this careful procedure is to make sure that the packing area is clean and not in direct sunlight. Ultraviolet light can cause irreversible damage to the canopy fabric.

Reserve parachutes should only be packed in a closed area on carpet or a similar surface.

Packing on concrete or asphalt should be avoided, since rough surfaces like these can damage the fabric, lines and hardware.

! Important !

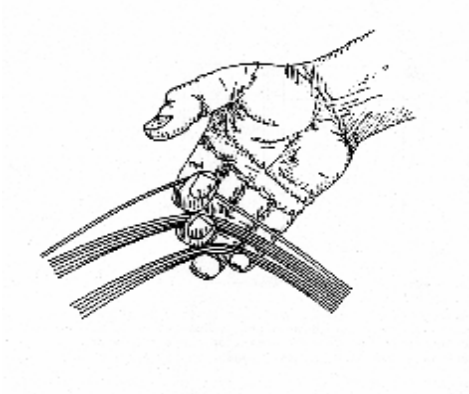
The Quick Reserve 400 tandem reserve parachute may only be packed by qualified, expert personnel who have been specifically introduced to the Quick Reserve 400 production series and trained by Performance Variable.

Tandem pilots are *not* authorized to pack a tandem reserve!

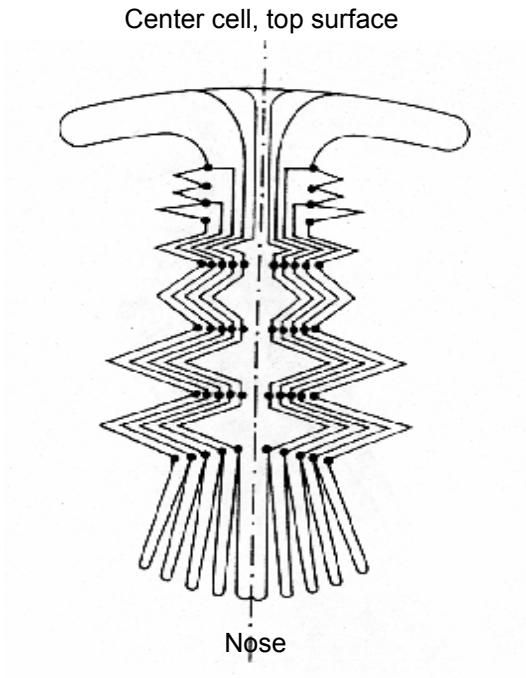
Since the reserve may only be repacked by ***qualified personnel*** with the appropriate specialized knowledge, we prefer not to explain the packing procedure with step-by-step individual illustrations but instead to merely illustrate the most outstanding points of the packing method preferred by Performance Variable.

The packing method that we recommend is described in the following text and illustrations:

1. After checking that the lines and canopy are straight, set the brakes.



2. The Quick Reserve 400 should be packed in a reserve pro-pack method. The slider should be pulled into the shape of a star.



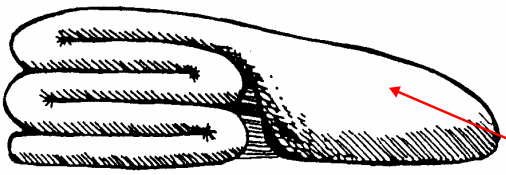
3. The 4 outer cells should be rolled toward the center cell 3 or 4 times.

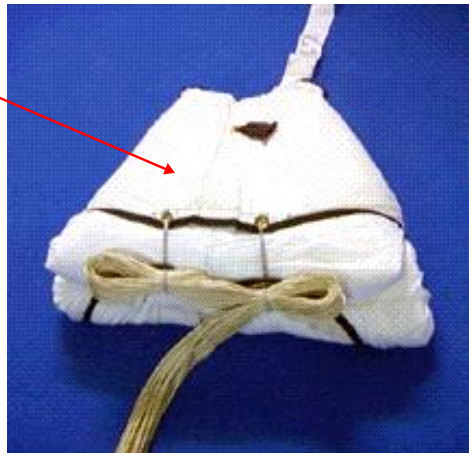
4. After being laid flat, the canopy—especially the lines in the center—should again be checked and sorted and the stabilizers flaked out.

5. The center cell is pulled over as a cover. The canopy should now be shaped together to the width of the POD/deployment bag.

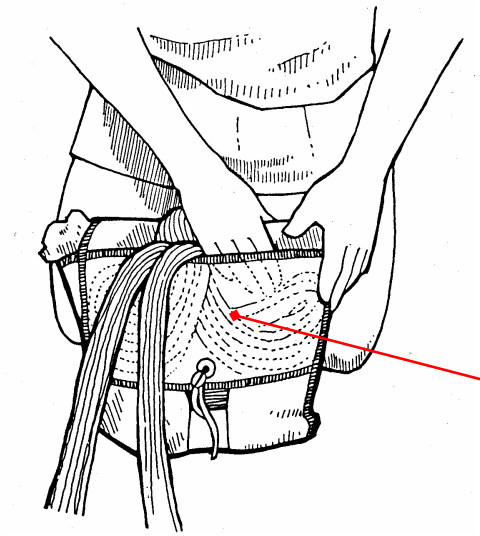
6. The canopy should be stacked up in neat S-folds.

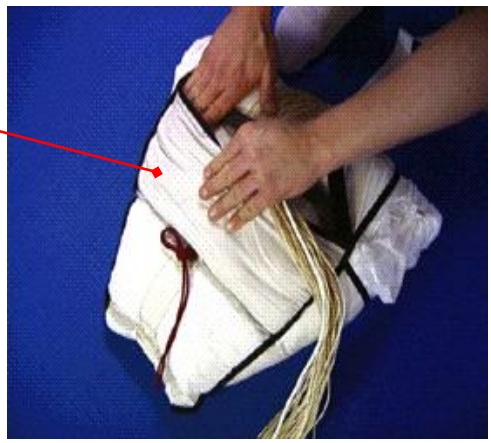
7. Two "horns“ or "ears“ should be formed and stowed in the freebag.





8. The freebag is closed with the shock-cord ³safety stow.“





9. The suspension lines are stowed in S-folds in the line bag compartment of the freebag.

10. Pay attention that the L-bar connector links are side-by-side at the bottom of the reserve container.

11. The freebag should be placed in the container with the lines at the bottom. The loop should be brought through, and the first, bottom flap closed. The Cypres cutter is on this flap.

11a. The triangular top part of the freebag should be carefully tucked into the container.

12. The pilot-chute bridle of the freebag should be placed on top of the first flap of the freebag in 5 to 6 medium-size S-folds. Each subsequent S-fold should be slightly shorter than the previous one. There should be at least 2m (6½ ft.) of bridle remaining unstowed.

12a. Carefully lay the second (top) flap on top of the S-folds and close the flap with a temporary closing pin.

13. The remaining bridle should be S-folded in a "V“ shape on top of the first two flaps.

14. The pilot chute should be centered and secured by means of the temporary closing pin. Make sure that no fabric is caught in the spring of the pilot chute.

15. Carefully tuck the pilot-chute fabric together under the edge of the cap.

16. Close the design flap and then both side flaps...

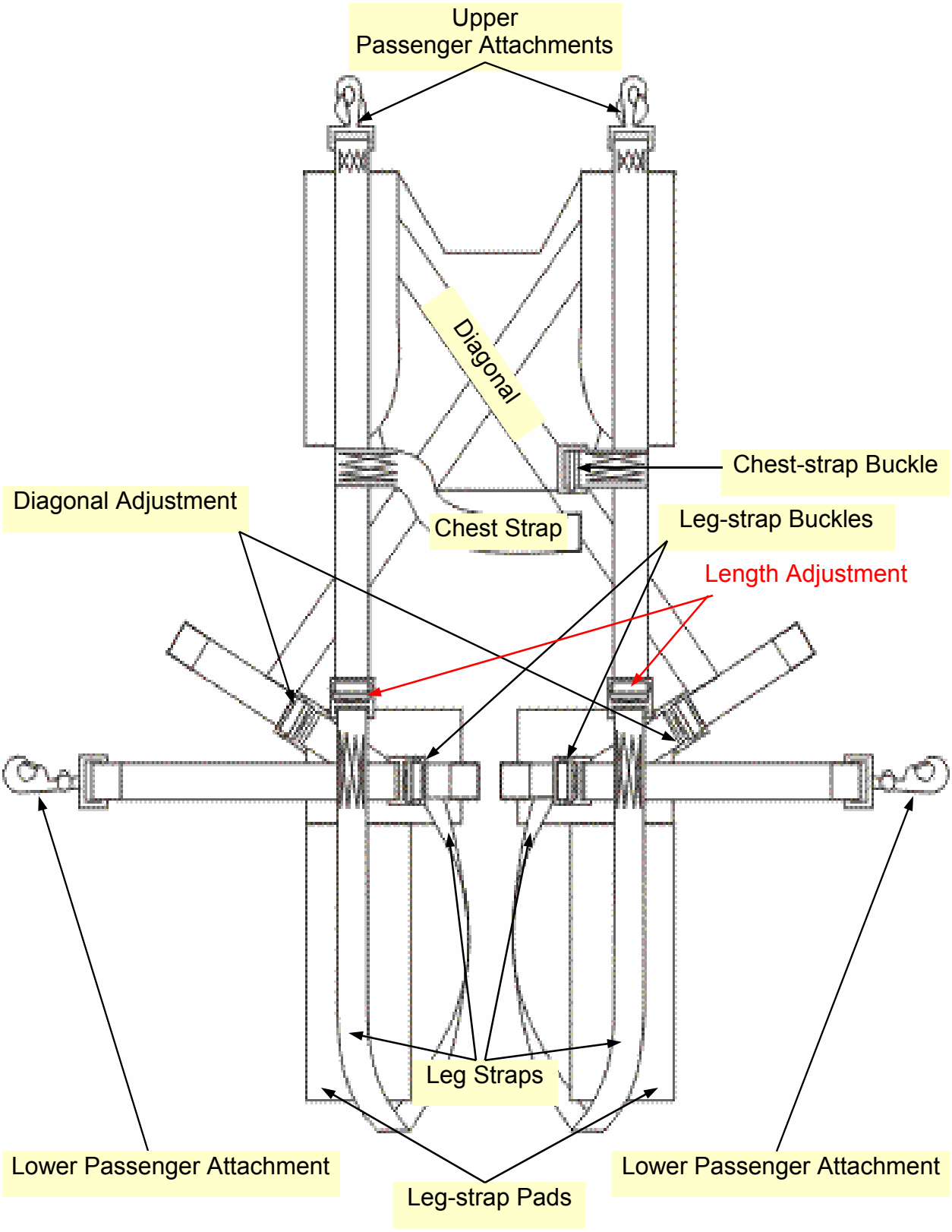
16a. ...in doing so, the sequence of the side flaps is not critical.

17. While closing the top flap with the reserve pin, make sure that the RSL line (when used) is cleanly attached to the reserve cable. (Use of the RSL is optional.)

18. After the rigger has sealed the reserve with the red safety tie, the top-most flap (reserve pin protector flap with see-through panel) should be closed.

19. The see-through panel allows a reserve pin-check to be made at any time—and without opening the pin protector flap.

Details of the Passenger Harness



Packing Instructions for Contrail 390

The modern, ram-air parachutes produced today are very reliable canopies. As long as the parachute is packed with straight and untangled lines, it will usually open.
Nevertheless, we recommend the packing instructions illustrated on the following pages in order to achieve consistently good, soft openings that are better for the fabric and the skydiver.
The parachute should be packed carefully and in the same manner after each jump. Part of this careful procedure is to make sure that the packing area is clean and not in direct sunlight. Ultraviolet light can cause irreversible damage to the canopy fabric. When it is not possible to pack indoors at the dropzone, minimize the amount of time the canopy is subject to direct sunlight and the corresponding ultraviolet rays. When it can not be immediately packed, the canopy and harness-container should be covered and protected from damage.
Packing on concrete or asphalt should be avoided, since rough surfaces like these can damage the fabric, lines and hardware.

! Important !

Parachutes may only be packed by the jumper or a qualified individual (rigger or equivalent). Contact the manufacturer immediately with any questions.

Pre-inspection Before Each Pack Job

The complete skydiving system should be checked for compliance with the manufacturer's specifications. The harness-container and parachute canopy should be stretched out with the lines taut. The lines should be checked that they are straight and not tangled and the slider should be undamaged.

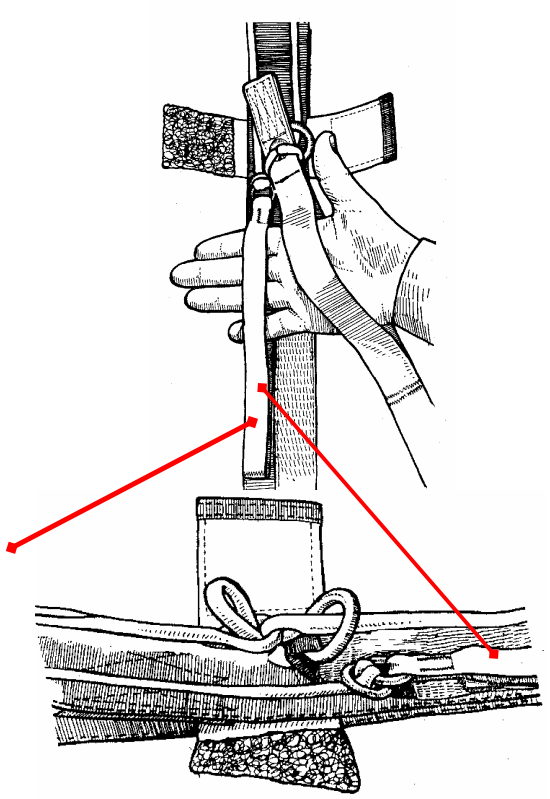
Should something unusual be noticed during the inspection,
contact the manufacturer immediately.

When in doubt - play it safe and contact us!

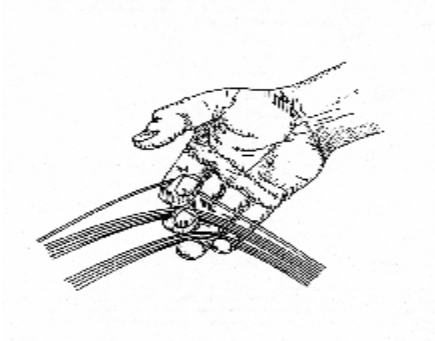
Performance Variable recommends using a pro-pack method for the main canopy CONTRAIL 390 production series.

The packing method that we recommend is described in the following text and illustrations:

Stretch the rig and parachute out so that the reserve flaps of the container face up. It is advisable to weight down the container so that it doesn't slide so easily during packing.



1. Set the brakes of the main steering lines by pulling the line down until the fingertrapped loop in the steering line is below the ring on the riser. Then the tip of the steering toggle can be Inserted in the loop below the ring on the riser.
On the Contrail 390, the secondary flairs are **not** set.
Grasp the front and back suspension line groups between the fingers and separate them, in this way pushing the slider to the top of the lines against the stabilizers



Pay attention that there is no twist, line-over or line-through the right or left suspension line groups.

2. Now find the openings to all the cells. Start with an outside end cell. Pull each cell (both sections) completely out. Be careful that no cell is overlooked or dropped.

3. Pull the stabilizers out, to the left or right, respectively.
Reach inside the canopy, beyond the slider from above, between the A and B lines, and flake the fabric to the side.

4. Do the same between the B and C lines. Repeat this process on the other side of the canopy.

5. Follow the D lines on one side with your hand, gently pull them out and place them toward the center of the canopy, so that there's an S-fold between the C and D lines.
Repeat this process on the other side.
Now grasp the steering lines on one side at the edge of the canopy and pull them out with the trailing edge. Lay the trailing edge (tail) in S-folds in the center of the canopy. Repeat the process on the other side.

6. Now roll the 4 cell openings towards the center cell 4 or 5 times.

7. Place the rolled cells into the center cell, so that the right-side cells are on the right of the center cell and the left-side cells are on the left half of the center cell.

8. Flake the slider so that it forms a star at the base of the canopy. Grasp the middle cell of the trailing edge (tail) and pull this over the entire parachute.

9. Be careful when pulling the tail around the rest of the canopy, so that the steering lines and cascades stay in the middle and DON'T go around the canopy. Otherwise this could lead to a line-over situation upon opening, which in turn could result in a malfunction or severely damaged canopy.
Take both sides of the tail in one hand and roll them several times towards the center of the canopy. Pay attention that the canopy fabric stays taut while being rolled, so that it rolls up to the base.
Then gently ease the evenly finished rolled tail toward the center cell of the canopy nose.

10. With your free hand, reach under the middle of the entire bundled canopy. Use a little forward swing to carefully lay this "cocoon" out on a flat surface. Pay attention that the suspension lines remain taut and that the cocoon stays together.

11. Secure the base of this cocoon (at the lines) with both knees and carefully squeeze the air out of the canopy. While forcing the air out, narrow the cocoon to the width of the POD/ deployment bag by carefully working the fabric sideways, under the cocoon. Watch out that the seam of the center cell stays in the middle.

12. Move to the side of the canopy, put one hand under the base of the cocoon, and fold the parachute upward in an S-fold as shown.

13. Secure the first S-fold with both knees and reach under the cocoon with one hand to compress the material against your thighs.
Now fold the upper part of the canopy material over your lower arm and squeeze the rest of the air out, so that it can be folded in an S-fold in the opposite direction from the first S-fold. Continuously secure the canopy material with one hand.

14. Then place one side of the canopy into the POD. Use your knee to make sure that the other (still free) side doesn‘t slip away while you‘re doing this.

15. Now place the second side into the POD. Secure the canopy with one hand so that it doesn‘t slip out.

16. Stow the suspension lines. Make the loops uniform in length; pay attention that there is no exceptionally long loop. The loops should be about the width of 3 fingers. Stow the suspension lines until about 50cm (20") of line remains unstowed.

17. Next place the POD upright, with the lines underneath, in the container. Stow the risers alongside the reserve container so that the toggles face towards the reserve.

18. Turn the POD about 90° in the container. . Make sure that the release grip is again seated and the cable correctly positioned.

19. The flaps of the main container should be closed in this order: Bottom, top, right, left. During the closing process, the kill-line of the drogue chute should be routed out down and to the right.
Close the container with the pin.

20. Attach the drogue-release 3-ring with the double loop. Then the drogue chute will be collapsed until activation of the kill-line.

21. Stow the excess kill-line centered under the closed flaps of the main container.

22. Lay the drogue chute beside the container, fold it in half and lay the bridle in S-folds inside.

23. Now fold the drogue chute to the size of the BOC pocket and stow it there.

24. Close all the flaps of the container so that neither the kill-line nor the drogue-chute bridle is visible.

25. Here is the end product of a perfect pack job!

Have fun and enjoy your Skydive!

Don't hesitate to call us if you have any questions: (49) 6837 – 91707.

We appreciate your trust in our products.

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