



USER / OPERATOR GUIDE & WARRANTY INFORMATION

Somersault Harness **SW-01**

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ZFX flying harnesses meet the needs of flying performers with lightweight and innovative products. They are designed, tested and manufactured using a strict quality control system, ensuring reliable and safe products. These instructions cover the correct use of the harness throughout the life of the product. If lost, you can download the instructions from the website at www.zfxflying.com/harnesses.



Treat this harness with respect; someone's life depends on it.	YES
Periodically check the fit of all performers' harnesses to ensure correct and consistent fit	YES
Perform a handstand test when using a somersault harness	YES
Identification marks, tape, make up or paint on any ZFX harness	NO
Alterations or modifications to any ZFX harness	NO
Enjoy your flying experience	YES

GENERAL INFORMATION: PERFORMER FLYING HARNESS

USE: This Harness is for professional theatrical performer flying use and shall only be used for that applications. This harness shall not be used for activities typically requiring a jerk harness or jerk vest. Improper use, incorrect selection, misuse or poor maintenance can lead to serious injury or death. User is responsible for adhering to the manufacturer's safety and inspection instructions. It is the responsibility of the user to obtain qualified instruction in the proper use of harnesses prior to usage. This equipment should be used only by trained and competent persons. This harness must be considered as part of the "machinery intended to move performers during artistic performances," hereinafter referred to in this document as "machinery." Therefore, all safety precautions and inspection instructions concerning or regarding the "machinery" must be obeyed. This is not a fall protection harness. Therefore, the flying system, suspension device and choreography should be designed and utilized in such a way as to minimize potential falls or falling distance. The user must be healthy enough to engage in the activities they will attempt.

The user agrees to comply with all relevant published industry standards. The user understands that it is beyond the scope of this manual to train the user in the safe use of this harness given all possible performer flying scenarios. The user also understands that following these instructions alone does not qualify someone to perform, rig or choreograph theatrical flying effects.

The product should only be used as instructed and no alterations may be made to its original design. It may be used in conjunction with appropriate hardware of suitable specification and according to the applicable EN (European) and/or ANSI (American) standards, with due consideration to the limitations of each individual piece of equipment.

These instructions demonstrate some examples of improper utilizations of this product. Note that it is not possible to show or imagine all improper utilizations of this product, and it should only be used in the way specified by the manufacturer in these instructions.

The harness shall only be used in situations that have a rescue plan and/or rescue facilities in case the "machinery" stops working and the performer is stranded and/or suspended in the air. The rescue plan and/or facilities must ensure that the person in harness can be rescued within 15 minutes. The rescue needs to be rehearsed regularly by all users.

The purchaser agrees to check the manufacturer's website on a monthly basis for instruction revisions, updates and/or recall notices and to immediately inform the manufacturer of any defects or issues with the harness: www.zxflying.com/harnesses or harnesses@zxflying.com.

MAINTENANCE:

- Cleaning of textile and plastic parts: Rinse in clean water and neutral soap (max temperature 50°C/122°F) and air dry away from direct heat.
- Cleaning of the metallic parts: Rinse in clean water and then dry well, checking that no moisture remains.
- Temperature: Always keep this product below 50°C/122°F so as not to affect the performance of the product.
- Chemicals: Withdraw the product from service if it comes into contact with chemical reagents, solvents or fuels, all of which could affect the performance of the product.

STORAGE: Store unpacked in a cool, ventilated, dry place away from UV light, heat sources, high humidity, sharp objects, corrosives or other possible causes of damage.

RESPONSIBILITY: ZFX Inc., or the distributor, will not accept any responsibility for damage, injury or death resulting from misuse of or from modifications to the original product. It is the User's responsibility at all times to ensure that he/she understands the correct and safe use of any equipment supplied by or from ZFX or the distributor, that he/she uses it only for the purposes for which it is designed and that he/she practices all proper safety procedures. Before using the equipment, the user agrees to take all necessary steps to become familiar with rescue techniques should an emergency occur. The user agrees to comply

with all relevant published industry standards. The user personally assumes all the risks and responsibilities for his/her actions and decisions; if he/she is unable or not in a position to assume these risks and responsibilities, he/she should not use this equipment.

2 YEAR LIMITED WARRANTY: This product is guaranteed for 2 years against any faults in materials or manufacture. The limitations of guarantee are the following: modifications or alterations, incorrect storage, corrosion, damage due to accidents and negligence, overloading or other uses for which this product is not designed.

SPECIFIC INFORMATION: For a correct fit, choose harness size according to the sizing table on pages 8/9. When fitting the harness, the user must carry out a suspension test in a safe place at ground level to ensure that the harness is fitted properly. All the different positions expected in the intended use should be tested. Check all mechanical aspects of the harness to ensure that the harness is secure. Check all adjustable components before the use of the product to ensure that all parts of the harness are secure.

INSPECTIONS: Each harness must be inspected after each use. When in use, the harness shall be inspected weekly. Inspections shall be documented. Completed inspection forms should be kept in a Maintenance Log. A sample inspection form is included on pages 16/17 and downloadable forms are available at www.zxflying.com/harnesses.

- Check the legibility of the identification markings on the harness
- Check all webbing for fraying, cuts, tears or punctures
- Check for snags or loose threads on all stitching
- Check for cuts, burns or stretched joints on all stitching
- Examine the side plates and Swivel Quick Clips - ensure proper attachment, swiveling action and complete opening and closure of clips
- Examine the buckles for proper attachment, ease of connection/disconnection and complete closure

RE-CERTIFICATION: In addition to the user implemented inspections, this product shall be examined annually by a qualified person approved by ZFX or the distributor. Any repairs shall be done by a qualified person certified in the care of ZFX harnesses, and all adjustments shall be noted on the life sheet of the harness, along with the ZFX approved re-certification when completed. The life sheet shall be kept in the Maintenance Log. Please contact the ZFX office with any questions about conditions or repairs needed.

LIFETIME: The product lifetime is 10 years from the date of purchase unless any defect appears. Annual re-certifications must be recorded in the life sheet of the product by competent persons certified by the manufacturer (ZFX) or distributor. The following factors can reduce the lifetime of the product: intense use, damage to components of the product, contact with chemical substances, high temperatures, tears and abrasions, violent impacts, and/or failure to maintain as recommended. (Productions with an eight to ten performances per week production schedule should expect about a three year lifespan.) If it is suspected that the product is no longer safe and reliable, withdraw the harness from service immediately and contact ZFX or the distributor.

CONFORMITY WITH THE MACHINERY DIRECTIVE:

This product is designed in compliance with Directive 2006/42/EC on machinery, although flying performer harnesses which are part of "machinery intended to move performers during artistic performances" are excluded from the scope of this Directive.

HARNESS IS ALSO COMPLIANT WITH THESE STANDARDS:

Safety Guidelines for the Live Performance Industry in Ontario, Canada

NPR 8020-11, Netherlands

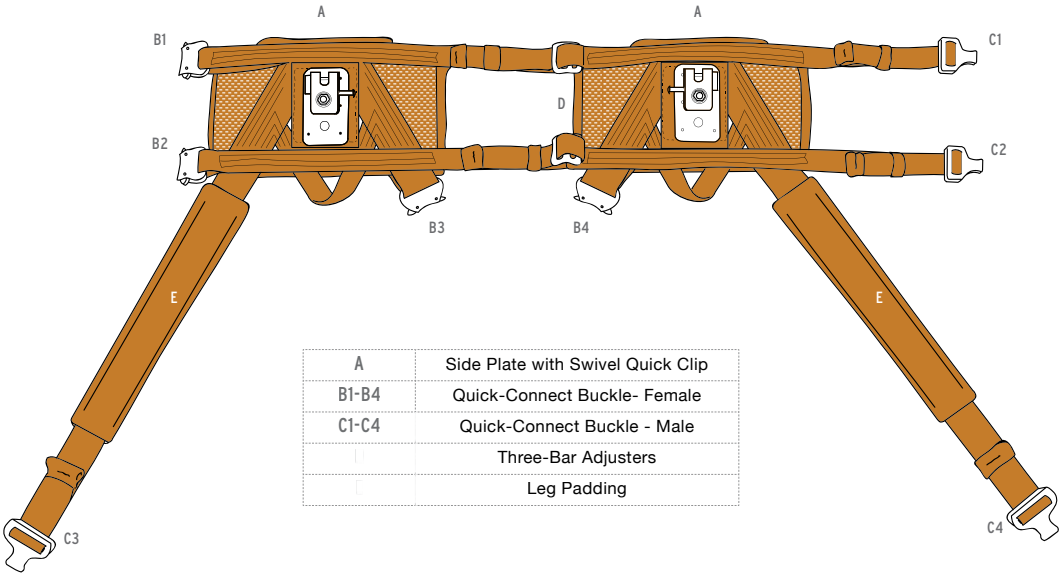
GUV-I 8636, Germany

Variance from NY State Industrial Code Rule 41

ABTT, Code of Practice for the Theatre Industry Part 2 Chapter 1 - Flying, United Kingdom

TECH SUPPORT: If at any time technical support is required, email harnesses@zxflying.com or visit our website at www.zxflying.com/harnesses.

PARTS & DETAILS: SOMERSAULT HARNESS

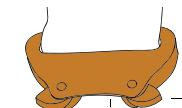


A	Side Plate with Swivel Quick Clip
B1-B4	Quick-Connect Buckle- Female
C1-C4	Quick-Connect Buckle - Male
	Three-Bar Adjusters
	Leg Padding

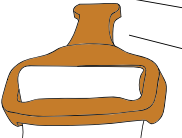
QUICK-CONNECT BUCKLE

Quick-Connect Buckles snap in place by pushing the spade end into the catch. Both latches on the female buckle body should fully engage with the male side of the buckle. To release, push the buckle together slightly while squeezing the latches together simultaneously. The buckle will release.

FEMALE BUCKLE BODY



LATCHES
CATCH

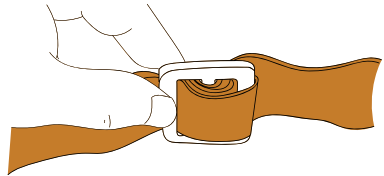
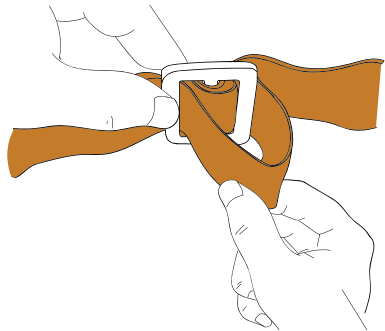


SPADE

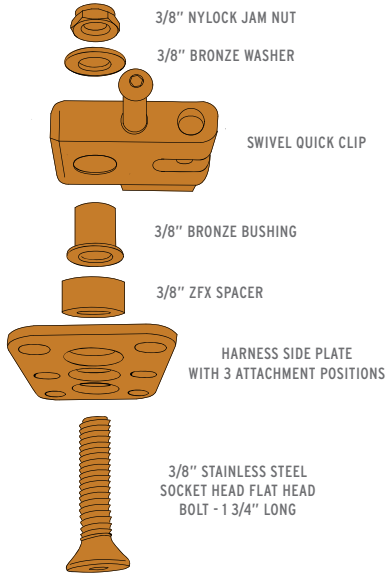
MALE BUCKLE BODY

THREE-BAR ADJUSTER

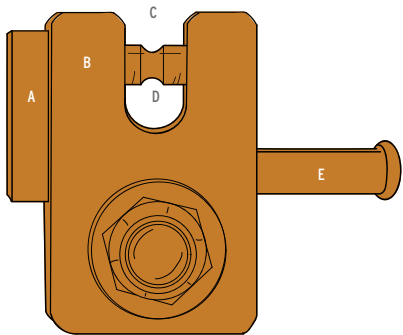
To adjust the length of the rear straps, feed the loose end of the strap back into the buckle to create a loop of slack. Use the slack to feed the strap through the buckle to either loosen or to tighten, then pull the slack out of the buckle to lock in the correct sizing.



SWIVEL QUICK CLIP - ASSEMBLY



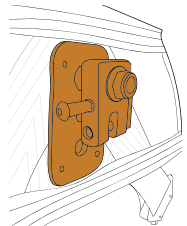
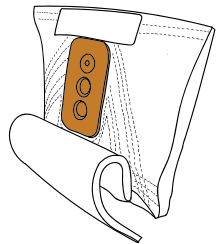
SWIVEL QUICK CLIP - DETAIL



A	Side Tab
B	Clip Body
C	Gate
	Philtrum
	Plunger
	Swivel Assembly

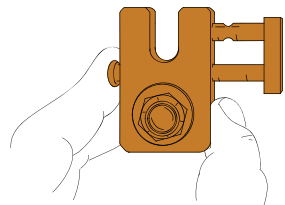
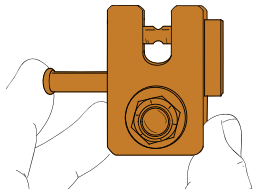
CENTER OF GRAVITY ADJUSTMENT

To adjust the placement of the Swivel Quick Clips in relation to performer's center of gravity, first remove the Velcro padding on the inside of the side panel. Use a 7/32" hex key (allen or inbus wrench) on the inner bolt and a 9/16" wrench to remove the swivel clip assembly. Reassemble in another hole (high, mid or low) and tighten. **Replace the Nylock nut with a new one and tighten to a torque spec of 11.3 N/m (100 in/lbs).** Double check that the swivel is able to rotate freely before fitting to performer. Replace Velcro padding.



SWIVEL QUICK CLIPS

Quick Clips can be opened by pressing on the plunger to open the gate. Do not block the side tab of the clip, as this will prevent it from opening. Insert Flywire and release the plunger. Check that the connection is complete and free of clothing or other obstruction before lifting the performer.



SIZING: SOMERSAULT HARNESS

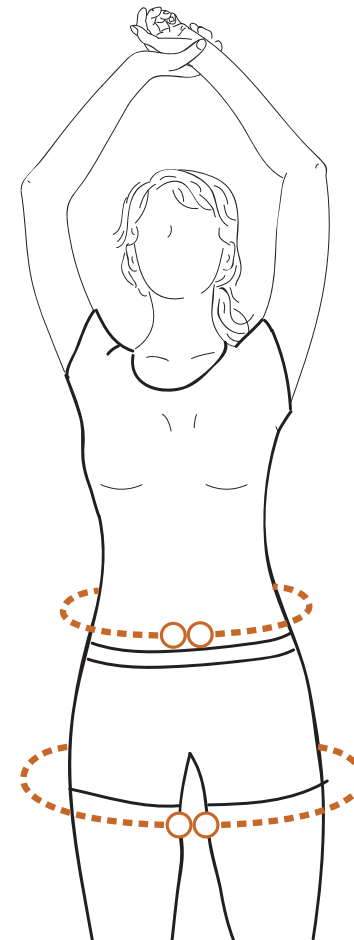
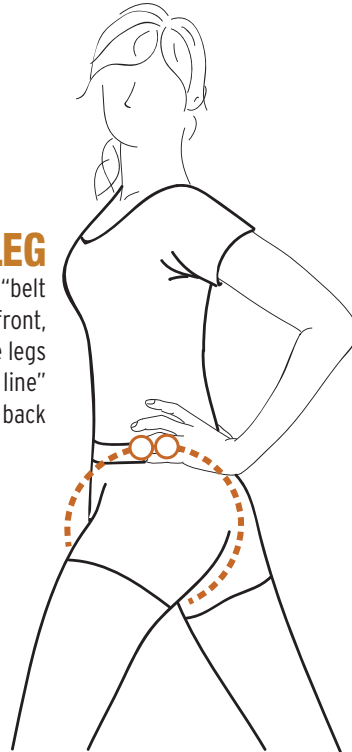
SIZING:

Use the following measurement chart to select the proper harness size for your performer. Measurements listed are suggested guidelines only. Every performer's body is slightly different, and borderline performers may be able to wear harnesses of multiple sizes. If you are unsure about choosing the proper size for a harness, please contact the ZFX office at harnesses@zfxflying.com for further assistance. **Maximum Weight is listed as a suggested limit for ideal performer comfort. This is not an indication of Working Load Limit for the harness itself. DO NOT EXCEED a maximum Working Load Limit of 136kg (300lbs) on any harness.**

When measuring for a somersault harness, the Leg, Belt and Widest measurements are the most important. Shoulder measurements are only necessary with the addition of shoulder straps, strongly recommended for smaller performers.

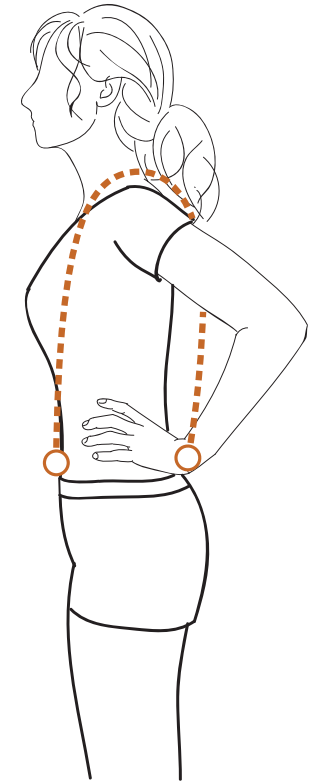
LEG

From the "belt line" in the front, between the legs to the "belt line" on the back



SHOULDER

From the "belt line" on the hips in front, over the shoulders to the "belt line" on the back



BELT

On the "belt line" on top of the hips all the way around the waist

WIDEST

Around the widest part of the lower body - including hips, waist and/or butt

	MAX WEIGHT	LEG	BELT	WIDEST	SHOULDER
SMALL	100 lbs	19-29 in	21-35 in	21-35 in	19-30 in
	45 kg	44-74 cm	53-89 cm	53-89 cm	48-76 cm
MEDIUM	200 lbs	24-39 in	25- 39 in	25- 39 in	24-40 in
	90 kg	60-99 cm	63-99 cm	63-99 cm	61-101 cm
LARGE	300 lbs	24-40 in	25-50 in	25-50 in	24-40 in
	136 kg	61-101 cm	63-127 cm	63-127 cm	61-101 cm



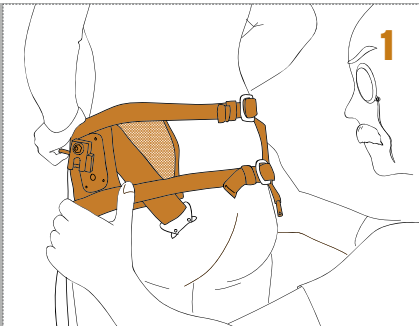
ZFX proudly employs American Craftsmen. We thank you for your support. When you see our seal, you know you have a product built with pride.

IMPORTANT:

When fitting any performer flying harness, remember that the harness should be tight but not overly uncomfortable and never painful. First do a ground fitting by fitting the harness on the performer and

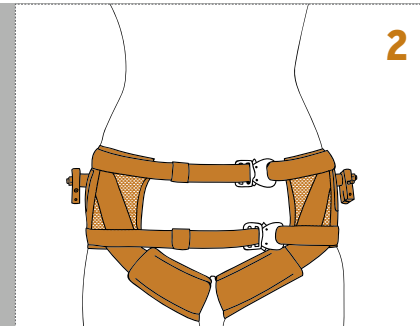
firmly tighten all straps and buckles. Second, do an air fitting by lifting the performer 30-60cm (1-2ft) above the ground and then tighten all straps and buckles a second time. The body will shift and settle into the harness

once lifted. Never consider a harness fitted with only ground tightening. Somersault harness fittings should always include a Handstand Test, described on the following page.



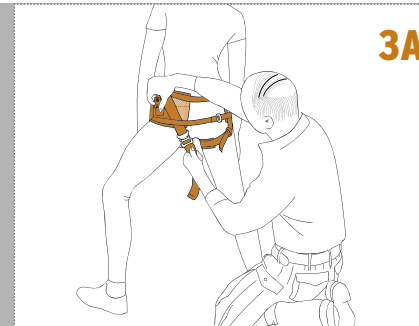
PLACEMENT

Position the harness low on the performer's pelvis, with the top strap sitting just below the line of the performer's hip bones. Center the side plates evenly on both sides of the performer's body. It may be necessary to adjust the rear straps via the Three-Bar Adjuster buckles to achieve proper placement.



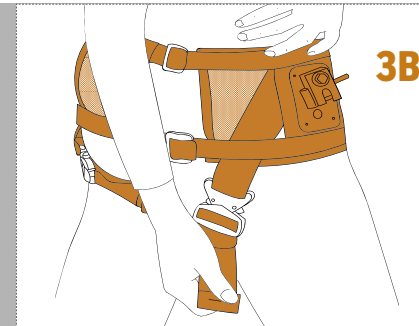
PLACEMENT

Attach the front Quick-Connect Buckles and gently tighten the front straps so that the harness will stay in place on the performer's body, but do not overtighten. Check that the side plates are in the correct position and that the Quick Clips are centered and even.



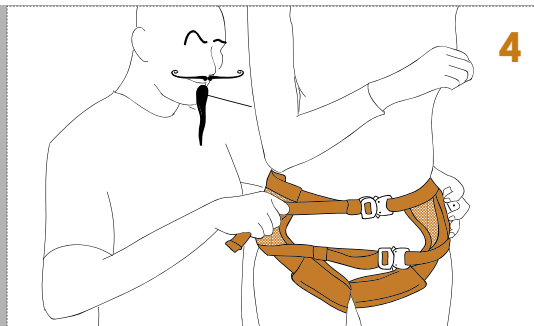
TIGHTENING LEG STRAP - ASSISTED

To assist the Performer in tightening the leg straps, have them assume a second position, demi-plie pose. A sumo wrestler squat works well, too. Attach the Quick-Connect Buckles. Use one hand to anchor the side panel of the harness in place, then pull down firmly on the extra part of the leg strap with the other hand. Tighten until leg straps are secure.



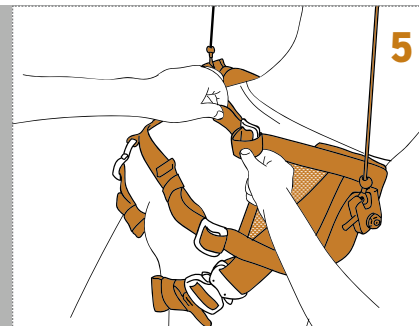
TIGHTENING LEG STRAP - SELF

The performer can tighten the leg straps by lunging forward and reaching around to pull down on the loose hanging strap. The side panel of the harness must be anchored to prevent the harness from shifting out of alignment. Tighten until leg straps are secure.



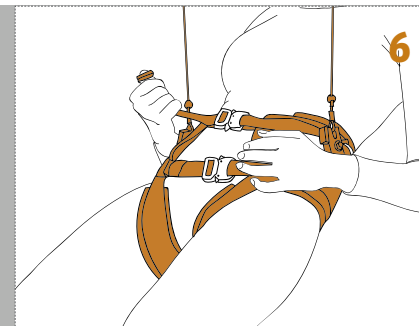
TIGHTENING FRONT STRAPS

When tightening the front straps, assist the performer by holding the side panel on the performer's left side. This will keep the harness in place as the straps are pulled tightly toward the right side of the body. If the performer is tightening the front straps unassisted, they should twist as little as possible to ensure that the Quick Clips remain centered on their hips.



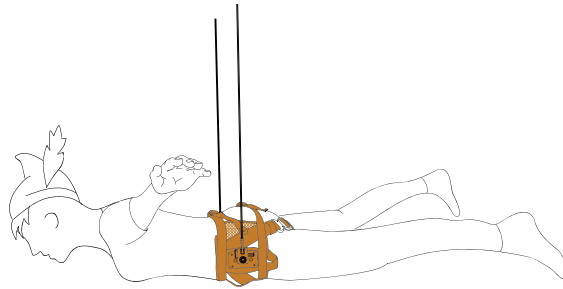
REAR STRAP TIGHTENING

Somersault harness fittings should never be considered complete without a Handstand Test (see page 14). Raising the performer one to two feet in the air allows for additional tightening of the rear and front straps of the harness that is not possible when the performer is supporting their own weight standing on the ground. Have the lift operator lift the performer up just above the ground and hold them securely. Have the performer lean forward slightly while the rear straps are tightened further via the Three-Bar Adjuster buckles. Next, have the performer lean back and tighten the front two straps as shown.



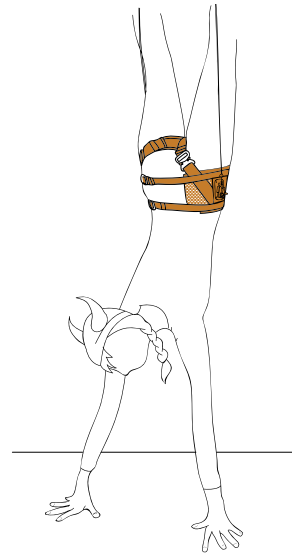
FRONT STRAP TIGHTENING

TESTING: SOMERSAULT HARNESS



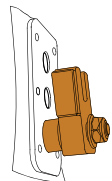
TESTING-BALANCE

The performer should also check their balance and movement while suspended to ensure a secure fit and proper placement of the swivel Quick Clips. The attachment points should act as a fulcrum while flipping and balancing. Have the performer attempt to lay out horizontally, facing down (like an airplane). Are they able to balance easily? Have the performer shift to an upside-down handstand position. Does the harness feel secure, or does it shift, interfering with the comfortable movement of the performer?

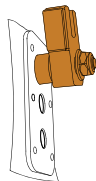


TESTING-FIT AND STABILITY

The performer should perform a quick "Handstand Test" every time they put on the harness to ensure that it is in the correct position and that the performer is secure while in an inverted position.



SWIVEL CLIP - LOW



SWIVEL CLIP - HIGH

+ If the performer is uncomfortable during the Handstand Test or feels that the harness is slipping, remove and reposition the harness, then tighten and test again

+ If the performer is unable to flip and/or unable to balance easily while in the harness, it may be necessary to reposition the swivel quick clips into different side positions - low, mid or high - then re-fit and test the harness

+ The high position is recommended for performers with more weight distributed to the upper torso, and the lower position is recommended for performers carrying more weight in the lower half of their bodies

+ If, in the balance check, the performer falls forward, shift the clips to the higher position

+ If the performer remains upright and has difficulty laying out into the horizontal airplane pose, try shifting the clips to the lower position

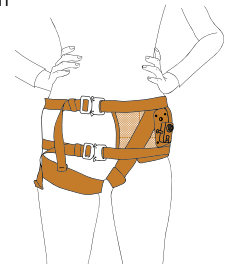
+ Repeat the Handstand Test after each fitting

Harness is too high. Performer will not be able to flip and will feel like all of their internal organs are being squeezed out.



EXAMPLES OF IMPROPER FIT

Swivel Quick Clip connection points are not centered on the performer's body. Performer will be unable to flip smoothly.



WHAT DO I DO IF...	POSSIBLE SOLUTIONS
The performer is unable to balance.	<ol style="list-style-type: none"> 1. Check that the Swivel Quick Clips are centered on the performer's hips. 2. If necessary, move the clips to an alternate position to accommodate the weight distribution of the individual performer. 3. Check that the Swivel Quick Clips have been moved to identical positions.
The performer is feeling pain or hot spots.	<ol style="list-style-type: none"> 1. Check that the harness is positioned below the performer's hip bones. 2. Re-fit the harness on the performer, double-checking strap positioning. 3. Provide more padding.
The harness is riding up when the performer is lifted.	<ol style="list-style-type: none"> 1. Land the performer. 2. Tighten the leg straps while the performer assumes a second position demi-plie pose.
The harness is shifting during the handstand test.	<ol style="list-style-type: none"> 1. Re-tighten all straps. 2. Have the performer do another Handstand Test.
The performer is unable to flip.	<ol style="list-style-type: none"> 1. Check that Swivel Quick Clips are able to rotate freely. 2. Check that the harness is positioned correctly and that the clips are even and centered on the performer's body. 3. Check that the performer is able to balance.
The Swivel Quick Clips will not open.	<ol style="list-style-type: none"> 1. Provide slack in the cable to release tension. 2. Be sure you are not holding the flat tab on the side of the buckle and preventing the clip from opening fully.
The Quick-Connect Buckles will not release.	<ol style="list-style-type: none"> 1. Loosen the straps to release tension. 2. Push the two sides of the buckle together slightly while squeezing both side tabs simultaneously.
The performer is unable to speak or breathe comfortably when lifted.	<ol style="list-style-type: none"> 1. Check all strap positioning for discomfort, loosen straps slightly and/or add padding if needed. 2. Loosen the waist band.

MAINTENANCE: HARNESS LIFE SHEET



RECERTIFICATION - REQUIRED EVERY 12 MONTHS

RE-CERTIFICATION:

Annual re-certifications must be recorded in the Life Sheet of the product by competent persons certified by the manufacturer (ZFX) or distributor. Any repairs should be done by a qualified person certified in the care of ZFX harnesses, and all adjustments should be noted on this Life Sheet, along with the ZFX approved re-certification when completed. This Life Sheet should be kept in the Maintenance Log. Please contact the ZFX office with any questions about conditions or repairs needed.

LIFETIME:

The product lifetime is 10 years from the date of purchase unless any defect appears. The following factors can reduce the lifetime of the product: intense use, damage to components of the product, contact with chemical substances, high temperatures, tears and abrasions, violent impacts, and/or failure to maintain as recommended. (Productions with an eight to ten performances per week production schedule should expect about a three year lifespan.) When it is suspected that the product is no longer safe and reliable, withdraw the harness from service immediately and contact ZFX or the distributor.

	DATE	INSPECTOR NAME/SIGNATURE	NOTES	ZFX OK
1				
2				
2 YEAR LIMITED WARRANTY EXPIRES				
3				
4				
5				
6				
7				
8				
9				
10				
END OF PRODUCT LIFETIME				

MODEL	SERIAL NUMBER	MANUFACTURE YEAR	PURCHASE DATE	DATE OF FIRST USE	USER:

MAINTENANCE: INSPECTION SHEET

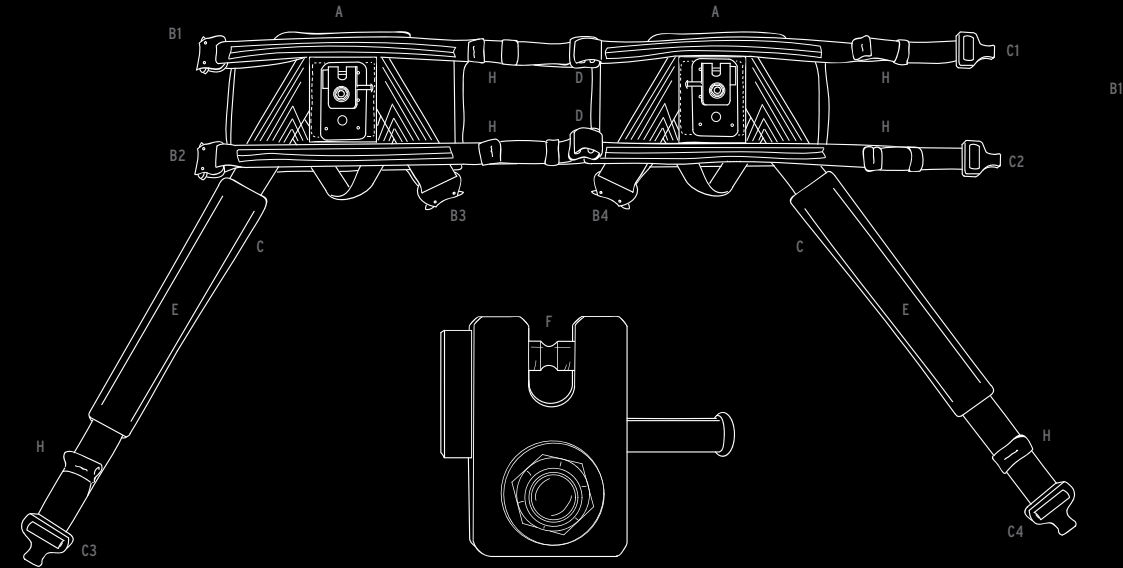
INSPECTIONS:

ZFX harnesses must be visually inspected before each use. If the harness is being used on a regular basis (i.e. 4 or more performances a week over a period of several weeks), the harness should be formally inspected after a minimum of every ten uses.

Any product or component showing any defect or wear shall be withdrawn from service immediately. If there is any doubt about the serviceability of any of these components, remove the harness from service and contact the ZFX office.

For current harness updates and notices, the User is encouraged to check www.zfxflying.com/harnesses on a monthly basis.

The chart below should be copied and kept on file by the User in a maintenance log. A downloadable version of the page is available at www.zfxflying.com/harnesses.



AREAS TO BE INSPECTED	LEGEND	BY	NOTES
Quick Clips - Smooth opening; complete closure	F		
Webbing - tears and holes	ALL		
Sideplate - Swivel attachments are secure; rotate smoothly	A		
Sideplates - Stitching and strap attachments are secure	A		
Sideplate - Velcro padding is present and attached	A		
Leg Straps, Joints, and Webbing - for wear	E, G		
Endstops & Endstop Stitches	H		
Back adjusters & webbing	D		
Connecting straps for wear	ALL		
Buckles - Smooth opening & smooth closure	C 1-4, B1-4		

HARNESS:

DATE:

INSPECTED BY:



zfx™ flying effects
www.zfxflying.com
611 Industry Road | Louisville, KY 40208
tel: 502.637.2500 | fax: 502.637.7878