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# Assembly, Fitting, Care & Maintenance



## Assembly

### 1.1 Remove All Parts and Tools from Packaging

Remove all items from the box and identify each part as per the packing list  
If you have any questions or concerns, please email us at:  
[support@chariotskates.com](mailto:support@chariotskates.com)

### 1.2 Parts and Tools required for assembly (different to packing list)

1. Pair of carbon wheels fitted with tyres, tubes and plastic wheel protectors
2. Pair of Foot & Leg Assemblies
3. Pair of Rear Wheels
4. Pair of Bearing Housing Caps (found fitted to bearing housings of the Foot & Leg Assemblies)
5. Four x M8 x 1.0 nuts (found fitted to Wheel and Foot axles)
6. One 13mm Spanner
7. One 4mm x 112mm long, T-type Allen Key
8. One set of 3 tyre levers
9. One Pin Spanner
10. One bicycle pump or other form of tyre inflation device (not included)



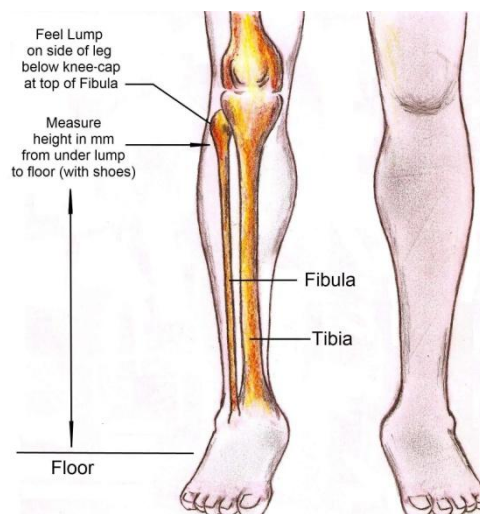
### 1.3 Check Foot & Leg Assembly (screws may have loosened during shipping)

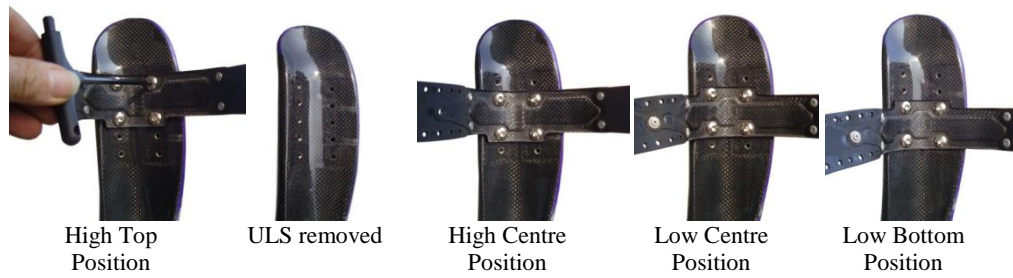
1. With the 4mm Allen Key check that the screws at the pivot points for the leg and foot supports have not come loose in transport and tighten if required.
2. Check also check the tension on the screws supporting the spring mounting is also tight
3. Also check the tension of all the screws for the straps are also secure. Note; these screws do not require as much tension as the previous screws mentioned.



### 1.4 Adjust Upper-Leg-Support (ULS) Height

- On the outside of your leg below the knee-cap you can feel a hard lump which is the top of your Fibula Bone. While wearing the shoe you will wear in your wheelskates measure the distance from the ground to just below the lump – see Diagram. This is the height the top edge of the upper-leg-support needs to be adjusted to.
- If the height from the bottom of the foot support to the top of the upper leg support is the same as the measurement taken from your leg then no adjustment is required.
- If the upper-leg-support (ULS) needs adjusting up or down remove or partly remove the padding and remove the 4 socket head screws with the Allen Key and adjust the upper leg support to the required height, replace and tighten screws then replace the padding. Note: if the ULS is too high it will restrict bending of your knee and the top of the Fibula will rub on the ULS and you will develop a sore spot and maybe bruising there after skating for long periods; if the ULS is too low you will lose support and it will also restrict the movement of your calf muscles.





- There are 6 different height positions: High Top, Low Top, High Centre, Low Centre, High Bottom and Low Bottom. The distance between the height adjustment holes is 16mm but you are able to make 8mm adjustments by turning the upper-leg-supports (ULS) upside down, in which case you will need to swap the one on the left leg to the right leg and the one on the right leg to the left so that they are positioned correctly on the Leg Support and to keep your legs off the wheels.

### 1.5 Fitting the Rear wheels to the Foot Supports.



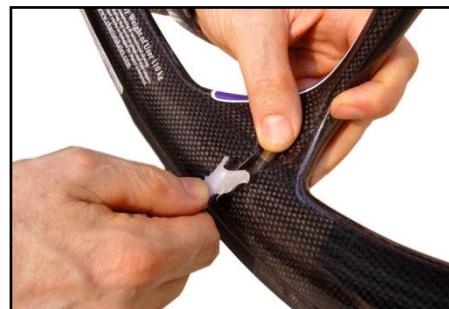
Remove the nut from the 8mm shaft at the rear of the Foot-Support, slide rear wheel onto shaft replace nut and tighten with the 13mm spanner.

### 1.6 Inflating tyres

- Remove Valve holder with the pointed end of a tyre lever



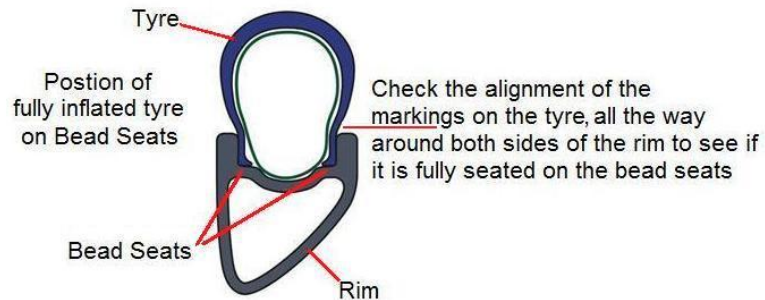
Hold down the valve with the thumb of one hand while inserting the pointed end of tyre lever under valve retainer with the other hand



Lift the exposed end of Valve Retainer up, then while holding its end between your thumb and Tyre Lever, lift the Valve Retainer up and out of the wheel slot.

- Inflate tyre to between 90 and a maximum of 100 psi. Low tyre pressure reduces control and speed. You may hear a pop/cracking sound as the tyre pops onto the bead seat.

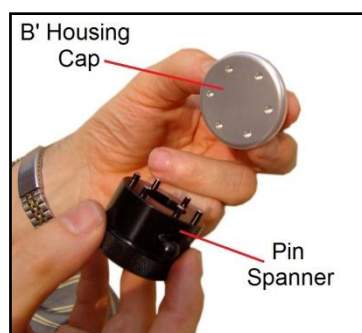
- After the tyre is inflated check around the rim of the tyre on both sides to insure that the tyre is fully on the bead seat: there is a line around the tyre that will be parallel to the edge of the rim when it is fully on the Bead Seat. If it is not fully on ensure that you have 100psi of pressure in the tyre; then you may be able to push it on with both thumbs while holding the wheel around the tyre with both hands, or by holding the wheel and tyre in one hand and banging the tyre against the ground; if that does not help then you may need to apply soap to the edge of the tyre as in 3.7 below.



- Install Valve Retainer by:
  - Holding the valve down in the leaning over position with the thumb of one hand as shown above
  - With the other hand bend the valve holder so that you can insert the forked end into the slot guiding each side of the fork to either side of the valve holder
  - Slide and push the valve-holder into position so that the valve is held snugly out of the way of the foot
- Note without the Valve Retainer in position the Valve will hit the foot support as the wheel turns.

### 1.7 Fitting the Main wheels to the Foot Supports.

- With the pin-spanner that is supplied remove cap from the bearing housing.



- Remove the protective Pad and M8 nut from the wheel axle (comes with new wheels) and slide it into the foot-support through the large wheel bearing. (Check that axle is clean and free of any foreign material prior to fitting)
- Fit M8 nut to the thread on the end of the wheel axle inside the bearing housing and while holding the wheel not the foot, tighten the nut with the 13mm spanner supplied.
- Replace bearing housing cap and tighten with pin spanner.
- To remove the wheel from the foot support, simply reverse the fitting procedure.

# Fitting

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## 2.1 Operating the Buckles

Insert Strap though the front of the buckle it can then be pushed or pulled through the buckle and then,



1. Tightening

2. Releasing tension half a notch each press

3. Undo

1. To tighten straps repeatedly lift the handle to crank the strap through the buckle
2. To ease off the strap tension just press one button at a time – one then the other – which will release the strap just half a notch at a time
3. To release or loosen straps press both buttons at the same time and pull the strap out

## 2.2 Fitting your Wheelskates

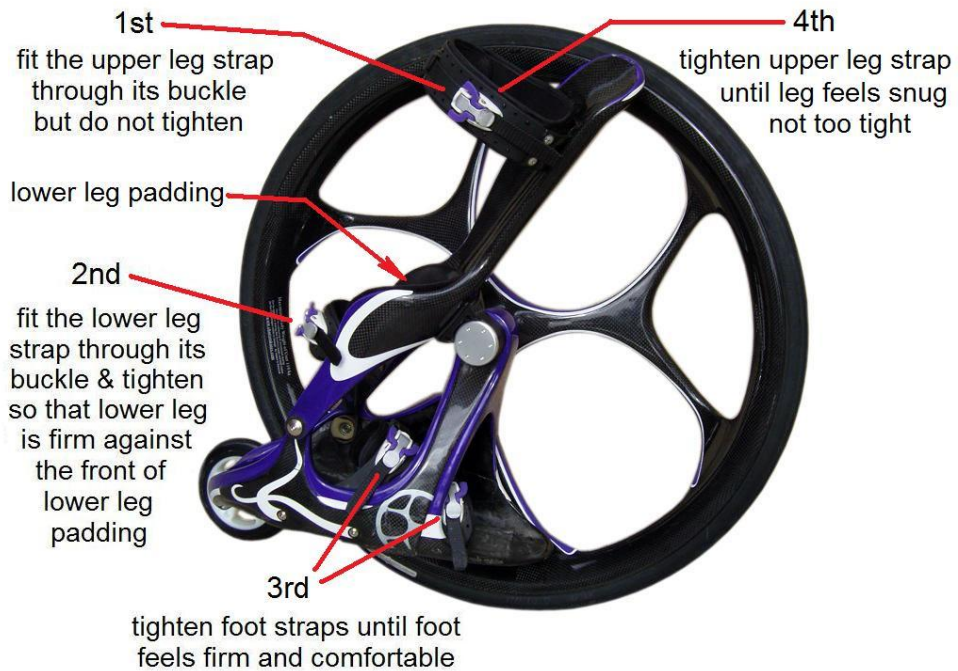
Wheelskates are fitted one to each leg with the large wheel on the out side of you legs.

- Before someone gets used to Wheelskates they may be more comfortable putting them on while sitting down, but for those accustomed to them they may find them easier and quicker to fit while standing up.
- It is best to wear comfortable light weight narrow shoes inside your Wheelskates, or they can also be used with light open sandals. For people with average or large size feet most running shoes with the large wide soles will not be suitable because you will have trouble fitting them inside the foot supports; but for people with small feet for their leg length, they may benefit from using wide sole running shoes as they will help take up the extra space around their feet.
- With the leg-straps open and the foot-straps released far enough to allow plenty of clearance to slide say your left foot/shoe into your left skate so that you lower leg is firm against the lower leg padding then



Fitting left wheelskate while standing

## Left Wheelskate



- First insert the upper-leg-strap through its buckle but only do it partly up so that the leg support is just held lightly in position for now
- Now make sure that your foot is as far forward as possible so that the lower leg is firmly and comfortably in the front of the leg padding
- Insert and pull the lower-leg-strap through its buckle, then tighten it so that your lower leg is firm and snug in position; there needs to be no gap between the front of your leg and the padding, in fact your leg should be firm and snug in the leg support's lower padding.
- Now tighten the two straps with their buckles in the foot support. It doesn't matter particularly which order but you may find it best to tighten both of them part of the way before tuning the adjustment on each one. Do not tighten them too much as if you do you will restrict the circulation in your feet and find things getting uncomfortable which is a sign that you need to release the tension a bit.
- Now go back and tighten upper-leg-strap so that the upper part of the lower leg is snug and comfortable; not too tight, you don't need to close all the gap in front of your leg at the leg supports upper padding, it needs to be comfortable. If it feels too tight press just one button on the buckle at a time, each time you will release the strap half a notch until it feels OK
- If you are fitting your Wheelskates while you are standing it may help to have the front of the main wheel of the skate you now have on, parked up against something, while you fit the other skate as you did the first one.
- Once you start skating around on them you may find that you need to fine tune the adjustment so that they feel firm and snug enough so that they are responsive to your movements yet not too tight that they feel uncomfortable

## Care & Maintenance

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### 3.1 Being Responsible.

Chariot Skates have endeavoured to make the best high performance wheelskates available by making them as strong and stiff as possible without making them heavier than necessary, so that your skating experience is so exhilarating that your heart starts to throb with anticipation every time you put them on. To get the required high-performance characteristics for the wheel, foot and leg we need to use carbon fibre and have done a lot of testing to come up with the right layup configuration and production method. However as with any product whether it be a sporting product, computer or an aircraft, there is always going to be a small percentage of faults, and like all responsible manufactures we have endeavoured to get the percentage as low as possible.

Just as a pilot will run through safety checks before taking off or a responsible sailor will check his boat before sailing, there are a few routine checks that need to be done for your wheelskates.

### 3.2 Checking for Fatigue Cracks in the Carbon Wheels

Fatigue cracks particularly on our earlier prototype wheels occasionally appear in the spokes of the carbon wheels. If they did appear it would be on the inside/axle-side (not the outside) surface of the spokes and usually on one of the 3 centre spokes, but occasionally one would appear on the inside/axle-side surface of one of the 6 outer spokes.

When to Check for Cracks:

- If you hear a cracking noise while skating.
- If when skating the foot support starts to hit the spokes of the wheel
- If when skating one of your skates starts to feel sloppy or not so firm
- After you have used your skates for 4 or 5 hours, or before using them
- If you have an accident involving high impact, like say you dropped unexpectedly off of a high surface to a lower one or you hit a wall or obstacle suddenly with the wheel.

Where and How to Check for Cracks:

- Look on the inside surface of the wheels spokes – a shown in diagram – for any obvious cracks
- If you see a mark that you are unsure about you can lightly gently and slowly to avoid possible abrasion, run a finger over the top of it to confirm whether or not it is a crack.



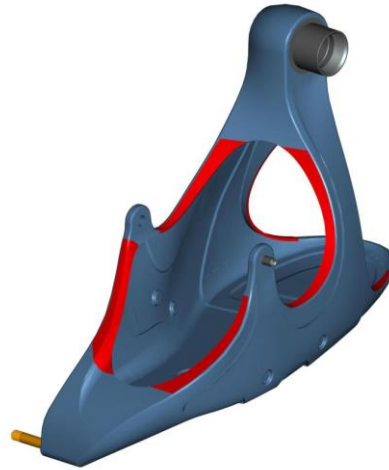
Do not use your Wheelskates if any crack(s) are detected in the Wheels. Slight crack(s) in the wheel will quickly get bigger if you continue to use the Skates, in which case they will get increasingly harder to use because the wheel will flex more as the crack(s) become bigger causing the foot to hit the wheel. If you were to continue to hobble along with a cracked wheel there is the risk that it will eventually fail, and break.

### 3.3 Checking for Fatigue Cracks in the Foot Supports

Fatigue cracks occasionally appeared on early prototype foot-supports. We have never had any cracks in the new layups but if they were to appear it would be on one of the edges towards the rear wheel or below the main bearing housing – see areas on diagrams below highlighted in **RED**

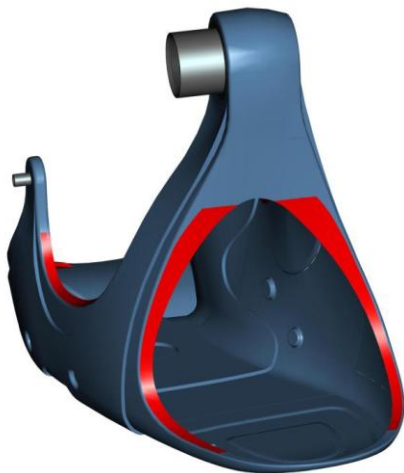
When to Check for Cracks:

- If when skating the foot support starts to hit the spokes of the wheel and no cracks were found in the spokes of the wheel
- If when skating one of your skates starts to feel a bit sloppy or not so firm
- After you have used your skates for 4 or 5 hours
- If you have an accident involving high impact like say you dropped unexpectedly off of a high surface to a lower one



Where and How to Check for Cracks on the Foot Supports:

- Take them off and look at the painted surface around the edges of the opening where your foot goes in towards the rear wheel behind the leg support, as well as around the edges of the openings below the main bearing housings for anything that looks like a crack
- If you see anything that looks like a crack but are not sure you can confirm whether it is or not by lightly, gently and slowly – to avoid any possible abrasion – running a finger along the painted surface if there is a crack there you will feel it.



Do Not Use Wheelskates if any cracks(s) are detected in the Foot Supports. Slight cracks in the feet will quickly get bigger if you continue to them in which case they will get increasingly harder to use due to the excessive flex but if you were to continue to hobble along with a cracked foot support it will eventually fail, and break.

### 3.4 Checking Tyres – Rotating Tyres and Rear Wheels

Tyres must be regularly checked for wear and replaced as soon as the threads of the fabric casing start to appear through the worn rubber.

To prolong the life of your tyres it is recommended that you regularly turn your tyres around.



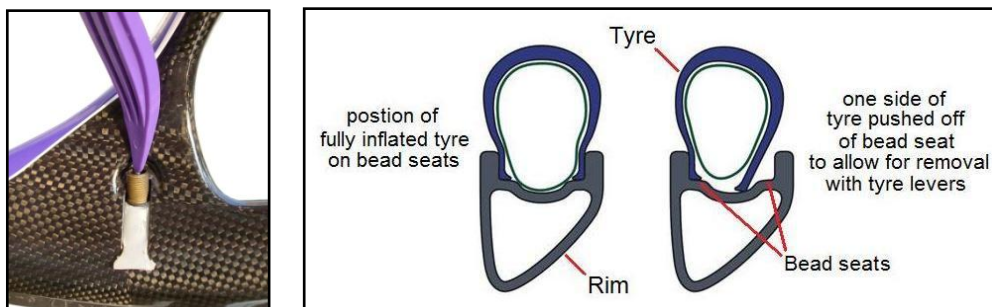
Due to the skating action of pushing on the inside edge of your wheels the tyre on the large wheel and the rear wheel will wear on the inside faster than the outside therefore to prolong the life of your tyres & rear wheels, and maintain optimum performance of your wheelskates, you need to turn them around; turn the inside to the outside.

- For the rear wheel once you notice a significant amount of wear on one side of the rear wheel, simply remove the M8 nut with the 13mm spanner, turn the wheel around and replace and tighten the nut.
- The tyre on the large wheel will not wear as fast as the rear wheels so it is best to turn them around once after every 3 to 5 turns of the rear wheel, which involves removing the wheel from the foot, deflating and removing the tyre, turning it around, refitting it and inflating it. If you never turn your tyres you will significantly reduce their life by wearing them through to the cloth webbing on the inside edge, making them useless; without ever using the rubber on the outside edge.

### 3.5 Removing Tyres

Tyres need to be removed and replaced when turning tyres to increase wear life, or to fix punctures or to replace old, worn or damaged tyres with new ones.

- You can remove the tyre while the wheel is still fitted to the foot but it is much easier to remove the wheel from the foot first – for removal instructions reverse fitting instructions in 1.7 above
- Use the pointed end of your tyre lever to deflate the tyre then remove the plastic valve holder – see 1.6 above.



- With your thumb go around the axle side of the wheel pushing the bead of the tyre off the bead seat inside the wheel into the valley area as shown above and below. If you don't push the tyre off the seat all the way around you will not be able to lift it over the rim with the tyre levers.



- Insert the tyre lever under the tyre to one side of the air valve then insert a second lever to the other side of the valve and lift the tyre over the rim with one lever then the other – if you have trouble lifting the tyre over the rim make sure it is pushed off the bead seat all the way around – then insert a third lever and pull a bit more of the tyre over the rim, then remove the middle lever and lift another section of tyre over the rim, repeat this move around the tyre to completely remove one side of the tyre.
- Then push the bead of the tyre off of the bead seat on the spoke side of the wheel
- Pull the side of the tyre opposite the valve off of the rim with the tube still inside and proceed to remove tyre and tube off the rim.

### 3.6 Fitting Inner Tubes

If you are fitting a new tube do not insert a fully deflated flat tube. It is better to partially inflate the tube so that it has a round shape which will help to prevent it from twisting or creasing when being installed and later fully inflated.

### 3.7 Replacing or Refitting Tyres

- If the tyre was removed to fix a puncture, check the inside of the tyre by running your thumb or finger around the inside of the tyre to detect then remove any sharp objects that may still be sticking through the tyre to prevent another puncture.
- For new tyres it will help to dip your finger in some liquid hand soap and run a film of it around the surface area of the tyre that sits on the bead seat in the rim.



- It is easier to replace the tyre if the tube is removed from the tyre but it can be done with a partially inflated tube placed inside the tyre.
- Fit tyre from the axle side (not spoke side) of the wheel.
- If refitting a worn tyre; ensure that the tyre is placed on the wheel so that the side of the tyre with the least wear is on the axle side of the wheel.
- Fit one side/bead of the tyre onto the rim which should push on without the use of a tyre lever but a tyre lever may help
- Insert the valve stem of the tube through the hole in the rim and insert the tube inside the tyre being careful to make sure it does not twist or have any creases in it.
- Once the tube is comfortably inside the tyre with no twists or creases it may help to release some air out of the tube to make it easier for the other side of the tyre to go on
- Push the other side of the tyre over the rim starting from the area opposite to where the valve stem is with your thumb and fingers, and work the tyre over the rim until the last 200mm or so to go on are located around the valve area
- Then ensure that the bead of the tyre is not on the bead seat by pushing around the tyre with your thumb to make sure it is in the valley area before using the tyre levers to flip the last section of tyre over the rim.
- Inflate tyre to between 90 and 100psi and in doing so you will usually hear a popping sound as the tyre pops onto the bead seat.
- After the tyre is inflated to 100psi check around the rim of the tyre on both sides to ensure that the tyre is fully on the bead seat. If it is a new tyre it may have trouble doing this particularly without soap. If you can see that it is not fully on it may go by holding the wheel around the tyre with both hands and pushing the tyre up with both thumbs, or by holding the wheel and tyre in one hand and banging the tyre against the ground.
- Replace the valve retainer as described in 1.6 above.

### 3.8 Fitting and Removing Wheel Protectors

When you first get your new Wheelskates they come fitted with wheel protectors which are held in place with rubber retaining rings (O-Rings).

When fitting or removing your wheel protectors, use the pointed end of a Chariot Skate tyre levers under each of the rubber retaining rings to stretch it over or off of the retaining hook.



### 3.9 Removing and Replacing Main Wheel Bearings

The Main Wheel Bearings that are located in the Bearing Housing in the top of the foot and are only to be removed and fitted with the correct tools available from Chariot Skates which come with complete instructions.

### 3.10 Removing and Replacing Rear Wheel Bearings

1. Remove the rear wheel bearing by inserting your long 4mm Allen key through the centre of one of the bearings and pushing on the inside edge of the other bearing. After pushing a couple of millimetres if it gets tight move the Allen key to the opposite position on the same edge and push some more, going back and forth between the two positions until the bearing and the preload spacer fall out as shown below.
2. Once the first bearing and the Preload Spacer is removed the second bearing can be removed using the handle of the Allen Key
3. To fit a new bearing simply push it in with your thumb.



1

2

3&6

4. Once the first bearing is in place you must fit the Preload Spacer before fitting the second bearing.
5. Preload Spacer in place about to fit the second bearing
6. To fit the second bearing, simply push it in with your thumb as with the first.



Bearing

Preload Spacer

Preload Spacer

1&4

5

### 3.11 Washing of Padding

The padding maybe removed from the straps or the lower leg support for washing.

#### Removing Lower Leg Padding

The lower leg padding can simply be pulled off of the patches of hook fabric that are stuck to the leg support and machine or hand washed.



#### **Removing Lower Leg Padding**



#### Replacing Lower Leg Padding

After washing and drying the lower leg padding can simply be folded slightly to allow you to position it correctly then stick to the patches of hook fabric in the lower leg.

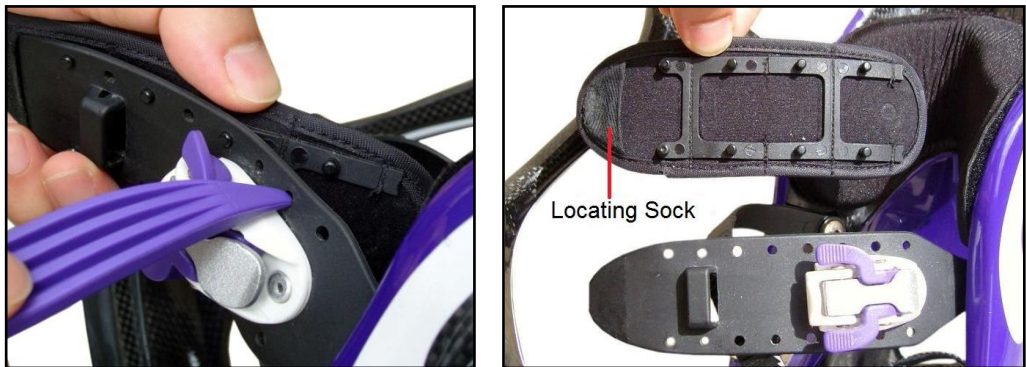
**Beware:** the pad for the left leg-support has a different profile than the pad for the right leg-support, be sure to replace them in the correct side with the thicker part of the pad located on what is the inside of your leg when they are fitted (see top-left photo above). If you put the pads in the wrong leg-supports your wheelskates will feel uncomfortable as you will feel too much pressure on the outside of you lower leg.

### Removing the Strap Padding

The padding on the Buckle Straps have clip frames with round studs, which push into the locating holes on the straps. To remove the padding it is best to start to push the studs out of the holes from the outside of the strap before carefully pulling the frame out.



### **Removing Strap Padding**



### Replacing the Strap Padding

The strap padding can be replaced by positioning the end of the buckle-strap in the Locating Sock at the end of the padding and then simply align the round studs on the clip frame up with the holes in the strap and push them together, one stud at a time.