



SERVICE MANUAL

ENGLISH



SERVICE MANUAL

JOKER ENERGY

Rev. 0 - 06/05/2020



progeo
ACTIVE DESIGN



JOKER ENERGY

GENERAL WARNINGS

ANY ADJUSTMENT CAN BE CARRIED OUT EXCLUSIVELY BY QUALIFIED AND AUTHORIZED BY REHATEAM® PERSONNEL.

It is forbidden to carry out any modifications, even when possible, to the original design.

Any adjustments and/or any modification that is carried out by non-authorized personnel will immediately void the warranty on the product and it relieves RehaTEAM® from any responsibility on any malfunctioning and/or damage due to such adjustments/modifications.

Always contact RehaTEAM® and its technicians for any non-standard requirements or modifications to allow them to evaluate such modifications and verify that they will not compromise the normal and safe use of the wheelchair.

Any modification of the original parameters and set up could seriously compromise the safe operation of the wheelchair causing damage to both the user and the wheelchair itself.

After every adjustment made to the wheelchair, check carefully that all parts are correctly fixed. Check that all screws and nuts are tightened and that all moving parts are functioning correctly.

After any adjustment, always test the wheelchair before giving the product to user and/or his/her attendant.

RehaTEAM® disclaims any responsibility for damage to the product or the people due to any modification that is not properly performed or that, in any case, does not guarantee safety to the user.



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CASTER CHANGE

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For this model, the frame is individually manufactured and welded to measure, therefore, the front height cannot be modified.

In most cases, however, it is possible to change the caster with a smaller or larger one as long as the front height does not change; otherwise, the fork angle loses its perpendicularity.

The holes on the forks are $\frac{1}{2}$ " away from one-another, therefore, if you change the caster with one that is 1" bigger or smaller, you will have to change its fixing position to keep the original front height.

The position of the caster on the fork (requested on the order form) is determined while designing the frame.

As long as it is possible, the design allows for assembling another size of caster (smaller or bigger) apart from the requested one.

The three drawings aside show the most common combinations and you should notice that the height from the ground remains the same because of the fixing changes.

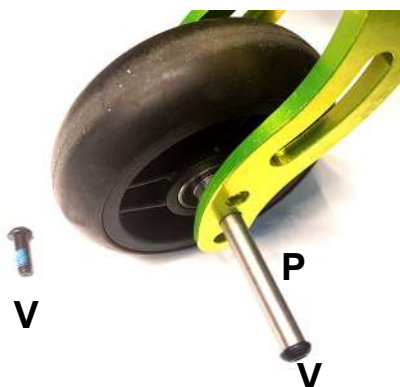
If such principle is neglected, the fork angle will no longer be perpendicular to the ground.

To change the caster, screw off the bolt **V** while holding the other.

Remove the axle **P**.

Position the caster to another hole, insert the axle and fix the bolt **V** holding the one on the other side.

Pay attention to the spacers between caster and fork.

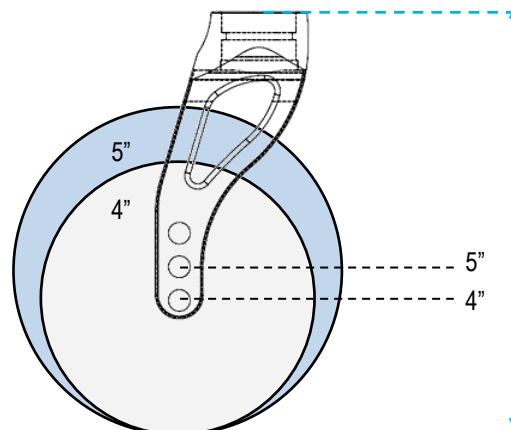
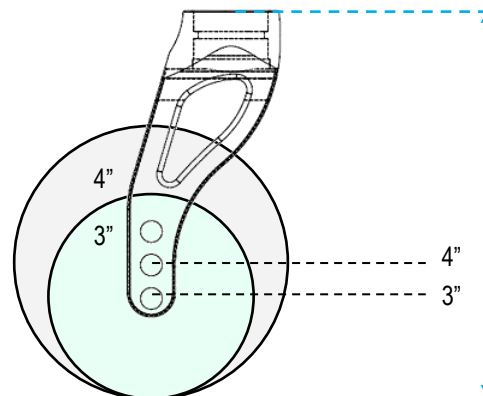
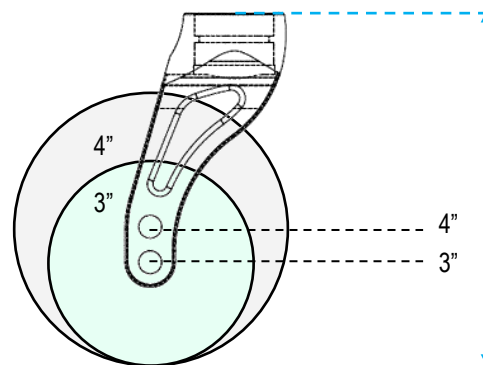


It is advisable to spread a drop of mild lock thread glue on the bolts **V**.



Holes interval – 12,7 mm (1/2 ")

Sport – 2 holes – h. 100





DIRECTIONALITY

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A very important aspect of any wheelchair is its directionality.

To check if the wheelchair goes straight, sit on it, push it and let it go until it stops.

If something is wrong, the slower the wheelchairs moves forward (momentum close to nothing), the more likely it turns right or left. Therefore, if no or irrelevant turn occurs, the wheelchair is properly adjusted.

Cause	Reason	Solution
SURFACE	The surface where the test is being performed is not even and flat	Test the chair on even and flat surface
REAR WHEELS	The rear wheel are not equally inflated	Inflate both tyres at the same pressure
	The tyres of the two rear wheel are different or differently worn out	Change the tyres
	The rear wheels are not adjusted at the same height	Adjust the rear wheel height
	The camber of right and left wheels are different or differently adjusted	Adjust the camber.
	The wheel, when turning, touches the side guard or the brakes	Fix or replace the side guard. Add spacer on the receiver. Adjust the brake.
	The wheels doe not turn smoothly	Clean or change the bearings
FRONT WHEELS	The casters are not adjusted at the same height	Adjust the front wheels at the same height
	The tyres of the two front wheels are different or differently worn out	Change the wheels
	The fixing bolts of the fork/fork support/clamp are loosened	Check and tighten all fixing bolts
	The caster does not turn smoothly	Clean the bearings.
	Either or both forks are not adjusted so as their axis is perpendicular to the ground.	Adjust the fork axis inclination.
FOOTPLATE	The footplate tubes are adjusted at different height.	Adjust the tubes at the same height

If the wheelchairs does not go straight after all checks above mentioned, contact Rehateam s.r.l.

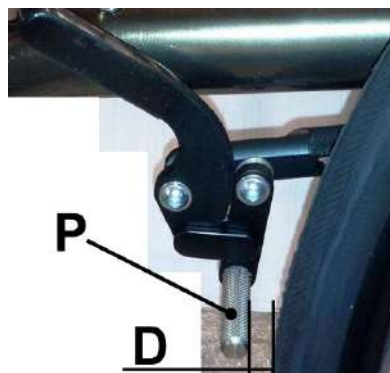


BRAKE

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WHEN ADJUSTING THE BRAKES, THE TIRES MUST BE INFLATED TO THE CORRECT PRESSURE (except solid tyre)

The position of the brake depends on the position of the rear wheel.



Loosen the bolt **A** that is located in the inner side of the support **S**.

Position the brake-knurled rod **P** at a distance **D** of a few millimetres and parallel to the ground.

Temporarily tighten the bolt **A** and try the brake out to check if the adjustment is good.

If necessary, repeat the same operation to reach the good adjustment.

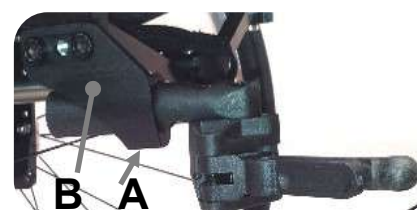
A good adjustment has the brake not too hard to engage but braking, so you will have to find the suitable compromise.

Once reached the correct position, tighten the bolt **A**.

Carry out the same operation on the other side.

The adjustment for the sport brake is the same except for the distance **D**, in fact, the brake, in its resting position is far away from the tyre. Just make a few tries.

In some cases, the brake support **B** is different, but you can carry out the adjustment in the same manner by loosening and tightening the grab screw **A**.



At each adjustment, it is advisable to spread a drop of mild lock thread glue on the grab screws **A**.



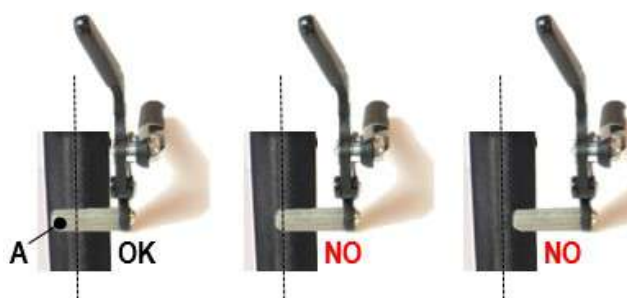
BRAKE SPACING

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In several cases, the distance between the tyre and the frame can be such as to make need moving the knurled rod **P** more external.

When originally assembling the wheelchair, such possible modification is already taken into account.

In case of a post-sale modification that results in the rear wheels being more external (seat width enlargement; a different wheel), the brake may not work efficiently anymore, therefore, you will have to move the knurled rod. The brake is efficient if the knurled rod **P** is at least 5 mm beyond the tyre's mid-line.



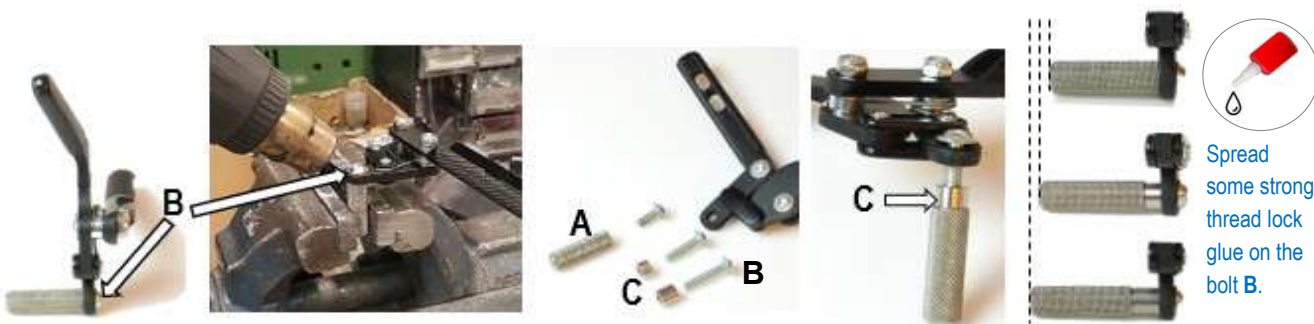
In all cases, check the brake efficiency.

Remove the bolt **B**. In order to remove it, put the knurled rod in a vice and heat it with a hot air blower because the bolt is locked with strong lock thread glue. DO NOT FORCE WHEN UNSCREWING IT, you may damage the bolt's head irremediably.

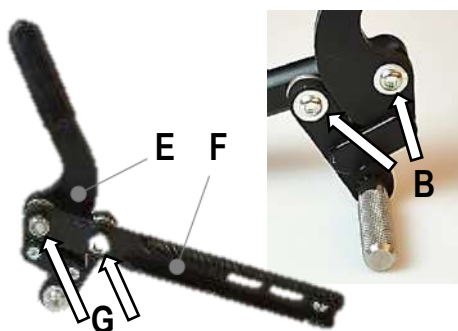
Once you have removed the bolt, the knurled rod comes off, too. Replace the bolt **B** according to the spacer **C** (7 or 11 mm) you will add.

Put some strong lock thread glue on the bolt **B** and assemble the spacer **C** and the knurled rod **A**.

Put the knurled rod in a vice and tighten the bolt **B** hard.



Spread some strong thread lock glue on the bolt **B**.



It is also possible to move the brake structure **E** from the adjustment rod **F**.

Remove the two nuts **G** and then the two bolts **B**.

Remove the spacers **H** around which the spring is assembled.

Observe how the spring is assembled because you will have to assemble it back later in the same way (you can always have a look at the other brake that is symmetric).

Insert the spacers **H** (H_1 = original; H_2 = 7 mm longer).

Position the spring and assemble the structure to the adjustment rod.

Start screwing the two bolts **B** all the way down and then the two nuts **G**.

Should the brake movement be hard, slightly loosen the bolts **B**.





FOOTPLATE DISTANCE

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The particular characteristic of this MODEL is the 7° front frame taper.

As it is visible from the picture, the longer the footplate distance **DP**, the narrower the room **X** between the two frames at footplate's level.

According to that, when adjusting the footplate distance, it is necessary to keep the 7° taper and increase or decrease the room **X**.

After adjustment, the forks have to be perpendicular to the ground. That will tell you keep the 7° frame taper.

All footplates available for this model allows for such adjustment.

HEIGHT ADJUSTMENT EVERY 1.5cm

Usually, it is granted an adjustment of +1.5 cm and - 1.5 cm with respect to the footplate distance requested.

Remove the bolts **A** and their corresponding nuts and washers **B**.

Slide the footplate tube up or down until the necessary height.

Insert the bolts through the nearest holes and tighten.

After adjustment, check that between the lower side of the footplate and the ground there is at least 2 cm and that there is no interference between footplate and casters.

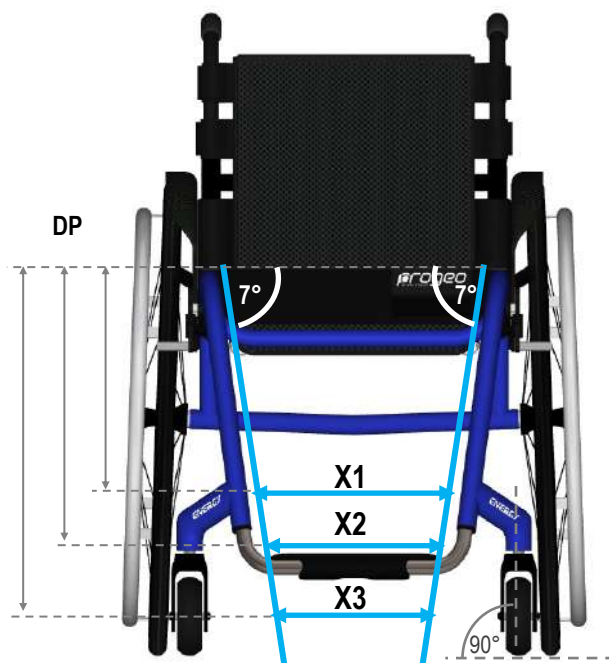
Rubber adaptor for round footplate tube on elliptical tube (from 2019).

The round footplate tube needs the adaptor **C** to fit the elliptical frame tube. The adaptor's hole is not centred, therefore, you have to pay attention to mounting right and let adaptors in the same way.

The adaptor **C** is usually mounted with its narrower side facing forward. In order to avoid squeezing the adaptor too much, do not tighten the bolt very hard.

The hard plastic adaptor, used for titanium tubes (diameter 18 instead of 20), works in the same manner.

With elliptical footplate tubes, the adaptor is not present.



Hard plastic adaptor for titanium tubes



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FOOTPLATE WITH CURVED TUBES FOR 7° FRAME

The pictures show the footplate with aluminium tubes on the model Joker.

The same instructions are valid for the footplate with titanium tube and for the model Joker Energy.

Angle adjustment:

Remove the two bolts and nuts **A** that fix the footrest plate to the clamp **B**.

Loosen the two bolts and nuts **C** that fix the clamp **B** to the two tubes.

Turn the clamp until the necessary inclination.

Lay the footrest plate on the clamp to check the inclination.

Firmly tighten the bolts and nuts **C**.

Finally. Fix the plates with the two bolts and nuts **A**.



Height adjustment:

Remove the two bolts and nuts **A** that fix the footrest plate to the clamp **B**.

Loosen the two bolts and nuts **C** that fix the clamp **B** to the two tubes until you can easily turn the clamp and slide the two tubes horizontally through it.

That will allow you to make the distance **X** wider or narrower and thus keep the 7° frame taper. Carry out the adjustment in height as mentioned on the sheet "footplate distance for 7° frame".

Slide the horizontal tube of the footplate through the supports in order to keep the 7° frame taper that will have as a result the fork axle at 90°. Check that.

Check the footplate is centred with respect to the supports.

Adjust the footplate angle and fix the system as above mentioned.

Position adjustment:

4 positions: internal; 2/3 internal; 2/3 external; external



Remove the two bolts and nuts **A** and fix the plate using the other two holes on the same plate. You can also fix the plate facing front or rear without the need (even though possible) of reversing the clamp.

If you wish to reverse the clamp, remove the bolts/washer/nuts fixing the footplate tubes (see "footplate distance for 7° frame") and slide the group "footplate".

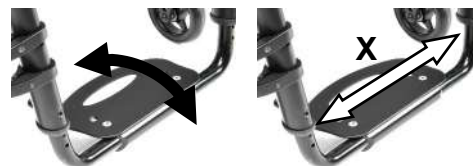
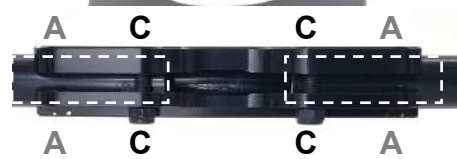
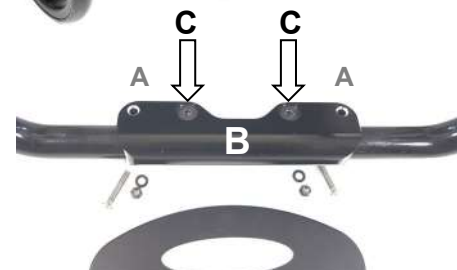
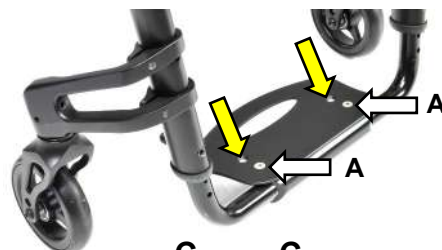
Reverse the assembly, fix the tube at the necessary height and adjust the angle as above mentioned, keeping in mind to respect the 7° taper.

Note: you can remove and insert the footplate-group into the frame tubes without loosening the grab screw **A** and the bolts **B**, thus keeping the distance **X**; the operation, though, will result a little more difficult because the distance between the two footplate tubes at their upper side is always wider than the distance of the frame tubes at the insertion point.

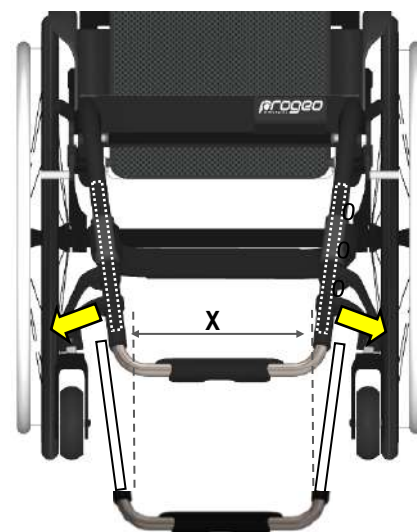
To remove the footplate-group, the frame will widen apart as the footplate tubes slide off. To help the tube come off, you can hit the plate with your hand or gently with a mallet.

On the other hand, to mount it back, you have to insert one footplate tube for approx. 1cm, widen the frame until you can insert the other footplate tube. That is the point of the maximum pressure, then, as you slide the tubes in, you will notice that the movement will be easier.

If there is the rubber adaptor, it is useful, if possible, to remove it from the frame and slide it along the footplate tube; that will create more room for the passage of footplate. It will be necessary to adjust the inclination.



External footplate



Keeping the distance **X**, you should notice that, at the insertion point, the distance between the footplate tubes is wider than the distance of the frame tubes.



CARBON FIBRE FOOTPLATE

The pictures show the footplate on the model Joker.
The same instructions are valid for the model Joker Energy.

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Angle adjustment:

Loosen the grab screw **A** and the bolt **B** of both supports (right and left) just enough to be able to turn the footplate.

Adjust the inclination of the plate until the necessary angle.

Finally, tighten the bolt **B** first and then the grab screw **A** of both supports.

Note: the supports for elliptical tube and for round tube have the same bolts.

Height adjustment:

Loosen the grab screw **A** and the bolt **B** of both supports (right and left) until you can both turn and horizontally slide the footplate through the supports.

That will allow you to make the distance **X** wider or narrower and thus keep the 7° frame taper.

Carry out the adjustment in height as mentioned on the sheet "footplate distance for 7° frame".

Slide the horizontal tube of the footplate through the supports in order to keep the 7° frame taper that will have as a result the fork axle at 90°. Check that.

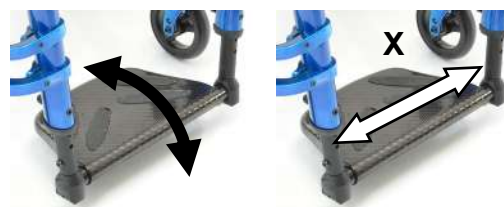
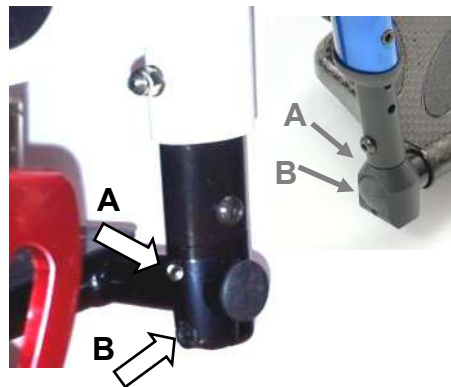
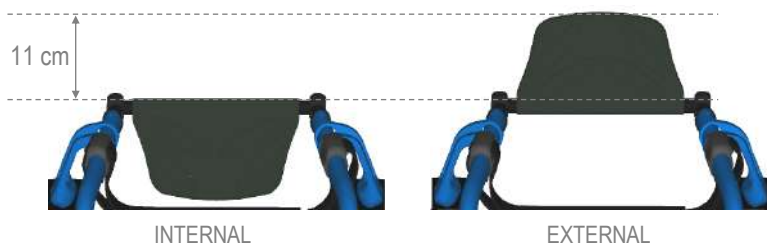
Check the footplate is centred with respect to the supports.

Adjust the footplate angle as above mentioned.

Finally, tighten the bolt **B** first and then the grab screw **A** of both supports.

Position adjustment:

2 positions: internal; external



In order to change position, loosen the grab screw **A** and the bolt **B** as above mentioned for height adjustment.

Remove the bolts/nuts that fix the footplate tubes (see sheet "footplate distance for 7° frame") and slide the footplate-group off.

Reverse the assembly, fix the tube at the necessary height and adjust the angle as above mentioned, keeping in mind to respect the 7° taper.

Note: you can remove and insert the footplate-group into the frame tubes without loosening the grab screw **A** and the bolts **B**, thus keeping the distance **X**; the operation, though, will result a little more difficult because the distance between the two footplate tubes at their upper side is always wider than the distance of the frame tubes at the insertion point.

To remove the footplate-group, the frame will widen apart as the footplate tubes slide off. To help the tube come off, you can hit the plate with your hand or gently with a mallet.

On the other hand, to mount it back, you have to insert one footplate tube for approx. 1cm, widen the frame until you can insert the other footplate tube. That is the point of the maximum pressure, then, as you slide the tubes in, you will notice that the movement will be easier.

If there is the rubber adaptor, it is useful, if possible, to remove it from the frame and slide it along the footplate tube; that will create more room for the passage of footplate. It will be necessary to adjust the inclination.

Keeping the distance **X**, you should notice that, at the insertion point, the distance between the footplate tubes is wider than the distance of the frame tubes.



FIXED CARBON FIBRE FOOTPLATE

The pictures show the footplate on the model Joker.

The same instructions are valid for the model Joker Energy.

Angle adjustment:

This footplate is **not adjustable** in angle.

Height adjustment:

Loosen the two bolts **A** that you find on the lower side of the footrest plate and that fix the same plate to the tubes.

The footrest plate is fixed to the tubes by means of a half-moon insert which is positioned inside the slotted tubes.

That will allow you to make the distance **X** wider or narrower and thus keep the 7° frame taper. Carry out the adjustment in height as mentioned on the sheet "footplate distance for 7° frame".

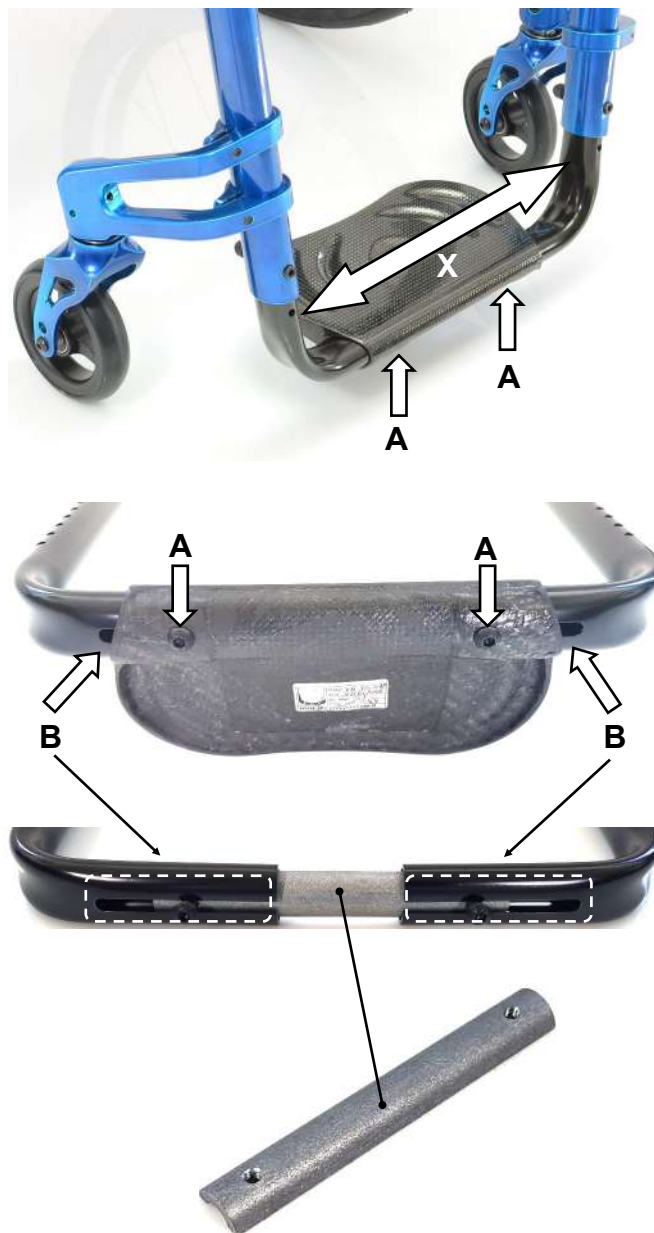
Slide the horizontal tube of the footplate through the supports in order to keep the 7° frame taper that will have as a result the fork axle at 90°. Check that.

Check the footplate is centred with respect to the supports; the two slots **B** should come out from the plate to the same extent (in the image here aside, you should notice that the plate is not centred).

Position adjustment:

This footplate is **not adjustable** in position.

Position: only internal.

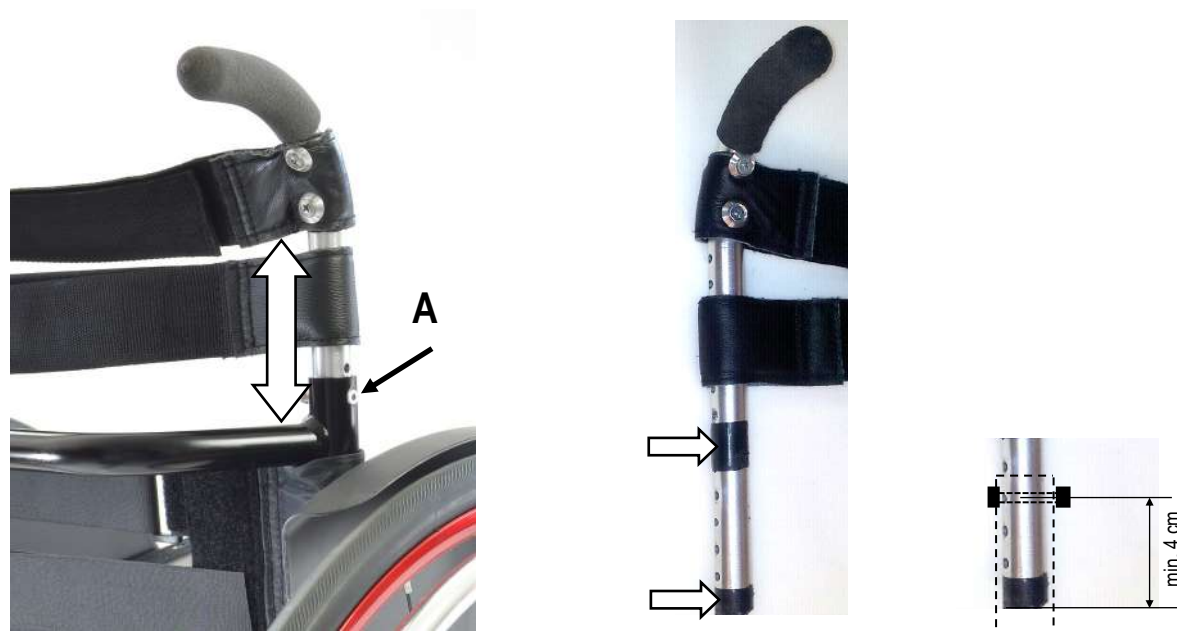




SERVICE MANUAL

ALTEZZA SCHIENALE

Schienale in alluminio o in titanio



Togliere l'imbottitura dello schienale e far scorrere verso l'alto la fascia tubolare lungo il tubo fino a rendere accessibile le vite e dado.

Se la vite non è accessibile, togliere la spondina, se è estraibile, o inclinare lo schienale all'indietro agendo sulla regolazione della sua inclinazione (vedi scheda regolazione angolo schienale).

Togliere vite e dado **A** ed alzare o abbassare il tubo dello schienale all'altezza desiderata.

Se l'altezza minima raggiungibile non fosse sufficiente, sarà necessario tagliare il tubo nella sua parte inferiore.

Se l'altezza massima raggiungibile non fosse sufficiente, sarà necessario sostituire il tubo.

Attenzione: per garantire una buona tenuta, la lunghezza minima tra il foro di fissaggio e la parte inferiore del tubo è di 4 cm. Se il tubo è stato tagliato, il foro più in basso si troverà solo ad alcuni millimetri da fine tubo, perciò quel foro, quello successivo e, talvolta anche il terzo non possono essere utilizzati per fissare l'altezza dello schienale.

Reinserire la vite ed il dado e stringere.

Per ridurre un eventuale gioco o rumore, si può applicare del nastro adesivo attorno il tubo nella sua parte inferiore ed in quella di fissaggio (o appena sotto).

Nota: se il tubo maniglia è in fibra di carbonio, seguire le istruzioni della scheda regolazione "altezza schienale—schienale in carbonio".

L'archetto schienale in titanio prevede un riduttore in plastica, seguire comunque le stesse istruzioni.

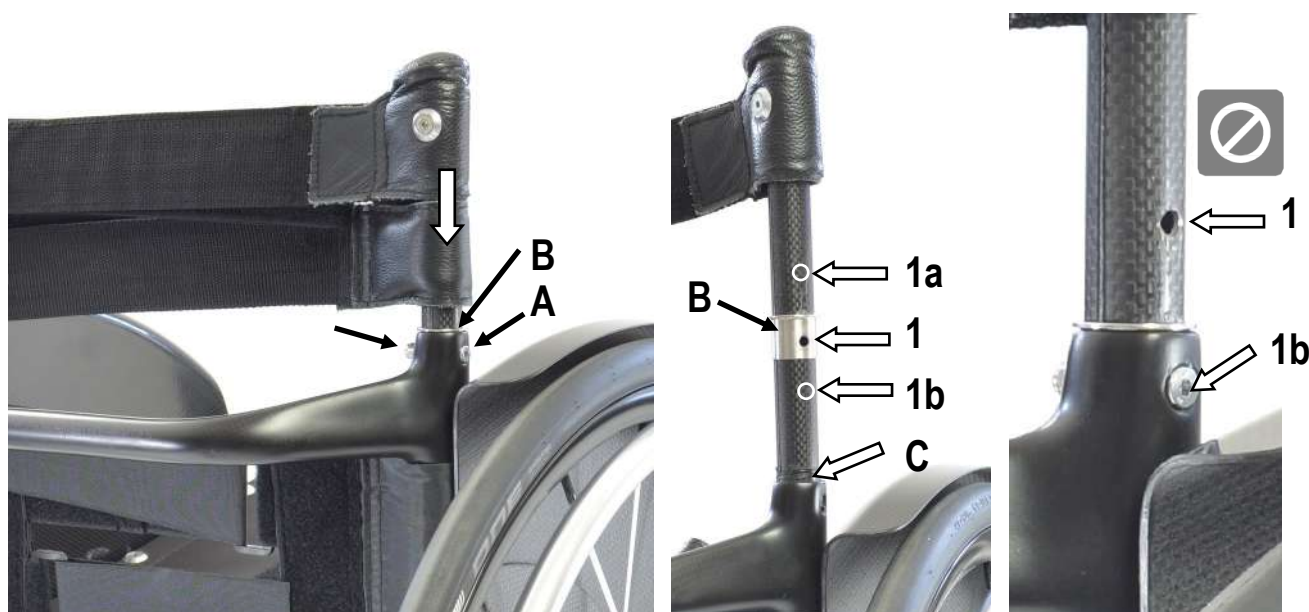




SERVICE MANUAL

ALTEZZA SCHIENALE

Schienale in carbonio



Togliere l'imbottitura dello schienale e far scorrere verso l'alto la fascia tubolare lungo il tubo fino a rendere accessibile le vite e dado **A**.

Nel punto di fissaggio è presente anche la boccia in acciaio **B**.

Se la vite non è accessibile, togliere la spondina, se è estraibile, o inclinare lo schienale all'indietro agendo sulla regolazione della sua inclinazione (vedi scheda regolazione angolo schienale).

Togliere vite e dado **A**.

I tubi schienale hanno un solo foro di fissaggio in base all'altezza richiesta in scheda d'ordine.

Nelle foto sopra si nota che il punto di fissaggio è il **1**.

Il punto **1a** potrebbe essere un nuovo foro per abbassare l'altezza schienale e ciò è possibile senza creare problemi (potrebbe essere necessario tagliare la parte bassa del tubo), infatti il foro **1** si troverà più in basso all'interno del tubo dell'archetto. Nel forare il tubo, fare attenzione all'allineamento della maniglia (se presente).

Se si dovesse tagliare il tubo, inserire la boccia **B** sul tubo stesso e mettere alcuni giri di nastro adesivo **C** attorno l'estremità per ridurre possibili giochi.

Reinserire la vite ed il dado **A** e **stringere non eccessivamente** per evitare di danneggiare il carbonio.



L' **1b** , invece, sarebbe il punto dove fare un nuovo foro per aumentare l'altezza dello schienale, ma, così facendo, il foro **1** si troverà al di fuori dell'archetto dello schienale e creerà una situazione di possibile rottura del tubo durante l'utilizzo normale della carrozzina. Questa operazione non è consentita.

Attenzione: per garantire una buona tenuta, la lunghezza minima tra il foro di fissaggio e la parte inferiore del tubo è di 4 cm.



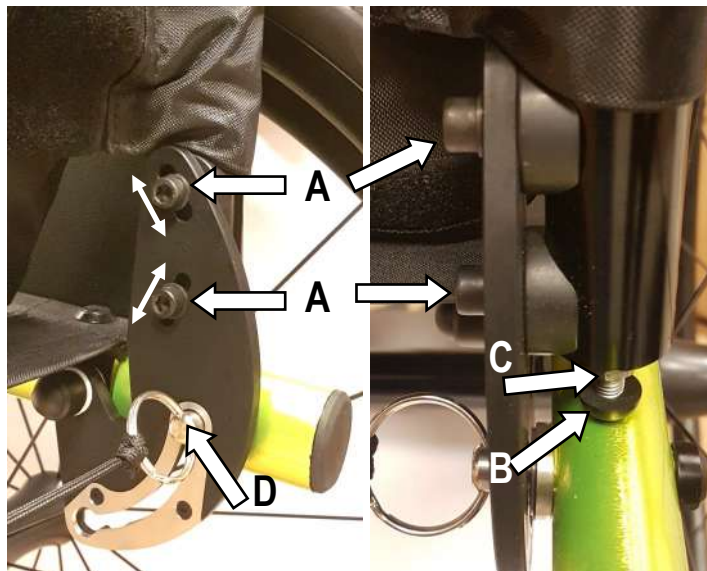
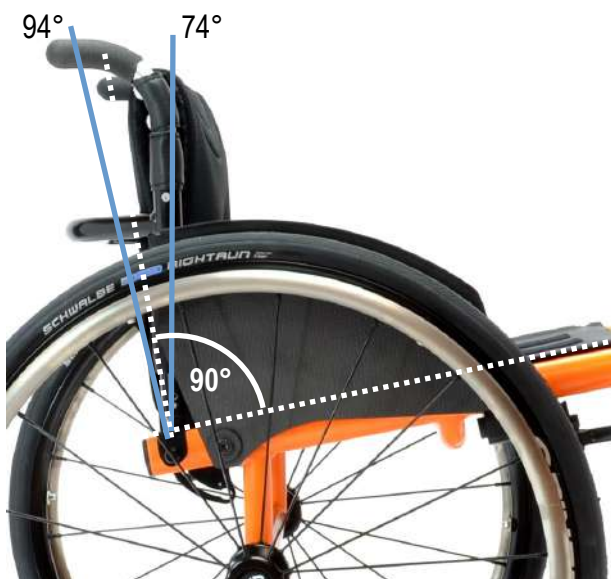
Il tubo schienale in fibra di carbonio non è adatto per il fissaggio di qualsiasi morsetto, come quelli utilizzati per sostenere uno schienale posturale

Nota: se il tubo maniglia è montato sull'archetto in alluminio o in titanio, valgono le stesse avvertenze.



BACKREST ANGLE

SERVICE MANUAL



Adjustment from 16° close, tilted forward (74°) to 4° open, tilted backward (94°) with respect to 90° to the seat.

If you need to open (tilt backward) the angle, before proceeding, with the adjustment, fold the backrest, loosen the nut **C** and screw the bolt **B** that determine the end run, that is the point where it will lean on the frame. Such operations are not necessary when you need to close (tilt forward) the angle.

The adjustment can be performed thanks to the two bolts **A** sliding along the slots through which they pass and fix the backrest tube.

Therefore, loosen the two bolts **A** on both backrest plates, tilt the backrest to the desired inclination and securely tighten the bolts.

Now check the locking system.

If the locking pin **D** does not lock, or there is too much play, it is necessary to adjust the end run bolt **B**.

Loosen the nut **C**, fold the backrest and screw or unscrew the bolt **B**.

Open the backrest and check if it locks and its play.

To check the play, with the locked backrest, gently pull back it and forth.

If the play is still a lot, loosen the bolt **B**, whereas, if the backrest does not lock, screw the bolt **B**.

The correct adjustment is when the pin locks and the play is minimum. Then screw the nut **C** towards the tube.

Not only does the end run bolt **B** reduce the backrest play, but also it is very important as point of support of the backrest. In fact if it is badly adjusted (a lot of play) the lock pin **D** will support all the backrest stress and it may be damaged or even brake.

Remember that the backrest angle can affect the point of balance of the wheelchair. In fact, with tilted backward backrest (open angle), the wheelchair becomes less stable.



SEAT WIDTH ENLARGEMENT

SERVICE MANUAL

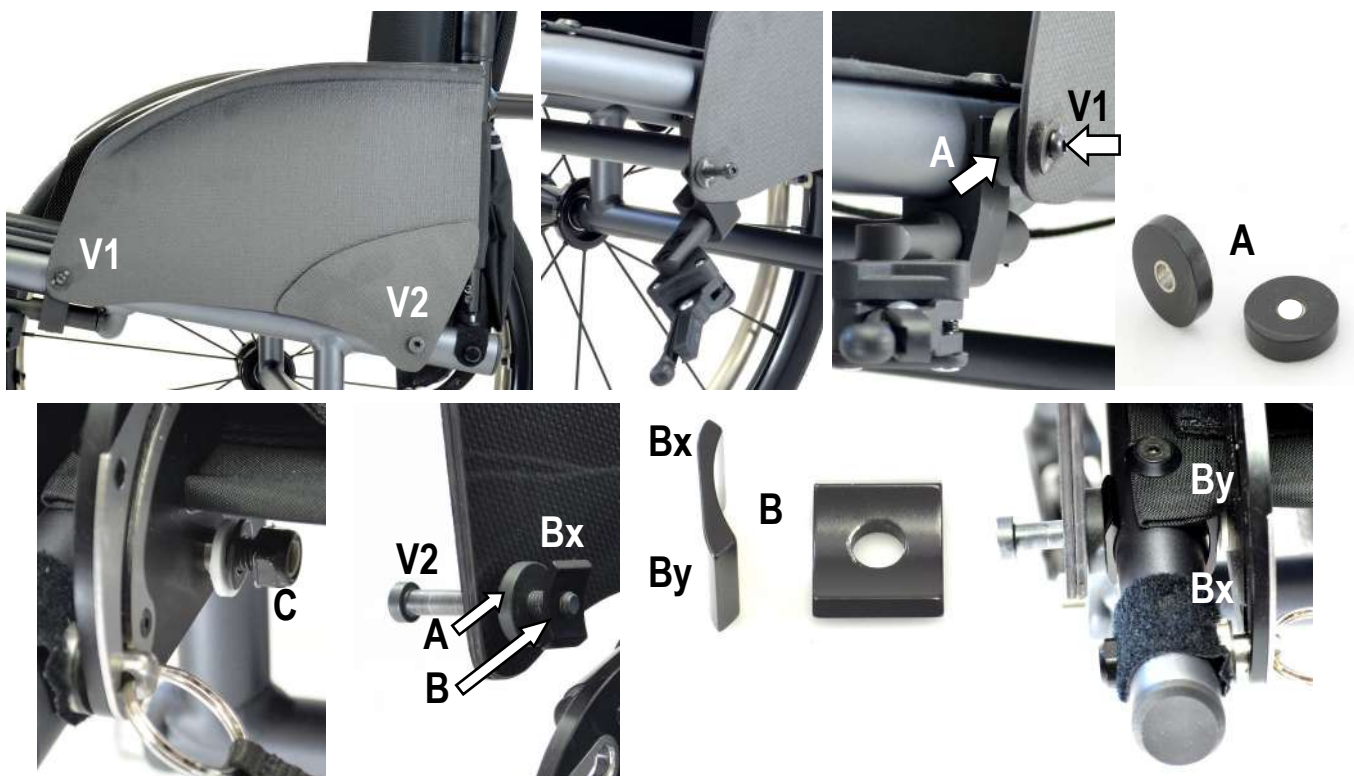
It is possible to make the seat width larger by maximum 10 mm each side, by modifying the side guard fixing.

Remove the bolt **V1** and its corresponding nut.

This way, the whole brake unit will come off, too.

You have to replace the bolt **V1** with 5 or 10 mm longer ones according to the extent of the enlargement.

Insert the longer bolt through the holes of side guard, put 1 or 2 spacers **A**, position the brake unit, let the bolt pass through the frame and fix all the parts together.



Remove the bolt **V2** and the nut **C**, then, turn the side guard up or down. This way, you will free the backrest plate, too.

You have to replace the bolt **V2** with 5 or 10 mm longer ones according to the extent of the enlargement.

Insert the longer bolt through the hole of the side guard, put 1 or 2 spacers **A**, put the shaped spacer **B** with its narrower side **Bx** up and let the bolt through the frame and through the hole of the backrest plate.

Make sure to put all washers of the backrest plate correctly (you can use as reference the other side that has not been touched); in particular, another shaped spacer **B** is positioned with its wider side **By** up between the backrest plate and the frame.

(The shaped washer **B**, according to its position, changes the inclination of its flat side).

Now, fix bolt and nut **V2 C** making sure the shaped spacers **B** do not turn.

Now, it is necessary to check the gap between side guard and rear wheel and decide whether or not, to add spacers on the wheel receiver.

In such case, remove the wheel receiver and add 3 and/or 6 mm spacers.

Finally, spread some mild thread lock glue on the receiver thread and tighten the receiver.

The maximum overall thickness of the spacer must not be more than 9 mm.

If the receiver is too hard to unscrew, heat the receiver, not excessively, and try to unscrew it.

If it is still too hard, heat it a little more until, after a few tries, the operation will be easy.

Advice: before removing the receiver, it is useful, as a try, put the spacer on the axle of the wheel and put it on. This way, you will immediately see what spacer you need.

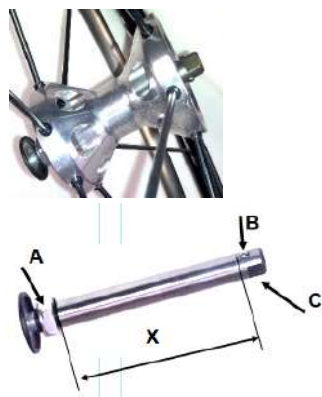




QUICK RELEASE AXLE

(rear wheel)

SERVICE MANUAL



Adjust the quick release axle so that the rear wheel is safely fixed with no risk that it comes off accidentally.

At the same time, there should be no or very little play.

To check if the rear wheel is safely fixed, take hold of the hub without pressing the release button, and try to pull the wheel in and out.

As regular maintenance, it is advisable to clean the quick release axle and spread a little of grease on it.

If the wheel comes off, the distance **X** between the nut **A** and the balls **B** is too short, therefore, it is necessary to unscrew the nut **A** while holding the point **C** of the axle. **If there is play**, the distance **X** between the nut **A** and the balls **B** is too long, therefore, it is necessary to screw the nut **A** while holding the point **C** of the axle

In both cases, make a few tries until the correct adjustment. There is no need to remove the axle from the wheel.



It may happen that you adjust the axle so that the wheel only seems properly fixed, but it is not safe.

In fact, to check the adjustment, you have also to try to press the button just a little bit (as guidance, $\frac{1}{4}$ of its run) and pull the wheel. If it comes off, it means that it may come off while driving! Therefore, this is a very important **safety check**.

If the wheels comes off, unscrew the nut a little bit until you have the proper adjustment.

If the wheel (the axle) gets stuck in the receiver, press the quick release button, pull the rear wheel and, at the same time, with a mallet, gently hit (a little harder if necessary) the hub or spokes of the wheel and try to remove it.

The reasons why the wheel can get stuck can be two.

- the receiver is slightly damaged; in this case, with a $\frac{1}{2}$ reamer, re-pass the receiver's hole.
- when pushing the axle's button, the balls do not fall inside the axle's shaft; first, clean the axle, then try to push the button a few times a see if you have solved the problem; if not, press the button, hold the axle's pin with a wrench and unscrew the button half of a turn. Check and if necessary do the same with another half turn. Do not unscrew the button too much: the pin will come off and, consequently, the balls will fall to the ground.

