



SERVICE MANUAL

ENGLISH



SERVICE MANUAL

NOIR 2.0

Rev. 1 - 2021/05



progeo
ACTIVE DESIGN



NOIR 2.0

GENERAL WARNINGS

ANY ADJUSTMENT CAN BE CARRIED OUT EXCLUSIVELY BY QUALIFIED AND AUTHORIZED BY REHATEAM S.R.L. 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 s.r.l. from any responsibility on any malfunctioning and/or damage due to such adjustments/modifications.

Always contact Rehateam s.r.l. 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 s.r.l. disclaims any responsibility for damage to the product, to any object or to 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.

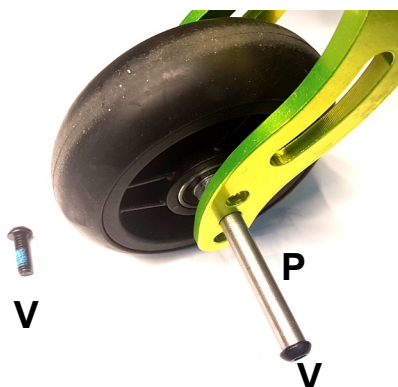
If such principle is neglected, the fork angle will no longer be perpendicular to the ground.

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.

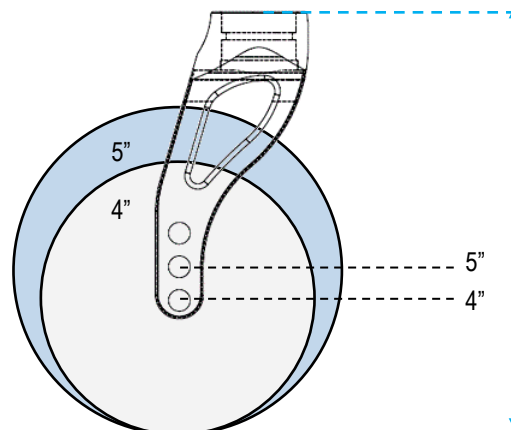
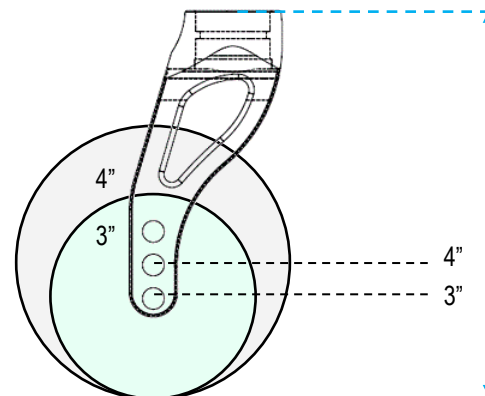
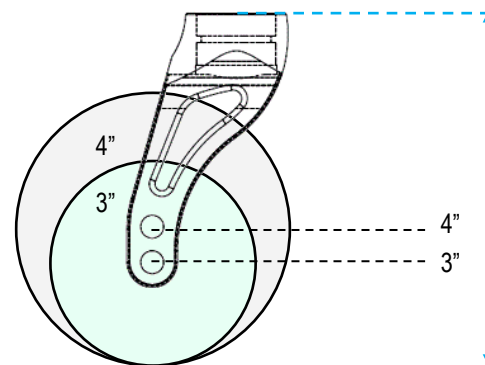


It is advisable to spread a drop of mild lock thread glue on the bolts **V**.



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	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	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.

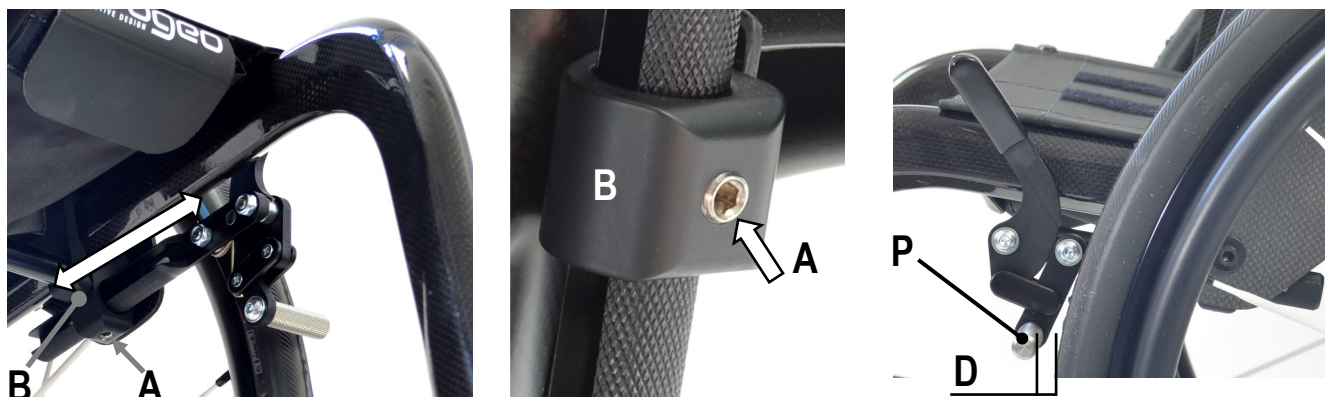


BRAKE

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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 **B**.

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.

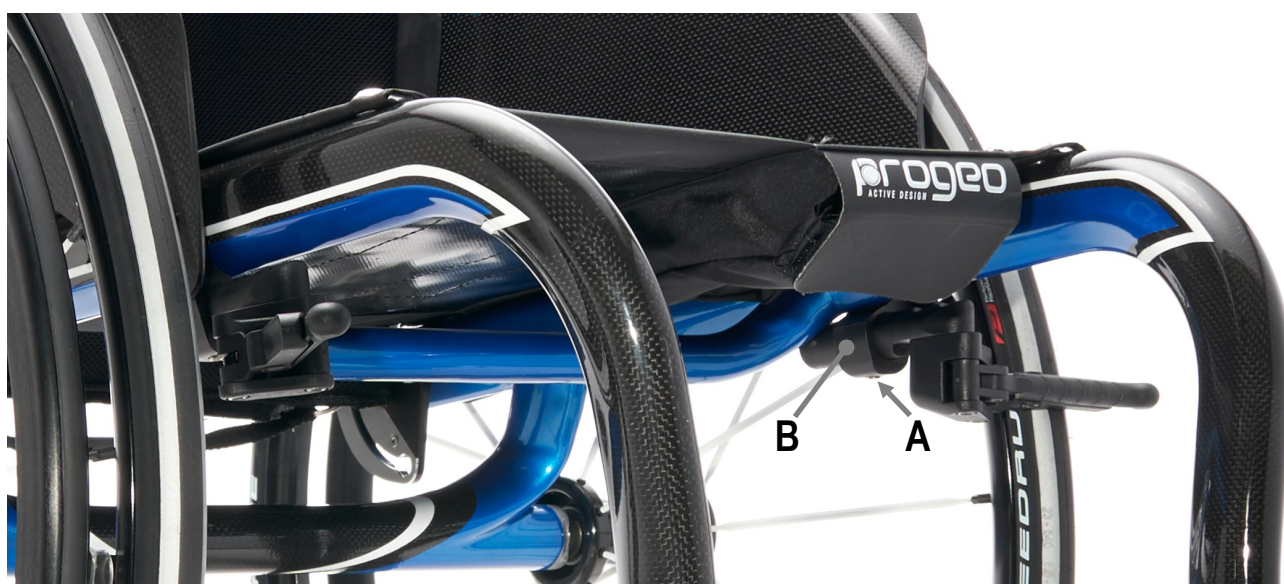
If necessary, repeat the same operation to reach the good adjustment.

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.



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



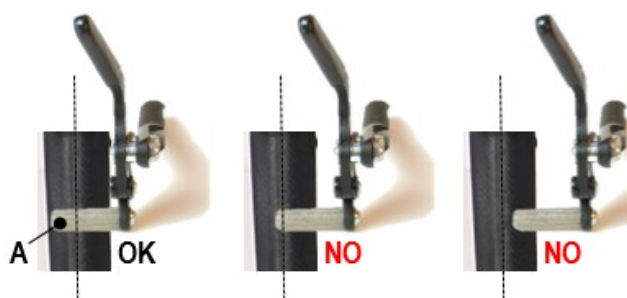
BRAKE SPACING

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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.



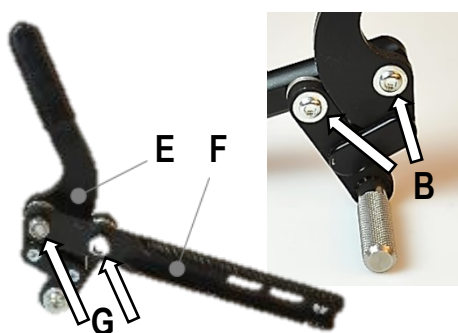
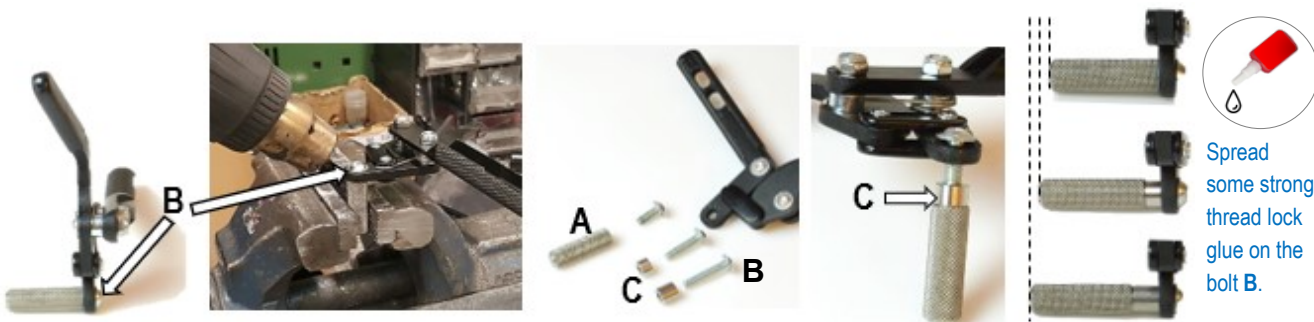
In all cases, check the brake efficiency.

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.



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.

Screw off the bolt **A** of both side of the frame.

Slide the tubes to the necessary height.

Make sure the height of the two sides is the same.

Insert the bolt **A** paying attention to fitting it with no effort into the threaded hole **B** on the rear side of the support **C**.

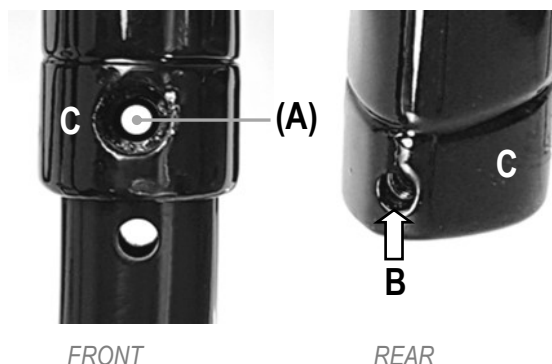
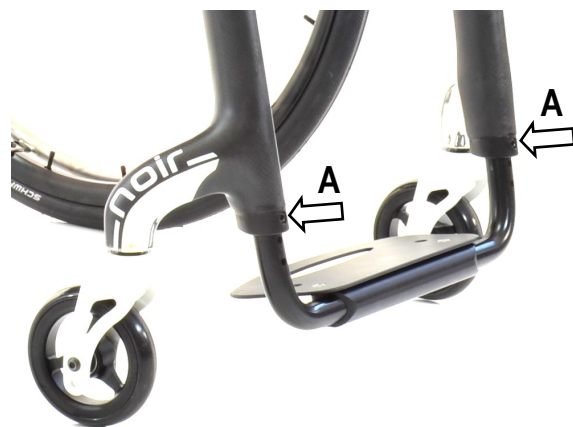
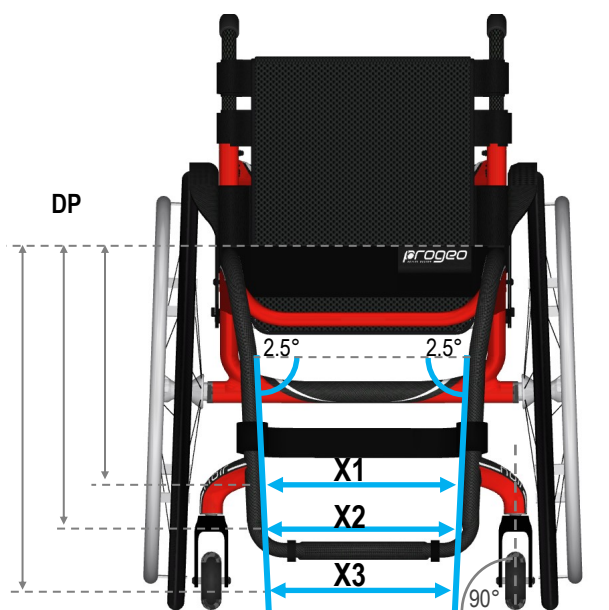
The footplate tube's holes and the hole of the support **B** must be aligned.

Finally, tighten the bolt **A** on both sides of the frame.

Do not force screwing the bolt, you may damage the thread of the hole **B**. Should that occur, you can remedy by pass the threaded hole with a M5 tap starting from the rear side of the support. If the thread is too damaged to be repaired, you can pass the hole with a 5 mm drill bit and fix the tube with a longer bolt, washer and nut.

You can not change the support **C**.

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.



FRONT

REAR



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ALUMINIUM FOOTPLATE

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 2.5° frame taper. Carry out the adjustment in height as mentioned on the sheet "footplate distance".

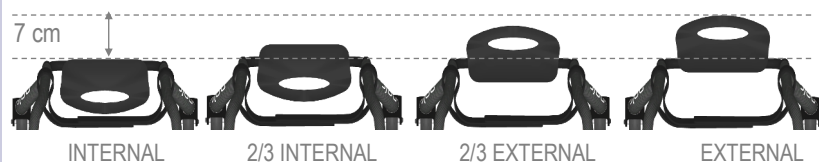
Slide the horizontal tube of the footplate through the supports in order to keep the 2.5° frame taper that will have as a result the fork axle at 90°.

Check that 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") 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 2.5° taper.

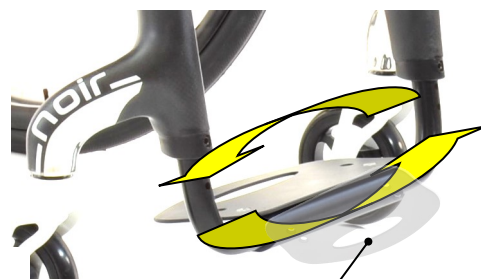
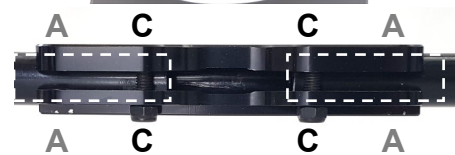
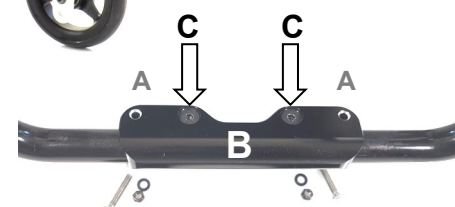
Note: you can remove and insert the footplate-group into the frame tubes without loosening the grab screw **A** and the bolts **B**, thus keeping the distance **X**; the operation, though, will result a little more difficult because the distance between the two footplate tubes at their upper side is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

It will be necessary to adjust the inclination.



External footplate



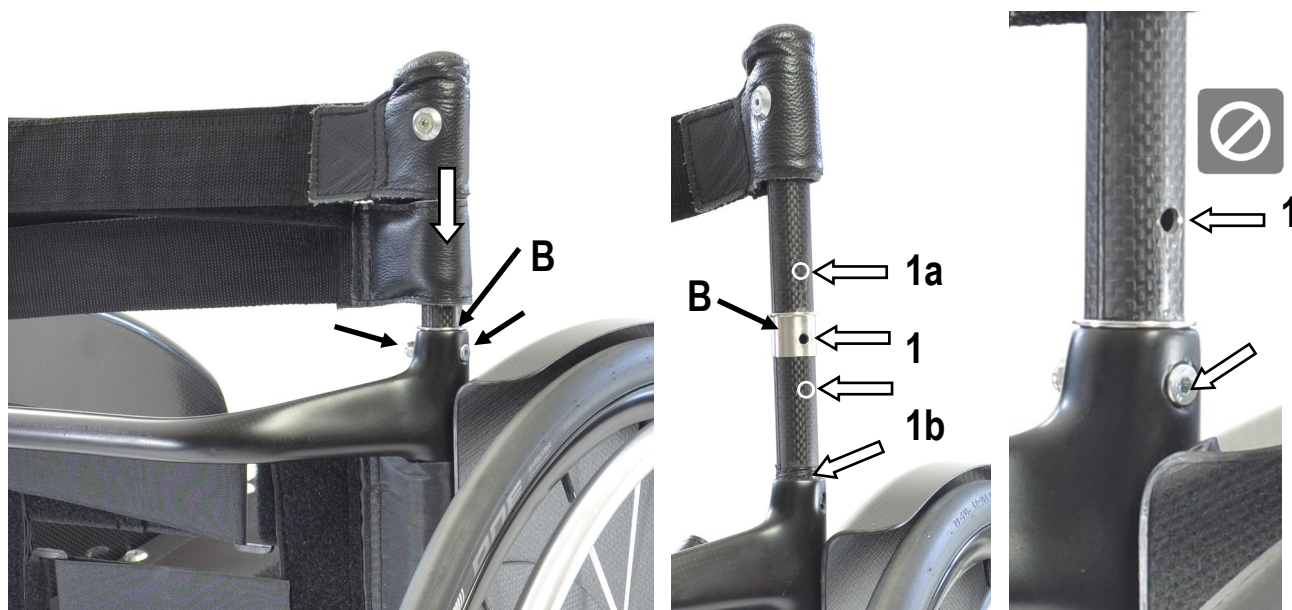
Keeping the distance **X**, you should notice that, at the insertion point, the distance between the footplate tubes is wider than the distance of the frame tubes.



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BACKREST HEIGHT

Carbon fibre backrest



Remove the backrest upholstery and slide up the protecting sleeves of the backrest bands along the tube until the fixing screws **A** are visible.

In the fixing point, you will also see a steel buckle **B**.

If the bolt is not accessible, remove the mudguard if it is removable or tilt the backrest backward by means of its adjustment system (see backrest angle adjustment sheet).

Remove bolt and nut **A**.

The backrest tubes have only one hole that is originally drilled according to the height requested in the order form.

On the pictures above, you can see that the fixing point is the **1**.

The point **1a** could be a new hole to lower the backrest height and that is possible without creating problem (you may need to cut off the bottom side of the tube), in fact, the hole **1** will be underneath and within the tube of the backrest structure. While drilling the hole on the tube, pay attention to aligning the handle grip (if present).

Should you cut off the bottom side the tube, insert the buckle **B** on the tube and put a few turns of sticky tape **C** around the extremity of the tube to reduce a possible play.

Insert bolt and nut **A** and tighten **without overtightening** to avoid damaging the carbon fibre.



The **1b**, on the other hand, would be the point where to drill a new hole to increase the backrest height, but, by doing so, the hole **1** would be out of the backrest structure and it would create a situation of possible breakage of the tube during normal use of the wheelchair. This operation is not allowed.

Warning: to guarantee a good stability, between the fixing hole and the lower side of the tube, there should be at least 4 cm.



The carbon fibre backrest tube is not suitable to fixing any clamps, such as those used for a postural system hardware.

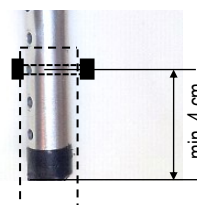
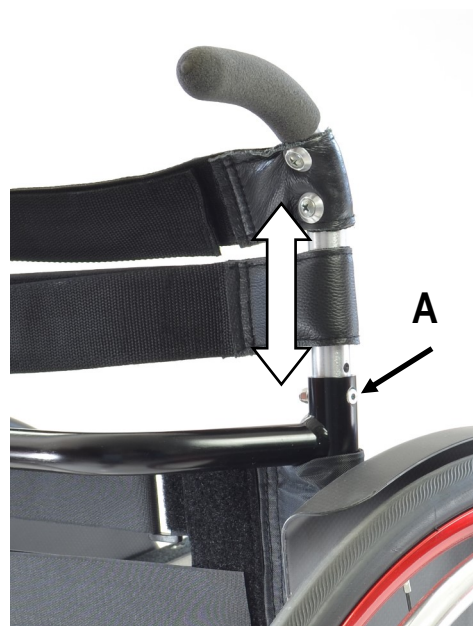
Note: if the backrest tube is assembled on a aluminium or titanium backrest structure, follows these same instructions.



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BACKREST HEIGHT

Aluminium or titanium backrest



Remove the backrest upholstery and slide up the protecting sleeves of the backrest bands along the tube until the fixing screws are visible.

If the bolt is not accessible, remove the mudguard if it is removable or tilt the backrest backward by means of its adjustment system (see backrest angle adjustment sheet).

Remove bolt and nut **A** and raise or lower the backrest tubes to the desired height.

If the minimum height you can reach is not enough, it is necessary to cut the lower side of the.

If the maximum height you can reach is not enough, it is necessary to change the tube.

Warning: to guarantee a good stability, between the fixing hole and the lower side of the tube, there should be at least 4 cm. If the tube is cut, the lower hole will be only a few millimetres from the end of the tube; therefore, you should not use that hole, the next and, sometimes even the third to fix the backrest height.

Replace the screws and tighten.

To reduce possible play and possible noise, you can put some sticky tape around the inner tube at its bottom and at its fixing point (or just under it).

Note: if the backrest tube is in carbon fibre, follow the instructions of the adjustment sheet "*backrest height—carbon fibre backrest*".

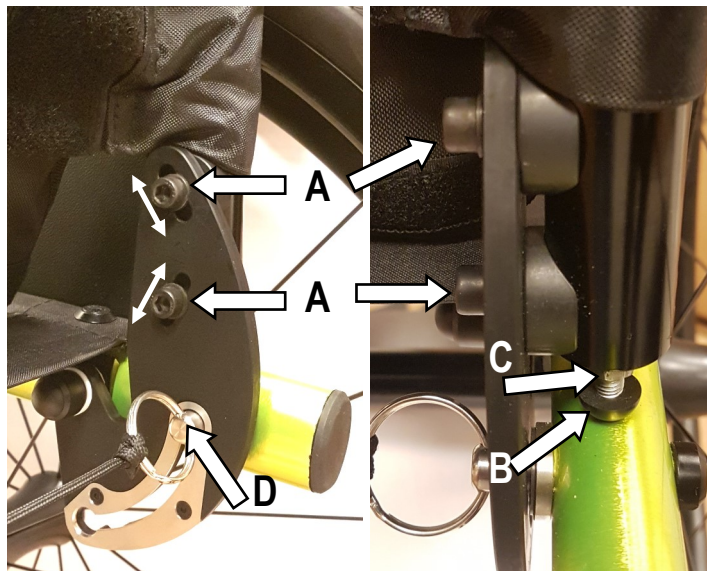
The titanium backrest structure includes a plastic adaptor, just follow the same instructions above.





BACKREST ANGLE

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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

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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.

The brake and its support remains fixed to the side guard.

Note that a 3 mm spacer **A** is already present.

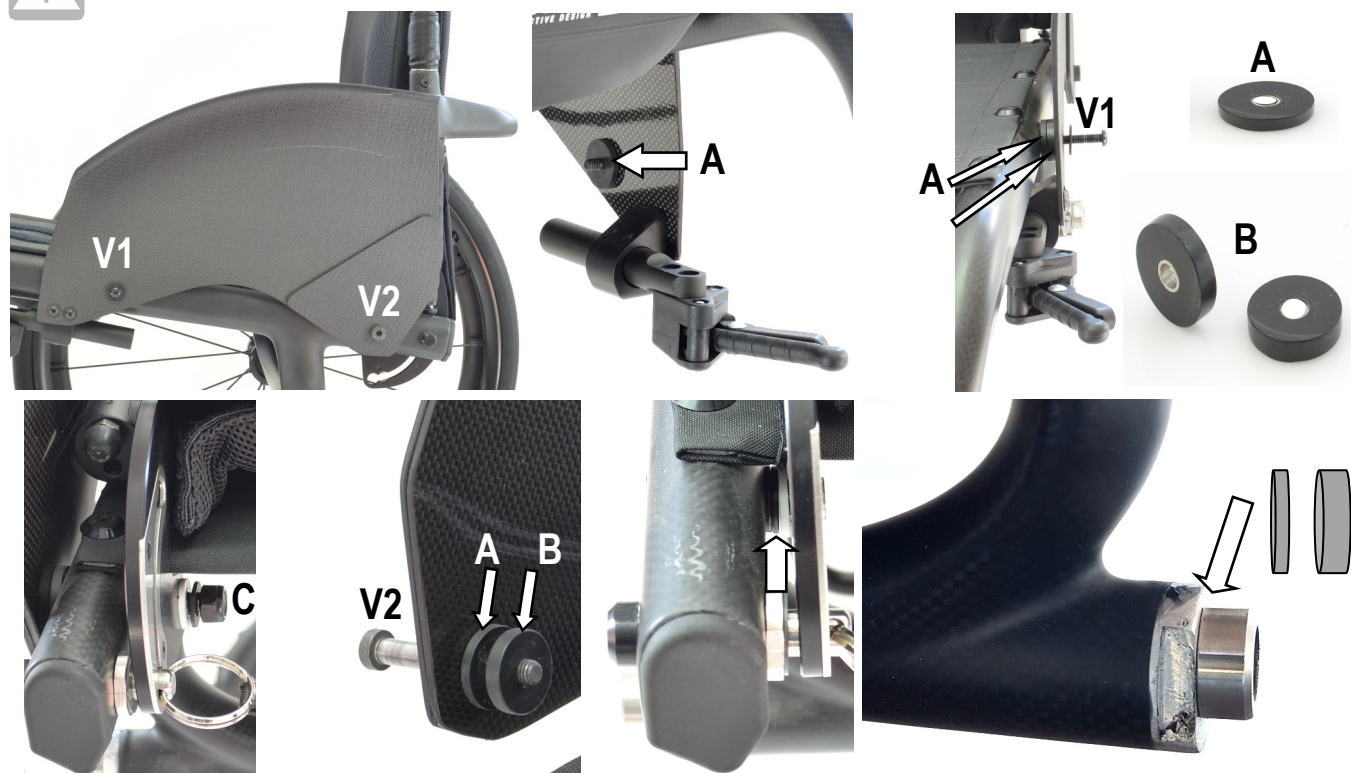
You have to replace the bolt **V1** with 5 or 10 mm longer ones according to the extent of the enlargement.

Insert the longer bolt through the holes of side guard, put 1 or 2 spacers **B** in addition to the spacer **A**, let the bolt pass through the frame and fix all the parts together.



DO NOT OVERTIGHTEN, the tube in carbon fibre may crack.

When you feel the nut starts to tighten, the torque is enough to make the side guard firm.



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

Note that a 3 mm spacer **A** is already present.

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 holes of side guard, put 1 or 2 spacers **B** in addition to the spacer **A** 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).

Now, fix bolt and nut **V2 C**.

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 results too hard to unscrew, **DO NOT INSIST AND DO NOT HEAT THE PARTS**, the inner buckle (in which the receiver is screwed) that is glued to the carbon tube may detach. You may try to give one or two hit with a hammer (without exaggerating) to the head of the receiver and try to unscrew it. If that is not enough, Contact Rehateam s.r.l..

Advice: before removing the receiver, it is useful, as a try, put the spacer on the axle of the wheel and put it on.

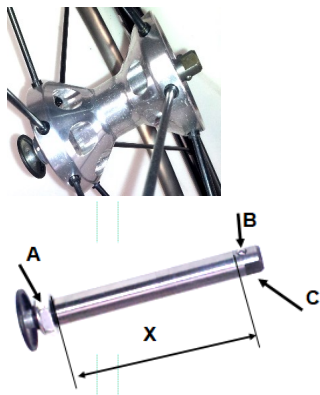
This way, you will immediately see what spacer you need.



QUICK RELEASE AXLE

(rear wheel)

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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.

