

SPIRAL

Owners Manual



PHYSIPRO



This manual contains important information about this product.
Please pass it to the final user upon delivery.

ENGLISH**User's Manual : Spiral**

Pediatric tilt in space wheelchair.

Les Équipements adaptés Physipro Inc.

Physipro Inc.s proud to count you among its customers and would like to thank you especially for the confidence you show in purchasing one of its products.

This user manual has been designed to allow you to use the Spiral tilt in space wheelchair, a Physipro Inc. product, safely and optimally. For all necessary adjustments, Physipro Inc. always asks you to contact your distributor.

Physipro Inc. disclaims all liability for bodily injury or property damage resulting from misuse, lack of care in the use of its products or modification made without its written consent.

For Physipro.Inc, your satisfaction will always be a priority.

Information about your Spiral :

Date of purchase :

Serial number :

Supplier :

Address :

Telephone :

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1 Components :

1.1 Component standards

The components shown in Figure 1, are provided on the standard model of the Spiral pediatric tilt in space wheelchair.

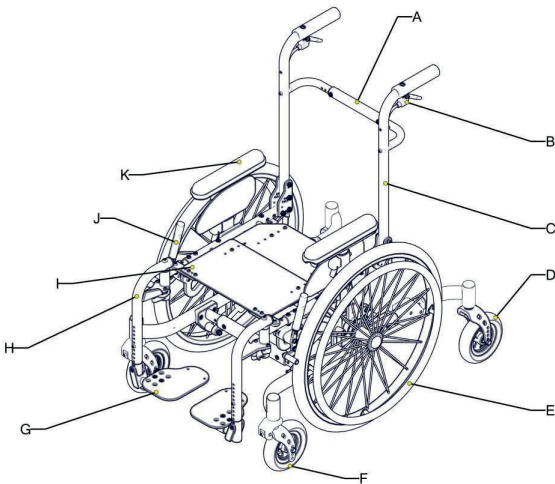


Figure 1: Standard components of the *Spiral*

	Components		Components
A	TENSION BAR	G	FOOTPLATE
B	TILT CONTROLLER	H	FOOTREST
C	BACK CANES	I	SEAT FRAME
D	REAR CASTERS	J	BRAKE
E	PROPULSION WHEEL	K	« T » ARMREST
F	FRONT CASTERS		

1.2 Main optional components

Les Équipements Adaptés Physipro Inc. offers a variety of accessories and options to customize each positioning base to meet the specific needs of the user. Figure 2 shows some optional components available for the Spiral tilt in space wheelchair. For further details, please contact Physipro or consult the order form.

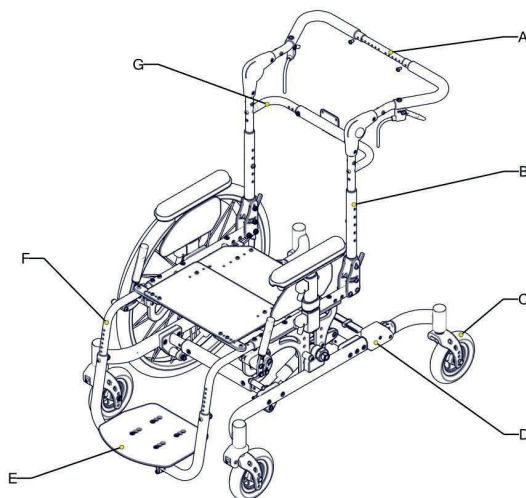


Figure 2 : Optional components of the *Spiral*

Optional components		Optional components	
A	PUSH HANDLE	E	ONE PIECE FOOTPLATE
B	FOLDING BACK POST	F	ONE PIECE FOOTREST
C	DYNAMIC FORK	G	TENSION BAR WITH HEADREST SUPPORT
D	TILTING REAR CASTER		

2 Specifications :

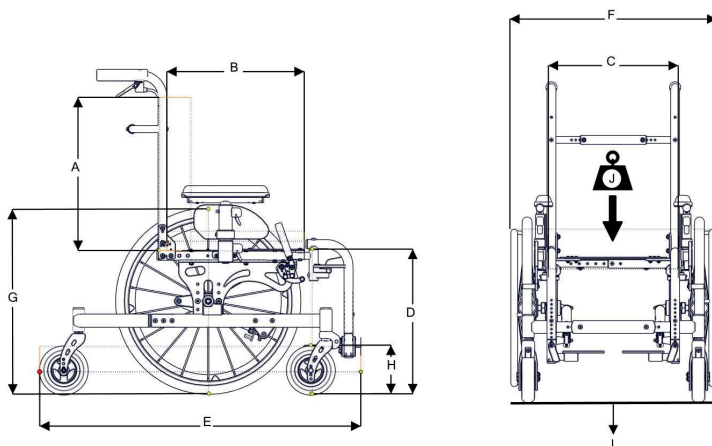


Figure 3 : Reference specifications of the Spiral

Table 1 : Spiral specifications

Table 1 : Spiral specifications		
A	Back height :	14" to 23" (35,6 à 58,4 cm)
B	Seat depth :	10" to 16" (25,4 à 40,6 cm) *
C	Seat width :	10" to 16" (25,4 à 40,6 cm)
D	Seat / floor height :	14" to 19" (35,6 à 50,8 cm) *
E	Overall length :	40" (101,6 cm)
F	Overall width :	Seat width + 8 3/4" (22,2 cm)
G	Propulsion wheel diameter :	20"; 22" (50,8; 55,9 cm)
H	Dimension of casters :	5"; 6" (12,7; 15,2 cm)
I	Total weight :	50 lb (22,7 kg)
	Transport weight :	30 lb (15,9 kg) – (excludes removable components)
J	Maximum load :	150 lb (68 kg)
Back angle :		85° to 120° *
Tilt :		0° to 45° *
« T » Armrest:		6 1/2" to 14" (16,5 à 35,6 cm)
Removable footrest :	60° : 6" to 14" (15,2 à 35,6 cm)	
	70° : 6" to 14" (15,2 à 35,6 cm)	
	90° : 6" to 14" (15,2 à 35,6 cm)	
Quick release axles on propulsion wheel		
Integrated adapted transport anchors		

* Some limitations apply, see the Annexes for details.

3 Use :



Do not operate this equipment without reading and understanding this instruction manual in its entirety. It contains essential information that helps ensure the safety of the user and the individuals in contact with the base.

3.1 Usage checks :

When receiving a wheelchair, the following checks should be made to ensure the safety of the user:

- Make sure the chair rolls in a straight line easily and all parts work without jerking;
- Make sure the chair is working with abnormal noises or vibrations;
- Make sure the front and rear casters are securely fastened and that no objects interfere with their proper operation;
- Ensure the effectiveness of the parking brakes;
- Make sure the anti-tippers are strong and work well;
- Make sure that the seat and backrest are securely attached to the frame and that they're stable for the user;
- Make sure the tire pressure is adequate. (Only in the case of pneumatic tires);
- Make sure the armrests and footrests are securely fastened and locked;
- Make sure no heavy objects are attached to the backrest;
- Make sure the seat belt is securely fastened to the frame and adjusted to the customer's needs;
- Ensure the effectiveness of the tilt cylinders;

3.2 Security rules :

There are many rules that must be followed to ensure the safety of the user and the individuals in contact with the wheelchair. Note that the following list is not exhaustive. It's the responsibility of the person in contact with the wheelchair to remain cautious in the actions undertaken:

- Never drive without adequate tire pressure (in the case pneumatic tires);
- Do not attempt to reach an object if you must lean forwards, to the side or to the back.
- Do not attempt to approach an obstacle whose height could jeopardize the stability of the wheelchair;
- Never carry passengers;
- Do not attempt to tip the chair unassisted;
- Never use the footplates to lift or to do transfers;
- Never lift the wheelchair by its retractable or removable parts. Use the rigid elements of the frame instead;
- Where parts are removable, be careful not to pinch a finger when reinstalling the part;
- For transport, use the anchors provided for this purpose. These can not be used as a substitute for Transport Canada approved vehicle restraint systems.



Getting off a sidewalk:

To get down a step or sidewalk safely, please follow the steps below:

1. In mid-propulsion mode, release the rear wheels by pressing down on the belt;
2. Position the chair on the edge of the step;
3. Hold handrails;
4. The assistant must hold both push handles and tilt the chair backwards to raise the front wheels off the ground;
5. The assistant must maintain this position and push the wheelchair forward until the front wheels of the wheelchair touch the ground;



Figure 4 : Getting off a sidewalk

Note – Do not attempt to cross a step or sidewalk without assistance.

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**Going up and down stairs:**

The assistance of two companions is required to go up stairs. To do this, one must position themselves behind the wheelchair and hold it by the handles. The second companion must maintain a fixed part of the frame at the front of the chair which prevents the chair to roll forwards.



Figure 5 : **Going up and down the stairs**

**Going down a slope of up to 10 degrees on 3 m:**

It's essential to control the direction and the speed during the descent. To make a safe descent, lean your body back and let the handrims slip into your hands slowly. You should always be able to stop the wheelchair by blocking the handrims.



Figure 6 : **Going down a slope**

Note – always have an assistant behind your chair when you go down a long slope.

**Climb a slope of up to 10 degrees on 3 m:**

Make sure the base is not tilted back. Lean your body forward and make firm and vigorous propulsion on both handrails.



Figure 7 : **Climb a slope**

Note – always have an assistant behind your chair when you go up a long slope.

WARNING

Sloping movement affects the center of balance of your chair. Your chair can tilt back, sideward or forward. This becomes less stable and the anti-tippers may not be able to prevent tipping or falling.

**Transfer:**

Before starting a transfer, all precautions must be taken to minimize the transfer distance.

1. Turn the front wheels parallel to the target object for transfer;
2. Make sure the brakes are engaged to prevent the wheelchair from moving;
3. Remove or retract the armrest;
4. Remove or retract the footrests;
5. Perform the transfer;



Figure 8 : Transfer

Note – Use a transfer board if possible.

WARNING

It's not recommended to transfer without help from an assistant; it requires a good balance and agility. Be aware that there's a moment when the chair isn't under you when you perform a transfer.

**Handling:**

Never lift the wheelchair by its retractable or removable parts. Use the rigid elements of the frame instead. Raising the chair with its retractable parts can result in serious injury to the user or damage to the wheelchair.

**Use in the evening outdoors:**

In the evening or when lighting is poor, use reflective tape on your chair and clothes. Motorists may have difficulty seeing you. Always look at motorists before moving on. Don't engage on heavy traffic lanes.

**Weight limit:**

Never exceed the load limit of the chair for the combined weight of the user and the objects being transported. If this weight limit is exceeded, the chair may be damaged or a fall, tipping or loss of control may occur. This could result in serious injury to the user or other people.

**Positioning belt:**

It's important to always wear your positioning belt. Although the positioning belt is an option on the chair, Physipro strongly recommends ordering one. The primary function of the positioning belt is to maintain good posture. Improper use can result in serious injury.

Note – Positioning belts can not be used to restrain the user during transport. Use the seat belts of the vehicle.

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Outdoors environment :

Never use the chair on a slippery surface such as snow or ice. Be extremely careful when moving on a wet or slippery surface. If in doubt, don't hesitate to ask for help.

- Never use the chair in a pool, shower or any other site of water. Wheelchair tubing may rust and corrode on the inside may thus interfere with the proper functioning of the chair;
- Dry the chair if it's wet or when you have finished cleaning it;
- Avoid exposure to moisture;
- Never use your chair on sandy or rough terrain;
- Vibration can damage wheels and axles or loosen your fastener;



Anti-tippers:

Never use anti-tippers as a rocking lever;



Tires:

Adequate inflation of the tires extends the life of the tires and makes the chair easier to use.

- Don't use the wheelchair if the tire pressure isn't adequate, too much or not enough inflated;
- Too low of a pressure may cause the brake to slip and the wheel to turn;
- Excessively inflated tires may burst;
- If you don't consider these warnings, your chair may be damaged or cause serious injury to the user or others;

3.3 Cleaning, recommendations and storage of the wheelchair:



Cleaning :

- Clean the paint with mild soap or neutral detergent diluted in water (2 ounces (60 ml) for 8 liters of water) at least once a month.
- Protect the paint with non-abrasive automotive wax every three (3) months.

Note – Do not use strong detergent or thinner.

Recommendations :

- Eliminate all contamination (food and / or biological) immediately without waiting for weekly cleaning.
- If a sick person is contagious: Disinfect the seat, the armrests, the backrest and any other surface with a disinfectant on a daily basis by spraying the surface. Don't rinse or wipe, allow to dry.

Storage :

- The chair should be stored in a clean, dry place.
- If the wheelchair has been stored for more than (3) three months, have it checked by an approved supplier before use.

3.4 Tilt :

The Spiral tilt in space wheelchair is equipped with a patent-pending tilt concept based on the propulsion wheel. It can be tilted back from 0° to 45° by referring to the following procedure:

1. Activating the immobilizing parking brakes (A) * (See section: 3.5);
2. Operate the tilt handles (B) simultaneously;
3. Toggle and release the handles to the desired angle;

* The Spiral tilt in space wheelchair will tend to move, when the brakes are actioned, in the direction of tilting. This occurs because of the tilting concept as it shares the same axis as the propulsion wheel. It should be noted that this movement is normal and that it will not cause any breakage of the Spiral positioning base. To eliminate this movement during tilting, first release the parking brakes.

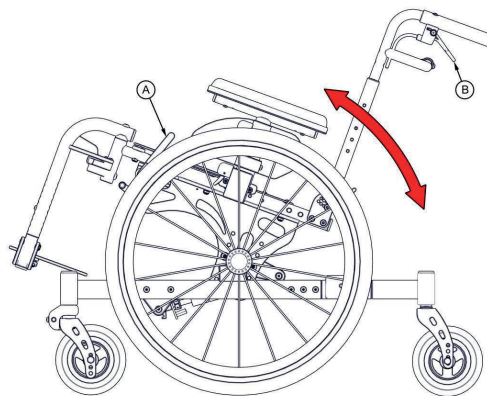


Figure 9 : Position in positive tilt

ENGLISH**3.5 Brake :**

Don't stop a wheelchair in movement by activating the brakes. The brakes are used to lock the wheel but must never be used to immobilize the wheelchair when it rolls.



For every modification to the propulsion wheels or tire wear, it's important to adjust the braking force.



Check the air pressure of the pneumatic wheels regularly.

Applying the brakes :**Push type brakes :**

1. Push the brake handle forward to activate the brakes;
2. Pull the brake handle back to release the brakes;

Pull type brakes :

1. Pull the brake handle back to activate the brakes;
2. Push the brake handle forward to release the brakes;

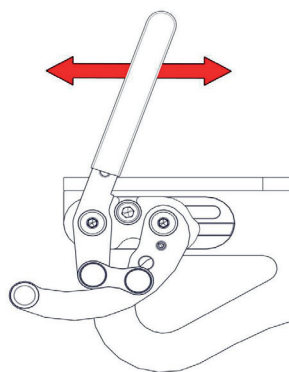


Figure 10 : Applying the brakes

3.6 « T » Armrest :



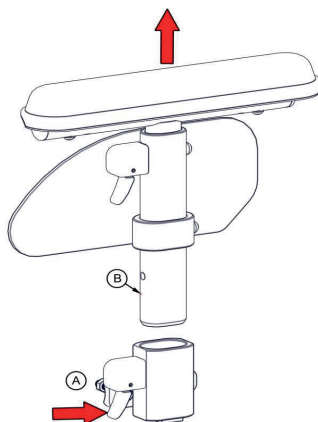
Make sure the armrest is locked and the trigger mechanisms are engaged. Improper use can result in serious injury to the user or damage to the chair.



Never lift the wheelchair by the armrest. Breakage or injury may occur. Use the rigid elements of the frame instead.

Removing the armrest :

1. Press and hold the bottom trigger (A);
2. Pull the armrest (B) upwards;



Installing the armrest :

1. Press and hold the bottom trigger(A);
2. Insert the armrest (B) into the receptacle (C);
3. Release the trigger (A), then push the armrest down to lock its position;

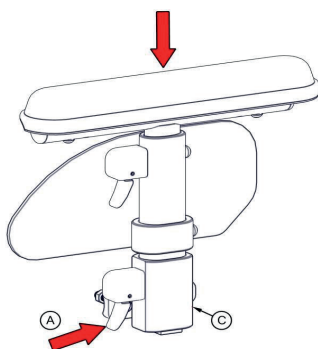


Figure 11 : Removing/Installing the armrest

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Adjusting the height of the armrest:

The « T » armrest is adjustable in height in increments of $\frac{1}{2}$ " (1,3 cm)

1. Release, if necessary, the set screw (F);
2. Press and hold the upper trigger (D);
3. Move the « T » support of the armrest (E) to the desired height;
4. Release the upper trigger (D);
5. Lock the height of the armrest, if necessary, by tightening the set screw (F);

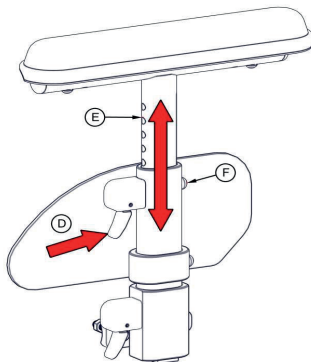


Figure 12 : Adjusting the height of the armrest

3.7 Folding footplates :

Folding the footplates :

1. Lift the footplate (A) upwards;

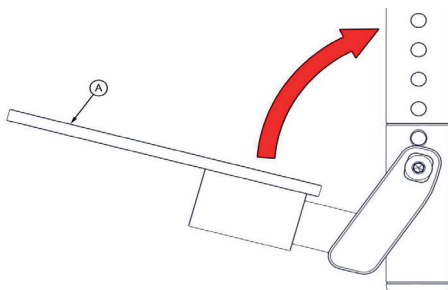


Figure 13 : Folding the footplates

3.8 Removable footrests :



Make sure the footrest is locked and the trigger mechanisms are engaged. Improper use can result in serious injury to the user or damage to the chair.



Never lift the wheelchair by the footrest. Breakage or injury may occur. Use the rigid elements of the frame instead.

The Spiral tilt in space wheelchair can be equipped with a removable footrest of 60°, 70° and 90°

Installing the footrest :

1. Install the footrest pivot (A) into anchor (B);
2. Turn the footrest towards the inside of the chair to lock its position;

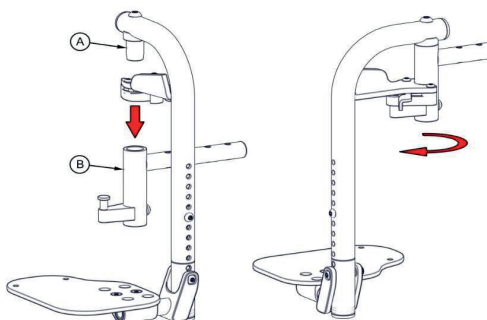


Figure 14 : Installing the footrest

Uninstalling the footrest :

1. Press trigger (C) to unlock the footrest;
2. Turn the footrest towards the outside of the chair;
3. Lift the footrest to uninstall it;

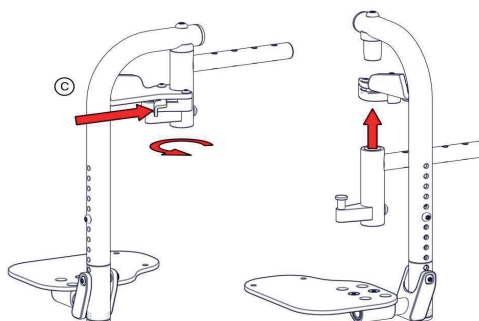


Figure 15 : Uninstalling the footrest

3.9 Propulsion wheels :

The *Spiral* propulsion wheels can be removed to reduce wheelchair volume during transport.

Installing and uninstalling the propulsion wheels:

1. Release the parking brake (**See section: 3.5**);
2. Press on the **(A)** button of the quick-release axle without releasing it;
 - a. To install the wheel, insert the axle into the wheel support **(B)**, then release the **(A)** button at the end of the stroke;
 - b. To remove the wheel, pull the wheel outward and release the **(A)** button at the end of the stroke;

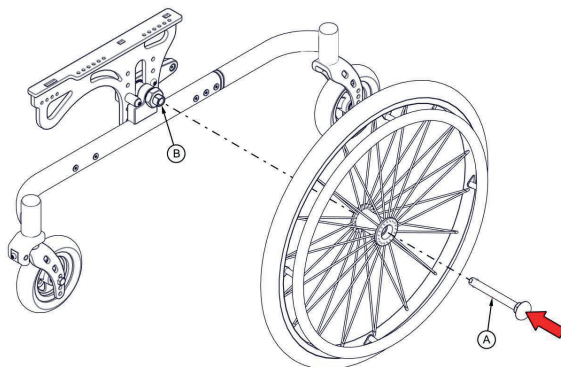


Figure 16 : Installing/Uninstalling the propulsion wheels



When installing the wheels, make sure that the quick-release axle is released and that the wheel is securely anchored before driving with the base. Lubricate the axle if necessary.



Keep the removable axle clean and free of dust or foam for proper operation.

3.10 Retractable fork mechanism :

The *Spiral* tilt in space wheelchair can be optionally equipped with tilting rear caster. This mechanism makes it possible to overcome obstacles of a maximum height of 5" (12,7 cm).



Improper use of the tilting rear caster mechanism may make the *Spiral* positioning base unstable. Use this mechanism in the presence of a qualified professional. Failure to comply with this notice may have serious consequences for the safety of users and individuals in contact with the wheelchair and discharge *Physipro* of all responsibilities.

Overcoming obstacles :

1. Tilt the wheelchair horizontally for safety reasons (**See section: 3.4**);
2. Lift the rear of the *Spiral* base by the handles to remove the weight of the occupant from the rear casters;
3. Unlock the mechanism by gently pressing on the belt;
4. Swing the *Spiral* base back to release the front casters;
5. Move the base towards the obstacle to be crossed;
6. Press the front wheels onto the obstacle, then tilt the *Spiral* base forward;
7. Lift the back of the *Spiral* base by the handles to clear the obstacle;
8. Confirm that the tilting rear caster mechanism will return to its locked initial position before continuing to travel with the *Spiral* wheelchair;

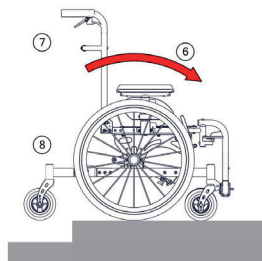
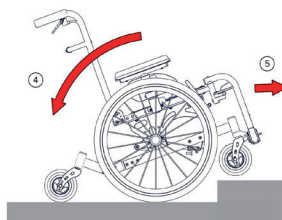
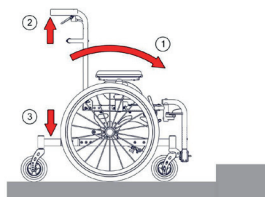


Figure 17 : Procedure to overcome obstacles

3.11 Folding canes mechanism :

The *Spiral* tilt in space wheelchair can be equipped with a mechanism to fold the canes to reduce the transport volume.

Folding the canes :

1. Remove backrest, seat cushion, headrest and armrests as needed;
2. Press the (A) lever to unlock the mechanism;
3. Swing the back canes forward;

Bringing the canes back up:

4. Raise the canes;
5. Verify that the mechanism is locked before using the *Spiral* tilt in space wheelchair;
6. Install the backrest, the seat cushion, the headrest and the armrests;

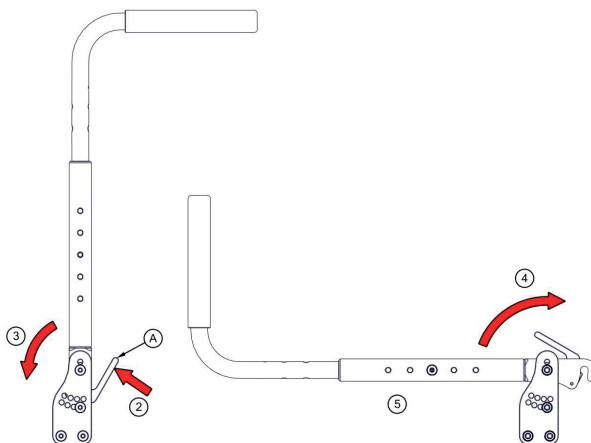


Figure 18 : Folding the canes

3.12 Adjusting the push handle :

The position of the push handle can be adjusted at an angle by using a push-button ball joint. This mechanism allows adjustment in increments of 15°.

Adjusting the angle of the push handle:

1. Press the 2 buttons on the angle adjustment joints simultaneously and hold down;
2. Rotate the push handle to the desired position;
3. Release the push buttons;

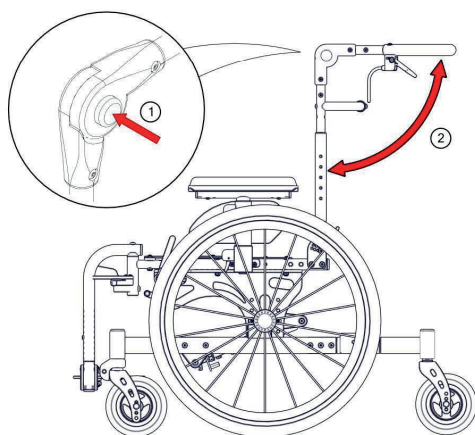


Figure 19 : Adjusting the push handle

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3.13 Transport :

The *Spiral* tilt in space wheelchair is equipped with anchoring points integrated into the frame used to hold the base during transport.

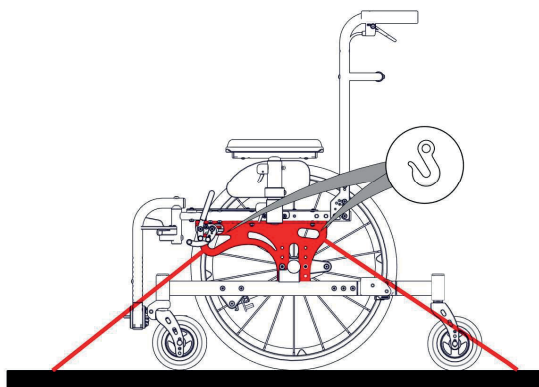


Figure 20 : Illustration of the transport anchors



During transport, only use the anchors provided for this purpose. The anchor cables should never be installed on other parts of the base. In addition, you must install the cables in accordance with *Transport Canada* standards for maximum safety.



Please note that wheelchair anchorages aren't a substitute for *Transport Canada* approved restraint systems.



Physipro assumes no liability for any risks incurred as a result of using the chair as a seat in public or private transport.



To prevent injury, accessories mounted on the wheelchair, such as the table or respiratory equipment, must be removed for transport and secured separately.



Support and positioning belts can not be used to restrain the user during transport. Use the vehicle seat belts.

4 Configuration :



Modification

Any modification made to the *Spiral* tilt in space wheelchair must be done by a professional. Failure to comply with this notice may have serious consequences for the safety of users and individuals in contact with the wheelchair and discharge *Physipro* of all responsibilities.

4.1 Necessary tools :

In order to configure the *Spiral* tilt in space wheelchair, metric tooling is required with the exception of contraindication listed in the documentation. These metric tools include the following items:

- Hex key 3, 4, 5 et 6 mm
- Key 8, 10, 13, 17 mm

4.2 Seat depth :

The seat depth is adjustable from 12" to 16" (30,5 to 40,6 cm) for all *Spiral* chairs. Special backrest anchors provide a seating depth of 10" or 11" (25,4 or 27,9 cm).

Modifying the seat depth:



Warning!

To change the seat depth, please refer to the seat depth adjustment table. Incorrect adjustment of the seat depth may cause this chair to become unstable, reduce the effectiveness of the brakes, and result in serious injury. For more details, you're invited to contact *Physipro*.

1. Removing the seat pan :

- First remove the seat pan by unscrewing the (A) and (B) bolts;
- Remove the U-clip (located under the seat pan opposite of the bolts (B));
- Release the bolts (C) to adjust the seat pan in depth;

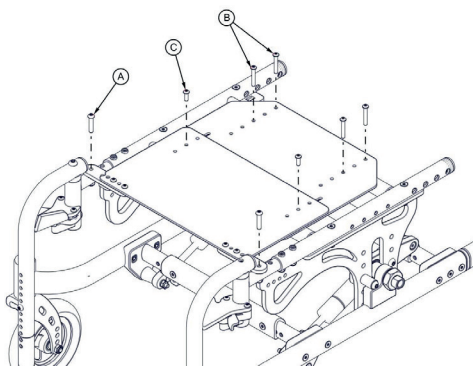


Figure 21 : Adjusting the seat pan

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2. Adjusting the position of the backrest:
 - a. Unscrew the bolts (D);
 - b. Remove the sleeves (E) using a flat punch;
 - c. Move the canes forwards or backwards to obtain the desired depth, (See:Annex A);
 - d. Replace the sleeves (E);
 - e. Screw in the bolts (D);

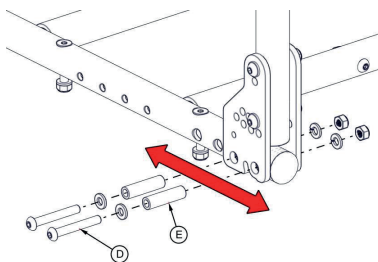


Figure 22 : Adjusting the position of the backrest

3. Adjusting the position of the footrests:
 - a. Unscrew the bolts (F);
 - b. Move the footrests forwards or backwards to obtain the desired depth,
 (See :Annex A);
 - c. Replace bolts (F) and tighten;

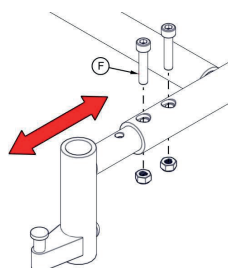


Figure 23 : Adjusting the position of the footrests

4. Adjusting the position of the center of mass:
 - a. Unscrew the bolts (G);
 - b. Move the frame forward or backward to obtain the desired depth, (See:Annex A);
 - c. Screw in the bolts (G);

5. Adjusting the seat pan :

- a. Reposition the seat plate by first fixing the front of the seat on the anchorage of the footrest with the bolts (A);
- b. Then fix the back of the plate, opposite the backrest, using the bolts (B) and the U-clip;
- c. Fix the depth of the seat plates by screwing the bolts (C);

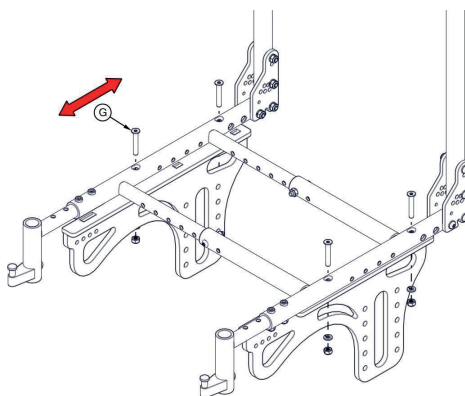


Figure 24 : Adjusting the center of mass

4.3 Seat width :

The seat width of the *Spiral* tilt in space wheelchair can be changed by adjusting the crossbars. There are two possible configurations, the standard frame: 10" to 13" (25.4 to 33 cm) and the wide frame: 13" to 16" (33 to 40,6 cm). The width adjustment of the *Spiral* is done in increments of 1" (2,5 cm)

Modifying the seat width :

1. Remove the seat plate :
(See section:4.2);
2. Adjusting the seat frame and seat:
 - a. Unscrew the bolts (H) from the transversal bars and the bolts (I) from the seat;
 - b. Simultaneously widen or shrink the frame and seat to the desired position;
 - c. Tighten the bolts (H) and (I)
3. Adjusting the seat plate :
(See section: 4.2);
4. Adjusting the tension bar :
(See section: 4.14);
5. Adjusting the angle adjustable push handle:
(See section : 4.13);
6. Adjusting the one-piece footplate:
(See section : 0);

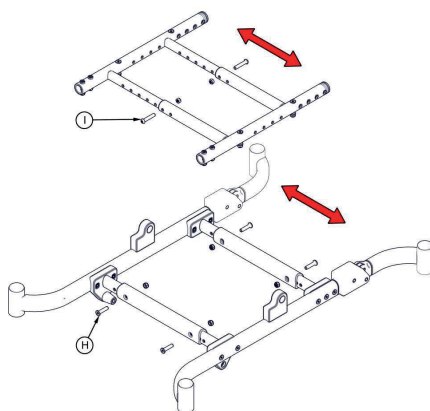


Figure 25 : Adjusting the seat width

Note – width adjustment may require components of a standard or wide frame. For further details, you're invited to contact us or consult the order form.

4.4 Seat / floor height :

The height between the seat and the floor of the *Spiral* tilt in space is adjustable from 14" à 19".

Before adjusting the seat to floor height please refer to the description of limitations.

Modifying seat to floor height:

1. Unbolt the upper cylinder anchor:
 - a. Unscrew the bolts (J) and (K) from the upper cylinder anchor (M);
 - b. Remove the tilt stop (N);
2. Adjusting the seat / floor height:
 - a. Raising or lowering the seat plate (P) to the desired seat / floor height;
 - b. Re bolt the top anchor of the cylinder (M) and the tilt stop (N) with the bolts (J) and (K);
3. Ensure the proper function of the tilt:
 - a. Tilt the seat, then check that there's no space between the components of the tilt;
 - b. Ensure that the seat returns to the horizontal position without exceeding it;
 - c. Ensure that there's no interference with other components;
4. Limiting the tilting angle:
(See section: 4.5);

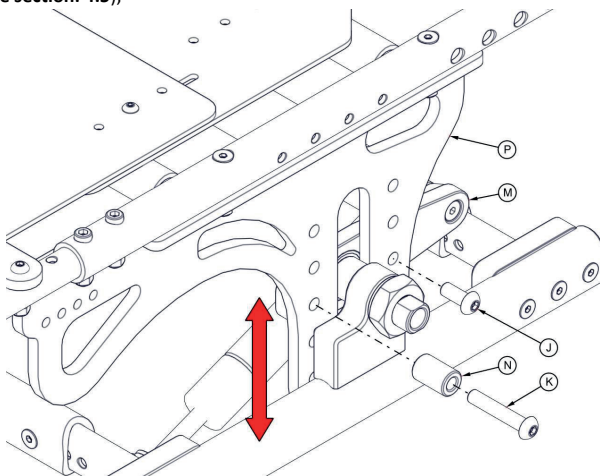


Figure 26 : Adjusting the seat / floor height

4.5 Tilt :

The *Spiral* tilt in space wheelchair can be tilted from 0° to 45° as described in section: 3.4. Please refer to the annex for any limitation occurring due to some adjustments.

Limiting the tilt:

The tilt of the *Spiral* can be limited by the means of a collar (A) installed on the cylinder rod (B). Here's the procedure to limit the tilt :

1. Release the (A) collar with a 7/64" hex wrench;
2. Angulate the tilt to the desired inclination;
3. Move the (A) collar to the cylinder base (B);
4. Tighten the collar to this position;

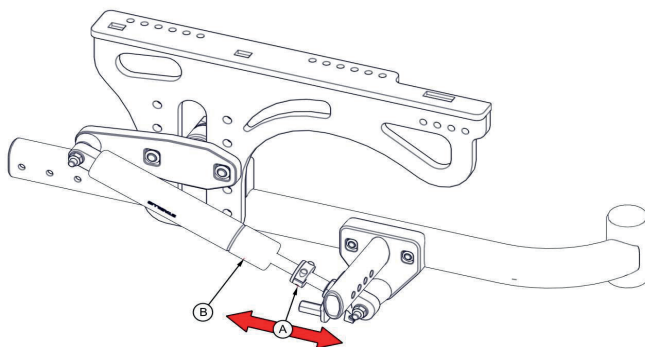


Figure 27 : Limiting the tilt

4.6 Propulsion wheels :

The *Spiral* tilt in space wheelchair can be equipped with 20" (50,8 cm) and 22" (55,9 cm) wheels with a quick-release axle. This axle promotes the installation and removal of the wheel easily.

Adjusting the quick-release axle:

1. Install the quick-release axle so that the balls (A) aren't squeezed and completely pass through the wheel support (B).
2. If necessary, screw or unscrew the nut (C) of the quick release axle using a 3/4" wrench and a 7/16" wrench.

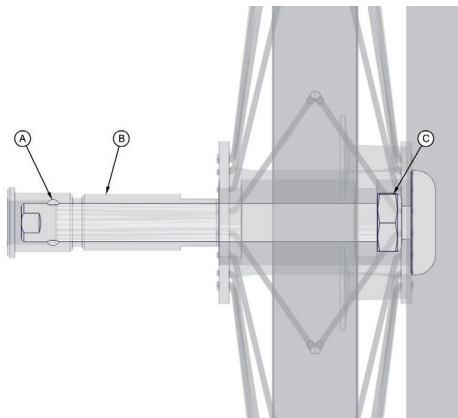


Figure 28 : Adjusting the quick-release axle

4.7 Casters :

The *Spiral* tilt in space wheelchair can accommodate 5" (12,7 cm) or 6" (15,2 cm) diameter casters with a width of in between 1" (2,5 cm) and 1 - 1/2" (2,8 cm).

Installing the casters:

1. Determine the installation position of the wheel (D) in the fork (E) (See Annex B);
2. Insert the screw (A) into the hole corresponding to the installation position, taking care to install the wheel (D) in between the 2 spacer rings (B);
3. Screw the nut (C) onto the screw (A) using 1/2" wrenches;
4. Ensure that the wheel rotates;

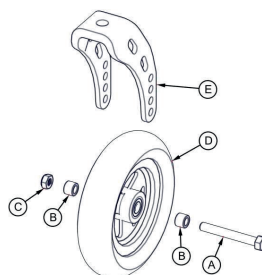


Figure 29 : Installing the casters

Installing the standard fork :

The *Spiral* tilt in space wheelchair is equipped with standard fork series at the front and rear.

1. Insert the ball bearings (C) and bearing spacer (D) into the frame housing (E) as needed;
2. Insert the bolt (H) into a washer (F), and into the fork (G);
3. Slide the bolt (H) into 2 washers (F) and bearings (C) into the frame housing (E);
4. Secure the fork (G) to the frame by tightening the nut (B) with the help of 3/4" wrenches;
 - a. Ensure the fork rotates easily. Otherwise, slightly unscrew the nut (B) to reduce the pressure on the bearings (C);
5. Ensure that the height of the wheel is good;
 - a. Make sure the caster is installed in the correct position in the fork (See Annex B);
 - b. If necessary, add or remove (F) washers in between the fork (G) and the bearings (C);
6. Install the cap (A) on the frame (E);

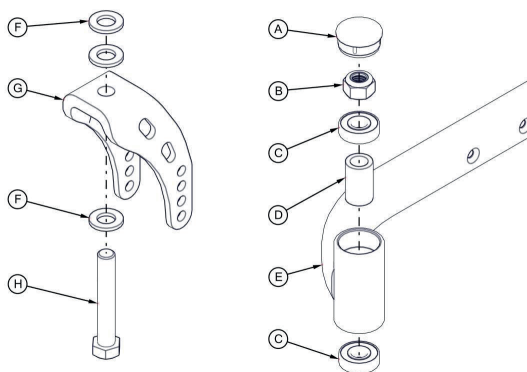


Figure 30 : Installing the standard fork

ENGLISH

Installing the dynamic fork :

The *Spiral* tilt in space wheelchair can be optionally equipped with a dynamic fork in the front.

1. Insert the ball bearings (C) and bearing spacer (D) into the frame housing (E) as needed;
2. If necessary, insert bolt (J) and rubber damper (K) into the dynamic fork block (G);
3. Close the dynamic fork, taking care to slide the axle (H) through the fork block (G), the shoulder rings (M) and the (L) fork;
4. Screw the set screw (I) against the axle plate (H);
5. Slide the bolt (J) into the bearings (C) of the frame housing (E);
6. Secure the fork (L) to the frame by tightening the nut (B) with the help of 3/4" wrenches;
 - a. Ensure the fork rotates easily. Otherwise, slightly unscrew the nut (B) to reduce the pressure on the bearings (C);
7. Validate that the height of the wheel is good;
 - b. Make sure the caster is installed in the correct position in the fork (See Annex B);
 - c. If necessary, add or remove washers (F) in between the dynamic fork block (G) and bearings (C);
8. Place the cap (A) on the frame housing;

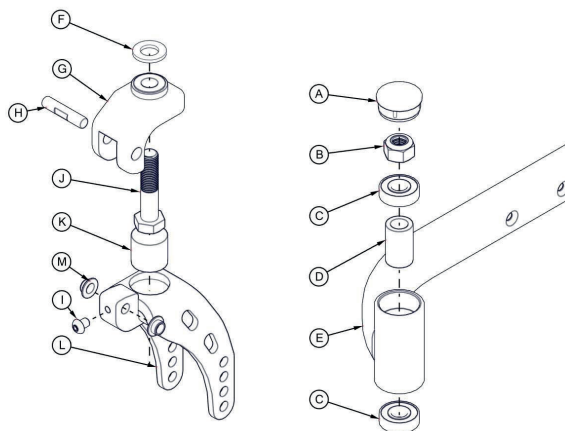


Figure 31 : Installing the dynamic fork

4.8 Retractable forks :

Assembling the mechanism of retractable forks:

1. Insert the ball bearings (B) and bearing cap (C) into the frame housing (D) as needed;
2. Press shoulder rings (J) into parts (D), (F) and (I);
3. Connect the parts (D), (F) and (I) using the pins (E);
4. Secure the frame tube (D) to the bracket (H) with a pin (G);
5. Connect the part (F) to the support (H) with a pin (G) while carefully integrating the spring (K) and its sleeve (L);
6. Installing a standard fork on the retractable forks mechanism (See section: 4.7);
7. Install the cap (A) onto the frame housing;

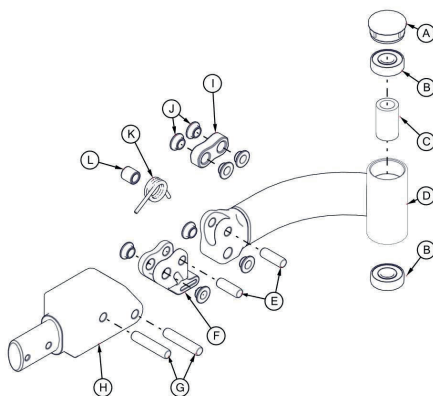


Figure 32 : Assembling the mechanism of retractable forks

ENGLISH**Installing the retractable forks mechanism:**

1. Insert the retractable fork mechanism assembly (A) onto the frame (B);
2. Secure the assembly with the screw (C) and the rear crossbar screw (D) and a nut (E);
3. Perform the same procedure for the right side of the chair;

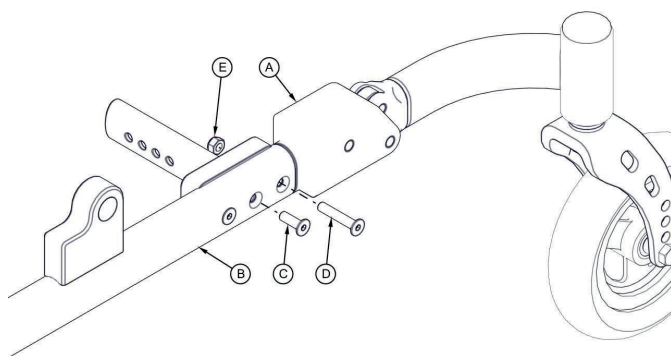


Figure 33 : Installing the tilting rear caster mechanism

Installing the belt of the tilting rear caster mechanism:

1. Insert the belt (A) into the clamping block (B);
2. Put the belt into the part (C);
3. Put the belt back into the clamping block (B);
4. Pinch the belt into the clamping block (B) with the set screw (D);
5. Perform the same procedure for the right side of the chair;
6. Keep the belt long enough to accommodate the width adjustment of the chair;
7. Cut the excess length of the belt as needed;

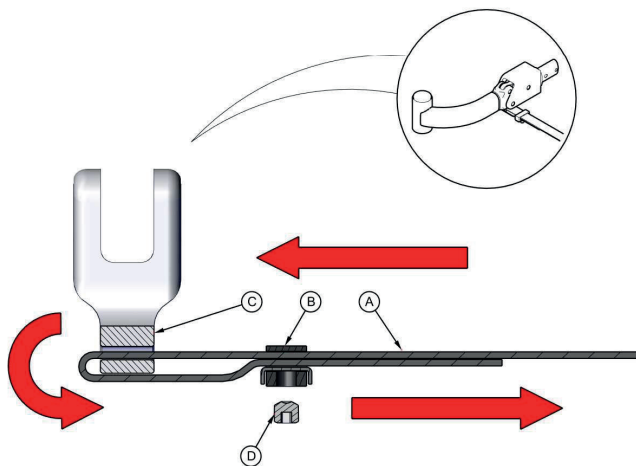


Figure 34 : Installing the belt of the tilting rear caster mechanism

4.9 Fixed back canes :

The *Spiral* tilt in space wheelchair is equipped with 20" (50,8 cm), or 22" (55,9 cm) or 24" (60,9 cm) standard fixed back canes. These back canes are adjustable in angle from 85° to 120°. It should be noted that the mechanism of folding canes and adjustable angle push handles aren't compatible with these types of back canes.

To install this type of back please refer to the section: 4.2;

Changing the back angle:

The angle of the seat backrest of the *Spiral* wheelchair can be adjusted from 85° to 120° depending on the customers needs:

1. Remove the bolts (A) and (B);
2. Adjust the angle of the backrest according to the needs of the customer;
3. Tighten the bolts (A) and (B) to the desired position;

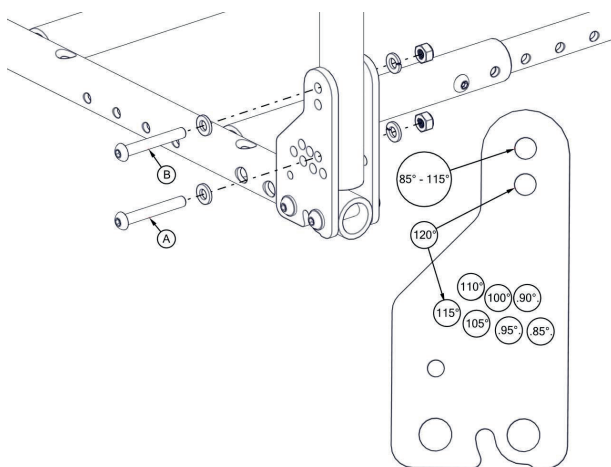


Figure 35 : Modifying the back angle

**Angle limitation:**

Please consult the limitation table in

Any modification made to the *Spiral* wheelchair must be done by a professional. Failure to comply with this notice may have serious consequences for the safety of users and individuals in contact with the base and discharge *Physipro* of all responsibilities.

4.10 Height-adjustable back canes :

The *Spiral* tilt in space wheelchair can be equipped with a 16" to 20" (40,6 to 50,8 cm) height adjustable back cane and 21" to 25" (53.3 to 63.5 cm). This cane is composed mainly of a cane bottom (B), adjustable at an angle of 85° to 120°, and a cane top (A) available in 2 height ranges. It should be noted that the bottom of the cane can be replaced by the mechanism of folding canes. In addition, the cane top can be substituted by push handles.

To install this type of back, consult section: [Seat depth :4.2;](#)

Adjusting the height of the back:

1. Unscrew the bolt (C);
2. Raise or lower the cane top (A) to the desired height;
3. Retighten the bolt (C);

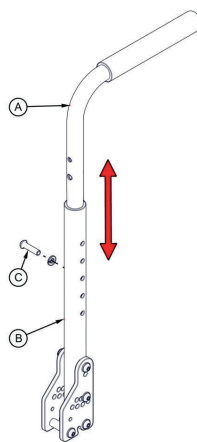


Figure 36 : Adjusting the height of the back

Modifying the opening back angle: (See section: 4.9)

4.11 Folding cane mechanism :

The Spiral tilt in space wheelchair can be equipped with a mechanism to fold the canes to reduce transport volume. The opening angle of the backrest is adjustable with this mechanism from 85° to 120°. However, it installs only on adjustable backrest canes by replacing the bottom of the cane. With this mechanism the canes remain height adjustable.

from 16" to 20" (40,6 to 50,8 cm) and from 21" to 25" (53.3 to 63.5 cm).

Before installing this mechanism on the Spiral, please consult the section on the in-depth adjustment of the back (**See section: 4.10**);

In addition, the height adjustment procedure remains the same as for height adjustable back canes (**See section: 4.10**);

Modifying the back angle:

1. Remove the bolts (A) and (B);
2. Position the bolt (A) in the hole (A1) for angles of 85°, 95°, 105° and 115° or (A2) for angles of 90°, 100°, 110° and 120°;
3. Adjust the angle of the backrest to the desired position;
4. Tighten the bolts (A) and (B);

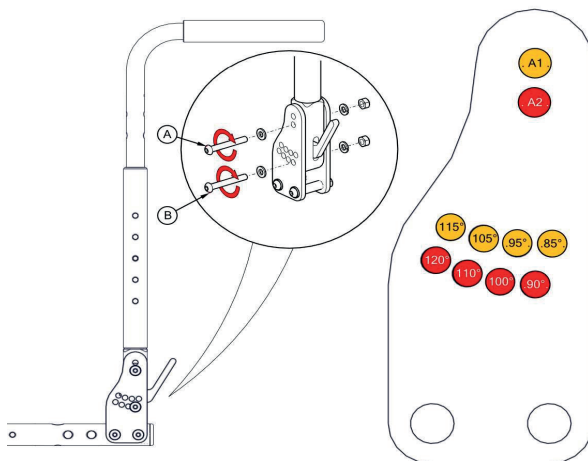


Figure 37 : Modifying the back angle

4.12 Dynamic cane mechanism:

The *Spiral* tilt in space wheelchair can be equipped with a dynamic cane mechanism. This type of backrest allows a backward movement to increase the comfort of spastic people. The back angle is adjustable with this mechanism from 85° to 110°. However, it installs only on adjustable backrest canes by replacing the bottom of the canes. With this mechanism, the canes are adjustable in height from 18" to 22" (45,7 to 55,88 cm) and from 23" to 27" (58.4 to 68.5 cm).

Before installing this mechanism on the *Spiral*, please consult the section on the in-depth adjustment of the back (**See section: 4.2**);

In addition, the height adjustment procedure remains the same as for height adjustable backrest canes. (**See section: 4.10**);

Modifying the opening angle of the dynamic backrest:

1. Remove the bolts (**A**);
2. Move the cane bottom (**B**) to the desired position (**See section: 4.9**);
3. Visser le boulon (**A**);

Modifying the dynamic back resistance:

1. Screw the handle (**C**) to **increase** the resistance;
2. Unscrew the handle (**C**) to **decrease** the resistance;

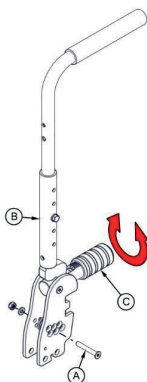


Figure 38 : Adjusting the dynamic back mechanism

4.13 Angle adjustable push handle :

The *Spiral* tilt in space wheelchair can be equipped with an adjustable angle push handle. It can be installed only on the height-adjustable backrest canes by replacing the cane top. With this handle the back angle remains adjustable from 85° to 120°.

Installing the angle adjustable push handle:

1. Adjust the width of the handle to that of the chair;
 - a. Screw the bolts (A) into the push rod (B);
2. Adjust the height of the backrest (See section: 4.10);
3. Attach the tilt lever to the push handle;
 - a. Screw the bolts (C) into the tilt lever (D);



DO NOT LIFT THE WHEELCHAIR USING THE PUSH HANDLE

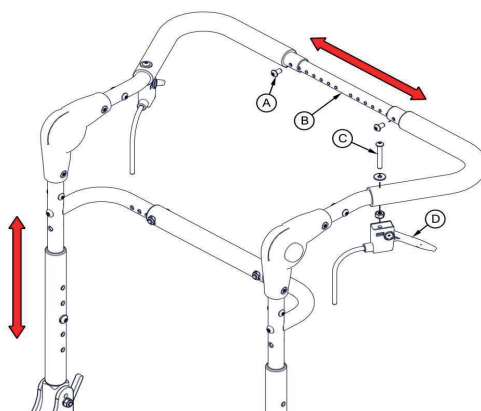


Figure 39 : Installing the angle adjustable push handle

4.14 Tension bar :

The *Spiral* tilt in space wheelchair is equipped with a standard tension bar that connects the backrest canes. The tension bar is available in two different sizes depending on the seat width. Either for the standard frame: 10" to 13" (25.4 to 33 cm) and the other for the wide frame: 13" to 16" (33 to 40,6 cm). In addition, a headrest anchorage can be added to the optional tension bar.

Installing the tension bar :

1. Adjust the width of the tension bar to that of the chair;
 - a. Attach the center tube (A) to the anchor tube (B) using the bolts (C);
 - b. Option – Attach the median tube with headrest anchorage (E) to the anchor tube (B) using bolts (C);
2. Install the tension bar to the back posts using the bolts (D);
3. Option – Install an anchorage for the headrest on the anchor plate (E) provided for this purpose;

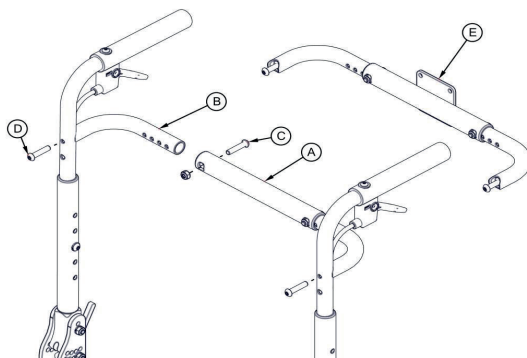


Figure 40 : Installing the tension bar

ENGLISH

4.15 « T » armrest :



Ensure that the armrest is locked and the trigger mechanisms are engaged. Improper use can result in serious injury to the user or damage to the chair.



Never lift the wheelchair by the armrest. Breakage or injury may occur. Use the rigid elements of the frame instead.

The *Spiral* tilt in space wheelchair offers 3 height adjustment ranges for the « T » armrest
Such as :

Lowered	6 ½" to 10" (16,5 to 25,4 cm)
Standard :	7 ½" to 12" (19,1 to 30,5 cm)
Elevated :	9 ½" to 14" (24,1 to 35,6 cm)

Please refer to the procedure in section: 3.6;

Adjusting the height of the clothes protector:

1. Release the set screw (A);
2. Position the clothes protector cover (B) at the desired height;
3. Tighten the set screw (A);

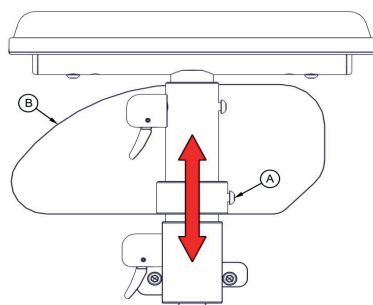


Figure 41 : Adjusting the height of the clothes protector

Adjusting the depth of the armrest:

1. Unscrew the screws (A) from the anchor (B);
2. Move the anchorage of the armrest (B) to the desired depth;
3. Tighten the screws (A) firmly in the respective holes;

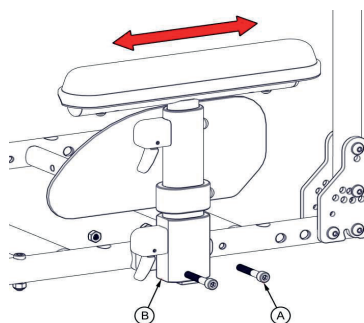


Figure 42 : Adjusting the depth of the armrest

4.16 Removable footrest :



Ensure that the footrest is locked and the trigger mechanisms are engaged. Improper use can result in serious injury to the user or damage to the chair.



Never lift the wheelchair by the footrest. Breakage or injury may occur. Use the rigid elements of the frame instead.

The *Spiral* tilt in space wheelchair can be equipped with a removable footrest of 60°, 70° and 90°

In order to install the footrests, please refer to section: 3.8 and 4.2

Adjusting the height of the footrest:

The height of the footrest is adjustable from 6" to 14" (15,2 to 35,6 cm) *.

1. Unscrew the bolts (A) to release the ball joint from the footplate (B);
2. Move the footplate (C) to the desired position;
3. Install a footrest extension (D) using the bolt (E) as needed*;
4. Retighten the bolts (A) ;

* Use short footrest extensions for height adjustments from 9 ½" to 11 ½" and long ones for 9 ½" to 14".

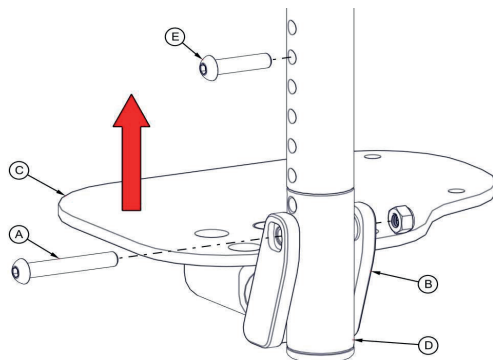


Figure 43 : Adjusting the height of the footrest

4.17 Folding angle and depth adjustable footplates:

Adjusting the vertical angle of the footplates:

The folding footplates are vertically adjustable in angle and depth β .

1. Turn the screw **(B)** located in the axis of the footrest;
 - a. The screwing action makes it possible to increase the angle β ;
 - b. The unscrewing action makes it possible to reduce the angle β ;

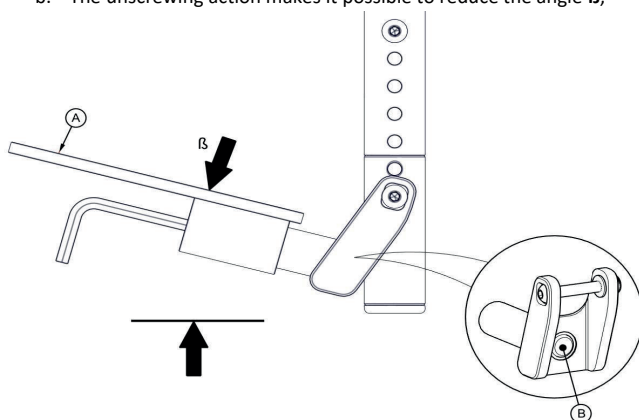


Figure 44 : Adjusting the vertical angle of the footplates

Adjusting the horizontal angle of the footplates:

The folding footrest footplates are horizontally adjustable according to the angle θ .

1. Release the screws (C) on the top of the footplate (A) of the footrest;
2. Turn the footplate to the desired position;
3. Tighten the screws (C);

Adjusting the depth of the footplates:

The footplates are adjustable in depth in increments of 1" (2,5 cm).

1. Unscrew the screws (C) on the top of the footplate (A) of the footrest;
2. Move the footplate forward or backward to the desired position;
3. Tighten the screws (C);

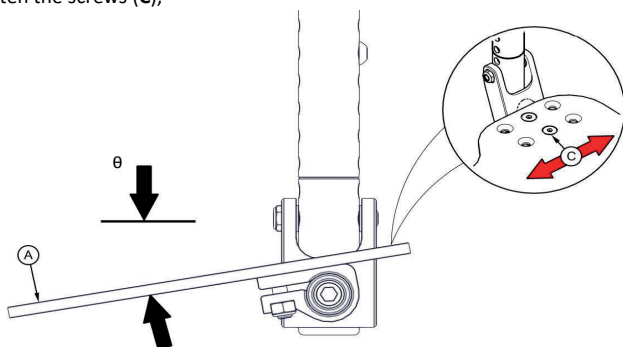


Figure 45 : Adjusting the horizontal angle of the footplates

4.18 One-piece footplate :

Installing the one-piece footplate:

1. Adjusting the width of the footplate;
 - a. Unscrew the bolts (A);
 - b. Move the lower tubes (B) according to the width of the seat;
 - c. Screw in the bolts (A);
2. Adjusting the height of the footplate;
 - a. Unscrew the bolts (C);
 - b. Raise or lower the lower tubes (B) to the desired height;
 - c. Screw in the bolts (C);
3. Adjusting the depth of the footplate;
 - a. Insert the top tubes (D) into the seat frame (E);
 - b. Attach the footrest to the frame (E) with the bolts (F);

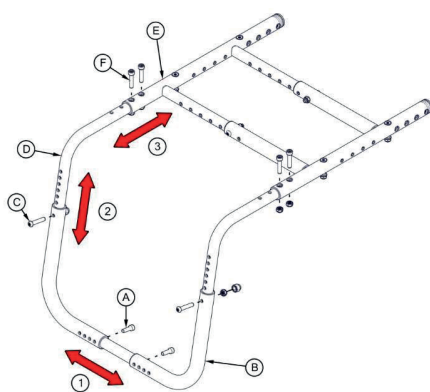


Figure 46 : Installing the one-piece footplate

4.19 Oversized angle and depth adjustable footplate:

Installing the oversized footplate :

1. Attach the oversized footplate (A) to the lower tube of the footrest (B);
2. Insert the collars (C);
3. Screw in the bolts (D);

Adjust the horizontal angle of the oversized footplate:

The one-piece footplate is adjustable horizontally according to the angle θ .

1. Release the bolts (D) located under the footplate (E);
2. Align the footplate (E) to the desired position;
3. Tighten the bolts (D);

Adjusting the depth of the oversized footplate:

1. Unscrew the bolts (F) located on the top of the footplate (E);
2. Move the footplate (E) to the desired position;
3. Screw in the bolts (F);

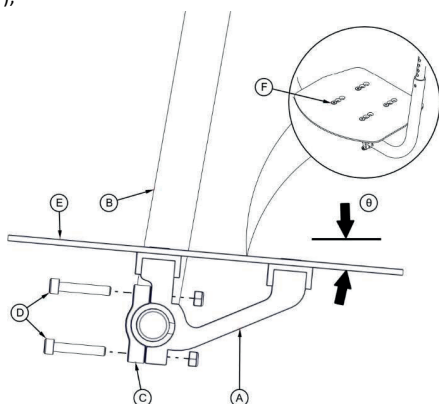


Figure 47 : Adjusting the oversized footplate

4.20 Elevating legrest with length compensation

The *Spiral* tilt in space wheelchair can be equipped with 14" to 19" (35,6 to 48,3 cm)

Adjusting the height of the legrest :

1. Install the legrest in the receiver on the chair (**See section: 3.8**);
2. Unscrew the bolt (**A**);
3. Move the legrest support rod (**B**) to the desired height;
4. Tighten the bolt (**A**);

Adjusting the angle of the legrest :

1. To increase the angle, pull the legrest upwards;
2. To reduce the angle, press the settings remote (**C**) while lifting the weight of the user's leg, lowering the legrest to the desired angle;

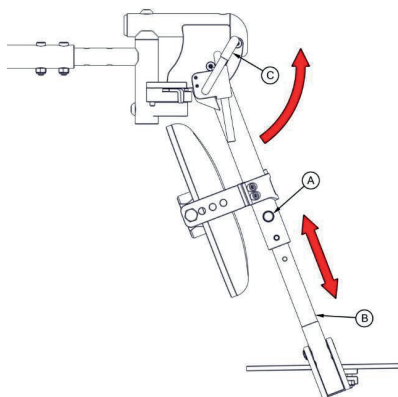


Figure 48 : Adjusting the elevating legrests with length compensation

4.21 Brakes :



For every change to the propulsion wheels or tire wear, it's important to adjust the braking force.



When the brakes are applied, they must be tightened from 1/8" to 1/4" (3 to 6 mm) into the tire.



Ensure that you tighten the nuts firmly after each adjustment. Check the air pressure of the pneumatic wheels before adjusting the braking system.



Verify the air pressure of the pneumatic wheels before adjusting the braking system.

Installing the braking system :

1. Attach the brake anchor (A) to the *Spiral* frame (B) using the bolts (C);
2. Attach the brake system (D) to the brake anchor (A) with the bolt (E);

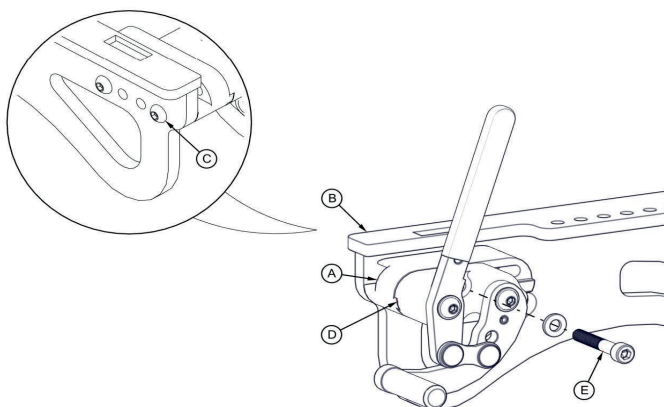


Figure 49 : Installing the braking system

ENGLISH**Adjusting the braking force :**

1. Check the air pressure in the pneumatic propulsion wheels as needed;
2. Loosen the bolt (E) to release the brake system (D);
3. Move the brake system (D) to the desired position;
 - a. Advance the brake to reduce the braking force;
 - b. Pull back the brake to increase the braking force;
4. Screw in the bolt (E);
5. Apply the brakes and readjust as needed;
 - a. Confirm the locking of the wheel;
 - b. Verify the braking force;
6. Screw the braking system firmly;

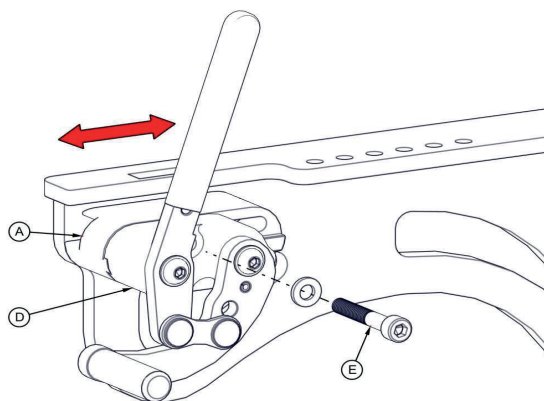


Figure 50 : Adjusting the braking force

4.22 Brake handle extensions :

Extensions of telescopic and fixed brake handles can be installed on the *Spiral* tilt in space wheelchair to facilitate the use of the brakes.

Installing the brake handle extension:

1. Remove, if necessary, the trim (H) installed on the brake lever (A);
2. Insert the body of the telescopic extension (B) or the fixed extension (G) on the brake lever (A);
3. Screw the bolt (C) into the hole (A-5) of the brake lever (A) to constrain the telescopic extension (B);
4. Adjust the height of the brake handle extension (B) by screwing the bolt (D) into one of the holes (A-1, A-2, A-3 ou A-4);
5. Close the end of the extension with the plug (E);
6. Glue the trim (F) to the brake extension;

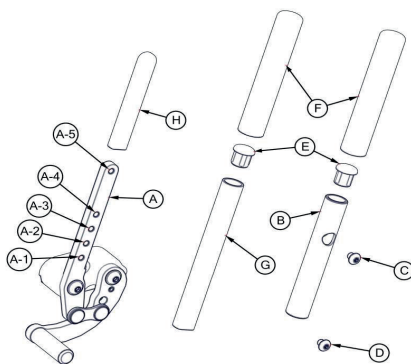


Figure 51 : Installing the brake handle extension

5 Service guide :

To function effectively, your wheelchair needs maintenance. Performing regular maintenance on your chair will maximize its life and ensure your safety during use.

When you receive your chair, check all items in the service guide. In addition, don't forget to have your chair inspected by a qualified professional every 6 months.

Table 2 : Service guide

Check-list	Each week	Each month	Every 6 months
General			
- Clean the chair parts;	O		
- The wheelchair rolls in a straight line;	O		
Wheels and tires			
- Tire pressure (if applicable);		O	
- Tire wear;		O	
- The wheels turn well;		O	
- The wheels aren't deformed;			O
- Wheel alignment;			O
- The camber angle of the wheels;			O
- The forks are securely fixed;			O
- The forks turn well;		O	
- The smooth operation of dynamic forks;			O
- The handrims are firmly attached to the wheels;			O
- Wear of the handrims;		O	
- The spoke guards are firmly attached to the wheels;			O
- Keep the quick release axle clean and oiled;		O	
- The smooth operation of retractable forks;			O
Brakes			
- The efficiency and wear of the parking brakes;	O		
- Brake lining wear;		O	
Tilt			
- The smooth operation of the tilt;		O	
- The limitation of the tilt;			O
- The efficiency of handles and cylinders;			O
- Check that there's no oil leakage from the cylinders;		O	
Armrests			
- The strength and effectiveness of the armrests;		O	
- The smooth operation of height and removable adjustment mechanisms;			O
- Wear and tear of clothing protectors;			O
- Wear of the armrest pads;		O	

Check-list	Every week	Every month	Every 6 months
Footrests			
- The strength and effectiveness of the footrests;		0	
- The smooth operation of the removable footrest mechanism;			0
- Wear of the footplates;			0
Seat and back			
- The strength of the seat, the backrest, the tension bar;			0
- The smooth functioning of the folding canes mechanism (If applicable);		0	
- The smooth functioning of push handles (If applicable);			0
- The proper functioning of the dynamic back (If applicable)		0	
- Wear of seat and back upholstery;			0
- Wear of the seat belts;			0
Transport			
- The strength and wear of the transport anchors			0

For cleaning use a mild, alcohol-free detergent (**See section: Erreur ! Source du renvoi introuvable.**).

6 Warranty :

This product is covered by a **THREE (3) YEAR WARRANTY** on the devices and their components, **FROM THE DATE OF DELIVERY OR, IF APPLICABLE, THE REPLACEMENT DATE**, with the exception of : the frame, the cross-brace, footrest brackets, armrests and anti-tippers, for which the **WARRANTY IS (5) YEARS**; comfort pads for armrests and calves, as well as « soft » seats and backrests, for which the **WARRANTY IS 1 YEAR**; the tires, inner tubes and ball bearings, for which the **warranty is SIXTY (60) DAYS**. Devices and components that are replaced or repaired under one of these warranties will remain subject to the warranty for the remainder of the period. However, components replaced or repaired under warranty within ninety (90) days, with the exception of those replaced or repaired under the warranty if provided for sixty (60) days. *Physipro Inc.* will repair or replace defective parts throughout the warranty period. To receive warranty service, contact *Physipro Inc.* or an authorized facility. Don't return this product without prior consent. In the event that the service is considered unsatisfactory, send your comments to the address listed in this document, along with the name and address of the supplier, delivery date and the serial number of the product.

Exclusions and limitations

This warranty doesn't apply to products accidentally or intentionally altered, products that have been misused, neglected, improperly stored or have their serial number removed or deleted. In addition, this warranty doesn't apply to products damaged as a result of a repair or modification without the written consent of *Physipro Inc.* or an authorized facility. The same restrictions apply to damage resulting from any other circumstance beyond the control of *Physipro Inc.* Finally, this warranty doesn't apply to normal wear and tear parts or failure to comply with the instructions given in this document. ***Physipro Inc. disclaims all liability for damage that may occur during transportation.***

ADAPTED TRANSPORTATION (Province of Quebec, Canada only)

A person may travel in a suitable vehicle for the transportation of people with disabilities while remaining seated in his *Spiral* positioning base, subject to the use of wheelchair and occupant restraints, in accordance with standards and procedures applicable regulations. *Physipro Inc.* can not be held responsible for improper use of non-compliant immobilizers or immobilizers. The same applies to unauthorized changes to the base non-authorized by *Physipro Inc.*

Annex A

Adjusting the center mass and the seat depth:

Center mass adjustment is very important. It will affect the stability of the chair just like the force required to tilt the patient. Table 3 is for reference purposes only. It was established according to the mass distribution of a defined manikin according to the (ISO 7176 – 11: 2012) standard. This distribution is a representation of an average person for a specific weight. On the other hand, the specific anthropometry can be very different, and the proposed table may not adapt to it. In addition, the infra table considers that the patient interface is as defined in Figure 52. Note that the distinctive needs of the patient, such as a recessed backrest, could change the setting.

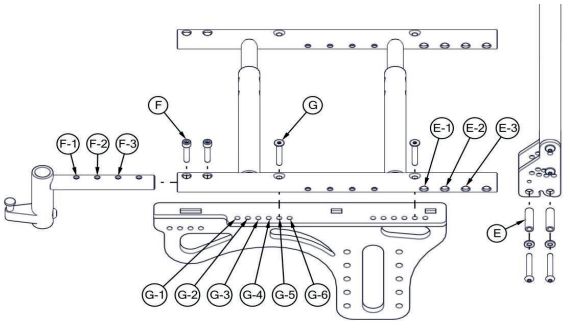


Figure 52 : Adjusting the seat depth

Table 2 : Position of the backrest, the footrest and the center of mass according to the seat depth

Seat depth	Footrest position (F)	Position of center mass (G)	Position of backrest (E)
10 " (25,4 cm)	F-1	G-1	E-1 *
11 " (27,9 cm)	F-1	G-1	E-1 *
12 " (30,5 cm)	F-1	G-1	E-1
13 " (33,0 cm)	F-2	G-3	E-1
14 " (35,6 cm)	F-2	G-3	E-2
15 " (38,1 cm)	F-3	G-5	E-2
16 " (40,6 cm)	F-3	G-5	E-3

* This position requires advanced backrest anchors.

Annex B

Adjusting and restriction of seat/ floor height:

The height between the seat and the floor of the *Spiral* is adjustable from 14" to 19" (35,6 to 48,3 cm). It's important to note that the adjustment range varies depending on the diameter of the propulsion wheel. In addition, the size of the front wheels may vary depending on the fork options installed, either standard (S) or dynamic (D).

Table 3 : Installation position of the wheels according to the propulsion wheel

Propulsion wheels	Front casters (Installation position)	Rear casters (Installation position)	Seat / floor height
20" (50,8 cm)	S6" (15,2 cm) - (B) D5" (12,7 cm) - (A)	S6" (15,2 cm) - (C)	14" - 18" (35,6 - 45,7 cm)
22" (55,9 cm)	S6" (15,2 cm) - (D) D6" (15,2 cm) - (C)	S6" (15,2 cm) - (D)	15" - 19" (38,1 - 48,3 cm)

Note – The installation position of the caster in the fork can vary depending on the equipment chosen.

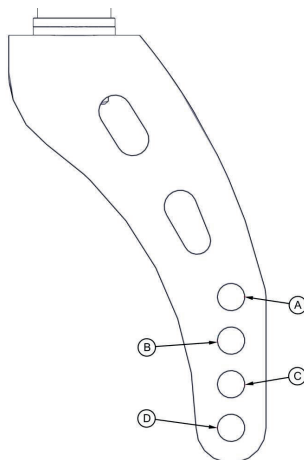


Figure 53 : Installation position of the caster in the fork

Annex C

Limitation of the tilt and/or tilting of the backrest

The *Spiral* tilt in space wheelchair respects at all times with a 150 lb (68 kg) occupant, the static stability (ISO 7176-1) and the 10-degree (ISO 7176-3) braking performance.

However, the tilt of the *Spiral* tilt in space wheelchair can be physically limited due to seat/floor height and the configured seat depth (See: **Table 5**). Limit the tilt with a collar installed on the cylinder rod so that the components don't interfere with each other (See section: **4.5**).

Table 5: Limitation of the tilt according to seat/floor height and seat depth

Seat /floor height		Tilt limitation / Center of mass position (G)		
Wheel : 20"	Wheel : 22"	G-1	G-3	G-5
14" (35,6 cm)	15" (38,1 cm)	45°	45°	37°
15" (38,1 cm)	16" (40,6 cm)	45°	45°	41°
16" (40,6 cm)	17" (43,2 cm)	45°	45°	45°
17" (43,2 cm)	18" (45,7 cm)	45°	45°	45°
18" (45,7 cm)	19" (48,3 cm)	45°	45°	45°

Consult it to configure the seat depth and the center of mass position (G).



The user should never engage in an uphill slope when in a tilting position.



The inclination of the tilt must be **limited** at all times to **45°** by means of collars installed on the rod of the gas cylinders.

Notes :

[illegible]

[illegible]

Notes :

[illegible]

[illegible]



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www.physipro.com

Seating and Mobility Solutions



Canada

LES ÉQUIPEMENTS
ADAPTÉS PHYSIPRO INC.

370, 10e Avenue Sud
Sherbrooke (Québec)
J1G 2R7 Canada

T. 1 800 668-2252
F. 819 565-3337
info@physipro.com
order@physipro.com



Europe

Importateur :
SASU PHYSIPRO IMPORT

Village des entrepreneurs
461, rue Saint-Léonard
49000 Angers - France

T. 02 41 69 38 01
F. 02.41.69.43.32
contact@physipro.fr