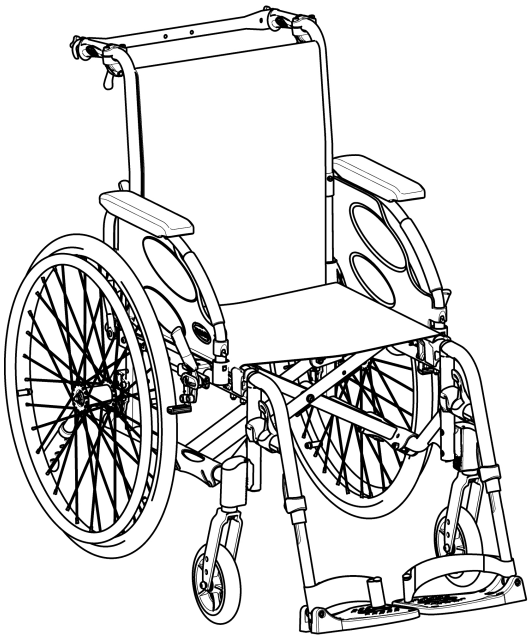


Invacare® Action® 4 NG
Spirea® 4 NG

Action 4 NG Heavy Duty
Action 4 NG Comfort
Spirea 4 NG HD

Manual Wheelchair

en Service Manual

PROVIDER: Keep this manual.
The procedures in this manual MUST be performed by a qualified technician.

Yes, you can.

Contents

1 General

1.1 Introduction

This document contains important information about assembly, adjustment and advanced maintenance of the product. To ensure safety when handling the product, read this document and the user manual carefully and follow the safety instructions.

Find the user manual on Invacare's website or contact your Invacare representative. See addresses at the end of this document.

Invacare reserves the right to alter product specifications without further notice.

Before reading this document, make sure you have the latest version. You find the latest version as a PDF on the Invacare website.

Previous product versions may not be described in this manual's current revision. If you require assistance, please contact Invacare.

For pre-sale and user information, see the user manual.

For more information about the product, for example product safety notices and product recalls, contact your Invacare representative. See addresses at the end of this document.

1.2 Delivery check

Any transport damage must be reported immediately to the transport company. Remember to keep the packaging until the transport company has checked the goods and a settlement has been reached.

1.3 Symbols in This Manual

Symbols and signal words are used in this document and apply to hazards or unsafe practices which could result in personal injury or property damage. See the information below for definitions of the signal words.

WARNING!
Indicates a hazardous situation that could result in serious injury or death if it is not avoided.

CAUTION!
Indicates a hazardous situation that could result in minor or slight injury if it is not avoided.

NOTICE!
Indicates a hazardous situation that could result in damage to property if it is not avoided.

Tips and Recommendations
Gives useful tips, recommendations, and information for efficient, trouble-free use.

Tools
Gives useful tips, recommendations, and information for efficient, trouble-free use.

1.4 Limitation of Liability

Invacare accepts no liability for damage arising from:

- Non-compliance with the user manual
- Incorrect use
- Natural wear and tear
- Incorrect assembly or set-up by the purchaser or a third party
- Technical modifications
- Unauthorised modifications and/or use of unsuitable spare parts

2 Safety

2.1 General Safety Information

Risk of injury or property damage
The information contained in this manual must be performed by a qualified technician. Invacare expects that the qualified technician is familiar with the product, with good technical knowledge to understand and follow the steps of the described instructions in this manual, and equipped with proper tools.
- Installation or repairs made by unqualified persons can result in hazardous situations to the users.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

NOTICE!
Refer to the user manual of this product for information on:
- Technical data
- Product components
- Labels
- Additional safety instructions

The information contained in this document is subject to change without notice.

2.2 Personal Safety Information

These safety instructions are intended to help avoid accidents during work and must be observed under all circumstances. All employees coming into contact with contaminated products must regularly consult a company doctor. Work clothing and personal protective equipment must be available in necessary quantities and be in proper condition. Reliable hand and surface disinfection must be ensured.

WARNING!
Risk of contamination
- Clean and disinfect the product before carrying out repairs.

Recommendation
The technician should work in an environment (light, space, access to the wheelchair, …) that allows him to work safely.

2.3 General Repair Information

NOTICE!
Some replacement parts are only available as a kit. Always use the complete new kit when replacing a part.
- Use only original spare parts.
- Spare parts can be ordered from Invacare. Refer to your local Invacare website to access the electronic spare parts catalogue (ESPC).

Tightening torques

Correct tightening will allow safe and durable use of the device. All bolts must be tightened with the torques specified in the following instructions. If not specified, use the table below.

All values apply to dry and grease-free threads.

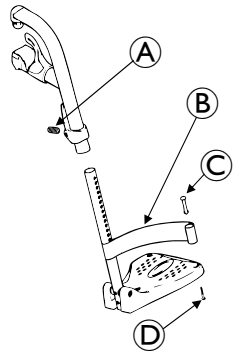
Thread diameter	M4	M5	M6	M8	M10/12
Tightening torque (mini/ max)	1,5/3 Nm	3/6 Nm	7/12 Nm	10/20 Nm	20/30 Nm

WARNING!
Risk of injury or damage to property
- After each assembly, check that all fittings are properly tightened AND that all parts have the correct function.

3 Assembly

3.1 Front Hangers

3.1.1 Replacing Heel Strap



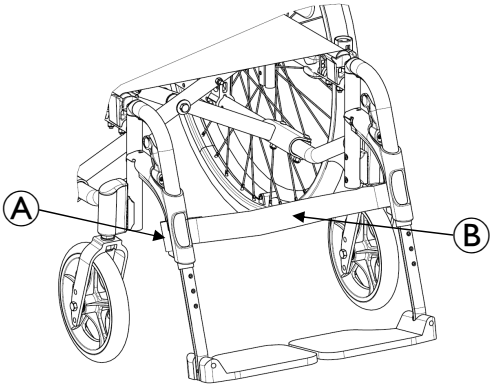
Component	Description
Ⓐ	Locking screw (M6)
Ⓑ	Heel strap
Ⓒ	Strap pin
Ⓓ	Mounting screw

1. Remove the locking screw Ⓐ that secure the footrest tube to the footrest support.
2. Remove the lower footrest assembly.
3. Remove the mounting screw, strap pin Ⓒ that secure the heel strap Ⓑ to the footplate.
4. Slide heel strap Ⓑ over footrest tube.

   When securing the heel strap to the footrest assembly, tighten the mounting screw and strap pin until they are secure.

5. Using the mounting screw, strap pin, secure the heel strap to the footplate.
6. Using the locking screw (M6), secure the footrest tube to the footrest support.

3.1.2 Installing Calf Strap

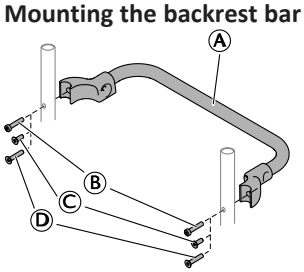


Component	Description
Ⓐ	Hanger Hook
Ⓑ	Calf Strap

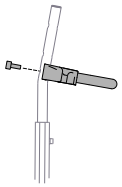
1. Secure the optional calf strap Ⓑ around the hanger hook Ⓐ.

3.1.3 Mounting Backrest Bar/ Foldable Backbrace

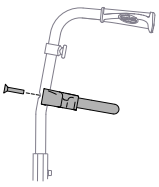
Mounting the backrest bar



1. Mount the backrest bar Ⓐ on the backrest tubes.
2. Fixate the backrest barwith the screws Ⓐ, Ⓑ or Ⓒ depending on model or configuration.
3. Tighten the screws with Torque 5 - 6Nm.



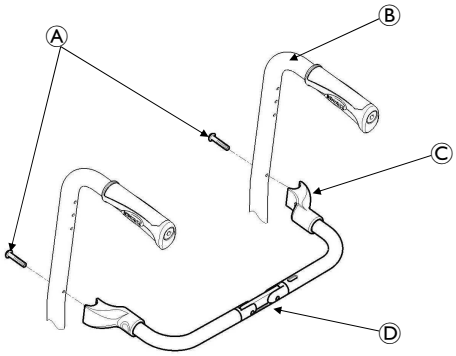
Fixed push handles— Ⓑ



External push handles — Ⓓ

5 mm Allen key	4 mm Allen key

Mounting the foldable backbrace



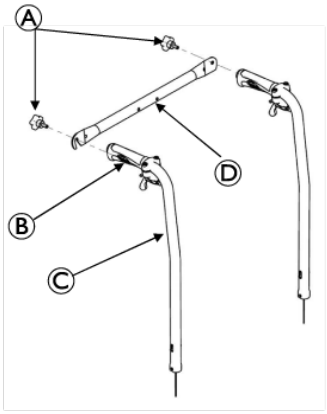
1. Remove the upholstery from the back canes.
2. Install the 2 mounting screws (M6) Ⓐ through the holes of the back cane Ⓑ and into the plastic inserts Ⓒ.
3. Secure the back brace to the back canes with the mounting screws (M6).
4. Reinstall back upholstery onto wheelchair.

3.1.4 Mounting the Back Brace

WARNING!
If a back brace is already installed, you don't have to re-install the back-cane inserts (for fixed backrest canes only).
After ANY adjustments, repair or service and before use, make sure all attaching hardware is fitted and tightened securely - otherwise injury or damage may occur.

The back brace links the two push handles and must always be used when reclining the backrest.

To remove the back brace, reverse this procedure.

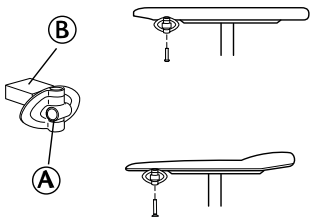


Component	Description
Ⓐ	Hand screws
Ⓑ	Handle
Ⓒ	Back canes
Ⓓ	Back brace

1. Remove the end caps from the back-canes Ⓒ.
2. Remove the handles Ⓑ from the back-canes Ⓒ (Cut the handle lengthwise thanks to a sharp tool).
3. Install the inserts into the canes Ⓒ.
4. Secure the inserts with mounting screws Ⓐ.
5. Install the handles Ⓑon the back-canes Ⓒ (Previously, spray a solution of neutral alcohol inside the handle Ⓑ and settle it immediately on the back-cane Ⓒ)
6. Align the back brace ends with the handles Ⓑ of the back-canes Ⓒ.
7. Secure the back brace Ⓓ to the back-canes Ⓒ with the mounting bolts Ⓐ.

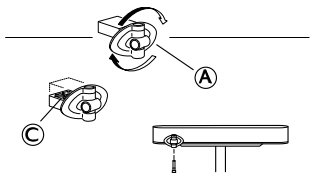
3.1.5 Mounting the Attachment for Table Tray

1.



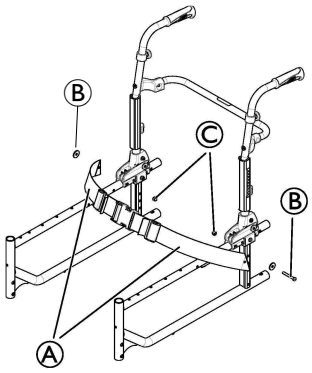
Mount the table attachment Ⓐ with the attachment part facing outwards. The plain surface Ⓑ of the attachment should be placed upwards when using the table on the thin armrests.

2.

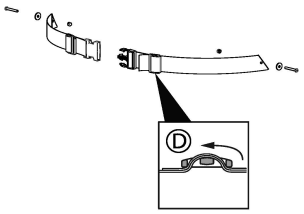


To fit the table attachment Ⓐ to the wide armrest, turn the attachment around, the patterned surface Ⓒ should now be facing upwards.

3.1.6 Mounting the Posture Belt



1. Fasten the posture belt Ⓐ on the frame.
2. Attach the screws Ⓑ and the nuts Ⓒ and tighten with 4,5 Nm.
3.

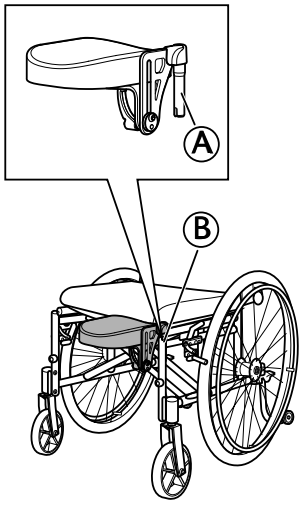


Thread the posture belt through both plastic buckles Ⓓ .

Tools: 4 mm Allen key | 10 mm Wrench

3.1.7 Mounting Amputee Legrest

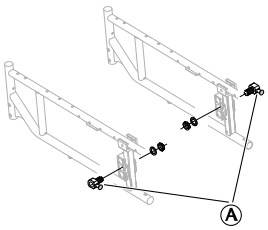
WARNING!
Risk of tipping
There is an increased risk of tipping for amputated users.
— Use anti-tip devices and/or re-balance the wheelchair by moving the rearwheels backwards when amputee legrests are used.



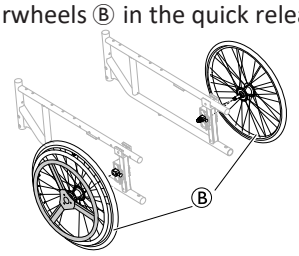
1. Attach the legrest by pushing the tube at the upper part of the legrests Ⓐ down into the tubes on the wheelchair Ⓑ.
2. Lock the legrests by turning them inwards.

3.1.8 Mounting the One—Arm Drive

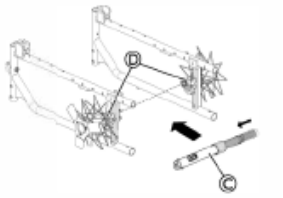
1. Mount the quick release attachments Ⓐ and the nuts and washers.



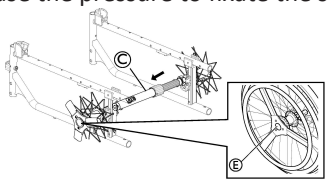
2. Tighten with 45 Nm.
3. Mount the rearwheels Ⓑ in the quick release attachments.



4. Press the telescopic rearwheel shaft Ⓒ together and place it between the rearwheel axles Ⓓ.

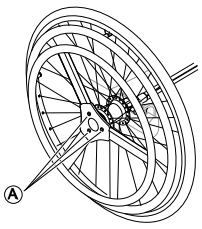


5. Mount the telescopic rearwheel shaft Ⓒ on the rearwheel axles and release the pressure to fixate the shaft.



WARNING!
Risk of injury
The wheels come off
— Check that the quick release knobs has locked the wheel when you let go of the button. Test this by trying to pull the wheel off. This should NOT be possible.

3.1.9 Changing the Handrim for One-Arm Drive



1. Loosen the three screws Ⓐ and remove the handrim.
2. Turn the handrim around in order to increase/decrease the distance between handrims.
3. Re-mount the turned handrim.
4. Tighten the screws Ⓐ (2,5 0/+1 Nm) again.

Tools: 5 mm Allen key

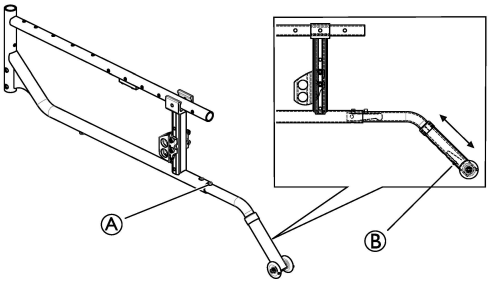
WARNING!
Risk of injury
— Be careful if you remove the telescopic rear wheel shaft. Point it away from your body when you release the steel spring inside.

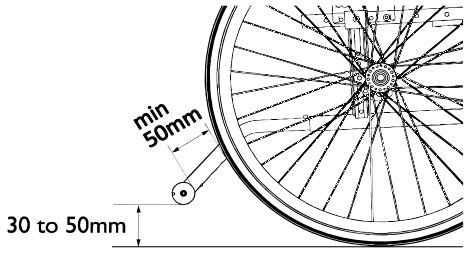
3.1.10 Mounting Simple Anti-tip Device

WARNING!
Risk of tipping!
Adjust with a clinician the clearance to the user & assistant abilities.
Recommended clearance between the bottom of the anti-tip wheels and the ground is 30 to 50 mm. This clearance could be lower to secure better the user in case of poor stability or use of an add on.

WARNING!
After ANY adjustments, repair, or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.
— Anti-tip device MUST be attached always. Since the anti-tip device are an option on this wheelchair (you may order it with or without the anti-tip device), Invacare strongly recommends ordering the anti-tip device as an additional safeguard for the wheelchair user.
— Anti-tip device MUST be fully engaged and release buttons fully protruding out of adjustment holes.
— Ensure both anti-tip device are adjusted to the same mounting hole.

Mounting the Anti-tip Device:





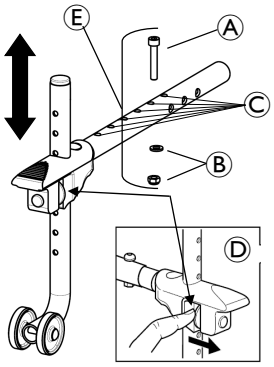
1. Press release buttons Ⓐ and insert antitippers with the anti-tipper wheels pointing toward ground/floor into the rear frame tubing until bottom release button locks in place.
2. Measure the distance between the bottom of the anti-tipper wheels and the ground/floor.

A 30 to 50 mm clearance between the bottom of the anti-tipper wheels and the ground/floor is recommended.

3. If the distance between the bottom of anti-tipper wheels and the ground/floor is not 30 to 50 mm, adjust anti-tippers with button Ⓑ.

3.1.11 Mounting Regular Anti-tip device

Mounting and depth adjustment:



1. Exchange the plastic plugs on the tube of the chassis on both sides to the enclosed ones.
2. Mount the anti-tip device on the chassis tube.
3. Fit the screw Ⓐ in one of the holes Ⓒ.
4. Secure the anti-tip device with the screw Ⓐ and the washer and nut Ⓑ the entire mounting set Ⓔ.
5. Tighten the screw with 8,5 Nm.
6. Measure the distance between the bottom of the anti-tipper wheels and the ground/floor.

   A 30 to 50 mm clearance between the bottom of the anti-tipper wheels and the ground/floor is recommended.

7. If the distance between the bottom of anti-tipper wheels and the ground/floor is not 30 to 50 mm, adjust the anti-tip y push down the large washer present in detail Ⓓ.

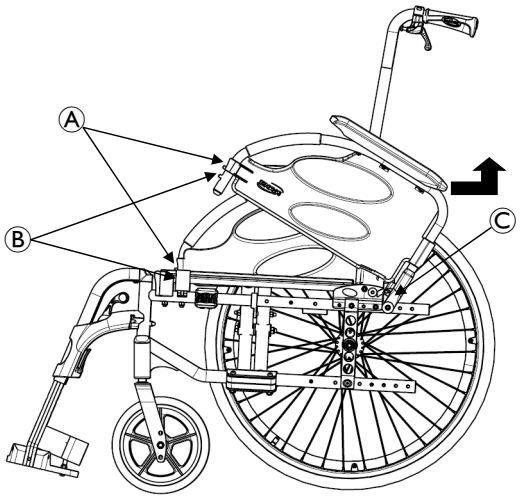
Tools: 4 mm allen key | 10 mm fixed spanner

3.2 Armrests

WARNING!
After ANY adjustments, repair, or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

3.2.1 Removing/Installing Swing Away Armrest (n° 2 & n° 3)

To remove the removable armrest, reverse this procedure.



Component	Description
Ⓐ	Push Bracket
Ⓑ	Dog point
Ⓒ	Rear pivot socket

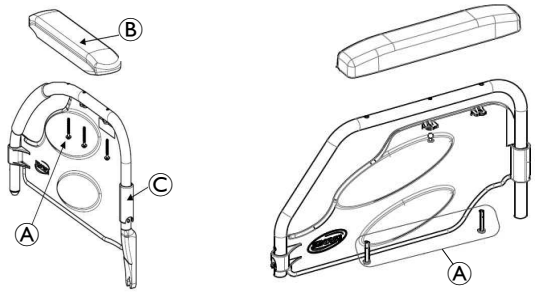
Removing Swing Away Armrest

1. Unlock existing armrest assembly by operate the push bracket Ⓐ.
2. Swing back on the existing armrest to remove from the front arm socket.
3. Pull up on the existing armrest to remove from the rear pivot socket Ⓒ.
4. Repeat STEPS 1-3 for opposite side of wheelchair, if necessary.

Installing Swing Away Armrest

1. If necessary, remove existing armrest assembly as describe above.
2. Install new/existing armrest assembly, first into the rear pivot socket Ⓒ and into the front arm socket.
3. Lock new/existing armrest assembly by operate the push bracket Ⓐ. Make sure that the dog point Ⓑ is properly engaged in its housing.
4. Repeat STEPS 1-3 for opposite side, if necessary.

3.2.2 Replacing Armrest Arm pad



Component	Description
Ⓐ	Mounting screws (M5)
Ⓑ	Arm pad
Ⓒ	Armrest Assembly

1. Remove the mounting screws Ⓐ that secure the arm pad Ⓑ to the armrest assembly Ⓒ.
2. Replace arm pad Ⓑ and securely tighten with the existing mounting screws Ⓐ.
3. Repeat STEPS 1-2 for the opposite side if necessary.

Set up arm pad position

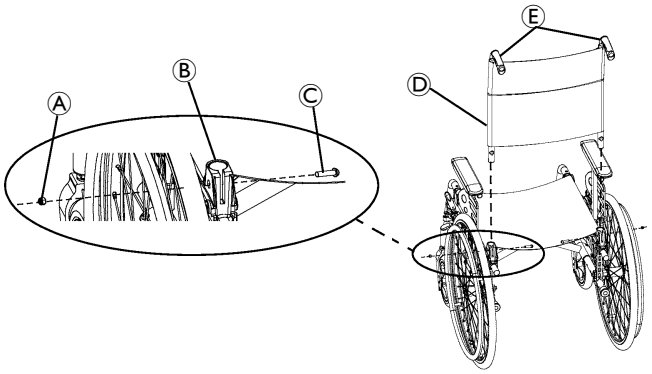
For this procedure, refer to figure represented before.

1. Removing the mounting screws Ⓐ that secure the arm pad Ⓑ to the armrest assemblyⒸ.
2. Position arm pad Ⓑ to the rear and securely tighten with the existing mounting screws (M5) Ⓐ.
3. Repeat STEPS 1-2 for the opposite side if necessary.

3.3 Seat / Back

WARNING!
The seat height, seat depth, back angle, seating system, size/position of the rear wheels, size/position of the front castors, seating options (e.g. headrest, back bag, …) as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability.
After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

3.3.1 Removing/Installing/Adjusting the Back-Cane



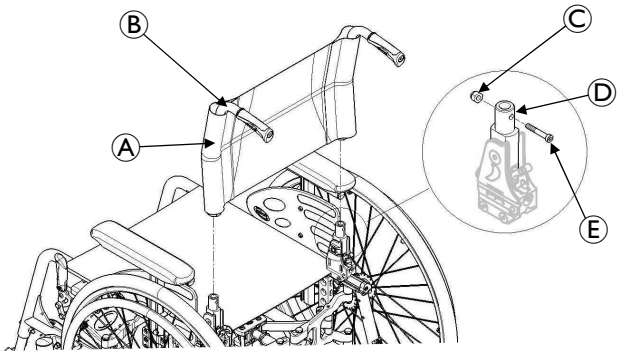
Component	Description
Ⓐ	Locknut
Ⓑ	Back Cane Bracket
Ⓒ	Mounting Screws
Ⓓ	Upholstery
Ⓔ	Back Cane

Removing Standard Back-Canes

To install the back-cane bracket, reverse this procedure.

1. Remove the mounting screw Ⓒ and locknut (M6) Ⓐ that secures the back cane Ⓔ to the back cane bracket Ⓑ.
2. Repeat STEP 1 for the other back cane Ⓔ.
3. Remove the back canes Ⓔ out of the back cane brackets Ⓑ.

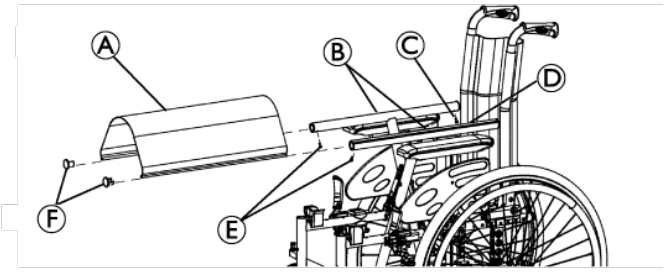
Removing Angle Adjustable Back-Canes



Component	Description
Ⓐ	Backrest upholstery
Ⓑ	Back-cane
Ⓒ	Locknut (M6)
Ⓓ	Back-cane bracket
Ⓔ	Mounting Screws (M6)

1. Remove the mounting screw Ⓔ and locknut (M6) Ⓒ that secures the back-cane Ⓑ to the back-cane bracket Ⓓ.
2. Repeat STEP 1 for the other back-cane.
3. Remove the back-canes out of the back-cane brackets.

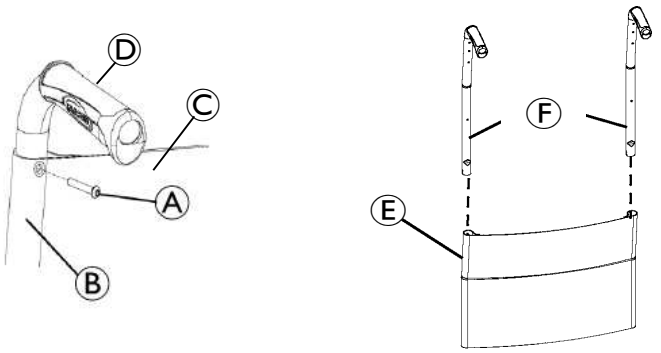
3.3.2 Removing/Installing Seat Upholstery



Component	Description
Ⓐ	Seat Upholstery
Ⓑ	Seat Rails
Ⓒ	Mounting Screw
Ⓓ	Mounting Screw (hidden from view)
Ⓔ	Mounting Screws
Ⓕ	End caps

1. Fold the wheelchair.
2. Remove the mounting screw Ⓒ (Torx) that secures the seat upholstery Ⓐ to the front and back seat rails Ⓑ.
3. Remove the end caps Ⓕ from the front of the seat rails Ⓑ.
4. Slide the seat upholstery Ⓐ out of the seat rails Ⓑ.

3.3.3 Removing/Installing Standard Back Upholstery



Component	Description
Ⓐ	Mounting Screw
Ⓑ	Back Cane
Ⓒ	Back Upholstery
Ⓓ	Handle
Ⓔ	Upholstery
Ⓕ	Back Canes

Removing Back Upholstery

ℹ To Install the Back Upholstery Ⓒ, reverse this procedure.

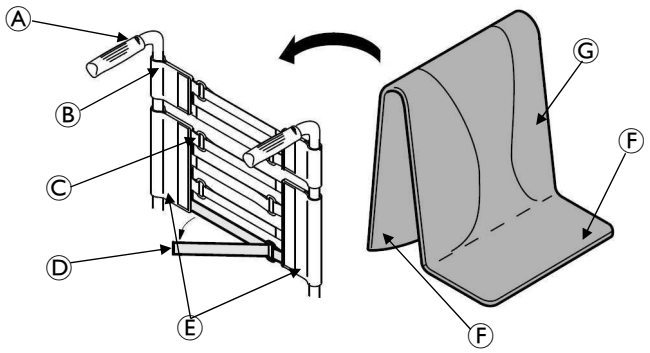
1. Remove the back-canes Ⓑ. Refer to *3.3.8 Removing/Installing/Adjusting the Back-Cane Bracket, page 12* paragraph.
2. Remove the mounting screw Ⓐ that secures the back upholstery Ⓒ to the back-canes Ⓑ.
3. Remove the back upholstery Ⓒ from the back-canes Ⓑ.

3.3.4 Installing Contour (adjustable) Back Upholstery

Contour (adjustable) Tension Strips

The adjuster strips can be adjusted at various levels of tension to accommodate individual end users. In a typical scenario, the bottom two strips can be adjusted tightly to support and/or assist the extensor muscles.

Installing/ Replacing Adjustable Back Upholstery



Component	Description
Ⓐ	Back cane
Ⓑ	Mounting Screw
Ⓒ	Back-upholstery Anchor Loop
Ⓓ	Back-upholstery adjuster strap
Ⓔ	Adjustable back-upholstery
Ⓕ	Fastening straps
Ⓖ	Back-upholstery cover

To install:

1. Remove the existing back upholstery from the wheelchair. Refer to Removing/Installing Standard Back Upholstery paragraph.
2. Slide each section (anchor loop/adjuster strap) of the adjustable back upholstery with the grommet hole facing the rear of the wheelchair.
3. Secure the adjustable back upholstery to the back canes with the two mounting screws.

ℹ Clean the upholstery with warm water and mild detergent to remove superficial soil.

⚠ **WARNING!**
Ensure that the wheelchair is fully opened, the back brace is fitted, and the seat rails properly located. The fastening straps MUST be securely fastened before applying the back-upholstery cover. The Contour (adjustable) back should be checked whenever entering the wheelchair to ensure that the fastening strips are securely fastened.

4. Slip adjuster straps through corresponding anchor loops and adjust the back upholstery. Secure with the fastening strips.
5. Secure the back-upholstery cover (fastening strap) to the back of the adjustable back upholstery (fastening strap).
6. Flip the back-upholstery cover over the adjustable back upholstery and secure the fastening strips to the front of the adjustable back upholstery.
7. Lay the front portion of the back-upholstery cover on the seat upholstery.
8. Adjust the slack in the back-upholstery cover and then secure to the seat upholstery.

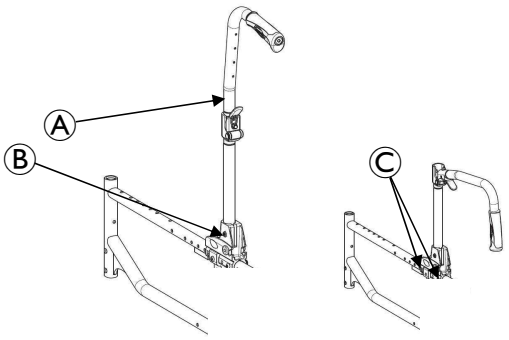
To replace:

1. Lift up on the existing back upholstery cover and remove the cover from the wheelchair.
2. Remove the two mounting screws and washers that secure the existing adjustable back upholstery to the back-canes.
3. Slide each section (anchor loop/adjuster strap) of the existing adjustable back upholstery off from the back-canes.
4. Slide each section (anchor loop/adjuster strap) of the new adjustable back upholstery with the grommet hole facing the rear of the wheelchair.
5. Secure new adjustable back upholstery to the back-canes with the two mounting screws and washers.

⚠ **WARNING!**
Ensure that the wheelchair is fully opened, the back brace is fitted, and the seat rails properly located. The fastening strips MUST be securely fastened before applying the back-upholstery cover. The Contour (adjustable) back should be checked whenever entering the wheelchair to ensure that the fastening strips are securely fastened.

6. Slip adjuster strips through corresponding anchor loops and adjust the back upholstery. Secure with the fastening strips.
7. Secure the new back upholstery cover (fastening strap) to the back of the new adjustable back upholstery (fastening strap).
8. Flip the new back upholstery cover over the new adjustable back upholstery and secure the fastening strips to the front of the new adjustable back upholstery.
9. Lay the front portion of the new back upholstery cover on the seat upholstery.
10. Adjust the slack in the new back upholstery cover and then secure to the seat upholstery.

3.3.5 Installing/Replacing Fixed/Folding backrest



Component	Description
Ⓐ	Backrest Cane
Ⓑ	Back-Cane bracket
Ⓒ	Mounting Screws

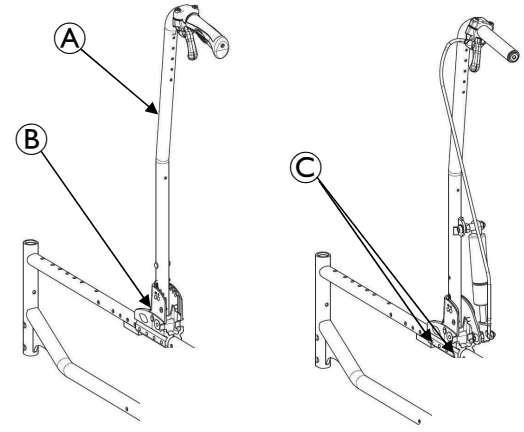
Folding backrest

To Install the Fixed/ Folding backrest, reverse this procedure from STEP 3 to 1.

1. Remove the back-cane bracket. Refer to Removing Back Cane Bracket paragraph.
2. Pull up on the seat upholstery.
3. Remove the two mounting screws and locknuts (M6) that secure the back-cane bracket to the wheelchair frame.
4. Install the new set including the appropriate backrest upholstery.

Both back canes should be set to the same adjustment hole.

3.3.6 Removing/Installing Recliner backrests



Component	Description
Ⓐ	Backrest Cane
Ⓑ	Back-Cane bracket
Ⓒ	Mounting Screws

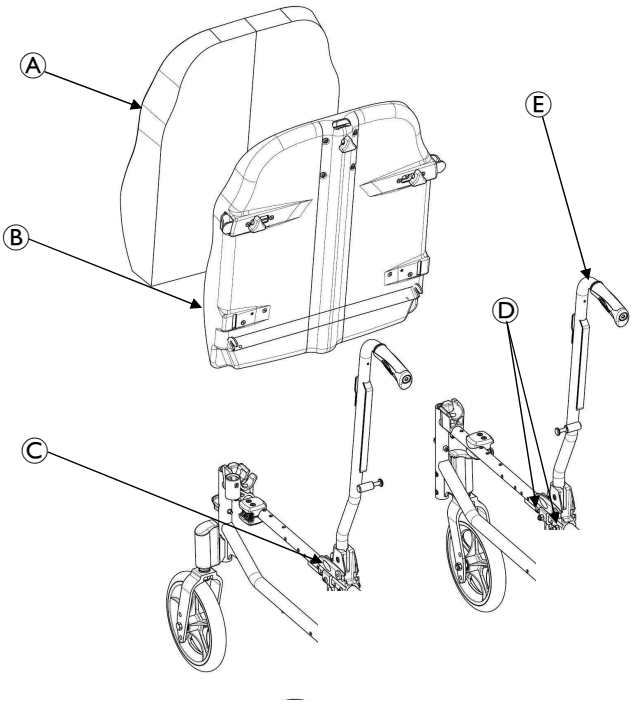
Folding backrest

To Install the Recliner backrest reverse this procedure from STEP 1 to 3.

1. Remove the back-cane bracket. Refer to Removing Back Cane Bracket paragraph.
2. Pull up on the seat upholstery.
3. Remove the two mounting screws and locknuts that secure the back-cane bracket to the wheelchair frame.
4. Install the new set including the appropriate backrest upholstery

Both back canes should be set to the same adjustment hole.

3.3.7 Removing/ Installing Comfort backrest



Component	Description
Ⓐ	Backrest Upholstery
Ⓑ	Comfort Shell
Ⓒ	Back-Cane
Ⓓ	Mounting Screws
Ⓔ	Backrest Cane

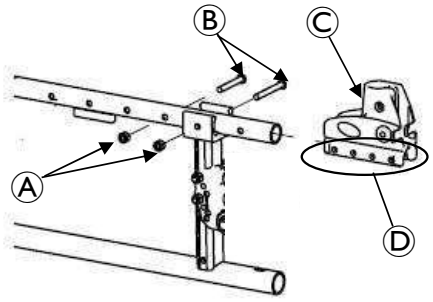
Folding backrest

To Install the Recliner backrest reverse this procedure from STEP 1 to 3.

1. Remove the back-cane bracket. Refer to Removing Back Cane Bracket paragraph.
2. Pull up on the seat upholstery.
3. Remove the two mounting screws and locknuts that secure the back-cane bracket to the wheelchair frame.
4. Install the new set including the appropriate backrest upholstery and shell (Refer to user guide to lock and unlock the complete backrest upholstery).

Both back canes should be set to the same adjustment hole.

3.3.8 Removing/Installing/Adjusting the Back-Cane Bracket



Component	Description
Ⓐ	Locknuts
Ⓑ	Mounting Screws
Ⓒ	Back-Cane Bracket
Ⓓ	Adjustment Holes

To install the back-cane bracket, reverse this procedure.

1. Remove the back canes. Refer to Removing Back-Canes paragraph.
2. Pull up on the seat upholstery.
3. Remove the two mounting screws and locknuts that secure the back-cane bracket to the wheelchair frame.
4. Do one of the following:
   • **To Remove**: the back-cane bracket by sliding it off the back of the wheelchair frame.
   • **To Adjust**: slide the back-cane bracket to one of the four adjustment holes on the bracket.

Both back canes should be set to the same adjustment hole.

3.4 Armrests Rear Wheels/ Front Castors

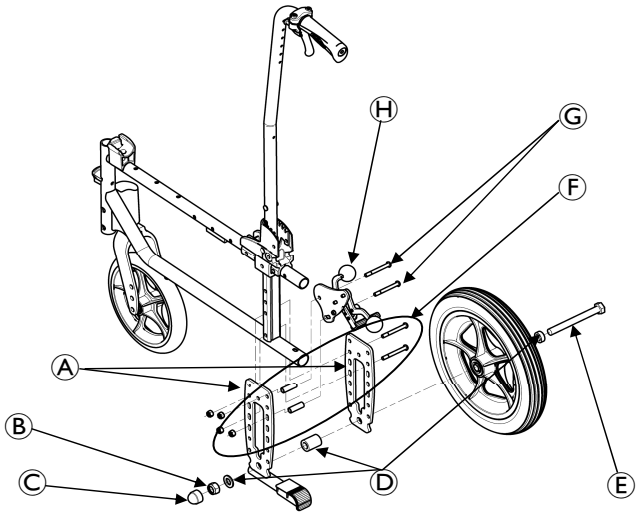
WARNING!
The seat height, seat depth, back angle, seating system, size/position of the rear wheels, size/position of the front castors, seating options (e.g. headrest, back bag, …) as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability.
After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

3.4.1 Removing/Installing Rear Wheels

WARNING!
The seat height, seat depth, back angle, seating system, size/position of the rear wheels, size/position of the front castors, seating options (e.g. headrest, back bag, …) as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability.
After ANY adjustments, repair, or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

WARNING!
If changing the size of the rear wheel or the seat-to-floor height, refer to the table in the next page.

Fixed Axles, Transit version



Component	Description
Ⓐ	Fixed Axle
Ⓑ	Brake Hardware
Ⓒ	Axle Brackets Hardware
Ⓓ	Axle Bracket
Ⓔ	Locknut
Ⓕ	Washers
Ⓖ	Transit Brake

Removing rear wheels

1. 12”; remove the fixed axle Ⓐ , washers Ⓕ and locknut Ⓔ that secure rear wheel to the axle bracket Ⓓ. Remove existing rear wheel from the wheelchair.
2. Install new/existing rear wheel onto wheelchair.
3. 24” rear wheels; remove the complete wheel and the axle bracket Ⓓ from the side frame.

Installing Transit Kit

1. Install fixed axle Ⓐ through the wheel, spacer, frame, and washer Ⓕ.
2. Securely tighten with the existing fixed axle Ⓐ locknut Ⓔ. Torque to 25 Nm.
3. Fixed and adjust the transit brake Ⓖ with its brake hardware Ⓑ, adjust the distance between the brake shoe

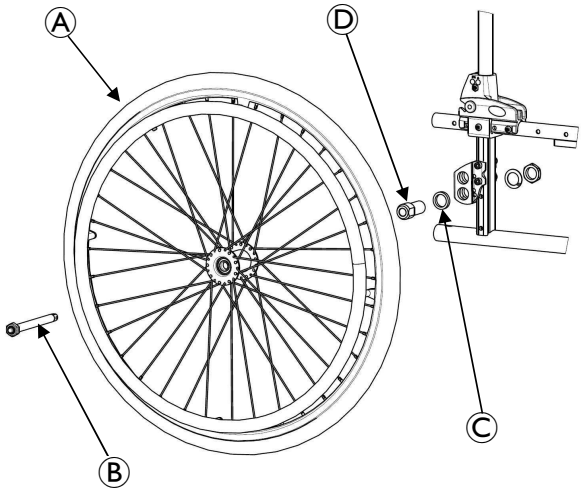
and the wheel see *4.12 Adjusting the brakes, page 22*
4. If necessary, repeat STEPS 1-5 for opposite rear wheel.

Both Axle brackets Ⓓ should be set at the same position. Head of bottom mounting screws needs to be on the outside position.

To obtain the desired front seat to floor height (for details, see *1.1 Changing Seat-to-Floor Height, page 1* paragraph), it will be necessary to perform one or both of the following:

- Changing the mounting position on the fork. Refer to *4.11 Adjusting the castors, page 20*.
- Changing the rear height positioning. Refer to*1.1 Changing Seat-to-Floor Height, page 1*.
- Angles and positions of Rear support and Headset support*4.18.5 Angles and positions of Rear support and Headset support, page 29*

3.4.2 Quick-Release Axles, self-propelling version



Component	Description
Ⓐ	Rear wheel
Ⓑ	Quick-Release Axle
Ⓒ	Spacer
Ⓓ	Axle bracket

Removing

1. Hold the centre of the rear wheel Ⓓ and push in the tip of the quick release axle Ⓐ.
2. Pull the quick release axle Ⓐ and rear wheel Ⓓ out of the axle bracket Ⓒ on the wheelchair frame.
3. Push in the tip of the quick release axle Ⓐ again and pull the quick release axle Ⓐ out of the existing rear wheel Ⓓ.
4. Install new/existing rear wheel Ⓓ onto wheelchair.

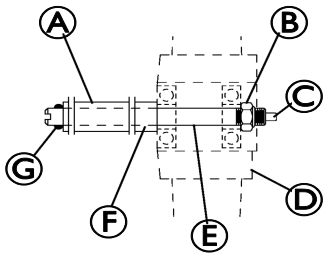
WARNING!
- Make sure the detent pin and locking pins of the quick-release axle Ⓐ are fully released before operating the wheelchair.
- The locking pins MUST be protruding past the inside of rear wheel Ⓓ hub for a positive lock.
- Keep locking pins clean.
- Invacare recommends inserting quick-release axles Ⓐ with the head end to the inside of the wheelchair to prevent accidental release during contact leisure activities

Installing

1. Install the existing quick release axle Ⓐ through the new/existing rear wheel Ⓓ and the spacer Ⓑ.
2. Install the new/existing rear wheel Ⓓ and quick release axle Ⓐ into the axle bracket Ⓒ on the wheelchair frame.
3. Refer to *3.4.3 Adjusting Quick-Release Axles, page 13* if the locking pins are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel Ⓓ assembly in a back and forth position.

In order to obtain the desired front seat to floor height (for details, see*4.1.2 Measuring Seat-to-Floor Height, page 15*).

3.4.3 Adjusting Quick-Release Axles



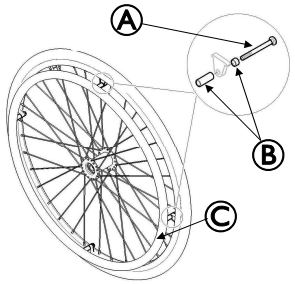
Component	Description
Ⓐ	Wheelchair Frame
Ⓑ	Locknut
Ⓒ	Detent Pin
Ⓓ	Rear Wheel Hub
Ⓔ	Quick-Release Axle
Ⓕ	Quick-Release Axle Bracket
Ⓖ	Locking Pin

1. Remove rear wheel Ⓓ and quick release axle Ⓔ from the wheelchair. Refer to *3.4.1 Removing/Installing Rear Wheels, page 12*.
2. Depress detent pin Ⓒ in the quick release axle Ⓔ and slide the quick release axle Ⓔ through the rear wheel hub Ⓓ.
3. Release detent pin Ⓒ to ensure that the locking pins Ⓖ are fully released.
4. Increase or decrease end play by adjusting the locknut Ⓑ on the end of the quick release axle Ⓔ.

WARNING!
Make sure the detent pin Ⓒ of the quick release axle Ⓔ is fully released BEFORE operating the wheelchair.
Keep locking pins Ⓖ clean.

5. Reinstall rear wheel Ⓓ onto the wheelchair Ⓐ. Refer to *3.4.1 Removing/Installing Rear Wheels, page 12*.
6. Repeat STEPS 4-5 until the quick release Axle Bracket Ⓕ and detent pins Ⓖ are fully released past the wheelchair frame Ⓐ.

3.4.4 Replacing Handrims



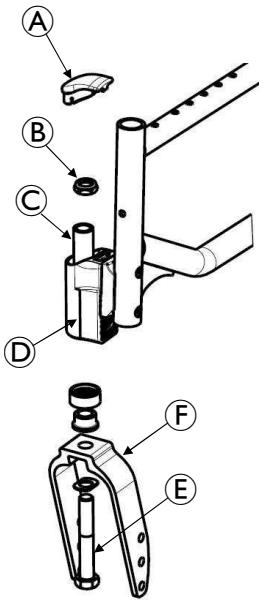
Component	Description
Ⓐ	Mounting screw (M5)
Ⓑ	Plastic spacers
Ⓒ	Handrim

To replace the handrim Ⓒ, use 8 new mounting pre-glued screws (M5) Ⓐ.

1. Remove the rear wheel from the wheelchair. Refer to*3.4.1 Removing/Installing Rear Wheels, page 12*.
2. Remove the mounting screws Ⓐ that secure the existing handrim Ⓒ to the rear wheel.
3. Remove the existing handrim Ⓒ.
4. Install the new handrim Ⓒ and secure to the rear wheel with the new mounting pre-glued screws (M5) Ⓐ.
5. The space between the rim and handrim Ⓒ can be adjusted thanks to the different length of the plastic spacers Ⓑ.
6. Reinstall the wheel to the wheelchair. Refer to *3.4.1 Removing/Installing Rear Wheels, page 12*.
7. Repeat for the opposite wheel.

3.4.5 Adjusting Fork Rotation

WARNING!
After ANY adjustments, before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.



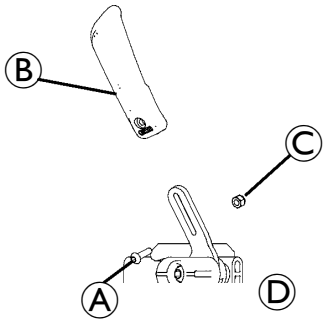
Component	Description
Ⓐ	Dust Cover
Ⓑ	Locknut
Ⓒ	Bearings
Ⓓ	Castor Head Tube
Ⓔ	Vertical Axle
Ⓕ	Fork

1. Remove the dust cover Ⓐ from the caster housing
2. To properly tighten castor journal system and guard against flutter, perform the following check:
   a. Tip back the wheelchair to floor.
   b. Pivot castor fork Ⓕ assemblies in rear position
   c. Push castor Ⓓ to initiate clockwise movement
   d. Let castor fork Ⓕ assembly rotate freely, if not change the upper specific bearing Ⓒ.
3. Adjust locknuts Ⓑ to 50-60Nm of torque with a 19 mm socket wrench; do not over tight the locknut, you may risk damaging the bearings Ⓒ.
4. Test wheelchair for maneuverability.
5. Snap dust cover Ⓐ into the caster head tube Ⓓ.
6. Perform STEPS 1 to 5 on the other side.

3.5 Wheel Brakes

WARNING!
After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur. Ensure that the clamp assembly is well positioned in its frame located position.

3.5.1 Replacing Wheel Brake Handle



Component	Description
Ⓐ	Mounting Screw
Ⓑ	Wheel Brake Handle
Ⓒ	Locknut
Ⓓ	Wheel Brake Assembly

1. Remove the mounting screws Ⓐ and locknut Ⓒ that secures the wheel brake handle Ⓑ to the wheel brake assembly Ⓓ.
2. Remove the wheel brake handle Ⓑ and discard.
3. Align the new wheel brake handle Ⓑ with the wheel brake assembly Ⓓ.
4. Secure the new wheel brake handle Ⓑ with the mounting screw Ⓐ and locknut Ⓒ.
5. If necessary, repeat STEPS 1 to 4 for the other wheel brake.

4 Settings and Adjustments

4.1 Seat To Floor Height

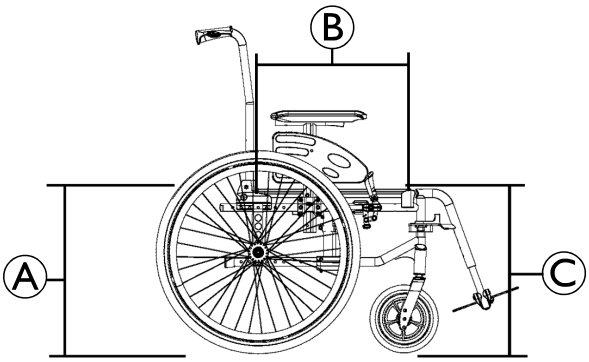
WARNING!
After ANY adjustments, repair, or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

4.1.1 Seat Angle

Refer to *4.1.2 Measuring Seat-to-Floor Height, page 15* paragraph for measuring instructions.

Invacare recommends that the rear seat-to-floor height be AT LEAST 25 mm shorter than the front seat-to-floor height. Otherwise a forward seat angle can occur

Subtract the rear seat-to-floor height measurement from the front seat-to-floor height measurement to determine the amount of seat angle as shown in the example below.



Component	Description
Ⓐ	Rear Seat-to-Floor Height
Ⓑ	Seat Depth 450 mm
Ⓒ	Front Seat-to-Floor Height

Example:

510 mm	Seat-to-Floor Height
- 485 mm	Minus Rear Seat-to-Floor
Height (3° +/-1°)	Equals Seat Angle

WARNING!
Because of the parts mechanical tolerances and all adjustments possible (+/- 1°) the seat angle possible is 3° +/-1° depending of the wheelchair assembly. Refer to *4.1.2 Measuring Seat-to-Floor Height, page 15*.

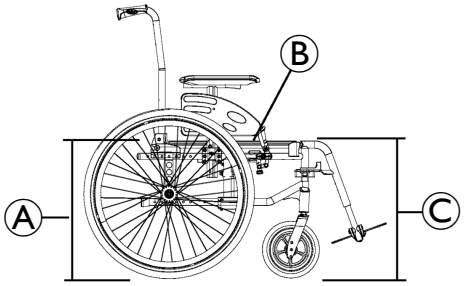
4.1.2 Measuring Seat-to-Floor Height

All measurements are in millimeters. The front and rear seat-to-floor heights are approximate to 6.5 mm due to tire wear and air pressure.

Measuring Front Seat-to-Floor Height
Front Seat-to-Floor Height: Measure the distance between the front of the seat upholstery and the ground/floor.

Measuring Rear Seat-to-Floor Height
The rear seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 6.5 mm from the measurement.

Rear Seat-to-Floor Height: Measure distance between the rear of the seat upholstery and the ground/floor.



Component	Description
Ⓐ	Rear Front Seat-to-Floor Height
Ⓑ	Seat Upholstery
Ⓒ	Height Seat-to-Floor

4.2 Adjusting the Backrest Angle

WARNING!
Safety risk
— Always make sure that the backrest is securely locked in its position.

The backrest angle adjustment must be carried out by a qualified technician.

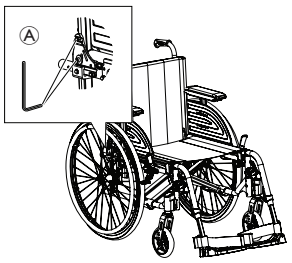
WARNING!
Risk of tipping
Do not move the wheelchair when the backrest is in reclined position.
— Invacare strongly recommend the use of anti-tippers (available as an option) when the backrest is in reclined position .

WARNING!
Risk of injury
— Invacare strongly recommends the use of anti-tippers (available as an option) in combination with all rear wheel positions when you use your backrest with an angle of 12° and more

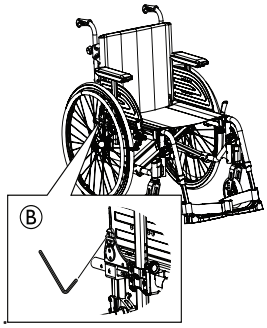
CAUTION!
Risk of uncomfortable posture
An angle less than 90° between the seat and the backrest is uncomfortable for certain users.
— This adjustment must be performed by a qualified a qualified technician upon agreement by a prescribing physician. Please consult with your provider.

4.2.1 Angle adjustable backrest

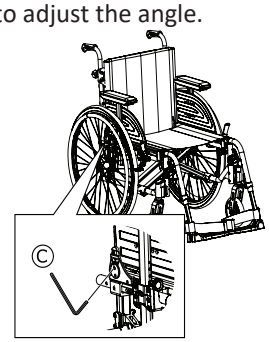
1. Loosen the screw Ⓐ on the inside of the backrest attachment.



2. Loosen the screw Ⓑ on the outside of the backrest attachment.



3. Turn the dial Ⓒ to adjust the angle.



The angle can be adjusted 6˚ forward and 13˚ backward.

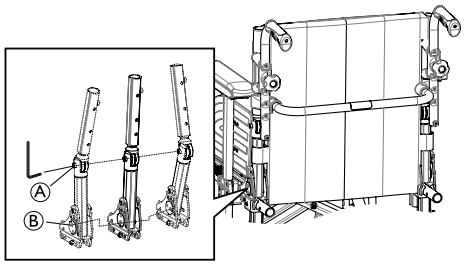
4. Tighten the screws again with 13,5 Nm.
5. Repeat the procedure on the opposite side.

Tools: 5 mm allen key

4.2.2 Biangular backrest

The biangular backrest have two possible angle adjustments:

- Angle adjustment on the upper joint
- Angle adjustment on the lower joint



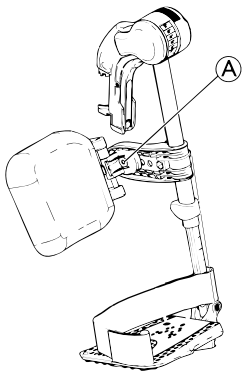
1. Loosen the screw Ⓐ.
2. Adjust the upper joint to the desired angle.
3. Re-tighten the screw Ⓐ with 10 Nm.

See section *4.16 Adjusting the Angle of Adjustable Backrest, page 23* for instructions on how to adjust the angle on the lower joint Ⓑ.

Tools: 5 mm allen key

4.3 Adjusting the legrests

4.3.1 Adjusting the legrest height (Angle adjustable version)

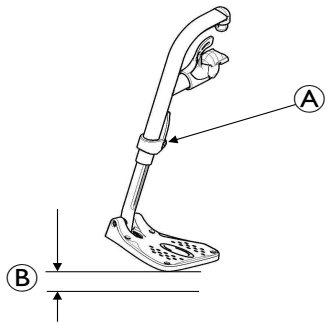


1. Loosen screw Ⓐ with an allen key.

Tools: 5 mm allen key

2. Adjust the legrest to a suitable height and the screw is caught by one of the recesses on the legrest tube.
3. Re-tighten the screw with 5 Nm.

4.3.2 Adjusting the legrest height



1. Loosen screw Ⓐ with an allen key.
2. Adjust the legrest to a suitable height and the screw is caught by one of the recesses on the legrest tube.
3. Re-tighten the screw with 5 Nm.

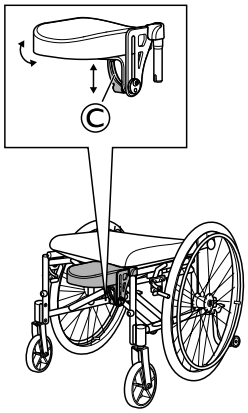
The distance between the lowest part of the footrest and the ground Ⓑ must be at least 50 mm.

4.4 Adjusting the amputee legrest

WARNING!
Risk of tipping
There is an increased risk of tipping for amputated users.
— Use anti-tip devices and/or re-balance the wheelchair by moving the rearwheels bachwards when amputee legrests are used.

For more information, please refer to section *4.10 Adjusting the rear wheels, page 19*

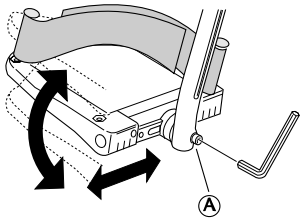
4.4.1 Adjusting the height, depth and angle



1. Loosen the lever Ⓒ.
2. Adjust to the required height, depth and or angle.
3. Re-tighten the lever.

4.5 Adjusting the angle adjustable foot plates

The foot plates can be adjusted both in depth and angle, and can also be folded-up.



1. Adjust the angle and the depth by loosening the screw Ⓐ at the foot plate attachment.

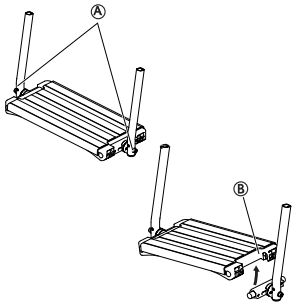
Tools: 5 mm Allen key

2. Adjust the foot plate to the correct position.
3. Re-tighten the screw with 8,5 Nm.

Do not place anything on the foot plate when the screw is loose.

4.6 Adjusting the one-piece footrest

WARNING!
Risk of trapping fingers
The fingers might get trapped between the foot plate and the foot plate attachment.
— Be careful not to trap your fingers between the foot plate and the foot plate attachment when folding it down.



1. Adjust the angle and the depth by loosening the two screws Ⓐ at the foot plate attachment.

Tools: 5 mm allen key

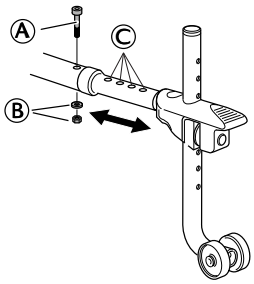
2. Adjust the foot plate to the correct position.
3. Re-tighten the screws with 8,5 Nm.

The foot plate can be flipped up. Lift the foot plate Ⓑ upwards as shown on the picture above.

Do not place anything on the foot plate when the screws are loose.

4.7 Adjusting anti-tip device regular

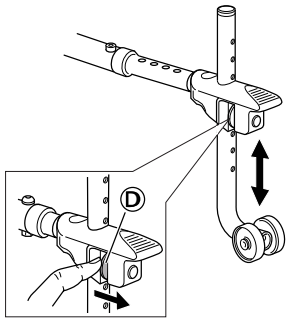
4.7.1 Depth adjustment:



1. Loosen the screw Ⓐ and the nut Ⓑ.
2. Adjust the depth and fit the screw Ⓐ in one of the holes Ⓒ.
3. Re-tighten the screw with 8,5 Nm.

Tools: 4 mm allen key / 10 mm fixed spanner

4.7.2 Height adjustment:

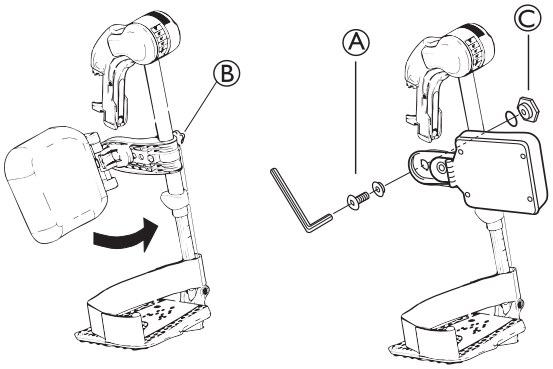


1. Release the spring loaded button Ⓓ.
2. Adjust the anti-tip device to the required height.

   Distance from the ground: 30 mm to 50m.

3. Make sure that the anti-tip device locks into its new position.

4.8 Calf pads adjustment



The calf pads can be fitted in two different depth positions:

1. Swing the pad forwards.
2. Unscrew screw Ⓐ.

Tools: 5 mm Allen key

3. Remove the large nut Ⓒ on the reverse side and place it in the second attachment hole.
4. Move the calf pad to the new position.
5. Secure it into place with the screw Ⓐ with 5 Nm.

The height of the calf pads can easily be adjusted by using the handwheel Ⓑ.

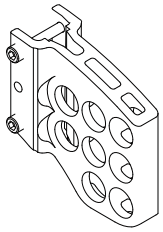
4.9 Adjusting the rear wheel attachment

WARNING!
Risk of injury
— Before adjusting the rear wheel position and/or the fork angle, a complete risk assessment of the effect this change will have on the wheelchair's function has to be made. Adjustments must be made by or supervised by an expert.

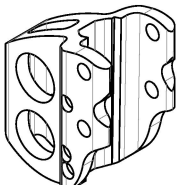
WARNING!
Risk of tipping
— When the rear wheels are located in front of the backrest, the tip risk increases. Always use anti tip devices.

WARNING!
Safety risk
— Always remember to adjust the brakes, when the rear wheel position has been changed.

There are two types of rear wheel attachments:

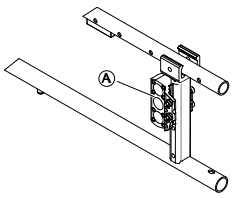


Active/ amputee rearwheel attachment

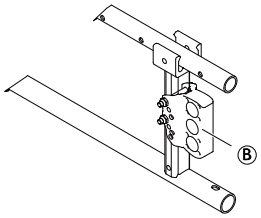


Standard rearwheel attachment

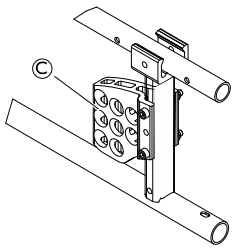
There are five possible height positions for both attachments and for the standard attachment, there are also three lengthwise positions.



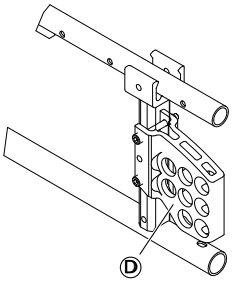
Ⓐ Standard position



Ⓑ Passive position — set backwards for increased stability

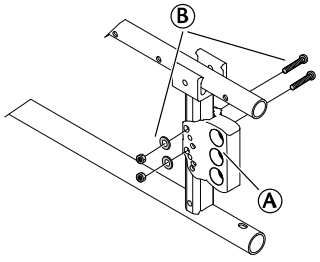


Ⓒ Active position



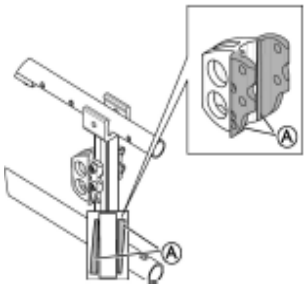
Ⓓ Double amputee position — for increased stability, to reduce the risk of tipping backwards

4.9.1 Position of the rearwheel attachment

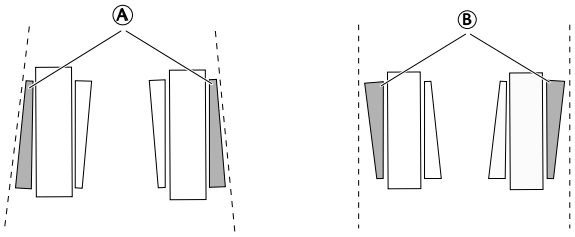


1. Loosen the screws and nuts Ⓑ.
2. Adjust the rearwheel attachment Ⓐ to the desired position.
3. Re-tighten the screws and nuts with 8,5 Nm.

4.9.2 Camber position

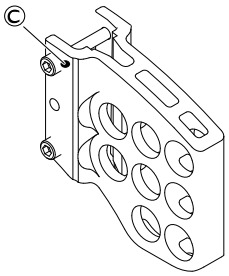


The attachment parts of the rearwheel attachment Ⓐ are asymmetrically shaped with one wide and one narrow side. This makes it possible to camber the rearwheels 0° or 2° depending on how the rearwheel attachment is mounted.



Ⓐ = 2 degrees camber Ⓑ = 0 degrees camber

No matter if the rearwheel attachment is mounted forwards or backwards, it is the lower outer part of the attachment which gives 2 degrees or 0 degrees camber. If the wider part of the attachment is placed downwards Ⓐ, the camber is 2 degrees. If the wider part of the attachment is placed upwards Ⓑ, the camber is 0 degrees.



The rearwheel attachment for active and dual amputee positioning, have a marking Ⓑ to show the camber position. For 0 degrees camber, the attachment should be mounted with the marking upwards / outwards. For 2 degrees camber, the attachment should be mounted with the marking downwards / outwards.

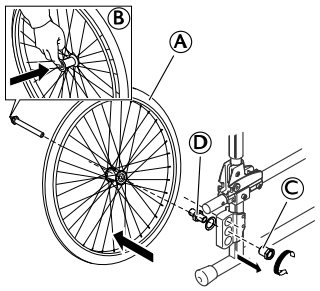
4.10 Adjusting the rear wheels

WARNING!
Safety risk
— When you have fitted the wheels in the correct position, make sure that the nuts and screws are tightened securely with a torque of 45 Nm. This is important for you own safety.

WARNING!
Safety risk
— Always remember to adjust the brakes, when the rearwheel position has been changed.

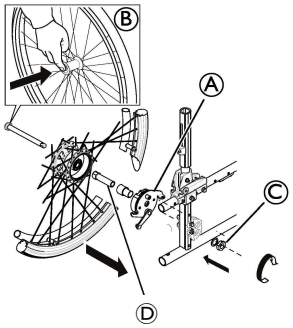
CAUTION!
Damage to the product
When adjusting the position of the rearwheel, the attachment clamps might be tightened unevenly and cause the rearwheels to come in contact with the armrests.
— Re-tighten the attachment screws alternately in order to get the clamps even.

4.10.1 Position of the rearwheel



1. Press and hold the quick release button on the rearwheel axle Ⓑ.
2. Remove the rearwheel Ⓐ by pulling it outwards.
3. Loosen the nut Ⓒ.
4. Move the axle housing Ⓓ to its new position.
5. Re-tighten the nut to 30 Nm of torque.

4.10.2 Position of the rearwheel — assistant operated brake



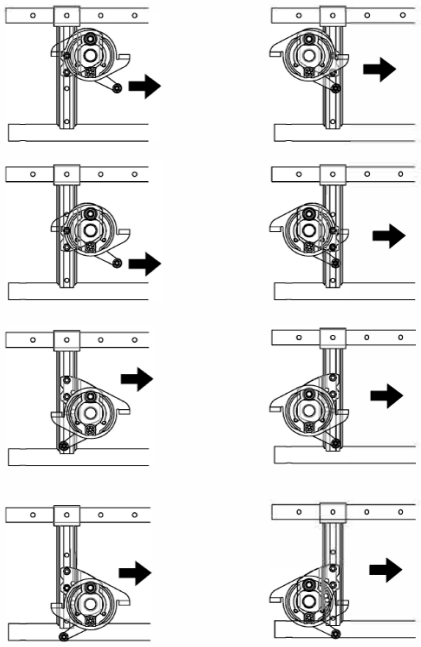
1. Press and hold the quick release button on the rearwheel axle Ⓑ.
2. Remove the rearwheel by pulling it outwards.
3. Loosen the nut Ⓒ.
4. Remove the brake unit Ⓓ for adjustment.
5. Reposition the rearwheel.
6. Re-tighten the nut.

Tools: 24 mm fixed spanner

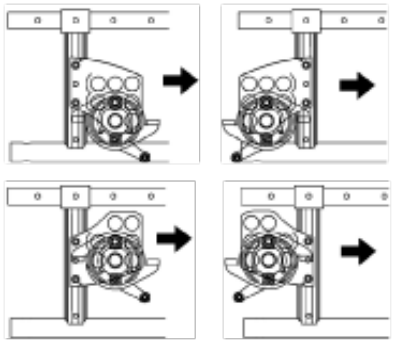
Change the position of the brake attachment:

To position the rearwheel, the brake unit can be mounted in different positions on the rearwheel attachment:

Standard rearwheel attachment

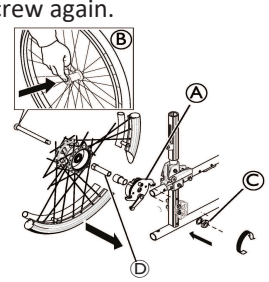


Active / dual amp rearwheel attachment:



1. Loosen the screws and nuts
2. Adjust the position of the brake unit, you can use either the upper hole or the lower hole.

3. Re-tighten the screw again.



4. Remount the brake unit Ⓓ and tighten the nut Ⓒ.
5. Remount the rearwheel and secure the quick release button Ⓑ.

Make sure that the wire attachment Ⓐ is pointing upwards.

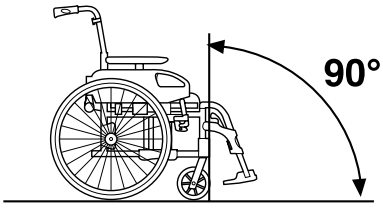
The illustrations above shows how the brake unit could be placed on the rearwheel attachment. The brake unit has two different attachment holes, one upper and one lower.

Tools: 24 mm fixed spanner

4.11 Adjusting the castors

WARNING!
Risk of tipping
The castor might come off.
— Make sure to check that the castors are securely locked after each adjustment.

WARNING!
Safety risk
— Make sure that the castor housing is properly secured after each adjustment.

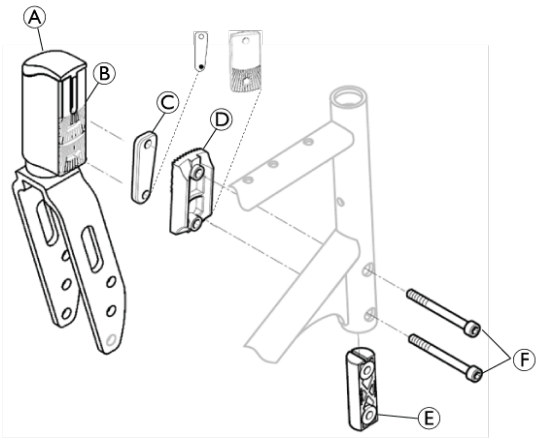


When you have found the desired seat height and depth, it's important to check that the angle between the castor attachment and surface is as close to 90° as possible, as it may affect the wheelchairs propelling ability.

WARNING!
Safety risk
There is two systems of castor housing that are not compatible.
— Make sure to check which is the castors you have to mount before doing the service.
— Following are the two castors instructions.

4.11.1 Standard Castor Housing

WARNING!
Risk of injury
There are two different fork mounts (Standard/ Zamak/ Toothed and Light/ Alu/ Smooth).
— Identify your mount type and use the correct fixing kit for proper installation.



1. Place the insert Ⓔ inside the front upright frame tube.
2. Hold the insert in place with a first screw Ⓕ.

   Make sure you are using the 37 mm screw instead of 33 mm. The 33 mm should be only used in light castor model.

3. Place the fixing plate Ⓓ as well as the second screw Ⓕ.
4. Installing the fixing bracket Ⓒ. Start threading the upper screw into the bracket.
5. Insert the fork support between the fixing bracket Ⓒ and the mounting plate Ⓓ. Align the teeth to ensure they match.
6. Install the lower screw Ⓕ then tighten it first. Then tighten the upper screw Ⓕ, and retighten the lower screw.

   Tools: H43 screwdriver + 5 mm hex bit at 13–14 Nm.

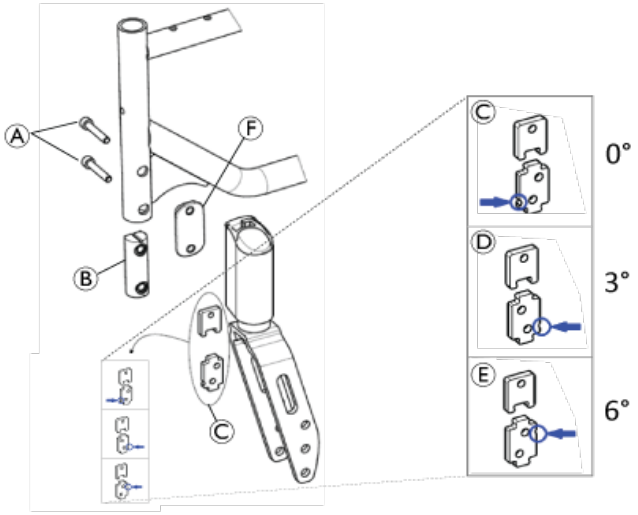
7. Check that the fork is properly tightened.

   Tools: Torque wrench set to 13.5 Nm.

8. Verify fork rotation: it should not be blocked but should also not spin freely.
9. Attach the cap Ⓐ to the housing Ⓑ.

4.11.2 Light Castor Housing

WARNING!
Risk of injury
There are two different fork mounts (Standard/ Zamak/ Toothed and Light/ Alu/ Smooth).
— Identify your mount type and use the correct fixing kit for proper installation.



1. Insert the insert Ⓑ into the front post – the flat side of the insert should face inward towards the panel.
2. Install the first screw Ⓐ.

   Make sure you are using the 33 mm screw instead of 37 mm. The 37 mm should be only used in standard castor model.

3. Attach the fork fixing support Ⓕ and loosely thread the second screw Ⓐ.
4. Place the upper adjustment plate Ⓒ and begin threading the upper screw into the plate.
5. Position the lower adjustment plate Ⓒ on the upper plate (default: 3° Ⓓ; otherwise, adjust to 0° Ⓒ or 6° Ⓔ).
6. Hold the adjustment of the two plates Ⓒ and insert the fork support.
7. Position the fork according to the high or low setting. Tighten the lower screw Ⓐ first, then the upper screw, and re-tighten the lower screw.

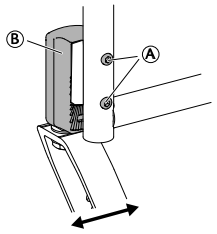
   Tools: H43 screwdriver + 5 mm hex bit at 13–14 Nm.

8. Check the fork tightening with a torque wrench.

   Tools: CD15 wrench for steps 3 & 4, set to 13.5 Nm

9. Verify fork rotation: it should not be blocked but should not spin freely.
10. Attach the plastic cap on the top of the housing.

4.11.3 Castor angle



1. Loosen and remove the pre-glued bolts Ⓐ.
2. Adjust the castor house Ⓑ to the desired angle.

3. Add two new pre-glued bolts and tighten the screws with 13–14 Nm.

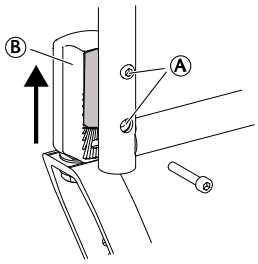
   To adjust the castor angle on both sides, use 4 new mounting pre-glued bolts (M6).

   Alternatively, the screws can be cleaned (remove old thread locking adhesive) and reinstalled with new medium-strength thread locking adhesive (e.g.: LOCTITE® 243™ or 270™).

   Always refer to the liquid thread locking adhesive supplier's recommendations before applying on the screw.

Tools: 5 mm Allen key

4.11.4 Castor height



1. Remove the two mounting screws Ⓐ that secure the castor housing assembly Ⓑ to wheelchair frame, the attachment plate and the angle plates set.

   To adjust the castor position on both sides, use the spare parts kit (SP1657714) consisted of 4 mounting pre-glued screws (M6x33mm) and 2 angle plates set.

2. Move the castor housing assembly to one of two positions. Always check that the plastic insert is present before tightening the mounting screws.

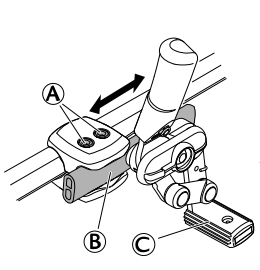
   Both castor housing assemblies must be set at the same position.

3. Remount the lower screw.
4. Tighten both screws.

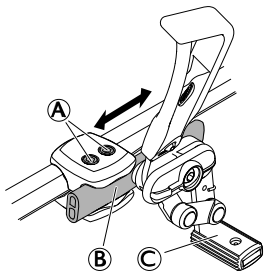
Tools: 5 mm allen key

4.12 Adjusting the brakes

WARNING!
Reduced brake effect
— Incorrect adjustments of the brake can reduce the effectiveness of the brake.



Standard brake handle



Extended brake handle

1. Check that the tires have the correct air pressure.

   You can find the information about the air pressure on the tire.

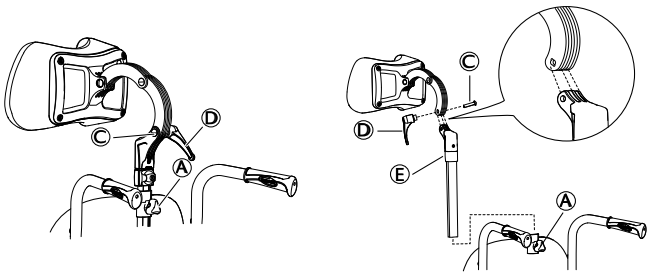
2. Loosen the screws Ⓐ.
3. Slide the brake rail with the brake Ⓑ forward or backwards to the desired position.
4. Re-tighten the screws.

   The distance between the brake shaft Ⓒand the tire should be approximately 4-5 mm or less for more performance (with stranger force needed).

Tools: 5 mm allen key - 7-8 Nm

4.13 Positioning the headrest / neckrest to the front

This additional depth adjustment will move the headrest another 7 cm forward.



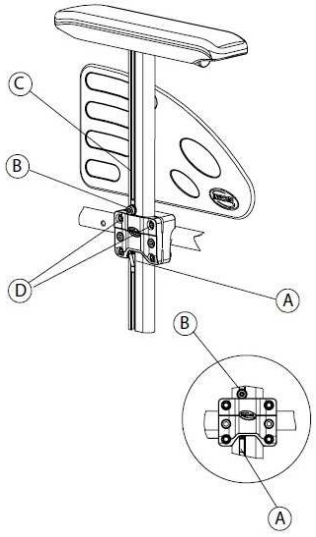
You can also adjust the angle and depth by turning the attachment for the headrest / neckrest.

1. Loosen the handwheel Ⓐ.
2. Remove the headrest / neckrest.
3. Loosen the handle Ⓓ.
4. Remove the screw and the handle.
5. Rotate the headrest / neckrest attachment pole including the attachment Ⓔ.
6. Return the headrest / neckrest to the attachment.

   Note that the screw to the headrest / neckrest attachment Ⓒ and the handle Ⓓ must be mounted on the opposite side due to the groves in the screw hole.

7. Return the headrest / neckrest to the attachment on the backrest.
8. Re-tighten the handle Ⓓ and the handwheel Ⓐ.

4.14 Removing/Installing and Adjusting Removable Armrests (n°1 & n°4)



Removing/Installing removable armrest

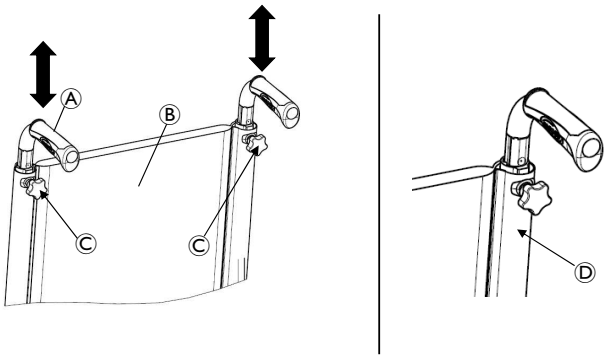
ℹ To remove the removable armrest, reverse this procedure.

1. Previously press on the locking mechanism Ⓐ located at the bottom of the armrest vertical bracket.
2. Pull /Push the armrest by the arm cushion out of the holder.
3. To adjust how easy or difficult it is to pull/push the armrest out of the holder, change the degree to which the 4 screws Ⓓ (M6) are tightened.

Adjusting removable Armrest height

1. Remove the removable armrest. Refer to *Removing/Installing removable armrest, page 23*.
2. Loosen the screw Ⓑ (M6) in the groove Ⓒ of the armrest tube Ⓒ.
3. Move the armrest upwards or downwards until you reach the desired height, while keeping screw Ⓑ (M6) in place (at the top edge of the holder).
4. Tighten firmly the screw Ⓑ (M6).
5. Perform the setting on both sides.
6. Reinstall the removable armrest. Refer to *Removing/Installing removable armrest, page 23*.

4.15 Adjusting the Height Adjustable Back



Component	Description
Ⓐ	Back Cane
Ⓑ	Backrest Upholstery
Ⓒ	Height Adjustment Knob
Ⓓ	Location of Snap Button Lock (under upholstery)

1. Loosen, but DO NOT remove, the height adjustment knobs.
2. Reposition the back canes to the desired height.

   ℹ Both back canes should be adjusted to the same height.

   ℹ DO NOT raise push handles to maximum height when tilting the chair.

3. Tighten the height adjustment knobs.

   ℹ To prevent accidental removal of a back cane, the spring button lock will engage at the full extension of the back cane. To disengage the button, press the button located below the height adjustment, under the upholstery, on the back cane Ⓓ.

4.16 Adjusting the Angle of Adjustable Backrest

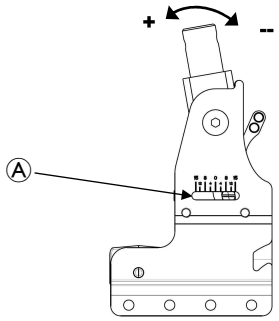


Figure A - Backrest adjustable -15°/+15°

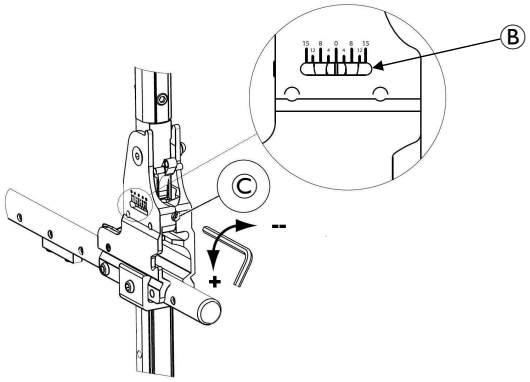


Figure B - Step less adjustment -15°/+15°

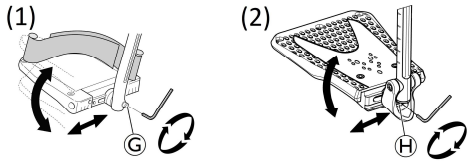
ℹ This procedure applies to adjustable angle backs only in image with figure Ⓐ.

ℹ The backrest angle adjusts from -15° to+15° (step less).

1. Adjust the back angle thanks to the adjustable screw Ⓒ.
2. Turn Allen key (5 mm) clockwise to obtain a negative angle.
3. Alternatively, turn Allen key (5 mm) under clockwise to obtain a positive angle.
4. Ensure both adjustment to the desired angle is equal on each side of the Back Cane Bracket. Refer to Figure Ⓑ.

   ℹ Both backrest angle should be set to the same position.

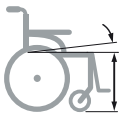
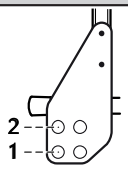
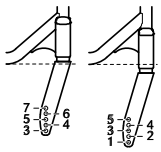
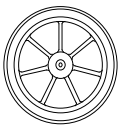
4.17 Installing Angle Adjustable Footplate



1. Position the angle adjustable footplate on the footrest support tube at the desired height.
2. Using the locking screw, loosely secure the angle adjustable footplate to the footrest support tube.
3. Using the mounting screw, adjust to the desired angle by rotating the footplate and depth by sliding the footplate into the tooth plates support.
4. Using the mounting screw Ⓖ version (1) or Ⓗ version (2), secure the Angle Adjustable Footplate to the footrest tube. Securely tighten.
5. If necessary, repeat STEPS 1-4 to adjust remaining Angle Adjustable Footplate.

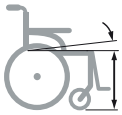
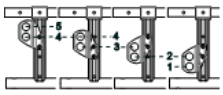
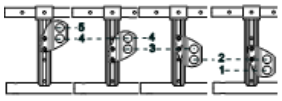
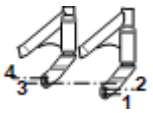
4.18 Seat height tables

4.18.1 Seat height for Standard 16 inch

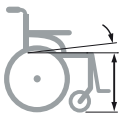
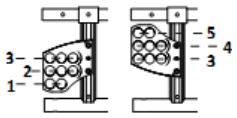
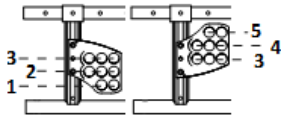
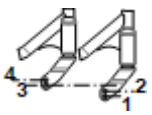
Seat height*/ Seat Angle		Position of rearwheel	Castor fork position	Castors*
				
460	0°	2	1	140 (5,5")
460	0°	2	2	150 (6")
460	0°	2	4	200 (8")
510	0°	1	1	200 (8")
*All measurements are in mm				

4.18.2 Seat height for 20 inch

Standard and Passive rearwheel attachment

Seat height* / Seat angle		Position of rearwheel (Passive)			Position of rearwheel (Standard)			Castor fork position	Castors*
									
		Seat depth 400	Seat depth 450	Seat depth 500	Seat depth 400	Seat depth 450	Seat depth 500		
360	0°	4	4	4	4	4	4	1	125 (5")
360	3°	5	5	5	5	5	5	3	125 (5")
*All measurements are in mm									

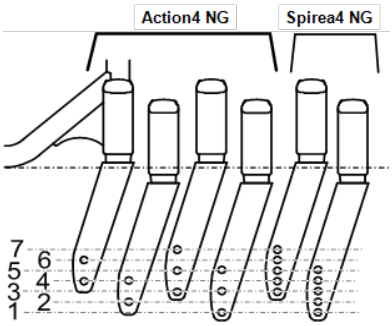
Dual amp. and Active rearwheel attachment

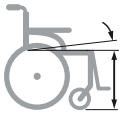
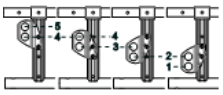
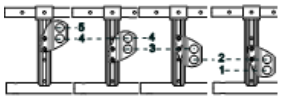
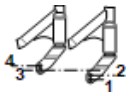
Seat height* / Seat angle		Position of rearwheel (Dual amp.)			Position of rearwheel (Active rearwheel attachment)			Castor fork position	Castors*
									
		Seat depth 400	Seat depth 450	Seat depth 500	Seat depth 400	Seat depth 450	Seat depth 500		
360	0°	4	4	4	4	4	4	1	125 (5")
360	3°	5	5	5	5	5	5	3	125 (5")
*All measurements are in mm									

4.18.3 Seat height for 22 inch

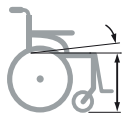
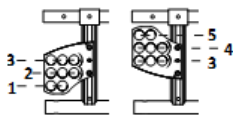
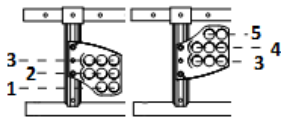
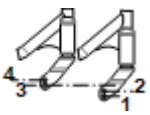
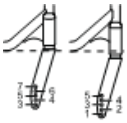
Standard and Passive rearwheel attachment

Some forks are dedicated to a model, however they cover all possible settings



Seat height* / Seat angle		Position of rearwheel (Passive)			Position of rearwheel (Standard)			Castor fork position (low)	Castor fork position (std)	Castors*
										
		Seat depth 400	Seat depth 450	Seat depth 500	Seat depth 400	Seat depth 450	Seat depth 500			
385	0°	4	4	4	4	4	4	2	-	125 (5")
	3°	5	5	5	5	5	5			
410	0°	3	3	3	3	3	3	1	-	125 (5")
	3°	4	4	4	4	4	4			
	6°	5	5	5	5	5	5			
410	0°	3	3	3	3	3	3	-	7	150 (6'')
	3°	4	4	4	4	4	4			
	6°	5	5	5	5	5	5			
435	0°	2	2	3	2	2	2	-	5	140 (5,5")
	3°	3	3	4	3	3	3			
	6°	4	4	5	4	4	4			
430	0°	2	2	2	2	2	2	-	5	150 (6'')
	3°	3	3	3	3	3	3			
	6°	4	4	4	4	4	4			
460	0°	1	1	2	1	1	1	-	3	140 (5,5")
	3°	2	2	3	2	2	2			
	6°	3	3	4	3	3	3			
460	0°	1	1	1	1	1	1		3	150 (6'')
	3°	2	2	2	2	2	2			
	6°	3	3	3	3	3	3			
460	0°	1	1	1	1	1	1	-	5	200 (8'')
	3°	2	2	2	2	2	2			
	6°	3	3	3	3	3	3			
485	0°	-	-	1	-	-	-	-	1	140 (5,5")
	3°	1	1	2	1	1	1			
	6°	2	2	3	2	2	2			
485	3°	1	1	1	1	1	1		1	150 (6'')
	6°	2	2	2	2	2	2			
485	3°	1	1	1	1	1	1		3	200 (8'')
	6°	2	2	2	2	2	2			
*All measurements are in mm										

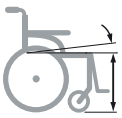
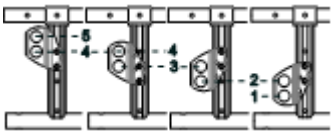
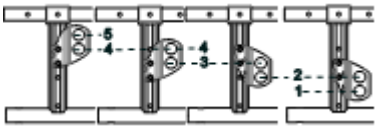
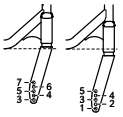
Dual amp. and Active rearwheel attachment

Seat height* / Seat angle		Position of rearwheel (Dual amp.)			Position of rearwheel (Active)			Castor fork position (low)	Castor fork position (std)	Castors*
										
		Seat depth 400	Seat depth 450	Seat depth 500	Seat depth 400	Seat depth 450	Seat depth 500			
385	0°	4	4	4	4	4	4	2	-	120 (5")
	3°	5	5	5	5	5	5			

Seat height* / Seat angle		Position of rearwheel (Dual amp.)			Position of rearwheel (Active)			Castor fork position (low)	Castor fork position (std)	Castors*
410	0°		4	5	4	4	4	1	-	120 (5")
	3°	4	4	4	4	4	4			
	6°									
410	0°	3	3	3	3	3	3	-	7	150 (6")
	3°	4	4	4	4	4	4			
	6°	5	5	5	5	5	5			
435	0°	2	3	3	2	2	2	-	5	140 (5,5")
	3°	3	4	4	3	3	3			
	6°	4	5	5	4	4	4			
435	0°	2	2	2	2	2	2	-	5	150 (6")
	3°	3	3	3	3	3	3			
	6°	4	4	4	4	4	4			
460	0°	1	2	2	1	1	1	-	3	140 (5,5")
	3°	2	3	3	2	2	2			
	6°	3	4	4	3	3	3			
460	0°	1	1	1	1	1	1		3	150 (6")
	3°	2	2	2	2	2	2			
	6°	3	3	3	3	3	3			
460	0°	1	1	1	1	1	1	-	5	200 (8'')
	3°	2	2	2	2	2	2			
	6°	3	3	3	3	3	3			
485	0°	-	1	1	-	-	-	-	1	140 (5,5")
	3°	1	2	2	1	1	1			
	6°	2	3	3	2	2	2			
485	3°	1	1	1	1	1	1	-	1	150 (6")
	6°	2	2	2	2	2	2			
485	3°	1	1	1	1	1	1	-	3	200 (8")
	6°	2	2	2	2	2	2			
*All measurements are in mm										

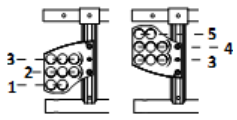
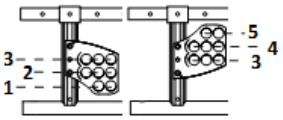
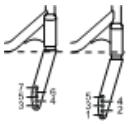
4.18.4 Seat height for 24 inch

Standard and Passive rearwheel attachment

Seat height* / Seat angle		Position of rearwheel (Passive)			Position of rearwheel (Standard)			Castor fork position (std)	Castors*
									
		Seat depth 400	Seat depth 450	Seat depth 500	Seat depth 400	Seat depth 450	Seat depth 500		
410	0°	4	4	4	4	4	4	7	150 (6")
	3°	5	5	5	5	5	5		
435	0°	3	3	4	3	3	3	5	140 (5,5")
	3°	4	4	5	4	4	4		
	6°	5	5	-	5	5	5		
435	0°	3	3	3	3	3	3	5	150 (6")
	3°	4	4	4	4	4	4		
	6°	5	5	5	5	5	5		
460	0°	2	2	3	2	2	2	3	140 (5,5")
	3°	3	3	4	3	3	3		
	6°	4	4	5	4	4	4		

Seat height* / Seat angle		Position of rearwheel (Passive)			Position of rearwheel (Standard)			Castor fork position (std)	Castors*
460	0°	2	2	2	2	2	2	3	150 (6")
	3°	3	3	3	3	3	3		
	6°	4	4	4	4	4	4		
460	0°	2	2	2	2	2	2	5	200 (8")
	3°	3	3	3	3	3	3		
	6°	4	4	4	4	4	4		
485	0°	1	1	2	1	1	1	1	140 (5,5")
	3°	2	2	3	2	2	2		
	6°	3	3	4	3	3	3		
485	0°	1	1	1	1	1	1	1	150 (6")
	3°	2	2	2	2	2	2		
	6°	3	3	3	3	3	3		
485	0°	1	1	1	1	1	1	3	200 (8")
	3°	2	2	2	2	2	2		
	6°	3	3	3	3	3	3		
510	3°	1	1	1	1	1	1	1	200 (8")
	6°	2	2	2	2	2	2		
*All measurements are in mm									

Dual amp. and Active rearwheel attachment

Seat height* / Seat angle		Position of rearwheel (Dual amp.)			Position of rearwheel (Active)			Castor fork position (low)	Castors*
									
		Seat depth 400	Seat depth 450	Seat depth 500	Seat depth 400	Seat depth 450	Seat depth 500		
410	0°	4	4	4	4	4	4	7	150 (6")
	3°	5	5	5	5	5	5		
435	0°	3	4	4	3	3	3	5	140 (5,5")
	3°	4	5	5	4	4	4		
	6°	5	-	-	5	5	5		
435	0°	3	3	3	3	3	3	5	150 (6")
	3°	4	4	4	4	4	4		
	6°	5	5	5	5	5	5		
460	0°	2	3	3	2	2	2	3	140 (5,5")
	3°	3	4	4	3	3	3		
	6°	4	5	5	4	4	4		
460	0°	2	2	2	2	2	2	3	150 (6")
	3°	3	3	3	3	3	3		
	6°	4	4	4	4	4	4		
460	0°	2	2	2	2	2	2	5	200 (8")
	3°	3	3	3	3	3	3		
	6°	4	4	4	4	4	4		
485	0°	1	2	2	1	1	1	1	140 (5,5")
	3°	2	3	3	2	2	2		
	6°	3	4	4	3	3	3		
485	0°	1	1	1	1	1	1	1	150 (6")
	3°	2	2	2	2	2	2		
	6°	3	3	3	3	3	3		

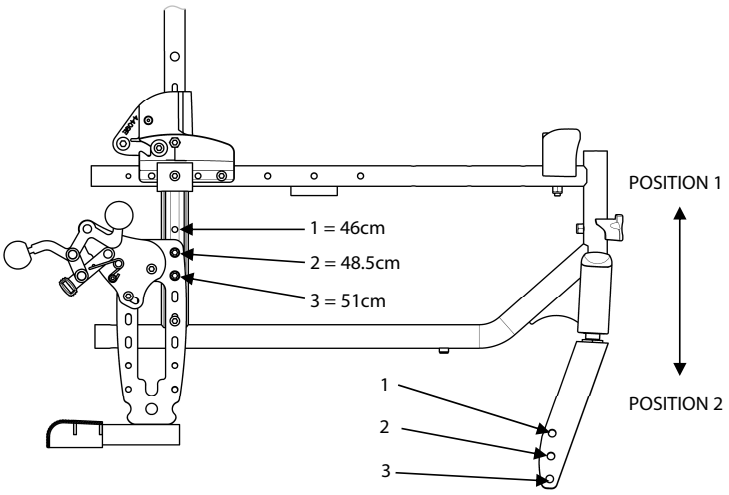
Seat height* / Seat angle		Position of rearwheel (Dual amp.)			Position of rearwheel (Active)			Castor fork position (low)	Castors*
485	0°	1	1	1	1	1	1	3	200 (8")
	3°	2	2	2	2	2	2		
	6°	3	3	3	3	3	3		
510	3°	1	1	1	1	1	1	1	200 (8")
	6°	2	2	2	2	2	2		
*All measurements are in mm									

4.18.5 Angles and positions of Rear support and Headset support

Seat Angle 0°	Rear Support	Headset Support	
Seat Height	Transit	Position 1	Position 2
	12"	8"	8"
38,5	X		
41	X		
43,5	X		
46	2	2	1
48,5	3	3	2
51	X		

Seat Angle 3°	Rear Support	Headset Support	
Seat Height	Transit	Position 1	Position 2
	12"	8"	8"
38,5	X		
41	X		
43,5	X		
46	1	2	1
48,5	2	3	2
51	3	X	3

Seat Angle 6°	Rear Support	Headset Support	
Seat Height	Transit	Position 1	Position 2
	12"	8"	8"
38,5	X		
41	X		
43,5	X		
46	X	2	1
48,5	2	3	2
51	3	X	3



5 Maintenance

5.1 Flat tire

In case of a tire puncture consult a suitable workshop (e.g. bike repair shop, bicycle dealer ...) to have the tube replaced by a skilled person.

5.2 Cleaning

Your wheelchair will serve you well for many years if you clean it regularly.

NOTICE!
Risk of injury
Sand and seawater can damage the bearings and steel parts can rust if the surface is damaged.
— Only expose the wheelchair to sand and seawater for short periods and clean it after every trip to the beach

NOTICE!
— Do not use coarse abrasives, aggressive cleaning products or high-pressure cleaners. Never use acids, alkalines or solvents such as acetone or cellulose thinner.
— Always use ordinary household cleaning agents.

1. Clean the cushions and metal parts with a soft, damp cloth.
2. Dry the wheelchair carefully with a cloth after using it in the rain.
3. If the wheelchair is dirty, wipe off the dirt as soon as possible with a damp cloth and dry it carefully.

Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle.
For upholstery that is severely stained or surface finish that is badly damaged, contact Invacare for further information.

Cleaning upholstery
For cleaning upholstery refer to the instructions on the label on the seat, cushion and backrest cover.

Cleaning metal surfaces
Hot water and mild detergent on soft cloth should be use to cleaning metal surfaces.

1. Wipe down with damp cloth
2. Dry surface by wiping down with dry cloth.

Car polish and soft wax can be used to remove abrasions and restore gloss.

Cleaning plastic surfaces
Plastic surfaces must be cleaned with soft cloth, mild detergent and hot water.

NOTICE!
— Do not use solvents or kitchen cleaners to clean plastic surfaces.

1. Rinse surface with clean water.
2. Dry surface by wiping down with dry cloth

5.3 Disinfection

The wheelchair may be disinfected by spraying or wiping with tested, approved disinfectants.

The Robert Koch Institute has a list of currently approved disinfectants at *www.rki.de.*

5.4 Maintenance schedule

Check all parts of the wheelchair regularly (see schedule below).

Check...	Weekly	Monthly	6 months	12 months	Action
Wheelchair rolls straight	x				Verifying if there is no excessive drag or pull to one side.
Check tyre pressure and also tyres/castors for flat spots and wear.	x				The recommended air pressure for rear wheels is written on the tire.
Ensure castors are free of debris.	x				
Quick-release axles	x				1. Wheel axles are to be wiped clean and lubricated with a drop of oil. 2. Pull on the rear wheel to check that the removable axle does not come off and then if they lock properly.
Broken spokes	x				Adjustment/replacement
Wheel/fork assembly has proper tension when caster is spun.	x				Caster should come to a gradual stop.
Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged.		x			Replace if necessary.
Wheel wobbles noticeably or binds to a stop.		x			Loosen/tighten locknut(s).
Wheel bearings are clean and free of moisture.		x			
Wheel brakes		x			Brakes do not interfere with tyres when rolling. Hub brakes work properly on both tires. Positioning of the brakes. Wheel brake pivot point are free of wear and looseness.
Ensure all hardware is tight and castor/wheel/fork/head tube fasteners are secure (see pages 5 & 36).		x			Bolts and other fasteners can corne loose due to constant use. l. Check that the fasteners are tight on the castor forks, footrest, seat, side supports, backrest, handles etc. 2. Tighten any loose bolts.
Ensure hand grips are secure to backrest canes.		x			Replace if necessary.
Castors		x			l. Check that the castors turn freely. 2. Remove any dirt and hair.
Brakes		x			1. Check that hub brakes work properly on both tires. 2. Check the positioning of the user brakes.
Anti-tip devices			x		Check that the anti-tip device is easy to adjust and fold
Chassis			x		Check the chassis for wear and tear like loose parts, cracks or other defects. ⓘ A damaged chassis should be checked by a specialist.

Check...	Weekly	Monthly	6 months	12 months	Action
Upholstery			x		Check the upholstery for wear and tear like loose parts, rips or other defects.
Wheelchair rolls straight				x	Verifying if there is no excessive drag or pull to one side.
Arms are secure but easy to release and locking systems engage properly.				x	
Adjustable height arms operate and lock securely.				x	
Armrest armpad sits flush against arm tube.				x	
All fasteners on clothing guards are secure.				x	
Seat and/or back upholstery have no rips.				x	
Inspect the backrest attaching hardware and mechanisms are securely tightened.				x	
No excessive side movement or binding when rear wheels are lifted and spun.				x	
Inspect handrims for signs of rough edges or peeling finish.				x	
Inspect side frame and cross brace for signs of cracks, flaked paint, or deformed metal work.				x	
Check tyre pressure and also tyres/castors for flat spots and wear.				x	The recommended air pressure for rear wheels is written on the tire.
Wheel brake pivot point are free of wear and looseness.				x	
Clean upholstery and armrests.				x	
Sealed bearings and axle nut tension are correct.				x	
Wheel/fork assembly has proper tension when caster is spun. Caster should come to a gradual stop.				x	
Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.				x	
Wheel bearings are clean and free of moisture.				x	
Wheel brakes are easy to engage.				x	
Clean quick-release axles with a Teflon lubricant.				x	
Ensure axles are free from dirt, lint, etc.				x	
Ensure roller bearings are free from dirt, lint, etc.				x	
Adjust wheel brakes as tyres wear.				x	
Clean and wax all parts.				x	
Ensure castors are free of debris.				x	

WARNING!
Risk of injury
— Do not use a defect wheelchair.

If you discover damages, contact your Dealer, Technical Service Centre or Invacare service department immediately for technical service. Technical service, is to be carried out by an authorized wheelchair technician or by an Invacare service department.

Only use original parts or those with equal quality fulfilling Invacare's specifications.

5.4.1 Tires

The ideal pressure depends on the tire type:

The table below shows the tire assortment, check the side of the tire, the maximum pressure is listed there.

Tire
Pneumatic 24 x 1 3/8 x 1 1/4
Pneumatic 24 x 1 3/8
Pneumatic low profile
Low profile PKT (24x1)
Pneumatic block pattern puncture proof
Solid

The compatibility of the tires listed above depends on the configuration and/or model of your wheelchair.

In case of a tire puncture consult a suitable workshop (e.g. bike repair shop, bicycle dealer ...) to have the tube replaced by a skilled person.

The size of the tire is mentioned on the sidewall of the tire. The change of appropriate tires must be carried out by a qualified technician/dealer.

CAUTION!
— The tire pressure needs to be equal in both wheels to avoid decreased driving comfort, to keep the parking brakes working properly and to ease propelling of the wheelchair.

5.5 Reconditioning

Main parts of the wheelchair	
Lubricate all removable parts with a dry Teflon® based spray, e.g. "Viso 900–B5".	
Chassis	All parts must be checked for cracks or other damages. Pay special attention to areas close to welds. If damages are discovered, the chassis must be discarded.
Backrest angle	Check that the angle is easy to adjust, it should be easy to fold and the locking mechanism must function properly.
Push handles / Push bar	Check that the push handles / push bar works properly. They should be firm and the screws must be tightened properly.
Back- and seat covers	• Check that the self-gripping strips are intact and can be fixed properly. • Check that the covers are intact and clean, if not see section: "Washing" and "Disinfection" • If the fabric is torn, replace the cover.
Seat angle	Check the function by changing the angle from the lower to the upper position. **CAUTION!** **Risk of damage** — The gas piston must not be opened, it contains oil and gas under high pressure.
Carer-operated brakes	Check that the brake function is good, if not: 1. Check that the wire is intact, if not, it must be replaced. 2. Check that the wire cover is intact, if not, the wire must be replaced. 3. Adjust the wire at the handle and/or at the wheel hub. 4. Tighten the wire until the optimal brake function is achieved.

Main parts of the wheelchair	
Armrests / side rests	Check that the armrests / side rests are intact, they should be easy to detach / attach.
Leg rests	Check that the leg rests are: • Easy to detach • Easy to attach • Easy to adjust in height and angle
Anti-tipper device	• Check that the anti-tipper device is easy to adjust and fold. • Check that the screws are tight, if not, retighten.
Rear wheels	• Change the tyres if the pattern is worn. • Replace missing spokes and tighten loose spokes. • Fasten the hand rim if it is loose. • Check that the hand rim is smooth and that there are no cracks or sharp edges. If so, replace the hand rim. • Check the rear wheel axle, it should be completely inserted into the axle housing. Check that the rear wheel axle locks properly. Pull on the rear wheel to check that the removable axle does not come off. • Check the air pressure — recommended max air pressure is written on the tyres.
Rear wheel attachment	Check: • That the screws on the rear wheel attachment are tight. • That the axle housing is correctly placed. ℹ The standard axle housing should be tightened with a manual and dynamometer wrench calibrated to 40 +/–5 Nm, the One Arm Drive axle housing to 45 0/+5 Nm.
Brakes	• Check that the hub brakes work properly on both tyres. • Check the positioning of the user brakes. • Check that the brake pin is not worn down. If so, replace it. • Check that the screws are tightened. • Test the brake function. When braking, the brake pin should press the tyre down by 5 mm. ℹ Make sure that you have the correct air pressure in the tyres to attain the optimal brake effect.
Castors	• Detach the castors and clean the castor forks. • Remove any dirt or hair from the castors. • Attach the castors again and check that the castors turn freely. • If the castors are air filled, check the pressure — recommended max air pressure is written on the tyre. • If the castors are solid, check the tyres for cracks. If the tyres are dry and filled with cracks, they need to be replaced.
All fasteners for wear and tightness	Bolts and other fasteners can come loose due to constant use: 1. Check that the fasteners are tight on the castor forks, footrest, seat, side rests, backrest, handles etc. 2. Tighten any loose bolts or screws.

Options	
ℹ Lubricate all removable parts with a dry Teflon® based spray, e.g. “Viso 900–B5”.	
All fasteners for wear and tightness	Bolts and other fasteners can come loose due to constant use: 1. Check that the fasteners are tight on the castor forks, footrest, seat, side rests, backrest, handles etc. 2. Tighten any loose bolts or screws.
Headrest	• Check that the side- and angle adjustment for the “wings” works properly. • Check that the angle adjustment works and that there is a memory function.
Neckrest	• Check that the angle adjustment works and that there is a memory function.
Trunk support “Multi functional”	• Check that the angle adjustment works properly and that there is a memory function.
Abduction cushion	• Check that the depth adjustment works.

Options	
Table tray	• When re-mounting the table tray, try to find the thread manually before fastening the screws with tools. This spare the threading.

5.5.1 Checklist for reconditioning

	OK	NOTE	SIGN
WASHING			
RECONDITIONING:			
Chassis			
Backrest angle			
Push handles / Push bar			
Backrest cover			
Seat cover			
Seat angle			
Carer-operated brake			
Armrests / Side rests			
Legrests			
Footrests			
Anti-tip device			
Rear wheels			
Rear wheel attachment			
Brakes			
Castors			
Fasteners for wear and tightness			
Headrest			
Neckrest			
Trunk support			
Abduction cushion			
Table tray			
TEST:			
Chair rolls in straight line			
Easy to propel			
DELIVERY CHECK:			
Include a user manual			

5.6 Safety information

WARNING!
Some materials deteriorate naturally over time. This could result in damage to wheelchair components.
— Your wheelchair should be checked by a specialist dealer at least once a year or if it has not been used for a long period.

Your Invacare® specialist dealer can provide help in carrying out regular maintenance. To find an authorised specialist dealer near you, contact the Invacare® distributor for your country (end of this document).

6 Troubleshooting

6.1 Safety information

Faults may arise as a result of daily use, adjustments or changing demands on the wheelchair. The table below shows how to identify and repair faults.

⚠ **CAUTION!**
— Contact your specialist dealer immediately if you notice a fault with your wheelchair, e.g. a significant change in handling.

! **NOTICE!**
— Some of the actions listed must be carried out by an authorised specialist dealer. These are indicated. We recommend that all adjustments are carried out by a specialist dealer.

6.2 Identifying and repairing faults

Fault	Possible cause	Action
The wheelchair does not travel in a straight line	Incorrect tire pressure on one rear wheel	Correct tire pressure, → Section “Tires”
	One or more spokes broken	Replace faulty spoke(s), → specialist dealer
	Spokes tightened unevenly	Tighten loose spokes, → specialist dealer
	Front wheel bearings are dirty or damaged	Clean or replace the bearings, → specialist dealer
The wheelchair tips backwards too easily	Rear wheels are mounted too far forwards	Mount the rear wheels further back, → specialist dealer
	Back angle too large	Reduce the backrest angle, → specialist dealer
The brakes are gripping poorly or asymmetrically	Incorrect tire pressure in one or both rear tires	Correct tire pressure, → Section “Tires”
	Brake setting incorrect	Correct the brake setting, → specialist dealer
Rolling resistance is very high	Tire pressure in rear tires is too low	Correct tire pressure, → Section “Tires”
	Rear wheels not parallel	Ensure the rear wheels are parallel, → specialist dealer
The front wheels wobble when moving fast	Too little tension in front wheel bearing block	Tighten the nut on the bearing block axle slightly,→ specialist dealer
	Front wheel has worn smooth	Change front wheel, → specialist dealer
The front wheel is stiff or stuck	Bearings are dirty or faulty	Clean or replace the bearings, → specialist dealer

7 After Use

7.1 Cleaning

- Wipe metal parts and the upholstery regularly with a damp cloth.
- A mild detergent can be used.
- If necessary, the upholstery can be washed at 60° C.
- Ordinary washing powder/liquid can be used.
- For disinfection only use alcohol based detergent.

Only use water and soft soap to clean the table!

7.1.1 Cleaning the O2 holder

WARNING!
Risk of damage to the O2 cylinder
Injury or damage may occur if cleaning agents come in contact with the O2 regulator.
— The user and O2 cylinder MUST be removed from the wheelchair when cleaning the O2 holder.

7.2 Washing

1. Remove all loose and removable covers and wash them in a washing machine according to the washing instructions for each cover.
2. Remove all padded parts such as seat cushions, armrests, headrest or neckrest with fixed padded parts, calf pads and so on and clean them separately.

   The padded parts can not be cleaned with a high-pressure cleaner or water jet.

3. Spray the wheelchair chassis with detergent, for example a car-cleaning agent with wax, and leave on to work.
4. Rinse the wheelchair chassis with a high-pressure cleaning or ordinary jet of water depending on how dirty the wheelchair is. Do not aim the jet towards bearings and draining holes. If the wheelchair chassis is washed in a machine the water must not be hotter than 60º C.

   Only use water and soft soap to clean the table.

5. Leave the wheelchair to dry in a drying cabinet. Remove parts where water has collected for example in end tubes, ferrules etc. If the wheelchair has been washed in a machine, blow-drying with compressed air is recommended.

7.2.1 Multi stretch polyurethane (PU) coated fabric

Lighter stains on the fabric may be neutralized with a soft damp cloth and some neutral detergent. To neutralize larger, more persistent stains, wipe the fabric with alcohol or turpentine substitutes, and wash with hot water and a neutral detergent.

The fabric can be washed at temperatures up to 60º C. Normal detergents can be used.

All parts of the wheelchair with multi stretch polyurethane (PU) coated fabric upholstery, such as armrest pads, calf pads, headrest or neckrest, should be cleaned according to the instruction above.

8 Technical Data

8.1 Material

Chassis, backrest tubes	Aluminium, steel
Plastic parts like push handles, brake handles, foot plates.	Thermoplastic (e.g PA, PE or PP) according to marking on the parts
Upholstery (seat and backrest)	Jemima and polyurethane-coated fabric (PU)
Table	ABS
Screws, washers and nuts	Steel, corrosion free

This product is Latex free.

8.2 Environmental conditions

	Storage and transportation	Operation
Temperature	-20 °C to 40 °C	-5 °C to 40 °C
Relative humidity	20 % to 90 % at 30 °C, not condensing	
Atmospheric pressure	800 hPa to 1060 hPa	

Be aware that when a wheelchair has been stored under low temperatures, it must be adjusted to operating conditions before use.

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