



Yes, you can.®

Invacare® **Variance Plus**®



User guide



Introduction

Thank-you for purchasing a wheelchair from Invacare. This model offers you all the advantages and characteristics of a product that has been designed especially to meet your particular requirements.

Great care has been taken with this wheelchair throughout the whole of its manufacturing process. The components have been selected for their quality and inspections have been carried out so that your wheelchair can provide you with full satisfaction.

This booklet describes the wheelchair's limits of use, the maintenance to be performed and those adjustments which can be made by yourself or your family.

However, special technical training is required for some adjustments and only your distributor can undertake these.

Note

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The wheelchair user

As a wheelchair manufacturer, INVACARE makes every effort to supply a wide range of wheelchairs to meet the many different user requirements. However, the final decision on the type of model to choose rests with users and qualified health advisers.

Proper use

The proper use of the wheelchair is dependent upon medical advice, in accordance with the clinical profile of the user's illness or disability.

The wheelchair is designed for use indoors and for outdoor use. Please observe the requirements of the relevant road traffic licensing legislation.

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1 - Safety and operating limits

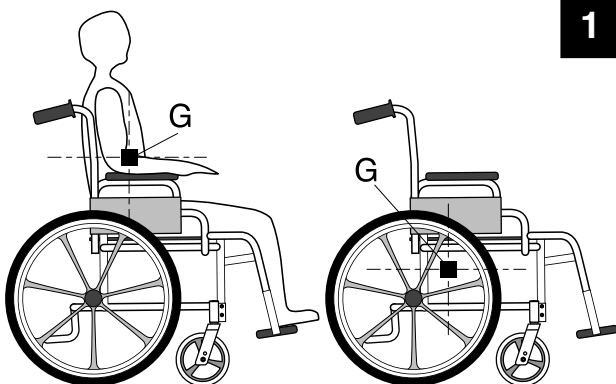
Stability and equilibrium

To ensure that the wheelchair remains stable and is manipulated correctly, you must always maintain good equilibrium. Your wheelchair has been designed to remain stable for normal everyday use.

Nearly everything you do from the wheelchair will have an effect on the centre of gravity. We recommend using straps for increased safety when you are moving about and shifting your weight.

Weight distribution (Figure 1)

Many actions will cause you to reach out, lean over or move about within the wheelchair and outside it.



These actions will change the normal equilibrium, centre of gravity and weight distribution of the wheelchair.

Weight limit

The recommended weight limit is 120 kg. However, your degree of activity is important.

For example, an active person weighing 77 kg may subject the wheelchair to more stress than a person weighing 100 kg. We recommend that a very active wheelchair person must select an appropriate design of wheelchair.

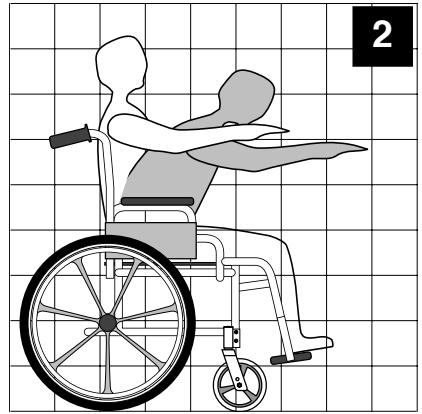
Your distributor will advise you on the best model.

1.1 - Reaching for an object from a wheelchair (Figure 2)

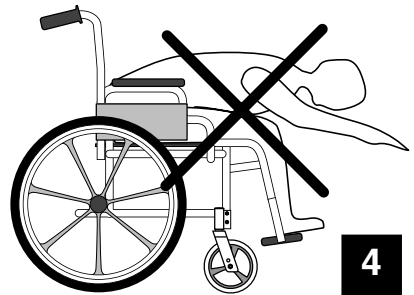
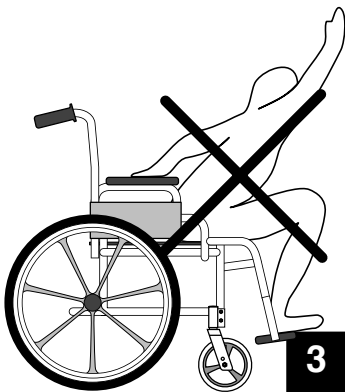
The limitations on reaching out from a wheelchair shown on the following diagrams have been produced using a representative sample of wheelchair users: 91 men and 36 women.

Note the difference between maximum stretch and reaching out in normal sitting position.

Only the arms should extend beyond the seat of the wheelchair.



For safety reasons, the body and head should remain within the boundaries of the seat. (Figures 3 and 4)



Leaning forwards

Position the swivelling castors as far forward as possible (**Figure 5**) and lock the manual brakes.

Do not lean out beyond the armrest.
(**Figure 6**)

To support yourself and lean over

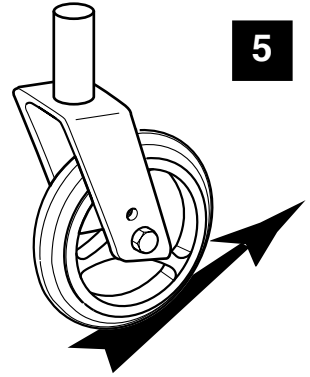
To reach towards an object, you support yourself and lean over, it is important to use the swivelling castors as a tool for maintaining stability and equilibrium. A correct alignment is essential for your safety.

To lean backwards

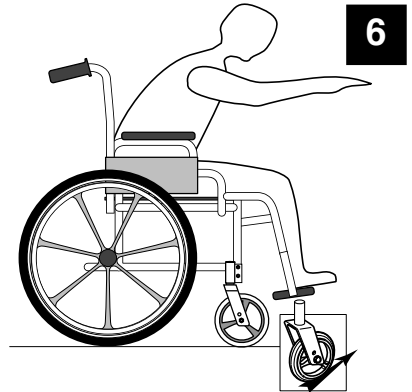
(**Figures 7 and 8**)

Move the wheelchair as close as possible to object you wish to reach.

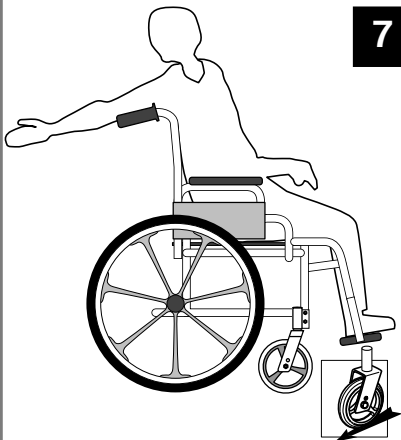
Do not lean back for objects that are beyond arm's length in a normal sitting position.



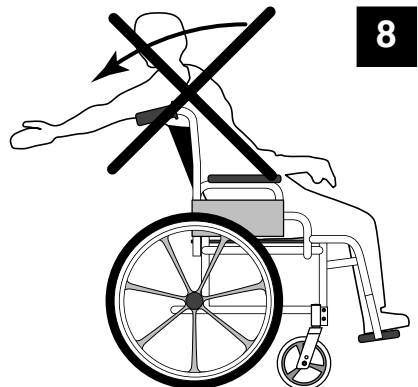
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1.2 - Transferring sideways to other seats

(Figure 9)

- This may be done without assistance provided that you are sufficiently mobile and have a strong enough torso.

- Position the wheelchair as close as possible to the seat to which you wish to move with the swivelling castors pointing towards it. Lock the wheels. Move the weight of your body towards the seat.

- While moving between the chair and the seat you will have little or no support under your body. Whenever possible, use a plank when changing seat.



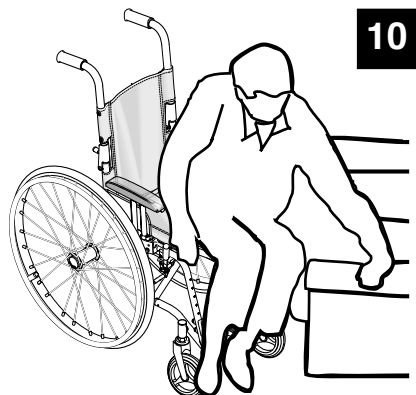
WARNING

BEFORE trying to move, whether to return to the wheelchair or to get out of it, make sure that the gap between the two seats is as small as possible. Also be sure that the manual brakes on the large wheels are on to prevent the wheels moving and turn the two swivelling castors towards the seat to which you wish to move.

WARNING

When you are in the process of transferring between seats, make sure you are as far back as possible in the seat. This will prevent you from breaking the screws, damaging the seat upholstery or tipping the wheelchair forwards.

If you are more or less able to stand up and if the upper part of your body is sufficiently strong and mobile, you can transfer forwards, especially if your wheelchair has fixed sides or armrests (**Figure 10**). Flip up the footplate and push the foot/leg rest to the side to clear the passage. Position yourself as close as possible to the place you wish to move to.



LOCK BOTH BRAKES

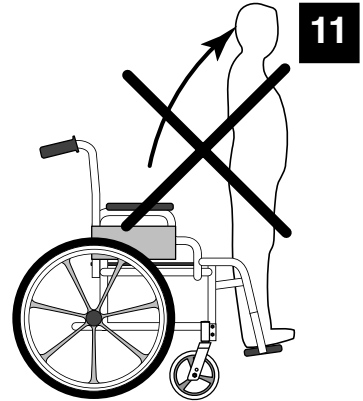
Lean your body forwards while holding the two armrests and lifting yourself to standing position. Then move to the place where you wish to sit, taking your weight on your arms and hands.

(Figure 10)

WARNING

Never stand up on the foot rests when you are getting in or out of the wheelchair.

(Figure 11)



1.3 - Tilting (balancing on the rear wheels)

Do not tilt the wheelchair without assistance unless you have mastered the technique of balancing on the rear wheels.

NOTE FOR THIRD PERSON

If a wheelchair user needs assistance, use your body correctly. Keep your back straight and bend at the knee to tip the wheelchair, mount pavements, negotiate stairs or any other obstacles.

Also take care of moving parts such as the armrests or legrests. These must **NEVER** be used as aids when lifting as they may inadvertently become detached and hurt yourself and/or your helpers.

When you are learning a new method of assistance, ask an experienced helper to advise you before putting it into practice on your own.

To tilt the wheelchair, a third person should grip the handles firmly, ensuring that the handles are properly fixed. Warn the occupant of the wheelchair before tilting it and remind him/her to lean backwards. Check that the occupant's feet and hands are clear of all the wheels. Place a foot on the foot step tube and move continuously until the wheelchair is at the point of equilibrium. At this stage, the helper will feel a difference in weight distribution which usually occurs at an angle of about 30°. Turn the wheelchair in the direction required, if necessary.

LOWER the front, holding the handles to lower the wheelchair slowly and continuously. Do not lower the wheelchair suddenly for the last few centimetres from the ground. This might hurt the occupant.

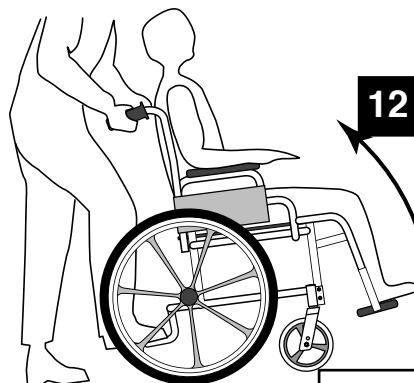
1.4 - Tilting, kerbs

METHOD 1 - (Figure 12)

The helper should tilt the wheelchair until the swivelling castors have passed over the kerb.

Move the wheelchair forwards and lower the swivelling castors onto the pavement.

Push the wheelchair until the rear wheels mount and pass the kerb.

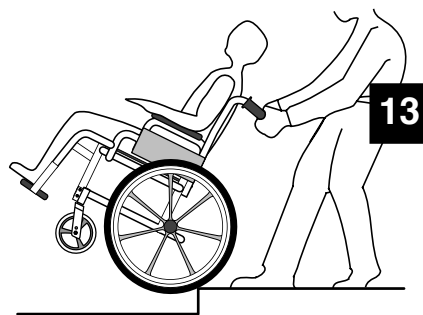


METHOD 2 - (Figure 13)

The helper should stand on the pavement and turn the wheelchair until the rear wheels are against the kerb.

Tilt the wheelchair backwards to the point of equilibrium and, in a continuous movement, pull the wheelchair until the rear wheels mount the pavement and pass the kerb.

Do not lower the swivelling castors to the ground until you have pulled the backrest of the wheelchair sufficiently far to clear the kerb.

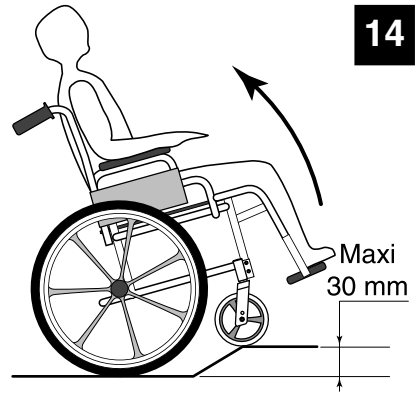


When you have mastered the techniques of tilting the wheelchair, use these methods (Figures 12 and 13) to negotiate kerbs, small flights of stairs, etc.

METHOD 3 - (Figure 14)

Kerbs, steps, platforms.

As a general rule, if you are using the wheelchair without assistance, do not try to negotiate obstacles more than 30 mm high, unless your wheelchair is fitted with anti-tip wheels which minimise the risk of tipping up backwards.



1.5 - Stairs

We recommend that you take very great care when taking a wheelchair up or down stairs. Two people are required for this.

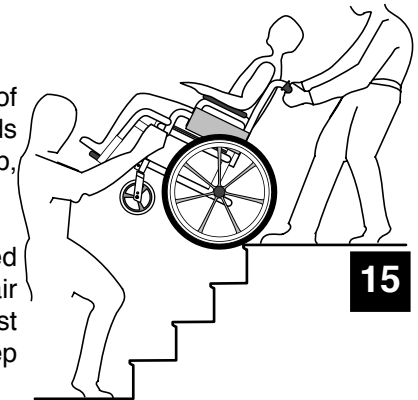
Advice to third persons

Make sure that you get hold of fixed, non-removable parts only. Use the following procedure for going up stairs

(Figure 15)

1. Tilt the wheelchair to its point of equilibrium. One helper (at the back) holds the wheelchair up against the first step, gripping the handles firmly to lift.

2. The second helper, holding firmly a fixed part of the front frame, lifts the wheelchair above the stairs and holds it while the first helper places one foot on the following step and repeats the operation.



3. The wheelchair must not be lowered until the last step has been negotiated and until the chair is clear of the stairs.

WARNING

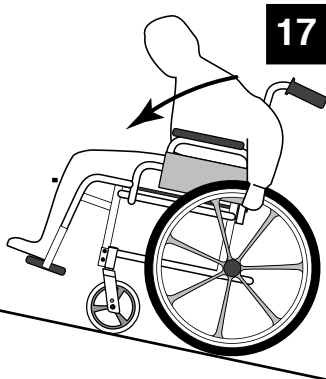
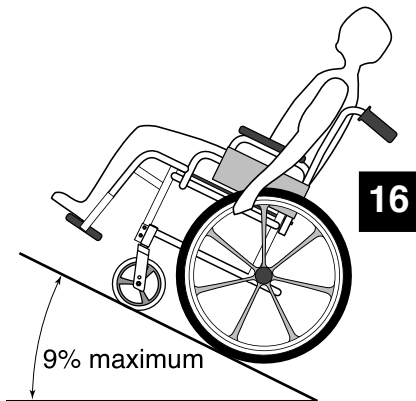
Escalators

Do not use an escalator to move a wheelchair from one floor to another. This may lead to serious injury.

1.6 - Slopes (operating limits)

Slopes

Do not attempt to go up or down slopes greater than 9%. Beyond this limit the wheelchair might fall over if you turn or move sideways. (**Figure 16**)

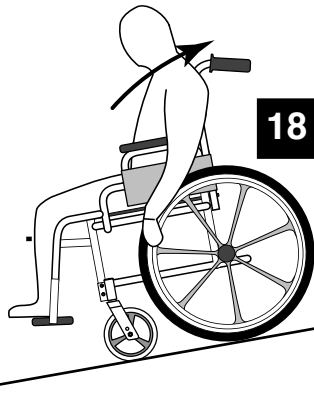


Upward slopes

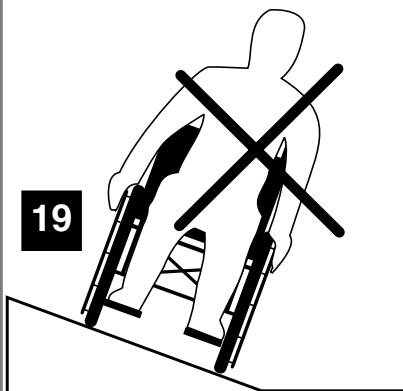
Lean the upper part of the body forward and push the chair forward with short quick thrusts on the handrims to maintain speed and control direction. If you wish to take a rest, apply both brakes when stopping. (**Figure 17**)

Downward slopes

Lean backwards carefully and allow the handrims to slide through your hands. Be ready to react at any moment to check the speed and direction. (**Figure 18**)



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If you are going up or down a slope avoid turning sharply and **never try to go up or down diagonally.** (**Figure 19**)

2 - Use your wheelchair

2.1 - Folding and unfolding the wheelchair

To unfold :
(**Figure 20**)

1. Unfold the wheelchair by taking hold of the armrest or the side of the chair nearest to you, tip the chair sideways (lifting the rear wheel and the swivelling castor from the ground) and press on the tube supporting the seat upholstery until it is fully down. The seat upholstery should be stretched.

2. Put on the two manual brakes. Open the foot/leg rest, check the ground clearance and sit down in the chair.

To fold :
(**Figure 21**)

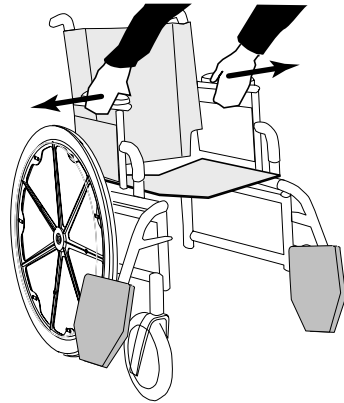
1. Fold and lock the foot/leg rest towards the front of the chair.

2. Swivel the plates into a vertical position.

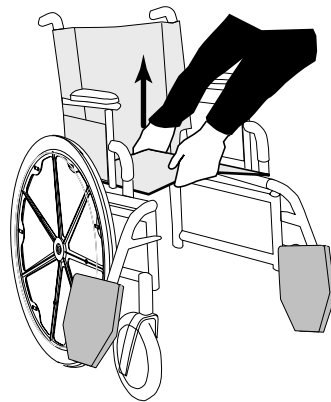
3. Using both hands, take the centre of the seat fabric at the front and back edges and raise it. Or, tilt the wheelchair to one side and close it using the handles on the back rest. (**Figure 22**)

WARNING

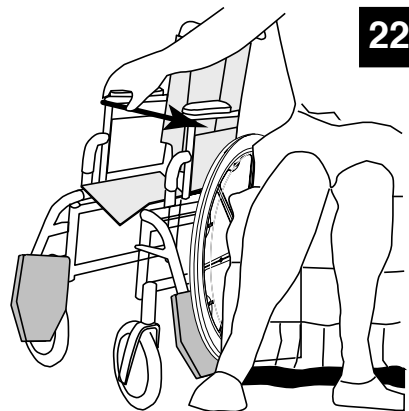
To avoid injury, keep hands and fingers away from moving parts (armrests, cross folding mechanism, foot rest supports or leg rests, etc . . .)



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2.2 - Propelling the wheelchair

The wheels of your wheelchair are fitted with handrims.

These should be adjusted so that you can get a good grip with your hands.

Various accessories may be fitted to improve the grip (plastic covers, studs, etc . . .)

The qualified medical or paramedical personnel will be able to advise you on the most appropriate way of propelling yourself.

Do not put any part of your body in the spaces when the chair is in motion

3 - Safety checks and maintenance

3.1 - Checking performance

As a user, you are the first to notice that your wheelchair is not operating properly. The following table shows some readily identified symptoms and gives the preliminary checks to be carried out.

| wheelchair drags to the right | wheelchair drags to the left | wheelchair turns or moves slowly | Castors wobble | Creaks and clicking | Play in the chair | Checks |
|-------------------------------|------------------------------|----------------------------------|----------------|---------------------|-------------------|---|
| ● | ● | ● | | | | Check that the pneumatic pressure is correct and even |
| | | ● | ● | ● | ● | Check that the bolts are tight |
| ● | ● | ● | | | | Check that the angle of the front forks is correct |
| ● | ● | | ● | | | Check that the castors are both in contact with ground at the same time |

● If the symptoms persist when the pneumatic pressure has been corrected and the nuts and screws have been tightened, consult your distributor.

The inner tubes of the wheels are the only components which should be repaired by the user. See page 24.

For maintenance of the wheelchair, please contact your dealer.

3.2 - Checking the general condition

For maintenance operations, consult your distributor who has all the necessary information.

Once a year, have your wheelchair checked by your distributor for a thorough inspection and maintenance. Regular maintenance allows defective or worn parts to be identified and improves the normal operation of your wheelchair.

Checks to be made



| | On delivery | Weekly inspection/adjustment | Monthly inspection/adjustment | Regular inspection/adjustment |
|---|-------------|------------------------------|-------------------------------|-------------------------------|
| 1. General | | | | |
| the wheelchair unfolds and folds easily | ● | | | ● |
| the wheelchair moves in a straight line (no resistance or drag) | ● | ● | | |
| 2. Manual brakes | | | | |
| the manual brakes do not touch the tyres when moving | ● | | ● | |
| the manual brakes are easy to operate | ● | | | ● |
| the joints are not worn and do not show signs of play | ● | | ● | |
| 3. Cross bars | | | | |
| examine them to check that they are not worn or bent | ● | | | ● |
| 4. Clothing protectors / armrest upholstery | | | | |
| check that all fixings are in position and tightened | ● | | | ● |
| 5. Armrests | | | | |
| firmly attached but easy to remove | ● | | | ● |
| 6. Arm supports | | | | |
| check that the padding is in good condition | ● | | | ● |
| 7. Seat and backrest upholstery | | | | |
| check that it is in good condition | ● | | | |
| 8. 22" and 24" wheels | | | | |
| wheel nut and sealed bearings correctly tightened | ● | | ● | ● |
| no excessive lateral movement or binding when they are lifted from the ground and turned, quick release axles correctly locked | ● | | ● | |
| 9. Handrimms | | | | |
| check for rough patches | ● | | | ● |
| 10. Spokes | | | | |
| inspect the spokes in case any are bent, broken or slack | ● | ● | | |
| 11. 6" or 8" castors | | | | |
| check the axle to ensure that it is correctly tightened, by turning the castor the castor should stop gradually | ● | ● | | |
| 12. Fork / Steering tube | | | | |
| check that all the fittings are in place | ● | ● | | |
| 13. Pneumatic and solid tyres | | | | |
| if the wheelchair has pneumatic tyres, check that they are correctly inflated (the pressure is shown on the sidewall), if the wheelchair has solid tyres, check the running surface | ● | ● | | |
| 14. Cleaning | | | | |
| Clean all parts | ● | | | |
| Clean the seat and backrest upholstery with soapy water | ● | | | |

Clean all parts without using any cleaning product. Upholstery should be washed or wiped clean using soap and water only. No other product is recommended for the maintenance of upholstery.

4 - Transport

Transport of wheelchairs in vehicles

The Invacare® Variance Plus (MB2) has been tested for safety in collisions according to ISO-7176-19:2001, Invacare® Variance Plus (MB2) can be used for transport in vehicles that have been specially adapted for this purpose. The wheelchair must be securely fastened in the vehicle according to the methods described on the following pages.

Remember that the best solution is always to move the user from the wheelchair into a normal car seat.

4.1. Test report from dynamic safety restraint test

(ISO-7176-19)

Test no : 11KM02 (fixed, folding backrests, Self propelled)
11KM03 (fixed, folding backrests, Transit)

Customer : Invacare UK Ltd, Date : 2000-03-08

Testing to be carried out

Pulse specification : ISO-7176-19

Wheelchair Manufacturer : Invacare France Opérations SAS

Models : Variance Plus (MB2) Self propelled & Transit

Weight : 20.8 kg (Self propelled) 17,3 kg (Transit)

Configuration : Forward facing

Safety restraint device Manufacturer : Koller Engineering Ltd

Model : 4 Pt Karabiner, buckle

User safety belt : Koller Engineering Ltd

Model : 3 Pt Constant force

Test dummy : Hybrid II

Weight : 75 kg

Test configuration :

Chassis : Height 46 cm

Backrest : Fixed

Seat : sling type

Armrest : Height adjustable

Legrest : Swing in/swing out

Rear wheel : 24" pneumatic (Self propelled) 12" (Transit)

Castor : 8" x 1/4" solid

Accessories : Heel strap

Tested : 2000-03-08

The safety restraint devices used in this test must be approved according to ISO-10542. We have chosen to work with Unwin, a well-known quality manufacturer of safety restraint devices for wheelchairs.

4.2. Observations before transport of wheelchairs in vehicles

- We recommend that wheelchair users should transfer to the seat of the vehicle and use the installed restraint system of the vehicle whenever feasible.
- The wheelchairs are tested in a basic configuration. The use in other configurations has not been tested. See user manual, section «Test report from dynamic safety restraint test», for test configuration.
- Auxiliary wheelchair equipment is either secured to the wheelchair or removed from the wheelchair and secured in the vehicle during transit. (i.e. table trays).
- Alterations or substitutions are not to be made to points of the wheelchair or to structural and frame parts without the written consent of Invacare®.
- A wheelchair-anchored posture belt must be fitted across the wheelchair occupant in addition to the lap and diagonal and restraint (3-point belt).
- Belt restraints are not to be held away from the body by wheelchair components or parts such as armrests, postural restraints, wheels, etc. (Picture 23)
- The wheelchair must be securely fastened in the vehicle with an ISO 10542-2 approved 4-point belt system, according to the methods described in the manual.
- The occupied wheelchair must be tied down in an forward-facing configuration, with the parking brake applied.
- The test dummy weight is 75 kg, according to ISO 7176-19, although the chairs are approved for users up to 120 kg.
- The wheelchair backrest should be positioned as close as possible to 90 degrees.
- If possible, a headrest should be used during transit, in order to reduce the risk of neck injury. The headrest should be placed as high as possible.

Please observe that even if these products and recommendations are provided in order to increase security and safety.

Correct and incorrect placements of safety belt (picture 24).

4.3. Restraint systems (picture 25)

* Non contractual picture, only for information !

Please refer to best practice recommended instructions from the safety belt manufacturer.

A. Front restraints with straps

1. Connect the front straps around the frontal part of the frame.
2. Release brakes and tension front straps by pulling the wheelchair backwards from the rear.
3. Re-apply wheelchair brakes.

B. Rear restraints

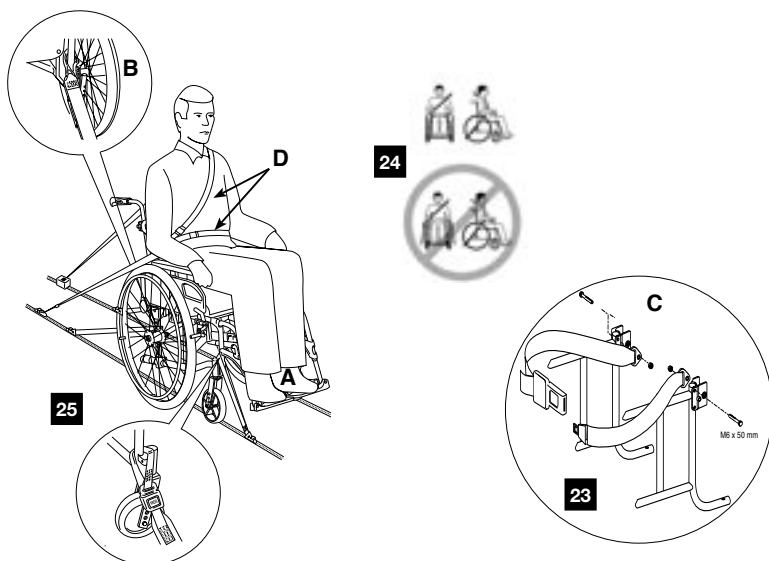
1. Attach the snap hooks on the rear straps to the frame just above the rear wheel attachments.
2. Tighten the straps.

C. Lap belt

1. The lap belt is mounted on the back frame (picture 23).
 2. Check that the lap belt on the wheelchair is correctly fastened.
- If lap belt on the wheelchair is missing we recommend that the user should transfer to the seat of the vehicle, if possible.

D. Fastening of car safety belt

The car safety belt should not be kept from the user's body by the parts of the wheel chair.



5 - Warranty terms and conditions standard Invacare terms

This is to certify that your manual wheelchair is warranted by Invacare Ltd., for a period of 2 years for the frame and crossbars all other parts subject to the following conditions :

1. Only chairs purchased at full price are warranted against defective workmanship and materials.
2. If a defect or fault is discovered the supplier / dealer from whom the appliance was purchased should be notified immediately.
3. The manufacturer will not accept responsibility for damage caused by misuse or non-observance of the instructions set out in the users manual.
4. During the period of warranty, any parts that have become defective due to faulty workmanship or materials, will be renewed or repaired without charge by the Invacare dealer / supplier.
5. The Warranty will be forfeited should any unauthorised alteration be made to the equipment.
6. The Purchaser's statutory rights under the Consumer Protection Act are not affected.

Limitation of liability

This warranty does not extend to the consequential costs resulting from fault clearance, in particular freight and travel costs, loss of earnings, expenses, etc.

Invacare shall not be liable for :

- natural wear and tear
- inappropriate or incorrect use
- defective assembly or setting-up by the purchaser or third parties
- defective or neglectful treatment
- use of unsuitable spares

6 - Summary of instructions for use for improved safety

- User weight limit : 120 kg.
- Do not try to reach objects if you have to move forward on the seat
- Do not try to reach objects on the ground if you have to lean down between your knees
- Do not lean too far back to reach objects behind you : you may tip over.
- Do not move your weight, or your sitting position in the direction in which you wish to go: you may tip over.
- Always apply both manual brakes.

Before trying to move an object towards the wheelchair or away from it.

- The manual brakes are not designed for slowing you down.
- Do not try to stop a moving wheelchair using the manual brakes.
- Do not tilt the wheelchair without assistance from a third person (stairs, pavements)
- Do not use an escalator for moving a wheelchair from one floor to another. (This may cause serious injury.)
- Do not use your wheelchair if the tyres are not inflated to the correct pressure shown on the side.
- Do not over-inflate the tyres. Failure to comply with these instructions may cause the tyre to burst and cause bodily injury.
- Carry out the recommended regular checks.
- Use your wheelchair with respect for other people
- Do not use your wheelchair as a transport seat in a vehicle.

7 - Introduction

Your wheelchair is part of an extensive product range.

Each wheelchair is specifically adapted to your requirements, this handbook will explain all the possible adjustments for this product range.

7.1 General description

Your wheelchair comprises of several main items whose names will be used throughout this handbook.

Please familiarise yourself with the following terms in order to understand your wheelchair better.

- Seat elements comprises of the backrest, the seat and the armrests.

These items are designed to provide you with a maximum of comfort.

- Folding frame comprises of sides and the folding system.

All items are mounted on the frame, which is a carefully designed support element.

- Rear wheel comprises of the wheel, axle and handrim.

The rear wheels ensure rear contact with the ground and enable the wheelchair to be propelled using the handrim.

- Front wheel comprises of the castor and fork : the front wheels ensure contact with the ground, while the rotating forks determine the direction.

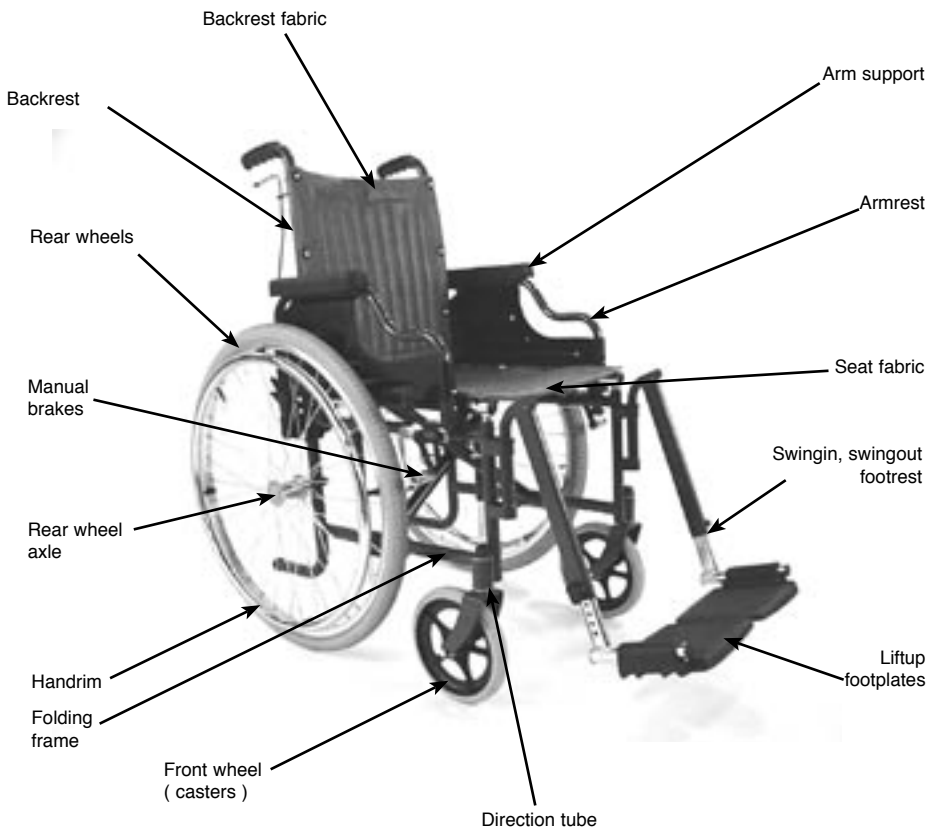
- Manual brake : The purpose of the brakes is to retain the wheelchair during long stops.

- Swingaway hanger-bracket and leg-rest : As the link between the frame and the footrest, these items enable transfers when swung-away.

- Footrest comprises of the adjustable tube and the foot-plate. These items support your feet.

- Heel-support strap or calf-support strap. These 2 items keep your feet or legs in an ideal position.

For better understanding, these terms are illustrated in the picture overleaf on the following page..



8 Adjustments

8.1 Seat elements

8.1.1 Different types of backrests

Fixed-height backrest : 40 or 51 cm (Photo 1)

- Comprises of two tubes with handles and backrest upholstery which cannot be adjusted.

- No adjustment on this backrest.

Warning : Check screw fittings as loose screws can rip clothes.



Backrest folding at mid-height (Photos 2 and 3)

- Comprises of two tubes with handles either straight or bent at 10° and upholstery in which tension cannot be adjusted. Folding enables one to reduce the height of the backrest for easier transport. This folding operation can be carried out by the wheelchair user.

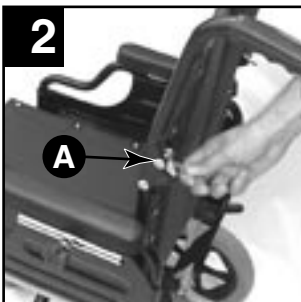
- Use : In order to fold the backrest, pull both lever A and fold down the backrest using the handles. To put the backrest back in use-position, reverse the operation, checking carefully that lever A are in place and that there is no play in the backrest.

Warning :

- Do not place your fingers between the joint of the folding backrest.

- Check that the backrest is fixed correctly before leaning back or pushing the wheelchair.

- It is not recommended that you lean on the backrest when the backrest is folded



Reclining backrest (Photo 4)

A ratchet angle adjustable from 0° to 90° backrest

- Adjustment : To adjust the angle of the backrest lift up the recliner handles, adjust the backrest to the required angle, then, release the recliner handles assuring that the system is securely fixed and that both backrest posts are at the same angle.



Warning :

- We recommend that you use anti tippers or the amputee rear wheel position to increase the stability of the chair.

- Check carefully that the backrest is fixed correctly before leaning back or pushing the chair.

- Do not put your hands near the ratchet system when adjusting the backrest.

- We recommend that you should always keep your hands on the armrests when the backrest angle is being adjusted.

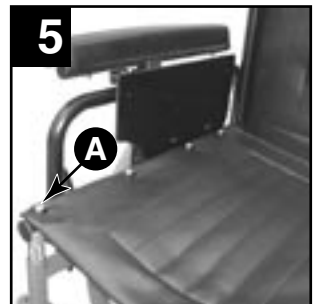
8.1.2 Different types of seat

Standard seat (Photo 5)

- Your wheelchair is equipped with a standard seat with vinyl or nylon upholstery.

- No adjustment on this seat.

Check that fixation screw A is located correctly, preventing the user to be injured.



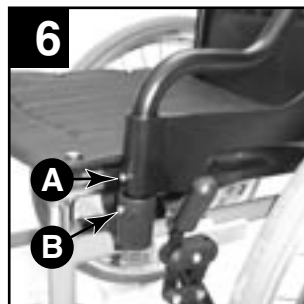
8.1.3 Different types of armrests

All armrests can be removed from the frame and may be folded back. (photos 6 and 7)

- Use : push the pin-spring A and raise the armrest and rotate rearwards. In order to put it back in position on the wheelchair, put the tube in the front frame support.

The pin B should be in the 'out' position.

To remove armrest, push the pin A and raise the armrest slightly, then push the pin C and remove the armrest from frame support D.



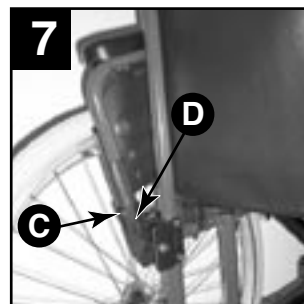
To replace the armrest on the wheelchair, introduce the rear entry cone of armrest first in the rear frame support and put the front tube in the front frame support.

Pins B and C should be in the 'out' position., checking carefully that pins are in place and that there is no play.

Swingaway desk, removable armrest

- The desk armrest is comprised of tube with a bend on the front supporting front locking and short armpad.

- No adjustment on this armrest.



Warning : Do not lift up the chair by the armrests. Be careful not to pinch your fingers when removing, replacing, swinging away or adjusting any armrest.

Swingaway full length, removable armrest

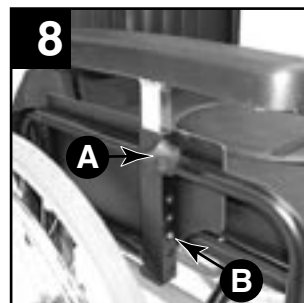
- The full length armrest is comprised of tube supporting front locking and long armpad.

- No adjustment on this armrest.

Swingaway, adjustable height, removable armrests (Photo 8)

- Adjustable height armrests are comprised of tube supporting front locking, adjustment system of the armpad.

- Adjustment : loosen knob A and press pin-spring B, adjust the selected height and retighten knob. Knob A can be replaced with screw (supplied) for users who do not change the arm-support height often.



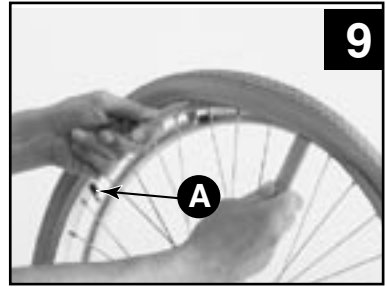
8.2 Folding frame

8.2.1 Side-frames

Side-frames structures have hole for fixed rear and front wheels.
No adjustment on side-frames.

8.2.2 Folding system

Folding system comprises of two cross-bars and allows the wheelchair to be folded into the closed position. In order to fold or unfold your wheelchair, refer to page 11.
No adjustment on the folding system.



8.3 Rear wheels

8.3.1 Wheels

- The rear wheels with a diameter of 24" x 1.3 /8" (600 mm x 32 mm) or 22" x 1.3/8" (550 mm x 32 mm) can be fitted with pneumatic or solid tyre. For the 24" spoked wheels, a protector can be fitted over the spokes in order to protect one's finger.

- Adjustment :

Only the pneumatic tyre may require pressure verification. The pressure is shown on the sidewall of the tyre and the tyre must never be over inflated. Remember that in order to preserve the interchangeability of wheels on wheelchairs fitted with quick release wheels, both tyres must be inflated to the same pressure.

Whenever a tyre is flat, it may be necessary to remove the tyre from its rim. (photo 9)

Force the air out the the inner tube by pressing valve A. Stretch the outer case on the rim. Repair or replace the inner tube. Put the inner tube back in place. Reposition the outer case on the rim. Re-inflate the tyre to specified pressure.

Note : It may be necessary to use one or two tyre-levers (Not supplied).

8.3.2 Handrims

- The handrims are used for propelling the wheelchairs. The handrims are anodised aluminium.

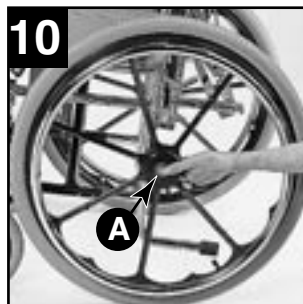
Note : As the handrims are in contact with your hands, make sure that they are not damaged.

There is a handrim capstan set for persons who have difficulty gripping. Its fastening and positioning must be carried out by your distributor in accordance with the qualified health advisor.

8.3.3 Axles

- The axles link the rear wheels to the frames. They are either fixed or the quick release type.

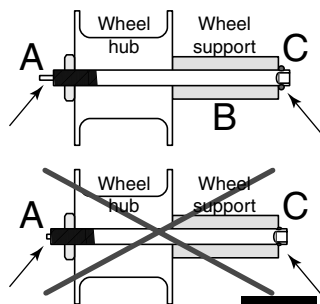
- Use : (Photo 10). Push in pin A of the quick release axle and insert the axle in the centre of the rear wheel hub. Take the wheel fitted with its axle and insert it in the hole B of side-frame until the unit is blocked. Ball-checks must extend beyond the bearing. There must be no substantial play.



- Adjustment (Photo 11).: Take the quick release axle off and adjust the nut-screw in order to reduce play to a minimum.

IMPORTANT NOTE : Check that the pin of axle and ball-checks are completely disengaged before using the wheelchair.

It is **ABSOLUTELY ESSENTIAL** that the ball-checks protrude at the end of the rear wheel axle bearing, in order for them to be properly blocked. Check the cleanliness of the ball-checks.



Warning :

Never remove any wheel while the user is in the wheelchair.

8.4 Forks and Front wheels

- The front castors either have a diameter of 8" x 1.3/8" (200 mm x 32 mm) or 8 " x 2" (200 mm x 50 mm) or 6" x 1.3/8" (150 mm x 32 mm) can be fitted with pneumatic or solid tyres.

- Adjustment : Only the pneumatic tyre may require pressure verification.

The pressure is shown on the sidewall and the tyre must never be over inflated.

A pump is supplied with the wheelchair.

Whenever a tyre is flat, it may be necessary to remove the tyre from its rim (photo 12).



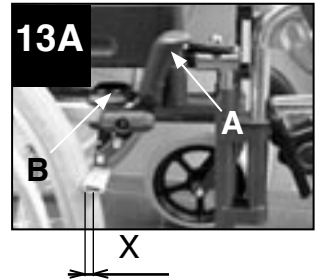
Force the air out the the inner tube by pressing valve A.
Stretch the outer case on the rim. Repair or replace the inner tube. Put the inner tube back in place. Reposition the outer case on the rim. Re-inflate the tyre to specified pressure.

Note : It may be necessary to use one or two tyre-levers (Not supplied).

8.5 Manual brakes (Photos 13A and 13B)

The manual brakes are designed to secure the wheelchair during long stops. They are not intended to slow down the wheelchair or to be used as support during a transfer.

They must be operated simultaneously.
In order to brake, push the handle (A) forward.
The handle folds back to facilitate transfers.
Draw as a preliminary the handle upwards ! (13A)



Once the brakes are engaged, the wheelchair should not move at all.

Note : brakes adjustments are based upon the diameter and type of the wheels. After repairing a flat tyre or in the event of wear of the pneumatic or solid tyre, you may need to adjust the brake(s). To adjust the brake(s), loosen the two screws (B) and slide the brake assembly to obtain the following value between the wheel and the brake shoe in unlocked position :

Solid tyre X = 6 mm, Pneumatic tyre X = 5 mm



Firmly tighten the screws (B) after adjustment.
Keep your fingers away from movable parts to prevent injuries !



8.6 Footrests

(Photos 14 and 15)

- Use : The footrests have the possibility to be swung to the exterior and to the interior of the chair.

To take off the footrests, you simply pull them upwards. To replace the footrests gently place the tube A into the support B and align the footrests with the frame so that they lock into place.



Warning :

- Do not lift the chair by any of the range of footrest/legrest/amputee supports.

- Check that the footrests are fixed correctly before placing your feet on the footplates.

8.7 Legrests

(Photos 16 and 17)

The legrests are footrests that can be angle adjusted and also incorporate an adjustable cushion to support the leg.

- Use : To remove, replace and turn the legrests follow the instructions for the footrests.

- Adjustment :

To adjust the angle of the legrests, loosen the handle A and lift or lower the legrest tube until you have the correct angle and retighten the handle.

To adjust the height of the cushion D loosen the knob C, slide the cushion into the wanted position and retighten the knob C.

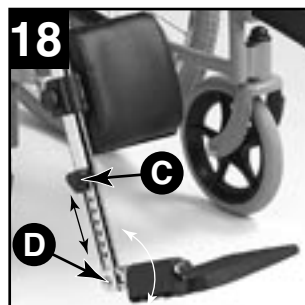
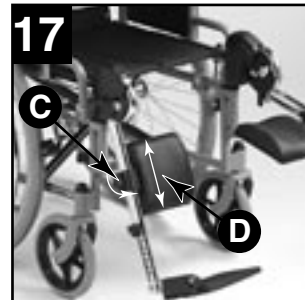
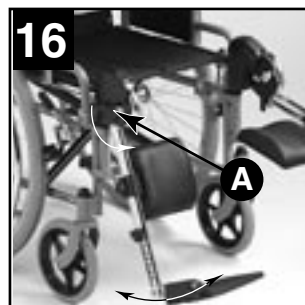
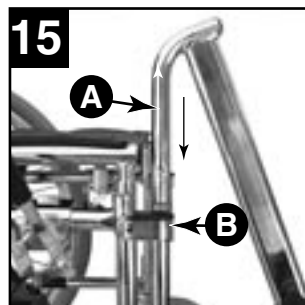
8.8 Footplates (Photo 18)

Footplates consist of a support tube and a footplate to be used only to support the foot of the user when seated in the wheelchair.

There are 2 types of footplates, fixed or adjustable, for both the footplates can be lifted / swung up to help the ease of a frontal transfert.

- Height adjustment : Loosen the knob C, slide the footplate up or down until you have the correct height, retighten knob C making shure that knob enters correctly one of the holes found in the support tube.

- Angle adjustment : Loosen the knob D, turn the footplate until you have the correct angle, retighten knob D, making sure that the system is firmly fixed.



8.9 Heel straps and calf straps

(Photos 19 and 20)

To position your feet and legs correctly you have the option of heel straps, which are situated on the footplates or calf straps which are situated on the footrest hangers.

To remove the calf strap : Close the wheelchair by lifting the seat up, take off both of the footrests and slide the strap up and over the top of the footrest. To replace the calf strap take off the footrests and slide the calf strap back on.

Warning : Be careful not to scratch your foot on the bolt that attaches the heelstrap.

8.10 Transit version (Photo 21)

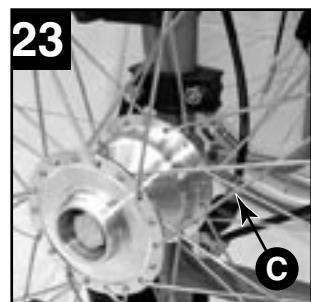
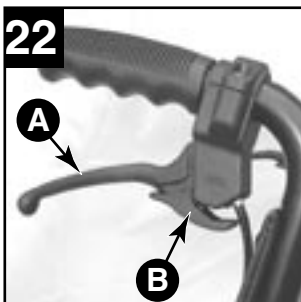
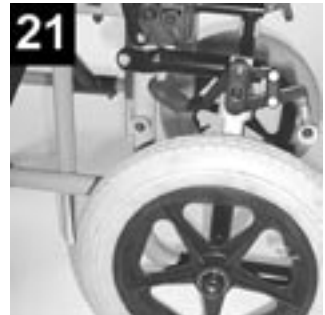
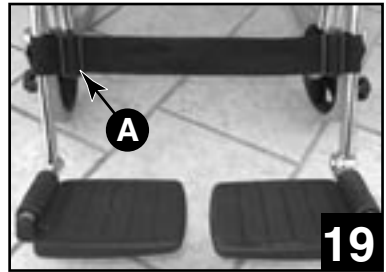
The Transit version kit consist of an extension to the wheelchair frame and a pair of 12" pneumatic or solid tyres. The kit should be added to the chair by a certified technician.

The Transit version is not a self propelled wheelchair and can only be pushed by an attendant.

8.11 Hub brakes on self propulsion and Transit chairs (photos 22 and 23)

Attendant control

- Use : The hub brakes can be used to slow down the chair by using the handle A and can be locked by using the ratchet B.
- Adjustment : Turn screw C to increase or decrease the braking force.

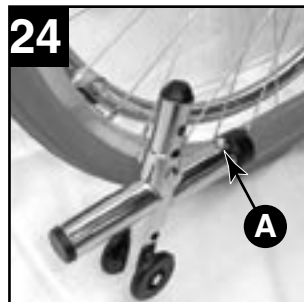


8.12 Rear anti tippers (Photo 24)

The anti-tip castors are intended to keep you from tipping backwards.

Tipping may result from an inappropriate position of the rear wheels, faulty operation of the wheelchair by the user or a third party.

- Use : Anti-tip castors are fixed into the back down tube of frame.



Anti tippers can be removed. Press the pin-spring A and slide the anti tipper out. Reverse the operation in order to put it back in position. The pin should be in the out position in the hole of the frame.

- Adjustment : Adjustment is used to obtain the distance between the ground and the castors. The anti tip castors must be adjusted the same way on both sides. This adjustment must be done by a suitably qualified person.

8.13 Belts

Belt with Hook and Eye (Photo 25)

- Use : Belts position depends on your handicap, and must be determined by the qualified health advisor.

- Adjustment : Put the end back of strap in position on the Hook and Eye Fastener.

Warning : Do not allows the belt to get caught in any of the wheels.

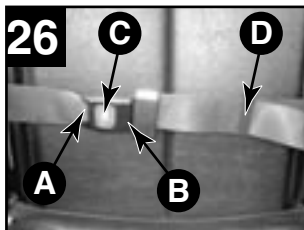


Buckle security belt (Photo 26)

- Use : Belt position depends on your handicap, and must be determined by the qualified health advisor. For locking buckle, put A into B. To open it press C.

- Adjustment : Buckle security belt is adjustable using the strap and part D.

Warning : Do not allows the belt to get caught in any of the wheels.



8.14 Trays

Swing away tray (Photo 27)

The tray can be fixed on the pads of armrest . This should be done by distributor.

- Use : When transferring to or from the wheelchair, an attendant should fold the tray forwards.
- Adjustment : No adjustment on this tray.



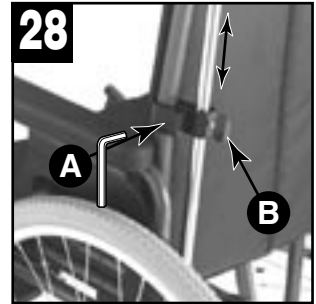
8.15 Drip stand and support (Photo 28)

The drip stand will hold one bag, it should be fitted by your distributor to ensure that it is properly positioned.

- Adjustment :

Support

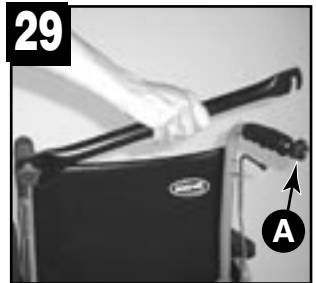
To adjust the height of the support loosen the bolt A using allen key (5 mm) and slide the support up or down the backrest tube. When you have the correct position, retighten bolt A so that the support is firmly fixed.



Drip stand

Adjust the height of the drip stand, loosen knob B, slide the drip stand into the correct position and retighten knob B.

Warning : Check that the support and drip stand are firmly fixed however do not overtighten. Be careful when going through doors or when in areas with overhead obstructions.



8.16 Back Brace

(photo 29 & 30)

The back brace helps you to keep the backrest upholstery tight to offer the maximum back support to the user.

Note : When the back brace is in place the chair cannot be folded.

Use : To detach the back brace, loosen knob A, lift up gently pull it towards you and lower it below the pus

To attach the back brace put it in its original position king that it is firmly fixed.

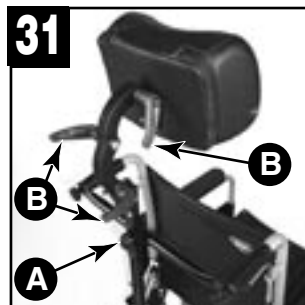


8.17 Comfort headrest

(photo 31)

An adjustable in height and angle headrest which is fixed to the back brace.

To adjust the height of the headrest, loosen the handle A, slide the headrest into the wanted position and retighten handle A, making shure the headrest is firmly fixed.



To adjust the angle or position of the headrest, loosen the handles B move the headrest into the position wanted and retighten the handles.

Warning : We recommend that you - check that the back brace is firmly fixed.

- check all handles are locked tight.
- do not adjust the headrest while someone is using it
- orientate the handles so that cannot hurt the user or the attendant.

8.18 Dual handrims

(photo 32)

This system enables the user to propel the wheelchair using only one arm by the use of 2 handrims on one of the wheels (available on both the right and left handside).

To learn how to use this system, you must consult your dealer.



8.19 One arm lever drive system

(photo 33)

This system enables the user to propel the chair using only one arm by the use of a lever drive (available on both the right and left hanside) which allows the user to move forward, backwards and steer the wheelchair.

To learn how to use this system, you must consult your dealer.



9. Technical data

9.1 Wheelchair data

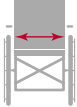
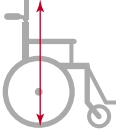
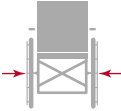

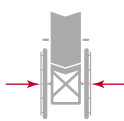

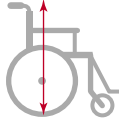

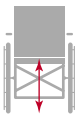

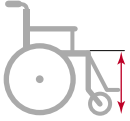

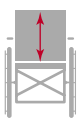

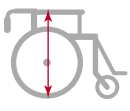
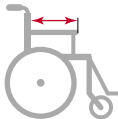
| | |
|-----------------------|--|
| Max. user weight: | 120 kg |
| Seat width : | 38 / 41 / 43 / 46 / 50 cm |
| Seat depth : | 42 cm (fixed/recliner) / 44 cm (folding) |
| Seat height : | 48 cm |
| Rear wheels : | 610 mm (24") pneumatic or 315 mm MCP tyres |
| Front wheels : | 200 mm (8") x 25 mm, solid rubber |
| Parking brake : | Adjustable at tubular rod assembly |
| Seat backrest : | Rigid, folding and adjustable |
| Armrests : | Flat desk-style armrest |
| Leg supports : | Swivelling and removable |
| Upholstery : | Black padded nylon |
| Surface finish : | PE powder-coated or chrome |
| Transit chair-weight: | 16 kg |
| Self-propelled chair: | 18,5 kg |

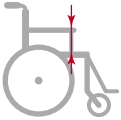
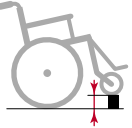
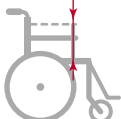
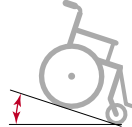

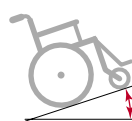
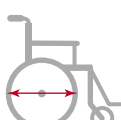
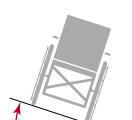
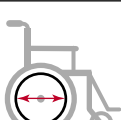

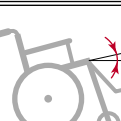

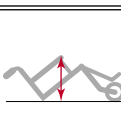

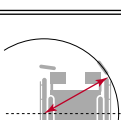
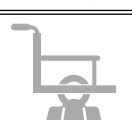
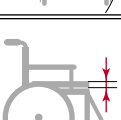
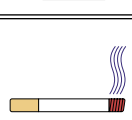
9.2 Maintenance tools

| Description | Tool |
|--------------------|-----------------------------------|
| Brake | size 5 Allen key |
| Footplate | size 5 Allen key |
| Back attachment | 2 x size 10 spanners |
| Armrest adjustment | size 4 Allen key, size 10 spanner |

9.3 Servicing tools

| Description | Tool |
|------------------|--|
| Diagonal stay | 2 x size 13 spanners 2 x size 10 spanners Size 4 Allen key |
| Front-wheel fork | Size 19 spanner |
| Front wheels | 2 x size 13 ring spanners |
| Rear wheels | Size 19 ring spanners, size 19 flat spanner |
| Upholstery | Cross-head screwdriver |
| Padded armrest | Cross-head screwdriver |

| Picture | Description | Min/Max value | Picture | Description | Min/Max value |
|---|--|---------------|---|--|---------------|
|  | Seat effective width (mm) | 400/520 |  | Backrest height including headrest (mm) | 1225/1270 |
|  | Overall width (mm) | 600/720 |  | Overall length (mm) | 1040/1250 |
|  | Width of folded wheelchair (mm) | 300/350 |  | Length without footrest (mm) | 850/890 |
|  | Total height (mm) | 830/1030 |  | Distance between front wheel and rear wheel (mm) | 485 |
|  | Height from ground to back seat (mm) | 475/485 |  | Backrest angle (°) | 8/13 |
|  | Height from ground to front seat (mm) | 505/525 |  | Bracket angle (°) | 75 |
|  | Backrest height (mm) | 430/520 |  | Distance between footrest and seat (mm) | 400/490 |
|  | Wheelchair height when backrest is folded (mm) | 802/842 |  | Distance between armrest and backrest (mm) | 205/360 |

| Picture | Description | Min/Max value | Picture | Description | Min/Max value |
|---|--------------------------------|---------------|---|--|------------------------|
|  | Fixed armrest height (mm) | 200 |  | Maximum obstacle height (mm) | 15 |
|  | Adjustable armrest height (mm) | 190/270 |  | Maximum down slope (°) | 20 |
|  | Notched armrest height (mm) | 100 |  | Maximum up slope (°) | 17 |
|  | Rear wheel diameter (mm) | 565/610 |  | Maximum lateral super elevation (°) | 17,5/20 |
|  | Handrim diameter (mm) | 518 |  | Removable parts | Armrests Hangers |
|  | Seat plane angle (°) | 7 |  | Overall weight when empty (kg) | 19,5 |
|  | Height without rear wheel (mm) | 655/680 |  | User's maximum weight (kg) | 120 |
|  | Gyration circle (mm) | 620/715 |  | Weight of the heaviest removed part (kg) | 14/19,3 |
|  | Cushion depth (mm) | 10/50 |  | Seat material Fire class | EN 1021-1 EN 1021-2 |



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Yes, you can.

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