



# Owner's Operation & Maintenance Manual

## BENTLEY Manual Tilt Wheelchair With Transit Option

**DEALER:** This manual must be given to the user of the wheelchair

**USER:** Before using this wheelchair, read this entire manual and save for future reference

For more information regarding PDG products, parts and service, please visit [www.pdgmobility.com](http://www.pdgmobility.com)

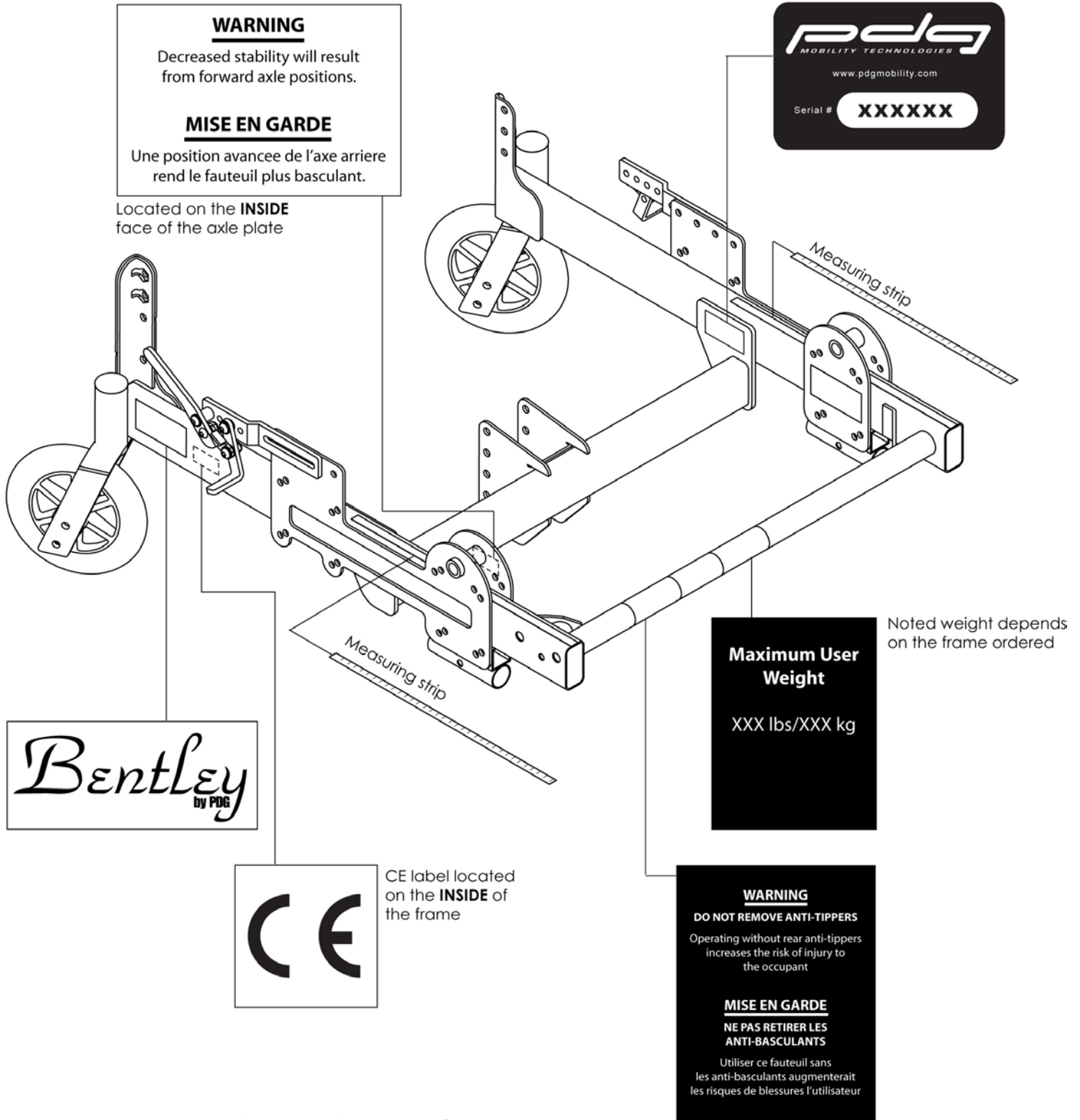


Class 1 Medical Device  
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# Label Locations



## Bentley Wheelchair

## 1.0 Special Notes

### A. Warnings

Warning/Caution notices as used in this manual apply to hazards or unsafe practices, which could result in personal injury or property damage.

1. DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL.
2. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS AND INSTRUCTIONS, CONTACT A HEALTH CARE PROFESSIONAL, DEALER OR A QUALIFIED TECHNICIAN BEFORE ATTEMPTING TO USE THIS EQUIPMENT - OTHERWISE INJURY OR DAMAGE MAY RESULT.
3. ALL WHEELCHAIR SET-UP AND ADJUSTMENTS MUST BE PERFORMED BY A QUALIFIED TECHNICIAN.

### B. Special Notes

1. The information contained in this document is subject to change without notice. As a manufacturer of wheelchairs, PDG endeavors to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her health care professional capable of making such a selection.
2. Tie-down restraints and seat positioning straps. PDG recommends that wheelchair users NOT be transported in vehicles of any kind while in wheelchairs unless equipped with a manufacturer installed transport kit.
3. Restraints - seat & chest positioning straps. It is the obligation of the DME dealer, therapists and other health care professionals to determine if a seat/chest positioning strap is required to ensure the safe operation of this equipment by the user. Serious injury can occur in the event of a fall from a wheelchair.

### C. Unpacking

1. Check for any obvious damage to the carton or its contents. If damage is evident, notify your Dealer/Carrier immediately.
2. Remove all loose packing from the carton.
3. Carefully remove all components from the carton.

Note: Unless the PDG wheelchair is to be assembled immediately, retain cartons and packing materials for use in storing the wheelchair until assembly is required.



1. Removable Armrest
2. Armrest Release lever
3. Gas Strut
4. Plug-in Front Rigging
5. Front Caster
6. Tilt Activator (trigger)
7. Armrest
8. Rear Wheel (12" shown)
9. Rear Wheel Axle

## D. Out of the Box Assembly Instructions

When unpacking a new Bentley wheelchair, you will need to assemble the armrests, backrest, front rigging (if applicable), connect the cable from the strut to the tilt activator (trigger) and insert anti-tip tubes (anti-tip tubes not included if wheelchair has extended frame) to complete the set-up.

1. Installing the Backrest: The seat has two bolts installed along the left and right side of the rear of the seat frame. Remove these bolts on each side and place the backrest subassembly into the back of the seat frame and replace bolts and fasten securely. To attach tilt actuator cable to the back post (trigger) follow instructions in Procedure 8.
2. Installing the front rigging depends on the type of front rigging included with the wheelchair. For plug-in front rigging, push in the button on the side of the upper tube and slide into the frame until the button aligns with the hole on the frame and snaps into place. For the "swing-away" style front rigging, mount the front rigging on top of the already mounted adaptor and lock into place.
3. Install the arm assemblies by simply sliding the arms into the slotted arm receivers on the frame.
4. If anti-tip tubes are not already installed on the chair. Locate them in the box and slide them into the receivers at the back underside of the frame so that the rollers are pointing downwards. These will prevent the wheelchair from overturning if the centre of gravity moves to far rearward. **ANTI-TIP TUBES ARE MANDATORY FOR SAFETY AND WARRANTY PROTECTION.**

**IMPORTANT:** with the user sitting in the chair, check to ensure the wheelchair is stable in all tilted/untitled positions before dispensing the wheelchair.

## E. Inspection

Examine the exterior of the PDG wheelchair for nicks, dents, scratches, or other damages. Inspect all components. If damage is evident, notify your Dealer/Carrier immediately.

## F. Storage

1. Store the repackaged PDG wheelchair in a dry area.
2. DO NOT place other objects on top of the repackaged wheelchair.

## G. Contacting a Qualified Service Agent to Obtain Service

PDG has Qualified Service Agents in many locations. To find your nearest Qualified Service Agent, visit our web site at [www.pdgmobility.com](http://www.pdgmobility.com) and click on CONTACTS. If you are uncertain as to which CONTACT is most appropriate for your need, contact PDG directly by telephone, fax, or e-mail to obtain the necessary information. You will be asked by the Qualified Service Agent for the serial number that is affixed to the wheelchair. This information will allow PDG to serve you better.

In some circumstances, it may be necessary to return your wheelchair to a Qualified Service Agent for repairs. If any of the following conditions are observed, the wheelchair must be serviced by a Qualified Service Agent:

1. Any part of the frame is cracked or broken
2. Any weld is cracked or broken

Always contact your Service Agent prior to sending a wheelchair for repairs. For safe and secure shipping, the wheelchair must be placed in a suitable carton, or fastened to a pallet, to ensure it does not sustain damage during shipping. The Qualified Service Agent will provide specific instructions for packaging and shipping your wheelchair. Alternatively, the Qualified Service Agent may arrange for pick-up.

## **H. Specifications**

Overall Width - seat width + 9.5 to 10.5"

Overall Depth - without front rigging – 28.5" to 31"

Shipping Weight - 65 lbs

Anti-tippers - standard

Footrests - Swing-away footrests - standard  
- Elevating leg rests - optional

Back Angle Adjustment - 90 degrees to 120 degrees

Rear Wheels - 12", 16", 20" or 24"

- Urethane or pneumatic

Casters - 6" or 8"

- Urethane or pneumatic

Seat Width - 14" - 32"

Seat Depth - 16" - 22"

Seat Height - 13", 14", 15", 16", 17", 18", 19", 20" Back Height - 20" or 24"

Wheel Locks - Push to lock

Tilt-in-Space Bentley - 20 degrees of tilt

Weight Limitation - 250 pounds standard base

- 450 pounds – heavy duty base

## **I. Additional Information**

Additional information is available upon request. Please contact PDG at [info@pdgmobility.com](mailto:info@pdgmobility.com)

## 2.0 INDICATIONS FOR USE

PDG offers a choice of many wheelchair styles to meet the needs of the wheelchair user.

The intended use of this wheelchair is as a manually operated, attendant or user propelled, manual mechanical wheelchair. Choosing the best chair and set-up for user safety depends on such things as user disability, strength, balance and coordination.

## 2.1 CONTRAINDICATIONS FOR USE

### A. Information for Health Care Professionals or Assistants

#### **WARNING**

1. The Bentley wheelchair must be operated by a health care professional or assistant when in ANY tilt position only when client is unable to propel in a tilted position.
2. To maintain maximum stability, position the rear wheels in the most rearward position in the axle mounting plate. Moving the rear wheels to any of the other mounting positions causes the wheelchair to decrease in stability.
3. If moving the rear wheels to ANY forward position, ensure the wheelchair is stable BEFORE using.
4. ALWAYS ensure stability BEFORE using maximum amount of tilt-in-space or moving the rear wheels forward. TEST wheelchair BEFORE it is occupied by the end user to ensure safety.

### B. Operating Information

#### **WARNING**

1. Unless otherwise noted, all service and adjustments should be performed while the wheelchair is unoccupied.
2. To determine and establish your particular safety limits, practice bending, reaching and transferring activities in the presence of a qualified health care professional BEFORE attempting active use of the wheelchair.
3. ALWAYS wear your SEAT/CHEST POSITIONING STRAP when applicable. Inasmuch as the SEAT/CHEST POSITIONING STRAP is an option on this wheelchair (you may order with or without the Seat /Chest Positioning Strap), PDG strongly recommends ordering the Seat/Chest Positioning Strap as an additional safeguard for the wheelchair user.
4. ALWAYS check foam grips for looseness BEFORE using the wheelchair. If loose, contact a qualified technician for instructions.
5. The necessary back angle MUST be selected BEFORE repositioning the rear wheels forward.
6. DO NOT operate the tilt-in-space if the trigger release levers and cables are not properly adjusted to ensure that the tilt-in-space is locked in place when engaged.
7. DO NOT TRAVERSE, CLIMB or GO DOWN ramps or slopes GREATER than 9°.
8. NEVER leave the occupied wheelchair unattended at any time, especially on an incline.
9. DO NOT attempt to reach objects if you have to move forward in the seat.
10. DO NOT attempt to reach objects if you have to pick them up from the floor by reaching down between your knees.
11. DO NOT lean over the top of the back upholstery/seating system. This will change your center of gravity and may cause you to tip over.
12. DO NOT shift your weight or sitting position toward direction you are reaching as wheelchair may tip over.
13. WHEEL LOCKS ARE NOT BRAKES. DO NOT attempt to stop a moving wheelchair with the wheel locks.
14. DO NOT tip the wheelchair onto the rear wheels without assistance.
15. DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.
16. Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. When transferring to and from the wheelchair, ALWAYS ENGAGE BOTH WHEEL LOCKS.

17. If equipped with pneumatic tires DO NOT use wheelchair unless the tires have the proper tire pressure. DO NOT over inflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm. Recommended tire pressure is listed on the side wall of the tire.
18. DO NOT use ANY parts, accessories, or adapters other than those authorized by PDG. Otherwise, the warranty is void.
19. DO NOT attempt to lift a wheelchair by lifting on any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.
20. DO NOT use the folding links or spreader bar for lifting or transporting the wheelchair.
21. DO NOT use the folding links spreader bar as a weight bearing support.
22. DO NOT stand on the frame of the wheelchair. PDG recommends that anti-tippers BE attached at all times.
23. DO NOT use the footplates as a platform. When getting in or out of the wheelchair, make sure that the footplates are in the upward position.

### **C. Weight Training**



PDG DOES NOT recommend the use of its wheelchairs as a weight training apparatus. PDG wheelchairs have NOT been designed or tested as a seat for any kind of weight training. If occupant uses said wheelchair as a weight training apparatus, PDG shall NOT be liable for bodily injury and the warranty is void.

### **D. Weight Limitation**



The Bentley wheelchair has a weight limitation of 250 lbs for the Standard Base.

### **E. Stability and Balance**



1. Anti-tippers MUST be attached at all times.
2. To assure stability and proper operation of your wheelchair, you must at all times maintain proper balance. Your wheelchair has been designed to remain upright and stable during normal daily activities as long as you do not move beyond the center of gravity.
3. Virtually all activities which involve movement in the wheelchair have an effect on the center of gravity. PDG recommends using seat/chest positioning straps for additional safety while involved in activities that shift your weight.
4. DO NOT lean forward out of the wheelchair any further than the length of the armrests. Make sure the casters are pointing in the forward position whenever you lean forward. This can be achieved by advancing the wheelchair and then reversing it in a straight line.
5. The PDG Bentley wheelchair should be operated by an assistant when the wheelchair is in any tilted position.



## F. Safety and Handling of Wheelchairs

Safety and handling of the wheelchair requires the close attention of the wheelchair user as well as the assistant. This manual points out the most common procedures and techniques involved in the safe operation and maintenance of the wheelchair. It is important to practice and master these safe techniques until you are comfortable in maneuvering around the frequently encountered architectural barriers. Use this information only as a basic guide. The techniques that are discussed on the following pages have been used successfully by many.

Individual wheelchair users often develop skills to deal with daily living activities that may differ from those described in this manual. PDG recognizes and encourages each individual to try what works best for him/her in overcoming architectural obstacles that they may encounter, however ALL WARNINGS and CAUTIONS given in this manual MUST be followed. Techniques in this manual are a starting point for the new wheelchair user and assistant with "safety" as the most important consideration for all.

## G. Note to Wheelchair Assistants



**WARNING**

1. When assistance to the wheelchair user is required, remember to use good body mechanics. Keep your back straight and bend your knees whenever tipping the wheelchair or traversing curbs, or other impediments.
2. DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.
3. DO NOT use the spreader bar for lifting or transporting the wheelchair.
4. DO NOT use the spreader bar as a weight bearing support. When learning a new assistance technique, have an experienced assistant help you before attempting it alone.

## H. Curbs and Steps



**WARNING**

1. Each person who helps you should read and follow the warnings "Information for Health Care Professionals or Assistants" (2.1, A, page 5) and "Note To Wheelchair Assistants" (2.1, G, page 7)
2. Do not try to climb or descend a curb or step alone.
3. Unlock and rotate anti-tip tubes up, out of the way, so they do not interfere.
4. Do not try to climb a high curb or step unless you have help. Doing so may cause your chair to exceed its balance point and tip over.
5. Go straight up and straight down a curb or step. If you climb or descend at an angle, a fall or tip-over is likely.
6. Be aware that the impact of dropping down from a curb or step can damage your chair or loosen fasteners.

## I. Tilt Use



**WARNING**

Decreased stability may result from a seat position tilted past 90 degrees. Ensure that anti-tippers are used at all times. In preparation to operate the tilt:

- Always verify that the arms of the rider are stable on the armrests or within the armrests.
- Always verify that the legs of the rider are stable on the footrest/legrest.
- Never place hands, feet or foreign objects into the tilt mechanism.
- Never push or propel the chair with the seat tilted in a forward position.
- Never add chair accessories that are not specifically designed for the Bentley.
- Never exceed a tilted position that aligns the backrest parallel to the ground.

## J. Stairs

1. Extreme caution is advised when it is necessary to move an occupied wheelchair up or down the stairs. PDG recommends using two (2) assistants and making thorough preparations. Make sure to use ONLY secure, non-detachable parts for hand-held supports. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.
2. After the wheelchair has been tilted back to the balance point, one assistant (in the rear) backs the wheelchair up against the first step, while securely grasping a non-removable (non-detachable) part of the wheelchair for leverage.
3. The second assistant, with a firm hold on a non-detachable part of the framework, lifts the wheelchair up and over the stair and steadies the wheelchair as the first assistant places one (1) foot on the next stair and repeats STEP 2.
4. The wheelchair should be kept tilted on its back wheels until the last stair has been negotiated and the wheelchair has been rolled away from the stairway.

## K. Transferring To and From Other Seats



1. BEFORE attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce gap distance. Turn both casters toward the object you are transferring onto. Also be certain the wheel locks are engaged to help prevent wheels from moving.
2. CAUTION: When transferring, position yourself as far back as possible in the seat. This will prevent the possibility of the wheelchair tipping forward.
3. NOTE: This activity may be performed independently provided you have adequate mobility and upper body strength.
4. Position the wheelchair as close as possible along side the seat to which you are transferring, with the front casters pointing toward it. Engage wheel locks. Shift body weight into seat with transfer.
5. During independent transfer, little or no seat platform will be beneath you. Use a transfer board if at all possible.

## L. Reaching, Leaning and Bending - Forward



1. DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.
2. Many activities require the wheelchair owner to reach, bend and transfer in and out of the wheelchair. These movements will cause a change to the normal balance, the center of gravity, and the weight distribution of the wheelchair. To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified health professional BEFORE attempting active use of the wheelchair.
3. Proper positioning is essential for your safety. When reaching, leaning, bending forward, it is important to use the front casters as a tool to maintain stability and balance.

## M. Reaching and Leaning - Backwards



1. DO NOT lean over the top of the back upholstery. This will change your center of gravity and may cause you to tip over.
2. Position wheelchair as close as possible to the desired object. Point front casters forward to create the longest possible wheelbase. Reach back only as far as your arm will extend without changing your sitting position.

## N. Motor Vehicle Use

### **WARNING**

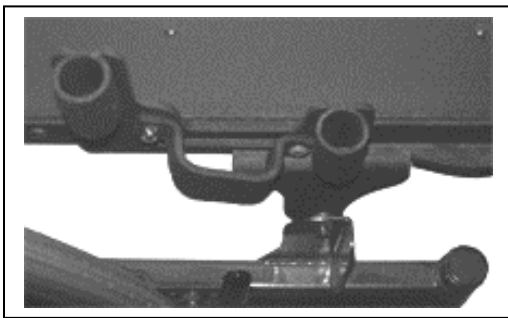
Identify whether your chair has been manufactured with the Transit Tie-Down System (TTDS).

**If your chair is NOT equipped with the Transit Tie-Down System (TTDS), this wheelchair DOES NOT meet federal standards for motor vehicle seating.**

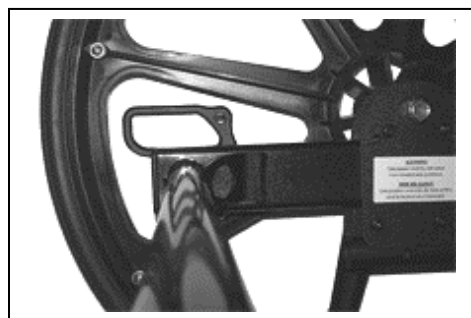
1. **NEVER** let anyone sit in this wheelchair while in a moving vehicle. In an accident or after a sudden stop, the rider may be thrown from the wheelchair. Wheelchair seatbelts will not prevent this and further injury may result from the belts or straps.
2. **ALWAYS** secure the rider with proper vehicle restraints.
3. **NEVER** transport this chair in the front seat of a vehicle. It may shift and interfere with the driver.
4. **ALWAYS** secure this chair so that it cannot roll or shift.
5. Do not use any chair that has been involved in a motor vehicle accident.

**If your chair is equipped with the Transit Tie-Down System (TTDS):**

1. If possible and feasible, the rider should transfer to the Original Equipment Manufacturer vehicle seat and use the vehicle restraint.
2. Use only Wheelchair Tie Down and Occupant Restraint Systems (WTORS) which meet the requirements of SAE J2249 Recommended Practice – Wheelchair Tie Down and Occupant Restraint Systems For Use in Motor Vehicles. Do not use WTORS designed to rely on the wheelchair structure to transfer occupant restraint loads to the vehicle.
3. The rider must not weigh more than 250 lbs.
4. The wheelchair has been dynamically tested in a forward –facing mode for a 30 mph frontal impact test. The wheelchair must be forward facing during transport.
5. In order to reduce the potential of injury to vehicle occupants, wheelchair-mounted accessories, such as trays and respiratory equipment should be removed and secured separately.
6. Postural supports and positioning devices should not be relied on for occupant restraint.
7. Do not alter or substitute wheelchair frame parts, components or seating.
8. The figures below show the locations of the wheelchair securement points, front and back.



Bentley Front Tiedown



Bently Rear Tiedown

9. Use only with Wheelchair Tie Down and Occupant Restraint Systems (WTORS) that have been installed in accordance with the manufacturer's instructions and SAE J2249.
10. Attach WTORS to securement points in accordance with the manufacturer's instructions and SAE J2249.
11. Attach occupant restraints in accordance with the manufacturer's instructions and SAE J2249.
12. Sudden stops or impacts can structurally damage your chair. Chairs involved in such incidents should be replaced.

**If you fail to heed these warnings, damage to your chair, a fall, tip-overs or loss of control may occur and cause severe injury to the rider or others.**

### 3.0 TROUBLESHOOTING

You will need to adjust your chair from time to time for best performance. Use the chart provided below to troubleshoot and find a solution.

Symptoms	Chair veers to right	Chair veers to left	Sluggish turning or performance	Casters flutter	Squeaks and rattles	Looseness in chair	Chair contacts only on 3 wheels	Solutions
X			X	X	X	X	X	Check tire pressure
	X	X	X	X	X	X	X	Check for loose nuts and bolts
			X	X	X	X	X	Check caster angle
			X	X	X	X	X	Check that both casters contact the ground. If not, add the proper spacers between bottom surface of lower bearing and top of fork stem nut. Check on a flat surface.

### 4.0 MAINTENANCE

Every six (6) months take your wheelchair to a qualified technician for a thorough inspection and servicing. 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. Routine maintenance will extend the life and efficiency of your wheelchair. Initial adjustments should be made to suit personal body structure and preference. Thereafter, follow these maintenance procedures:

#### A. Maintenance Safety Precautions



**WARNING**

1. After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.
2. DO NOT over tighten hardware attaching to the frame. This could cause damage to the frame tubing.
3. If the tires are pneumatic, DO NOT use the wheelchair unless it has the proper tire pressure. DO NOT over inflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm. Recommended tire pressures will be listed on the sidewall of the tires.
4. Periodically adjust wheel locks in correlation to tire wear. Refer to the WHEEL LOCKS SECTION of this manual.
5. Make sure that ALL bolts are tight before operating wheelchair.
6. As with any vehicle, the wheels, casters and tires should be checked periodically for cracks and wear, and any defective components should be replaced.
7. Clean quick-release axles once (1) a week with a Teflon® lubricant. DO NOT use WD-40®, 3-in-1 oil®, or other penetrating lubricants on quick release axles. Otherwise, binding and/or damage to the wheelchair may occur.

#### B. Tools Required

The following tools are needed to make adjustments to the wheelchair

1. Phillips Screw Driver
2. Allen Keys: 1/8", 5/32", 3/16", 8mm
3. Adjustable or Open-End Wrenches: 7/16", 1-1/4", 1-5/16"
4. Socket Head Driver with Socket Heads: 9/16", 3/4", 1-1/4"

## C. Cleaning

Periodic cleaning of all surfaces will help keep your wheelchair looking good and operating properly. All surfaces may be cleaned with warm water and a mild detergent. Do not use abrasive cleaners on any surfaces.

## D. Recommended Maintenance Schedule

Check	Initially	Inspect/Adjust Weekly	Inspect/Adjust Monthly	Inspect/Adjust Periodically
<b>General:</b> Wheelchair rolls straight (no excessive drag or pull to one side).	X			X
<b>Wheel Locks</b> Make sure they are not interfering with tires rolling.	X		X	X
Pivot points are free of wear and looseness. Wheel locks are easily engaged.	X		X	X
<b>Seat / Back Upholstery</b> Inspect for rips and sagging.	X		X	X
Inspect fastenings to ensure they are secure.	X		X	X
<b>Rear Wheels</b> No excessive side movement or binding when lifted and spun.	X	X	X	X
Quick release axles lock properly (if applicable).	X	X	X	X
Inspect wheels and tires for cracks and wear. Replace when necessary.	X	X	X	X
<b>Front Caster</b> Inspect wheelfork assembly. Caster should spin freely.	X	X	X	
Wheel bearings are clean and free of moisture.	X	X	X	
Inspect wheels and tires for cracks and wear. Replace when necessary.	X	X	X	
<b>Cleaning</b> Clean upholstery and armrests.	X			X

## 5.0 Operation

### A. Front Rigging

This procedure includes the following:

- Footrest assembly installation
- Footrest height adjustment



**WARNING**

After making adjustments, always make sure that parts are properly tightened BEFORE using the wheelchair.

### Plug-In Footrest Assembly Installation

1. To mount plug-in style front rigging, push the "button" located near the top of the footrest tube and slide into open square tube (seat rail) at front of chair. Footrest hanger will lock into position when the button 'pops' through hole near the front of the seat rail.
2. To release front rigging, push button (front of seat rail) and slide front rigging forward and out of the open square seat rail tube.

## Swing-Away Footrest Assembly Installation

1. To mount swing-away style front rigging, slide front rigging on already existing "swing-away adaptors". The front rigging should 'click' and lock into place.
2. To release and swing away, push button on front rigging and push front rigging aside.

## Footrest Height Adjustment

*Height adjustment is made to the desired length with individual sitting in wheelchair with feet on foot plates. The lowest point of the foot plates should be no less than 2" from the ground or floor.*

1. Remove the nut, bolt and coved washers and position the footrest assembly to a determined height.
2. Line up mounting hole and the aluminum insert in the footrest tube, reinsert the bolt and securely tighten by hand.

(Be sure to replace coved washers as well)

3. Repeat the procedure for the other footrest.

NOTE: Check to ensure that desired front rigging adjustment does not cause pressure to legs at front of seat upholstery. Such a condition could cause injury to the occupant.



**DO NOT ATTEMPT TO STAND ON FOOT PLATES.** Standing on the foot plates will cause the chair to tip forward abruptly and may result in an injurious fall to the individual.

**DO NOT ATTEMPT to lift chair by the footrests or leg rests.** These components are designed to separate from the wheelchair.

**FRONT RIGGING SHOULD BE REMOVED** when entering or exiting from the wheelchair.

## B. Armrests

This procedure includes the following:

- Adjusting armrest height
- Removing armrests
- Armrest pads

### Adjusting Armrest Height

Unlock the arm by depressing the black release button on the upper front of the armrest while moving the armrest up or down. Adjust Armrest to desired height. The armrest height will 'lock' when the release button pops out of one of the armrest height adjustment holes.

### Removing Armrests

Release the arm assembly by depressing the black release lever on the front of the armrest (just above the seat pan) while pulling the armrest up.

### Armrest Pads

Check for rips or breaks. If these are present, replace immediately to maintain appearance and comfort. Armrest pad should sit flush against frame. If the pad is cracked or retaining screws are stripped, replace pad immediately.

## C. Seat and Back

This procedure includes the following:

- Adjusting the back angle
- Adjusting the seat depth



**After making adjustments, always make sure that parts are properly tightened BEFORE using the wheelchair.**

## Adjusting the Back Angle

The seat-to back angle may be set to 90 – 108 degrees (114 and 120 degrees requires additional hardware – please contact the dealer). Use only PDG supplied parts when changing back angle. The backrest rotates about the 2 shoulder bolts located approximately 4" above the seat pan on the backrest support bracket. The 2 bolts that extend rearward from the bottom of the backrest are used to fine-tune the angle.

1. To set seat-to-back angle at 90 - 108 degrees, first loosen both rearward facing bolts at the bottom of the backrest.
2. Move the two shoulder bolts to any one of the 4 recline select locations.
3. Retighten the shoulder bolts and the rearward facing bolts when reassembling.
4. To set seat-to-back angle at 114 or 120 degrees, remove the rearward facing bolts at the bottom of the backrest and remove the two ½" long elastomer (rubber) sleeves located between the backrest tubes and backrest support bracket and replace with 1" sleeves. Exchange bolts with 2 ¾" long bolts. Both components are supplied by PDG.

*Note that locknuts should be re-used no more than five (5) times to ensure locking material grips. If locknuts are worn, replace them.*

## D. Rear Wheels

This procedure includes the following:

- Removing/installing the rear wheels
- Adjusting the axle location / wheel position adjustment



**WARNING**

Decreased stability will result from forward axle positions.



**WARNING**

**DO NOT REMOVE ANTI\_TIPPERS.** Operating without rear anti-tippers increases the risk of injury to the occupant.

## Removing/Installing the Rear Wheels/Axles

1. Unless the product was ordered with quick-release axles, the rear wheels can be removed using a ¾" socket head and a ¾" crescent wrench. If the chair is configured using axle bolts (not quick-release), the axle bolt heads must be located on the inside of the frame with the nuts located on the outside of the rear wheel hubs. If axle bolts are installed backwards, the seat frame may hit the end of the axle bolts when attempting to tilt the chair. During assembly, tighten the axle bolts so that the rear wheels are snug but not so much that the wheels are unable to spin freely.

If quick release axles have been supplied, push in the tip of the quick-release axle and pull the wheel off of the axle.

2. To reinstall the rear wheel onto the wheelchair, reverse step 1.



**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 outside of the rear wheel axle receiver for a positive lock. Keep locking pins clean.**

## Adjusting the Rear Axle Position

The rear wheel position may be adjusted forward or rearward.

There are six bolts on each of the axle plates which hold the axle plates tight onto the lower frame. To change the position of the rear wheels, loosen these bolts slightly, and slide the rear axles forward or rearward as desired. Before re-tightening, be sure both rear axles are in the same location as measured from the rear of the lower frame members. There are measuring indicators on the bottom of the lower frame members.

The anti-tip tubes slide into receivers at the back of the frame so that the rollers prevent the chair from overturning if the centre of gravity moves too far rearward. **IMPORTANT** - With the user sitting in the chair, check to ensure the wheelchair is stable in all tilted/untitled positions before dispensing the wheelchair.

## E. Front Casters

This procedure includes the following:

- Installing/replacing caster forks
- Installing/replacing front casters



**After making Adjustments, always make sure that parts are properly tightened BEFORE using the wheelchair.**

### Installing/Replacing 6" and 8" Front Casters:

1. Remove the cap on top of caster housing.
2. Loosen nut on caster stem using a  $\frac{3}{4}$ " socket wrench.
3. Slide out caster fork assembly.
4. Reassemble by reversing steps 1-3 (Be sure bearings are replaced if removed).
5. Test the wheelchair for maneuverability.

## F. Seat-to-floor Height

This procedure includes the following:

Adjusting seat-to-floor height



**After making adjustments, always make sure that parts are properly tightened BEFORE using the wheelchair.**

### Adjusting Seat-to-Floor Height.

Base frames are initially assembled to allow Seat to Floor Height adjustments as follows:

Chairs equipped with 6" front casters can easily be adjusted to 14" - 16" seat height. With the addition of a frame extension, seat heights of 17" and 18" may be attained.

Chairs equipped with 8" front casters can easily be adjusted to 16" - 18" seat height. With the addition of a frame extension, seat heights of 19" and 20" may be attained.



1. Remove the socket head screws located on the outside of the seat pan assembly (one screw on each side). These two screws attach the Seat Frame to the Base Frame and also act at the pivot point when the seat is tilted.
2. Reposition the Seat Frame to the desired elevation. There are three elevation choices without using frame height extenders. An additional 2" may be achieved when frame height extenders are installed.
4. Reassemble by reversing steps 1-2.
5. Remove the hex head screw located on the Base Frame, which connects the lower end of the gas strut assembly to the Base Frame.
6. Reposition the lower end of the Gas Strut Assembly to the elevation hole corresponding to the selected seat elevation.
4. Reassemble by reversing step 5.
5. Test the wheelchair to ensure the seat pan can be positioned approximately level when the gas strut is fully extended. Check to ensure all screws and nuts are assembled snugly.



## G. Adjustable Seat Tilt

This procedure includes the following:

- Adjusting seat tilt.
- Adjusting seat 'lift' force.



**After making Adjustments, always make sure that parts are properly tightened BEFORE using the wheelchair**

### Adjusting Seat Tilt

1. To adjust the tilt angle, activate the tilting lever located on side of push handle. Allow seat back to lower to desired level and release tilt lever. Seat should 'lock' at desired tilt angle.
2. Note that the tilt lever may be mounted onto the left or right side of the backrest push bar.



**When tilting chair, attendant must hold push handle securely so that seat does not drop too quickly.**

### Adjusting Seat 'Lift' Force. - See sketch - Bentley Gas Strut Set-up Guide

This procedure may be used to increase or decrease the 'lift' force required to raise an occupant from a tilt position to a level seat position. Adjustment is made to both the upper and lower ends of the Gas Strut Assembly, positioning the end of the Gas Strut forward or rearward of its initial attachment point under the Seat Pan. There are many possible attachment points under the seat pan.

If the wheelchair occupant feels 'heavy' when attempting to restore the wheelchair to a seat level position, the upper gas strut attachment point should be moved rearward.

If the wheelchair occupant feels 'too light' or if the attendant has to use force to push the Seat Assembly in to tilt when activating the tilt mechanism, the upper gas strut attachment point should be moved forward.

1. Determine whether you wish to move the gas strut forward or rearward (see above). Determine if the desired adjustment is possible (you may have already set the chair at maximum or minimum 'lift').
2. Carefully remove the hex nut and hex bolt from the upper end of the gas strut. Note that the spring is held in compression by a separate pin and will not extend when the bolt is removed.
3. Re-assemble the gas strut ends to the desired attachment points under the Seat Pan. As you insert the 5/16" hex bolt through the attachment holes under the Seat Pan and through the end of the gas strut, be sure to include the spaces so that the strut assembly is maintained in the centre of the frame.
4. Reinstall locknuts and tighten snugly.

## H. Adjust the Gas Strut and Cable Assembly

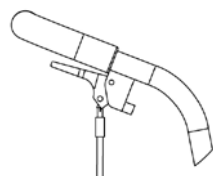
This procedure includes the following:

- Adjusting the gas strut.
- Adjusting seat tilt cable.

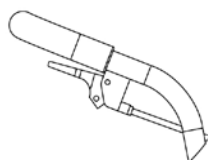


After making Adjustments, always make sure that parts are properly tightened **BEFORE** using the wheelchair.

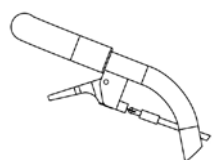
### Installing the Gas Strut Actuator Cable



1. Fit metal cable-end into hole on trigger.



3. Push plastic parts together → ← until they 'click' in place



2. Feed cable through to the front of the trigger



4. Clip cable onto back post using plastic clips provided.



5. Attach cable wire onto the strut, slide steel ball through slot on lever (so ball is underside of the lever).

### Gas Strut Set-up Guide

The gas strut may be adjusted to optimize uplift force, although keeping it as vertical as possible is recommended by PDG.

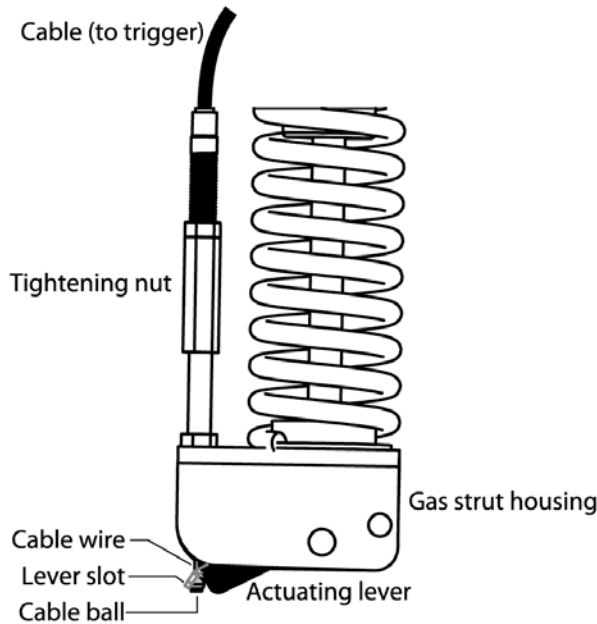
1. The gas strut should be extended to its full length at the start of this procedure. To extend the gas strut, depress the button at the end of the piston. Be careful to avoid injury when depressing the button. The piston will extend quickly to its full length. When installing the strut, the cylinder end (where the cable is **not** attached), should be connected to the Upper Bracket near the center of the bracket. If the client is very light, connect it closer to the front of the chair.
2. Once you have attached the upper end of the gas strut to the Upper Bracket at your chosen location, position the lower end of the gas strut so that you attain the desired seat angle when the chair is not in tilt. Locate the lower end of the gas strut using any one of the mounting holes in the Lower Bracket.
4. With the strut installed and with the client in the wheelchair, test the attendants' ability to activate the tilt lever and change the clients' position. If the seat is difficult to move downward into tilt, move the upper end of the gas strut to a more forward position (see step 2). If the seat drops down into tilt too easily, move the upper end of the gas strut to a more rearward position. If the strut is in the most rearward position and still needs more uplift force, try shortening the seat depth, or add a second gas strut (available from PDG).

### Helpful Tips to Consider When Optimizing Uplift Force in the Gas Strut

- The spring assembly will remain compressed and intact when the gas strut mounting bolts are removed.
- If the seat hits the rear axles when tilted, you have the rear axles installed backwards. See 'Out-of-the-box Set up'.
- If the rear wheels are too high when the chair is in tilt, switch to smaller rear wheels, or move the seat height up.

## Installing a New Seat Tilt Cable

1. Insert the threaded end of the cable conduit into the slot on the upper clip. The cable conduit must be seated into the upper clip so that the cable extends straight into the lower clip. The cable must not extend out of the conduit at an angle since this will result in rubbing and eventual cable failure.
2. Use the 1/4-20 nut provided to clamp the cable end into the slot. Be careful not to over tighten the nut. Just snug!
3. Slide the die cast ball into the slot, under the lower clip.



4. Ensure there is no slackness in the cable once assembled. The lower clip should depress the actuator button about 1/16" when the cable handle is fully released. To remove slackness, use the turnbuckle located on the cable conduit to tighten or loosen the cable.

## I. Operating the Floor Jacks

This procedure includes the following:

### Operation of the floor jacks

Floor Jacks may be supplied with the Bentley wheelchair or may be retrofitted if needed. Floor Jacks are used when it is desirable to have a wheelchair that can quickly be made longer and more stable, or shorter and more maneuverable. The Floor Jacks lift the rear end of the wheelchair slightly off of the floor so that the chair becomes immobile and/or the rear wheels may be moved from one axle receiver to another.

To operate the Floor Jacks, move the red handle through approximately 180 degrees to activate or deactivate the Jack. One position will raise the wheelchair slightly off of the floor. The opposite position will allow the chair to move freely about. The pads at the end of the Floor Jack also act as an anti-tipping device.

NOTE: Floor jacks are only operable with 12" or 20" rear wheels



## **J. Contacting Your Supplier to Obtain Service**

PDG has trained customer service representatives in many locations. To find your nearest Customer Service Center, visit our web site at [www.pdgmobility.com](http://www.pdgmobility.com) and click on **CONTACTS**. If you are uncertain about which CONTACT is most appropriate for your needs, contact PDG directly using telephone, fax, or e-mail contact information. Supply the serial number from the product you are attempting to service and we will be happy to inform you of the supplier who initially provided your product.

### **Special Note – Damage Requiring Service By a Qualified Service Agent**

In some circumstances it may be required that your wheelchair be returned to a Qualified Service Agent for repairs. If any of the following conditions are observed, the wheelchair must be serviced by a Qualified Service Agent;

- Any part of the frame is cracked or broken
- Any weld is cracked or broken

Always contact your Service Agent prior to sending a wheelchair for repairs. For safe and secure shipping, the wheelchair must be boxed or fastened to a pallet to ensure it does not become damaged during shipping. Service agent will provide specific instructions for packaging and shipping your wheelchair. Alternatively, Qualified Service Agent may arrange for pick-up.

### K. Setup of 16" / 24" Rear Wheel Ant-tippers

Axle positions are noted by the location of the rear edge of the axle plate on the ruled sticker on the frame.

The hole position on the anti-tip tube is described by the diagram below.

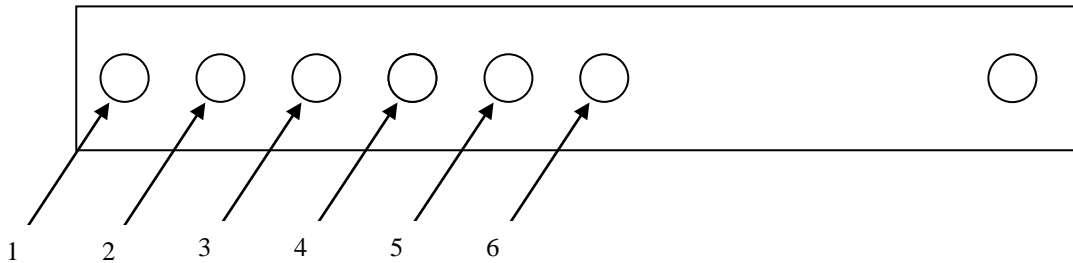
#### Stellar

Axle Position	Anti-tip Wheel Position
3 1/2" – 4 1/2"	4
4 3/4" – 6 3/4"	5
7" – 8"	6

(20" or 24" rear wheels only) (20" or 24" rear wheels only)

#### Bentley

Axle Position	Anti-tip Wheel Position
3 1/2" – 4 1/4"	5
4 1/2" – 6 3/4"	6



The extra positions (1 through 3) can be used to make the chair more stable, but it will reduce the caster clearance when tipped backwards.

### 6.0 TESTING

The Bentley wheelchair has been designed to meet the following standards: ANSI/RESNA WC.19 and ISO 7176.

Upholstery specifications meet the State of California Technical Bulletin 117 Section D.

#### PERFORMANCE ATTRIBUTES OF THE TEST WHEELCHAIR

Test Method	Test Title	Relevant Wheelchair Type	Disclosure
		Manual	All results meet at least the minimum performance requirements of AS 3695
AS 3696.1	Determination of static stability	Manual	Stable on a slope of 10° or labeled in accordance with Clause 6.1 <u>Pass</u> (100kg dummy) with locked brakes in the fore direction >15°/0° with locked brakes in the aft direction >15°/>15° with unlocked brakes in the aft direction >15°/0° with locked brakes in the transverse direction >15°
AS3696.3	Determination of the efficiency of brakes	Manual	Parking brakes hold on a slope of 10° <u>Pass</u> (100kg dummy)
AS3696.8	Static, impact & fatigue strength	Manual	<u>Pass</u> ( 100kg)

## DIMENSIONAL ATTRIBUTES OF THE TEST WHEELCHAIR

Test Method	Test Title	Relevant Wheelchair Type	Results	
AS 3696.5	Determination of all overall dimensions, mass and turning space	Manual	Length	1165 mm
			Length without footrest	940 mm
			Width	675 mm
			Folded length	N/A
			Folded width	N/A
			Folded height	N/A
			Mass	31.8 kg
			Turn around width	1170 mm
ISO 7176-7	Determination of seating dimensions	Manual	Seat plane angle	5°
			Effective seat length	530 mm
			Maximum seat width	405 mm
			Seat surface height	410 mm
			Backrest angle	9.9°
			Backrest height	560mm

### 7.0 LIMITED WARRANTY

PLEASE NOTE: THE WARRANTY BELOW HAS BEEN DRAFTED TO COMPLY WITH FEDERAL LAW APPLICABLE TO PRODUCTS MANUFACTURED AFTER JULY 4, 1975.

This warranty is extended only to the original purchaser/user of our products.

This warranty gives you specific legal rights and you may also have other legal rights, which vary from state to state.

PDG warrants its product, except for the seat cushion (which is not warranted), to be free from defects in materials and workmanship for a period of one (1) year from date of purchase. The side frames and cross-members are warranted for the lifetime of the original purchaser/user. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced, at PDG's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. PDG's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

For warranty service, please contact the dealer from whom you purchased your PDG product. In the event you do not receive satisfactory warranty service, please write directly to PDG at the address on the back cover page, provide dealer's name, address, and date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

Limitations and exclusions: the foregoing warranty shall not apply to serial numbered products if the serial number has been removed or defaced, products subjected to negligence, accident, improper operation, maintenance or storage, products modified without PDG's express written consent including, but not limited to, modification through the use of unauthorized parts or attachments; products damaged by reason of repairs made to any component without the specific consent of PDG, or to a product damaged by circumstances beyond PDG's control, and such evaluation will be solely determined by PDG. The warranty shall not apply to problems arising from normal wear or failure to adhere to these instructions. The foregoing express warranty is exclusive and in lieu of any other warranties whatsoever, whether express or implied, including the implied warranties of merchantability and fitness for a particular purpose, and the sole remedy for violations of any warranty whatsoever, shall be limited to repair or replacement of the defective product pursuant to the terms contained herein. The application of any implied warranty whatsoever shall not extend beyond the duration of the express warranty provided herein. The manufacturer shall not be liable for any consequential or incidental damages whatsoever.

This warranty shall be extended to comply with state/provincial laws and requirements.

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