

# BRODA<sup>®</sup>

## Operating Manual

### Synthesis Tilt Recliner Model (Including Synthesis Transport Chair Option Model WC-19)



**Distributor/Rep:** This manual must be given to the caregiver responsible for this chair and its occupant.

**Caregiver:** Before using this chair, read this manual thoroughly and save for future reference.

Actual product may differ slightly from images in Operating Manual

Broda  
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# Contents

FOREWORD.....	1
GENERAL INFORMATION.....	2
1 DEFINITIONS.....	3
2 SAFETY REQUIREMENTS.....	4
2.1 Training.....	4
2.2 Application.....	4
2.3 Shipping and Storage.....	4
2.4 Pre-Service Check.....	5
2.5 Hazards.....	5
2.5.1 Position of Chair - “Danger of Falling”.....	5
2.5.2 Position of Seat Tilt - “Danger of Tipping”.....	5
2.5.3 Location of Chair - “Danger of Tipping or Falling Objects”.....	5
2.5.4 Total Lock Wheel Brakes - “Danger of Falling”.....	5
2.5.5 Re-Positioning of Resident - “Danger of Clamping”.....	6
2.5.6 Unintended Movement - “Danger of Falling or Collision”.....	6
2.5.7 Resident Clothing - “Risk of Injury to Resident’s Skin”.....	6
2.5.8 Improper Restraint Use - “Risk of Serious Injury”.....	6
2.6 Improper Use.....	7
2.7 Cleaning.....	7
2.8 Maintenance.....	8
2.9 Resident Specific Instructions.....	10
3 OPERATION AND MOVEMENT.....	11
3.1 Seat Tilt.....	11
3.2 Back Recline.....	11
3.3 Trendelenburg.....	11
3.4 Elevating Leg Rest.....	12
3.5 Flip Down Footrest.....	12
3.6 Removable Wings.....	13
3.7 Shoulder Bolsters.....	13
3.8 Swing Away/Removable Arms.....	14
3.9 Height Adjustable Armrests.....	14
3.10 Casters.....	15
3.11 Accessories (Options).....	15
3.12 Motor Vehicle Use (Vehicle Transport Package Option- Synthesis Transport Chair).....	15
4 INSPECTION AND FUNCTIONAL TESTING.....	19
4.1 Inspection.....	19
4.2 Functional Testing.....	19
5 TECHNICAL INFORMATION.....	20
5.1 Specifications.....	20
5.2 Broda Seating Synthesis Parts Schematics.....	21
5.3 Troubleshooting for Gas Cylinders.....	37
5.4 Rear Casters.....	38
6 WARRANTY.....	39

# FOREWORD

Congratulations on your purchase of a Broda chair and thank you for your confidence in our company and products.

Broda assumes a leadership role in providing optimum re-positioning functions and mobility for residents of long-term care institutions. Our chairs do not look like traditional chairs and offer advantages unique to Broda. We are sure that after using your Broda chair, you will be convinced that your resident's quality of life will be greatly enhanced.

This manual will assist you in making the best use of the capabilities of your Broda chair and will ensure that you quickly become familiar with its operation.

After reading this manual, if you have any questions about the safe and effective operation of your Broda chair or accessories contact your local Broda representative or our Head Office Customer Service personnel for further assistance.

Head Office:  
Broda  
15455 Conway Road Suite 200  
Chesterfield, Missouri USA 63017



## GENERAL INFORMATION

This document provides guidance on the safe and effective operation of the Broda chair.

Information in this manual must be followed at all times.

Anyone involved with the operation or maintenance of the Broda chair, including the resident's family members, must read this operating manual before using the chair.

The resident's primary caregiver is responsible for ensuring that anyone who is unfamiliar with, unwilling, or unable to adhere to the safety and operating instructions, is not permitted to operate or move the chair.

A copy of this instruction manual must always be available.

Broda accepts no liability for damages, injury or accidents caused by operating errors, improper maintenance, or disregard of the instructions in this manual, including any resident specific instructions.

Broda reserves the right to make changes to the specifications, dimensions, functions, or components of its products without notice. Product representations in this manual may vary from delivered products.

Each Broda chair has a unique identifying serial number that must be maintained on the chair as well as with any equipment records.

# **1 DEFINITIONS**

“Broda” means Broda Enterprises Inc. doing business as Broda Seating.

“Broda chair” refers to chair model Synthesis Tilt Recliner Model or Synthesis Transport Chair Model WC-19.

“Long-Term Care Institution” refers to a nursing home, hospital, or other healthcare facility that provides health and personal care to its residents on a long-term basis.

“Resident” refers to an individual living in a long-term care institution under the care of professional caregivers.

“Professional Caregiver” refers to doctors, nurses, therapists, nursing aids, healthcare aids, and other specialists who work in a long-term care institution and provide health and personal care to its residents.

“Caregiver” refers to any person in a long-term care institution who is appropriately trained to provide care or services to the resident or the chair used by the resident and may include the resident’s family members or guardian.

“Seat Tilt” refers to changing the relative angle between the chair’s seat and the chair frame or ground without changing the relative angle between the back and the seat.

“Back Recline” refers to changing the relative angle between the chair’s back and the seat.

“Footrest Elevation” and “Leg Rest Elevation” refers to changing the relative angle between the chair’s footrest and/or leg rest and the seat.

“Transfer(s)” refers to the movement of a resident into or out of the chair with the assistance of their caregiver(s).

“Mechanical Transfer(s)” refers to the movement of a resident into or out of the chair with the assistance of their caregiver(s) using a patient lift or other assistive device that bears the weight of the resident.

## **2 SAFETY REQUIREMENTS**

### **2.1 Training**

**Before the chair is put into service, this manual must be read thoroughly by the caregiver(s) directly responsible for the resident's care.**

**After the chair is put into service, this manual must be read thoroughly by any new caregivers prior to operating or moving the chair.**

For the purpose of this manual, a resident's family member who shares responsibility for their care is considered a caregiver and is subject to the same competency before being permitted by the resident's primary caregiver to operate or move the chair.

Prior to first use, the customer must arrange for an in-service on the operation and safety requirements in this manual, must be given to the resident's caregivers by the local Broda representative who supplied the chair.

The primary caregiver must maintain a list of caregivers who have read this manual and who they have authorized to operate and move the chair.

The resident's primary caregiver is responsible for ensuring that anyone who is unfamiliar with, unwilling, or unable to adhere to the safety and operating instructions, is not permitted to operate or move the chair.

The operations of the chair must be performed by the resident's primary caregiver who is responsible for seating. All The operations and adjustments performed should be done in a manner to ensure the overall safety, comfort and well-being of the resident, caregiver and third party. All operations and adjustments required for the resident should be determined by the resident's primary caregiver who is responsible for seating.

### **2.2 Application**

Broda chairs are intended exclusively for residents of long-term care institutions who are under the care of professional caregivers. The suitability of a BRODA chair must be determined by a qualified caregiver who is familiar with the seating needs of the intended resident. Any other use of the chair is excluded from possible liability claims.

The Synthesis is not to be used in the shower. The frame and components will rust, and will void the warranty.

The chairs are not explosion resistant and must not be used where there are flammable gases or liquids present (e.g., anesthetics, volatile solvents and cleaners, etc.)

Broda chairs are designed for use with specific Broda parts and accessories. The use of non-Broda parts or accessories with a Broda will void the warranty and is excluded from possible liability claims.

Broda chairs may only be used as described in this manual and with proper regard for recognized healthcare and workplace safety and accident prevention practices.

### **2.3 Shipping and Storage**

Broda chairs should be shipped and stored in an upright position and not stacked higher than 3 boxes. No other materials should be shipped or stored on top of a Broda box. Broda boxes should not be placed on pallets.

Broda chairs should be shipped and stored at temperatures between -20°C and 40°C. Broda chairs should not be used until they are between 0°C and 30°C.

Broda chairs should be kept in a clean, dry environment. Do not leave Broda chairs outdoors as it may cause the paint to peel.

Upon receipt, the shipping carton must be immediately examined for damage. Any damage should be noted on the delivery receipt and a request for inspection by the transportation company should be made. Next, the shipping carton should be opened and the chair must be examined for concealed shipping damage. If the chair appears to be damaged, do not use the chair. File a concealed damage report with the transportation company.

## **2.4 Pre-Service Check**

Broda chairs are delivered fully assembled. If the chair does not appear to be ready to use upon receipt, immediately contact your supplier and do not put the chair into service until any concerns have been resolved.

Visually inspect the chair for damage, missing parts, and loose fasteners prior to testing the chair's functions. Functional testing must be successfully completed after visual inspection and before use. These obligations apply to the chair's first use and to all subsequent uses (Section 4: Inspection and Functional Testing).

## **2.5 Hazards**

### **2.5.1 Position of Chair - "Danger of Falling"**

After a resident is transferred into a chair, assess the amount of tilt required. We recommend that the chair's seat be tilted sufficiently to prevent the resident from sliding or falling forward off the chair. The amount of seat tilt used should be determined by the resident's caregiver who is responsible for seating.

We recommend that the resident's feet be correctly positioned on the footrests and slightly-to-fully elevated to prevent the resident from sliding or falling forward off the chair. The amount of elevation used should be determined by the resident's caregiver who is responsible for seating.

### **2.5.2 Position of Seat Tilt - "Danger of Tipping"**

We recommend that the chair's seat be tilted sufficiently to prevent an agitated resident from tipping the chair forward or backward, or from slumping and sliding in the chair. The amount of seat tilt used should be determined by the resident's caregiver who is responsible for seating. Always ensure that the resident is properly positioned before operating the seat tilt.

### **2.5.3 Location of Chair - "Danger of Tipping or Falling Objects"**

We recommend that when a resident has been moved to their destination, the chair is placed where the resident cannot reach handrails or other objects, fixed or movable. This is to prevent the resident from pulling the chair over or pulling themselves off the seating surface and to prevent the resident from pulling movable objects onto the chair and themselves.

We recommend that the chair be used in a supervised area to prevent untrained residents, caregivers, or third parties from unauthorized operation, movement, or unsafe actions such as sitting or leaning on the reclined back, elevated footrest, or the armrests. These actions, if not prevented, put the chair at risk of tipping or damage to the chair.

We recommend that a chair only be located on a level surface to minimize the risk of tipping over.

### **2.5.4 Total Lock Wheel Brakes - "Danger of Falling"**

The special casters found on the Broda chair have total lock brakes which prevent the wheels from turning and swiveling. The brakes must always be applied when:

- 1) the chair is not in use;
- 2) a resident is being transferred (moved) into or out of the chair; and,
- 3) the chair is not being moved by a caregiver.

It is important to note that if the wheel locks are applied while the patient is in the chair, that the caregiver does not leave the patient unattended, especially those patients who have the capability or tendency to move the chair and/or those who may be agitated. This could cause harm to the patient if they attempt to move the chair while the wheel locks are applied.

Note that removing and attaching the footrest may be easier for the caregiver with the brakes applied

Failure to follow these instructions will unnecessarily increase the risk of serious falls by residents, caregivers, or third parties caused by the chair unintentionally moving.

### **2.5.5 Re-Positioning of Resident - “Danger of Clamping”**

Broda chairs offer the benefits of seat tilt, back recline, leg rest/footrest elevation, and moveable arms. During the movement of any of these functions, the following safety measures must be observed:

- 1) The resident’s arms must be positioned on the armrests or inside the chair frame with their hands on their body.
- 2) The resident’s feet must be correctly positioned on the footrest.
- 3) All of the chair’s brakes have been applied.
- 4) Only one caregiver at a time attempts to operate the chair’s functions.
- 5) Only one chair function is operated at a time.
- 6) The rear wheels are in the trailing position, behind the chair frame.
- 7) The residents’ and caregivers’ body are clear of all pinch points before operating the chair’s functions.

Failure to follow these safety measures can put the residents’ or caregivers’ limbs at risk of injury. Residents who may be unaware of their body position or unable to maintain a safe body position are at the most risk of the danger from clamping and caregivers should be more cautious with these residents. A second caregiver may be required to ensure the safety of these residents during these operations.

### **2.5.6 Unintended Movement - “Danger of Falling or Collision”**

We recommend Broda chairs for indoor use within a long-term care institution and where there is not enough slope to cause the chairs to move unaided. Chairs used where the surface is uneven or sloped are at risk of unintended movement and could become a serious danger to the resident, caregiver(s), or a third party. We recommend that Broda chairs are located away from stairwells, elevators, and exterior doorways within a long-term care institution.

Outdoor use is appropriate only under the strict supervision and full attention of a caregiver who is physically capable of preventing any unintended movement over any surfaces that are to be traveled on. We recommend that a second caregiver assist when the chair is moved over surfaces that could cause significant unintended movement.

### **2.5.7 Resident Clothing - “Risk of Injury to Resident’s Skin”**

We recommend that residents only be seated while they are fully dressed in clothing that meets the needs of their specific condition. If after being fully dressed, a resident’s bare arms, legs, or body could still come into direct contact with the vinyl straps or vinyl pads, we recommend the use of a covering, such the Broda terry cloth covered seat and/or back pad or a folded cloth bed sheet to prevent direct contact. Direct contact of bare skin on the straps over a period of time could cause moisture on the resident, and/or cause the skin to stick to the straps. Prior to the operation or movement of a chair with a covering, the caregiver must ensure any covering placed on the chair does not come into contact with any moving parts and is securely placed, so not to slip.

### **2.5.8 Improper Restraint Use - “Risk of Serious Injury”**

We recommend that alternatives to physical restraints be used with residents while seated in the chair except under the specific instructions of the resident’s primary caregiver and with permission of the resident’s family or guardian. Physical restraints have been identified as a common cause of serious injury to residents while they are seated. We recommend that the primary caregiver responsible for seating first consider the re-positioning options available in the chair to reduce the risks of sliding, falling, or self-injury.

If a physical restraint is determined to be appropriate to prevent sliding or falling out of the chair, we recommend that the Broda thigh belt be used. If a physical restraint is determined to be appropriate to prevent self-injury from resident movement, we recommend the Broda HSP padding package. In all cases, it is the resident’s primary caregiver that must take responsibility for the safety of the resident if restraints are used.



## 2.6 Improper Use

As outlined, the improper use of the chair is dangerous to the resident, caregivers, or third parties, and can consist of, but is not limited to the following:

- 1) Unauthorized operation of the chair's functions.
- 2) Unauthorized movement of the chair.
- 3) Inappropriate use of the chair for a resident who has not been assessed by a qualified caregiver responsible for their seating.
- 4) Failure to frequently reposition the resident in the chair
- 5) Attempting to operate of multiple chair functions simultaneously by one or more caregivers.
- 6) Attempting to move the chair with the brake(s) applied.
- 7) Leaving the resident unattended in the chair near other objects.
- 8) Leaving an agitated resident in the chair in an unsupervised area.
- 9) Leaving a resident unattended.
- 10) Leaving a resident in a chair on a sloping surface.
- 11) Leaving a chair unattended on a sloping surface.
- 12) Using non-Broda accessories on the chair.
- 13) Using the chair at temperatures below 0°C.
- 14) Using the chair as a shower or bathing chair.
- 15) Using the chair for any use other than its intended purpose.

## 2.7 Cleaning

Broda chairs should be wiped clean with soap and water. Diluted household strength ammonia or chlorine based cleaner, as well as a hospital grade cleaner may be used if necessary.

Refer to the following guide for cleaning certain staining agents (Applies to the Permablok3® vinyl, as per the vinyl manufacturer's recommendations) The frame and components of the chair can be cleaned using the same procedure as the vinyl.

The steps below are also located in the Cleaning Guide found on the back of the Broda chair

### Staining Agent

### Cleaning Procedure

Eye Shadow / Mascara	Step 1
Grease / Suntan Lotion / Chocolate	Step 1
Blood / Bodily Fluids	Step 2
Red Lipstick	Step 2
Oil Base Paint / Tar / Asphalt	Step 3
Other Tough Stains	Step 4 or 5*

**Step 1:** Remove excess spill with a damp cloth. Clean with a 1:1 mix of Ivory® liquid and water. Rinse with clean water and dry.

**Step 2:** Use a straight application of concentrated cleaners such as Formula 409® or Fantastik® Spray Cleaner. Then wipe with a clean cloth. If using a hospital grade cleaner, follow the diluting instructions on the label.

**Step 3:** Use a 1:1 mix of ammonia and water or a 1:4 mix of bleach and water. Rinse with clean water and dry.

**Step 4:** Use a straight application of naphtha (lighter fluid). Rinse thoroughly with clean water and pat surface dry.

**Step 5:** Use a 1:1 mix of isopropyl alcohol and water. If the stain persists, use straight alcohol. Rinse thoroughly with clean water and pat dry. If the stain remains, use a 1:1 mix of acetone and water. Rinse with clean water and pat surface dry.

**\*Note:** for cleaning that requires steps 4 or 5 – Use a soft cotton cloth saturated with the cleaning material and rub the stain in circles 10 times. Pat dry with another soft cotton cloth, and check results.

For best cleaning results, certain parts and padding on the chair should be removed: Instructions for removal of the following parts are located in this manual: Ensure that the entire chair including removable and non-removable parts is thoroughly cleaned.

Pay close attention to the frame, sockets, fasteners, parts and casters, as well as the padding for an even, thorough clean.

Remove parts for cleaning if desired:

- 1) Wings
- 2) Swing Away/Removable Arms
- 3) Footrest
- 4) Padding

Thoroughly clean all removable parts and padding, as well as the frame and components around the parts and padding that have been removed.

Broda chairs should not be cleaned with petroleum-based cleaners. Any petroleum based products that come in contact with any vinyl surface should be removed as quickly as possible. Petroleum based products make vinyl brittle and will damage the seating surface and cushions. Metal parts and cushions should be wiped completely dry after cleaning. Do not launder vinyl padding. Terry cloth seat and back covers can be laundered and tumble dried.

Do not allow the chair to air dry. Leaving the chair to air dry and not ensuring the entire chair is completely dry may cause the frame and components to rust. Solvents such as those found in spray lubricants should not be used on Broda Chairs as they can damage moving parts.

Frequency and method of cleaning the chairs should be determined by facility infection control protocols. If visibly soiled, thoroughly clean the chair immediately as per the cleaning instructions in this manual.

The cleaning instructions in this manual are guidelines only. Results may vary under actual conditions. The information does not relieve the user of proper and safe use of the product and all cleaning agents and consideration for the overall cleaning maintenance of the chair. Cleaning and care instructions must be followed in conjunction with facility infection control protocols.

Broda will not accept warranty or liability claims on chairs that have not been cleaned according to the instructions or cared for in proper regard for patient, caregiver and third-party safety and hygiene. The use of certain agents may be harmful to the surface appearance and lifespan of the vinyl. Broda assumes no responsibility resulting from the use of such cleaning agents to the vinyl.

Touch up paint is available for the powder coated frame. Please call Broda's Customer Service Department if touch up paint is required. Do not leave Broda chairs outdoors as the frame is not UV protected. Leaving the chairs outdoors could cause the paint to peel.

Formula 409® is a trademark of the Clorox Company.

Fantastik™® is a trademark of DowBrands, Inc.

Trademark of the Dow Chemical Company.

Ivory® is a trademark of Proctor and Gamble.

## **2.8 Maintenance**

The maintenance on a Broda chair will vary with the amount of use and the condition of the resident using the chair.

In regular use, after the initial inspection and functional testing, the chair should be inspected and tested bimonthly. We recommend visually inspecting for signs of wear, damage, loose or missing fasteners, and other safety concerns. Periodic testing of chair functions is also necessary. If a breakage, defect, or operational problem is detected, the chair must be successfully repaired, inspected and tested for function before it is returned to service.

The chair should be inspected and tested as often as each use if the chair is used by:

- 1) Aggressive or agitated residents.
- 2) Residents who have involuntary movements.

- 3) Residents weighing over 220 lbs.
- 4) A facility with irregular or sloped surfaces.
- 5) Any unauthorized person.

Do not use lubricants that contain solvents. Solvents may compromise any rubber components on the chair. If necessary, white food grade grease or lubricant can be used on any sliding components.



### **3 OPERATION AND MOVEMENT**

Safety measures as described in Section 1 must be observed when operating the chair's functions or moving the chair. Only authorized caregivers should attempt to operate or move a chair. The caregiver must use proper body mechanics when operating the chair, and be prepared to support the weight of the resident while operating the chair.

#### **3.1 Seat Tilt**

Gas cylinders allow the seat to be tilted to any position from most upright to the lowest within its range. Use seat tilt to safely position the resident, redistribute pressure and increase comfort.

To Activate the Seat Tilt

-Squeeze tilt handle with one hand while placing your other hand on the tilt bar to assist movement.

-Raise or lower the seat tilt until the desired angle is achieved.



#### **3.2 Back Recline**

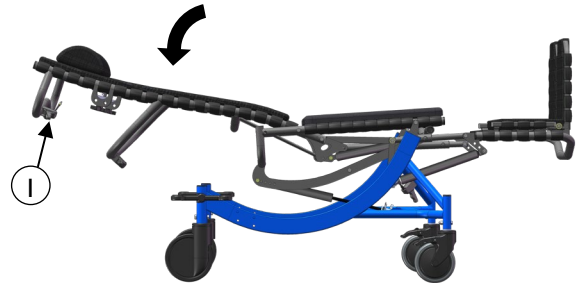
Gas cylinders allow the back to be reclined to any position from the most upright to the lowest within its range. Use back recline to position resident, create pressure redistribution, increase comfort, and assist with daily care activities.

**WARNING: Always tilt slightly before reclining to prevent resident from sliding.**

To Activate the Back Recline

-Squeeze recline handle with one hand while placing your other hand on the top bar to assist movement.

-Raise or recline the back until the desired angle is achieved.

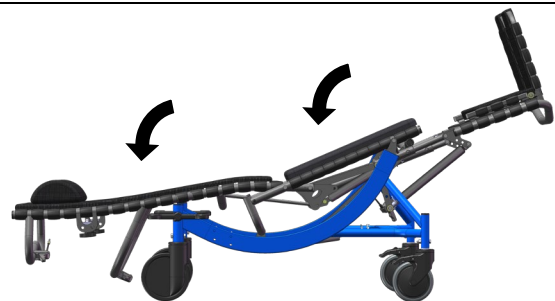


#### **3.3 Trendelenburg**

The Trendelenburg feature allows caregivers to quickly position the feet above the head.

To activate Trendelenburg

-Recline fully, then tilt fully.



### 3.4 Elevating Leg Rest

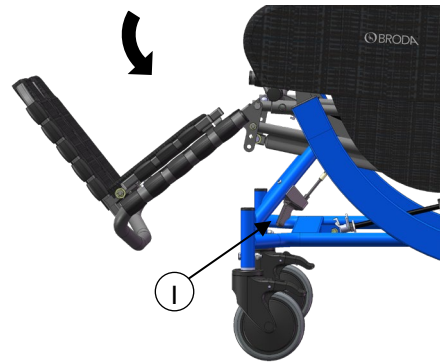
Gas cylinders allow the leg rest to be positioned infinitely from horizontal to vertical. The leg rest elevates and extends with recline on the Synthesis. It is also independently adjustable.

To Adjust the Leg Rest:

-Hold leg rest to assist movement and squeeze the leg rest handle.

-Raise or lower the leg rest to the desired angle.

The leg rest articulates with changes to the back recline but not with changes to the seat tilt. If the back is in the reclined position, the leg rest cannot be lowered independently.



### 3.5 Flip Down Footrest

The flip down footrest is removable and length adjustable.

To Attach the Footrest:

-Insert the right end of the footrest upper cross piece into the desired hole in the right side of the leg rest frame.

-Insert the left end of the footrest upper cross piece into the corresponding hole in the left side of the leg rest frame.

-Release the tension on the spring mechanism.

To Remove the Footrest:

-Lift up the footrest slightly to discontinue contact between the straps on the footrest and the leg rest.

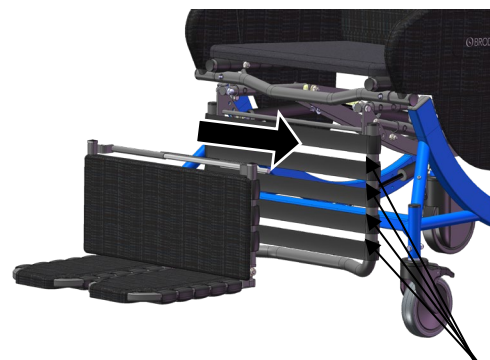
-Squeeze the footrest to the right to activate the spring mechanism, and release the left and right side.

Footplate Angle Adjustment:

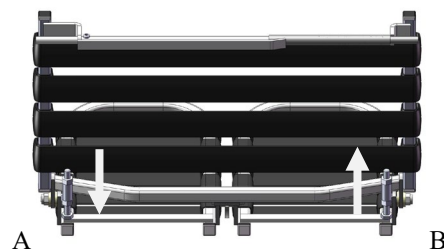
The footplates individually flip up to accommodate transfers and are angle adjustable to accommodate foot drop and ankle contractures.

**WARNING: Do not attempt to stand on the footplates.**

To adjust the footplates less than 90°, extend the bolt as indicated by A. To make the angle more than 90°, shorten the bolt (as indicated by B)



Length Adjustment Increments



### 3.6 Removable Wings

Wings support the Shoulder Bolsters which provide upper body lateral support. The wings are width and height adjustable to accommodate various residents.

To Remove the Wing:

-Loosen the knob (1) and pull the wing from the receptacle.

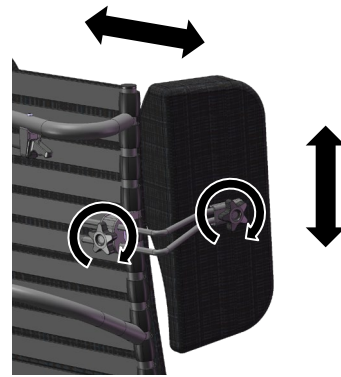
To Insert the Wing:

- Insert the wing back into the receptacle. Tighten the knob and ensure the wing is secured in place.

To Adjust the Wing Height:

-Loosen the knob and raise or lower the wing to the desired position.

-Tighten the knob and ensure the wing is secured in place.



### 3.7 Shoulder Bolsters

The Shoulder Bolsters provide upper torso support, protection and containment and accommodate asymmetries in the chair user. Their unique design allows for proper elbow access to the arm rest. The Shoulder Bolster is always used in conjunction with the side wing.

To Attach the Shoulder Bolsters:

-Fit the Shoulder Bolster over the wing.  
-Secure with the Velcro strips.

**Note:** The Shoulder Bolster can be inverted on the wing in order to provide support to narrower residents.



### 3.8 Swing Away/Removable Arms

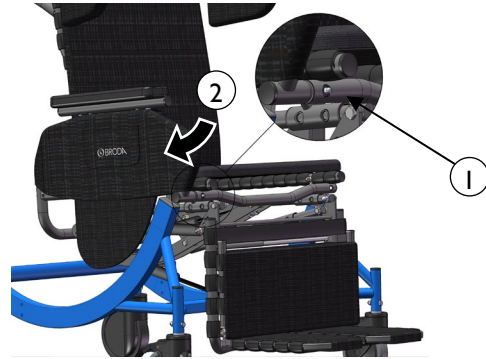
The swing away removable arms allow for side access to facilitate safe and easy transfers.

To Remove the Arms:

- Push the button on the front of the seat, while pulling out the arm.
- Swing the side panel away or remove completely.

**Note:** Chairs with mag wheels of 20" or larger will not allow for the side panels to swing away, however they are removable.

Swing Away/Removable Arms



### 3.9 Height Adjustable Armrests

The armrest height can easily be adjusted in order to accommodate various residents. The armrest height should be adjusted to provide correct arm support for the resident as determined by the caregiver.

To Adjust the Armrest Height:

- Squeeze the pins together which are located under the armrest flap.

**WARNING: DO NOT place fingers at the top of the pins as this could cause pinching. Place fingers in the concave shape of the pins.**

- Raise or lower the arm to the desired height.

**WARNING: DO NOT place fingers anywhere underneath the arm while adjusting, as this could cause pinching.** Upon releasing the pins the armrest height will lock into place.

Secure the outside flap on the side panel. Change the height on the other arm as desired.





### 3.10 Casters

The Synthesis features 5" front total lock casters and 6" rear directional locking casters.

To Operate the Front Casters:

Step on/off caster pedal to lock/unlock caster.

To Operate the Rear Casters:

The rear caster function is controlled by one step on the rear pedal.

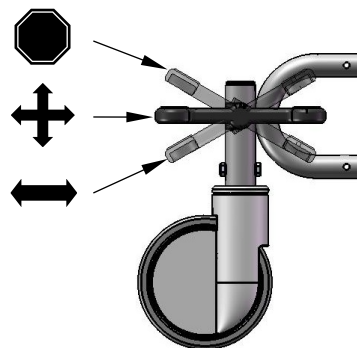
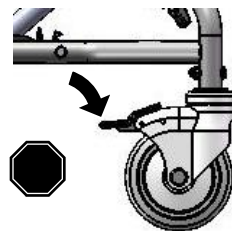
The tracking position (green dot down) eliminates any swivel function, which is ideal for pushing the chair down hallways.

The swivel position (neutral, horizontal pedal) is ideal for maneuvering in tight Spaces and moving the chair laterally.

The locked position (red dot down) prevents the movement of both rear casters.

**Always ensure the brakes are unlocked when wheeling the chair.**

For chairs with rear mag wheels, lock and unlock using the handbrake.



### 3.11 Accessories (Options)

We recommend Broda accessories for use only on Broda chairs. The correct installation of the Broda accessory is very important. We recommend that the Broda chair is ordered with the required accessories already installed. Only authorized caregivers who thoroughly understand the accessory installation procedures should attempt to install their Broda accessories without assistance from their local Broda representative. Broda does not recommend use of other manufacturer's accessories on Broda chairs.

### 3.12 Motor Vehicle Use (Vehicle Transport Package Option- Synthesis Transport Chair)

Identify whether your chair has been manufactured with the Vehicle Transport Option.

If your chair is NOT equipped with the Vehicle Transport Option, this chair does NOT meet the federal standard for motor vehicle seating. DO NOT permit individuals to sit in this chair while in a moving vehicle.

**If your chair IS equipped with the Vehicle Transport Option,** (Equipped with brackets shown below)

This Synthesis Model conforms with the requirements of ANSI/RESNA WC/Vol. 1- Section 19 vehicle crash test standards with a 95% percentile large male ATD.

Testing was conducted in accordance with procedures set forth in Annex A of Section 19, ANSI/RESNA WC/Vol. 1 Wheelchairs Used as Seats in Motor Vehicle, hereafter referred to as ANSI/RESNA WC19 or WC 19. The chair's performance has been measured and evaluated according to the requirements of 5.3 of this standard. The wheelchair ATD was restrained by a three-point belt with a commercial wheelchair-anchored lap belt and surrogate shoulder

belt. Testing was conducted with: Synthesis (WC-19) 24" seat width, 13° seat tilt, 18.5" seat depth, mag wheel hole position # 2. Broda does not recommend the Synthesis be transported with an occupant in any position other than the tested configuration.

The WC-19 test was conducted using 48kph (30mph) and 20-g average impact conditions to determine the frontal impact response of the wheelchair.

The Synthesis Vehicle Transport Option (Synthesis Transport Chair) is available factory installed only. It can NOT be retrofit to existing models or serviced in the field.

The Broda Vehicle Transport Option consists of:

- Front Securement (left and right)
- Rear Securement (left and right)
- 5" Aluminum front casters
- Vehicle Restraint Seat Belt (conforms with WC-19) and Anchor
- Footrest tether

Use only Wheelchair Tie Down and Occupant Restraint Systems which meet the requirements of SAE J2249. Recommended Practice- Wheelchair Tie Downs and Occupant Restraint Systems for Motor Vehicles.

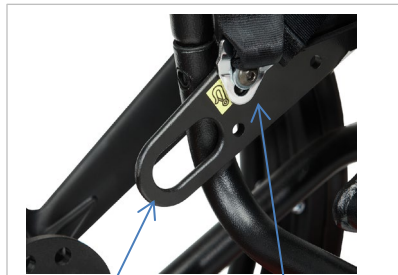
Chairs involved in vehicle accidents should be taken out of use immediately.

If a problem is detected with any of the Vehicle Transport Option components or any components of the chair, remove the chair from service and contact Broda immediately

Vehicle Transport Option Components:



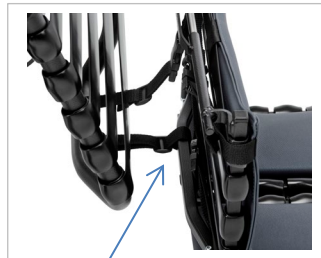
Front Securement



Rear Securement with wheelchair anchored seat belt anchor



Vehicle Restraint Seat Belt



Footrest Tether

5" Aluminum front casters come standard (not shown). Twin front casters are also available as an option.

Instructions:

- 1) Attach footrest tether to legrest by wrapping long tether strap around legrest frame and buckling long tether strap to short tether strap on footrest.

**WARNING: Footrest tether must remain attached to footrest for vehicle transport. Do not reroute, do not remove, and do not adjust footrest tether. Footrest tether shall only be removed if being replaced.**

- 2) It is recommended users transfer to the vehicle seat and use the vehicle-installed restraint system.
- 3) The pelvic belt should be worn low across the front of the pelvis, so that the angle of the pelvic belt is within the preferred zone of 45° to 75° to the horizontal, or the optional zone of 30° to 45° to the horizontal as shown in figure 8.

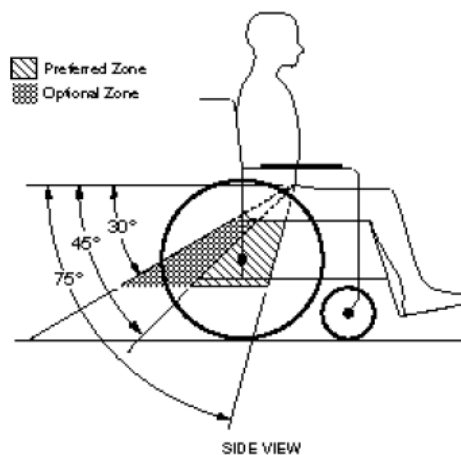


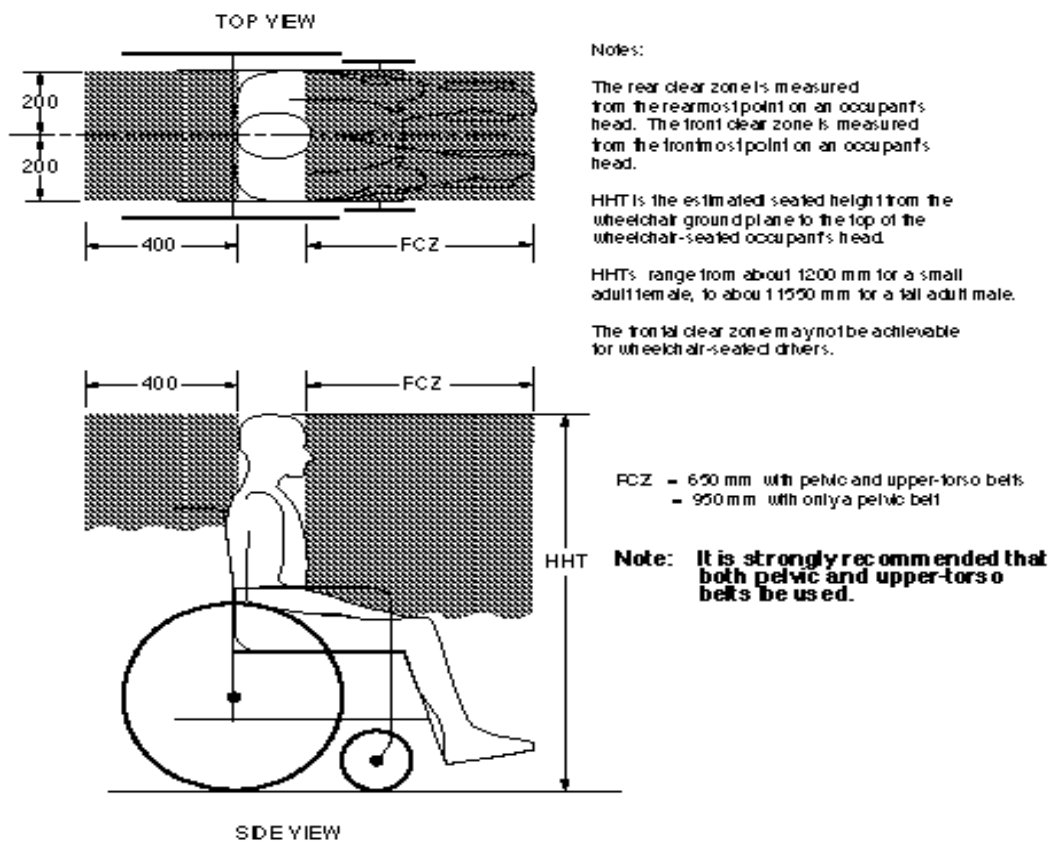
Figure 8 - Zones of preferred and optional angles for pelvic belts.

- 4) Belt restraints should not be held away from the body by chair components or parts, such as the wheelchair armrests or wheels.
- 5) Upper torso belts should fit over the shoulders
- 6) Belt restraints should be adjusted as firmly as possible, consistent with user comfort and
- 7) Belt webbing should not be worn twisted in a manner that significantly reduces the area of contact of the belt with the occupant.

**WARNINGS!**

- 1) **The chair should be used only for forward-facing seating in motor vehicles,**
- 2) **The chair should be used as indicated in the manufacturer's instructions,**
- 3) **The chair has been dynamically tested in a forward-facing mode with the ATD restrained by both pelvic and shoulder belts, and that both pelvic and upper torso belts should be used to reduce the possibility of head and chest impacts with vehicle components,**
- 4) **Only belt restraints that comply with the provisions of 4.9.2 through 4.9.5 and 5.2, and that have been dynamically tested in accordance with Annex A and 5.3, should be installed on the chair for use as a restraint in a motor vehicle,**

- 5) Postural supports and belts may be used in a vehicle in addition to the occupant belt restraint, but should not be relied upon to replace occupant restraints that have been designed and tested for this purpose.
- 6) If the chair is not equipped with a belt restraint that complies with 4.9.2 through 4.9.5 and 5.2, and that has been dynamically tested in accordance with Annex A and 5.3, or if the chair user chooses not to use such a wheelchair-anchored –belt restraint, a vehicle-anchored belt restraint should be used,
- 7) Auxiliary chair equipment should be removed from the chair and secured in the vehicle, during transit whenever possible, so that it does not break free and cause injury to vehicle occupants in a crash,
- 8) In order to reduce the potential of injury to vehicle occupants, chair-mounted trays not specifically designed for crash safety should be removed and secured separately in the vehicle,
- 9) Broda should be consulted in case of questions about using the chair for seating in a motor vehicle,
- 10) Alterations or substitutions should not be made to the chair structural and frame parts or components without consulting Broda,
- 11) Recommended clear zones are in front and behind the chair user, as shown in figure 10. Frontal clear zones need to be larger when upper torso belts are not used.



## **4 INSPECTION AND FUNCTIONAL TESTING**

Safety measures as described in Section 1 must be observed when inspecting or testing a chair. Only authorized caregivers or maintenance staff should attempt to inspect or test a chair.

### **4.1 Inspection**

We recommend regular visual inspection for signs of wear, damage, loose or missing fittings, and other safety concerns. If a breakage, defect, or operational problem is detected, the chair must be repaired inspected and tested for function before it is returned to service.

We recommend that the chair be inspected as often as each use if there is any reason to be concerned about the possibility of increased wear or loose or missing fittings. **At a minimum, in regular use the chair should be inspected on a bimonthly basis.** The visual inspection procedure should include at least the observation of all the fittings (fasteners):

The visual inspection procedure should include at least the observation of the following parts:

- 1) The cylinders that position the seat tilt, back recline, and independent leg rest elevation.
- 2) The vinyl straps used in the seat, back, leg rest, footrest and wings
- 3) The cushions
- 4) The 3 black handles and cables.
- 5) The armrest height adjustment pins

The visual inspection procedure should include the observation of any installed accessories. The visual inspection should be performed by the facility, or if in a private residence, by the individual responsible for the chair.

### **4.2 Functional Testing**

**We recommend that the chair should be tested for operation of the chair's functions without a resident in the chair.** The testing may be as often as each use if there is any reason to be concerned about the possibility of increased wear or damage to the chair's components. At a minimum, in regular use the chair should be tested for functions as described in Section 3.

If the caregiver or maintenance department performing the functional testing believes that any function is not operating correctly, the chair should be taken out of service until a satisfactory functional test can be completed.

**The caregiver or maintenance department performing the testing should be aware that the seat tilt, back recline, and footrest (leg rest) elevation operations will be more difficult without a resident in the chair.** When performing repairs or maintenance, do not use lubricants that contain solvents. Solvents will damage many of the moving components in the chair. If necessary, a white, food grade grease (lubricant) may be used on the sliding components in the chair. Do not use spray lubricants on any part of the chair.

## **5 TECHNICAL INFORMATION**

### **5.1 Specifications**

#### Specifications Based on 20" Wide Synthesis Chair

1. Back Recline: Up to 90° (infinitely adjustable)  
Trendelenburg position capable
2. Seat Tilt: Up to 40° of seat tilt (infinitely adjustable)
3. Frame: Powder coated steel
4. Seat/Back Surface: Broda Comfort Tension Seating® Strapping is 1-1/2" wide, by 1/8" thick; contains fungicide, has shape memory retention, is fire retardant
5. Arms: Seat mounted arms  
Swing away and removable  
Adjustable armrest height
6. Leg Rest: Leg rest articulates and extends with back recline  
Leg rest adjusts independently of back recline  
Leg rest adjusts to any angle between horizontal and vertical
7. Footrest: Split flip down removable/adjustable footrest
8. Wings: Adjustable and removable wings for upper lateral support
9. Padding: Removable padding (shoulder bolsters, neck rest, upper & lower side pads, seat and back pad with removable terry cover, calf pad, sole pad, extra terry covers)  
The 34 ounce healthcare vinyl fabric covering is manufactured to meet the following requirements: DIN 75 200/DIN 53 438; MVSS 302, M2; CAL 117, and Wyzenbeck Heavy Duty Abrasion Test; has an antimicrobial, antibacterial, anti-stain and anti-static finish; Cold crack of -20°C. Polyurethane foam meets CAL 117-2013.  
  
Removable seat and back pads are covered with an 8 ounce soft vinyl which meets CAN2-162 flammability standard for hospital textiles. Polyurethane foam meets CAL 117-2013. Removable, washable, pre-shrunk fitted cotton terry covers are provided for the seat and back pads. Terry covers provide absorption, and vapor and heat transfer.
10. Casters: 5" total lock front casters, 6" Single directional locking rear casters  
Non-marking grey rubber tires.
11. Seat Depth: 17"
12. Seat Height: 20.5"
13. Seat Width: 20" (18" also standard)
14. Overall Width: 29"
15. Overall Height: 50"
16. Weight Capacity: 350 lbs
17. Overall Weight: Approx. 115 lbs standard features

All dimensions are ± 0.5".

## 5.2 Broda Seating Synthesis Parts Schematics

ITEM	PART NUMBER	DESCRIPTION	QTY
1	X44001	785V4 BASE ASSEMBLY	1
2	X44002	785V4 SEAT ASSEMBLY	1
3	X44003	785V4 BACK ASSEMBLY	1
4	X44004	785V4 ARM ASSEMBLY RH/LH	2
5	X44005	785V4 LATERAL ASSEMBLY	2
6	X11005	785 LEGREST XX" ASSEMBLY	1
7	500600148	Kit pab17 & actuator assembly	1
8	500600148	KIT PAB10 & ACTUATOR ASSEMBLY	1
9	500600115	KIT PAB5 & ACTUATOR ASSEMBLY	1
10	200401100	FRM LGRST ROD ATT 17" s/d	2
11	200407003	FRm lgrst rod eiv 17" s/d v2	1
12	200403005	FRM LEGREST EXT BAR 785V2	2
13	200405000	FRM LGRST ELEVATION TUBE	1
14	200404000	FRM LEGREST JLEVER	1
15	430114000	BUSHING ARM SLEEVE	1
16	430123002	SPRING 90A URETHANE	1
17	430112000	PLUG WITH 5/16 PASS HOLE	1
18	411141070	SCREW 5/16-18 X 1-1/2 HEX CAP	3
19	411141075	SCREW 5/16-18 X 1-3/4 HEX CAP	1
20	411141080	SCREW 5/16-18 X 2 HEX CAP	3
21	411141082	SCREW 5/16-18 X 2.00 HEX CAP ZINC GR8	4
22	411141085	SCREW 5/16-18 X 2-1/4 HEX CAP	2
23	411141092	SCREW 5/16-18 X 2-1/2 HEX CAP	1
24	411141100	SCREW 5/16-18 X 2-3/4 HEX CAP	1
25	411141200	SCREW 5/16-18 X 3 HEX CAP	3
26	414007000	SPACER 0.6300D X 0.378ID X 0.50THK	4
27	414006500	SPACER NYLRND .390x.625x.468 LONG	6
28	414006000	SPACER 0.6250D X 0.390ID X 0.375THK	7
29	414005000	SPACER 0.6250D X 0.390ID X 0.25THK	3
30	414004000	SPACER 0.4840D X 0.343ID X 0.188THK	2
31	414008000	SPACER 0.6200D X 0.323ID X 0.156THK	4
32	414009000	SPACER 0.750D X 0.323ID X 0.125THK	13
33	413141000	WASHER 5/16 SAE FLAT ZINC	5
34	410143000	NUT 5/16-18 NYLON INSERT LOCKNUT, ZINC	16
35	410144000	NUT 5/16-18 HEX ZINC	1
36	410148000	NUT 5/16 ACORN LOW CROWN, ZINC	2

DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED:	ECN	REV	CHANGE DESCRIPTION	NAME	DATE
DIMENSIONS ARE IN INCHES		813	0	FIRST RELEASE		
TOLERANCES:						
FRACTIONAL ± 1/32"						
ANGULAR: MACH ± 0.5°						
TWO PLACE DECIMAL ± 0.010"						
THREE PLACE DECIMAL ± 0.005"						
INTERPRET GEOMETRIC TOLERANCING PER:						
MATERIAL:						
N/A						
VOLUME:						
750.3 IN3						

<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF BRODA ENTERPRISES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF BRODA ENTERPRISES IS PROHIBITED.		MODEL NAME: 785V4 CHAIR ASM	MODEL LOCATION: P:\Engineering\CAD\785V4\785V4_VA\785V4
TITLE: 785V4 CHAIR ASSEMBLY	SIZE DWG. NO. <b>A</b> 785V4	REV <b>0</b>	SHEET 1 OF 4

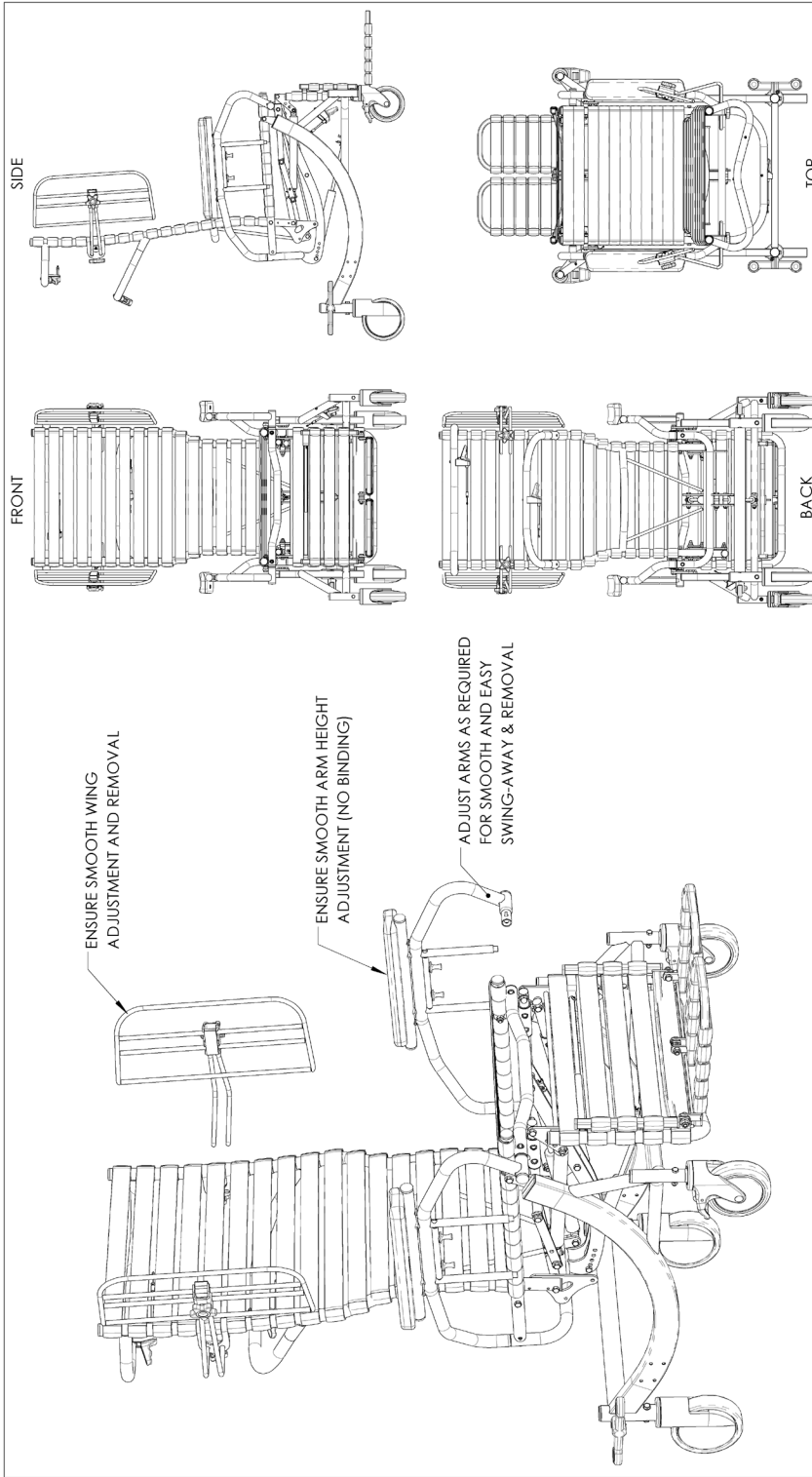
  

TPC	05/17/2016	2	3	4	5
SCALE: 1:10	WEIGHT:				



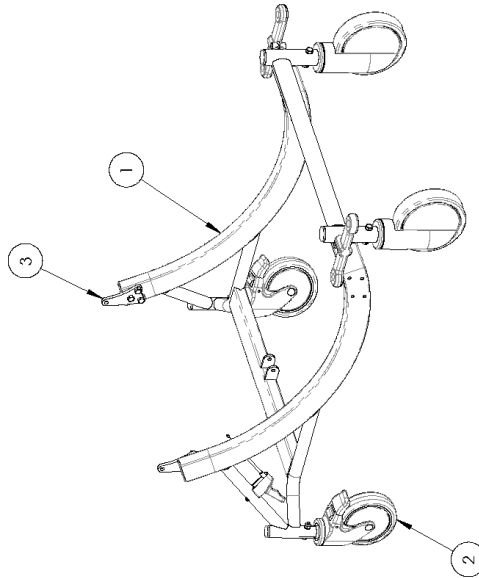






DO NOT SCALE DRAWING		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: 1/32" ANGULAR: MACH ±0.5° ANGULAR: BEND ±1° TWO PLACE DECIMAL: ±0.010" THREE PLACE DECIMAL: ±0.005"		BRODA® 540 Bincemonts Centre Dr. Kitchener, Ontario N2B 3J9 Phone: 1-800-668-0637	
ECN	REV	CHANGE DESCRIPTION	NAME	DATE	TITLE: 785V4 CHAIR ASSEMBLY
813	0	FIRST RELEASE	TFC	05/17/2016	SCALE: 1:10 WEIGHT:
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF BRODA ENTERPRISES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF BRODA ENTERPRISES IS PROHIBITED.		MATERIAL N/A		SIZE DWG. NO. 785V4 REV 0	
MODEL NAME: 785V4-AS-01		MODEL LOCATION: P:\02-Engineering\02-2016\broda\785V4\CDN\785V4		SHEET 4 OF 4	

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SEE TABLE	FRM BASE XX" 785V4	1
2	SEE TABLE	WHE CASTER 5" LOCK TOTAL/TWIN WHEEL/FORK WHEEL, BLACK OR GREY	2
3	SEE TABLE	FRM SEAT PIVOT 19.5/20.5/22.0/23.5 SH 785V4	2
4	SEE TABLE	FRM WHEEL XX" CONTROL ROD	1
5	200101205	FRM SEAT FASTENER PLATE 785V4	2
6	500600100	KIT CABLE AND HANDLE ASSY 48"	1
7	430105003	WHE CASTER 6" SDLC BLACK	2
8	430105002	WHE PEDAL FOR SDLC CASTER RH	1
9	430105001	WHE PEDAL FOR SDLC CASTER LH	1
10	412114000	SCREW #8 X 1-1/2" PAN QUAD, ZINC	1
11	412144000	SCREW #10-32 X 1" SHCS-BLACK ZINC	2
12	411131000	SCREW 1/4"-20 X 1-1/2" HEX CAP, ZINC	2
13	411141050	SCREW 5/16"-18 X 1" HEX CAP	6
14	412120030	SCREW M8-1.25MM X 12MM HEX CAP, GRD5, ZINC	4
15	413131000	WASHER 1/4" SPLIT LOCK, ZINC	2
16	413001000	WASHER 8MM INT TOOTH LOCK	4
17	410182000	NUT 10-32 HEX NUT-ZINC (FOR DURN PEDAL)	2
18	410132001	NUT 1/4-20 NYLON INSERT LOCKNUT, ZINC	2
19	410003030	PLUG RND 1" 1.4-23Gd INSIDE RIBBED, BLACK	2
20	410003100	PLUG SQR 2" X 1" 1.6-18Gd INSIDE GLIDE, BLACK	2
21	410003060	PLUG RND 1-1/4" 1.6-18GA INSIDE RIBBED, BLACK	2



FRM SEAT PIVOT 19.5/20.5/22.0/23.5 SH 785V4	
SIZE	PART #
19.5	200101201
20.5	200101202
22.0	200101203
23.5	200101204

FRM BASE XX" 785V4	
SIZE	PART #
16"	2027010010
18"	201105010
20"	209105010
22"	203105010
24"	204105010
26"	206105010

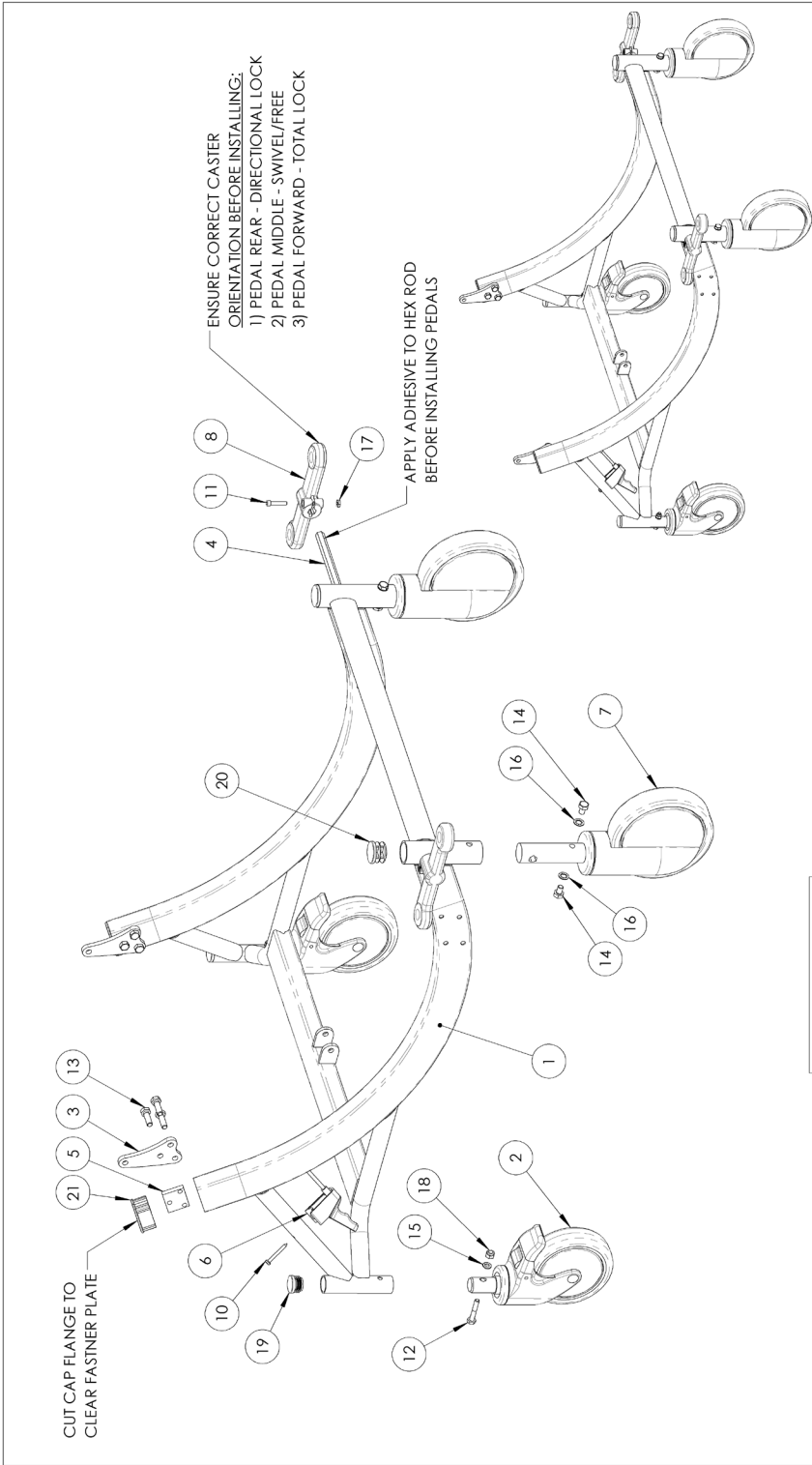
  

WHE CASTER 5" LOCK TOTAL/TWIN WHEEL/FORK WHEEL, BLACK OR GREY	
STYLE	PART #
SINGLE WHEEL GREY	430101002
SINGLE WHEEL BLACK	430101003
TWIN WHEEL	X44008
FORK WHEEL	X44009

FRM WHEEL XX" CONTROL ROD	
SIZE	PART #
16"	202701100
18"	201701100
20"	209701100
22"	203701100
24"	204701100
26"	206701100

DO NOT SCALE DRAWING		ECN	REV	CHANGE DESCRIPTION	NAME	DATE		560 Binclemans Centre Dr. Kitchener, Ontario N2B 3A9 Phone: 1-800-668-0637
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/32" ANGULAR: MACH±0.5° ANGULAR: BEND ±1° TWO PLACE DECIMAL: ±0.010" THREE PLACE DECIMAL: ±0.005"								
INTERPRET GEOMETRIC TOLERANCING PER:								
MATERIAL								
N/A								
VOLUME								
185,99188272 IN3		941	1	LG RTV CABLE WAS 32"	TN	02/07/2017	SIZE DWG. NO. <b>A</b> X44001	REV <b>1</b>
MODEL NAME: 785V4		813	0	FIRST RELEASE	TPC	05/12/2016	SCALE: 1:12	WEIGHT: SHEET 1 OF 2
MODEL LOCATION: Engineering, Ontario, BCS, Equipment Change (0241)								



DO NOT SCALE DRAWING		UNLESS OTHERWISE SPECIFIED:		DIMENSIONS ARE IN INCHES		TOLERANCES:		FRACTIONAL: 1/32"		ANGULAR: MACH ±0.5°		ANGULAR: BEND ±1°		TWO PLACE DECIMAL: ±0.010"		THREE PLACE DECIMAL: ±0.005"		INTERPRET GEOMETRIC TOLERANCING FEE:		MATERIAL: N/A		VOLUME: 185.71475560 IN3			
ECN	REV	CHANGE DESCRIPTION	NAME	DATE	ECN	REV	CHANGE DESCRIPTION	NAME	DATE	ECN	REV	CHANGE DESCRIPTION	NAME	DATE	ECN	REV	CHANGE DESCRIPTION	NAME	DATE	ECN	REV	CHANGE DESCRIPTION	NAME	DATE	
813	0	FIRST RELEASE	TFC	05/12/2016	813	0	FIRST RELEASE	TFC	05/12/2016	813	0	FIRST RELEASE	TFC	05/12/2016	813	0	FIRST RELEASE	TFC	05/12/2016	813	0	FIRST RELEASE	TFC	05/12/2016	
MODEL NAME:		MODEL LOCATION:		SCALE: 1:8		WEIGHT:		SHEET 2 OF 2		TITLE:		785V4 BASE ASSEMBLY		SIZE DWG. NO.:		X44001		REV:		O		REV:		O	

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SEE TABLE	FRM SEAT XX" 785V4 17.0 S/D	1
2	SEE COLOR	SEE TABLE	11
3	430114000	BUSHING ARM SLEEVE	8
4	410003030	PLUG RND 1" 14-23Gα INSIDE RIBBED, BLACK	2
5	410005000	FASTENER ALUMINUM 3/16" RIVET	22
6	411141085	SCREW 5/16-18 X 2-1/4 HEX CAP	1
7	410143000	NIUT 5/16-18 NYLON INSERT LOCKNUT, ZINC	1
8	414007000	SPACER, 0.6300D X 0.378ID X 0.50THK	2
9	414006000	SPACER, 0.6250D X 0.390ID X 0.375THK	1

FRM SEAT XX" 785V4 17.0 S/D	
SIZE	LENGTH
16"	21"
18"	22.5"
18"	23.5"
20"	24.5"
22"	26"
24"	28"
26"	30"

785V4 SEAT STRAP WIDTHS	
SIZE	LENGTH
16"	21"
18"	22.5"
18"	23.5"
20"	24.5"
22"	26"
24"	28"
26"	30"

BULK STRAP PART #'S	
COLOR	PART #
GREY	430131000
GREEN	430132000
BLUE	430134000
BLACK	430136000
BROWN	430138000

ECN	REV	CHANGE DESCRIPTION	NAME	DATE
813	0	FIRST RELEASE	TFC	05/13/2016

DO NOT SCALE DRAWING	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	
TOLERANCES:	
FRACTIONAL: 1/32"	ANGULAR: MACH ±0.5°
TWO PLACE DECIMAL: ±0.010"	THREE PLACE DECIMAL: ±0.005"
INTERPRET GEOMETRIC TOLERANCING FEE:	
MATERIAL	N/A
VOLUME	76.6 IN3

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MODEL NAME: PLUG BUSHING COIL SPRING ARM SLEEVE 785V4

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SEE TABLE	FRM BACK XX" 785V4	1
2	SEE COLOR	SEE TABLE	7
3	SEE COLOR	SEE TABLE	10
4	410005000	FASTENER ALUMINUM 3/16" RIVET	34
5	410004010	HANDLE 5/16-18 SPT WITH HOLE	2
6	430400014	LAT WING CLAMP BLOCK	2
7	430121012	SPRING 1.25" 785V4 WING	2
8	412150003	DOWEL SPRING PIN 3/32" DIA X 1/2" L ZINC	2
9	430112000	PLUG WITH 5/16 PASS HOLE	2
10	410003030	PLUG RND 1" 14-23Gα INSIDE RIBBED, BLACK	2
11	500600156	KIT CABLE & SHORT HANDLE 56"	1
12	500600100	KIT CABLE AND HANDLE ASSY 48"	1
13	412114000	SCREW #8 X 1-1/2" PAN QUAD, ZINC	2

FRM BACK XX" 785V4	
SIZE	PART #
16"	202301009
18"	201301009
20"	203301009
22"	204301009
24"	206301009
26"	206301009

BULK STRAP PART #S	
COLOR	PART #
GREY	430131000
GREEN	430132000
BLUE	430134000
BLACK	430136000
BROWN	430138000

785V4 BACK STRAP WIDTHS			
SIZE	TOP	BOTTOM	7
16"	21"	20"	
18"	22.5"	21.5"	
20"	23.5"	22.5"	
22"	24.5"	23.5"	
24"	26"	25"	
26"	28"	27"	

ECN	REV	CHANGE DESCRIPTION	NAME	DATE
813	0	FIRST RELEASE	TFC	05/13/2016

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:  
 DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 FRACTIONAL: ±1/32"  
 ANGULAR: MACH ±0.5°  
 ANGULAR: BEND ±1°  
 TWO PLACE DECIMAL: ±0.010"  
 THREE PLACE DECIMAL: ±0.005"

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL: N/A  
 VOLUME: 123.5 IN3

PROPRIETARY AND CONFIDENTIAL  
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MODEL NAME: P10-81114000-001 (Broda) 785V4

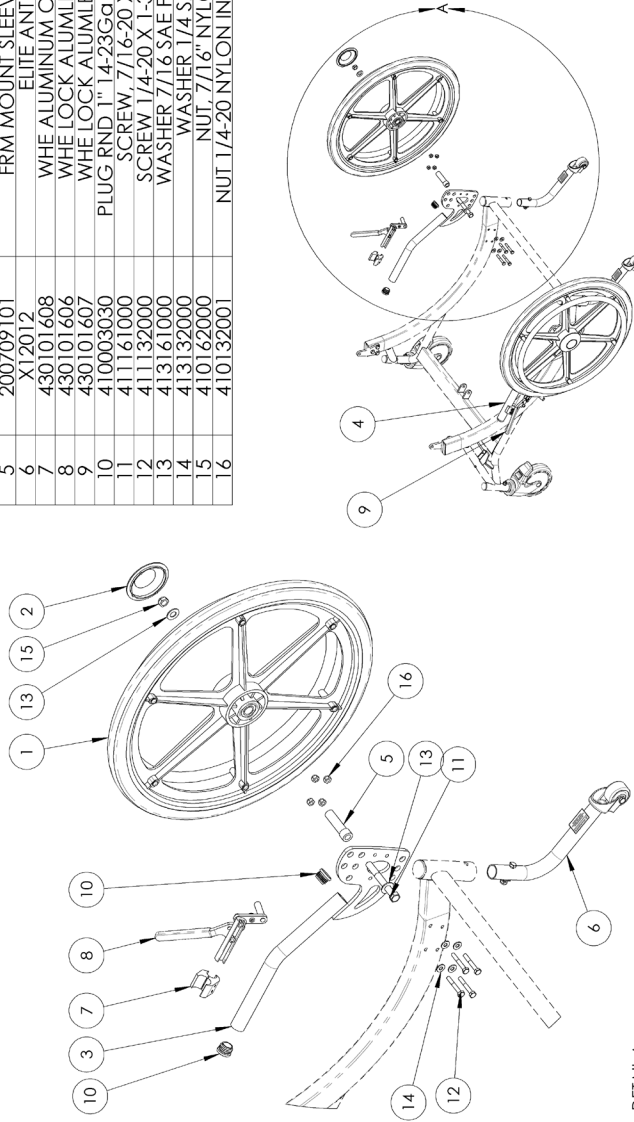






ITEM	PART NUMBER	DESCRIPTION	QTY
1	SEE TABLE	WHE MAG XX" 8 SPOKE, 5/8" AXLE	2
2	430109003	WHE HUB CAP MAG IIM	2
3	200702005	FRM WHL MNT 20+22 MAG 785V4 RH	1
4	200702006	FRM WHL MNT 20+22 MAG 785V4 LH	1
5	200709101	FRM MOUNT SLEEVE FOR MAG WHE	2
6	X12012	ELITE ANTI-TIP ASM	2
7	430101608	WHE ALUMINUM CLAMP 1" DIA, BK05	2
8	430101606	WHE LOCK ALUMLEG BK04 (PUSH-RH)	1
9	430101607	WHE LOCK ALUMLEG BK04 (PUSH-LH)	1
10	410003030	PLUG RND 1" 14-23GG INSIDE RIBBED, BLACK	4
11	411161000	SCREW 7/16-20 X 3 1/2 HEX CAP, ZINC	2
12	411132000	SCREW 1/4-20 X 1-3/4 HEX CAP, ZINC	8
13	413161000	WASHER 7/16 SAE FLAT WASHER, ZINC	4
14	413132000	WASHER 1/4 SAE FLAT ZINC	8
15	410162000	NUT, 7/16" NYLOCK HEX JAM	2
16	410132001	NUT 1/4-20 NYLON INSERT LOCKNUT, ZINC	8

WHE MAG XX" 8 SPOKE, 5/8" AXLE	
SIZE	PART #
20"	430107000
22"	430107001



DETAIL A  
SCALE 1 : 10

ECN	REV	CHANGE DESCRIPTION	NAME	DATE
813	0	FIRST RELEASE	TPC	05/12/2016

DO NOT SCALE DRAWING	
UNLESS OTHERWISE SPECIFIED:	
DIMENSIONS ARE IN INCHES	
TOLERANCES:	
FRACTIONAL: 1/32"	
ANGULAR: MACH ±0.5°	
TWO PLACE DECIMAL: ±0.010"	
THREE PLACE DECIMAL: ±0.005"	
INTERPRET GEOMETRIC TOLERANCING FEE:	
MATERIAL:	N/A
VOLUME:	185.71475560 IN3

<b>PROPRIETARY AND CONFIDENTIAL</b>	
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF BRODA ENTERPRISES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF BRODA ENTERPRISES IS PROHIBITED.	
MODEL NAME:	785V4 MAGWHEEL ASM 20" & 22"
MODEL LOCATION:	PLS Broomfield, Colorado (USA) (CDN) (MEX) (BRA)

SIZE	DWG. NO.	REV
A	X44006	0

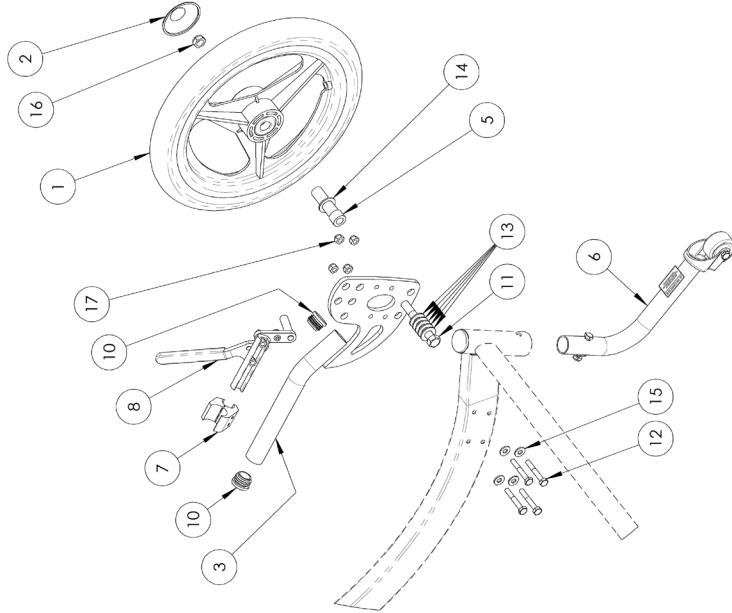
  

SCALE: 1:20		WEIGHT:	
1		1	
2		1	
3		1	
4		1	
5		1	
6		1	
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8		1	
9		1	
10		1	
11		1	
12		1	
13		1	
14		1	
15		1	
16		1	

BRODA®	
560 Broomfield Centre Dr. Kitchener, Ontario N2B 3X9 Phone: 1-800-668-0637	

ITEM	PART NUMBER	DESCRIPTION	QTY
1	430108100	WHE MAG 14" 5/8" AXLE	2
2	430109002	WHE HUB CAP 14" MAG	2
3	200702007	FRM WHL MNT 14 MAG 785V4 RH	1
4	200702008	FRM WHL MNT 14 MAG 785V4 LH	1
5	200709101	FRM MOUNT SLEEVE FOR MAG WHE	2
6	X12012	ELITE ANTI-TIP ASM	2
7	430101608	WHE ALUMINUM CLAMP 1" DIA, BK05	2
8	430101606	WHE LOCK ALUMLEG BK04 (PUSH-RH)	1
9	430101607	WHE LOCK ALUMLEG BK04 (PUSH-LH)	1
10	410003030	PLUG RND 1" 14-23G INSIDE RIBBED, BLACK	4
11	411161000	SCREW 7/16-20 X 3 1/2 HEX CAP	2
12	411132000	SCREW 1/4-20 X 1-3/4 HEX CAP, ZINC	8
13	413161000	WASHER 7/16 SAE FLAT WASHER, ZINC	10
14	413001001	WASHER 5/8" ID X 1" OD X .065" FLT	2
15	413132000	WASHER 1/4 SAE FLAT ZINC	8
16	410162000	NUT 7/16" NYLOCK HEX JAM	2
17	410132001	NUT 1/4-20 NYLON INSERT LOCKNUT, ZINC	8



DETAIL A  
SCALE 1 : 8

ECN	REV	CHANGE DESCRIPTION	NAME	DATE
813	0	FIRST RELEASE	TFC	05/12/2016
SCALE: 1:20 WEIGHT: SHEET 1 OF 1				

DO NOT SCALE DRAWING	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	
TOLERANCES:	
FRACTIONAL: 1/32"	
ANGULAR: MACH ±0.5°	
TWO PLACE DECIMAL: ±0.010"	
THREE PLACE DECIMAL: ±0.005"	
INTERPRET GEOMETRIC TOLERANCING FEE:	
MATERIAL:	
N/A	
VOLUME:	
185.71475560 IN3	

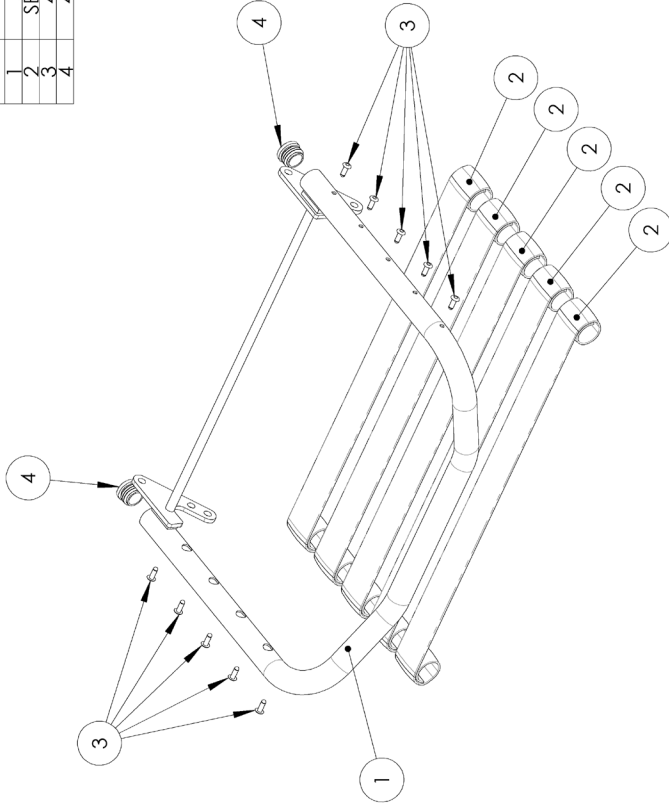
  

<b>PROPRIETARY AND CONFIDENTIAL</b>	
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MODEL NAME:	MODEL LOCATION:
785V4	PLU Broomfield, CO, USA (broda@broda.com) 785V4

560 Broomfield Centre Dr. Kitchener, Ontario N2B 3X9 Phone: 1-800-668-0637	
TITLE: 785V4 MAGWHEEL ASM 14"	
SIZE	REV
A	0
DWG. NO.	
X44007	

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SEE TABLE	FRM LEGREST XX" VERTICAL	1
2	SEE TABLE	SEE TABLE	5
3	410005000	FASTENER ALUMINUM 3/16" RIVET	10
4	410003030	PLUG RND 1 1/4-23Gd INSIDE RIBBED, BLACK	2



**FRM LEGREST XX" VERTICAL**

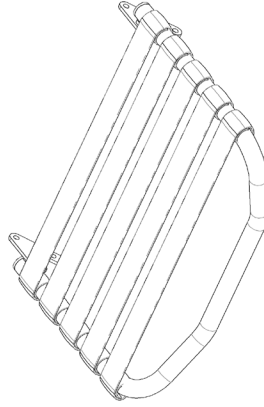
SIZE	PART #
16"	202401003
18"	201401003
20"	209401003
22"	203401003
24"	204401003
26"	205401003
28"	206401003
28"	207401003

**785 LEGREST STRAP WIDTHS**

SIZE	TOP	BOTTOM 4
16"	22.5"	21.5"
18"	23.5"	22.5"
20"	24.5"	23.5"
22"	25.5"	24.5"
24"	26.5"	25.5"
26"	27.5"	26.5"
28"	28.5"	27.5"

**BULK STRAP PART #'s**

COLOR	PART #
GREY	430131000
BLUE	430134000
GREEN	430132000



DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:  
 DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 FRACTIONAL: 1/32"  
 ANGULAR: MACH ±0.5°  
 TWO PLACE DECIMAL: ±0.010"  
 THREE PLACE DECIMAL: ±0.005"

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

VOLUME  
 IN3

**PROPRIETARY AND CONFIDENTIAL**  
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MODEL NAME: 785 Legrest XX" Vertical  
 MODEL LOCATION: C:\ProgramData\BRODA\Drawings\785\785.dwg

ECN	REV	CHANGE DESCRIPTION	NAME	DATE
403	2	UPDATED WELDMENT PART NUMBERS	TPC	05/24/2012
67	1	CHANGED TO GENERIC WIDTH CALLOUT	TPC	07/16/09
17	0	FIRST RELEASE	TPC	17/07/2008

5 4 3 2 1

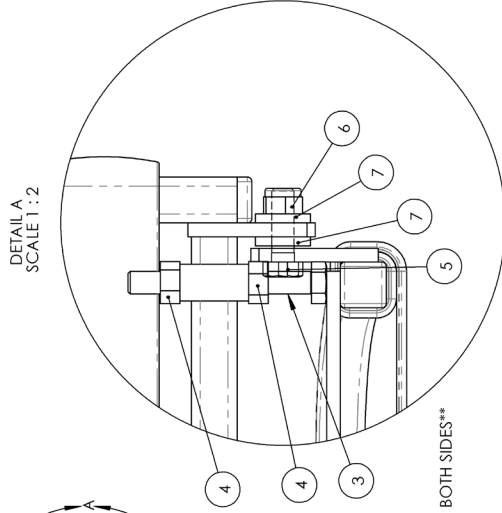
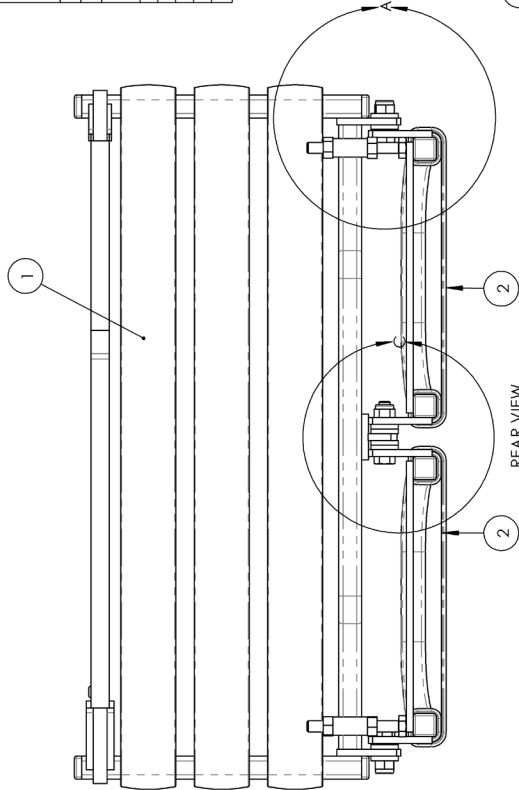
SCALE: 1:6 WEIGHT: SHEET 1 OF 1

**BRODA**  
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 Kitchener, Ontario  
 N2B 3X9  
 Phone: 1-800-668-0637

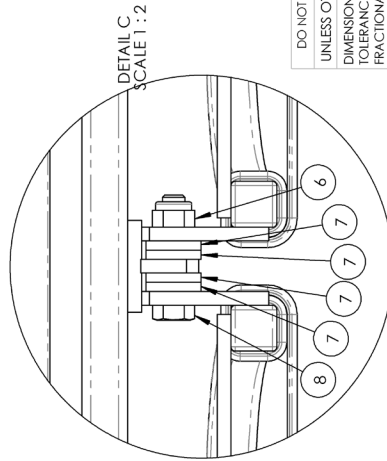
TITLE:  
 785 LEGREST XX" ASSEMBLY

SIZE DWG. NO. REV  
 A X11005 2

ITEM	PART NUMBER	DESCRIPTION	QTY
1	X10411	Footrest XX" Split Upr 3st Asm	1
2	X10407	Footrest XX" Split Lower Asm	2
3	411141090	SCREW .5/16"-18 X 2.50"L FULL THREAD HEX	2
4	410144000	NUT .5/16" PLAIN HEX	4
5	411141050	SCREW 5/16-18 X 1 HEX CAP	2
6	410143000	NUT .5/16" HEX IN LOCK	3
7	414009000	SPACER .0750D X 0.323ID X 0.125THK	8
8	411141070	SCREW 5/16-18 X 1-1/2 HEX CAP	1



DETAIL A  
SCALE 1:2



DETAIL C  
SCALE 1:2

\*\*ASSEMBLIES IDENTICAL ON BOTH SIDES\*\*

DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL ±1/32"  
ANGULAR: MACH ±0.5°  
ANGULAR: BEND ±1°  
TWO PLACE DECIMAL ±0.010"  
THREE PLACE DECIMAL ±0.005"  
INTERPRET GEOMETRIC  
TOLERANCING FEE:  
MATERIAL  
FINISH

ECN	REV	CHANGE DESCRIPTION	NAME	DATE
85	0			

**BRODA**  
560 Binghamton Centre Dr.  
Kitchener, Ontario  
N2B 3X9  
Phone: 1-800-668-0637

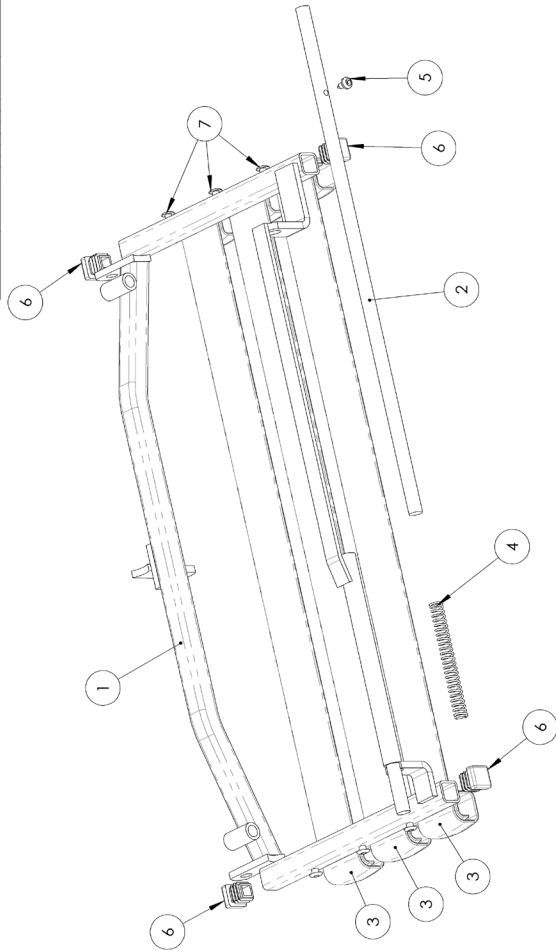
TITLE:  
Split Footrest XX"W 3st Asm

MODEL NAME:	MODEL LOCATION:	SIZE	DWG. NO.	REV
		A	X10403	0

**PROPRIETARY AND CONFIDENTIAL**  
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MODEL NAME:	MODEL LOCATION:	JCS	FIRST RELEASE	SCALE:	WEIGHT:	SHEET 1 OF 1
		10/5/2009		1:8		1

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SEE TABLE	FRMFOOT XX" SPLT UPPER 3ST	1
2	SEE TABLE	FRMFOOT XX" ROD	1
3	SEE TABLE	FRMFOOT XX" ROD	3
4	SEE TABLE	FRMFOOT XX" ROD	3
5	430121000	SPRING 3.25" LONG FOR FOOTREST	1
6	412112000	SCREW #8 X 3/8 PAN QUAD SELF TAP	4
7	410003001	PLUG SCR 5/8" 14-20G TINNED RIBBED BLACK	4
8	410005000	FASTENER ALUM NUM 3/16" RI VET	6



SIZE	PART #
18"	201600800
20"	203600800
22"	204600800
24"	206600800
26"	207600800
28"	207600800

SIZE	PART #
18"	201600800
20"	203600800
22"	204600800
24"	206600800
26"	207600800
28"	207600800

SIZE	LENGTH
18"	21.5"
20"	22.5"
22"	23.5"
24" - W	24.5"
26" - W	25.5"
28" - W	26.5"

COLOR	PART #
GREY	430131000
BLUE	430134000
GREEN	430132000

DO NOT SCALE DRAWING		ECN	REV	CHANGE DESCRIPTION	NAME	DATE
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: 1/32" ANGULAR: MACH ±0.5° ANGULAR: BEND ±1° TWO PLACE DECIMAL: ±0.010" THREE PLACE DECIMAL: ±0.005"		403	1	UPDATE: PART NUMBERS	TPC	05/30/2012
INTERPRET GEOMETRIC TOLERANCING FEE:		84	0	FIRST RELEASE	JCS	10/10/2009
MATERIAL						
VOLUME						
IN3						
PROPRIETARY AND CONFIDENTIAL						
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF BRODA ENTERPRISES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF BRODA ENTERPRISES IS PROHIBITED.						
MODEL NAME:	Model Location: C:\Program Files\BRODA\BRODA\Products\					

BRODA®		540 Bingham Centre Dr. Kitchener, Ontario N2B 3K9 Phone: 1-800-668-0637	
TITLE: FOOTREST XX" SPLT UPPER 3ST ASM			
SIZE	DWG. NO.	REV	
A	X10411	1	
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1	

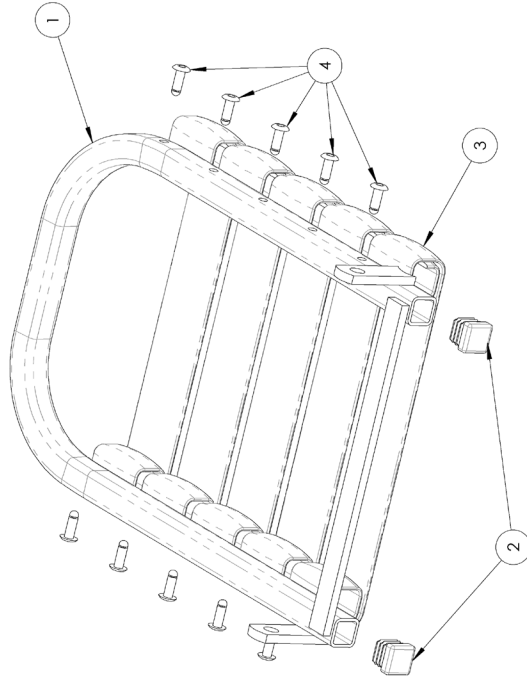
1	2	3	4	5
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ITEM	PART NUMBER	DESCRIPTION	QTY
1	SEE TABLE	BMP FOOT XX" SPLIT LOWER	1
2	410003001	PLUG SCOR 5/8" 14-2000 INSIDE RIBBED BLACK	2
3	SEE TABLE	SEE TABLE	5
4	410005000	FASTENER ALUM NUM.3/16" RI VET	10

SIZE	PART #
18"	201603000
20"	201603000
22"	201603000
24"	201603000
26"	201603000
28"	201603000

SIZE	LENGTH
18"	14"
20"	14.5"
22"	15"
24"	15.5"
26"	16"
28"	16.5"

COLOR	PART #
GREY	430131000
BLUE	430134000
GREEN	430132000



DO NOT SCALE DRAWING		ECN	REV	CHANGE DESCRIPTION	NAME	DATE
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: 1/32" ANGULAR: MACH ±0.5° TWO PLACE DECIMAL: ±0.010" THREE PLACE DECIMAL: ±0.005"		403	2	UPDATED PART NUMBERS	TPC	05/30/2012
INTERPRET GEOMETRIC TOLERANCING PER:		87	1	CHANGED CAD/NAVISION NAME TO X10407	JCS	9/10/2009
MATERIAL		85	0	FIRST RELEASE	JCS	10/10/2009
VOLUME						
IN3						
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF BRODA ENTERPRISES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF BRODA ENTERPRISES IS PROHIBITED.						
MODEL NAME:						
MODEL LOCATION:						
C:\projects\broda\prod\dev\slidework\prod.ctb						

**BRODA**  
 540 Binghamton Centre Dr.  
 Kitchener, Ontario  
 N2B 3X9  
 Phone: 1-800-668-0637

TITLE:  
**FOOTREST XX" SPLIT LOWER ASM**

SIZE DWG. NO. REV  
**A X10407 2**

SCALE: 1:8 WEIGHT: SHEET 1 OF 1

1	2	3	4	5
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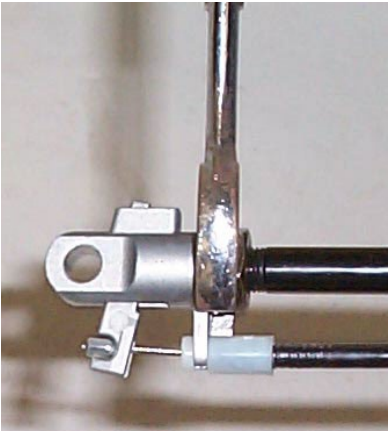
## COMMON TROUBLESHOOTING AND REPAIR

Please have the chair serial number ready when contacting Broda or your local area representative for parts or assistance for your chair. The serial number can be found on a label on the rear of the chair.

### 5.3 Troubleshooting for Gas Cylinders

The use of gas charged springs (cylinders) on Broda products allows the caregiver to easily make adjustments to the tilt, recline, and leg rest with a minimal effort. The gas cylinders contain Nitrogen gas, it is not flammable nor is it toxic. The cylinders provide a lifting force which counterbalances the weight of the occupant thereby reducing the amount of weight the caregiver needs to lift.

Symptom	Problem	Solution
The chair is not reclining or tilting or leg rest is not moving when the handle is squeezed	The pin in the end of the cylinder is not being depressed when the handle is pulled.	Ensure the cable is attached to the cylinder actuator. If cable is attached, see <b>Adjustment Step</b> see below.
The chair (tilt, recline or leg rest) seems to slowly slide out of position	The pin in the end of the cylinder may be still partially depressed.	See <b>Adjustment Steps</b> below:

Adjustment Steps:	
<p>-Loosen the lock nut located on the stem of the gas cylinder next to the actuator (17mm or 11/16" wrench)</p> <p>-From the above instruction determine whether you want to wind the stem further into the actuator or further out of the actuator. <b>Wind the stem further into the actuator if the chair is not tilting or reclining, (wind clockwise) and wind it further out of the actuator if the chair is slowly sliding out of position. (wind counter-clockwise)</b></p> <p>-Wind the stem in the correct direction one half turn.</p> <p>-Check the function of the cylinder and repeat the above step until the cylinder functions properly.</p> <p>-Tighten the lock nut loosened in the first step.</p> <p>-If adjusting the cylinder does not correct the problem, the cylinder may need to be replaced. Please contact Broda at or your local area representative.</p>	 <p><b>Note: Cylinder does not need to be removed from the chair to make this adjustment.</b></p>

**Note:** When adjusting cylinders with tools that come in contact with the cylinder rods, a cloth or some other protective material must be used to protect the sliding surface of the rod. If the rod becomes scratched or marred it will damage the seal on the cylinder and the cylinder will fail.

**Damaging a cylinder in this fashion voids the manufacturer's warranty.**



## 5.4 Rear Casters

Symptom	Problem	Solution
<p>The rear caster function is controlled by one step on the rear pedal.</p> <p>The rear caster is not engaging into the correct position when using the rear pedal.</p>	<p>The rear caster is no longer functional.</p>	<p>The rear caster must be replaced. Contact Broda or your local representative.</p> <p>Rear Pedal</p>



# MANUFACTURER WARRANTY

## Effective 10/15/2018

From date of purchase Broda warrants the side frames and cross members located on the base frame, for the Expected Lifetime\* of the original purchaser/ user, when purchased from an Authorized Broda Dealer. \*Expected Lifetime of the frame is 10 years.

In addition, Broda warrants its other product components, except the seat cushion and covers (which are not warranted), to be free from defects in materials and workmanship for a period of 2 years from the date of purchase, as indicated on the original purchase order. This warranty is non-transferable.

### **The warranty is subject to the following conditions:**

A serial number or invoice number is required for warranty coverage. The warranty shall not apply to serial numbered items if the serial number has been removed or altered in any way.

Warranty is valid for "new" purchases only. All other items will be warranted at the sole discretion of Broda.

If within such warranty period any such product shall be proven to be defective through examination, inspection and testing as deemed necessary, such product shall be repaired or replaced at Broda's discretion. This warranty does not include on-site labor.

On request, defective parts must be returned to the factory, pre-paid and insured, within 30 days. Failure to do so, will result in the owner incurring the cost of the replacement parts. Photos of defective parts may be requested as an alternate to returning product.

### **Limitations and Exclusions:**

This warranty does not cover damages that arise from improper handling, cleaning, maintenance, storage or negligent use. The warranty does not cover Broda's wheelchairs and chairs used in any way, other than the manner in which it was designed and recommended.

Modifications, incorrect assembly or installation to Broda products or the use of non-Broda products voids the warranty. Installation of parts that require the frame to be altered in any way, must be completed by a Broda Representative, unauthorized performances will void the warranty.

This warranty does not cover freight damage (see Damaged Freight Policy).

Broda retains the right to make product design and product application changes without notice.

The application of Broda products shall remain the responsibility of the purchaser or user. Please reference the model specific operating instruction manuals for safety requirements, inspectional and functional testing, technical information and more.

Warranty does not include on-site labor for the installation of warranty parts or warranty repairs. The owner may return to Broda products for warranty replacement or repair by shipping items prepaid and insured to the factory. Warranty completed at the factory includes both materials and labor. The decision to repair or replace parts is at the discretion of Broda. All returns to the factory require prior authorization from Broda.

### **WC-19 Transportation Certified Products:**

Vehicle Transport Products and Options are available by factory install only. It can NOT be retrofit to existing models or serviced in the field. All components of the vehicle transport packages are subject to specific maintenance requirements, to maintain the Broda warranty.

Due to the testing requirements of the vehicle transport chair, Broda warranty limitations apply to non-factory installed repairs. Warranty and maintenance repairs must be made by Broda authorized service technicians. Any replacements or repairs made by unauthorized person (s) will void this warranty and Broda assumes no liability on the performance of said components.

DO NOT modify the transport chair. Modifications may change the transport chair's structure and center of balance, which may increase the risk of serious injury to the user and void the warranty. If a problem is detected with any of the Vehicle Transport Product and Option components or any components of the chair, remove the wheelchair or chair from service and contact Broda immediately. Chairs involved in vehicle accidents should be taken out of use immediately.