



# RoughRider™ Service Quickstart: Assessment

See Whirlwind Screening and Assessment Materials: [www.whirlwindwheelchair.org/service](http://www.whirlwindwheelchair.org/service)

## 1. Head Control

When sitting in a chair with a backrest, can the rider independently hold up and move his/her head? *If no, the RoughRider is not likely an appropriate chair for this rider.*

## 2. Maintain Sitting

Can the rider independently maintain upright sitting in a standard chair with a backrest? *If no, the RoughRider is not likely an appropriate chair for this rider and you may need intermediate-level service.*

## 3. Contractures

Are there contractures in hips or knees that would prevent the rider from sitting comfortably in the RoughRider wheelchair? (Contractures: Tight muscles that have become shortened and make it difficult to move the joint) If yes, the RoughRider is not likely an appropriate chair for this rider.

## 4. Sensation

Does rider have full sensation at seat surface? Incomplete sensation increases the likelihood of pressure sores.

Yes: the rider will receive a comfort cushion. No: the rider will receive a pressure relief cushion.

## 5. Hip Width

A:

- Position the rider sitting with the pelvis upright on a firm surface.
- Measure the distance between the widest points of the hips or thighs without compressing any tissue.
- Record this measurement.
- Select seat width using the following chart.

The Whirlwind RoughRider Distribution Guide explains pressure sore risk.

Risk of Pressure Sores	Chair Width Prescription
High Risk and/or bony hips	At least Hip/Thigh Width + 1/2" (refer to Service Guide)
Low Risk	At least Hip/Thigh Width
For riders with extra hip width	As narrow as comfortable without causing high pressure

## B: Seat Depth/ Upper Leg Length

With the client sitting upright on a firm surface measure the distance from the back of the pelvis to the back side of the lower leg (the back of the knee). Record this measurement as lower leg length. Subtract 1/2" to find the maximum seat depth, to allow for space between the knee and seat fabric, then add 1 1/2" for backrest sag. *Select seat depth.*

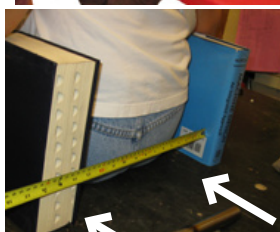
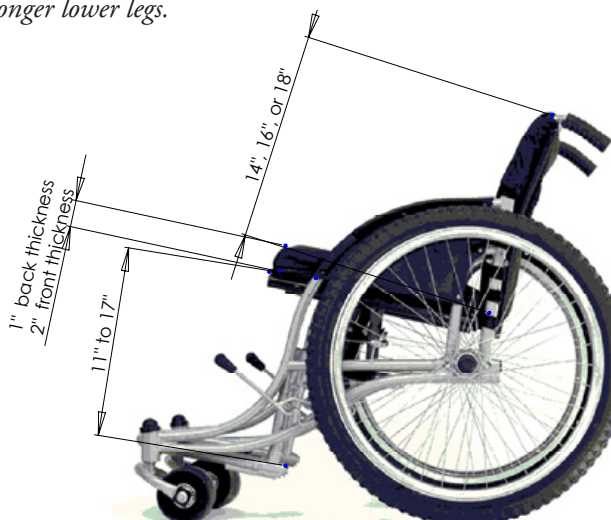
## C: Lower Leg Length

With the rider sitting on a firm surface wearing the footwear they will be using, measure the distance from the bottom of the foot to the underside of the front of the thigh. Record this measurement. Subtract approximately 2" for the cushion, to find the desired length between the seat upholstery and the footrest. The footrest height can be adjusted when the wheelchair is fit for a rider.

*Extra cushion foam can be used to accommodate longer lower legs.*

## D: Backrest Height

Generally the top of the back support should be located just below the bottom of the shoulder blade. For less active riders needing more trunk support, the back support can be close to the level of the armpit. Find this height by using your hands held flat to measure the lowest place on the riders back where he or she is comfortably supported. Measure from the seat surface to the point on the back that is most appropriate for this rider. To determine the wheelchair backrest height, add 1" for the compressed cushion that the rider will be using. *Effective backrest height will vary. A 2010 RR has a 12 degree seat angle and an 8 degree backrest angle. The actual sitting angle can be adjusted with a Tension Adjustable Backrest.*



A: Hip Width



B: Seat Depth



C: Lower Leg Length



D: Backrest Height

# RoughRider™ Service Quickstart: Fitting

For support on fitting the RoughRider see [www.whirlwindwheelchair.org/support](http://www.whirlwindwheelchair.org/support)

## Cushion

Check Sensation Level. (See Whirlwind Service Guide.) Riders without full sensation at seat surface should use a pressure relief cushion. The cushion should be about 1/2" wider than the seat width, to hold the cushion in place in the chair. The rider should sit on their cushion for the next fitting steps.

## Seat Width

Check that the seat width is appropriate for the rider (no more than Grade 1 pressure on the hips, see Whirlwind's Cushion Fitting Guide).

## Seat Depth

Check that the front of the seat fabric is not pressing on the back of the rider's legs, when the legs are tucked back as far as they will be allowed (check the calf strap). Look for a minimum of 1/2" gap (1 1/4" is preferable). The 14" seat depth can be adjusted to 16" with a seat depth extension accessory, and the 16" seat depth can be adjusted to 18". See Support site for more information.

*One philips screwdriver and one 10mm wrench needed*

## Footrest Height

With the rider sitting in the chair wearing the footwear they will be using in the chair, place one hand under the lower thigh (closer to the knee) on the cushion and one hand holding the sole of the foot with the footrest flipped out of the way. Find the optimal height of the foot where there is moderate pressure under the thigh, where the foot is not hanging, and both foot and thigh bear approximately equal amounts of weight. Adjust the footrest height by loosening the footrest clamp bolt and raise or lower the footrest until the weight of the foot and lower thigh on your hands are equal. If the footrests can't be adjusted low enough, add extra foam under the cushion after considering the drawbacks (see Service Guide).

*Two 13mm wrenches needed*

## Backrest Height

Check that the backrest supports the rider's back, first supporting the rider's trunk, and secondly allowing pushing on the handrims. Check the backrest height again later if cushion height is changed in the fitting process. The 2010 RoughRider backrest height can be adjusted to 14", 16", and 18" from the seat surface. See Support site for more information.

*Two 13mm wrenches needed*

## Pressure Relief Cushion Adjustment (if needed)

Evaluate pressure on seat surface, and add additional cutout layers under the cushion or carve away foam where needed. See cushion fitting guide on the following pages.

## Rear Wheel Axle Adjustment

Adjust the position of the rear wheels to meet the rider's needs; a forward position increases the rearward tippiness of the chair, but makes the chair easier to push and use in rough terrain. Adjust the brakes to match the Axle position.

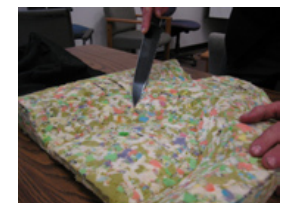
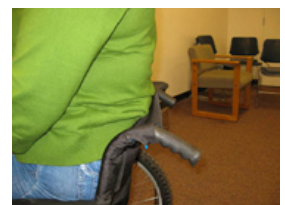
*One 19mm socket, one 19mm wrench, and one 13mm wrench needed*

## Rider Orientation to Wheelchair

A wheelchair rider should train new riders and attendants in independent and assisted skills including moving in the chair, the use of parking brakes, transfers, pressure management, wheelies and leaning for rough terrain, and managing curbs and steps. Additional topics are maintenance, cleaning, repairs, and wheelchair adjustments including footrest and rear axle position. A game of "follow the leader" over mixed terrain helps riders learn and teach each other riding skills.

## Check Comfort

Ask about comfort and feel for high pressure grades after a half hour of use, and make adjustments if needed. This is a critical fitting step.





# RoughRider™ Service Quickstart: Rider Orientation

An experienced wheelchair rider should orient new riders to their wheelchair once they have been properly fit. Play a game of "follow the leader" to practice riding skills, and include attendants in the training.

See the [www.whirlwindwheelchair.org/service](http://www.whirlwindwheelchair.org/service) at [www.whirlwindwheelchair.org/service](http://www.whirlwindwheelchair.org/service)

## Rider Orientation Topics

### Wheel-locks/Brakes

#### Transfers (in and out of chair)

- Independent and assisted
- To/from chairs
- To/from the floor

### Leaning

#### Moving the Wheelchair

- Forward, Backward, Turning
- Uphill, downhill
- Wheelies, curbs

### Pressure Management

### Axle Position

### Transporting Wheelchair

#### Attendant Training




















- Transfers
- Up/Down Curbs
- Up/Down stairs

### Maintenance

- Cushion Care
- Cleaning
- Tires
- Parking Brakes
- Repair



# RoughRider™ Service Quickstart: Basic Problem-solving

Problem	Possible Solution
Hips sliding forward 	Put a cushion between the rider's back and the backrest if the seat is too long.   Tie or velcro the cushion to the seat if the cushion is sliding.
Trunk falls forward 	Use up to 1/2" cushioning behind the lower back and under to help rider's torso to recline farther into the sling backrest.  Use a more supportive seating system.
Trunk falls to side 	Is wheelchair too wide? A narrower wheelchair will help. Use up to 1/2" cushioning behind the lower back and under to help rider's torso to recline farther into the sling backrest.  Use a more supportive seating system.
Difficult to self-propel 	Is a narrower wheelchair possible? Is rider sitting on enough cushioning? Could the rider propel with one leg? Can an assistant help rider practice riding skills? Move the wheel axles forward. 
Improper leg position   	Adjust footrests and calf strap for better leg and foot support. Build or cut contour abductor (foam between knees) or Adductor (foam outside of knees) into cushion with foam to position knees. 
Gap between foot and footrest 	Raise footrest height to lightly support foot. Add blocks/raises to footrest if the footrest cannot be raised enough. 
Front of thigh is not supported by cushion 	Lower footrest. If needed, insert extra foam underneath cushion. 
Seat fabric presses back of knee 	Tighten back fabric. Put a cushion between the backrest and rider's back to move the rider forward, and adjust the axle position forward. 
Wheelchair is tippy backwards	Move the wheels backward one axle position. Beginner riders: balance point of a wheelie holds caster wheels 7"-9" high. Experienced riders: balance point of a wheelie holds caster wheels 5"-7" high.