

GRIT Freedom Chair

User Manual:

3.2

support@gogrit.us

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Chapter 1

Meet the Freedom Chair

1.1 How to contact GRIT

Congratulations!

You are now the owner of a GRIT Freedom Chair, an all-terrain mobility device unlike any other. This User Manual is designed to help you assemble, ride, and maintain your Freedom Chair. It also contains important safety information, so please read through the following pages before hitting the trail!

We also want you to know the GRIT team isn't ever far away. Feel free to reach us anytime—no question is too big or too small, and we want to make sure you're getting the best out of the Freedom Chair experience. Here are some ways you can reach us:

- Call us at **617-356-8106**
- Email us at **support@gogrit.us**
- Send us an online chat by clicking the chat window on **www.gogrit.us**
- Fill out the support form at **www.gogrit.us/support/**
- Find us on Facebook! **www.facebook.com/GRITFreedomChair**
- Find us on Instagram! IG Handle: **gritfreedomchair**

You can also find helpful videos, explanations, FAQs, and more at: **<http://www.gogrit.us/support>**.

1.2 Safety first

Just like learning to ride a bike, riding the Freedom Chair requires a little bit of practice. Start slow—on flat ground—and gradually build up to more difficult (and fun) riding conditions. Take your first ride outdoors, away from obstacles and hazards. Have a buddy around to lend a hand during your first ride. This guide has important safety information. Be sure to read through it before starting your first ride. Do not ride in a manner that exceeds your ability. If you feel unsafe: Stop.

Riding the Freedom Chair involves the risk of injury. By choosing to ride the Freedom Chair you assume responsibility for this risk, so it's important for you to know and practice safe riding. This guide contains important safety information:

WARNING: Warnings indicate a potentially hazardous situation. Failure to heed these warnings could result in serious injury or death.

CAUTION: Cautions indicate a potentially hazardous situation. Failure to heed these cautions could result in minor or moderate injury. Cautions also indicate unsafe practices and situations that may damage your Freedom Chair and may void the warranty.

Many of the Warnings and Cautions say, "you may lose control and fall." Any fall can result in serious injury or even death, so we do not always repeat the warning of possible injury or death. Always wear a helmet. Always be aware of your surroundings. Never hesitate to contact GRIT with any questions about how to be safe in your Freedom Chair.

This manual does not cover every possible dangerous situation or improper use of the Freedom Chair. You, the rider, are responsible for your own safety and accept all risks associated with using the Freedom Chair.

WARNING: TIPPING IS POSSIBLE, especially when going uphill. One way to prevent this is to ALTERNATE lever strokes during ascents, rather than pumping both levers at the same time. On severe inclines, lean forward, if possible, to adjust your center of gravity. Always wear a helmet. Always ride with a buddy who can help push from behind if exploring new or unfamiliar terrain.

1.3 Intended operator

The Freedom Chair is a manually operated, lever-powered recreational device. It's designed to offer unparalleled mobility on a variety of terrains, from smooth tarmac to rough trails.

In order to safely operate the Freedom Chair, certain levels of upper body strength and control are required. Grip strength is required for braking and turning, but adaptations can be made, such as using quad-weightlifting gloves (hook style) to pull the levers back for braking and turning.

It is your responsibility to determine if the Freedom Chair is right for you. Please consult with your physical therapist or medical advisors prior to riding the Freedom Chair.

The Freedom Chair comes in several seat width sizes. Please ensure that you fit comfortably in your Freedom Chair. If you do not fit comfortably, please contact GRIT.

Note that the GRIT warranty covers only the original owner of the chair. The GRIT team is happy to support subsequent owners, but they are not covered under the initial chair warranty.

You can reach out to GRIT directly, at support@gogrit.us or 617-356-8106, to discuss whether the Freedom Chair is right for you and what adaptations can be made to the chair to maximize your performance in it.

WARNING: Riding the Freedom Chair without the ability to actuate the brakes could result in loss of control, injury, and even death. Make sure the rider can use the brakes before going downhill!

Chapter 2

Assembly

2.1 Unboxing

2.1.1 What's in the box

Your Freedom Chair was hand-packed by the GRIT team in Massachusetts. Unless otherwise discussed with GRIT, your box contains:

1. Freedom Chair frame and seat assembly
2. Seatback with fabric and back pad
3. Footrest
4. Fork (with front wheel) and assembly tool
5. Seat cushion
6. Rear wheels with axles
7. Freedom Chair levers
8. Any accessories you ordered

Please inspect the components of your Freedom Chair immediately upon receipt.

Tools required

The necessary Allen keys are provided in the box. These are necessary for adjusting the parking brakes, attaching the fork, and securing specific accessories and foot plate clamps.

2.1.2 Unpacking the box

Save the box! The original packaging is required for all returns under the GRIT Guarantee. We are hoping that you love your Freedom Chair, keep it, and recycle the box, but it is better to save the box during the initial 30-day period.

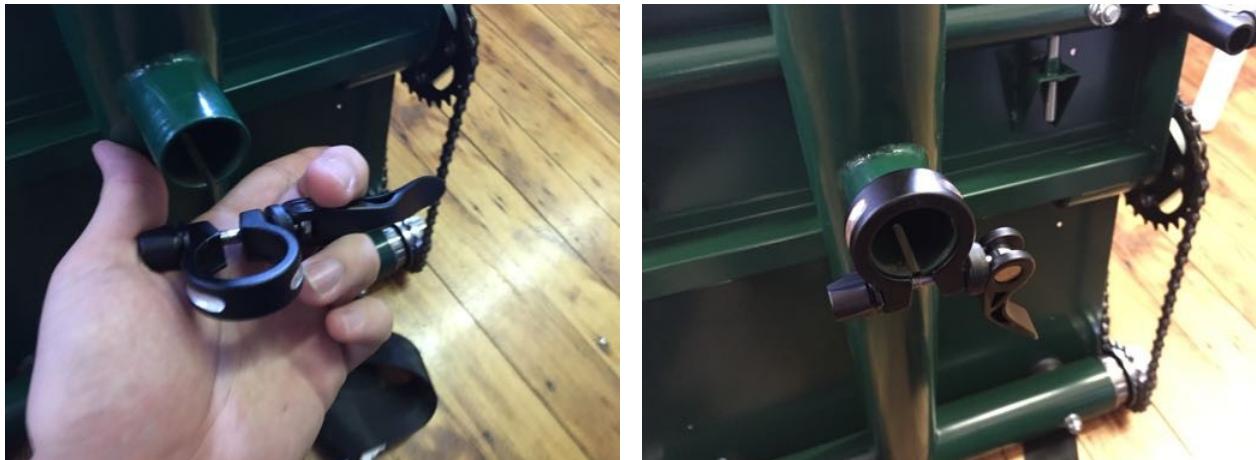
Remove the wheels, seatback, levers, footplate, front wheel, and cushion from the box.

To remove the main Freedom Chair frame piece, lift it up to reveal the footplate clamp. Remove the clamp by pulling it away from the chair, twisting it loose, if necessary. Remove the cardboard support and reattach the clamp. Note that the clamp has a lip on it, so it can only be put on the tube in one orientation.



- (a) The base frame is attached to the bottom of the box.
(b) Lift the base frame to expose the clamp holding it in place.
(c) Slide off the clamp to free the base frame.

Figure 2.1: Removing the Freedom Chair frame from the box.



- (a) Orient the clamp so that the lip is at the bottom and the lever is towards the rear. Note that some footplate clamps require an Allen key to loosen/tighten.
(b) Slide the clamp onto the frame so that the lever is toward the rear, over the slot.

Figure 2.2: Removing the Freedom Chair frame from the box.

2.1.3 Attaching the fork

Video instructions are available online at <http://support.gogrit.us/knowledge/how-to-videos/installing-the-fork-with-front-wheel>.

Please read all of the attaching instructions and review the figures on the next few pages before starting. To attach the fork, you will need to use the 5mm Allen key provided with your Freedom Chair.

If you get stuck on this step, don't worry! Give us a call at 1-617-356-8106 or email us at support@gogrit.us. We'll get back to you right away and are happy to talk you through it!

1. Remove the front wheel parts (the headset components) from their plastic bag and lay them out on the Front Wheel Parts diagram (Figure 2.3, see next page).
2. Slide the first bearing (the two bearings are identical) onto the fork. Make sure the curved (chamfer) side is facing up.
3. Insert the fork through the headset tube at the front of the chair.
4. Slide the second bearing, curved (chamfer) side down, over the fork tube.
5. Slide the compression ring, cone side down, over the fork tube and push it down until it contacts the bearing.
6. Slide the bearing cover, flat side down, over the fork tube.
7. Separately, on a flat surface like a table or the floor, put the top cap (cone side down) on top of the spacer.
8. Put the split washer into the hole in the top cap.
9. Insert the screw through the top cap, the flat washer, and the split washer. Grab the whole assembly and put it over the fork. Thread the screw into the fork.
10. Tighten the screw until you start to feel some resistance when rotating the fork.

1. Screw	5. Bearing cover
	
2. Split washer	6. Compression ring
	
3. Top cap	7. Bearing (same as #8) Note the angled edge!
	
4. Spacer	8. Bearing (same as #7) Note the angled edge!
	

Figure 2.3: The various components of the fork assembly, shown individually for identification purposes.



Figure 2.4: Attaching the front wheel to the Freedom Chair

2.1.4 Serial number

Your Freedom Chair Serial Number is located at the rear of the seat, beneath the cushion. Please record this ID number in a safe place. The ID number is necessary for all warranty repairs and helps us provide you customized service by email and telephone.

2.2 Getting ready to ride

2.2.1 Inserting the axles

All GRIT Freedom Chairs (any model) and their accessory wheels ship without axles inserted. Inserting the axles through the wheels is easy, and only needs to be done once, when you're setting up your chair for the first time. Most wheels come with black caps, which ensure proper spacing.

First, slide the axle into the hub from the side opposite the stainless-steel coupling (the coupling is the wide, silver ring). Make sure that the black hub caps do not fall off. There should be a black cap on both sides of the hub. If the caps fall off, simply press them back on. That's it!

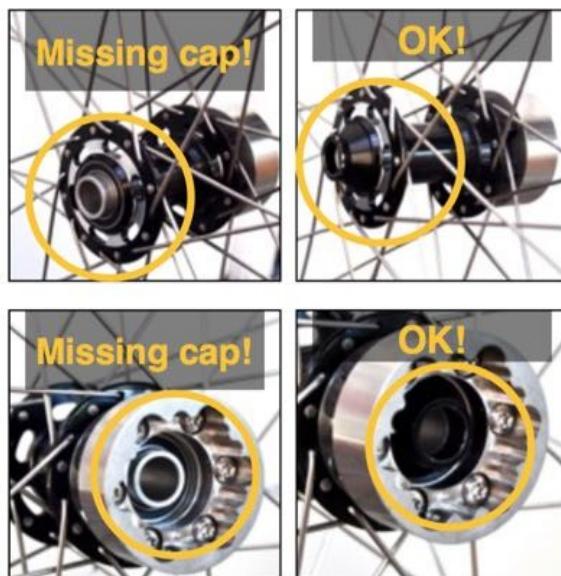


Figure 2.5: Make sure that the black hub caps don't fall off when inserting or removing the axles.

CAUTION: Make sure that the black hub caps do not fall out. There should be two black hub caps per hub, one on the inside and one on the outside. A missing hub cap could cause the wheel to slip out of alignment during use and may result in a crash and damage to your GRIT Freedom Chair.

2.2.2 Attaching the rear wheels

To attach the rear wheels, follow the process in Figure 2.7. Note that the side with the wide, silver ring connects to the chair.

Oftentimes, the coupling will be misaligned, and the wheel will not fully attach (i.e., the axle push-button won't push out). To fix this, rotate the chain until the slots of the coupling and the freewheel are aligned. You'll know the wheels are securely attached when the push-button on the axle pops out. See Figure 2.7 for more information.



(a) Push the quick-release button inward.



(b) Align the axle with the axle receiver.



(c) Align the grooves on the coupling and insert the axle.

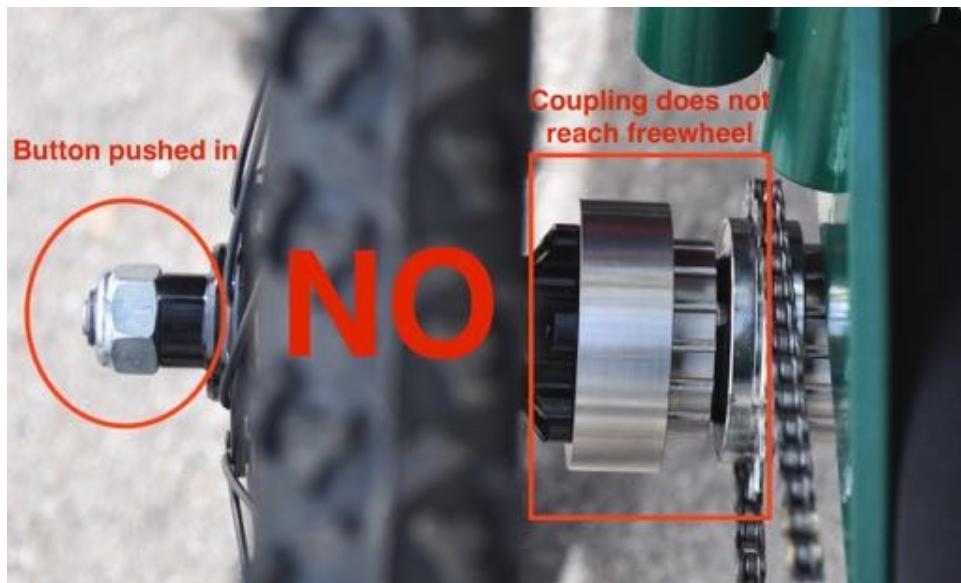


(d) Ensure the button is out and the coupling is fully attached to the freewheel.

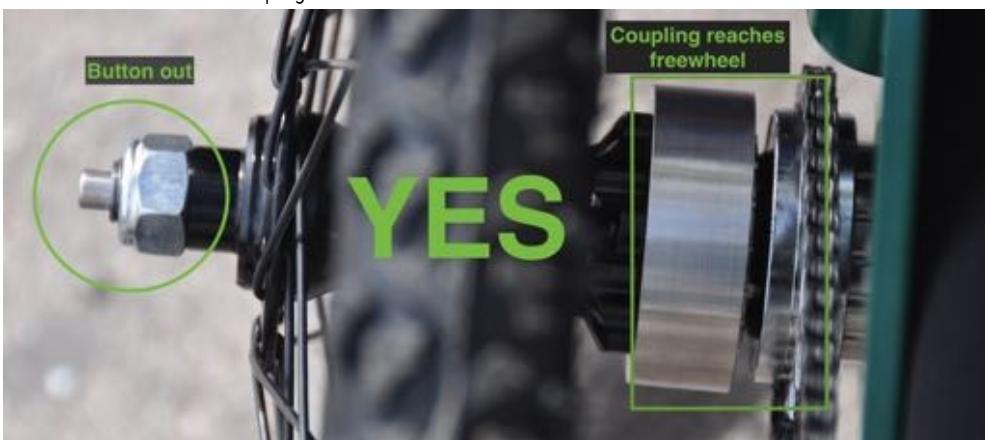
Figure 2.7: Attaching a rear wheel to the Freedom Chair

WARNING: ALWAYS ENSURE THAT THE AXLE BUTTON IS POPPED OUT AND THE COUPLING REACHES THE FREEWHEEL.

Riding the Freedom Chair without the wheels fully attached could cause a wheel to fall off the chair, causing a crash and fall and may result in serious injury or death.



If the button is in and the coupling does not reach the freewheel the chair is not safe to ride.



A correctly attached wheel has the button out and the coupling reaching the freewheel. Note that the spacing will be slightly different between the coupling and the freewheel on the right and left sides of the chair. If unsure about the connection, try pulling the wheel off to check whether it is correctly locked in place.

2.2.3 Attaching the seatback

The seatback slides into the seat and attaches with push-button clips. **Slowly attach the seatback** to prevent it from jamming. Insert the seat into both sockets simultaneously and keep the seatback level during insertion.

CAUTION: Make sure the seatback is fully inserted and the push buttons are sticking out. Riding the Freedom Chair without fully inserting and locking the seatback could cause damage to the seat, voiding your warranty, and may cause you to fall out of the Freedom Chair.



(a) Slide the seatback into the sockets on the back of the seat. Keep the seatback level while you slowly insert it into the sockets.



(b) Slide the seatback in until the push-buttons reach the holes. If the seatback becomes stuck, adjust the angle of the seatback and slowly push/pull to free it.



(c) With your fingers, push the spring button inwards **on both sides of the seatback** while lowering the seatback into the seat.



(d) Continue pushing the seatback all of the way down until the buttons pop out of the holes on both sides of the seat. Attach the magnets in the privacy flap to the metal of the seatpan.

Figure 2.9: Attaching the seatback to the Freedom Chair

If the seatback becomes stuck

Sometimes, the seatback can be hard to insert or remove. This happens if the seatback tubes are not put into the seat simultaneously or if the canes are bent. To release a jammed seatback, hit one side of the seatback with the base of your hand upward or downward to realign the part. If this is a continuing issue, please contact GRIT at support@gogrit.us and we'll see how we can help!

Lubrication

It's important to keep your seatback tubes lubricated so that they slide easily into the seat. We recommend using a Teflon-based lubricant like Tri-Flow.

2.2.4 Attaching the footrest

The footrest attaches to the Freedom Chair using the same kind of clamp commonly used on bicycle seats. This clamp comes in two variations—one that secures with an Allen key, another that secures with a lever. The footrest tube is inserted into the chair and then the clamp lever is used to lock the tube in place. The tightness of the clamp can be adjusted with the adjustment nut opposite the clamp lever (or by tightening the Allen key, if applicable). If the footrest is loose or sways side to side, the clamp is not tight enough.

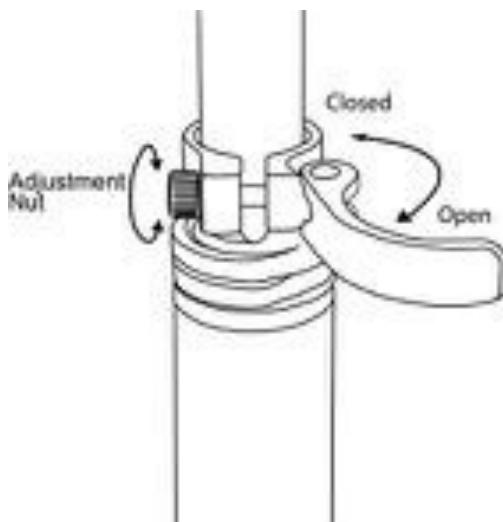
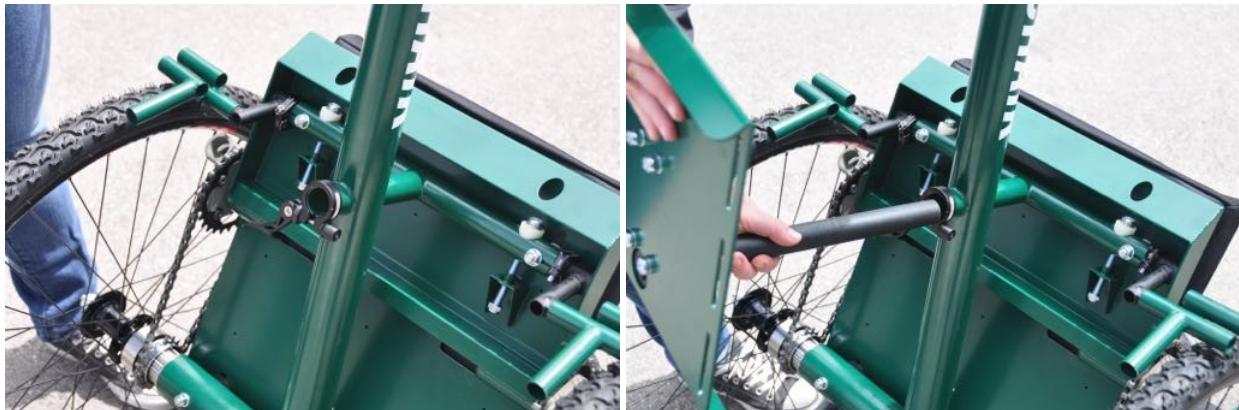


Figure 2.11: The footrest clamp is a bicycle quick-release seat clamp. The adjustment nut controls the tightness of the clamp. Pull the lever outward to open the clamp so that the footrest can be inserted and removed. Push the lever inward to close the clamp so the footrest is held in place.



(a) Ensure the footrest clamp is open and loose enough for the footrest to slide in easily.

(b) Insert the footrest tube with the footrest facing forward.



(c) Slide the footrest tube into the frame until it is at an appropriate height.

(d) Lock the clamp in place by pressing the lever down against the footrest tube. If your footrest clamp requires an Allen key, tighten the bold accordingly.

Figure 2.12: Attaching the footrest to the Freedom Chair

2.2.5 Fit and seating

Seat belt

The Freedom Chair ships with an included seat belt. We recommend riding with the seatbelt.

Foot straps

The footrest plate has slots to add your own foot straps (see Figure 2.13). You may use these to secure your feet into the foot plate.

CAUTION: Always wear closed-toed shoes when riding the Freedom Chair.

CAUTION: Make sure your feet do not slide forward, into, or against the front wheel. See Figure 2.14.

Leg straps

Leg straps may be used to hold your legs together, which can improve clearance for your lever strokes. We recommend Neoprene straps, though Velcro also works well.

Strap-mounting holes

The Freedom Chair seat pan has 9 holes pre-drilled into the base of the seat. These can be seen by lifting and removing the cushion. These holes may be used to add additional straps. Please contact GRIT to discuss your strapping needs.

A note on cushions

The Freedom Chair ships with a wheelchair-style comfort cushion. The cushion is not a pressure-relief cushion. Many riders choose to add their own cushions; please consult with your occupational therapist to see if this cushion is appropriate for you.



Figure 2.13: The footplate includes slots for straps to hold the feet in place when riding.



Figure 2.14: Make sure your feet do not slide forward into or against the front wheel.

The Freedom Chair seat is sized to accept standard wheelchair cushions, including pressure-relief cushions. All sizes of the Freedom Chair have a 16-inch seat depth. Velcro may be applied to the seatpan to appropriately secure your cushion. Some riders have benefited from stacking multiple cushions in the Freedom Chair to achieve a taller rider position. Remember, though: Adding or removing cushions will adjust your center of gravity, potentially increasing the risk of tipping.

CAUTION: Riding the Freedom Chair with an inappropriate cushion may result in pressure-related injuries. Consult with your occupational therapist to make sure your Freedom Chair cushion is right for you.

Back pad

The Freedom Chair features a unique back pad. This pad is designed to rest in the rider's upper back, between the shoulders. The pad provides a support to push against during lever strokes. The back pad includes a loop to attach a rear bicycle light, if desired, for improved visibility.



Figure 2.15: Brace against the back pad during your push stroke to increase your power and reduce your fatigue.

2.3 Disassembly for transport and storage

2.3.1 Removing the rear wheels

The rear wheels of the Freedom Chair can be easily removed with their quick-release push-button mechanism.



(a) Grab the wheel by the spokes near the hub.



(b) Push the button inward.



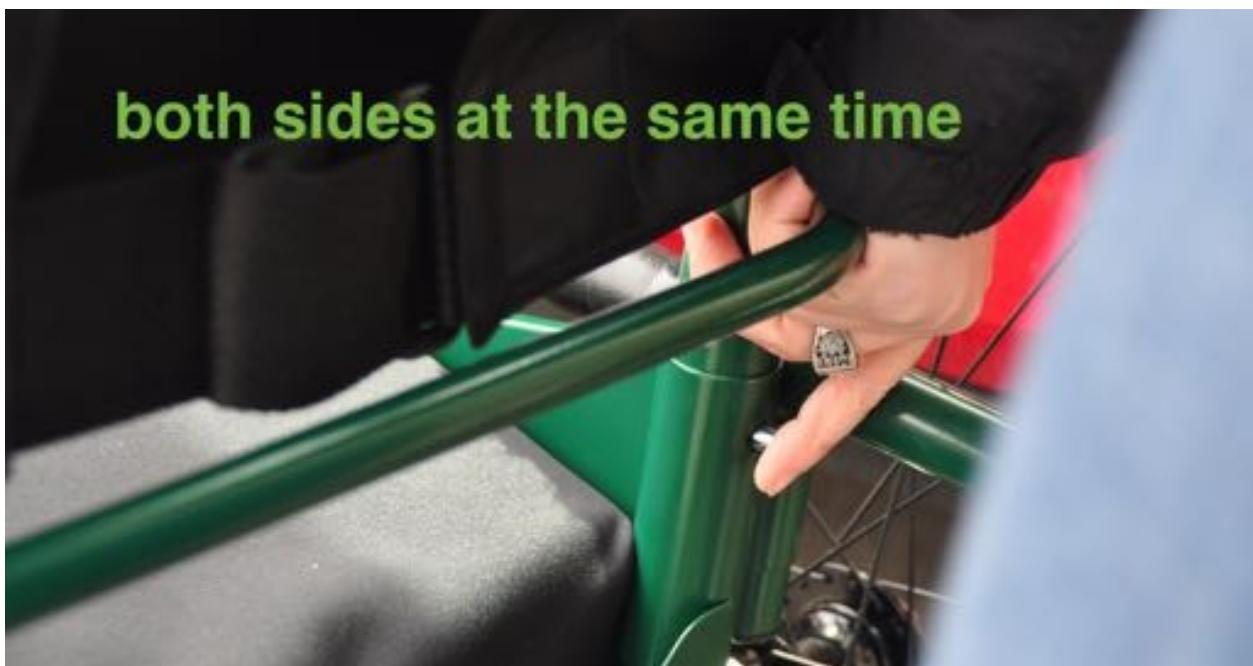
(c) Pull the wheel straight away from the chair while keeping the button depressed.

Figure 2.16: Removing the seatback from the Freedom Chair

2.3.2 Removing the seatback

To remove the seatback, push in both spring buttons while pulling upward on the seatback. Be sure to **pull both sides of the seatback at the same time** to prevent it from getting stuck. See Figure 2.17.

both sides at the same time



(a) Simultaneously push the buttons in on both sides of the seatback.



(b) Hold both buttons in while pulling upward on both sides of the seatback.



(c) Continue pulling upward on both sides of the seatback until it is released.

Figure 2.17: Removing the rear wheels from the Freedom Chair

2.3.3 Transporting the Freedom Chair

The Freedom Chair was designed to be easily disassembled and transported by car. We've packed Freedom Chairs into sedans, pickup trucks, minivans, SUVs, and almost literally everything in between! If you'd like advice for packing the chair into your specific vehicle, give us a ring at 617-356-8106. Some pointers to ensure your Freedom Chair arrives at the trailhead in top riding condition:

- Put the main frame of the chair into the trunk first. It is the heaviest part, so try to avoid placing it on top of the other parts. Place the frame flat to avoid bending the side of the seat. See Figure 2.19—avoid having anything press into the sides of the seatpan.
- The footrest does not always have to be removed.
- Keep the chains away from dirt that might be at the bottom of your trunk. Dirt and gravel in the chain will impact your riding performance and drivetrain life.
- Avoid metal-on-metal contact to keep scratches from occurring.
- Remove the levers from their storage position to keep them from falling out during transit.



Figure 2.19: Do not squeeze together the sides of the back of the seat.

Chapter 3

Riding

3.1 Safety

The Freedom Chair, like riding a bike, takes a bit of practice to get used to. It is extremely important that you **practice riding the Freedom Chair on smooth flat ground until you get the hang of it**. Be sure you have enough space to safely experiment with the controls. While getting used to the Freedom Chair, avoid areas containing rough terrain, steep slopes, automobile traffic, or open water.

WARNING: PRACTICE RIDING THE FREEDOM CHAIR IN A SAFE AREA UNTIL YOU ARE COMFORTABLE. Do not ride in areas containing rough terrain, steep slopes, automobile traffic, or open water until you have become proficient with stopping and turning the Freedom Chair.

CAUTION: PRACTICE RIDING OUTDOORS AWAY FROM OBSTACLES. YOU CANNOT MOVE BACKWARD WITH THE LEVERS INSERTED.

The Freedom Chair is designed to prevent you from rolling backward during ascents. However, knowing you'll likely want to go backward at some point, we designed the levers to be easily removed. Remove one or both of the levers and pivot/reverse as desired.

3.1.1 Pre-ride safety checks

It is extremely important to inspect your Freedom Chair before each ride to make sure it is in trail-worthy condition.

- Ensure the wheels are correctly attached and the push buttons are fully engaged.
- Ensure that the tires are properly inflated. We recommend 45 PSI for all three tires.
- Check that the seatback is fully inserted and that the spring clips are both engaged.
- Ensure that the footplate is attached securely.

WARNING: It is your responsibility to ensure you are properly secured within the Freedom Chair. Please consult with your physical or occupational therapist to ensure that you are correctly secured in the Freedom Chair. Failure to properly secure yourself in the chair could result in a fall.

3.1.2 Safety when riding

This manual is no substitute for common sense. We encourage you to exercise your best judgement to determine whether an activity in the Freedom Chair is safe for you. Every rider is different; do not attempt an unsafe activity that you have seen other riders perform in the Freedom Chair. Here are some useful tips for safe Freedom Chair riding:

- Always ride with a buddy.

- Practice riding the Freedom Chair in a safe area.
- Be careful when descending hills.
- Be careful when climbing hills to ensure you do not tip backward. We recommend climbing hills with a spotter behind the chair. Alternate lever strokes when climbing hills (left, then right, then left, etc.) to keep the front wheel safely on the ground.
- Ride with the seatbelt.
- Riding in wet weather decreases the brake performance. Be careful if you notice the brakes getting wet. If pulling back on the levers doesn't provide the necessary braking power, "hug" the levers by putting them in the crooks of your arms and pulling them toward your body. To discuss this technique with GRIT, call us at 617-356-8106.
- Ride with a helmet when using the Freedom Chair.
- Wear high-visibility clothing, reflectors, and lights when riding in low-light conditions.

Urban riding

When riding the Freedom Chair in urban areas, be mindful of the low height and added length of the device. Visibility additions, such as flags and reflectors, may be appropriate to ensure that you can be seen in the Freedom Chair by cars and cyclists.

Night riding

Visibility is especially important when riding at night. The Freedom Chair has a loop on the rear of the back pad for mounting a rear bike light. We also recommend using reflective decals, high-visibility clothing, and a reflective flag when night riding.

Riding in wet weather

Riding in wet weather impacts the braking performance. The stopping distance is increased in wet conditions, so **use extreme caution on hills when wet.**

Trail riding

The rules-of-thumb for riding the Freedom Chair on the trail are the same as hiking on the trail: Bring plenty of water, some snacks, and a friend. Tell others where you are going and when to expect you to return. Bring your cell phone. **Do not ride the Freedom Chair alone in the woods.**

3.2 Using the lever drivetrain

3.2.1 Inserting and removing the levers

The lever drivetrain provides great outdoor performance but may limit your maneuverability indoors. We designed the levers to be easy to insert and remove. The levers are interchangeable and store on the Freedom Chair when not in use.

Inserting the levers

To insert the levers, first retrieve the levers from their storage position on the side of the chair. Lift the lever from the front and the back. If both hands cannot be used, lift the lever from the center, as close as possible to the brake tube. Then, insert the end of the lever into the hole in the lever coupling. You may need to rotate the lever coupling so that the hole is accessible. Slide the lever into the hole and rotate it so that the brake is sticking out over the wheel. Some riders prefer to insert the levers with the parking brake engaged. This is up to the rider's preference.



Figure 3.1: Lift the lever by grabbing at the front and back, or with a single hand from near the brake lever.

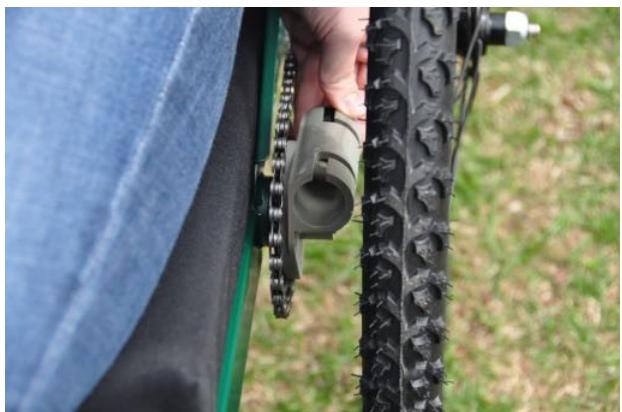


(a) If the endcap is visible, rotate the coupling.

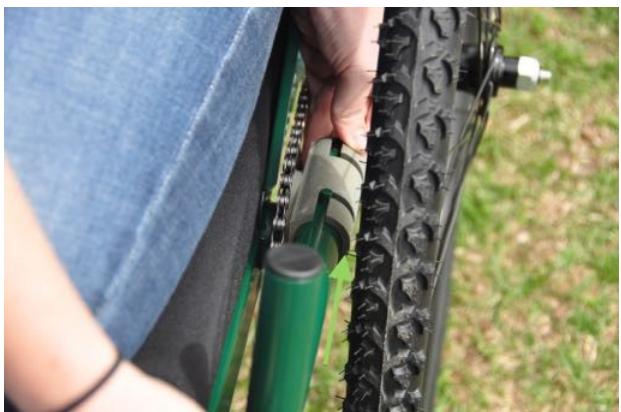
(b) If the lever hole is inaccessible, rotate the coupling



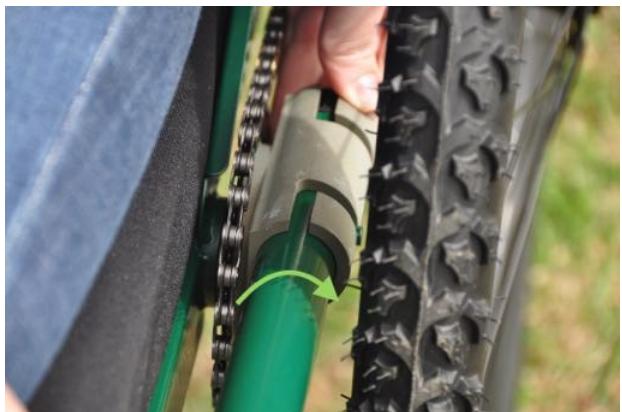
Figure 3.2: Rotate the coupling toward the back of the chair by pushing down on the back of the coupling with your hand or the lever.



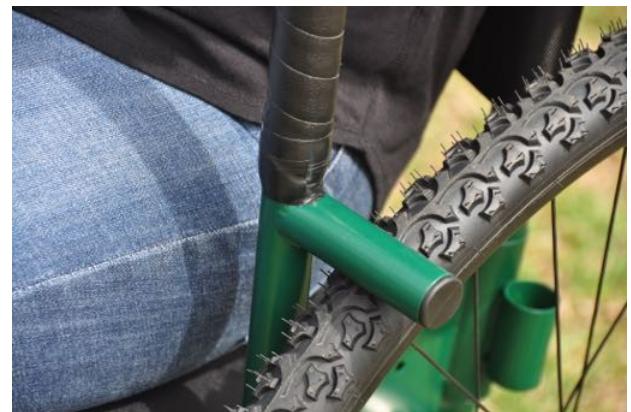
(a) Rotate the coupling by pushing down on the back until the hole is easily accessible.



(b) Insert the lever into the hole until the pin reaches the bottom of the slot.



(c) Rotate the lever until the brake is over the wheel. Right lever counterclockwise, left lever clockwise.



(d) Make sure the brake is over the wheel and that it doesn't rotate when the lever is pulled back.

Figure 3.3: Inserting the levers into the Freedom Chair

WARNING: TEST THE BRAKES BEFORE RIDING. Make sure the levers are fully inserted and the brakes engage the wheels before every use. Failure to check the brakes can result in an inability to safely slow down and can create a dangerous scenario. Make sure the levers are full inserted into the lever couplings before proceeding.

Removing the levers

To remove the levers, push them slightly forward and then rotate them in your hands so the brakes move toward the center of the chair. Then pull them out of the couplings. Store the levers on the side of the chair. Note: You can store the levers vertically or horizontally in the lever holders. With the levers removed, the Freedom Chair can be used by pushing on the wheels, just like a normal wheelchair.

3.2.2 Propulsion

Push the levers forward to propel yourself in the Freedom Chair. Pull the levers backward to reset the lever position and to engage the brakes.

You may push the levers forward together or alternately. Many riders prefer to push the levers at the same time on smooth ground, and to alternate the levers on hills and rough terrain.

WARNING: TIPPING IS POSSIBLE. This is especially true when going uphill. One way to prevent this is to ALTERNATE lever strokes (left, then right, then left, etc.) during ascents, rather than engaging both levers simultaneously. On severe inclines, lean forward, if possible, to adjust your center of gravity. Always wear a helmet. Always ride with a buddy who can help push from behind if exploring new or unfamiliar terrain.

Pull the levers all the way backward to apply the brakes. Use the brakes for stopping and turning. Make sure the parking brakes are disengaged before using the lever drivetrain.

CAUTION: Use short, smooth strokes on the levers. Keep your back against the seatback, if possible. Abrupt push strokes can cause the front wheel to tip upward, which may cause you to tip over backward.

3.2.3 Maximizing your speed and leverage

The Freedom Chair drivetrain is designed to allow the rider to vary their effective mechanical advantaged based on where they grab on the lever. Grabbing the top of the lever provides more torque for climbing hills and rough terrain (think of this as “low gear”). Grabbing the bottom of the lever enables easy travel on smooth ground (think of this as “high gear”).



Figure 3.4: Removing and storing the levers on the Freedom Chair



Figure 3.5: Push forward on the levers to move forward. You may push the levers together or alternately. Once the levers are forward, pull them back to reset for the next stroke.

Grabbing the bottom
of the lever enables
easy travel on roads.



Grabbing the top of the levers
provides **leverage to climb hills**
and rough terrain.

Figure 3.6: How to use the lever drivetrain. Remember: When going UPHILL, it is safest and most effective to ALTERNATE lever strokes rather than engaging both levers simultaneously.

Another way to think about it is that the top of the lever is like first gear on a car, and the bottom of the lever is like fifth gear.



(a) “Shift gears” by shifting your hand position on the levers. Slide your hands to match the riding conditions.

(b) Grabbing the top of the levers is like first gear and is good for hills and mud. Use many small, alternating lever strokes to climb hills.

(c) Grabbing the bottom of the levers is like fifth gear and is good for smooth ground. Push through long strokes to move quickly.

Figure 3.7: Changing hand position on the levers.

3.3 Braking

Pull backward on the levers to apply the brakes. The brakes work when the brake tube on the lever comes into contact with the tire.

The brakes work by coming into contact with the tire. It is normal for this to wear out the powder coat on the brake tube. It will not wear down the tires—in fact, the levers will wear down first! While worn-off powder coat isn’t a problem, please contact GRIT if you wear away a hole in the lever itself.

For added braking force, **pull backward on the levers from the top of the lever**. This provides more braking leverage and much better brake performance. You can also “hug” the levers by putting them in the crooks of your arms and pulling them toward your body.

WARNING: WET CONDITIONS DECREASE BRAKING PERFORMANCE. Use caution when riding in wet conditions. Wet tires require more braking force for stopping. Riding in wet conditions without the ability to apply the braking force required for stopping could result in a loss of control, which could result in a collision or a fall.



Figure 3.8: Pull backward on the levers to engage the brakes.



Figure 3.9: The brake bar engages by coming into contact with the tire.

3.4 Turning

Turning the Freedom Chair is similar to turning a rowboat.

To turn, apply the brake on the side of the chair toward which you'd like to turn. To turn right, apply the right brake and push on the left lever. To turn left, apply the left brake and push on the right lever. The harder you pull against one lever, the sharper your turn will be.



Figure 3.10: Pulling backward on the top of the levers provides more braking force, enabling easier stopping and turning, especially when the wheels are wet.



(a) To turn right, apply the brake with the right lever and push the left lever forward.



(b) To turn left, apply the brake with the left lever and push the right lever forward.

Figure 3.11: Turning the Freedom Chair.

3.5 Reversing

The Freedom Chair has a unique **hill hold** braking feature. Rolling the chair backward rotates the levers backward, ultimately engaging the brakes. This prevents the rider from rolling backward down a hill!

As a result of the hill lock, however, the Freedom Chair is unable to move with the levers inserted. We designed the levers to be easy to remove. Remove the levers to roll backward. Depending on the scenario, you may be able to remove a single lever, pivot on that wheel, and then re-insert the lever to propel forward. When the levers are removed, you can put your hands on the wheels and use the Freedom Chair just as you would a regular wheelchair.

3.6 Parking brakes

CAUTION: You'll have to adjust the parking brakes when swapping wheel sets! Check out section 4.2.3: Parking Brake Adjustment for step-by-step instructions.

The Freedom Chair features unique parking brakes designed to be stronger and more reliable than standard wheelchair brakes. Pull the parking brake lever upward to engage the parking brake. Push the parking brake lever downward to release the parking brake. Always apply both parking brakes, as the application of a single parking brake does not guarantee that the chair will not move.

Figure 3.12: Using the Freedom Chair parking brake.



(a) Parking brake in the off position. Chair can move.

(b) Pull up on the parking brake lever to engage.

(d) Parking brake in the on position. Chair is stopped.

(e) Push down on the brake lever to disengage.

(c)

The parking brakes may be adjusted if they seem too loose or too tight. A correctly fit parking brake will lock the wheel with the minimum pull force required. For more information about our parking brakes, see <https://www.gogrit.us/news/2016/11/14/parking-brakes>.

Be sure to release the parking brakes before using the lever drivetrain!

3.7 Transfers

Every rider is different and there are a number of ways to transfer into and out of the Freedom chair. Use whatever technique works for you. From our testing with hundreds of riders, we've found the following tips useful:

- Always engage the parking brakes before transferring into the Freedom Chair.
- Remove and store the levers before transferring.
- The front of the seat extends past the front of the wheel. This is a useful surface to transfer onto.
- When transferring into the chair: Riders generally prefer to transfer into the seat before swinging one leg over the main tube of the Freedom Chair. When transferring out of the chair: Riders generally prefer to swing both legs over to the transfer side of the chair before making the transfer.
- Grab the seat or the wheels to help with transferring.
- The footrest may be lowered prior to transferring to make room for you to pull up your chair.
- The front tube is a useful grab point when transferring from low positions or the ground.
- You may use your own cushion in the Freedom Chair or stack your cushion on the provided cushion for a higher riding position.

CAUTION: Use caution when transferring, as an improper transfer may result in a fall. **ALWAYS ENGAGE THE PARKING BRAKES WHEN TRANSFERRING.**

3.8 Advanced techniques

The Freedom Chair is a high-performance mobility machine. There are a number of advanced techniques we've learned from riders in the field and will share with you here. Just like any machine, the Freedom Chair takes some time to get used to. And just like many activities, practice makes perfect. Practice these techniques in a safe area and preferably with a buddy. **Always ride with a helmet.**

WARNING: Do not ride beyond your ability. Do not attempt anything that feels unsafe. Work your way up to more difficult techniques and terrains. The rider is responsible for their own safety. Always ride with a helmet.

3.8.1 Climbing hills

We recommend using **short, alternating strokes** when climbing hills. This makes slow constant progress up even steep hills and helps keep the front wheel securely on the ground. Some other tips:

- Momentum is your friend. Keep a slow and steady pace up the hill.
- Do not ride directly up a steep hill. Instead, zig-zag up the hill.
- If possible, lean forward to move your center of gravity farther forward and prevent tipping.
- Do not push the levers too far away from yourself. You'll have an easier time pushing if the levers are closer to your body. Resist the urge to make long strokes. Remember: Use short, alternating strokes.

The Freedom Chair's hill-hold feature will engage if the chair rolls backward more than a couple of feet (depending on the lever position). Use this to rest your arms between push strokes, but do not allow the chair to build up backward momentum.

WARNING: THE FREEDOM CHAIR CAN TIP BACKWARD, ESPECIALLY ON STEEP HILLS AND WITH HARD PUSH STROKES.

Be careful to monitor the front wheel when climbing hills. Alternate your lever strokes when climbing hills. If the front wheel lifts off of the ground, the Freedom Chair is beginning to tip. Become comfortable with the tip angle of the Freedom Chair by practicing a wheelie (without the levers) before riding hills. If you tip backward, lean forward to regain balance and to protect yourself in case of a fall. Always ride with a helmet.

3.8.2 Descending slopes

Pull backward on the brake levers to descend slopes at a safe speed. Here are some tips for descending slopes:

- Pull back on the tops of the levers to get maximum braking force. Also try the "hugging" method of positioning your levers in the crook of your elbow and pulling the levers toward your chest.
- Avoid descending straight down steep hills.
- Lean backward in the chair to shift your weight over the bigger rear wheels.
- Avoid extended periods of descent, as this could overheat the brakes.
- Do not descend hills when the wheels and brakes are very wet or covered in wet mud. Braking performance decreases when wet.
- Use a chest strap to support your torso if you have difficulty holding yourself in the braking position.

WARNING: WET CONDITIONS DECREASE BRAKING PERFORMANCE. Use caution when riding in wet conditions. Wet

tires require more braking force for stopping. Riding in wet conditions without the ability to apply the braking force required for stopping could result in a loss of control, which could result in a collision or a fall.

3.8.3 Curbs

It's possible to ride the Freedom Chair down curbs, as long as the chair is ridden straight off the curb and not at an angle. Here are some tips:

- Ride straight off of the curb, not at an angle.
- Make sure you have enough space in front of the curb to safely ride off of it. Watch out for traffic, pedestrians, and obstacles!
- If possible, use the levers to lift the front wheel up just before dropping off of the curb. This helps you land on your rear wheels first.

WARNING: NEVER RIDE OFF CURBS AT AN ANGLE. Riding off of a curb at an angle will cause the Freedom Chair to tip and may result in a fall, causing serious injury and damaging your Freedom Chair. Never allow only one of the rear wheels to fall off of a curb.

Chapter 4

Maintenance

4.1 Caring for your Freedom Chair

4.1.1 Regular maintenance

Caring for your Freedom Chair is just like caring for a bicycle. Here are some tips:

Always: Keep your Freedom Chair out of the rain when not in use. The frame is zinc-plated and covered with a high-quality powder-coat, but excessive exposure to rain and moisture will decrease the life of the frame. If it gets wet, dry it with a clean towel. Keep the bearings and other moving parts free of sand and fine particles.

Before every ride: Check to make sure the tires are not flat. Make sure the chains are greased and not sagging. If there is dirt on your chains, clean and re-grease them. Confirm that parking brakes are adjusted for your tires.

Every two weeks: Inflate your tires. 45 PSI is a safe number to remember for all three tires.

Every month: Make sure the chains are greased and tighten them if necessary. Actuate the wheels and drivetrain to confirm everything is moving smoothly.

After a beach trip: If you ride your GRIT Freedom Chair at the beach or near the ocean, hose it down with fresh water to clean off the salt and sand from the frame, chain, and wheels. Grease the chain after hosing it down. Dry your chair with a clean towel. Submersing or pressure-washing the Freedom Chair can displace the grease in bearings, so take care to inspect rotating parts if this has occurred.

4.1.2 Tools to bring

We don't know where you're going, but we want you to be prepared when you get there. Here is a full list of the tools you may find yourself wanting:

- **Phillips screwdriver.** The first tool in adjusting chain tensioning. Tip size #2 will work, but tip size #3 is best. A 3" shank or longer will allow you to access the tension screws.
- **Adjustable wrench.** This is the second tool you'll need for chain tensioning (A dedicated 13mm wrench is best, but pliers can also work).
- **Allen (hex) keys.** Common sizes: 5mm (to tighten the headset and adjust parking brakes), 7/32" (to tighten top-mount Trail Handles). Check if you need these less-common sizes: 6mm (to tighten clamping Trail Handles), 4mm (to remove parking brake handles)
- **Bike pump.** Always make sure your air is filled to the correct pressure for the terrain you are riding (45 PSI is a safe number to remember for all three tires). Hand or CO₂ pumps are portable, whereas floor pumps are easier to use. Some pumps are more versatile and work on both Presta and Schrader valves, but Schrader valves come standard on the Freedom Chair (the same valve as automobile tires).
- **Backup tube (or tubes).** Rear tires: 3.0/Push/Hemi Models (Standard Mountain Bike Tires) – 26" x 1.75" (ISO 559) Sparta Model (Beach and Snow Tires) – 26" x 2.25" (ISO 559). Front tire: 2.80"/2.50"-4".
- Note: Tire levers can help make tire removal and tube change even easier, and patches can help if you don't have a tube
- **Electrical tape.** If your levers are wrapped in tape (not lever sleeves) a strip of electrical tape will keep them from unraveling.

- **Lubricants.** These keep your chain and other parts moving extra smoothly. GRIT commonly uses “Tri-Flow” brand PTFE lubricant on the chain and seat back.
- **Water/snacks.** Using the Freedom Chair is a workout! Make sure you stay hydrated and energized. Carry these in a small bag on you with your other tools. Some bike bags and water-bottle cages work well, too.

4.2 Common adjustments

4.2.1 Inflating the wheels

It's important to keep the tires at the recommended pressure to prevent flats caused by underinflation. Do not overinflate the tires. On soft, sandy ground, riding with a lower pressure (but still at or above the minimum pressure) will provide more traction. On pavement, riding with a higher pressure (but still below the maximum pressure) will reduce rolling resistance and make the chair easier to push. We recommend 45 PSI for balanced performance over all terrains.

4.2.2 Replacing the tubes

Rear wheels

Replacing the tubes on the rear wheels is very similar to replacing the tubes on a bicycle. A Google search or visit to a bike shop will provide you all of the information you need. This tutorial is also very good: <http://tinyurl.com/hya9y98>.

Pneumatic front wheel

Instructions for replacing the tub on the front wheel can be found here: <http://support.gogrit.us/knowledge/setting-up-your-freedom-chair/front-tire-tube-replacement>. You can also reach out to GRIT at support@gogrit.us if you have any questions.

4.2.3 Chain tension adjustment

The Freedom Chair uses standard bicycle chain. Chain stretch is normal, and you should expect to have to periodically tighten the chain over the lifetime of your Freedom Chair. Riders have to make this adjustment early on (new chains stretch the most) and then a couple of times per year, often after heavy use. Your chain is too loose (and needs to be tightened) if you can squeeze it together more than half of an inch (see Figure 4.2) or if you are experiencing a delay in your lever engagement. This video shows you the full chain-tensioning process: <http://support.gogrit.us/knowledge/how-to-videos/tensioning-the-chains>.



(c) This chain is too loose. It can be squeezed together more than half an inch.



a) This chain is just right. It can be squeezed together by less than $\frac{1}{2}$ " but is not overly tightened.

Figure 4.2: Freedom Chair chain tension.



(a) Remove the seat cushion and expose the four seatpan bolts.



(b) Use a #3 (or any available) Philips screwdriver and a 13mm wrench or socket to loosen the bolts. Do not remove the bolts.



(c) The chain tightness is controlled by two setscrews, one on each side of the seat. Turn these setscrews clockwise to tighten the chains. Both must be rotated the same amount. Periodically check the chain tension while turning the setscrews.



(d) Once the chains are at an appropriate tension, use a #3 (or any available) Philips screwdriver to tighten the setscrews until the desired chain tension is reached.

Figure 4.3: Adjusting the chain tension on the Freedom Chair.

4.2.4 Parking brake adjustment

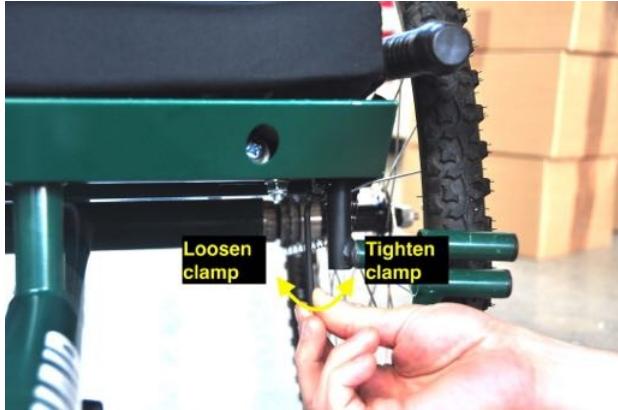
The parking brakes can be adjusted to make them tighter (more braking power) or looser (easier to engage the brakes). If you use the sand/snow wheels for an extended period of time, you may want to adjust the parking brakes so that they fit the beach wheels better.

A video tutorial of this process is located <http://support.gogrit.us/knowledge/how-to-videos/adjusting-your-parking-brakes>.

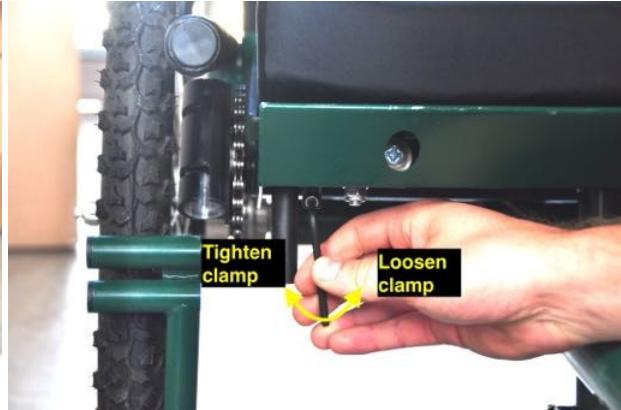
1. The parking brakes are secured using bike seat post clamps, one for each side of the chair. To adjust the parking brakes, use the 4mm Allen key shipped with the Freedom Chair to loosen the clamps. Note that since one of the bolts is facing backward, you'll have to rotate it the opposite way to loosen it.
2. Once the clamps are loose enough, rotate each brake to its desired position. We typically adjust the brakes so they are one finger width away from the wheel when not engaged. Tighter brakes will provide more braking force to hold the wheel in place. However, they will require more force to apply. Looser brakes are easier to apply, but don't do as good a job holding the wheel in place. Adjust the brake position until it is right for you. Some trial and error may be required.
3. Re-tighten the clamps to secure the brakes in place.



Figure 4.4: There is a clamp on either side of the chair. One bolt faces forward, while the other faces backward. Loosening these bolts will allow you to manipulate the parking brake arm to your desired setting.



(a) Loosening and tightening the left parking brake clamp.



(b) Loosening and tightening the right parking brake clamp.



(c) Swing the parking brake forward and backward to the desired position.



(d) We usually adjust the parking brakes so that a finger fits between the parking brake and the wheel (when the parking brake is in the disengaged position as shown).

Figure 4.5: Adjusting the parking brake on the Freedom Chair.

4.2.5 Changing the gear ratio

The Freedom Chair gear ratio can be adjusted in two ways: by changing the chainring size, or by changing the freewheel. We recommend changing the chainring size, since it's a simpler process, but both can be easily done at a bicycle shop.

To make the Freedom Chair easier to push (but slower), swap the chainring with a smaller one, or swap the freewheel with a larger one. To make the Freedom Chair faster (but harder to push), swap the chainring with a larger one, or swap the freewheel with a smaller one. Both of these adjustments may require you to add or remove links to the chain in order to keep your center of gravity the same.

For detailed instructions, contact GRIT at support@gogrit.us or 617-356-8106.

4.3 Warranty information

4.3.1 Pride & fairness

Every Freedom Chair is hand-assembled and certified by our engineering and design team in Massachusetts. We've tested the Freedom Chair extensively in the lab, in the field, and with the help of wheelchair riders around the world. This being said, unexpected things happen, and we want to be there for you when they do.

...We are proud, but we are also human beings. If you have any issues with your Freedom Chair, you can contact us directly at support@gogrit.us or 617-356-8106.

We're the designers of the product and we'll do everything we can to make things right. In short, our two-year warranty covers repairs or replacements of all non-wear components of the Freedom Chair manufactured by GRIT, subject to the terms below. Wear parts, such as tires, tubes, brakes, and bearings, are not covered.

4.3.2 GRIT limited warranty

The specific warranty covering your GRIT Freedom Chair mobility device is governed by the law of the state or country in which it was purchased and applies only to mobility devices purchased directly from GRIT or from Authorized GRIT Retailers.

GRIT frames and manufactured parts are warranted by Global Research Innovation and Technology Inc., against manufacturing defects in materials and/or workmanship for a period of two years from the date of original retail purchase. Components used on rental fleet devices are not covered by this warranty.

Terms of limited warranty

Every GRIT Freedom Chair is hand assembled and certified by our engineering and design team in Cambridge, Massachusetts. We've tested the GRIT Freedom Chair extensively in the lab, in the field, and with the help of wheelchair riders around the world. Every component has been extensively prototyped and refined based on our combined twenty-five years of experience designing mobility aids for some of the most extreme environments in the world. That being said, unexpected things happen, and we want to be there for you when they do.

If you have any issues with your GRIT Freedom Chair you can contact us directly at support@gogrit.us or **617-356-8106**.

We're the designers of the product and we'll do everything we can to make things right. In short, our two-year warranty covers repairs or replacements of all non-wear components of the GRIT Freedom Chair manufactured by GRIT, subject to the terms below. Wear parts, such as tires, tubes, brakes, and bearings, are not covered.

The specific warranty covering your GRIT Freedom Chair mobility device is governed by the law of the state or country in which it was purchased and applies only to mobility devices purchased directly from GRIT or from Authorized GRIT Retailers.

GRIT frames and manufactured parts are warranted by Global Research Innovation and Technology Inc., 10 Cabot Road, Suite 103, Medford, MA 02155 against manufacturing defects in materials and/or workmanship for a period of two years from the date of original retail purchase. Rental fleet devices are not covered by this warranty.

This limited warranty is not meant to suggest or imply that the mobility device cannot be broken or will last forever. It does mean that the mobility device is covered subject to the terms of the limited warranty.

This limited warranty applies only to the original owner of a GRIT mobility device and is not transferable to subsequent owners.

For any warranty claim to be considered, we must receive proof of issue along with the original, dated sales receipt for the mobility device. (Be sure to keep your receipt, or e-receipt, in a safe place.)

This limited warranty is void if the mobility device is subjected to abuse, neglect, improper repair, improper maintenance, alteration, modification, an accident or other abnormal, excessive, or improper use. Any after-sale modification that prevents the chair from being returned to its original state will void the warranty.

This limited warranty applies only to mobility devices purchased from GRIT, from Authorized GRIT Retailers, or other outlets specifically authorized by GRIT to distribute GRIT mobility devices.

Returns of Freedom Chair Pro models come with a 15% restock fee, even when returned within the first 30 days of ownership.

Refurbished Freedom Chairs and accessories are not eligible for refunds and are nonreturnable. They are sold as-is and do not fall under the terms of the 30-day trial period.

Damage resulting from normal wear and tear is not covered.

Every GRIT mobility device has a useful product life cycle. Use in trick riding, ramp riding, jumping, aggressive riding, riding on severe terrain, riding in severe climates, riding with heavy loads, commercial activities and other types of nonstandard use can dramatically shorten the useful product life cycle of a GRIT mobility device that would not be covered by this warranty. ALL GRIT MOBILITY DEVICES SHOULD BE PERIODICALLY CHECKED for indicators of stress and/or potential failure, including cracks, deformation, corrosion, paint peeling, dents, and any other indicators of potential problems, inappropriate use, or abuse. These are important safety checks and very important to help prevent accidents, bodily injury to the rider and shortened useful product life cycle of a GRIT mobility device.

Damage resulting from improper assembly or maintenance, or from installation of parts and accessories not compatible with the GRIT mobility device, is not covered.

During the duration of this limited warranty, GRIT will either repair any defective frame or component, or, at our option, replace any defective frame or component with the same or most nearly comparable model or component then available. The customer will bear the cost of return shipping. THIS IS THE EXCLUSIVE REMEDY UNDER THIS WARRANTY. ANY AND ALL OTHER REMEDIES AND DAMAGES THAT MAY OTHERWISE BE APPLICABLE ARE EXCLUDED, INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR PUNITIVE DAMAGES.

THIS IS THE ONLY WARRANTY MADE BY GRIT ON ITS FRAMES AND COMPONENTS, AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION HEREIN. ANY WARRANTIES THAT MAY OTHERWISE BE IMPLIED BY LAW INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED.

Please refer to the documents included with your mobility device for possible further restrictions.

This Limited Warranty gives the consumer specific legal rights. The consumer may also have other legal rights which vary from state to state or country to country. Some states and countries do not allow the exclusion or limitation of incidental or consequential damages or warranties, so the above limitations or exclusions may not apply to you. If it is determined by a court of competent jurisdiction that a certain provision of this limited warranty does not apply, such determination shall not affect any other provision of this limited warranty and all other provisions shall remain in effect.