

# Top End®

## Force™ 3 Recreational Handcycle

### User Manual

This manual **MUST** be given to the user of the product.  
BEFORE using this product, read this manual and save for future reference

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# 1 General

## 1.1 Symbols Gives useful tips, recommendations, and information for efficient, trouble-free use.

Signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage.

See the information below for definitions of the signal words.



### **DANGER!**

- Danger indicates an immediately hazardous situation which, if not avoided, could result in death or serious injury.



### **WARNING!**

- Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### **CAUTION!**

- Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage or minor injury or both



### **IMPORTANT**

- Important indicates a hazardous situation that could result in damage to property if it is not avoided.

## 1.2 Intended Use

Top End Racing Handcycles are designed and built solely for transportation of a single rider for use in recreational, road racing, time trial and paved course enjoyment.

They are intended to be used for longer, faster rides in recreational areas including paved, crushed gravel, and riding paths. They are not intended to be used as a daily wheelchair or the treatment of any medical condition but only for recreational purposes. Any other use is prohibited.

Max. user weight: 250lbs (100 kg).

## 1.3 Indications For Use

The device is intended to provide mobility to persons playing sports activities only on courts or designated playing surfaces. The device is not intended for a daily use wheelchair or treatment of any medical condition but for recreational purposes only. Any other use is prohibited.

## 1.4 Service Life

The expected service life is five years, presuming that the product is used daily and in accordance with safety instructions, maintenance instructions and intended use, stated in this manual.

## 1.5 Wear and Tear Information

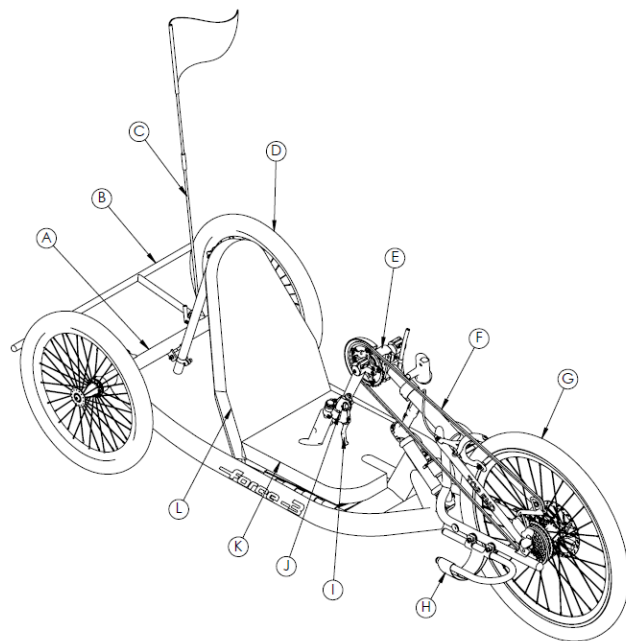
Normal wear and tear items and components include but are not limited to: all upholstery items including seat and back upholstery, cushions, wheels, tires and strapping.

Top End reserves the right to ask for any item back that has an alleged defect in workmanship. See Warranty policy shipped with the product for specific warranty information. Refer to the Maintenance chapter in this user manual for the proper preventative maintenance schedule and use of the product.

This is only a general guideline and does not include items damaged due to abuse and misuse.

## 2 Overview

### 2.1 Label Locations and Component Identification



ITEM	DESCRIPTION
A	Weight Capacity Label <div>           WEIGHT CAPACITY            LIMITE DE POIDS            250 LBS. (114 kgs.)            REFER TO OWNER'S MANUAL            SE RÉFÉRER AU MANUEL DE L'UTILISATEUR         </div>
B	Bumper
C	Accessories
D	Rear Wheels
E	Crank Sets
F	Fork
G	Front Wheel
H	Footrest
I	Braking
J	Shifting
K	Seat
L	Backrest

## 2.2 Typical Product Parameters

Seat Width:	17" between side frames.
Seat Cushion to Bottom Bracket Height	Adjustable
Fork Length:	Adjustable
Crank Lengths:	165mm
Crank Width:	14"
Hand Pedal Angles:	15 Degrees
Wheelbase (Axle to Axle)	60"
Camber	1 Degree
Rear Wheel Size (diameter):	20" (406)
Rear Axle (diameter):	½" threaded
Front Wheel Size (diameter):	26" (559)
Brake:	Rim Brake, hand Operated Brake Lever
Weight:	NA: Dependent on options and accessories
Shipping Weight:	NA: Dependent on options and accessories
Standard Equipment:	Nylon Covered Foam Seat Cushion, Nylon Covered Back Cushion, Hook and loop Waist Strap, Plastic Chain Guard, Safety Flag, Race Mirror, and Drafting Bumper
Options: *see order form	NA: See order form

## 2.3 Tire Pressure Conversion

PSI	KILOPASCALS
50	345
55	379
60	414
65	448
70	483
75	517
80	552
85	586
90	621
95	655
100	690
105	724
110	758
115	793
130	827

PSI rating is printed on the side of the tire.

Conversion formula: 1 psi = 6.895 kPa (approximately .07 bar)



## 3 Safety

### 3.1 General Guidelines

The safety section contains important information for the safe operation and use of this product.

The Top End Force 3 handcycle is recreational handcycle built to make the most of each athlete's experience by matching up the athlete's ability with a relaxed and supported position. It is recommended for users position themselves by:

1. Saddle the front of the frame
  - a. If the user has loss of feeling, ensure a safe gap between the body and frame is present before each ride to avoid injury.
2. Position the feet in footrests
  - a. Adjust the footrests and straps according to the needs for the User's leg length and size.
  - b. Ensure the footrests are secured and that the footrest straps are fully engaged before riding.
3. Position backrest
  - a. Locate the backrest position so that it supports the rider as needed. An upright position is suggested for those with core function. A reclined position is suited for those needing support.
  - b. Shoulder position may be adjusted to suit needs of the rider over time.



#### **WARNING!**

##### **Risk of Death, Injury or Damage**

Improper use of this product may cause injury or damage.

- If you are unable to understand the warnings, cautions or instructions, contact a healthcare professional, or provider before attempting to use this equipment.
- DO NOT use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as user manuals, service manuals or instruction sheets supplied with this product or optional equipment.

Continued use of the products with damaged parts could lead to the product malfunctioning, causing injury to the user and/or caregiver.

- Check all product components and carton for damage and test components before use. In case of damage or if the product is not working properly, stop using the product and contact a qualified technician or Top End for repair.

**WARNING!****Risk of Serious Injury or Damage**

Use of unapproved accessories may result in serious injury or damage.

- Top End products are specifically designed and manufactured for use in conjunction with Top End accessories. Unapproved accessories have not been tested by Top End for use with Top End products.
- DO NOT use unapproved accessories.
- To obtain approved Top End accessories, contact Top End by phone or at [www.topendsportsllc.com](http://www.topendsportsllc.com).

**WARNING!****Risk of Injury, Damage or Death**

Improper monitoring or maintenance may cause injury, damage or death due to ingestion or choking on parts or materials.

- Closely supervise children, pets, or people with physical/mental disabilities.

**DANGER!****Risk of Death, Serious Injury or Damage**

Use of incorrect or improper replacement (service) parts may cause death, serious injury or damage.

- Replacement parts MUST match original Top End parts.
- ALWAYS provide the handcycle serial number to assist in ordering the correct replacement parts.

**DANGER!****Risk of Death, Serious Injury or Damage**

Lighted cigarettes dropped onto an upholstered seating system can cause a fire resulting in death, serious injury, or damage.

- Handcycle occupants are at particular risk of death or serious injury from these fires and resulting fumes because they may not have the ability to move away from the handcycle.
- DO NOT smoke while using this handcycle.

**WARNING!****Risk of Serious Injury or Damage**

Hardware that is loosely secured could cause loss of stability resulting in serious injury or damage.

- After ANY adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely.

**WARNING!****Risk of Serious Injury**

Sharp edges can cause serious injury

- Be mindful that some parts may have sharp edges. Use caution when encountering these sharp edges.

**DANGER!****Risk of Death, Serious Injury or Damage**

Missing attaching hardware could cause instability resulting in death, serious injury or damage.

- Ensure all attaching hardware is present and tightened securely.

**Repair and Service Information****DANGER!****Risk of Injury, Damage or Death**

Improper setup, service or adjustment may cause injury, damage or death.

- Qualified technician **MUST** setup and service the handcycle.
- **DO NOT** allow non-qualified individuals to perform any work or adjustments on the handcycle.
- Ensure all hardware is securely tightened after setup, service or adjustments.
- Warranty is void if non-qualified individuals perform any work on this product.

**IMPORTANT**

- THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

As a manufacturer of Handcycles, Top End endeavors to supply Handcycles to meet many needs of the end user. However, final selection of a Handcycle to be used by an individual rests solely with the user and his/her health care professional capable of making such a selection. Use

this information only as a basic guide. The techniques that are discussed on the following pages have been used successfully by many. Individual users often develop skills to deal with daily living activities that may differ from those described in this manual. Top End recognizes and encourages each individual to try what works best for him/her in overcoming obstacles that they may encounter. Techniques in this manual are a starting point for the handcycle user and assistant with safety as the most important consideration for all.

### 3.2 Safety and Handling

Safety and Handling of the handcycle requires close attention of the user as well as the assistant. This user manual points out the most common procedures and techniques involved in the safe operation and maintenance of the handcycle. It is important to practice and master these safe techniques until you are comfortable in maneuvering the handcycle.

Care, consideration and practice **MUST** be taken and observed in the following safety points.



**WARNING!****Risk of Injury or Damage**

- The user is responsible for normal upkeep and maintenance of the handcycle to keep it in proper operating condition.
- The manufacturer is not responsible for failure, damage or injury caused by improper operation or maintenance by the end-user.
- A helmet **MUST ALWAYS** be worn when operating the handcycle.
- Operation of the handcycle is subject to all traffic rules and regulations. (This may include the use of a safety lights and reflectors for dusk/night riding.) Give pedestrians the right of way.
- Use proper hand signals when turning.
- Slow down when turning or cornering, at all street intersections and observe in both directions at least twice before proceeding.
- DO NOT attempt to move up or down an incline with an ice or oil film. Avoid all surface hazards.
- DO NOT attempt to ride over curbs or obstacles or speed bumps. Doing so may cause your handcycle to "bottom out" and/or turn over and cause bodily harm or damage to the handcycle.

**WARNING!****Risk of Injury or Damage**

- DO NOT attempt to lift the handcycle by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of an handcycle may result in injury to the user or damage to the handcycle.
- DO NOT stand on the seat or frame of the handcycle.

**WARNING!****Risk of Injury or Damage**

- DO NOT carry any items that may obstruct your view or prohibit you from operating the handcycle properly.
- Top End strongly recommends that the handcycle be boxed or otherwise protected before transporting by an airline carrier.

**WARNING!****Risk of Injury or Damage or Death**

- Improper use of the handcycle may cause instability and may result in injury, damage or death. The stability of the handcycle is adversely affected by additional weight that shifts the center of gravity.
- This handcycle has been designed to accommodate one individual. DO NOT operate with additional persons.
  - DO NOT carry heavy objects on your lap while operating the handcycle.

**WARNING!****Risk of Injury, Damage or Death**

Use of the handcycle while judgement or ability is impaired may result in injury, damage or death.

- DO NOT operate the handcycle under the influence of alcohol, medications or other substances that impair judgement or function.
- Changing medications may affect your ability to operate the handcycle. Discuss the impact on your ability to operate the handcycle with a health care professional when changing medications.
- DO NOT operate the handcycle under conditions where judgement or function may be impaired. This may include but is not limited to lack of sleep or poor sight.
- Always be aware of your surroundings.

**WARNING!****Risk of Injury or Damage**

To avoid injury or damage from moving parts:

- ALWAYS keep hands and fingers clear of moving parts.

**WARNING!****Risk of Injury or Damage**

Improper operation may change the normal balance, center of gravity or weight distribution of the handcycle causing injury or damage.

- Determine and establish your personal safety limits. Practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the handcycle.
- ALWAYS shift your weight in the direction you are turning. Shifting your weight in the opposite direction of the turn may cause the wheels to lose traction.

**WARNING!****Risk of Serious Injury**

Impacting objects in the surrounding environment can cause serious injury.

- When maneuvering the handcycles ALWAYS have assured cleared distance with all objects in environment.

**WARNING!****Risk of Injury, Damage or Death**

Damaged parts due to collision or impact may result in injury, damage or death.

- Seek immediate attention and service if handcycle is involved in a collision or impact event. This includes, but is not limited to, vehicle accidents, mishandling and impact events where the handcycle strikes something or is struck by something that may cause damage.
- Ensure your handcycle is working properly and is inspected by a qualified Top End technician if the handcycle is involved in a collision or impact event.

### 3.3 Operating Information

**WARNING!****Risk of Injury or Damage**

Top End DOES NOT recommend the use of its handcycle as a weight training apparatus. Top End handcycles have NOT been designed or tested as a seat for any kind of weight training. Using said handcycles for weight training could result in serious bodily injury to the user, damage to the handcycles and surrounding property. Also, if occupant uses said handcycle as a weight training apparatus, Top End shall NOT be liable for bodily injury and the warranty is void.

- DO NOT use the handcycles as a weight training apparatus.

As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a handcycle, in a moving vehicle of any type. It is Top End's position that users who are racing should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Top End cannot and does not recommend any racing transportation system.

**WARNING!****Risk of Injury or Damage**

- Care, consideration and practice MUST be taken and observed in the following safety points.
- Safe use requires the close attention of the user as well as the assistant. This user manual points out the most common procedures and techniques involved in the safe operation and maintenance of the handcycle. It is important to practice and master these safe techniques until you are comfortable in maneuvering the handcycles.
- Shoes MUST ALWAYS be worn when operating the racing handcycle.

**WARNING!****Risk of Injury or Damage  
Stability and Balance**

- For stability and proper operation of your handcycle you **MUST** always maintain proper balance. Turning and cornering affects the stability and balance of the handcycle and user. Your handcycle should remain upright and stable during turns and cornering when operated correctly.
- Top End recommends using seat positioning strap for additional safety.

**Note for Assistants**

- When learning assistance techniques for the handcycle, have an experienced assistant help you before attempting it alone.
- When you are assisting with a transfer to/from the handcycle, remember to use good body mechanics. Keep your back straight and bend your knees when lifting or positioning the handcycle for the end-user.
- Also, be aware of detachable parts. These must **NEVER** be used for lifting supports or to move the handcycle, as they may be inadvertently released, resulting in possible injury to the user and/or assistant.

**DANGER!****Risk of Death or Serious Injury**

Not wearing your seat positioning strap could result in death or serious injury.

- **ALWAYS** wear your seat positioning strap. Your seat positioning strap helps reduce the possibility of a fall from the handcycle. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, seat positioning strap **MUST** be replaced **IMMEDIATELY**.

**WARNING!****Percentage of Weight Distribution**

- Transferring in and out of the handcycle, turning and cornering will cause a change to the normal balance, the center of gravity, and the weight distribution of the handcycle. To determine and establish your personal safety limits, practice transferring activities in several combinations in the presence of a qualified health care professional before attempting a transfer alone.
- Proper positioning is essential for your safety.

### 3.4 Weight Capacity

**WARNING!****Risk of Death or Serious Injury**

Exceeding the weight capacity of the handcycle could cause instability resulting in death or serious injury.

- DO NOT exceed the weight capacity.

The Top End Force 3 has a weight capacity of 250lbs (100 kg).

### 3.5 Tire Pressure

**DANGER!****Risk of Injury, Damage or Death**

Over inflation of tires may cause tires to explode.

- Inflate tire to the proper tire pressure (P.S.I./kilopascals) listed on the side wall of the tire.
- Only use handcycle with tires at proper tire pressure.
- The wheels and tires should be checked periodically for cracks and wear and should be replaced if necessary.

**WARNING!****Risk of Injury or Damage**

Riding on flat or under inflated tires can cause injury, as well as damage to the tire, tube and handcycle wheels.

- DO NOT ride on a flat or under inflated tires.

### 3.6 Transferring Into/Out of the Handcycle

**WARNING!****Risk of Injury or Damage**

- Before attempting to transfer in or out of the handcycle, every precaution should be taken to reduce the gap distance. Position the handcycle on level ground and as close as possible to the object you are transferring into or out of.
- The tautness of the back upholstery, knee and/or foot position, as well as the user condition directly relate to the stability of the handcycle. Any change to one or any combination of the three may cause the handcycle to decrease in stability.
- The object you are transferring into or out of **MUST** also be secured before attempting any transfer.



- Top End strongly recommends an experienced assistant help in the transferring to and from the handcycle. The assistant should hold down the front of the handcycle to avoid any instability that may occur.

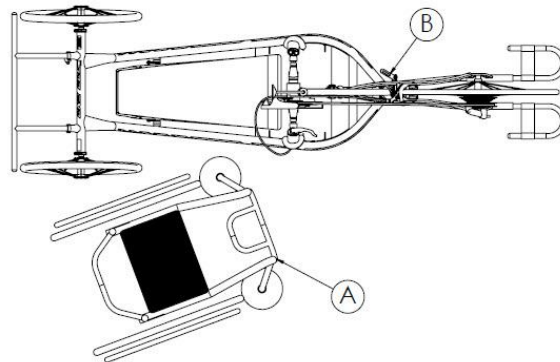


Fig. 3-1

1. Perform the following:
  - a. Ensure the parking brake is engaged.
  - b. Position the chair as close as possible alongside the seat to which you are transferring.
  - c. If possible, have assistant nearby in case additional help is needed

## 4 Safety Inspection Troubleshooting

### 4.1 Safety Inspection Checklist



Every six months or as necessary, take your Top End handcycle to a qualified technician for a thorough inspection and servicing. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your handcycle. For safe and proper operation, your handcycle **MUST** be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your handcycle.

Initial adjustments should be made to suit your personal body structure and preference. Thereafter, follow these maintenance procedures:

#### Inspect/Adjust Initially and Weekly

- ☐ Make sure that the handcycle rolls straight (no excessive drag or pull to one side).
- ☐ Inspect seat and back upholstery for rips or sagging.
- ☐ Inspect that rear wheel axles are securely tightened.
- ☐ Inspect that there is no excessive side movement or binding when rear wheel is lifted and spun.
- ☐ Inspect front wheel axle is secure
- ☐ Inspect spokes for bent or broken spokes.
- ☐ Inspect that all spokes are uniformly tight.
- ☐ Inspect that the wheel bearings are clean and free of moisture.
- ☐ Inspect chain and drivetrain components for wear.

- ☐ Inspect that the brake cable is not frayed or damaged
- ☐ Inspect that the brake does not interfere with front wheel when rolling.
- ☐ Inspect that the brake is easy to engage.
- ☐ Inspect that there is no excessive wear of brake pads.



#### CAUTION!

– As with any vehicle, the wheels and tires should be checked periodically for cracks, flat spots and wear, and should be replaced.

- ☐ Inspect tires for flat spots and wear.
- ☐ Check pneumatic tires for proper inflation.
- ☐ Check carbon fiber seat for cracks or damage.
- ☐ Clean upholstery with light detergent and water.
- ☐ Inspect for bent or broken frame.
- ☐ Inspect footrests and ensure there's no bending or cracks
- ☐ Inspect footrest straps for wetness and/or damage.
- ☐ Inspect seat positioning straps for any signs of wear. Replace if necessary.

#### Inspect/Adjust Monthly

- ☐ Inspect that rear wheel axles are securely tightened.
- ☐ Inspect front wheel axle is secure.
- ☐ Inspect that headset cap screws are tight.
- ☐ Inspect footrests aren't damaged.
- ☐ Inspect brake cables are not damaged or frayed.
- ☐ Inspect flip lever parking brake assembly.
- ☐ Inspect that the wheel bearings are clean and free of moisture.

- ☐ Inspect that the brake does not interfere with front wheel when rolling.
- ☐ Inspect that there is no excessive wear of brake pads.
- ☐ Inspect chain for lubrication and wear.

**Inspect/Adjust Periodically**

- ☐ Make sure that the handcycle rolls straight (no excessive drag or pull to one side).
- ☐ Inspect upholstery for rips or sagging.
- ☐ Inspect that rear wheel axles are securely tightened.
- ☐ Inspect front wheel axle is secure.
- ☐ Inspect that there is no excessive side movement or binding when rear wheel is lifted and spun.
- ☐ Inspect that the wheel bearings are clean and free of moisture.
- ☐ Inspect that the brake is easy to engage.
- ☐ Clean upholstery with light detergent and water.



## 4.2 Troubleshooting

Veers Right	Veers Left	Sluggish Turn or Performance	Squeaks and Rattles	Looseness in Handcycle	Solutions
X	X	X			Check tires for correct and equal pressure.
X	X				Check steering dampener wear and position
			X	X	Check rear wheel alignment, bottom bracket, chain, and front wheel alignment.
X	X	X	X	X	Check all of the above. Ensure seating, fork, and wheels are properly assembled.
		X		X	Check fork and frame connection.

## 5 Initial Setup

### 5.1 Getting Started

Assembly instructions are provided under part number 60121627.

## 6 General Operation

### 6.1 Positioning

Transfer into handcycle and ensure positioning is comfortable and efficient. We encourage consulting your dealer to ensure the best fit for your needs. Before going on a ride or racing, the user must ensure they are secure and are not bringing bodily harm by misuse of the handcycle. With a fixed crank height and minimal adjustment in seating, there is possibility of crank arm, hand pedal, and or derailleur interference with the user. Pedaling while cornering may also cause interference. To prevent injury, each user must be aware of personal needs and fitment requirements before operating the handcycle.

**CAUTION!**

- User must take caution when positioning themselves in the bike to prevent skin irritation or other injury.

### 6.2 Braking

Before each ride, inspect the braking system. Actuate the brake lever and ensure there's smooth actuation and that the lever doesn't touch the handpedal. Inspect the brake cable and ensure there's no damage, wear, or fraying. Inspect the brake caliper and brake pads. Ensure the pads are aligned and have proper engagement according to bicycle standards.

### 6.3 Shifting

The Force 3 Handcycle comes with a single chainring configuration, using a large cassette to provide more range for cruising, rough terrain, and small hills.

### 6.4 Drive Control

The Force 3 handcycle comes with V-Cranks as standard along with 3D printed handpedals with power plates. This provides improved positioning and gives more clearance for users. To provide the best user experience when using the handcycle, consult your dealer for advice regarding cranks, handpedals, and other drive control components.

### 6.5 Post Ride Maintenance

After each ride, we suggest taking time clean your handcycle. Using a wet and soapy soft sponge to wipe down the handcycle is acceptable. Ensure to be careful when wiping down the bike to prevent damage. After the handcycle has been wiped down, gently rinse off excess dirt and grime. Using a dry towel, gently dry off the handcycle and make sure to oil drive train components as recommended by the manufacturer.

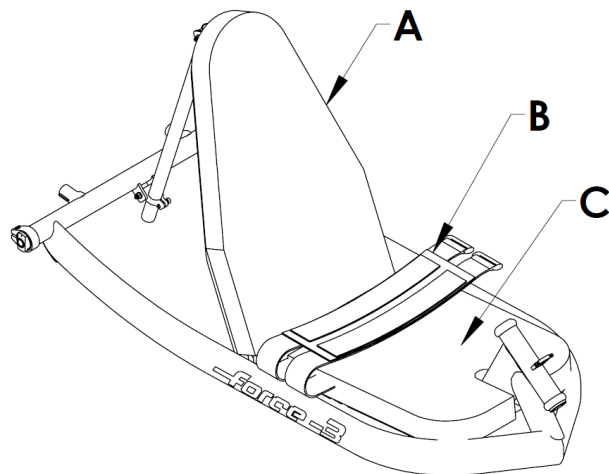
## 7 Upholstery

### 7.1 Upholstery Components

Your Force 3 handcycle comes with a 2" foam backrest (A), a positioning strap (B), and a 2" thick seat cushion (C). Both cushions are covered with nylon upholstery. Additional foam can be used to improve the riders fit.

**CAUTION!**

- User must take caution to ensure cushions provide enough protection to prevent skin damage or other injury.



### 7.2 Upholstery Maintenance

It's recommended to regularly wipe down and clean your upholstery. Over time, upholstery may need replaced due to wear or tearing.

To help accommodate a variety of seat width requirements, the Force 3 frame is built wider than the seat cushion. This allows users with varying needs to use the handcycle.

## 8 Brakes

### 8.1 Adjusting Disc Brakes

1. Disc brakes require several adjustments and are unique to each manufacturer. Adjustment for the disc brakes must be reviewed per the manufacturer specification and process.

**WARNING!****Risk of Injury or Damage**

Brake and/or Brake pads not operating properly may result in injury or damage.

- Inspect the brake and brake pads for proper operation and wear. Replace if worn or not operating properly.

2. Loosen the hex screw that maintains the tautness of the brake cable.

### 8.2 Adjusting Rim Brake Sensitivity

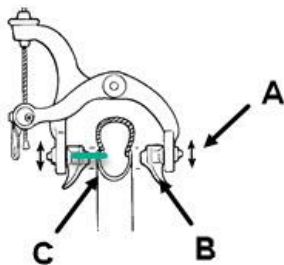


Fig. 9-1

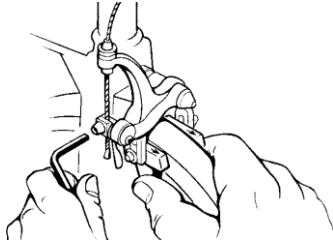
1. Loosen the hex screw that maintains the tautness of the brake cable.
2. Squeeze both brake pads with your hand to adjust the brake cable. Loosely tighten the hex screw to ensure that the brake is adjusted properly.



When the brake is engaged, the brake pads should rest solely on the rim of the wheel. If not, adjust the brake pads.

3. Repeat this procedure until the brake is adjusted properly.
4. Securely tighten the hex screw that maintains the tautness of the brake cable.

### 8.3 Adjusting Brake Pads



1. Loosen the hex screw A that secures the brake pad B to the brake.
2. Position the brake pad until it is in-line with the rim C of the front wheel.
3. While squeezing the brake lever, tighten the hex screw to between 8 and 9 Newton-meters to secure the brake pad to the brake.
4. Repeat this procedure for the opposite side.
5. Adjust the brake sensitivity, if necessary.
6. Repeat this procedure for the opposite side.
7. Adjust the brake sensitivity, if necessary.

### 8.4 Replacing Brake Pads

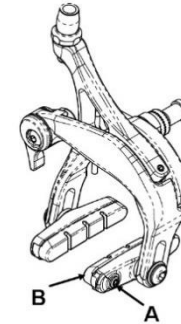


Fig. 9-2



Use a 2.5mm hex key for this procedure

1. Loosen the hex screw A until the brake pad B can slide out.
2. Slide out the existing brake pad.
3. Install new brake pad.
4. Tighten set screw.
5. Repeat for remaining brake pads

## 9 Alignment

### 9.1 Determining Toe in and Out

#### Front of Wheelchair

#### Toe-out

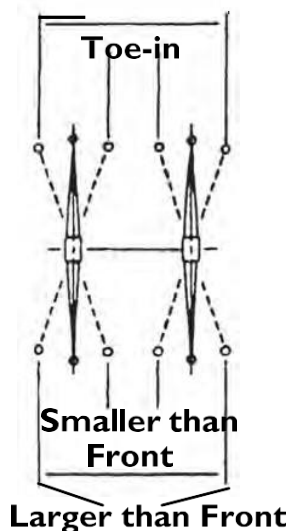


Fig. 8-1

1. Inflate all pneumatic tires to recommended tire pressures (listed on the sidewall of the tire).
2. Measure the distance between the center lines at the rear and front of the rear wheels at approximately 9-1/4 inches from the ground/floor
  - i For optimum accuracy, perform STEP 2 with the handcycle occupied.  
STEP 2 may be performed by using alignment gauge (available as an option for the handcycle).
3. Determine the difference between the two measurements. If the difference between the two measurements is greater than 1/4-inch ( $0 \pm 1/8$  inch for maximum rollability), one of two conditions exists:
  - If the rear centerline measurement of the rear wheels is **SMALLER** than the front centerline measurement of the rear wheels, a toe-out condition exists.
  - If the rear centerline measurement of the rear wheels is **LARGER** than the front centerline measurement of the rear wheels, a toe-in condition exists.
4. If the difference between the measurements is greater than 1/8-inch, correct the toe-in/toe-out condition.
5. See page 32 for additional alignment gauge information.

## 9.2 Adjusting Toe in and Out

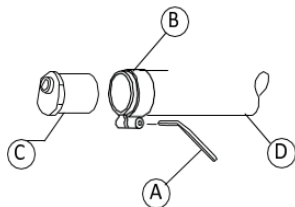


Fig. 8-2

1. Loosen, but do not remove the socket screws A and clamps B that secure camber inserts C to the camber bar D.
2. Slowly rotate each camber insert equally until the rear wheels are approximately in a straight line.
3. Securely tighten the socket screws and clamps that secure the camber inserts to the camber bar.
4. Measure the distance between the center lines at the rear and front of the rear wheels at the middle height of the wheel. It's important to measure at the same location in the front and rear, so if possible, take note of the height.
5. Repeat STEPS 1-4 until the toe in/toe out measurement is less than 1/8-inch (for maximum rollability).

## 9.3 Replacing Camber Inserts

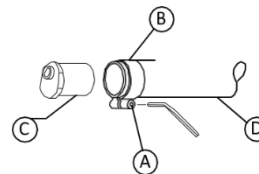


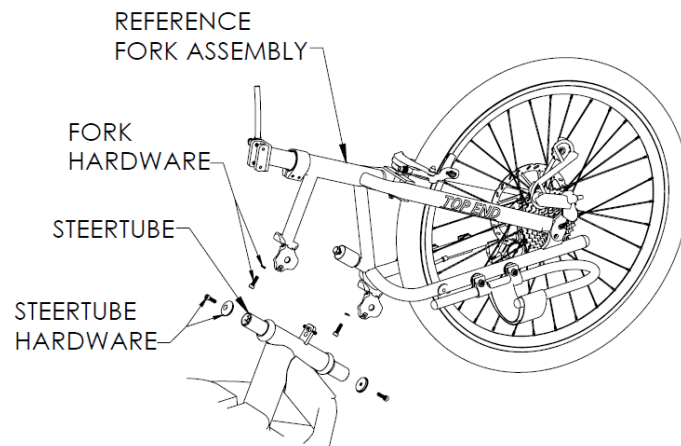
Fig. 8-3

1. Loosen, but do not remove the socket screws A and clamps B that secure camber inserts C to the camber bar D.
2. Remove the existing camber insert from the camber bar.
3. Install the new camber insert into the camber bar.
4. Adjust the toe in/toe out of the handcycle.

## 10 Fork and Drivetrain

### 10.1 Fork to Frame

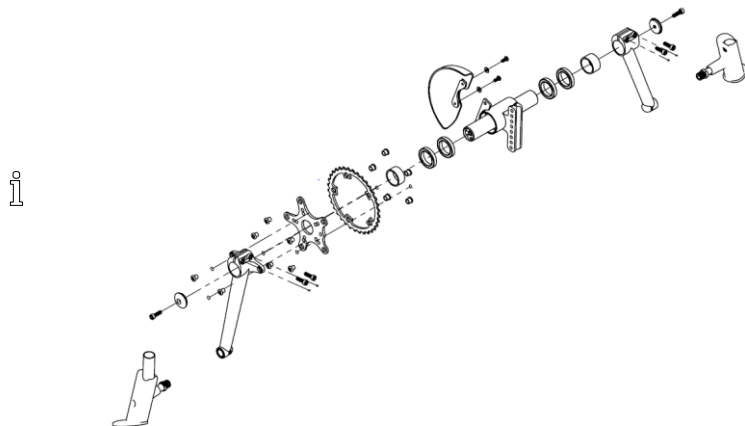
1. Your Force 3 fork and frame can be easily assembled. For more detailed instructions, see the assembly instructions that came with your Force 3. If you do not have these, contact Customer Service at [topendorders@topendsportsllc.com](mailto:topendorders@topendsportsllc.com) for a copy.
2. We suggest assembling the fork and frame following the steps below:
  - a. Insert the steertube into the frame
  - b. Confirm Headset assembly and spacers are in the correct order as received.
  - c. Install the fork onto the steer tube and tighten the clamps only enough for the clamps to touch the steertube.
  - d. Tighten the steertube end caps according to torque specifications.
  - e. Tighten both fork clamps according to torque specifications.
  - f. Install the dampener to hold the fork upright. Adjustment to the dampener can be made after riding the handcycle using the two small adjustment screws.
  - g. Complete a final review of the assembly to ensure all hardware is secure.





## 10.2 Crank Assembly

1. Your Force 3 comes with a single chainring assembly. The configurations below can be used as a guideline for assembling your crank assembly.
  - Spider located on the outside of chainrings.



## 10.3 Gear selection

Your Force 3 comes with a chainring and a group 10 gears at the wheel, which is known as a cassette. When you want to go a higher speed, shift into smaller gears on the cassette. If you'd like it to be a

bit easier or are riding up an incline, shift into the larger gears.

If you find that the gearing is a little too easy or hard, the chainring can be changed to adapt to that. Note that this is an aftermarket change and will require specialty equipment and knowledge.



### **WARNING!** **Risk of Injury or Damage**

– Any modification to the gearing **MUST** be performed by a qualified technician.

## 10.4 Repairing/Replacing Wheel and Tire/Tube

Clincher tires are like conventional bicycle tires. there is an inner tube separate from the actual tire. They are more durable and if punctured, the tube can be replaced (by a qualified technician). Clincher tires should be set to the PSI notated on the tire. Clincher tires **DO NOT** fit on a tubular rim.

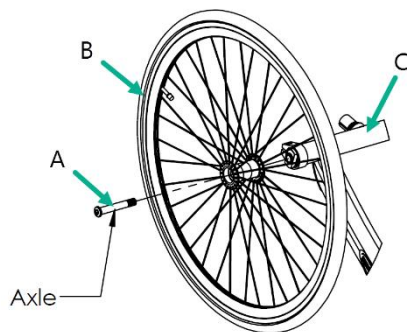


### **WARNING!** **Risk of Injury or Damage**

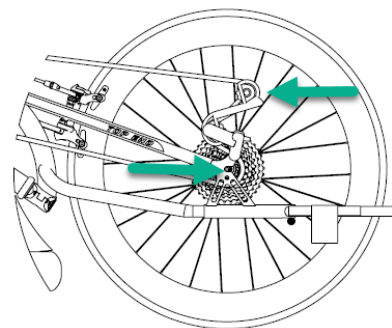
– Replacement of a clincher tire or tube **MUST** be performed by a qualified technician.

To Remove the rear wheel, follow the instructions below.

1. Loosen the axle A and remove the rear wheel B from the axle tube C. Use 6mm hex key for Corima wheels, 10mm for C7 wheels, and 1/4" hex key for standard high-performance wheels.
2. Use standard tire removal tools and methods to repair your tire and or tube.
3. Install rear wheel. Refer to initial setup.



1. To remove the front wheel, first shift into the smallest cassette gear.
2. Position the quick release lever in the open position.
3. Rotate the wheel derailleur to rearward of handcycle.
4. Begin removing the wheel from the dropout while holding the derailleur in the rearward position (see next page) While removing the wheel guide the chain around the axle to completely remove the wheel

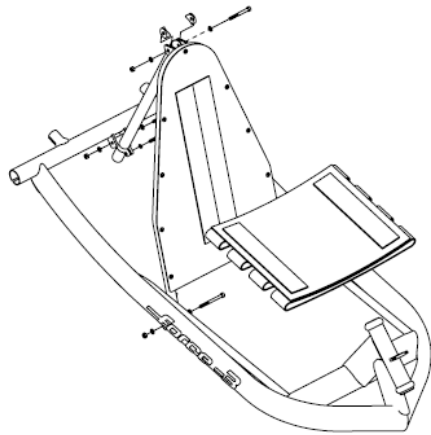


5. Once the repair is complete, the wheel can be reinstalled by reversing the wheel removal steps.

## 11 Seat and Backrest Positioning

### 11.1 Connecting the seat and backrest

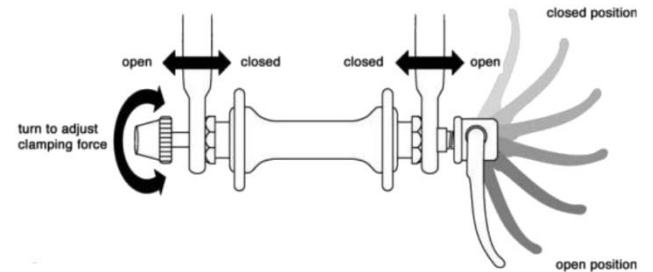
See customer assembly instructions for detail. Assembly instructions are included with your handcycle or they can be found by requesting them from customer service at [topendorders@topendsportsllc.com](mailto:topendorders@topendsportsllc.com).



#### **WARNING!**

##### **Risk of Serious Injury or Damage**

-If the backrest or seat upholstery cracks or tears during operation, immediately stop operating the handcycle to prevent injury or damage.



## 12 Maintenance

### 12.1 Suggested General Maintenance

**WARNING!****Risk of Serious Injury or Damage**

Hardware that is loosely secured could cause loss of stability resulting in serious injury or damage.

– After ANY adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely.

1. Before using your Force 3, check all parts for damage or wear and replace, if necessary. Check all parts for proper adjustment.
2. Keep axles free of dirt and lint to ensure proper fit in axle receivers on the Force 3.
3. Check tires for proper pressure and if not inflated properly, inflate to recommended tire pressure listed on the side wall of the tire
4. The wheels and tires should be checked periodically for cracks and wear and should be replaced by a qualified technician.
5. Regularly check for loose spokes in the rear and front wheels. If loose, have them adjusted by a qualified technician.
6. Periodically check handpedals to ensure they are secure to the cranks.
7. Periodically adjust brake in correlation to brake pad wear.
8. For more specific Maintenance contact your dealer.

**WARNING!**  
**Maintenance**

Technological improvements are continuously being made in the bicycle market. Because of this, components used on Handcycles are affected. To help minimize the chances of an accident and possible injury, it is critical that you have any repair or maintenance which is not specifically described in this manual performed by your dealer.

Additionally, the maintenance required on your handcycle will largely be determined by what how you ride, where you ride, and how you store your handcycle. For additional concerns, contact your dealer.

**WARNING!**  
**Repair Techniques and Tooling**

Often handcycle service and repair requires special knowledge and tools. Before working on your handcycle, consult your dealer for guidance on how to properly maintain and or repair your handcycle. Any work performed on the handcycle without proper technique or tooling may result in damage to the handcycle, an accident which can cause serious injury or death, and void warranty.

## 13 Options

### 13.1 Installing Safety Lights



#### WARNING!

– Operation of the handcycle is subject to all traffic rules and regulations (this may include the use of a safety lights and reflectors for dusk/night riding).

#### Batteries

1. Remove the lens cover.
2. Insert the AAA batteries with correct polarity (+ or -).
3. Reinstall lens cover.

#### Mounting the Safety Light

1. Remove the set screw from the clamp on the safety light.
2. Install the safety light.
  - a. Rear safety light: Position the clamp onto the rear of the frame. Install the set screw into the clamp and tighten securely.
  - b. Front safety light: Position the clamp onto the fork. Install the set screw into the clamp and tighten securely.

#### Operating the Safety Light

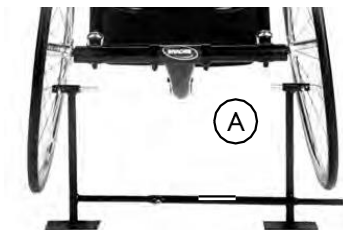
1. Press button to turn safety light on/off.
2. Remove lens cover and slide switch back and forth for pulse or constant mode.

### 13.2 Using Safety Helmet

1. Secure helmet using the chin strap.
2. Ensure proper fit.

### 13.3 Using the Alignment Gauge

1. Inflate the tires to recommended tire pressures (listed on the sidewall of the tire).
2. With the handcycle on a flat surface, position the gauge at the rear of and adjust both gauge pins so they gently touch the rim.
3. With the gauge screws tight, relocate the gauge to the front of the rear tires and examine the fit.
  - a. If the alignment gauge A fits snugly between the front of the rear tires, the wheels are aligned.
  - b. If there is extra space between the alignment gauge and rear tires, the tires have a toe out condition. Refer to Adjusting Toe in Toe Out.
  - c. If the alignment gauge A does not fit between rear tires, the tires have a toe in condition. Refer to Refer to Adjusting Toe in Toe Out



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## **14 Warranty**

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### **14.1 Warranty**

#### **United States Limited Warranty**

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

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

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

Top End Sports LLC. warrants the frames when purchased new and unused to be free from defects in materials and workmanship for a period of three (3) years from the date of purchase from Top End Sports LLC. or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Top End Sports LLC. warrants the upholstered materials (seat and back) and remaining components of this product when purchased new and unused to be free from defects in materials and workmanship for a period of thirteen (13) months from date of purchase from Top End Sports LLC. or a dealer, with a copy of the seller's invoice required for coverage under this warranty.

All component parts including, but not limited to forks, and upholstery are warranted against defects in materials and workmanship for a period of one year from the date of purchase except bushings, bearings, and tires/tubes.

If within such warranty period any such product shall be

proven to be defective, such product shall be repaired or replaced, at Top End's option, with refurbished or new parts. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Product repairs shall not extend this warranty. - coverage for repaired product shall end when this limited warranty terminates. Top End's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECTED TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, COMMERCIAL OR INSTITUTIONAL USE, PRODUCTS MODIFIED WITHOUT TOP END'S EXPRESS WRITTEN CONSENT, INCLUDING, BUT NOT LIMITED TO, MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS; PRODUCTS DAMAGED BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF

TOP END, OR TO A PRODUCT DAMAGED BY CIRCUMSTANCES BEYOND TOP END'S CONTROL, AND SUCH EVALUATION WILL BE SOLELY DETERMINED BY TOP END. THE WARRANTY SHALL NOT APPLY TO PROBLEMS ARISING FROM NORMAL WEAR OR FAILURE TO ADHERE TO THESE INSTRUCTIONS.

THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THE SOLE REMEDY FOR VIOLATIONS OF ANY WARRANTY WHATSOEVER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT

TO THE TERMS CONTAINED HEREIN. THE APPLICATION OF ANY IMPLIED WARRANTY WHATSOEVER SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESS WARRANTY PROVIDED HEREIN TOP END SPORTS LLC. SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.

THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.

## **14.2 Limited Warranty—Europe, Australia and New Zealand**

Terms and conditions of the warranty are part of the general terms and conditions particular to the individual countries in which this product is sold.

Manufactured by:  
Top End Sports and Recreation Products  
4501 63rd Circle North  
Pinellas Park, Florida  
(727) 522-8677  
(800) 532-8677



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