

Invacare® Top End® Force™ Handcycle Series

Force

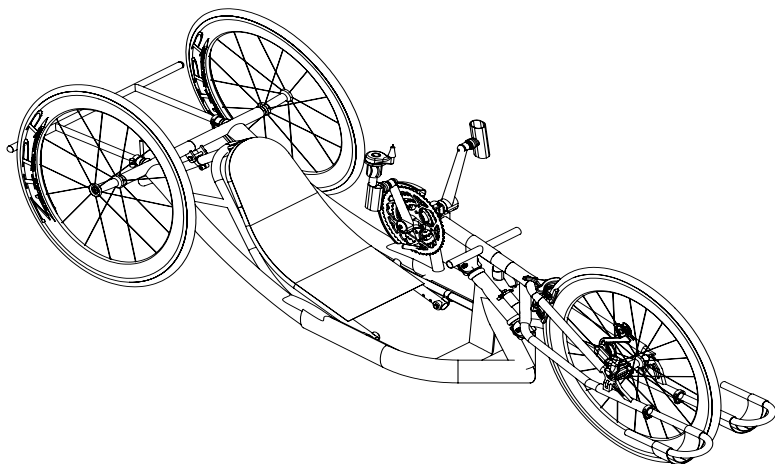
Force-2

Force G

Force K

Force R

Force X



DEALER: This manual MUST be given to the user of the product.

USER: BEFORE using this product, read this manual and save for future reference.

For more information regarding Invacare products, parts and services; please visit www.invacare.com

EN User Manual



Yes, you can.®

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User Manual

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1	GENERAL	6
	Symbols	6
	Dealer/Technician Information	6
	Warranty Information.....	7
2	OVERVIEW	9
	Label Locations - Force/Force-2.....	9
	Label Locations - Force G.....	9
	Label Locations - Force R.....	10
	Label Locations - Force K.....	10
	Label Locations - Force X.....	11
	Typical Product Parameters	12
	Component Identification	18
	Tire Pressure Conversion.....	20
3	SAFETY	21
	General Guidelines	21
	Proper Fit.....	22
	Operating Information	22
	Transferring Into/Out of the Handcycle.....	25
4	SAFETY INSPECTION/TROUBLESHOOTING	27
	Safety Inspection Checklist	27
	Troubleshooting.....	28
	Suggested Maintenance Procedures	28
5	INITIAL SETUP	30
	Force Series Handcycle Setup.....	30

CONTENTS

6	ASSEMBLY - FORCE-2 ONLY	32
	Assembling the Force-2 Handcycle	32
7	OPERATION	39
	Shifting Gears.....	41
	Backing-Up and Maneuvering in Tight Areas	43
	Braking.....	45
	Steering, Turning and Cornering	47
8	RIDING POSITION	48
	Replacing/Adjusting the Footrest.....	48
	Using/Replacing Footrest Strap	49
	Adjusting Hand Crank	51
	Adjusting Seat Fore/Aft	52
	Adjusting Back Angle	53
9	WHEELS	54
	Installing Rear Wheels with Threaded Axles.....	54
	Determining Toe In/Toe Out.....	55
	Adjusting Toe In/Toe Out.....	56
	Replacing Camber Inserts.....	57
	Replacing Tire/Tube and Tuning/Replacement of Spokes	57
10	SERVICE PROCEDURES	58
	Removing/Installing the Fork - Force R, Force K and Force X ONLY	58
	Removing/Installing the Front Wheel	60
	Replacing the Crank Arms	61
	Installing/Removing/Adjusting the Steering Dampener	63
	Installing Twenty-Seven Speed Cassette Chain.....	64
	Adjusting Twenty-Seven Speed Cassette Chain.....	64
	Installing Hand Crank Handles	65
	Installing V/S Crankarm Handles.....	65
	Adjusting/Replacing the Primary Caliper Brake and Parking Brake.....	66
	Disc Brakes	67

CONTENTS

Replacing Seat Upholstery 68

Replacing Back Cushion..... 68

Integrated Backrest Strap Replacement - Force X only 69

II OPTIONS **70**

Installing Safety Lights..... 70

Installing the Water Bottle 71

Using Safety Helmet 72

Installing the Computer 72

Assembling/Adjusting/Using the Handcycle Rack 73

Using the Alignment Gauge 75

Additional Options 76

NOTES **79**

I General

I.1 Symbols

Warnings

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 imminently hazardous situation which, if not avoided, will 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

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



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

I.2 Dealer/Technician Information

The term “qualified technician” in this manual refers to an Invacare qualified technician or a Shimano® certified bicycle repair technician.

1.3 Warranty Information

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 who purchases this product when new and unused from Invacare or a dealer. This warranty is not extended to any other person or entity and is not transferable or assignable to any subsequent purchaser or owner. Coverage under this warranty will end upon any such subsequent sale or other transfer of title to any other person.

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

Invacare 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 Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare 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 Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty.

Force-2 Model Only - Invacare warrants the frames when purchased new and unused to be free from defects in materials and workmanship for a period of two (2) years from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty.

Invacare 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 Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty.

If within such warranty periods any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

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

LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECT TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, PRODUCTS MODIFIED WITHOUT INVACARE'S EXPRESS WRITTEN CONSENT INCLUDING, BUT NOT LIMITED TO, MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS; PRODUCTS DAMAGE BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF INVACARE, OR TO A PRODUCT DAMAGED BY CIRCUMSTANCES BEYOND INVACARE'S CONTROL, AND SUCH EVALUATION WILL BE SOLELY DETERMINED BY INVACARE. THE WARRANTY SHALL NOT APPLY TO NORMAL WEAR AND TEAR OR FAILURE TO ADHERE TO THE PRODUCT 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. INVACARE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGE, OR LIMITATION OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE EXCLUSION AND LIMITATION MAY NOT BE APPLICABLE. THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.

Canadian Limited Warranty

Cette garantie n'est offerte qu'à l'acheteur initial de nos produits neufs et inutilisés achetés auprès de Invacare ou d'un distributeur.

Cette garantie n'est offerte à nulle autre personne ou entité; elle n'est ni transférable ni attribuable à un acheteur ou propriétaire consécutif. La prise en charge au terme de cette garantie sera résiliée consécutivement à la vente ou au transfert de propriété du produit.

Cette garantie confère à l'acheteur certains droits reconnus par la loi. D'autres droits légaux, variant d'un état ou d'une province à l'autre, peuvent s'y ajouter.

Invacare garantit les cadres latéraux de ce produit acheté neuf et inutilisé contre les vices de fabrication et de main d'oeuvre pendant une période de trois (3) ans à compter de la date d'achat auprès d'Invacare ou d'un distributeur, une copie de la facture du revendeur étant nécessaire pour couvrir le produit au titre de cette garantie. Invacare garantit les matériaux de revêtement (siège et dossier) acheté neuf et inutilisé contre les vices de fabrication et de main d'oeuvre pendant une période de treize (13) mois à compter de la date d'achat auprès d'Invacare ou d'un distributeur, une copie de la facture revendeur étant nécessaire pour couvrir le produit au titre de cette garantie.

Force-2 Model Only - Invacare garantit les cadres latéraux de ce produit acheté neuf et inutilisé contre les vices de fabrication et de main d'oeuvre pendant une période de deux (2) ans à compter de la date d'achat auprès d'Invacare ou d'un distributeur, une copie de la facture du revendeur étant nécessaire pour couvrir le produit au titre de cette garantie. Invacare garantit les matériaux de revêtement (siège et dossier) acheté neuf et inutilisé contre les vices de fabrication et de main d'oeuvre pendant une période de treize (13) mois à compter de la date d'achat auprès d'Invacare ou d'un distributeur, une copie de la facture revendeur étant nécessaire pour couvrir le produit au titre de cette garantie.

Si ledit produit s'avère défectueux pendant ces périodes, il sera réparé ou remplacé au choix d'Invacare. Cette garantie n'inclut pas les frais de livraison ou de main d'oeuvre résultant de l'installation de pièces de rechange ou de la réparation dudit produit.

La seule obligation d'Invacare et le seul recours du bénéficiaire de la garantie se limitera à ces réparations et/ou remplacements.

Pour un service au titre de la garantie, l'acheteur doit contacter le distributeur auprès duquel il a acheté le produit Invacare. Si l'acheteur ne juge pas le service de garantie satisfaisant, il doit écrire directement à Invacare à l'adresse figurant au bas de cette page. Il doit fournir le nom du distributeur, l'adresse, le numéro de modèle du produit, sa date d'achat, indiquer la nature du défaut et le numéro du produit si celui-ci est numéroté en série. Ne pas renvoyer les produits à l'usine sans avoir obtenu notre accord préalable.

LIMITATIONS ET EXCLUSIONS : LA PRÉSENTE GARANTIE NE S'APPLIQUERA PAS AUX PRODUITS DONT LES NUMÉROS DE SÉRIE ONT ÉTÉ SUPPRIMÉS OU MUTILÉS, AUX PRODUITS SUJETS À UNE NÉGLIGENCE, UN ACCIDENT, UNE UTILISATION, UN ENTRETIEN OU UN ENTREPOSAGE IMPROPRES, AUX PRODUITS MODIFIÉS SANS LE CONSENTEMENT ÉCRIT FORMEL D'INVACARE, Y COMPRIS SANS S'Y LIMITER, DES MODIFICATIONS PAR LE BIAIS DE PIÈCES OU D'ACCESSOIRES NON AUTORISÉS; AUX PRODUITS ENDOMMAGÉS SUITE À DES RÉPARATIONS APPORTÉES À UN COMPOSANT SANS L'ACCORD SPÉCIFIQUE D'INVACARE, OU À UN PRODUIT ENDOMMAGÉ LORS DE CIRCONSTANCES ÉCHAPPANT AU CONTRÔLE D'INVACARE; CETTE ÉVALUATION SERA EXCLUSIVEMENT DÉTERMINÉE PAR INVACARE. CETTE GARANTIE NE S'APPLIQUERA PAS EN CAS D'USURE NORMALE OU DE NON-RESPECT DES INSTRUCTIONS DU PRODUIT.

LA PRÉSENTE GARANTIE EXPLICITE EST EXCLUSIVE ET SE SUBSTITUE À TOUTES AUTRES GARANTIES, EXPLICITES OU IMPLICITES, NOTAMMENT TOUTE GARANTIE IMPLICITE DE QUALITÉ MARCHANDE ET D'ADÉQUATION À UN USAGE PARTICULIER.

LE SEUL REMÈDE À LA MOINDRE RUPTURE DE LA GARANTIE SE LIMITE À LA RÉPARATION OU AU REMPLACEMENT DU PRODUIT DÉFECTUEUX CONFORMÉMENT AUX TERMES ET CONDITIONS DE LA PRÉSENTE GARANTIE. L'APPLICATION DE TOUTE GARANTIE IMPLICITE NE SAURAIT S'ÉTENDRE AU-DELÀ DE LA PÉRIODE DE COUVERTURE EXPLICITE INDIQUÉE DANS LE PRÉSENT DOCUMENT. INVACARE NE SAURAIT ÊTRE TENU RESPONSABLE DU MOINDRE DOMMAGE INDIRECT OU ACCESSOIRE.

CERTAINS ÉTATS OU CERTAINES PROVINCES N'AUTORISENT PAS L'EXCLUSION NI LA LIMITATION DES DOMMAGES ACCESSOIRES OU INDIRECTS, NI LA LIMITATION DE LA DURÉE DE LA GARANTIE IMPLICITE; AUSSI, L'EXCLUSION ET LA LIMITATION ÉNONCÉES CI-DESSUS PEUVENT NE PAS VOUS CONCERNER. LA PRÉSENTE GARANTIE PEUT ÊTRE ÉTENDUE POUR LA RENDRE CONFORME AUX LOIS ET RÈGLEMENTS LOCAUX.

2 Overview

2.1 Label Locations - Force/Force-2



2.2 Label Locations - Force G



2 OVERVIEW

2.3 Label Locations - Force R



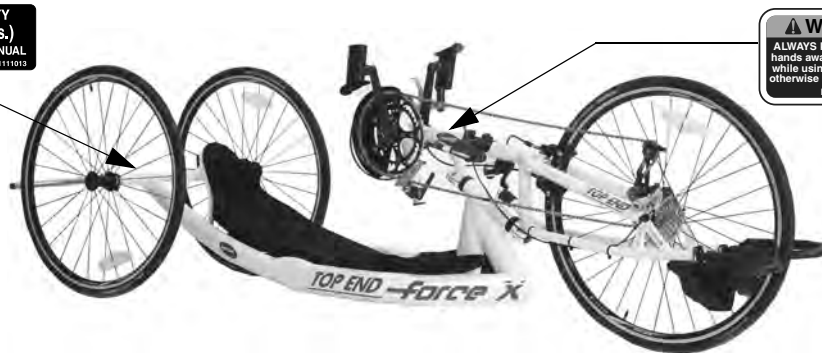
2.4 Label Locations - Force K



2.5 Label Locations - Force X

⚠ WARNING
Backrest **MUST** be adjusted properly. Refer to owner's manual. Otherwise, user's elbows may contact rear wheels during use. Operate with caution.
P/N 1154264 Rev A

WEIGHT CAPACITY
250 LBS. (114 kgs.)
REFER TO OWNER'S MANUAL
P/N 1111013



⚠ WARNING
ALWAYS keep fingers and hands away from the chain while using the handcycle, otherwise injury may occur.
P/N 1154265 Rev A

2 OVERVIEW

2.6 Typical Product Parameters

Top End Force

Seat Width:	14 to 18 inches (35.6 to 45.7 cm)
Seat Depth:	14 inches (35.6 cm)
Seat-to-Floor (approx.):	Seat to Floor is 7 inches (17.8 cm) measured at the mid point of seat with 2" (5.1 cm) cushion
Back Style:	Adjustable Back Angle 35° - 55°, rewards from 0° (0° = straight up)
Back Height Fixed/Adjustable Angle:	24 inches (Narrow, Tall) (61 cm)
Footrest:	Adjustable Fore and Aft
Side - Wheel Clearance:	2 inches - * 2½ inches (5.1 - 6.4 cm)
Rear Axle:	Threaded
Rear Wheel Camber:	9° - Standard (22.9 cm)
Wheels/Tires:	26-inch Spoke High Performance (66 cm)
Brakes:	Cane Creek operated by Rapid Fire hands-on brake mounted on right or left handpedal
Handles:	Ergonomic, Vertical, Ovalized Aluminum mounted on Top End V crankset
Crankset:	Top End V Crankset, custom widths/lengths (see order form)
Hub:	FRONT – Shimano/Top End Components w/ 27 Speed External Cassette REAR - Precision Black Anodized with Threaded Axles
Spokes:	14 Gauge Stainless Black
Shift Levers:	Rapid fire hands-on shifter mounted on right or left handpedal for lower derailleur Cable operated shifter for upper derailleur/chainrings
Gears:	27 Speed
Seat Cushion:	Foam Insert
Upholstery:	Nylon
Weight:	30 lbs (13.6 kg)
Shipping Weight:	65 lbs (29.5 kg)
Weight Limitation:	250 lbs (113.4 kg)
Standard Equipment:	Chain Guard, Safety Flag, Drafting Bumper, Seat and Back Cushions
Options: *see order form	Computer, Safety Lights, Helmet, Bike Rack, Water Bottle and Cage, Alignment Gauge, Backpack Hydration System, Carbon Fiber Wheels, Indoor Training Roller

Top End Force-2

Seat Width:	15 or 17 inches (38.1 to 43.1 cm)
Seat Depth:	14 inches (35.6 cm)
Seat-to-Floor (approx.):	Seat to Floor is 7 inches (17.8 cm) measured at the mid point of seat with 2" (5.1 cm) cushion
Back Style:	Adjustable Back Angle 35° - 55°, rewards from 0° (0° = straight up)
Back Height Fixed/Adjustable Angle:	24 inches (Narrow, Tall) (61 cm)
Footrest:	Adjustable Fore and Aft
Side - Wheel Clearance:	2 inches - * 2½ inches (5.1 - 6.4 cm)
Rear Axle:	Threaded
Rear Wheel Camber:	9° - Standard (22.9 cm)
Wheels/Tires:	26-inch Spoke High Performance (66 cm)
Brakes:	Shiamo Tiagra Brake Set operated by Rapid Fire hands-on brake mounted on right or left pedal
Handles:	Ergonomic, Vertical, Ovalized Aluminum
Crankset:	Shimano Octalink 170 mm x 14" wide non-V crank
Hub:	FRONT – Shimano w/ 27 Speed External Cassette REAR - Precision Black Anodized with Threaded Axles
Spokes:	14 Gauge Stainless Silver
Shift Levers:	Rapid fire hands-on shifter mounted on right or left handpedal for lower derailleur Manual derailleur shifter for upper derailleur/chainrings
Gears:	27 Speed
Seat Cushion:	Foam Insert
Upholstery:	Nylon
Weight:	30 lbs (13.6 kg)
Shipping Weight:	65 lbs (29.5 kg)
Weight Limitation:	250 lbs (113.4 kg)
Standard Equipment:	Chain Guard, Safety Flag, Drafting Bumper, Seat and Back Cushions
Options: *see order form	Computer, Safety Lights, Helmet, Bike Rack, Water Bottle and Cage, Alignment Gauge, Backpack Hydration System, Carbon Fiber Wheels, Indoor Training Roller

2 OVERVIEW

Top End Force G

Seat Width:	14 to 18 inches (35.6 to 45.7 cm)
Seat Depth:	14 inches (35.6 cm)
Seat-to-Floor (approx.):	Seat to Floor is 7 inches (17.8 cm) measured at the mid point of seat with 2" (5.1 cm) cushion
Back Style:	Adjustable Back Angle 55° - 90°, rewards from 0° (0° = straight up)
Back Height Fixed/Adjustable Angle:	24 inches (Narrow, Tall) (61 cm)
Footrest:	Adjustable Fore and Aft
Side - Wheel Clearance:	2 inches - * 2½ inches (5.1 - 6.4 cm)
Rear Axle:	Threaded
Rear Wheel Camber:	9° - Standard (22.9 cm)
Wheels/Tires:	26-inch Spoke High Performance (66 cm)
Brakes:	Cane Creek operated by Rapid Fire hands-on brake mounted on right or left handpedal
Handles:	Ergonomic, Vertical, Ovalized Aluminum mounted on Top End V crankset
Crankset:	Top End S or V Crankset, custom widths/lengths (see order form)
Hub:	FRONT – Shimano/Top End Components w/ 27 Speed External Cassette REAR - Precision Black Anodized with Threaded Axles
Spokes:	14 Gauge Stainless Black
Shift Levers:	Rapid fire hands-on shifter mounted on right or left handpedal for lower derailleur Cable operated shifter for upper derailleur/chainrings
Gears:	27 Speed
Seat Cushion:	Foam Insert
Upholstery:	Nylon
Weight:	30 lbs (13.6 kg)
Shipping Weight:	65 lbs (29.5 kg)
Weight Limitation:	250 lbs (113.4 kg)
Standard Equipment:	Chain Guard, Safety Flag, Drafting Bumper, Seat, Back Cushion, Seat and Back Cushions
Options: *see order form	Computer, Safety Lights, Helmet, Bike Rack, Water Bottle and Cage, Alignment Gauge, Backpack Hydration System, Carbon Fiber Wheels, Indoor Training Roller

Top End Force R

Seat Width:	13 to 18 inches (33 to 45.7 cm)
Seat Depth:	13 inches (33 cm)
Seat-to-Floor (approx.):	Seat to Floor is 5 inches (12.7 cm)
Back Style:	Fixed with Adjustable strapping
Back Height Fixed/Adjustable Angle:	27 inches (Narrow, Tall) (68 cm)
Footrest:	Adjustable Fore and Aft
Side - Wheel Clearance:	2 inches - * 2½ inches (5.1 - 6.4 cm)
Rear Axle:	Threaded
Rear Wheel Camber:	3°, 0° or 6°
Wheels/Tires:	26-inch Spoke High Performance (66 cm)
Brakes:	Cane Creek operated by hands-on brake mounted on right or left handpedal
Handles:	Ergonomic, Vertical, Ovalized Aluminum mounted on Top End V crankset
Crankset:	Top End V Crankset, custom widths/lengths (see order form)
Hub:	FRONT – Shimano/Top End Components w/ 27 Speed External Cassette REAR - Precision Black Anodized with Threaded Axles
Spokes:	14 Gauge Stainless Black
Shift Levers:	SRAM Grip Shifter mounted on Right or Left handpedal for lower derailleur or SRAM Fork Mounted Trigger Shifter Cable operated shifter for upper derailleur/chainrings
Gears:	27 Speed
Seat Cushion:	Foam Insert
Upholstery:	Mesh
Weight:	30 lbs (13.6 kg)
Shipping Weight:	65 lbs (29.5 kg)
Weight Limitation:	250 lbs (113.4 kg)
Standard Equipment:	Chain Guard, Safety Flag, Drafting Bumper, Seat, Back Cushion, Head Cushion, Seat, Back Cushion and Head Cushion
Options: *see order form	Computer, Safety Lights, Helmet, Bike Rack, Water Bottle and Cage, Alignment Gauge, Backpack Hydration System, Carbon Fiber Wheels, Indoor Training Roller

2 OVERVIEW

Top End Force K

Seat Width:	Custom
Seat Depth:	Custom
Seat-to-Floor (approx.):	Custom
Back Style:	Custom
Back Height Fixed/Adjustable Angle:	Custom
Footrest:	Custom
Side - Wheel Clearance:	Custom
Rear Axle:	Threaded
Rear Wheel Camber:	3°, 0° or 6°
Wheels/Tires:	26-inch Spoke High Performance (66 cm)
Brakes:	Cane Creek operated by hands-on brake mounted on right or left handpedal
Handles:	Ergonomic, Vertical, Ovalized Aluminum mounted on Top End V crankset
Crankset:	Top End V Crankset, custom widths/lengths (see order form)
Hub:	FRONT – Shimano/Top End Components w/ 27 Speed External Cassette REAR - Precision Black Anodized with Threaded Axles
Spokes:	14 Gauge Stainless Black
Shift Levers:	SRAM Grip Shifter mounted on Right or Left handpedal for lower derailleur or SRAM Fork Mounted Trigger Shifter Finger shift for upper chainring/no derailleur
Gears:	27 Speed
Seat Cushion:	Foam Insert
Upholstery:	Nylon
Weight:	30 lbs (13.6 kg)
Shipping Weight:	65 lbs (29.5 kg)
Weight Limitation:	250 lbs (113.4 kg)
Standard Equipment:	Chain Guard, Safety Flag, Drafting Bumper, Seat and Back Cushions
Options: *see order form	Computer, Safety Lights, Helmet, Bike Rack, Water Bottle and Cage, Alignment Gauge, Backpack Hydration System, Carbon Fiber Wheels, Indoor Training Roller

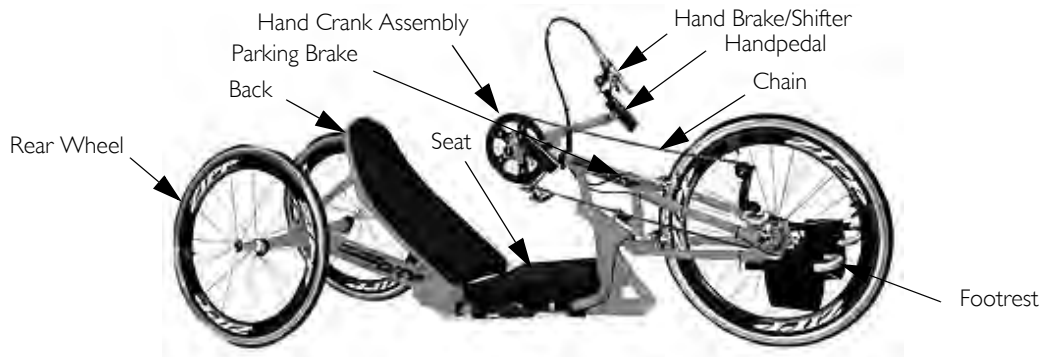
Top End Force X

Seat Width:	12 to 16 inches (30.5 to 40.6 cm)
Seat Depth:	14 inches (33 cm)
Seat-to-Floor (approx.):	3 inches (7.6 cm)
Back Style:	Fixed with adjustable strapping
Back Height Fixed	Custom angle range, 27 inches (Narrow, Tall) (68 cm)
Footrest:	Adjustable Fore and Aft
Side - Wheel Clearance:	2 inches - * 2½ inches (5.1 - 6.4 cm)
Rear Axle:	Threaded
Rear Wheel Camber:	3°, 0° or 6°
Wheels/Tires:	26-inch Spoke High Performance (66 cm)
Brakes:	Pro Force
Handles:	Ergonomic, Vertical, Ovalized Aluminum mounted on Top End V crankset, power plates included
Crankset:	Top End V Crankset, custom widths/lengths (see order form)
Hub:	Front SRAM components with 30 speed external cassette Rear: Precision Black Anodized with threaded
Spokes:	14 Gauge Stainless Black
Shift Levers:	SRAM XX 10 speed Right handle mount or SRAM Red 10 speed fork mounted Cable operated shifter for upper derailleur/chainrings
Gears:	30 speeds
Seat Cushion:	Foam Insert
Upholstery:	Mesh
Weight:	26 lbs (11.8 kg)
Shipping Weight:	65 lbs (29.5 kg)
Weight Limitation:	250 lbs (113.4 kg)
Standard Equipment:	Seat, Back and Head Cushions, Chain Guard, Safety Flag, Drafting Bumper
Options: *see order form	Computer, Safety Lights, Helmet, Bike Rack, Water Bottle and Cage, Alignment Gauge, Backpack Hydration System, Carbon Fiber Wheels, Indoor Training Roller

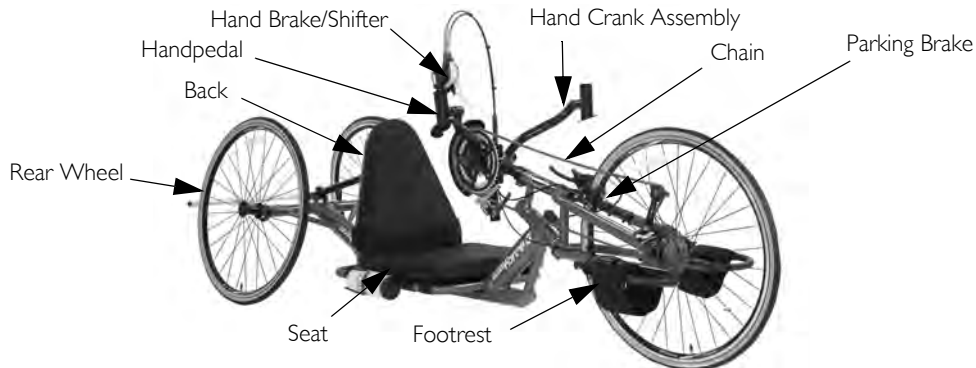
2 OVERVIEW

2.7 Component Identification

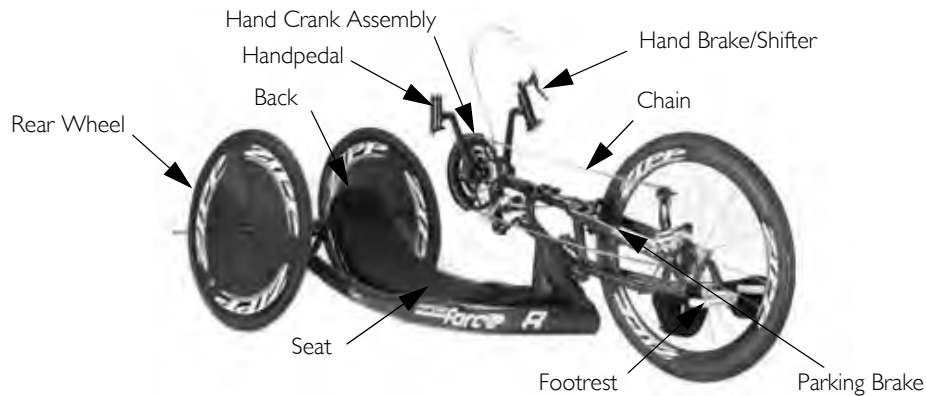
Force/Force-2



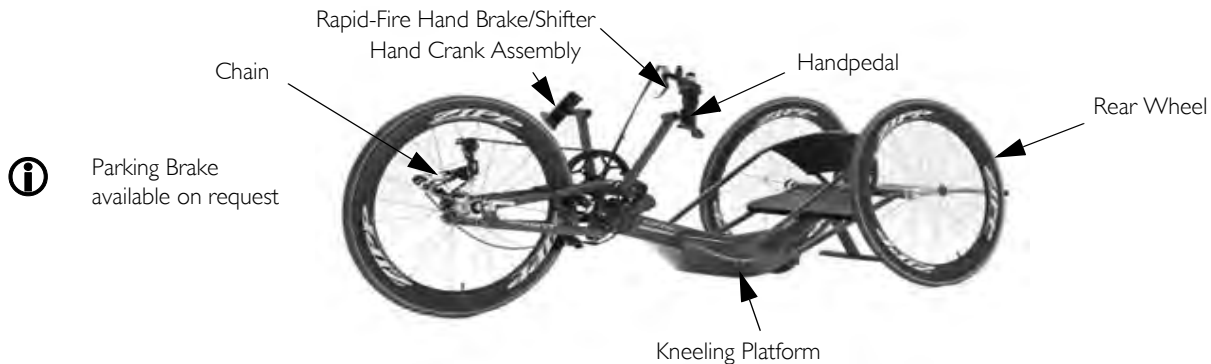
Force G



Force R

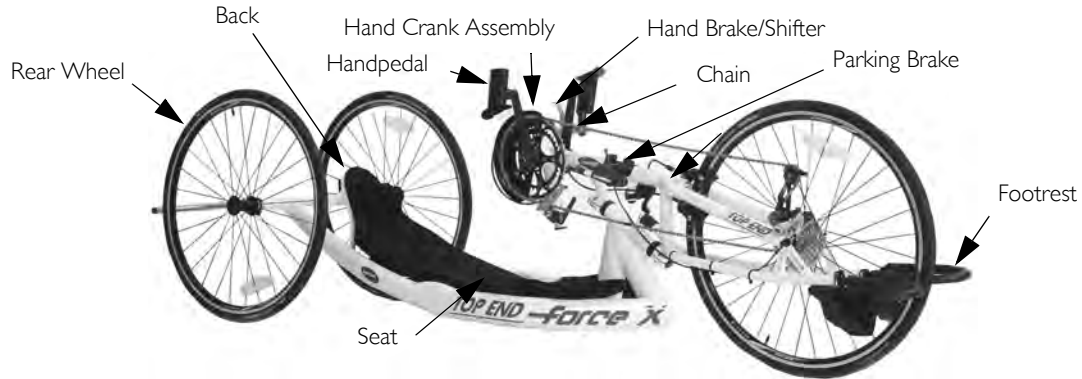


Force K



2 OVERVIEW

Force X



2.8 Tire Pressure Conversion



PSI rating is printed on the side of the tire.

Conversion formula: 1 psi = 6.895 kPa (approx. 7 kPa).

PSI	KILOPASCALS	PSI	KILOPASCALS
50	345	90	621
55	379	95	655
60	414	100	690
65	448	105	724
70	483	110	758
75	517	115	793
80	552	120	827
85	586		

3 Safety

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

3.1 General Guidelines



WARNING

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 owner's manuals, service manuals or instruction sheets supplied with this product or optional equipment. If you are unable to understand the warnings, cautions or instructions, contact a healthcare professional, dealer or technical personnel before attempting to use this equipment - otherwise, injury or damage may occur.

A qualified technician MUST perform the initial set up of this wheelchair. also, a qualified technician must perform all procedures specifically indicated in the manual.



ACCESSORIES WARNINGS

Invacare products are specifically designed and manufactured for use in conjunction with Invacare accessories. Accessories designed by other manufacturers have not been tested by Invacare and are not recommended for use with Invacare products.



NOTICE

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

Check all parts for shipping damage and test before using. In case of damage, DO NOT use. Contact Invacare/Carrier for further instruction.

3 SAFETY

3.2 Proper Fit

The handcycle **MUST** be adjusted to fit the rider. Check the seat position, back angle, threaded axles, footrest fore/aft position, hand crank height for proper fit and smooth operation of your handcycle.

Refer to adjustment procedures in [Riding Position](#) on page 48 to achieve the following.

- The rider **MUST** be able to see over the hand crank.
- The rider **MUST** have a slight bend at the elbow when the handpedals are toward the front of the handcycle (farthest from the rider's face).
- The rider **MUST** have a slight bend at the knee when feet are in the footrests. Feet should be flat against footrest hoop.
- Force Series requires an 18" turning radius. If leg touches tire during turn and the user cannot sense this, a leg guard attachment is recommended.
- The rider's knees **MUST** not obstruct hand crank operation.

3.3 Operating Information



WARNING

HANDCYCLE USER

As a manufacturer of handcycles, Invacare endeavors to supply a handcycle 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. Invacare 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.

TRANSPORT

Invacare recommends that a handcycle user is **NOT** transported in vehicles of any kind while in a handcycle. 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.

SEAT POSITIONING STRAP

SERIOUS INJURY CAN OCCUR IN THE EVENT OF A FALL FROM THE PRODUCT.

ALWAYS wear your seat positioning strap. Invacare strongly recommends using the seat positioning strap as an additional safeguard for the handcycle user. 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, the belt **MUST** be replaced **IMMEDIATELY**

BRAKES

If the brake cable show signs of wear or if it has become tangled because of improper transportation techniques, the cable **MUST** be replaced or the brake may fail. Should the primary brake fail, the parking brake can be used a backup emergency brake.

Before riding your handcycle, **ALWAYS** check the function of the brakes. Be sure that the brakes and all other features of your handcycle are operating properly.



WARNING - RISK OF INJURY OR DAMAGE

Care, consideration and practice **MUST** be taken and observed in the following safety points. Otherwise, injury or damage may occur. 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 handcycle.

A helmet **MUST ALWAYS** be worn when operating the handcycle.

Shoes **MUST ALWAYS** be worn and feet **MUST** be secured to the footrests with the straps when operating the handcycle.

ALWAYS keep fingers and hands away from the chain while using the handcycle.

The Backrest **MUST** be adjusted properly. Otherwise, user's elbows may contact rear wheels during use. Operate with caution.

DO NOT let children play near the handcrank or the chain. Otherwise, injury or damage may occur.

The user is responsible for normal upkeep and maintaining the handcycle in proper operating condition.

The manufacturer is not responsible for failure, damage or injury caused by improper operation or maintenance by the end-user.

To determine and establish your particular safety limits, practice transferring activities in the presence of a qualified health care professional before attempting active use of the handcycle.

Care **MUST** be taken when operating on roads, streets or highways. **ALWAYS** use safety flag that is provided with 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.

Slow down when turning or cornering, otherwise injury or damage may occur.

Use proper hand signals when turning.

Slow down at all street intersections and observe to the right, to the left and back to right again 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.

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.

DO NOT carry any riders.

DO NOT carry any items that may obstruct your view or prohibit you from operating the handcycle properly.



WARNING - RISK OF INJURY OR DAMAGE

TIRE PRESSURE

DO NOT use your handcycle unless it has the proper tire pressure (p.s.i.). DO NOT overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm.

DO NOT ride on a flat or under inflated tires. Riding on flat or underinflated tires can cause injury, as well as, damage to the tire, tube and handcycle wheels.

WEIGHT LIMITATION

The Invacare Force handcycles have a weight limitation of 250 lbs (113.4 kg).

STABILITY AND BALANCE

For stability and proper operation of your handcycle, you **MUST** at all times 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.

Invacare recommends using seat positioning strap for additional safety.

A NOTE TO HANDCYCLE 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.

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 particular 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 Transferring Into/Out of the Handcycle



WARNING

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 object you are transferring into or out of **MUST** also be secured before attempting any transfer.

The parking brake of the handcycle **MUST** be engaged before attempting any transfer.

WHEELCHAIRS

Wheel locks are not brakes.

Engaging the wheel locks may not prevent the wheelchair from moving on all floor surfaces including those that may be wet or slick. **ALWAYS** exercise caution when transferring into or out of the wheelchair.

CAUTION

When transferring, position yourself as far back as possible in the seat. This will prevent damage to the upholstery.



This activity may be performed independently provided you have adequate mobility and upper body strength.

1. Position the handcycle on level ground and as close as possible along side the object to/from which you are transferring.
2. If possible, position the handcycle at a 45° angle to the object to/from which you are transferring.
3. If installed, apply the parking brake on the handcycle.
4. Position the handcycle handles as far forward as possible. This will create more room to transfer.



If necessary, lift the front wheel off the ground and rotate the front tire.

5. Secure object that you are transferring into or out of. Apply wheel locks (if installed) if the object is a handcycle.



During independent transfer, little or no seat platform will be beneath you. Although it may be difficult to wedge the transfer board between the handcycle seat and the handcycle seat, use a transfer board if necessary.

6. Lift and place left leg past the front frame across the seat and over the center tube.
7. Place one hand on far side of seat.

3 SAFETY

8. Shift body weight onto object while transferring.
9. To transfer out of the handcycle, reverse the procedure and use the backrest to push off.



WARNING

If installed on handcycle, parking brake and wheel locks **MUST** be engaged.

The steps below are specifically for transfer to/from a wheelchair and **DO NOT** correspond to the steps in the procedure on the previous page. Follow a similar procedure to transfer to/from an object other than a wheelchair. Refer to the steps on the previous page for more information.

STEP A: Shift body weight to the edge of the wheelchair upholstery closest to the handcycle.

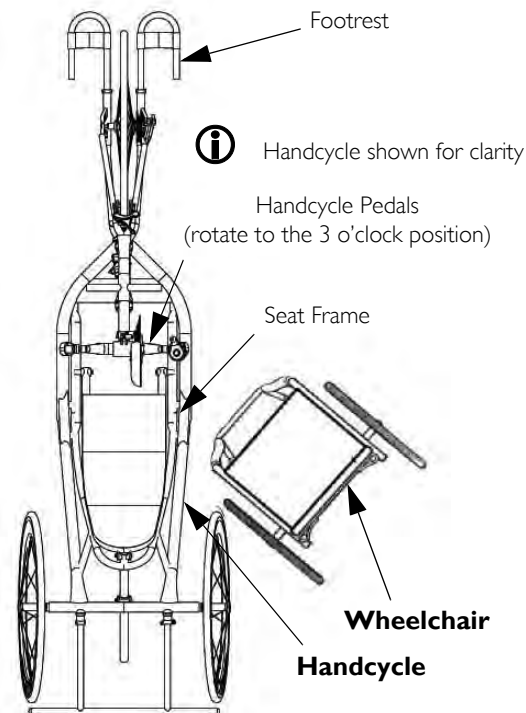
STEP B: Lift and place **LEFT** leg across seat.

STEP C: Place **LEFT** hand on the left side of handcycle seat frame, **NOT** on crank.

STEP D: Place **RIGHT** hand on the wheelchair frame.

STEP E: Lift and shift weight down into handcycle seat.

STEP F: Place both legs onto handcycle footrests and secure safety straps.



4 Safety Inspection/Troubleshooting



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.

4.1 Safety Inspection Checklist

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

Inspect/Adjust Initially and Weekly

- Inspect for bent or broken frame.
- Inspect parking brake - Adjust brake shoes to front rim. Check for worn or missing shoes. Check for wax or oil on rim.
- Ensure cable anchor is attached securely to brake arm.
- Ensure the brakes are working before you begin a ride. When fully applied, the handcycle should come to a complete stop.



CAUTION

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

- Ensure axle nuts are tight. Wheel should be centered in fork. Keep wheel bearings adjusted and keep spokes tight and wheel in proper alignment.
- Inspect rim and fork assembly for damage.
- Ensure axle nut and wheel mounting nuts are secure.
- Inspect wheels for excessive side movement or binding when lifted and spun.
- Inspect for flat spots, wear and proper inflation.
- Inspect chain/chain guard for damage, rust, tension and stretch. Adjust if necessary. Lubricate each link (3-in-1 oil[®] or a quality bike lubricant). Check for damage or looseness.
- Adjust shifter/brake cables according to shifter/brake manufacturer's instructions (included with the handcycle).
- Inspect front fork. Keep tight and lubricate (All purpose grease).
- Inspect footrest mounting hardware is tight and footrest secure.
- Inspect footrest straps for wetness and/or damage.
- Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- Inspect upholstery for rips or sagging.

4 SAFETY INSPECTION/TROUBLESHOOTING

- Clean upholstery with light detergent and water.
- Check that all labels are present and legible. Replace if necessary.
- Ensure that axles are free of debris.

Inspect/Adjust Periodically

- Inspect upholstery for rips or sagging.
- Clean upholstery with light detergent and water.
- Inspect hand grips for looseness. If loose, replace.
- Check that all labels are present and legible. Replace if necessary.

4.2 Troubleshooting

Veers Right	Veers Left	Sluggish Turn or Performance	Wheel Flutter	Squeaks and Rattles	Looseness in Handcycle	Solutions
X	X	X	X			Check tires for correct and equal pressure
X	X					Check dampener hardware and adjustment.
		X	X	X	X	Check for loose axle nuts.
				X	X	Check spokes and nipples.
		X		X	X	Check chain for proper tension and adjustment.
			X		X	Check that goose neck fittings are secure.

4.3 Suggested Maintenance Procedures



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may result.

DO NOT overtighten hardware attaching to the frame. This could cause damage to the frame tubing.

1. Before using your handcycle, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.

2. Check Brakes and Disc Brakes (if so equipped)
 - Check cables for signs of wear or fraying.
 - Squeeze the brake lever firmly and check for proper brake function.
 - Adjust for pad wear if necessary.
 - Check pads for wear and replace if necessary.
 - Ensure rotors are free of foreign substances and oils.
3. Check parking brake cable and shifter adjustment cables for proper adjustment and operation. Refer to [Adjusting/Replacing the Primary Caliper Brake and Parking Brake](#) on page 66.



WARNING

DO NOT use WD-40® , 3-in-1 oil® or other penetrating lubricants on quick-release axles. Otherwise, binding and/or damage to the handcycle can occur.

4. Clean/oil quick-release axles and or threaded once a week with a Teflon® lubricant.
5. Keep quick-release axles free of dirt and lint to ensure positive locking and proper operation.



WARNING

DO NOT use the handcycle unless it has the proper tire pressure (p.s.i.). DO NOT overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm.

6. Recommended tire pressure is listed on the side wall of the tire. If tire needs replaced, contact a local bike shop for replacement.



CAUTION

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

7. The wheels and tires should be checked periodically for cracks and wear, and should be replaced if damaged.
8. Check chain for slack and readjust if necessary. Refer to [Installing Twenty-Seven Speed Cassette Chain](#) on page 64.
9. Regularly check for loose spokes in the front and rear wheels. If loose, have them aligned at your local bike shop.
10. Check steering dampner for proper operation. Refer to [Adjusting Steering Dampener](#) on page 63.
11. Check upholstery for sagging, rips or tears. Refer to [Replacing Seat Upholstery](#) on page 68.
12. Check alignment of front wheel. If it wobbles or takes too much effort to turn by hand, have it aligned at your local bicycle shop.

5 Initial Setup



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

DO NOT operate the handcycle if the hand crank obstructs your view. If the hand crank obstructs your view, adjust the hand crank height before using the handcycle - otherwise injury or damage may occur.



Required tools:

- Adjustable Wrench (10-12 inches)
- 5, 8 and 32 mm Wrench
- 3/16-inch Allen Wrench
- 1/4-inch Allen Wrench
- 1/2-inch Box Wrench
- 1/2-inch Socket Wrench
- Medium Flat Screwdriver
- Medium Phillips™ Screwdriver

5.1 Force Series Handcycle Setup



The Initial Setup section does not apply to the Force-2 handcycle. The Force-2 handcycle requires assembly before use. Refer to [Assembly - Force-2 ONLY](#) on page 32.

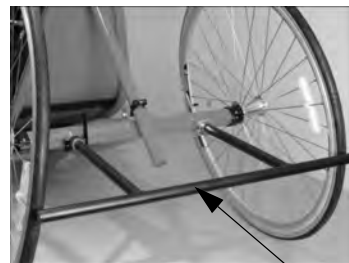
1. Install the rear wheels. Refer to [Installing Rear Wheels with Threaded Axles](#) on page 54.
2. Check parking brake and brakes for proper function.
3. Adjust seat and or back if necessary. Refer to [Adjusting Seat Fore/Aft](#) on page 52 and Refer to [Adjusting Back Angle](#) on page 53.
4. Adjust the hand crank. Refer to [Adjusting Hand Crank](#) on page 51.
5. Adjust the footrest. Refer to [Replacing/Adjusting the Footrest](#) on page 48.

- Slide the drafting bumper into the bumper receivers and tighten both right and left bumper clamps with a 4mm wrench.

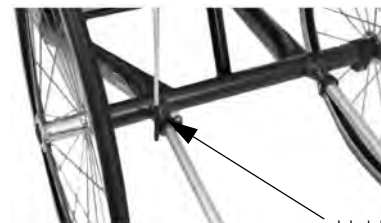


Make sure that the draft bumper is centered on the handcycle rear frame.

- Mount safety flag in holder secured to back tube on the drafting bumper.



Draft Bumper



Holder

6 Assembly - Force-2 ONLY



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

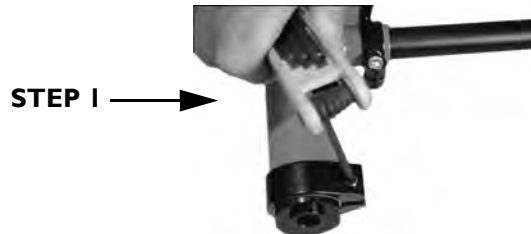
6.1 Assembling the Force-2 Handcycle



Required tools:

- 1/2-inch box wrench
- 10mm box wrench
- Metric Allen wrench set

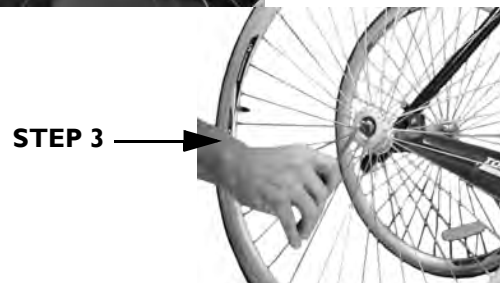
1. Tighten the camber tube clamps on each end of the frame.
2. Insert an axle into each rear wheel.
3. Use the 6mm wrench to attach the rear wheels to the frame. Tighten securely.



STEP 1



STEP 2



STEP 3

4. Set the frame on a flat stable surface with a support underneath the front frame.
5. Attach the plate to the rubber dampener by threading the bolt into the dampener.
6. Place the fork clamp loosely over the lower part of the fork.
7. Slide the lower half of the clamp over the lower section of the front of the frame.
8. Place the second clamp over the frame and the fork/frame attachment plate.
9. Securely tighten the upper and lower clamps.

STEP 4



STEP 7



STEP 5



STEP 8

STEP 6

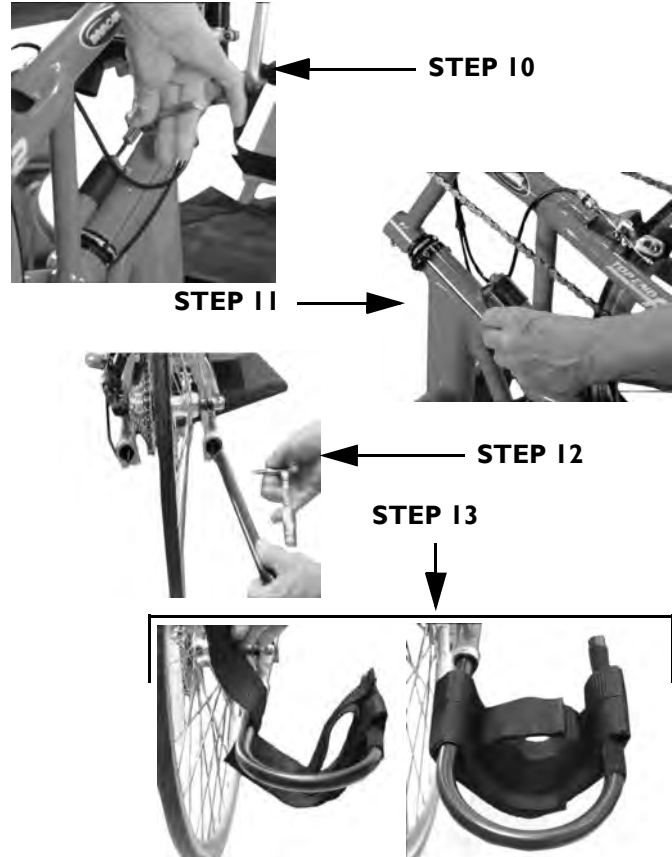


STEP 9



6 ASSEMBLY - FORCE-2 ONLY

10. Loosely tighten the dampener bolt to hold the fork in place.
11. To center the front wheel, tighten the set screws on each side of the dampener plate. After the front wheel is centered, tighten the dampener screw.
12. On each fork, loosen the footrest clamp and slide a footrest into the end of the fork.
13. Attach the footrest strap.



14. Remove protective backing from stick back hook and loop fastener on the back of the back cushion.
15. Align the back cushion with the back rest and carefully press the back cushion onto the back rest.
16. Place the seat cushion on top of the seat.



← **STEP 14**



STEP 15 →



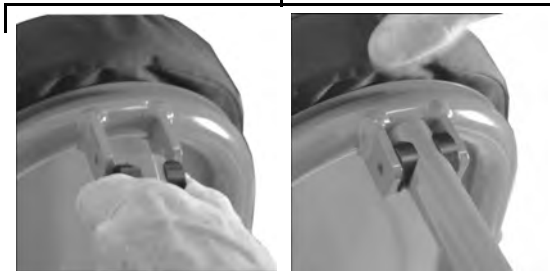
STEP 16 →

6 ASSEMBLY - FORCE-2 ONLY

17. Remove the bottom clamp of the chain guard with a 5mm Allen wrench.
18. Place the chain guard clamp around the bottom bracket and tighten the screw on the right side.
19. Tighten the clamp on the left side making sure it does not interfere with the chain.



20. Remove the backrest support bar from the clamp on the frame.
21. Remove and retain the bolt, nut and washer. Insert the curved spacers.
22. Slide a washer onto the bolt. Use a small wrench to align the holes and slide the bolt through the holes and secure with the nut.
23. Tighten the top of the backrest support bar to the top of the backrest using a 5mm wrench and 10mm box wrench.
24. Slide the backrest support bar through the clamp on the frame. Tighten with a 5mm wrench.
25. Adjust the backrest angle as required. refer to [Adjusting Back Angle](#) on page 53.

STEP 20**STEP 21****STEP 22****STEP 23****STEP 24**

6 ASSEMBLY - FORCE-2 ONLY

26. Remove left drafting bumper clamp.
27. Slide the flag holder over the bumper receiver in place of the drafting bumper clamp removed in STEP 26.
28. Slide the drafting bumper into the bumper receivers and tighten both right and left bumper clamps with a 4mm wrench.
29. Insert flag.

STEP 26



STEP 27



STEP 28



30. Tighten crank support with an Allen wrench.
31. Adjust footrests to proper length and tighten with a 5mm wrench.



DO NOT overtighten. The footrests should not turn.

32. Place caps over outside of rear wheel axles.
33. If the leg guard is not installed refer to [Additional Options](#) on page 76.



The Rapid Fire Shifter and Brake is mounted on the right handpedal. It can be moved to the left handpedal if required.

34. To move the Rapid Fire Shifter and Brake, loosen the attaching hardware, move the assembly to the left handpedal and attach with hardware. Tighten securely.



STEP 30



STEP 31



STEP 32

7 Operation



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Before operating the handcycle, review the General Guidelines in this user manual.

DO NOT operate the hand cycle if hand crank obstructs your view. If the hand crank obstructs your view, adjust the hand crank height before using the handcycle - otherwise injury or damage may occur.

1. Engage the parking brake, if equipped. Refer to [Using Parking Brake](#) on page 46.
2. Transfer into the handcycle. Refer to [Transferring Into/Out of the Handcycle](#) on page 25.
3. Check chest clearance and arm length. A combination of crank, back angle and back rest adjustment may be needed to achieve chest clearance and proper arm length.
 - A. Backpedal by placing hand on handpedal and pedal backwards.
 - B. If crank arms do not clear chest area move the backrest rearward. If equipped with diagonal crank adjustment, adjust crank away from the body allowing more room. This adjustment will move the crank lower and away, and in addition may require you to shorten the chain.
 - C. Check arm length by placing hands on handpedals. There should be a slight bend in the elbow.
4. Check and adjust back angle for comfortable trunk position and proper arm length.
5. Be sure you can see over the top of the hand crank. Refer to [Adjusting Hand Crank](#) on page 51.
6. Check leg clearance by backpedaling. If the handpedals do not clear the legs while stationary in straight line, raise the crank height. Refer to [Adjusting Hand Crank](#) on page 51.
7. Ensure the footrest is adjusted properly.



There should be a slight bend in the knee when the sole of the shoe is touching the inside edge of the footrest.

8. Ensure the seat is adjusted properly.



Seat should be adjusted so that when seated with feet in the footrests, there is a slight bend at the knee and a slight bend at the elbow when the hand crank is furthest away.

7 OPERATION

9. Check Brake and Disc Brakes (if so equipped)
 - Check cables for signs of wear or fraying.
 - Squeeze the brake lever firmly and check for proper brake function.
 - Adjust for pad wear if necessary.
 - Check pads for wear and replace if necessary.
 - Ensure rotors are free of foreign substances and oils.
10. Secure each foot in the legrests with strapping.
11. Release the parking brake, if equipped. Refer to [Using Parking Brake](#) on page 46.



WARNING

The handcrank assembly is used for propelling and steering of the handcycle. At least one hand **MUST** be on the hand crank assembly at all times. Otherwise, injury or damage may occur.

12. Place at least one hand onto the handpedals. Rotate the handpedal forward (toward the front) to propel the handcycle forward.



7.1 Shifting Gears



CAUTION

- DO NOT attempt to shift gears while bike is stationary.
- DO NOT press both shifter levers down at the same time. Doing so may damage the shifter and will void the warranty. The gears WILL NOT shift when both levers are pressed simultaneously.
- DO NOT use excessive force. This may damage the shifter and void the warranty.

To shift gears, you MUST turn the crank forward with the chain under some tension while the bike is moving.

There are two shifters installed on the handcycle. The right handpedal shifter operates the nine gears on the lower derailleur and the a cable driven or manual shifter (manual shifter is on Force-2 Model only) operates the three chain rings on the upper derailleur.

9 gears X three chain rings = 27 speeds

10 gears X three chain rings = 30 speeds

Shifting the chain on the lower derailleur towards the centerline of the handcycle is for climbing/accelerating (easier cranking) (lever A) and is called a downshift. Moving the chain on the lower derailleur out or away from the centerline of the handcycle is for speed (harder cranking) (lever B) and is called an upshift.

During operation, the chain should run smoothly over the chain rings. If there are problems with the chain, discontinue use and contact your local bike shop.

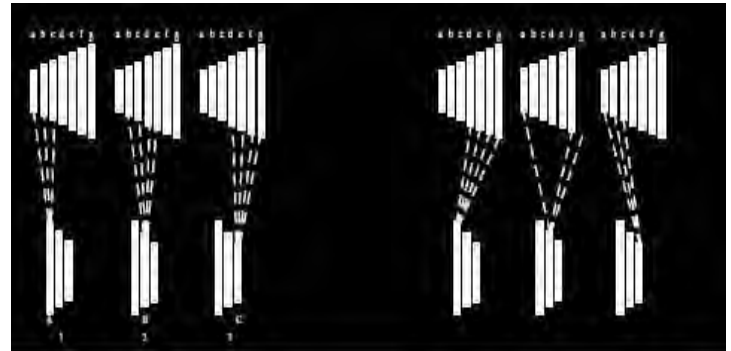
Refer to the chart for an explanation and use of the upper derailleur chain rings in combination with the lower derailleur gears:

- If your pedaling cadence is too slow, shift into a lower gear
- If your pedaling cadence is too fast, shift into a higher gear
- The chain should not rub on the front of the derailleur chain guide
- Shift into a lower gear in order to facilitate easy start-up
- NEVER shift gears while stationary or while pedaling backwards
- Keep eyes on the road when changing gears

Lower derailleur gears (right shifter)	Upper derailleur chain rings (manual shifter or cable driven shifter)	Use for:
1-9	Smallest	Climbing Hills or Strong Headwinds
10-18	Medium	Flats or Gradual Rolling Terrain
19-27	Largest	Descending Hills or Strong Tailwinds

Recommended

Not Recommended



7 OPERATION

Lower Derailleur (Right Side Shifter)

- Shifting from Harder Gears to Easier Gears (Downshift) -
Rapid Fire or Trigger Shifter -
Push shift lever closest to center with thumb and release. Repeat until the desired gear is achieved.

SRAM Double Tap Red Shifter -

- Shifting from Easier Gears to Harder Gears (Upshift) -
Rapid Fire or Trigger Shifter -
Pull shift lever located towards the outside using thumb or index finger and release. Repeat until the desired gear is achieved.

SRAM Double Tap Red Shifter -

Upper Derailleur (Manual Shifter or Cable Driven Shifter)

- Shifting from Easier or Smaller Chainring to Harder or Larger Chainring (Upshift) -
Cable Driven -
Push lever down until chain runs smoothly over the chain ring teeth while the handcycle is moving.
- Shifting from Harder or Larger Chainring to Easier or Smaller Chainring (Downshift) -
Cable Driven -
Push lever up until chain runs smoothly over the chain ring teeth while the handcycle is moving.

Manual Shifter (Force-2 Only) -

Move shifter lever down.

Firmly press the shifter down to downshift.

Grip Twist Shifter -

Twist the shifter from number to number (5 to 4, 4 to 3, 3 to 2, etc.) until the desired gear is achieved.

Lightly press the shifter down to upshift.

Grip Twist Shifter -

Twist the shifter from number to number (4 to 5, 5 to 6, 6 to 7, etc) until the desired gear is achieved.

Trigger Shifter

Range: 1 to 9

**SRAM Double Tap Red Shifter****Grip Twist Shifter**

Range: 1 to 9

**7.2 Backing-Up and Maneuvering in Tight Areas****CAUTION**

Take care not to tangle the cables. KEEP the handles up to prevent the cables from becoming tangled in the crank assembly.

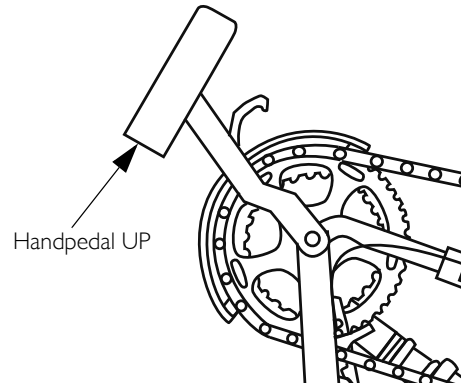
Backing Up

1. Turn the front wheel straight and put the handpedals in the up position.
2. Place one hand on a rear wheel (or ground) and the other hand on one of the handpedals and start to back up, keeping control of the handcycle at all times.

Maneuvering in Tight Areas

If you cannot make a full turn, just crank a half or quarter crank, bring the crank back up again, turn a little bit at a time until you turn your way around. If you need to turn a full 180, you will need to keep the handpedals in the up position so the cables do not get tangled up and push backwards on the rear wheel with your other hand. Move the handcycle forward with the handpedals and use the rear wheels to manually push backwards until you are turned around.

7 OPERATION



7.3 Braking

Hand Brakes/Hands-On Brakes



WARNING

If the primary brakes fail for any reason, the parking brake can be used as an emergency brake.
Reverse pedaling **WILL NOT** stop the bike.
In situations where caution is advised (heavy traffic, intersections, etc.) hands should be kept in the "ready" position to prepare for braking.

1. Make sure your hand is in ready position to use this brake.
2. Squeeze brake handle(s) as needed to slow or come to a complete stop.
3. Release when desired speed is achieved.

Fork Mounted Shifter and Brake

1. Make sure your hand is in ready position to use this brake.
2. Squeeze brake handle(s) as needed to slow or come to a complete stop.
3. Release when desired speed is achieved.

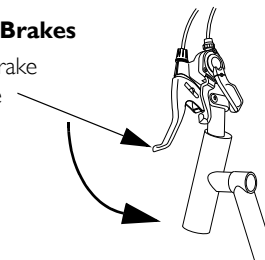
Disc Brakes



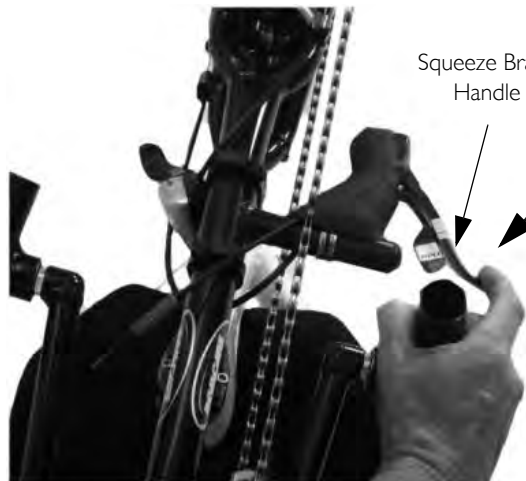
It may take 20 to 40 complete stops to break in disc brake pads.

Hands-On Brakes

Squeeze Brake
Handle



Squeeze Brake
Handle



7 OPERATION

Using Parking Brake



WARNING

The parking brake can be used as an emergency brake and can be repositioned for ease of use.

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 object you are transferring into or out of **MUST** also be secured before attempting any transfer.

The parking brake of the handcycle **MUST** be engaged before attempting any transfer.

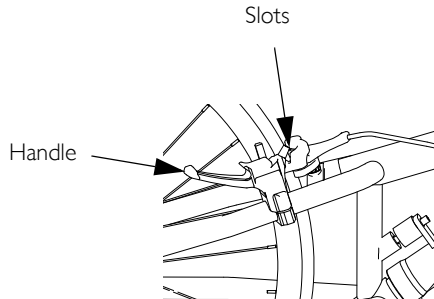


The Force-2, Force R and Force X handcycles have a stop-button parking brake. Press button and squeeze lever to engage.

- To Engage the Parking Brake - Squeeze the handle and push the ratchet lever and lift until the handle locks in place.
- To Disengage the Parking Brake - Squeeze and release the ratchet button.



Refer to photos in [Component Identification](#) on page 18 for parking brake locations.



7.4 Steering, Turning and Cornering

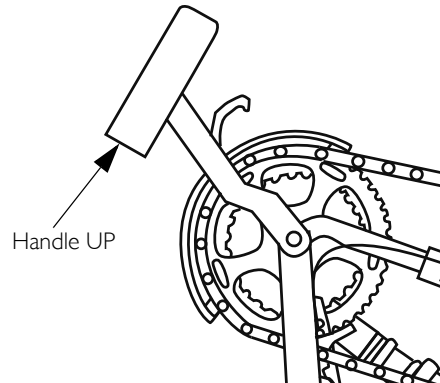


WARNING

DO NOT attempt to corner the handcycle at high speeds. This could result in a fall causing injury and/or damage to the handcycle.

To steer the handcycle, use the hand crank to direct the front fork and wheel assembly in the direction you intend to go (straight, right, or left).

- Steering can be done while rotating the hand crank (pedaling) or coasting.
- When turning or cornering, it is recommended that you slow the handcycle, stop pedaling, steer the handcycle and coast through the turn. Hands should be up in the crank cycle (at approximately between the 11 and 2 o'clock position).



8 Riding Position



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

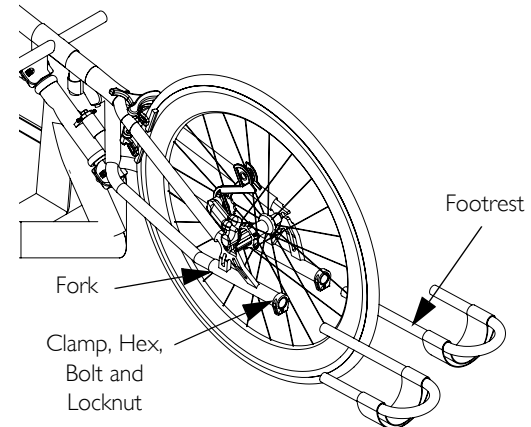
8.1 Replacing/Adjusting the Footrest



If replacing footrest take note of current position.

Replacing/Adjusting Footrest

1. Loosen the hex bolt and locknut that secure the footrest to the fork. Remove the locknut.
2. If replacing footrest perform the following:
 - A. Remove existing footrest from clamp.
 - B. Insert new footrest into clamp.
3. Slide footrest to desired position.
4. Install the locknut. Tighten securely.
5. Repeat STEPS 1-4 for the opposite footrest if necessary.



8.2 Using/Replacing Footrest Strap



WARNING

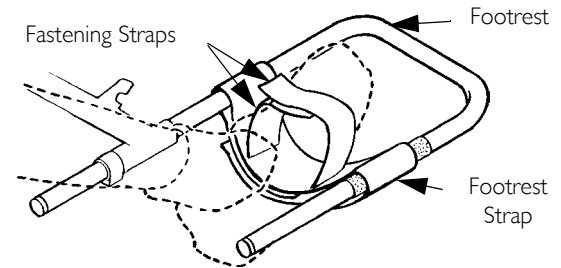
After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Footrest straps **MUST** be inspected before each use. Exposure to moisture (i.e.- wet weather or puddles) will damage fastening strips. Footrest strap will not hold feet securely in footrest if fastening strips are damaged. **DO NOT** operate handcycle if footrest straps are wet or damaged, otherwise severe injury may occur.

ALWAYS wear shoes and securely strap feet in using straps provided. Severe injury may occur if feet are not secured while the handcycle is in motion.

Using Footrest Strap

1. Place feet in footrests.
2. Secure feet to footrest strap using small fastening straps.



8 RIDING POSITION

Replacing Footrest Strap

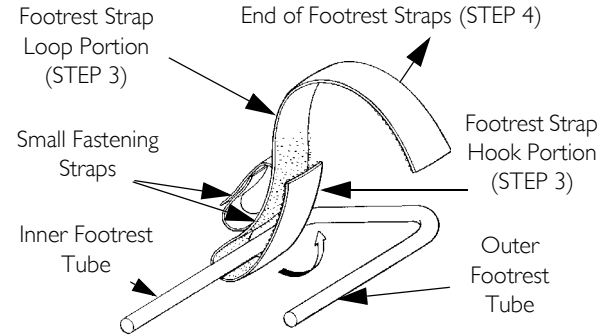
1. Pull apart fastening straps securing existing footrest strap to footrest.



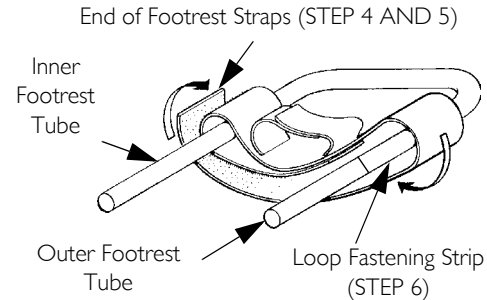
The small fastening straps should face up.

2. Wrap end of footrest strap over and around the inner footrest tube and firmly connect the hook and loop portions of the footrest strap (detail "A").
3. Wrap end of footrest strap over and around the outer footrest tube and under the inner footrest tube and firmly connect the hook and loop portions of the footrest strap (details "A" and "B").
4. Ensure the footrest strap is firmly attached to the loop fastening strip on the outer footrest tube.

DETAIL "A"



DETAIL "B"



8.3 Adjusting Hand Crank



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Diagonal Adjustment

1. Loosen, but do not remove the hex nuts that secure the crank handles to the fork.
2. Slide the crank handles up and/or down until the proper tension on the chain is achieved.



The proper chain tension will be approximately 1/2-inch of chain slack.

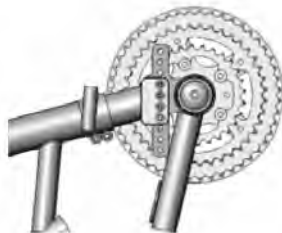
If crank is in desired position but chain tension is not correct, links **MUST** be added to or removed from the chain to correct the tension. This should be performed by a qualified technician.

3. Tighten the clamp that secures the crank handles to the fork securely.

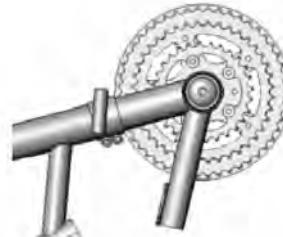
Vertical Adjustment

1. Loosen, but do not remove the hex nuts securing the hand crank to the fork stem.
2. Move the hand crank assembly up or down in the fork neck until you are comfortable with the position for operational purposes.
3. Tighten the hex nut to secure the hand crank in the desired position.
4. Tighten the chain if necessary.

Vertical and Diagonal Adjustment



Diagonal Adjustment Only



8 RIDING POSITION

8.4 Adjusting Seat Fore/Aft



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

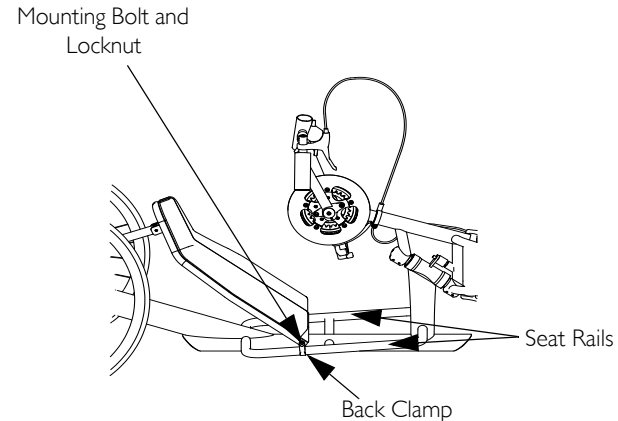


This procedure is not applicable for Force K and Force X model handcycles.

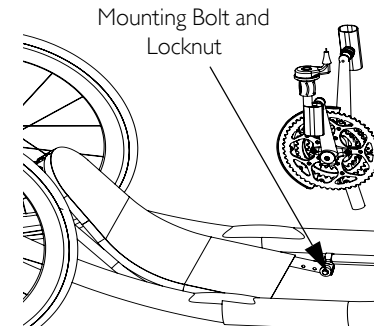
Seat should be adjusted so that when seated with feet in the footrests, there is a slight bend at the knee and a slight bend at the elbow when the handpedal is furthest away.

1. If applicable, Remove the seat upholstery. Refer to [Replacing Seat Upholstery](#) on page 68.
2. Adjust the seat position:
 - A. Force, Force-2 and Force G Models: Loosen, but do not remove the two mounting bolts and locknuts securing the two back clamps to the seat rails. Slide back clamps for (forward) or aft (rearward) along the seat rails to desired seat position.
 - B. Force R Model: Loosen, but do not remove the two mounting bolts and locknuts securing the seats. Slide the seat to desired seat position.
3. Securely tighten the two mounting bolts and locknuts.
4. If applicable, install the seat upholstery. Refer to [Replacing Seat Upholstery](#) on page 68.
5. If necessary adjust the back angle.

Force, Force-2 and Force G models



Force R model



8.5 Adjusting Back Angle

1. Loosen the top of the backrest support bar to the top of the backrest using a 5mm wrench and 10mm box wrench.
2. Perform one of the following:
 - Increasing Back Angle - While lifting up on the back support tubes, pull the seat upward to the desired position.
 - Decreasing Back Angle - While pushing down on the back support tubes, push the seat down to the desired position.
3. Tighten the top of the backrest support bar to the top of the backrest using a 5mm wrench and 10mm box wrench.



9 Wheels



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

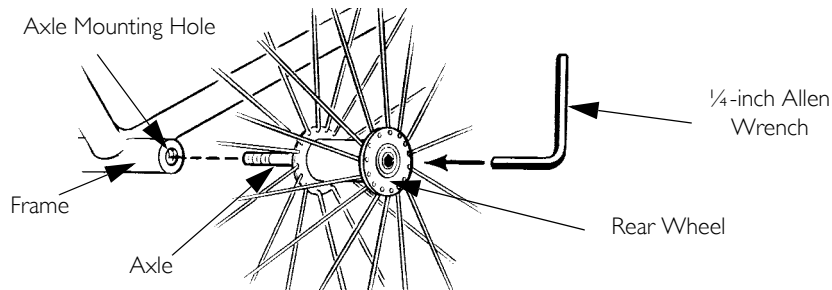


WARNING

DO NOT use the handcycle unless it has the proper tire pressure (p.s.i.). DO NOT overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm. tire p.s.i. is printed on the tire wall.

9.1 Installing Rear Wheels with Threaded Axles

1. Apply a small amount of grease onto the axles.
2. Insert the axle into the axle mounting hole on the handcycle frame. Repeat for other wheel.
3. Securely each wheel to the frame with the 6mm wrench. There should be no play or threads visible.



9.2 Determining Toe In/Toe Out

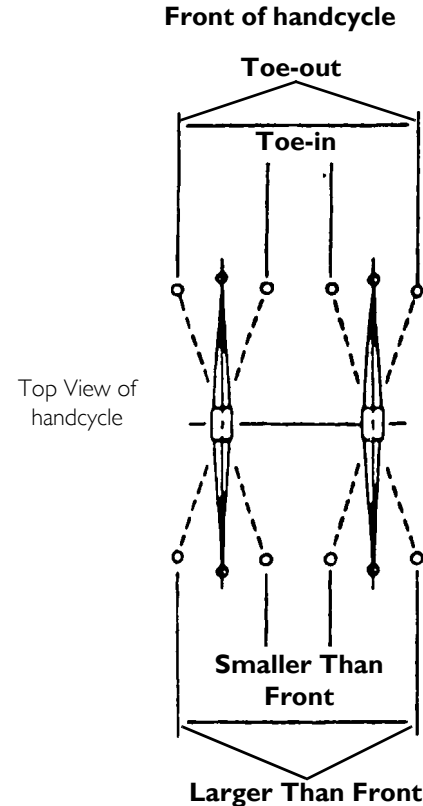
1. Inflate all pneumatic tires to recommended tire pressures (listed on the sidewall of the tire).
2. Measure the distance between the center lines at the rear and front of the rear wheels at approximately 12 inches from the ground/floor.



For optimum accuracy, perform STEP 2 with the handcycle occupied.

STEP 2 may be performed with using alignment gauge (available as an option for the handcycle). Refer to [Using the Alignment Gauge](#) on page 75.

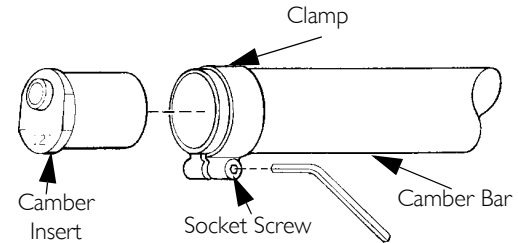
3. Determine the difference between the two measurements. If the difference between the two measurements is greater than 1/8-inch (for maximum rollability), one of two conditions exists:
 - If the back centerline measurement of the rear wheels is smaller than the front centerline measurement of the rear wheels, a toe-out condition exists.
 - If the back 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. Refer to [Adjusting Toe In/Toe Out](#) on page 56.



9 WHEELS

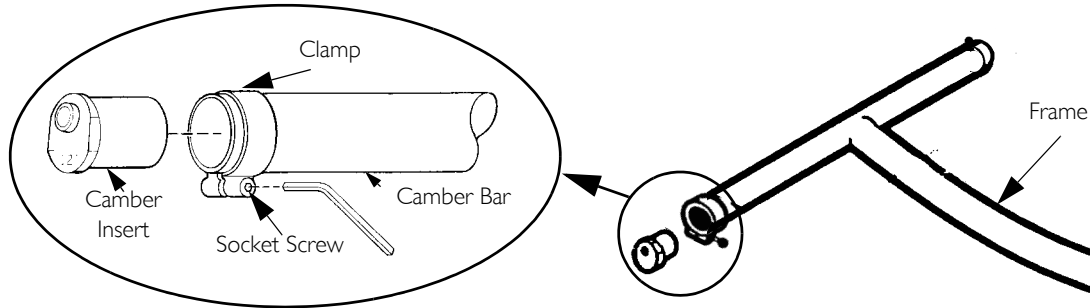
9.3 Adjusting Toe In/Toe Out

1. Loosen, but do not remove the socket screws and clamps that secure camber inserts to the camber bar.
2. Slowly rotate the camber insert 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 approximately 12 inches from the ground/floor. Refer to [Determining Toe In/Toe Out](#) on page 55.
5. Repeat STEPS 1-4 until the toe in/toe out measurement is less than 1/8-inch (for maximum rollability).



9.4 Replacing Camber Inserts

1. Loosen, but do not remove the socket screws and clamps that secure the camber inserts to the camber bar.
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. Refer to [Adjusting Toe In/Toe Out](#) on page 56.



9.5 Replacing Tire/Tube and Tuning/Replacement of Spokes



Invacare recommends that these procedures be performed by a qualified technician.

10 Service Procedures

10.1 Removing/Installing the Fork - Force R, Force K and Force X ONLY

(Force G and Force can only be done by an authorized bicycle technician)



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.



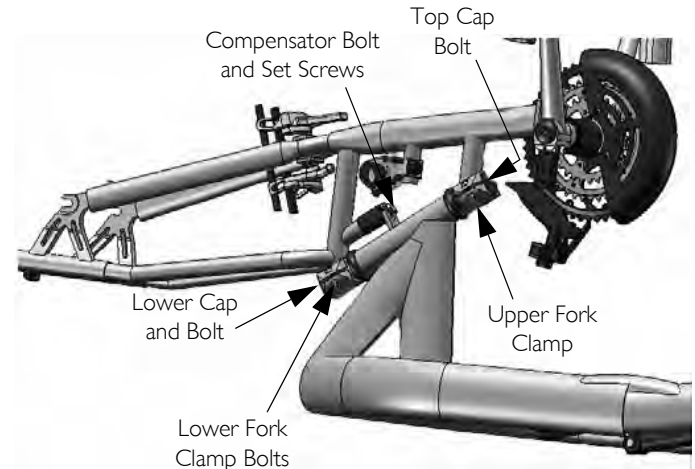
For Force-2, Refer to [Assembling the Force-2 Handcycle](#) on page 32.

Adjusting the height of the crank may require using extra chain supplied with the handcycle.

These procedures require the use of a 5mm allen wrench and 1/2 wrench.

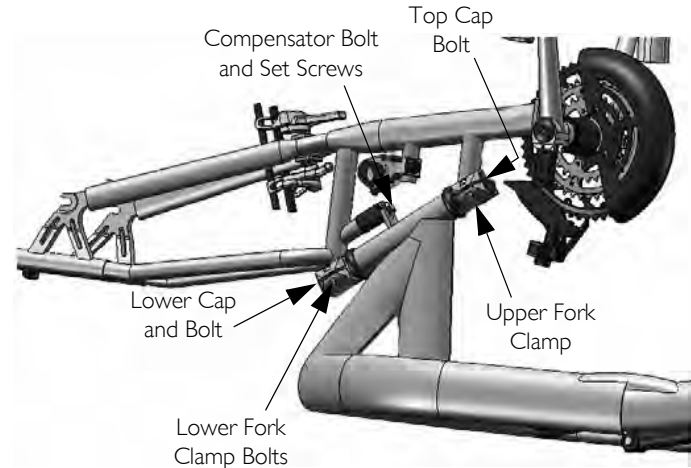
Removing the Fork

1. Set the front of the frame on a stable surface that elevates the frame slightly off the ground.
2. Remove front wheel.
3. Loosen the top cap bolts. **DO NOT** remove.
4. Remove lower cap bolt.
5. Loosen the lower fork clamp bolts. **DO NOT** remove.
6. Remove lower cap.
7. Loosen compensator set screws.
8. Loosen the compensator bolt. **DO NOT** remove.
9. Remove the upper fork clamp.
10. Remove the compensator bolt.
11. Tip the fork and slide off the end of the fork stem. Retain top clamp, caps and bolts.



Installing the Fork

1. Set the front of the frame on a stable surface that elevates the frame slightly off the ground.
2. Slide lower fork clamp over the fork stem. Push the fork until the upper fork clamp engages the upper portion of the fork stem.
3. Install and loosely attach the compensator bolt.
4. Loosely attach upper fork clamp / bolts with the lock-nuts facing upwards. DO NOT fully tighten.
5. Install and tighten lower cap and bolt.
6. Tighten the lower fork clamp bolts.
7. Tighten the top cap bolt to remove play from the assembly.
8. Tighten the upper fork clamp.
9. Tighten the compensator bolt.
10. Tighten compensator set screws.
11. Install front wheel. Refer to [Removing/Installing the Front Wheel](#) on page 60.



10 SERVICE PROCEDURES

10.2 Removing/Installing the Front Wheel

Removing



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

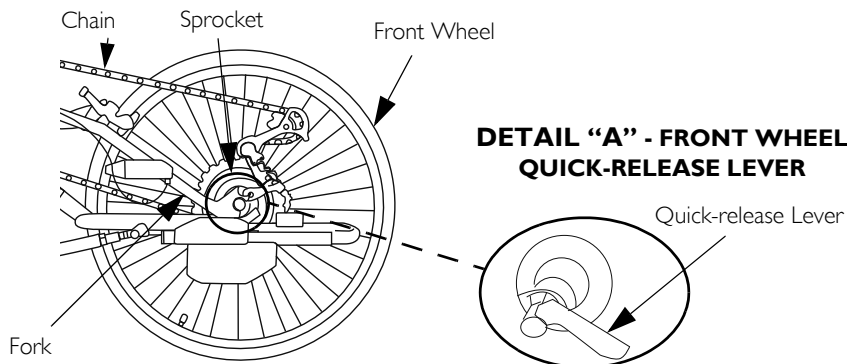
1. Open the quick-release lever securing the front wheel to the fork (Detail "A") and loosen the knob on the opposite side of the quick-release lever.
2. Remove the wheel from the fork.
3. Remove the chain from the front wheel.

Installing



For ease of installation, secure the handcycle frame approximately 6 inches from the ground or seek assistance.

1. Loop the chain over the front wheel sprocket.
2. Position the front wheel axle into the fork slots.
3. Tighten the knob on the opposite side of the quick-release lever and secure the wheel to the fork with the quick-release lever.



10.3 Replacing the Crank Arms



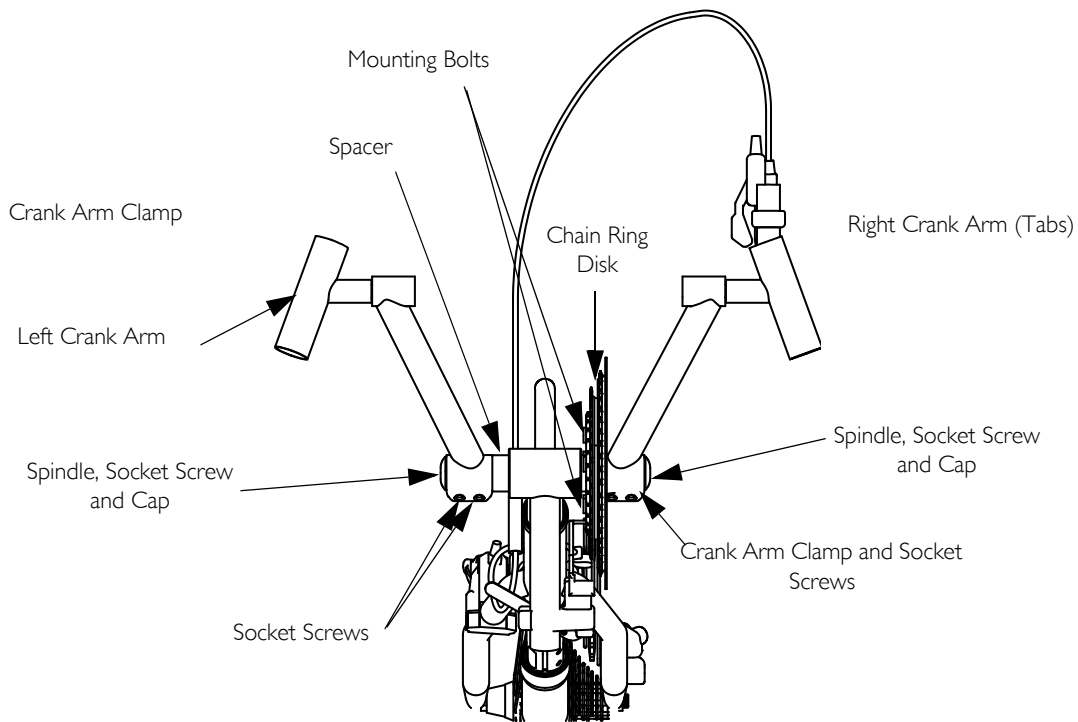
Right and left are determine from the user seated on the handcycle.

Replacing the Left Side Crank Arms

1. Remove the two socket screws from the existing crank arm clamp.
2. Remove socket screw and cap from the spindle.
3. Use socket screw from crank arm (in the center hole) to open binder of crank arm.
4. Remove the existing crank arm from the spindle.
5. Position the new crank arm onto the spindle so that the new crank arm is evenly aligned with the right side crank arm.
6. Re install the socket screw and cap from the spindle. DO NOT over tighten.
7. Using the two socket screws, secure the new crank arm clamp to the spindle. Securely tighten.

Replacing the Right Side Crank Arms

1. Remove the two mounting bolts securing the chain ring disk to the tabs of the existing crank arm.
2. Remove the two socket screws from the existing crank arm clamp.
3. Use socket screw from crank arm (in the center hole) to open binder of crank arm.
4. Remove socket screw and cap from the spindle.
5. Remove the existing crank arm from the spindle.
6. Position the new crank arm onto the spindle.
7. Using the two mounting bolts, secure the tabs of the new crank arm to the chain ring disk.
8. Ensure the new crank arm is evenly aligned with the left side crank arm.
9. Re install the socket screw and cap from the spindle. DO NOT over tighten.
10. Using the two socket screws, secure the new crank arm clamp to the spindle. Securely tighten.
11. Make sure that the spacers between the bottom bracket and crank arms do not spin freely.



10.4 Installing/Removing/Adjusting the Steering Dampener

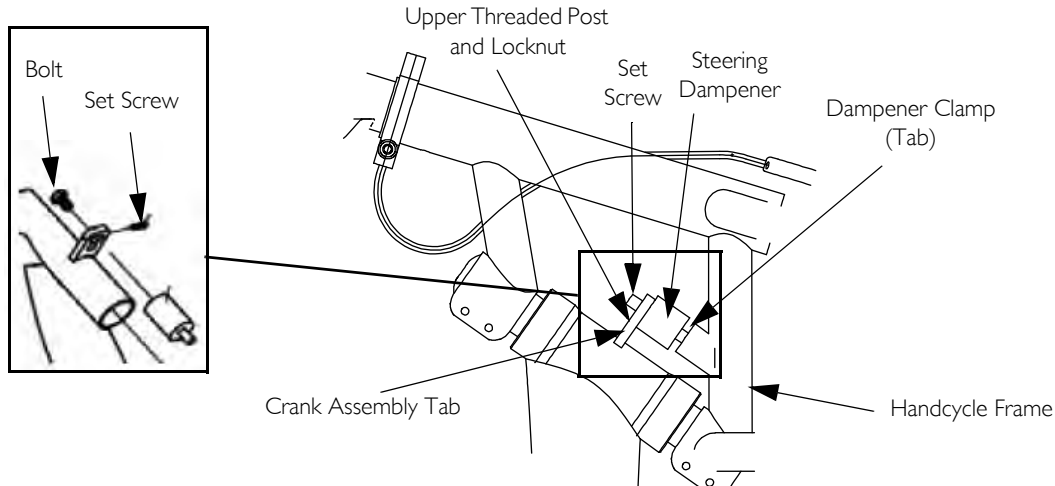


The steering dampener is designed to stabilize the handcycle during transfers and while riding and is not intended to keep the handcycle straight when pedaling but to keep the handcycle from leaning excessively to one side or another.

1. Screw the dampener into tab at dampener clamp.
2. Rotate fork to align crank assembly tab with hole on top.
3. Insert bolt into the hole and tighten.
4. Gently tighten the set screws on right and left side of the crank assembly tab.

Adjusting Steering Dampener

1. Loosen, but DO NOT remove, the two socket screws securing the dampener clamp to the handcycle frame.
2. Ensuring the front wheel and dampener clamp are inline with the handcycle frame, securely tighten the two socket screws securing the dampener clamp to the handcycle frame.
3. Test drive handcycle, if handcycle pulls to the left or right repeat STEPS 1-3 until handcycle drives straight.



10 SERVICE PROCEDURES

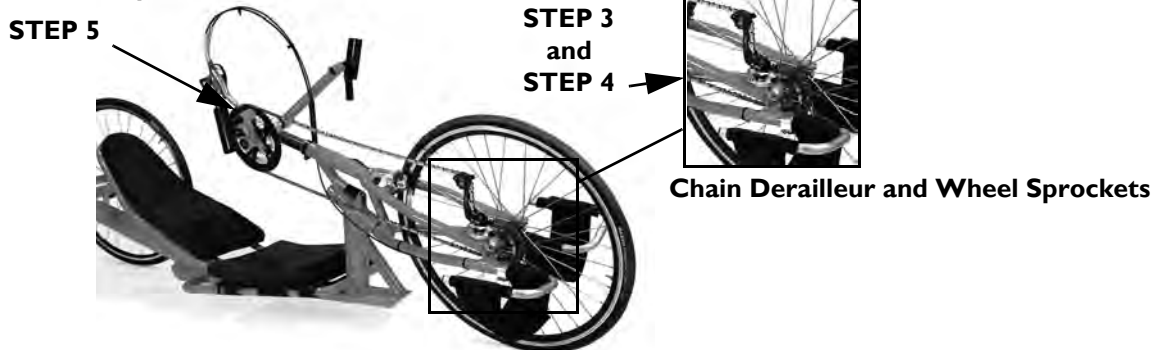
10.5 Installing Twenty-Seven Speed Cassette Chain

1. Spread the chain out flat and run it around the chain ring on the crank and the sprocket on the hub.

i It may be necessary to turn the hand crank in a clockwise motion to position the chain on the small sprocket.

2. Ensure that crank assembly is loosened.
3. Lift up on the chain derailleur and thread the chain under the derailleur.
4. Thread the chain around the wheel sprocket.
5. Run the chain around the bottom of the wheel sprocket and back up towards the hand crank sprocket.
6. Attach the chain together using the master link (w/clip) provided.

Hand Crank Sprocket Assemblies



10.6 Adjusting Twenty-Seven Speed Cassette Chain

1. Loosen, but do not remove the clamp that secure the crank handles to the fork.
2. Slide the crank handles up and/or down until the proper tension on the chain is achieved.

i The proper chain tension will be approximately 1/2-inch of chain slack.
If crank is in desired position but chain tension is not correct, links **MUST** be added to or removed from the chain to correct the tension. This should be performed by a qualified technician.

3. Tighten the clamp that secures the crank handles to the fork securely.

10.7 Installing Hand Crank Handles



WARNING

Replacement/installation of V or S crank handles should be done by a qualified technician

10.8 Installing V/S Crankarm Handles



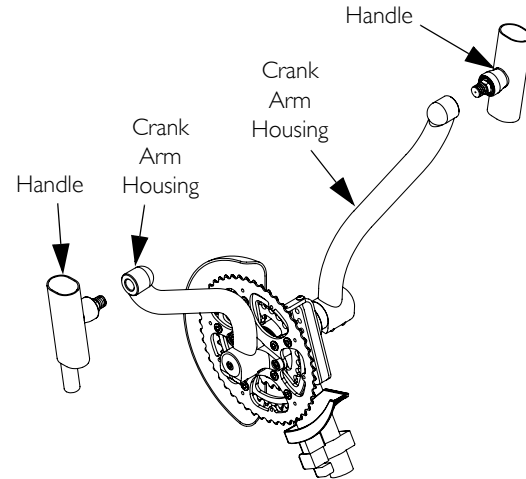
WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur. Failure to install handle assembly properly could result in injury. It is recommended to inspect this assembly prior to and after each use.

Screw handle into crankarm housing (right handle has right-handed thread; left handle has left-handed thread).



Handle should spin freely with minimal play. If handle does not spin freely, contact Top End Customer Service at the phone number on the back cover of this manual.



10.9 Adjusting/Replacing the Primary Caliper Brake and Parking Brake



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.
Replacement of the parking brake **MUST** be performed by a qualified technician.



The Force-2 model has a stop-button parking brake that adjusts using this procedure. The Force R and Force X has a parking brake with a locking lever.

Adjusting Cable

Loosen the hex nut and turn the adjuster barrel clockwise (tighten) or counterclockwise (loosen) to adjust the cable. Retighten hex nut.

Brake Pads

Adjust the brake pad assembly so that when the parking brake is engaged the brake pads rest solely on the rim of the wheel.

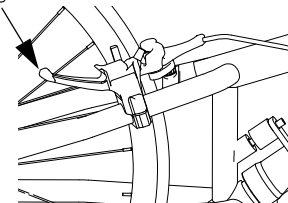
Replacing Brake Pads

1. Remove the mounting nuts and brake pads.
2. Secure the replacement brake pads with hardware and adjust.



Force-2 parking
brake with
locking lever

Force and Force G -
parking Brake



Force R and Force X parking
brake with locking lever


10.10 Disc Brakes

Cleaning

Under normal use and conditions, it is not necessary to clean the caliper rotor or pads. If necessary, use a solution of water and dish detergent to wash the caliper and rotor. Thoroughly rinse all soap residue from the rotor. Dry the components completely with a clean paper towel.

Cable Adjustment


Use the barrel adjuster to remove cable slack. Turn the barrel adjuster until there is no free play in the brake lever but not so far that the torque arm on the caliper is advanced.

-  The torque arm should return completely when the brake lever is released.

Spring Adjustment

To adjust spring tension, turn the spring tension adjustment screw with a 2 mm hex wrench. Turn the screw clockwise to increase the spring tension, which equals harder lever pull.

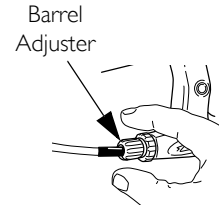
Brake Pad Inspection, Replacement and Break In

-  A brake pad **MUST** be replaced when its thickness (backing plate and friction material) is less than 3 mm. If the rotor is damaged or excessive wear is found, replacement should be done by a qualified technician.

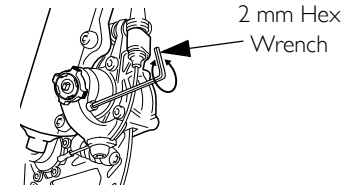
Inspect the brake pad for thickness and wear. To replace brake pad:

1. Remove the existing pad.
 - A. Back both adjuster knobs all the way out (counterclockwise).
 - B. Squeeze the pad tabs together and pull both pads straight out of the caliper.
2. Install replacement pad and springs.
 - A. Assemble the spring between the new left and right pads. The pad marked "R" goes on the spoke side of the brake.
 - B. Align the spring to the pad as shown.
 - C. Squeeze the brake pad and spring clip assembly together then press firmly into the caliper until it clicks into place.

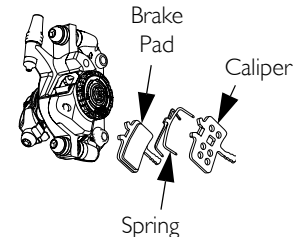
Cable Adjustment



Spring Adjustment



Brake Pad Replacement



10 SERVICE PROCEDURES

10.11 Replacing Seat Upholstery



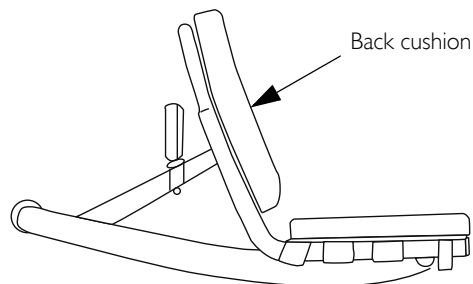
WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

1. Remove seat cushion.
2. Unlatch the fastening flaps that secure the seat upholstery to the seat frame.
3. Remove the existing seat upholstery.
4. Install the new seat upholstery making sure that the fastening flaps that are in close proximity to one another are to the rear of the seat frame.
5. Secure the fastening flaps together.
6. Reinstall seat cushion onto chair.

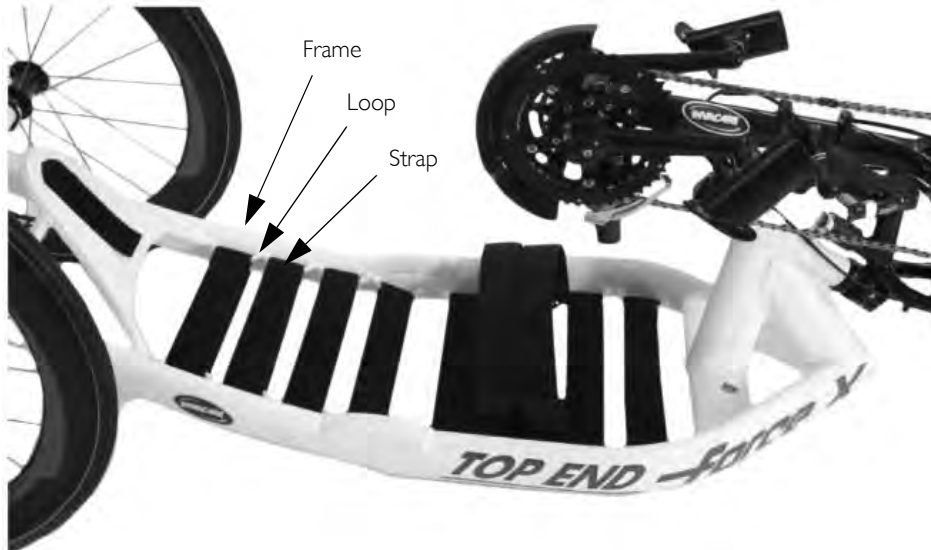
10.12 Replacing Back Cushion

1. Attach one side of the hook and loop strip to the back of the back cushion. Remove the plastic from the hook and loop to reveal the tape.
2. Align the fastening strips on the back frame with the fastening strips on the back cushion.
3. Press the back cushion firmly against the back frame to secure.



10.13 Integrated Backrest Strap Replacement - Force X only

1. If a strap requires replacement, separate the hook and loop strips that hold the strap in place. Remove the existing strap.
2. Thread the replacement strap through the loops in the frame.
3. Secure the pieces of the straps together with the hook and loop strips.



11 Options



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

11.1 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: Pull the back cushion off of the back frame. Position the clamp onto the rear seat post. Install the set screw into the clamp and tighten securely.
 - B. Front safety light: Position the clamp onto the side frame. Install the set screw into the clamp and tighten securely.

Operating the Safety Light

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

Rear Safety Light



Front Safety Light



11.2 Installing the Water Bottle

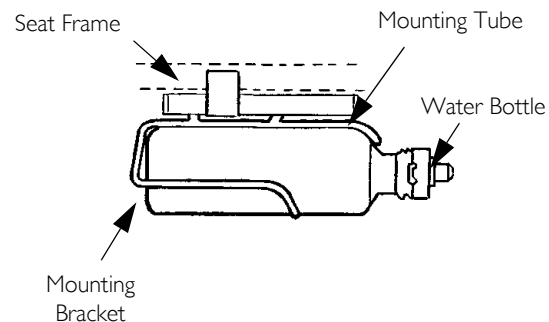
1. Secure the water bottle mounting tube using the hardware provided. See Detail "A" for Force-2 and Force G, Detail "B" for Force and Force R.



Force-2 and Force G - make sure the water bottle mounting bracket mounting holes are facing downward.

2. Attach the water bottle mounting bracket using the hardware provided.
3. Push water bottle into mounting bracket until secure.

DETAIL "A" - FORCE-2 AND FORCE G



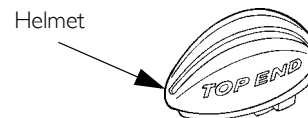
DETAIL "B" - FORCE AND FORCE R



11 OPTIONS

11.3 Using Safety Helmet

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



11.4 Installing the Computer

1. Install metal plug onto spoke of front wheel approximately 2 inches from wheel rim.
2. Align metal plug with fork assembly.
3. Secure sensor to fork using hardware provided.



Slot in sensor **MUST** align with metal plug for mileage, etc. to be registered on the computer.

4. Snap computer into mounting bracket.
5. Install spacer on the back of the computer mounting bracket.
6. Secure mounting bracket to crank bottom bracket with zip or wire ties.



11.5 Assembling/Adjusting/Using the Handcycle Rack



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Assembling the Handcycle Rack

1. Position the receiver with the bracket facing up.
2. Position the rear wheel bar with the wheel brackets facing up.
3. Remove the two large mounting bolts and locknuts from the receiver and set aside.
4. Remove the two small mounting bolts and locknuts from the receiver bracket and set aside.
5. Secure the wheel tray to the receiver with the two large mounting bolts and locknuts.
6. Using two small mounting bolts and locknuts, secure the receiver bracket to the wheel tray.
7. Remove the two mounting bolts and locknuts from the rear wheel bar and set aside.
8. Using two mounting bolts and locknuts, secure the rear wheel bar to the wheel tray.
9. Install the receiver onto the trailer hitch of the vehicle, according to the vehicle manufacturer's instructions.

Adjusting the Handcycle Rack



WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.



To properly secure the handcycle, the wheel tray bracket should be adjusted to sit against the front wheel.

Wheel Tray Bracket

1. Remove the four mounting bolts and locknuts securing the wheel tray bracket to the wheel tray.
2. Position the wheel tray bracket in the desired position.
3. Secure the wheel tray bracket to the wheel tray with the four mounting bolts and locknuts.

11 OPTIONS

4. If necessary, the wheel stop may be adjusted to one of three positions to sit against the front wheel. To adjust the wheel stop, perform the following steps:
 - A. Remove the mounting bolt and locknut securing the wheel stop to the wheel tray bracket.
 - B. Position the wheel stop in the desired mounting position.
 - C. Secure the wheel stop to the wheel tray bracket with the mounting bolt and locknut.

Rear Wheel Bar Brackets



To properly secure the handcycle, the rear wheel bar brackets should be adjusted to sit against the rear wheels.

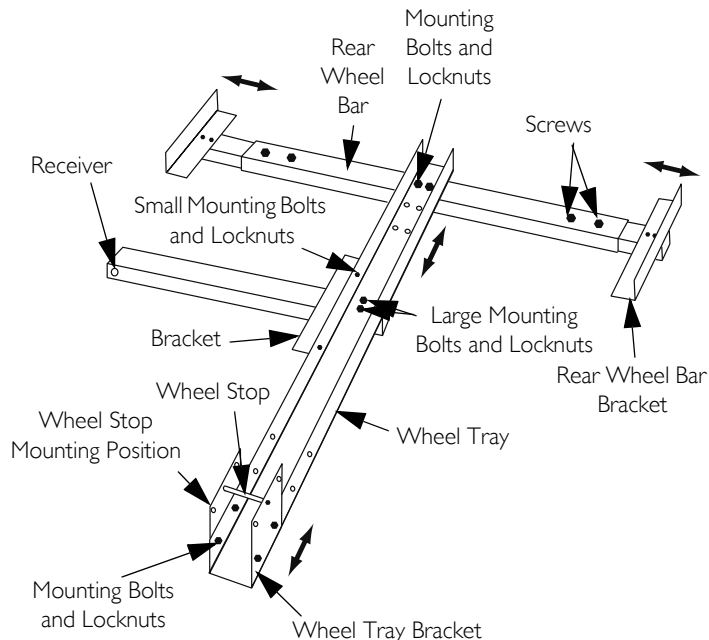
1. Loosen the two screws securing the rear wheel bar bracket to the rear wheel bar.
2. Adjust the rear wheel bar bracket in/out until they sit against the rear wheel.
3. Secure the rear wheel bar bracket to the rear wheel bar with the two screws.
4. Repeat steps 1-3 for the opposite side if necessary.

Rear Wheel Bar



To properly secure the handcycle, the rear wheel bar should be adjusted so the rear wheels sit in the rear wheel bar brackets.

1. Remove the two mounting bolts and locknuts securing the rear wheel bar to the wheel tray.
2. Position the rear wheel bar to one of three mounting positions on the wheel tray.
3. Secure the rear wheel bar to the wheel tray with the two mounting bolts and locknuts.

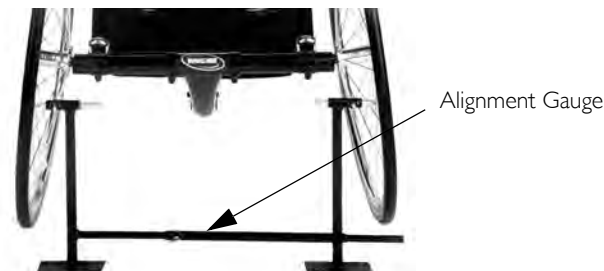


Using the Handcycle Rack

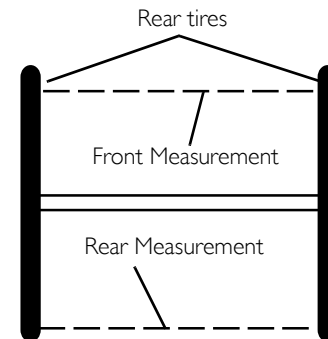
1. Position the handcycle on the rack with the front wheel in the wheel tray bracket.
2. Adjust the handcycle rack so the wheel tray bracket sits against the front wheel and the rear wheel bar brackets sit against the rear wheels.
3. Secure the front wheel to the wheel tray bracket using the strap provided.
4. Secure the rear wheels to the rear wheel bar using the straps provided.

11.6 Using the Alignment Gauge

1. Inflate the tires to recommended tire pressures (listed on the sidewall of the tire).
2. Place the handcycle and alignment gauge on a flat surface.
3. Position the alignment gauge near the rear of the rear tires.
4. Loosen the alignment screw on each side.
5. Position the alignment gauge between the rear of the rear tires.
6. Adjust the alignment inserts so the alignment gauge fits snugly between the rear of the rear tires.
7. Tighten the alignment screws to secure the alignment bar position.
8. Position the alignment gauge at the front of the rear tires and repeat.
9. Examine the gauge. Perform one of the following:
 - A. If the alignment gauge fits snugly between the front of the rear tires, the wheels are aligned. No toe in/toe out adjustment is required.
 - 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](#) on page 56.
 - C. If the alignment gauge does not fit between rear tires, the tires have a toe in condition. Refer to [Adjusting Toe In/Toe Out](#) on page 56.



Front of Handcycle



Rear of Handcycle

11 OPTIONS

11.7 Additional Options



These options are available for order through www.topendwheelchair.com or 1-800-532-8677.

A - Leg mount mirror

The leg mount mirror attaches to the outside tube of the footrest with a clamp.

B - Handle mount mirror

C - Backpack hydration system

To install:

1. Pull cushion off of backrest.
2. Place hook and loop strap from back pack in-between the backrest and cushion.
3. Replace cushion. Attach small straps around the drafting bumper.

D - Tool and tire repair kit

Attaches with buckles around the back bar of the handcycle frame.

E - Cable kit

The cable kit is an extra set of brake and shifter cables.

F - Heart rate monitor

The monitor is usually mounted on the crank assembly.

The user attaches the heart rate monitor around his/her chest with a strap that is included with this option.

A



B



C



D



E



F



G - Indoor training roller

The indoor training roller is used to exercise or train when outside weather does not permit.

To use with the handcycle, loosen the footrest clamp and turn the footrest to vertical. Allow feet to rest on the floor.

H - Click Strap

Attach with heavy duty zip ties to the seat or back frame.

I - Wheel Bag

Wheel bag can fit up to three wheels.

Remove and place axles in the bottom of the wheel bag to ensure they are not damaged.

J - Handcycle Travel Bag

The fork must be removed for the travel bag to fit onto the handcycle.

A separate foam protector for camber tube is included.

Wheels do not fit in the travel bag.

K - Extra steering dampener

Refer to [Installing/Removing/Adjusting the Steering Dampener](#) on page 63.

G



H



I



J



K



II OPTIONS

L - Leg Guard

Attach the leg guard with a zip tie as shown and adjust as necessary for the user.

M - Amputee Leg Support

Attach the amputee leg support as shown and adjust as necessary for the user.

L



M



NOTES



Yes, you can.

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