

KFORCE

USER MANUAL



WE

#ALWAYS AHEAD



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Important information

Congratulations on your Full Speed Ahead product. Please read these instructions and follow them for correct use. Failure to follow the warnings and instructions could result in damage to product not covered under warranty, damage to bicycle; or cause an accident resulting in injury or death. Since specific tools and experience are necessary for proper installation, it is recommended that the product be installed by a qualified bicycle technician. FSA assumes no responsibility for damages or injury related to improperly installed components.

Important Information



Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

If your device endures electrostatic discharge, it may automatically reboot and disconnect current wireless transmission. You will need to manually reset the wireless connection when this happens.

Use your device in temperature between -5°C ~ 40°C. Exposing your device to extremely low or high temperatures may result in damage, malfunction, or even explosion.

Federal Communications Commission (FCC) Statement

15.105(b)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

15.21

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment(FD-ED-8412, RD-ED-8412) complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.
2. For portable operation, this device(SF-RD-8412, SF-RD-8412(L)) has been tested and meets FCC RF exposure guidelines. When used with an accessory that contains metal may not ensure compliance with FCC RF exposure guidelines.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

CAN ICES-3(B)/NMB-3(B)

ISED RF Exposure Information

This equipment complies with Innovation, Science and Economic Development Canada RSS-102 RF exposure limits set forth for an uncontrolled environment.

ISED Informations sur l'exposition RF

Cet équipement est conforme aux limites d'exposition RF RSS-102 d'Innovation, Sciences et Développement économique Canada établies pour un environnement non contrôlé.

CE Compliance Statement

Maximum radio-frequency power transmitted in the frequency bands:

Model: FD-ED-8412, RD-ED-8412

Bluetooth LE, 2400MHz~2483.5MHz: 0 dBm (e.i.r.p.)

Model: SF-RD-8412

Bluetooth LE, 2400MHz~2483.5MHz: 0 dBm (e.i.r.p.)

CE RF Exposure Information

This device meets the EU requirements and the International Commission on Non-Ionizing Radiation Protection (ICNIRP) on the limitation of exposure of the general public to electromagnetic fields by way of health protection.



Waste Electrical and Electronic Equipment (WEEE)

This symbol means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. Proper recycling of your product will protect human health and the environment.

Hereby, FSA srl declares that the radio equipment type [FD-ED-8412 and SF-ED-8412] is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: <http://www.fullspeedahead.com/en/support/library/documentation>

NCC 警語

本電池如果更換不正確會有爆炸的危險，請依製造商說明書處理用過之電池。

廢電池請回收

根據 NCC LP0002 低功率射頻器材技術規範_章節 3.8.2：

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前述合法通信，指依電信管理法規作業之無線電通信。

低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

IC

Regulatory information in both English and French

- English

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Caution: Exposure to Radio Frequency Radiation

1. To comply with the Canadian RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
2. To comply with RSS 102 RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device(FD-ED-8412, RD-ED-8412) and all persons.
2. For portable operation, this device(SF-RD-8412, SF-RD-8412(L)) has been tested and meets RF exposure guidelines when used with an accessory that contains no metal.
Use of other accessories may not ensure compliance with RF exposure guidelines.

- French

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Attention: exposition au rayonnement radiofréquence

1. Pour se conformer aux exigences de conformité RF canadienne l'exposition, cet appareil et son antenne ne doivent pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.
2. Pour se conformer aux exigences de conformité CNR 102 RF exposition, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil(FD-ED-8412, RD-ED-8412) et toutes les personnes.
2. Pour portable utilisation, cet appareil(SF-RD-8412, SF-RD-8412(L)) a été testé et respecte les directives sur l'exposition aux RF lorsqu'il est utilisé avec un accessoire sans métal.
L'utilisation d'autres accessoires peut ne pas garantir la conformité aux directives d'exposition aux RF.

CE

- (a) frequency band(s) in which the radio equipment operates;
- (b) maximum radio-frequency power
- (c) accessories
- (d) software

Battery Warning

Battery

1. Be sure to use only with an FSA charger and follow charging instructions.
2. Do not crush and/or do not puncture the battery.
3. If the battery pack is stored for a long time, the battery pack's storage should be 7.8V~8.0V.
4. Charging

Charging Current

The charging current should be less than the maximum charge current specified in the Product Specification. Charging with a higher current than the recommended value may cause damage to cell/battery pack's electrical, mechanical, and safety performance and could lead to heat generation or leakage.

Charging Temperature

The cell should be charged within a 0°C~45°C (32°-113°F) range in the Product Specification.

Prohibition of Reverse Charging

Reverse charging is prohibited. The cell/battery pack should be connected correctly. The polarity has to be confirmed before wiring. In case the cell/battery pack is connected improperly, the cell/battery pack cannot be charged. Likewise, reverse charging may cause damage to the cell/battery pack which may lead to degradation of the cell/battery pack performance, affect the cell/battery pack safety and could cause heat generation or leakage.

5. Discharging

Discharging Current

The cell should be discharged at less than the maximum discharge current specified in the Product Specification. A high discharging current may reduce the discharging capacity significantly or cause over-heating.

Discharging Temperature

The cell should be discharged within a -20°C~60°C (-4°-140°F) range specified in the Product Specification.

Over-Discharging

It should be noted that the cell/battery pack would be in an over-discharged state by its self-discharge characteristics if the cell/battery pack has not been used for long time. In order to prevent over-discharging, the (individual) cell should be charged periodically to maintain between 7.8V and 8.0V. Over-discharging may cause loss of cell/battery pack performance, characteristics, or battery functions.

6. Storage

The cell/battery pack should be stored within a -10°C~45°C (14°-113°F) range.

7. Long Time Storage

If the battery pack is stored for a long time, the battery pack's storage should be 7.8V~8.0V.

Instructions for "long term storage":

- a. Long-term storage can accelerate battery self-discharge and lead to the deactivation of the batteries. To minimize the deactivation, store battery packs in a temperature range of -10°C~45°C (14°-113°F).
- b. When charging for the first time after long-term storage, deactivation of the packs may have led to decreased capacity. To recover the packs to original performance, repeat several cycles of fully charging and discharging.
- c. When storing the pack for more than 6 months, please charge at least once every 6 months to prevent leakage and deterioration in performance due to self-discharging.

8. Others

Do not drop, hit or bend the battery body.

Battery electrolyte is harmful

The battery should not have any electrolyte liquid visibly flowing. In case electrolyte comes into contact with the skin or eyes, flush/wash the electrolyte immediately with fresh water and immediately seek medical attention.

Prohibition of dumping of cells into fire

Never incinerate nor dispose of the cells in fire. This may cause a dangerous explosion and is prohibited.

Prohibition of cells immersion into liquid such as water

The cells should never be soaked with liquids such as fresh water, seawater, or drinks such as soft drinks, juices, coffee, etc.

Battery cells replacement

The battery replacement shall be done only by either the battery cell supplier or device supplier and never be done by the user.

Prohibition of use of damaged cells

The cells might become damaged during shipping by shock. If any abnormal features of the cells are found - such as damage to the plastic envelope of the cell, deformation of the cell package, smelling of electrolyte, electrolyte leakage or other abnormal appearance, the cells should not be used.

The cells with a smell of the electrolyte or a leakage shall be placed away from fire to avoid explosion.

Introduction and required tools

Introduction

Congratulations on your Full Speed Ahead product. Please read these instructions and follow them for correct use. Failure to follow the warnings and instructions could result in damage to product not covered under warranty, damage to bicycle; or cause an accident resulting in injury or death. Since specific tools and experience are necessary for proper installation, it is recommended that the product be installed by a qualified bicycle technician. FSA assumes no responsibility for damages or injury related to improperly installed components.

Required Tools and supplies



FSA recommends installation of WE Drivetrain to be performed by a highly experienced bicycle mechanic.

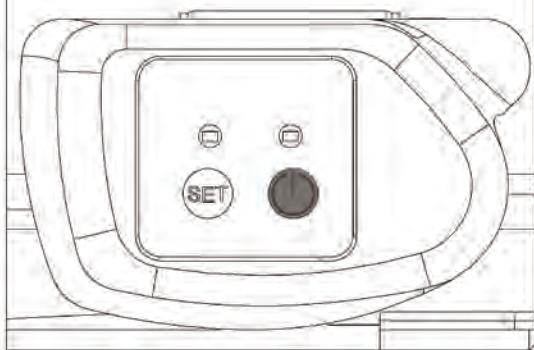
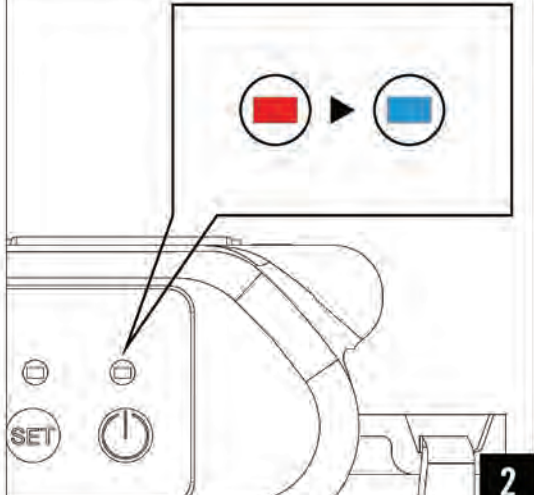
The following tools and supplies are needed for correct installation of FSA WE Drivetrain. See tool list below:

 1.5mm hexagon wrench	 2mm hexagon wrench	 2.5mm hexagon wrench
 4mm hexagon wrench	 5mm hexagon wrench	 T10 torx wrench
 T25 torx wrench	 8mm 8mm open end wrench	 Torque wrench (2-14 Nm range)
 Phillips screwdriver (PH2)	 Slotted screwdriver	 FSA cable guide tool
 Light grease	 Chain rivet tool (11sp compatible)	 Small pick
 Needle nose pliers	 Brake fluid	 Bleed block
 Hydraulic hose cutting tool	 Hydraulic hose barb insertion tool	 Isopropyl or Denatured Alcohol
 Clean, Lint-Free Rags	 Safety Glasses and Nitrile Gloves	 Shift cable for hose routing

Pairing

Powering

Power ON

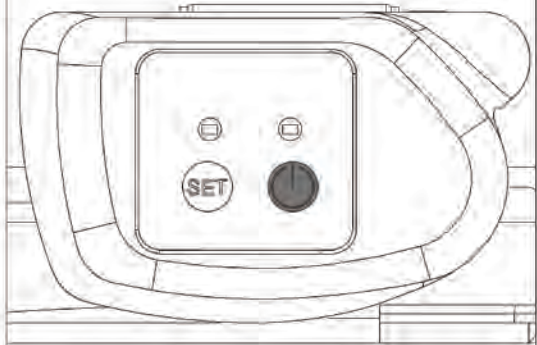
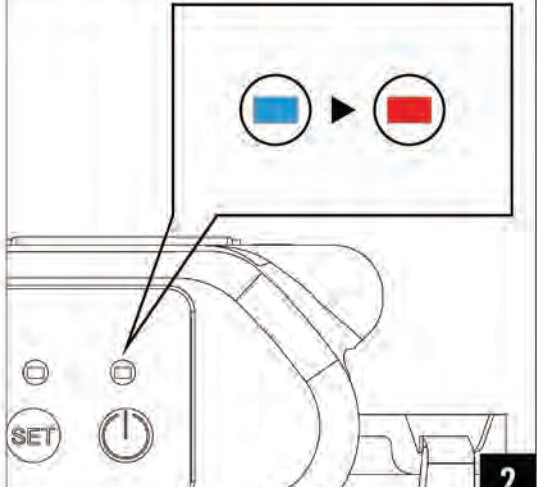
 1	Push and hold the power button.
 2	The LED lights will blink red then blue. When the LED lights flash blue, WE is on.

TIPS

Release the power button. Push each shift button once to activate them.

Powering

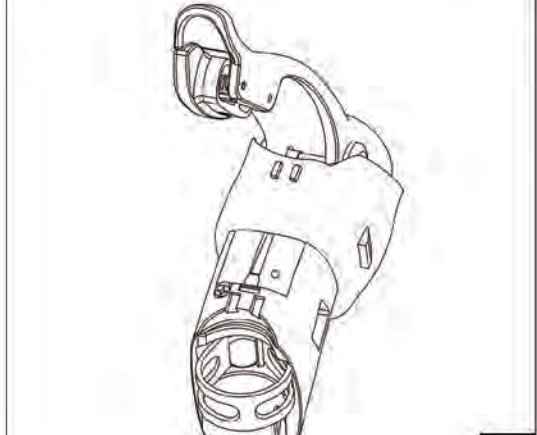
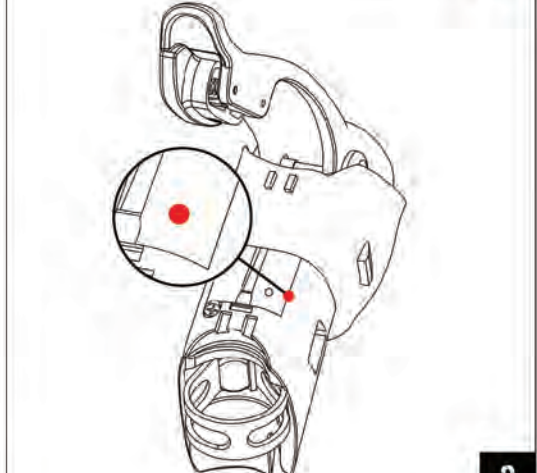
Power OFF

 1	Push and hold the power button.	
 2	The LED lights will blink blue then red. When the LED lights flash red, WE is off.	

TIPS

WE will also go in to Stand-By mode, and turn off automatically after a period of inactivity. Those intervals are customizable in the WE Dashboard Software.

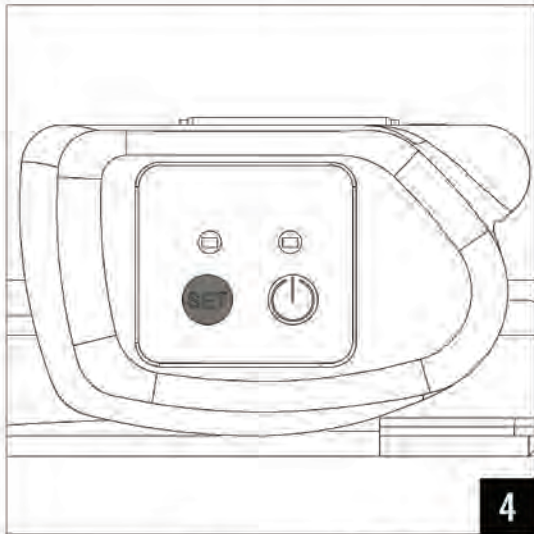
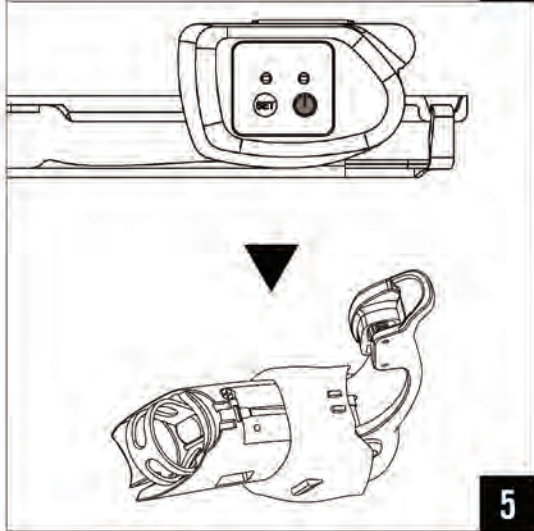
Connecting Shifters(SF-RD-8412/SF-RD-8412(L))

 1	Roll the shifter hood forward to expose the transmitter cover.	
 2	Use the 2mm hex key to depress the pairing button through the port on the underside of the shifter. At the same time press one of the shifter buttons. 2 mm	
 3	The Pairing LED indicator light will turn solid red.	

TIPS

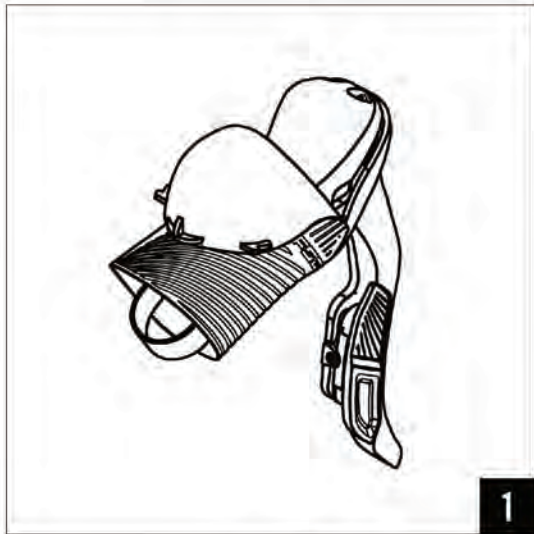
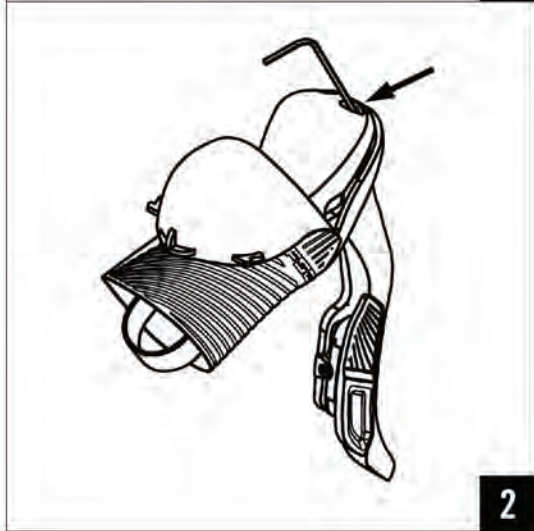
If you have pressed the shifting paddle too recently before the pairing button it will not enter pairing mode. You need at least 30s until you can enter pairing mode.

Connecting Shifters(SF-RD-8412/SF-RD-8412(L))

	After powering on, press and hold the set button until both LEDs flash green.	
	Press and hold the power button until the LED turns solid Blue (about 6s) Once the blue light turns off on the front derailleur and the pairing light on the shifter flashes and turns off, pairing mode is complete.	

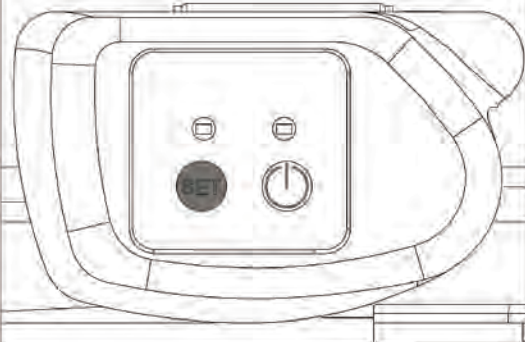
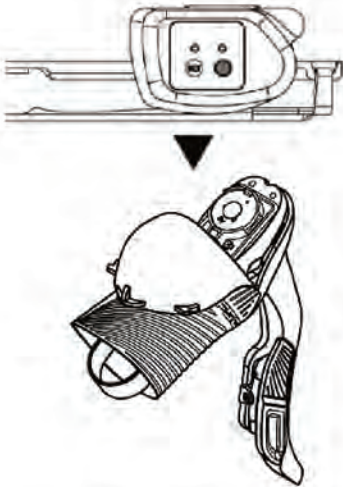
TIPS
Repeat the above process for the other sifter.

Connecting Shifters Disc Brake

	Roll the shifter hood backward to expose the transmitter cover.	
	Use the 1.5mm hex key to remove the transmitter cover.	1.5 mm
	Use the 1.5mm hex key to drpress the pairing botton through the port on the underside of the shifter. At the same time press one of the shifter buttons.	1.5 mm

TIPS
If you have pressed the shifting paddle too recently before the pairing button it will not enter pairing mode. You need at least 30s until you can enter pairing mode.

Connecting Shifters Disc Brake

 4	The Pairing LED indicator light will turn solid red.	
	After powering on, press and hold the set button until both LEDs flash green.	
 6	Press and hold the power button until the LED turns solid Blue (about 6s). Once the blue light turns off on the front derailleur and the pairing light on the shifter flashes and turns off, pairing mode is complete.	

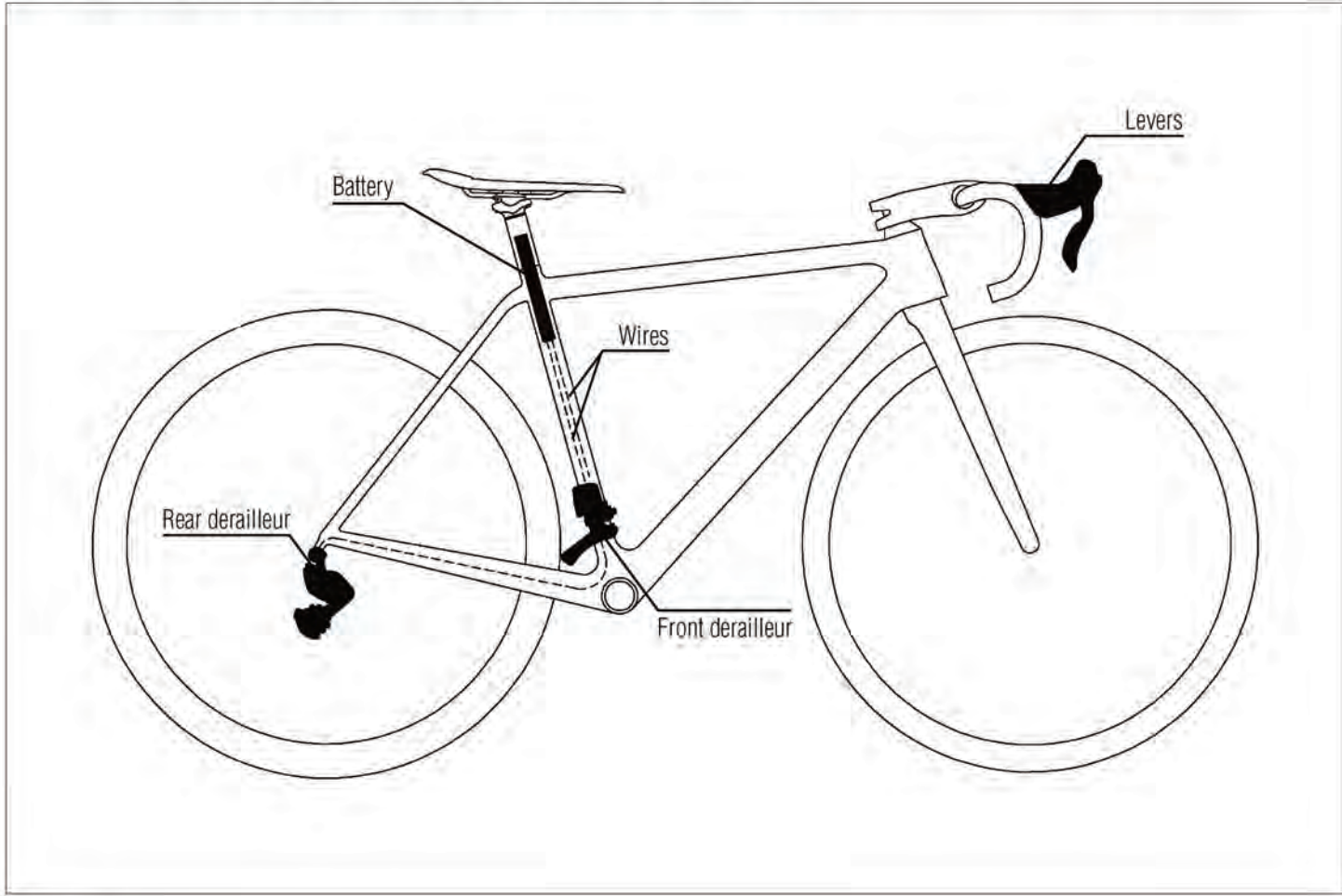
TIPS

Repeat the above process for the other shifter.

Drivetrain Parts

Part Names

FSA K-Force WE is an electronic hybrid drivetrain. It is defined as hybrid because is not completely wireless. Indeed, there are no wires from shifters to derailleurs but the communication between the two derailleurs is still achieved using wires. The different parts of the drivetrain will be explained in this section.



Levers:
Shifters wirelessly communicate with derailleurs. They have their own coin cell batteries (CR2032), located inside the housing.

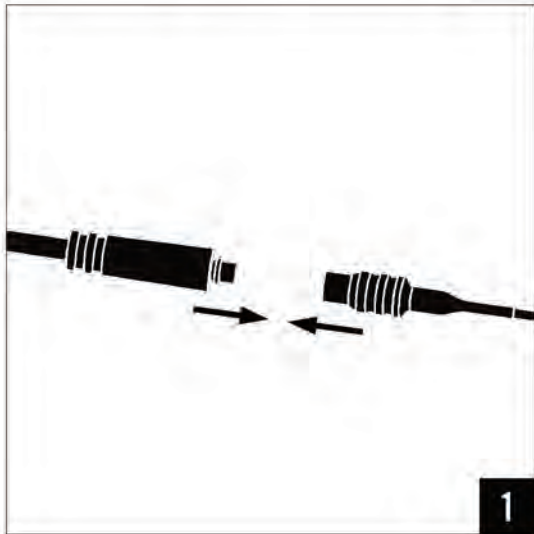
Battery:
The main battery is placed into the seatpost and provides power to the two derailleurs through two wires.

Front derailleur:
Maximum tooth differential up to 16T, compatible with K-Force WE crankset.

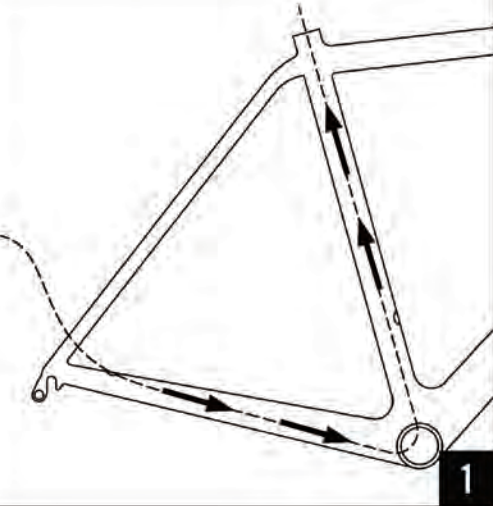
Rear derailleur:
Max sprocket up to 32T, compatible with K-Force WE cassette.

Wires:
Two internally routed wires, one longer and one shorter, connect front and rear derailleurs to the battery.

Using the Wiring tool

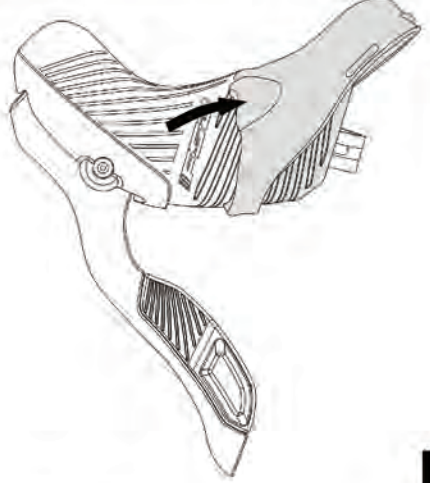
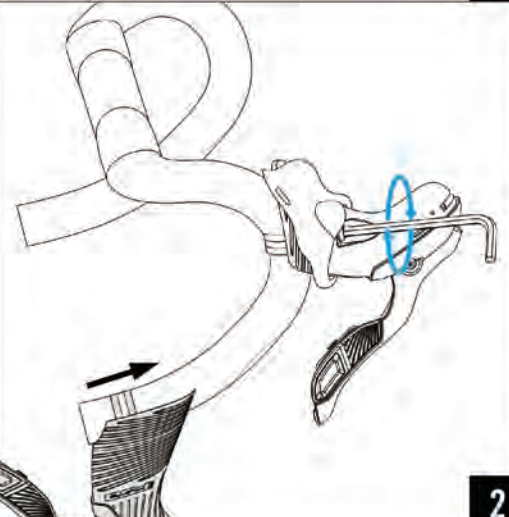
 1	Connect the power guide tool to the wires.	
 2	After the wires are connected, start routing the cables.	

How to Wire

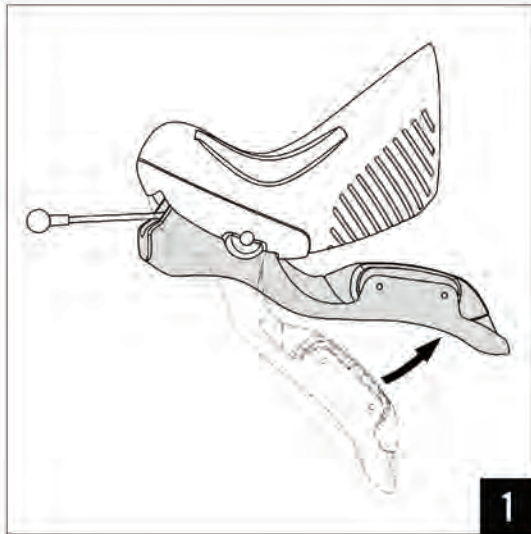
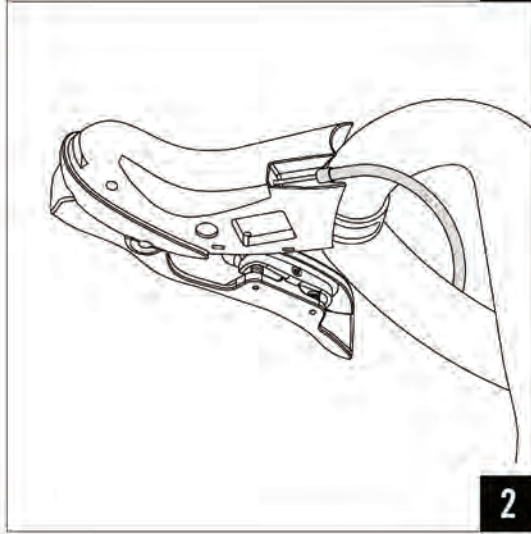
 1	Using the FSA wire guide, route the reare derailleur wire starting in the chainstay and then up through the seat tube.	FSA Cable tool
 2	Using the FSA wire guide, route the wire from the lower front derailleur port up through the top of the seat tube.	FSA Cable tool

Lever(SF-RD-8412/SF-RD-8412(L)) Installation

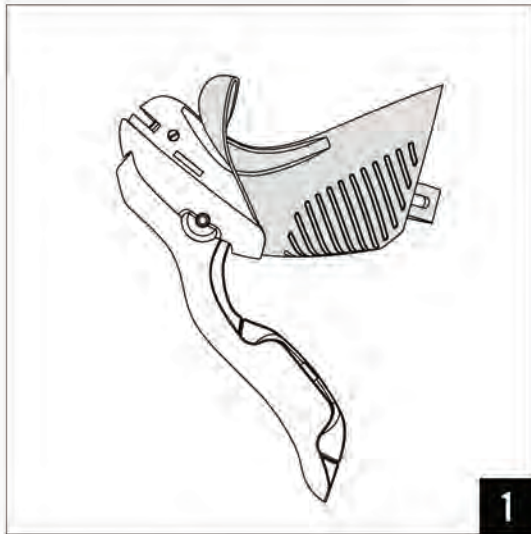
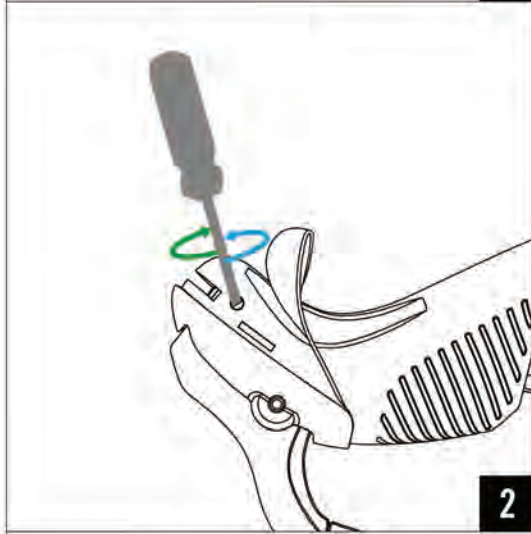
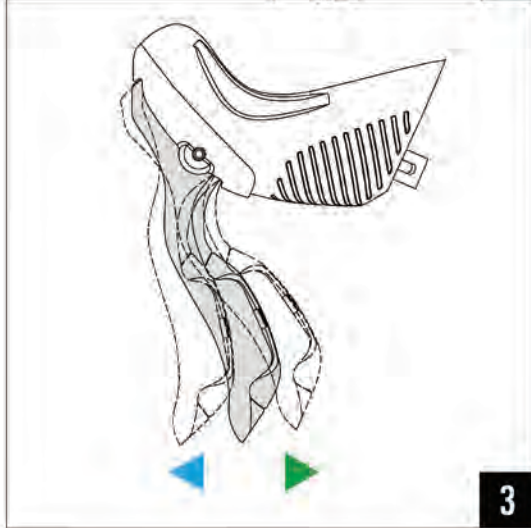
Battery use CR2032,3.0V,refer to pae-43

 1	Roll the shifter hood forward to expose the shifter clamp bolt. Install the shifter on the handlebar.	
 2	Position the shifter according to preference. Tighten the bolt with a 5 mm hex wrench to 6-8 Nm.	5 mm TORQUE 6-8nm

Brake Cable Installation

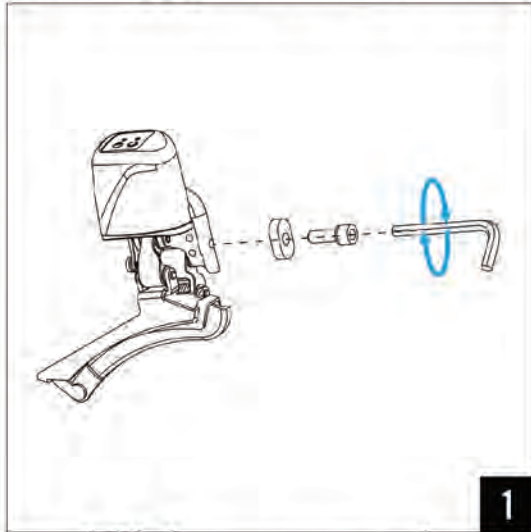
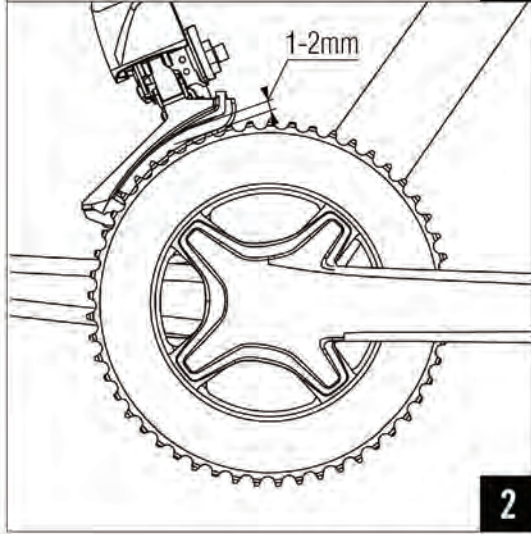
	Press the brake lever to expose the cable routing hole.	
	Brake cable routing into the shifter and brake cable housing.	

Reach adjustments

	Expose the reach adjustment screw.	
	Adjust reach by tightening or loosening the screw with a 2mm hex wrench.	
	Increase the reach by turning the screw counter-clockwise. Decrease the reach by turning the screw clockwise.	

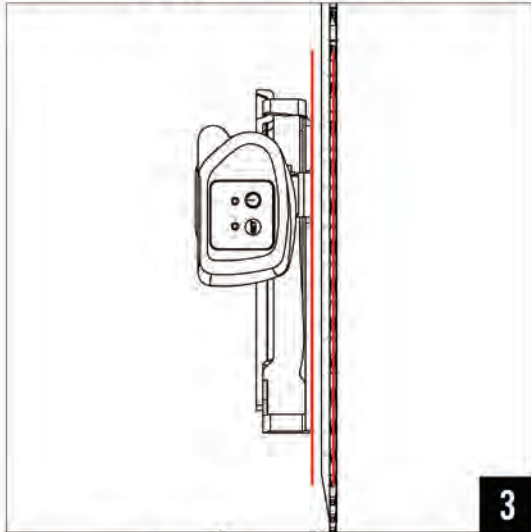
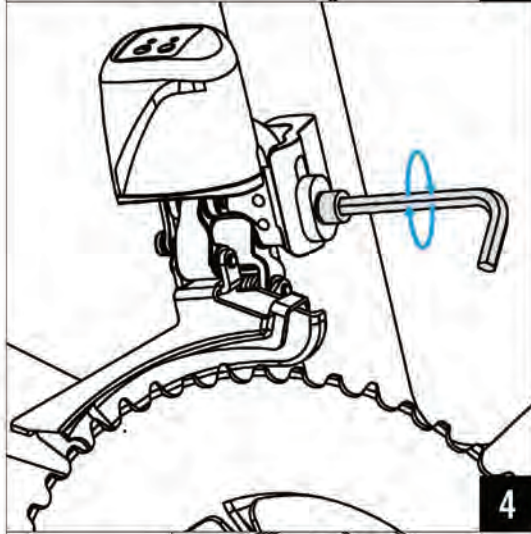
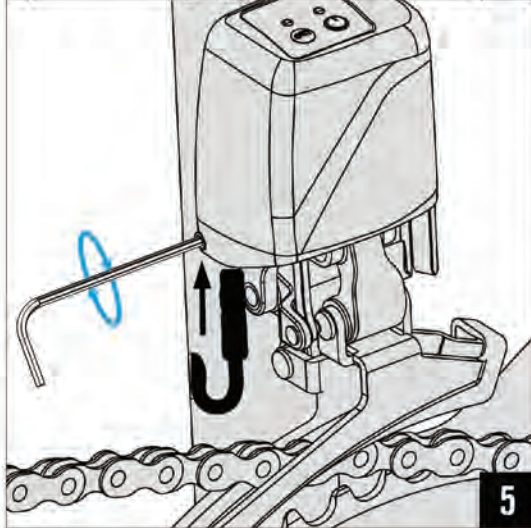
Front Derailleur(FD-ED-8412) Installation

Power supply use Seat-Post battery,7.4V, refer to page-43

 1	Mount the front derailleur to the frame as shown.	5 mm
 2	Adjust the gap between the big ring and outer plate of the front derailleur from 1-2mm.	

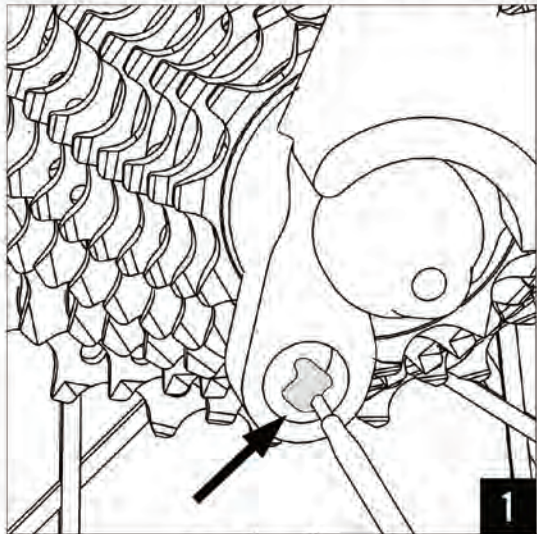
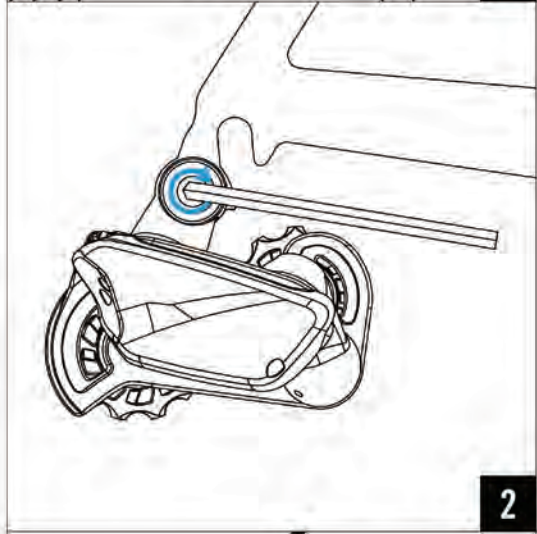
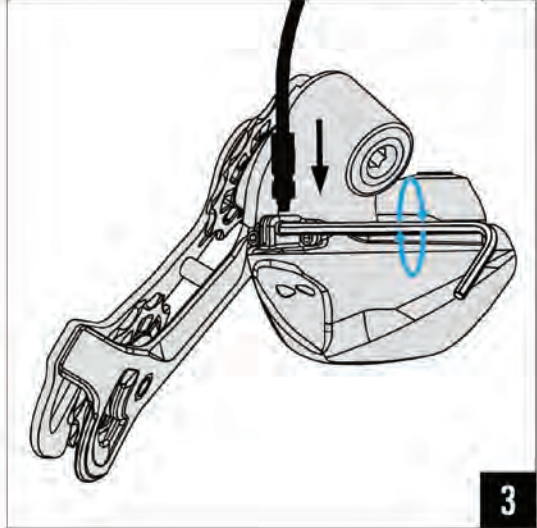
Front Derailleur(FD-ED-8412) Installation

Power supply use Seat-Post battery,7.4V, refer to page-43

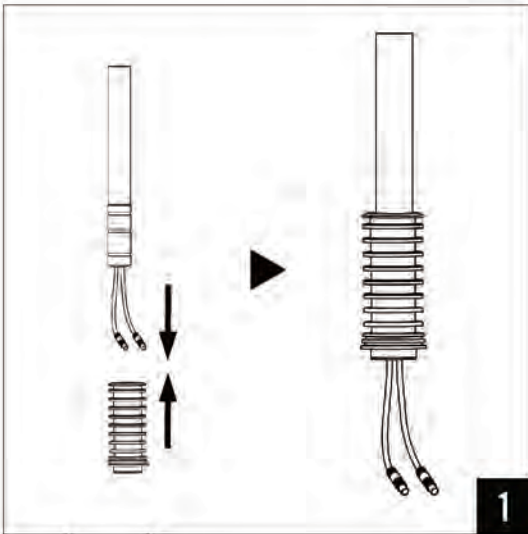
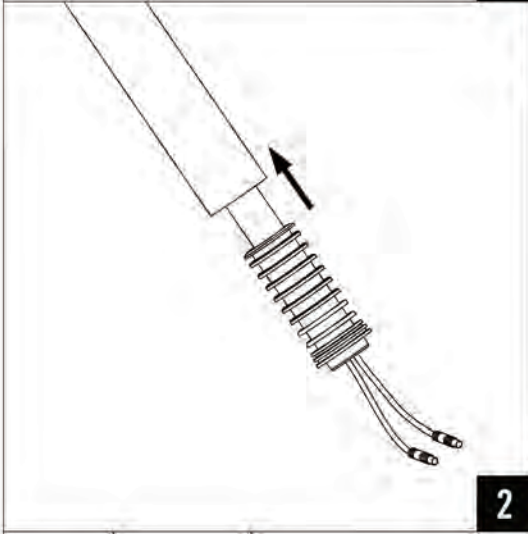
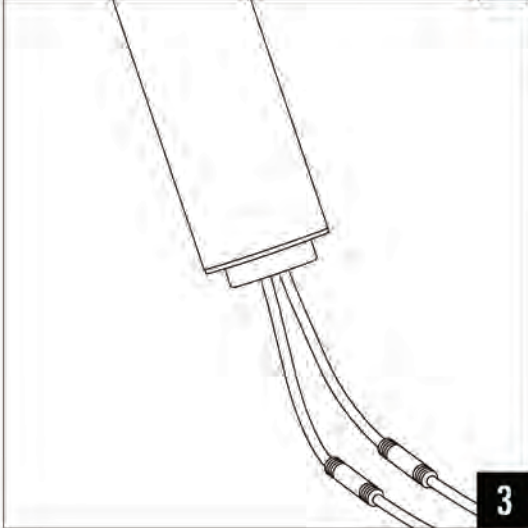
 3	After gap adjustment, make sure the outer plate is parallel with the large chainring.	
 4	After correct placement, tighten the mount bolt to recommended torque of 5-7Nm with a 5mm hex wrench.	5 mm TORQUE 5-7nm
 5	Install the front derailleur wire in the port on the rear of the front derailleur. Make sure there is a noticeable "click" to confirm proper engagement of the wire. Tighten the pinchbolt for the wire with a 1.5mm hex wrench to 3-5 Nm.	1.5 mm TORQUE 3-5nm

Rear Derailleur(RD-ED-8412) Installation

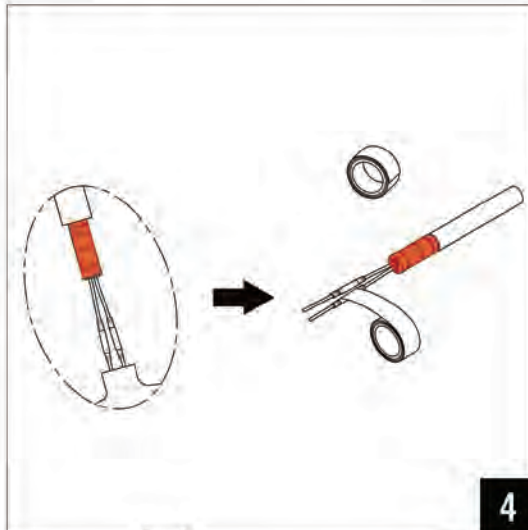
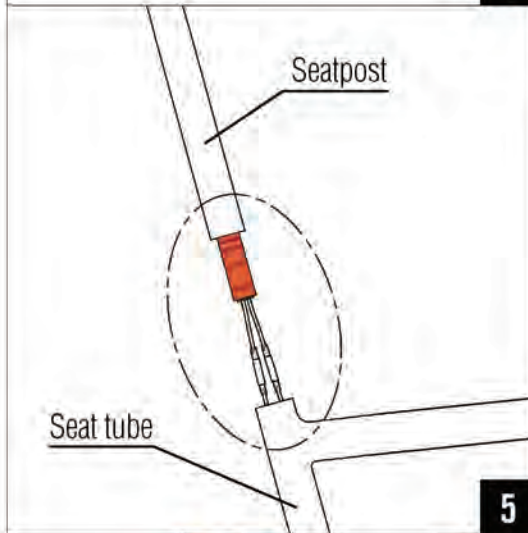
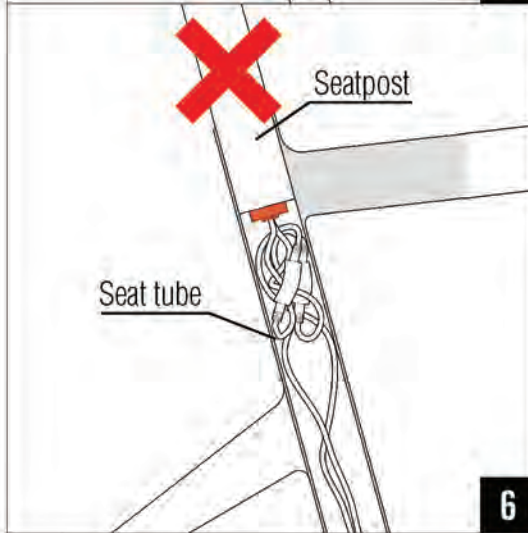
Power supply use Seat-Post battery,7.4V, refer to page-43

	Apply a small amount of grease on the derailleur hanger threads.	
	Using a 5 mm hex wrench, screw the derailleur in to the hanger. Tighten the derailleur bolt to 5-7 Nm.	5mm TORQUE 5-7nm
	Install the rear derailleur wire into the port behind the B-knuckle of the rear derailleur. Make sure there is a noticeable "click" to confirm proper engagement of the wire. Tighten the pinchbolt for the wire with a 1.5mm hex wrench to 3-5 Nm.	1.5mm TORQUE 3-5nm

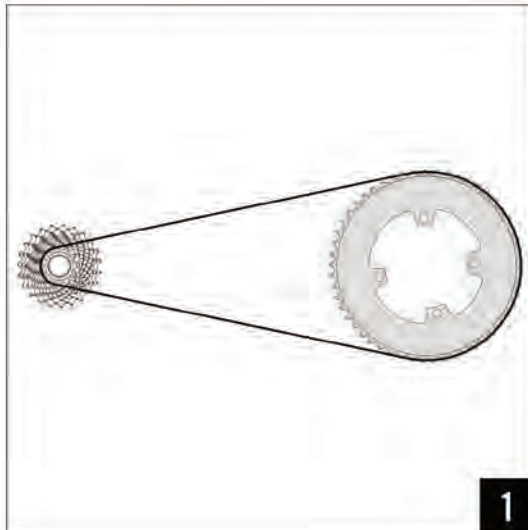
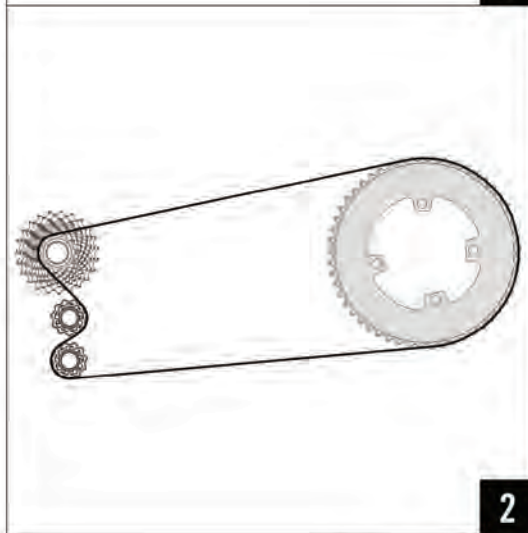
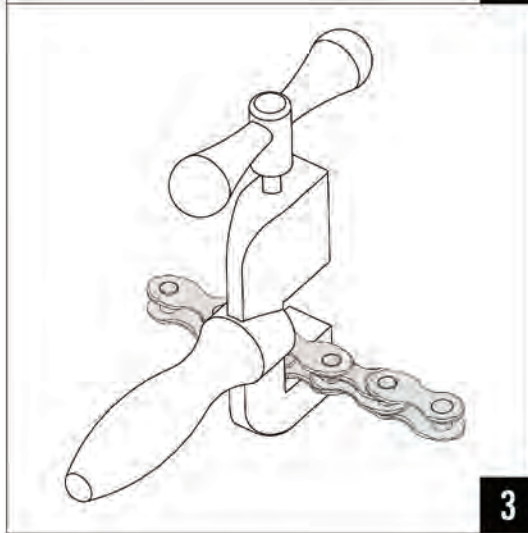
Battery Installation

	Insert battery in the battery adaptor.	
	Fully insert the battery and adaptor in the seatpost and check that it is secure.	
	Plug the derailleur wires in to the battery terminal leads. Either lead can work for either wire.	

Battery Installation

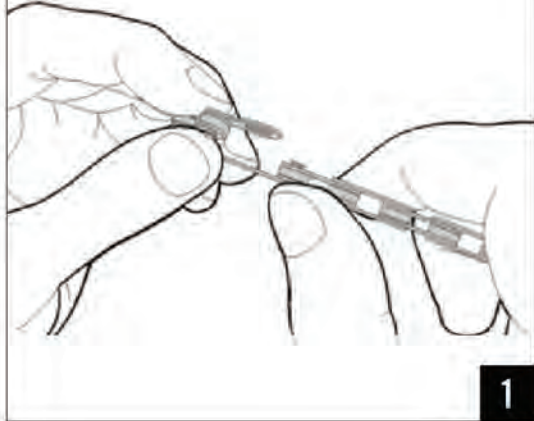
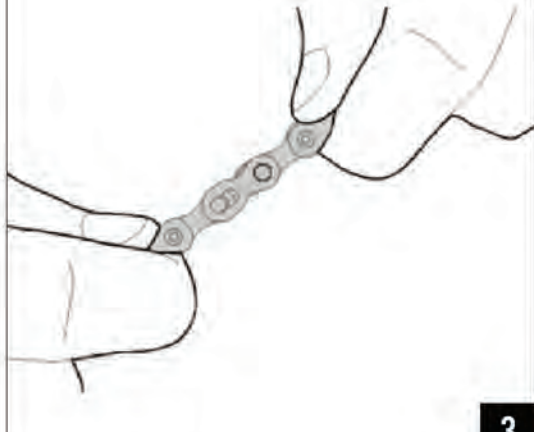
 4	Wrap electrical tape of the battery connections. Do not use more than “TWO” layers since possible lack of space inside the seat tube could cause damage and kinking to the wires.	
 5	Make sure to keep the wires straight when inserting into the seat tube.	
 6	When inserting the seat post with battery and wiring connection into the seat tube, be cautious to not compress and damage wiring connection in the seat tube. This can cause wiring connection to be deformed and then the Front and Rear Derailleurs are not working properly.	

Chain Installation

 1	Install the chain around the big chainring and smallest cog. Route it through rear derailleur cage.	
 2	In this position, bring the two ends of the chain together until the derailleur cage is vertical. This is the correct chain length.	
 3	Use a chain tool to cut the chain to the correct length	

Chain Installation

Chain lock

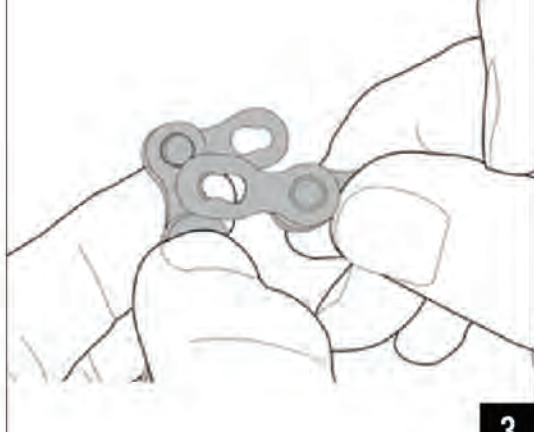
 1	Insert the plates of the Drive Link on opposing sides of each chain end.	
 2	Insert and hook the drive link pins into the opposite plate.	
 3	To snap Drive Link in locked position, rotate crank until Drive Link is above the chainstay. Hold the rear brake and firmly push the crank forward.	

TIPS

Make sure Drive Link snaps in to locked position before use.

Chain Installation

Unlock the chain

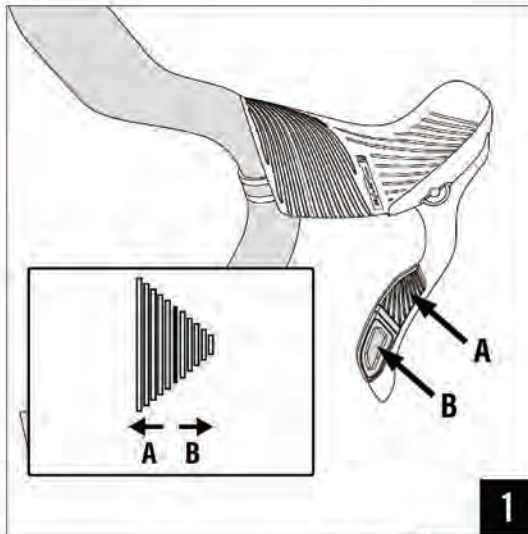
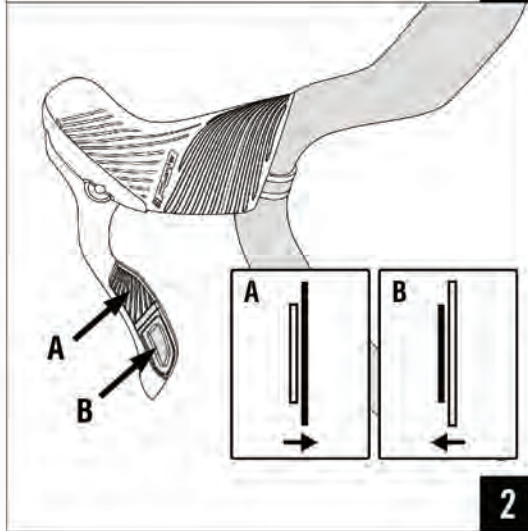
 1	To disconnect the Drive link, isolate the link.	
 2	Firmly squeeze the link bushings together so that the pins and plates decouple.	
 3	Pull the plates apart.	

TIPS

Drive Link cannot be reused if removed. Use a new Drive Link to reassemble.

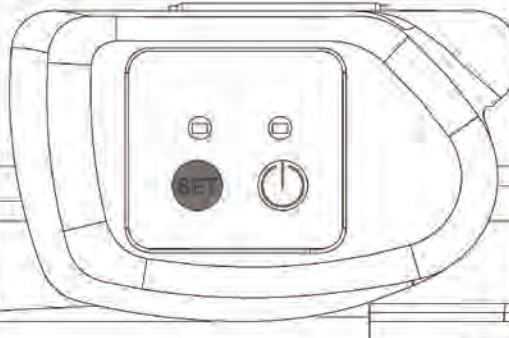
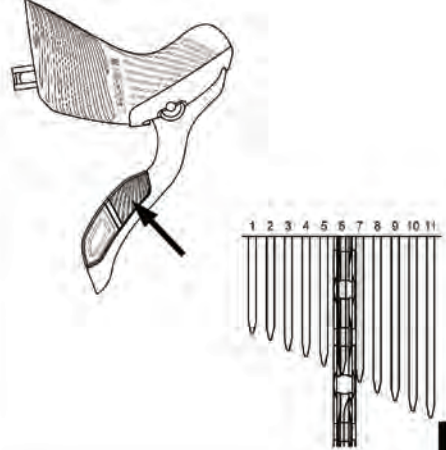
How to operate

Gear position control

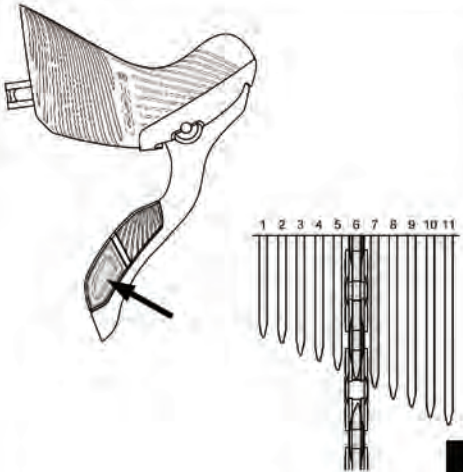
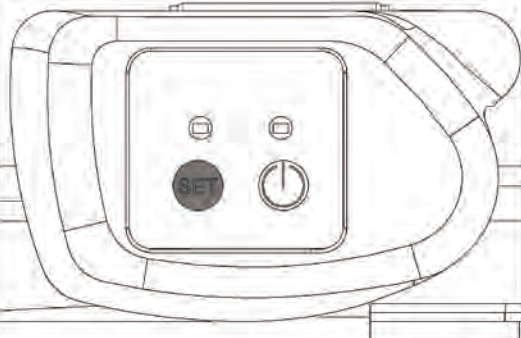
 1	The right shifter controls the movement up and down the cassette. Press button A to move toward the big cogs, button B to move toward the small cogs.	
 2	The left shifter controls the front derailleur on the front chainrings. Button A will shift to the big ring, button B to the small ring.	

How to operate

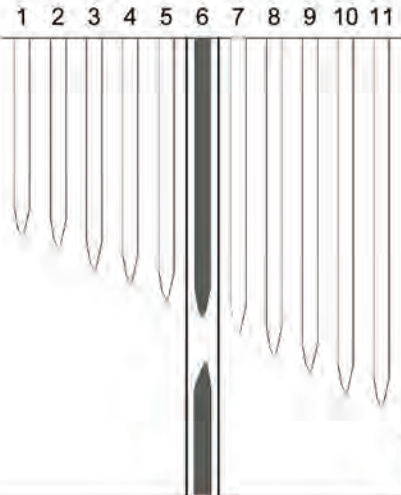
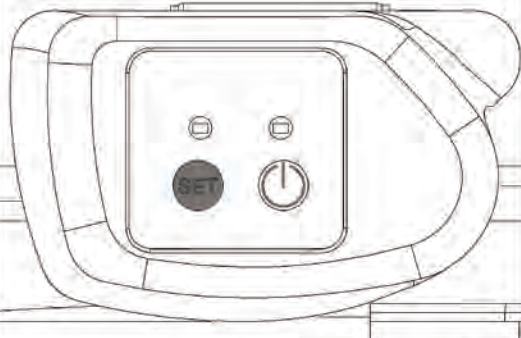
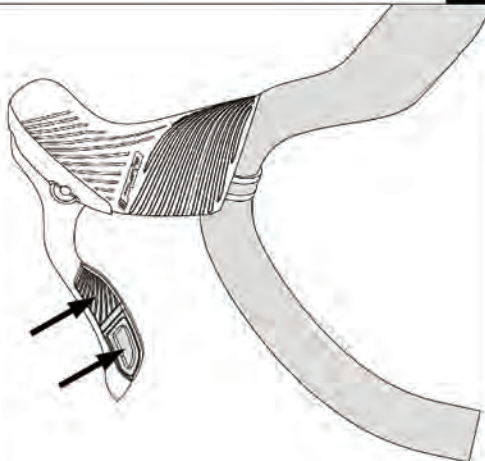
Rear Derailleur(RD-ED-8412) Adjustment

 1	Shift the chain to the small chairing. Shift the rear derailleur to the center (6th) cog.	
 2	Enter set mode by pushing and holding the SET button for 2 seconds. Both LEDs will blink green.	
 3	Rotate the crank and micro-shift the rear derailleur up until the chain begins to rub on the next cog.	

Rear Derailleur(RD-ED-8412) Adjustment

 4	Move the RD three micro-steps back and double check the alignment — The upper jockey pulley on the rear derailleur should be in line with the center cog.	
 5	Push and hold the SET button for 2 seconds to exit the mode. The green light will stop blinking and the rear derailleur zero position will be saved.	

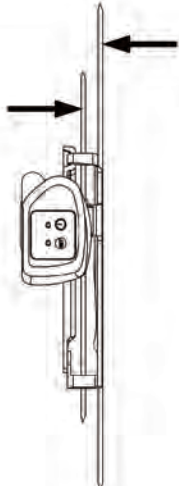
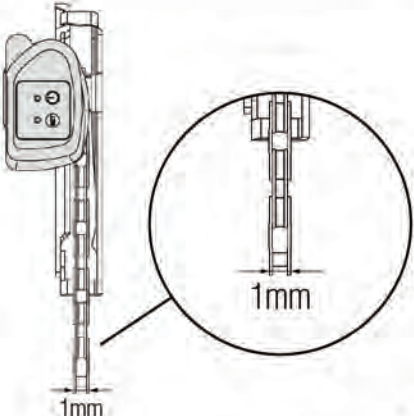
Front Derailleur(FD-ED-8412) Adjustment

 1	Shift the rear derailleur to the center (6th) cog.	
 2	Enter set mode by pushing and holding the SET button for 2 seconds. Both LEDs will blink green.	
 3	Press either front shifter button to enter the front derailleur adjustment mode.	

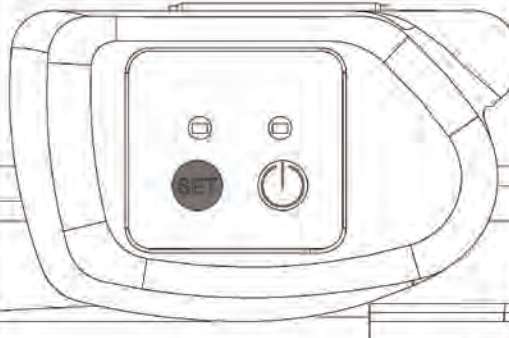
TIPS

- 1.Enter the front derailleur adjustment mode (By factory default is the left one but you can change it in the WE Dashboard Software).
- 2.Rotate the crank when pressing the front derailleur button. The front derailleur will shift when the button is pressed, so make sure the chain can change rings if required.

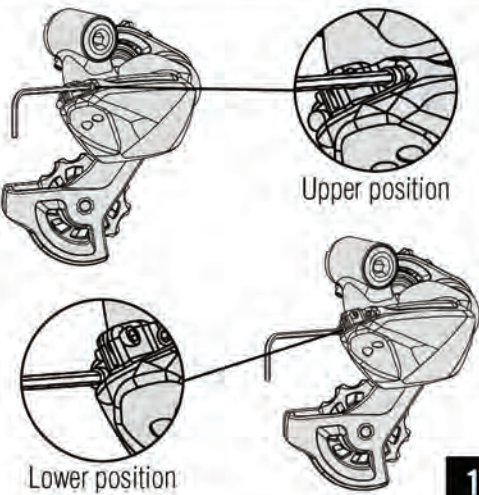
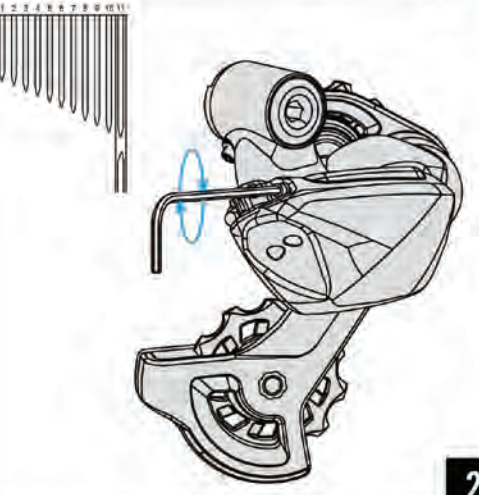
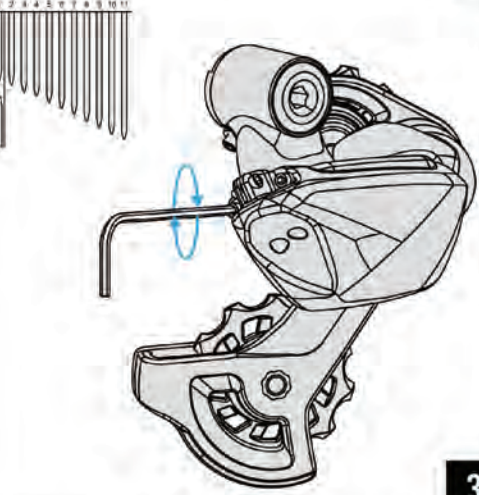
Front Derailleur(FD-ED-8412) Adjustment

 4	The front derailleur will move in to the gear selected.	
 5	Micro-adjust the front derailleur position using the REAR shifter. Shift between chainrings using the front shifter.	
 6	Big chainring adjustment: Using the REAR shifter, adjust the derailleur cage plate position. Ensure 1mm of clearance (not more) between the outer derailleur cage plate and the chain.	

Front Derailleur(FD-ED-8412) Adjustment

 7	Small chainring adjustment: Using the REAR shifter, adjust the derailleur cage plate position. Ensure approximately 1mm (not more) of clearance between the inner derailleur cage plate and the chain.	
 8	When both inner and outer positions are adjusted properly, exit set mode---push and hold the SET button for 2 seconds. The green light will stop blinking and the front derailleur zero position will be saved.	

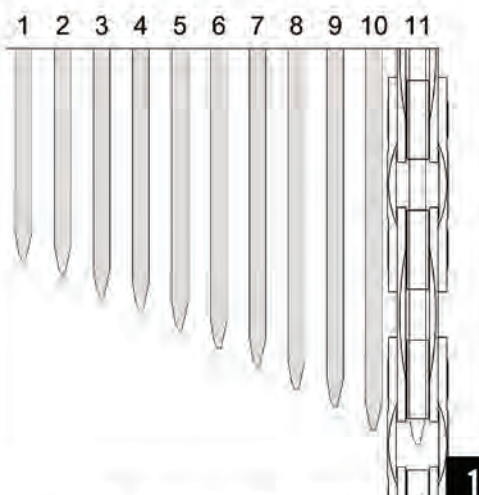
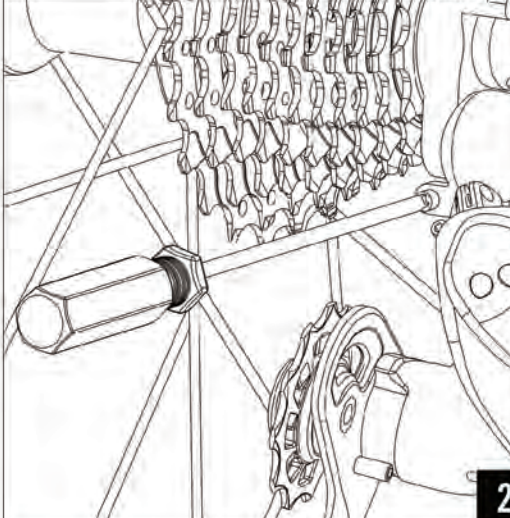
Limit Screw Adjustment

	After aligning both derailleurs proceed with the limit screw adjustment. There are two screws on the back, one for lower and one for upper limit adjustment.	
	Upper Position Adjustment: To adjust the upper position limit, shift the rear derailleur to the largest cog. Then tighten the upper position screw (outermost screw) until it touches the internal stop. Back the limit screw off a half-turn.	
	Lower Position Adjustment: To adjust the lower position limit, shift the rear derailleur to the smallest cog. Then tighten the lower position screw (innermost screw) until it touches the internal stop. Back the limit screw off a half-turn.	

TIPS

Do not tighten the limit screw against its stop. Tightening may result in reduced performance or damage to RD internals.

B-tension Screw Adjustment

	Shift the rear derailleur to the largest cog.	
	Adjustments: Turn the screw clockwise: To increase space between the pulley and the cog. Turn the screw counterclockwise: To decrease the space between pulley and the cog.	

TIPS

- 1. B-tension screw adjustment must be set after all derailleur and limit screw adjustments. B-tension screw adjustment optimizes the distance between the upper jockey pulley and cassette cogs.
- 2. For optimal shifting, move the pulley as near as possible to the cog without making contact.
- 3. When B-tension is set, double check RD functionality and adjustment. If RD need adjustment, repeat the adjustment process.