



KFORCE
WE

USER'S MANUAL AND INSTRUCTIONS



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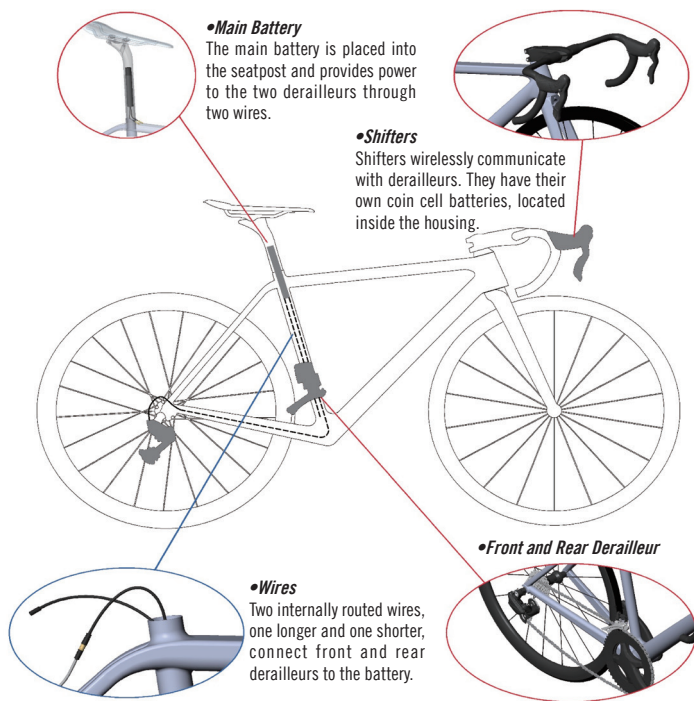
1. Introduction

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.

2. Drivetrain Parts

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 effectuated using wires.

The different parts of the drivetrain will be explained in this section.



3. Tools and Supplies

⚠ CAUTION

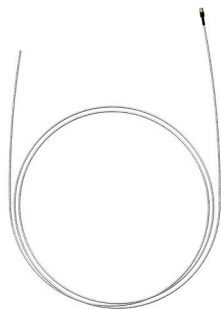
FSA recommends installation of WE Drivetrain to be performed by a highly experienced bicycle mechanic.

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

- Hex wrench sizes (1.5 mm, 2 mm, 5 mm)
- Torque wrench (2-14 Nm range)
- Phillips screwdriver size PH2
- FSA cable guide tool
- 11sp compatible chain rivet tool
- Light grease

FSA recommends using the following protective equipment for your own safety:

- Protective glasses
- Latex or Nitrile gloves

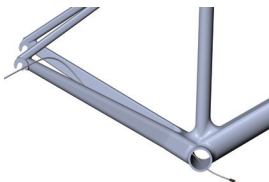


4. Frame Preparation

Before to start assembling the drivetrain you will have to insert the wires for Front Derailleur FD and Rear Derailleur RD inside your frame. Any frame compatible with DI2 internal wire specification will be compatible also for WE wire routing.

RD Wire Routing

Insert the wire guide tool in the rear chainstay to the BB shell as per picture below



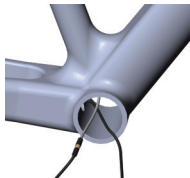
Connect the RD wire to the female plug of the wire guide tool.



Pull the wire guide to thread the RD wire inside the rear chainstay

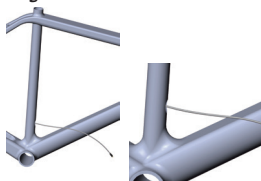


Unplug the wire guide and slide it inside the seat tube from the BB shell as per picture below.

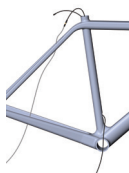


Connect the wire to the wire guide tool and pull up through the seat tube.

FD Wire Routing



Slide the wire guide tool through the FD routing hole into the seat tube.



Connect the FD wire and pull up through the seat tube.

Bottom Bracket and Crankset mounting

For BB and crankset mounting, check the dedicated FSA instructions.

5. Drivetrain Installation

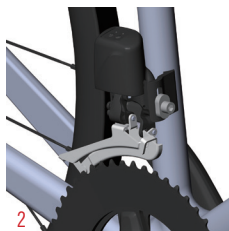
Before assembling the drivetrain, install Front Derailleur (FD) and Rear Derailleur (RD) wires. WE wires are compatible with industry standard internal wire routing.

FD Installation



1

Install the front derailleur on frame braze-on using supplied.



2

End of sentence in point 1. Snug the bolt enough to hold derailleur in position.



3

Adjust the derailleur height so the gap between outer cage and large chainring is 1 to 3 mm. See image 3



4

When gap is set, rotate the derailleur so the cage position is parallel with the chainrings. See image 4



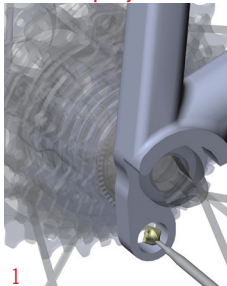
5

When derailleur position is correct, tighten the derailleur bolt to 5-7 Nm.

RD Installation

⚠ CAUTION

Rear derailleur must not be forced out of position during installation. Install RD in its set position.
Avoid interference between pulleys or B-tension screw and the dropout during installation.



1
Apply a small amount of grease on the derailleur hanger threads



2
Using a 5 mm hex wrench, screw the derailleur in to the hanger. Tighten the derailleur bolt to 5-7 Nm.

Shifters Installation



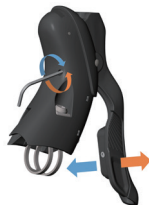
1
Install the shifter on the handlebar as shown in image 1. Position the shifter according to preference.



2
Roll the shifter hood forward to expose the shifter clamp bolt. Tighten the bolt with a 5 mm hex wrench to 6-8 Nm.



3
Install the brake cable and housing.



4
Adjust the lever reach using a 2mm hex wrench, as shown in image.

Battery Installation



1

Insert battery in the battery adaptor.



2

Fully insert the battery and adaptor in the seatpost and check that it is secure.



3

Plug the derailleur wires in to the battery terminal leads. Either lead can work for either wire.

Chain Installation

Follow below instruction depending on which cage you use on rear derailleur.

Using short cage

To adjust chain length, use the following procedure if your rear derailleur is mounted with short cage.

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

Using long cage

To adjust chain length, use the following procedure if your rear derailleur is mounted with long cage.

1. Install the chain around the big chainring and the biggest cog.
2. Pull the chain tight over these two cogs and add one full link (one outer and one inner).

This is the correct chain length.

3. Use a chain tool to cut the chain to the correct length.

Chain lock

If it has not already be done, route the chain through rear derailleur cage.

Follow below operating list for install the Drive Link and lock the chain

1. Insert the plates of the Drive Link on opposing sides of each chain end. (Fig.1) Insert and hook Drive Link pins into the opposite plate. (Fig.2)
2. 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. (Fig.3)

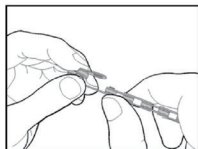


Fig.1

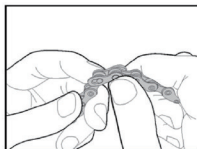


Fig.2



Fig.3

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

To unlock the chain for replacement or other operation, follow below instructions:

1. To disconnect the Drive link, isolate the link. (Fig.4)
2. Firmly squeeze the link bushings together so that the pins and plates decouple. (Fig.5)
3. Pull the plates apart. (Fig.6)

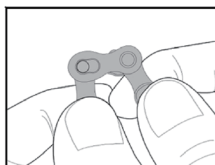


Fig.4

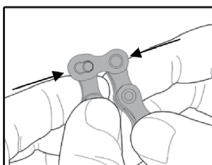


Fig.5

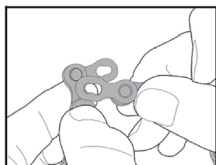


Fig.6

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

6. Pairing

Follow the procedure below for new shifter pairing:

Press SET



1

With the drivetrain on, push the SET button until both LEDs illuminate green –the system is now in SET mode.



2

Roll the shifter hood forward to expose the transmitter cover.



3

To put the shifter in pairing mode push and hold the pairing switch and simultaneously push either shifter button.



4

When the shifter enters pairing mode, the pairing button will illuminate red.



5

With the shifter in SET mode, press the Power button on the FD until both the LEDs illuminate blue.

6

When pairing is complete, the red LED on the shifter will blink and turn off. The pairing is complete.

7

Repeat the procedure for the other shifter.

7. Usage and Adjustments

Power On

Push and hold the power button. The LED lights will blink red-blue. When the LED lights flash blue, WE is on. Release the power button. Push each shift button once to activate them.

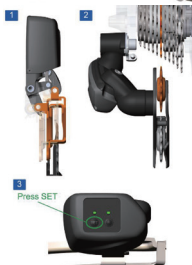
Power Off

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

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.

Rear Derailleur Alignment

1. Shift the chain to the small chainring.
2. Shift the rear derailleur to the center (6th) cog.
3. Enter set mode by pushing and holding the SET button for 2 seconds. Both LEDs will blink green.
4. Press rear shifter button to enter the rear derailleur adjustment mode (by factory default is the right one but you can change it in the WE Dashboard Software.) In this mode, the rear derailleur will operate in micro-steps.
5. Set the rear derailleur zero position:
 - a. Rotate the crank and micro-shift the rear derailleur up until the chain begins to rub on the next cog.
 - b. Move the RD three micro-steps back.
 - c. Double check the alignment — The upper jockey pulley on the rear derailleur should be in line with the center cog.
6. Exit set mode---push and hold the SET button for 2 seconds. The green light will stop blinking and the rear derailleur zero position will be saved.



Front Derailleur Alignment

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 (by factory default is the left one but you can change it in the WE Dashboard Software).
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.
 - a. 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.
 - b. 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.
6. 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 Screws Adjustment

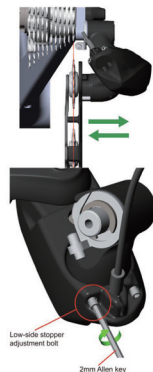
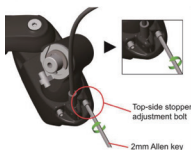
After both derailleurs alignment it is needed to proceed with the limit screws adjustment. There are two screws for upper and lower position, positioned in the back of the rear derailleur.

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.



⚠ CAUTION

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

B-Tension Screw Adjustment

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.

To adjust the B-tension, shift the rear derailleur to the largest cog.

Use a phillips screwdriver to make the following adjustments:

- Turn the screw clockwise to increase repetition pulley and the cog.

- Turn the screw counterclockwise to decrease the space between pulley and the cog.

For optimal shifting, move the pulley as near as possible to the cog without making contact.



⚠ CAUTION

When B-tension is set, double check RD functionality and adjustment. If RD need adjustment, repeat the adjustment process.

8. Battery Diagnostics

WE uses three batteries. The main battery powers the front and rear derailleurs. Each shifter is powered by a CR2032 coin cell battery.

Main battery

When WE is on, the LED 1 on the main control unit will blink every 3 seconds (customizable by We Dashboard App). Main battery level is indicated by the following LED color codes:



LED Color		Battery Level	Action
Blue		77-100%	Battery level is high, no action necessary.
Green		23-77%	Battery level is OK, charge when convenient.
Yellow		0-23%	Charge as soon as possible.
Red		0%	Charge battery immediately. FD does not work anymore. You only have 1000 shift on RD.

Shifter battery

The shift batteries are CR2032 coin cell batteries and are not rechargeable. When the battery level is low, they must be replaced. It is not necessary to replace both batteries at the same time if they are not both showing a low charge.

Each time a shift button is pressed a corresponding LED will blink on the main controller. LED 1 blinks for the right shifter, LED 2 blinks for the left shifter. The color of the LED will be related to the level of the battery.



LED Color		Battery Level	Action
Blue		77-100%	Battery level is high, no action necessary.
Green		23-77%	Battery level is OK.
Yellow		0-23%	Replace battery as soon as possible.
Red		0%	Replace battery immediately. The Shifter will stop to work.

9. Battery Charging

⚠ WARNING

Turn WE off before charging the battery.

1. Use 1.5mm hex wrench to unscrew the rear derailleur wire clamp.
2. Unplug the wire from the rear derailleur.
3. Plug the wire in to the WE charger, then plug the charger in to outlet.

The charger light will be red while charging and turn to green at full charge.

Note: The CR2032 batteries used in each shifter are not rechargeable. They will last for a long service interval and must be replaced when spent. See below battery diagnostics for details.



Shifter battery replacement

Follow the procedure below for shifter battery replacement:



Roll shifter hood forward and loosen the cover screw.



Insert a small flat blade screwdriver in the slot shown in the illustration and pry the cover up.



Once the cover is partially open insert the screw driver from the side to completely remove the cover.



Remove the coin cell battery from the holder and install new battery.

⚠ CAUTION

Make sure to respect correct polarity.

Reinstall the cover and reposition the hood on the housing.

If the other shifter battery is low, repeat the procedure for replacement.

10. Diagnostics

LED Indication	Issue	Action	Remedy
Both LEDs red steady on	Front derailleur stall		• Check that the derailleur is mounted correctly • Check the SET point
Both LEDs yellow steady on	Rear derailleur stall		• Check that the derailleur is mounted correctly • Check the SET point
LED 1 green and LED 2 red steady on	Communication absence between front and rear derailleur		• Check connections of both derailleurs. • Check wires for damage
LED 1 red and LED 2 green steady on	Failed reply from rear derailleur to front derailleur at end of movement. Probable loss of rear derailleur position		• Check the connection of both derailleurs connector. • Check the SET point

11. Battery Warning

Battery

1. Be sure to use only with 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 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 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.

12. Important Information

CAUTION

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.

FCC Compliance Statement

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

FCC RF Exposure Information

This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission for an uncontrolled environment.

ISED Compliance Statement

This device complies with Industry Canada's licence-exempt RSSs. 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.

Le présent appareil est conforme aux CNR d'Industrie 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."

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-8400

Bluetooth LE, 2402MHz~2480MHz: -5.8 dBm (e.i.r.p.)

ANT+, 2402MHz~2480MHz: -4.8 dBm (e.i.r.p.)

Model: SF-ED-8400

Bluetooth LE, 2402MHz~2480MHz: -4.1 dBm (e.i.r.p.)

ANT+, 2402MHz~2480MHz: -5.5 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, [Tien Hsin industries Co., LTD] declares that the radio equipment type [FD-ED-8400 and SF-ED-8400] is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: www.address.com/DoC.pdf

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

經型式認證合格之低功率射頻電機，非經許可，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。低功率射頻電機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。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機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。



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