EMMO
E-Wild C/ Monta C/ Vgo C

User's Manual

EN

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1.Preface

Thanks for your purchasing. This bike is an electric power-assisted bicycle(E-Bike). It is equipped with pedals and a power-assisted electric motor, which can be driven by both man power and assist of electric power.

Traditional bikes are favoured by an increasing number of people due to the increasing cost on gasoline, automotive insurance and maintenance. While inheriting these benefits of traditional bikes, electric bikes also offer you an option to use electric power to assist the pedaling when you are tired, which makes pedaling much easier.

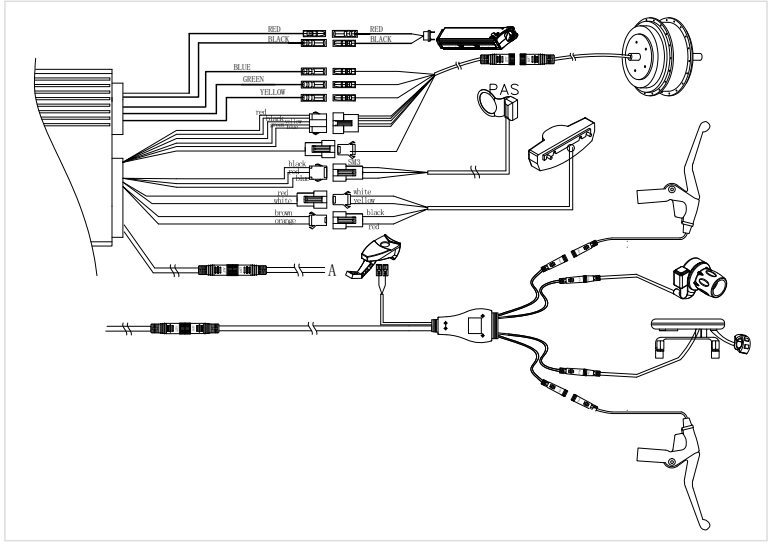
Before your first ride with your new EMMO bike, please read this user's guide carefully, know necessary safety knowledge, and quickly learn how to control and check a new bike. Also, for the safety of you and other people, please put on a helmet and other necessary riding protection equipment, and follow the local the traffic rules.

Enjoy your ride!

3.Electric System

3.1 Wiring Diagram - (Electric System)

Part.A-Front/Rear Motor



Note: The above diagram is for a typical front/rear drive system. There might be differences for different models.

3.2.1 Display - for Vgo C

1.Electrical Parameters

- ✧ 36V/48V/52V battery supply
- ✧ Rated operating current : 40mA
- ✧ Off leakage current < 1uA
- ✧ Max output current to controller : 100mA
- ✧ USB changing port : 5V 500mA
- ✧ Operating temperature : -20～70℃, Storage temperature : -30～80℃

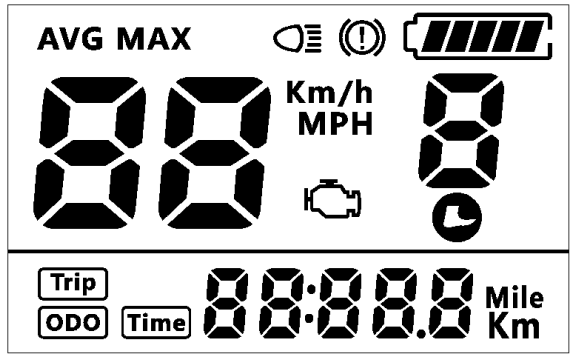
2. Dimensions & Material

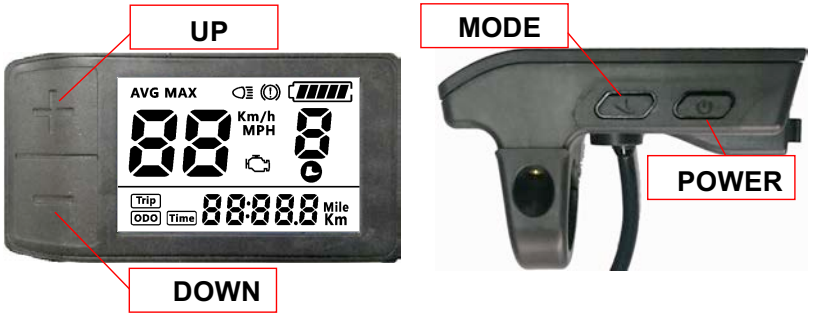
- ✧ Product Shell is made of ABS, transparent window is made with high strength Acrylic.
- ✧ Dimensions : host/L79mm*W40mm*H18mm

3. Features

- ✧ Suitable for low temperature. -20℃
- ✧ Ergonomic external button design, easy to operate.
- ✧ **Speed display:** AVG SPEED, MAX SPEED, SPEED (Real-time).
- ✧ **Kilometer/ Mile:** Can be set according to customers' habits.
- ✧ **Smart battery indicator:** Provide a reliable battery indicator.
- ✧ **9-level Assist :** UBE/3-level/5-level/9-level optional.
- ✧ **Mileage indicator:** Odometer/Trip distance/Riding time.
- ✧ **Speed limit value indicator**
- ✧ **Error code indicator.**
- ✧ **USB charging port :** 5V/500mA
- ✧ **Software upgraded:** Software can be upgraded through UART.

4. LCD Screen Instructions





5.1 Power On/Off

Hold the Power button for 1 second can turn on/off the display. The Display can automatically shut down when there is no operation /riding for X minutes (X could be 0-9).

5.2 Assist Level Adjustment

Press UP/DOWN button can change the assist level. Top assist level is 9, 0 for neutral. Level quantities can be adjusted according to the customer requirements.

5.3 Speed & Mileage Mode Switch

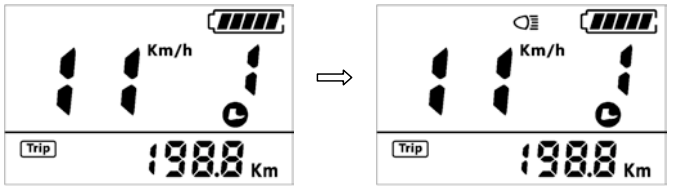
Press Power button can change the speed and mileage mode, AVGS PEED→MAX SPEED→ TRIP→ODO→TIME.

**If there is no operation for 5 seconds, display will return Speed (Real-Time) display automatically.

5.4 Headlight/Taillight ON/OFF

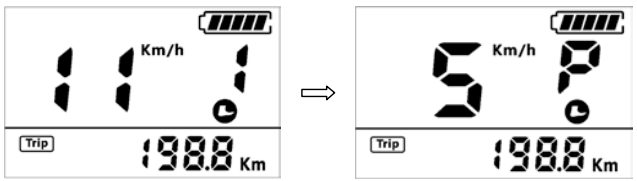
Hold Up button for 1 second can turn on/off the headlight.

*The motor does not work when the battery voltage is low, But display can still keep the headlight on for a while when E-bike is in riding.



5.5 Walking Mode

Hold Down button can get into walking mode (the bike will run at approximately 6 km/h automatically). Release the button will get out of the waliking mode



* This feature needs to be supported by the controller.

5.5 Temporary Data Reset

Hold Up and Down buttons simultaneously for 1 second can reset several temporary data, including **AVG Speed / MAX Speed / Trip / Time.**

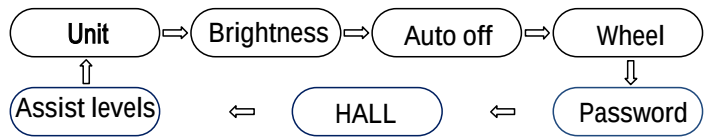
* These temporary data can't be erased by power off.

6. Parameter setting

Hold Mode button (press no less than 2 second) can get into the setting menu, press Up/Down button to change the parameter setting, and press Mode button can switch to next parameter. Hold Mode button (press no less than 2 second) can exist from the setting menu.

The first setting is Trip Information Reset, press Up/ Down button to switch between Y (reset) and N (do not reset), press Mode button to confirm the selection.

The order of parameters is as follow.

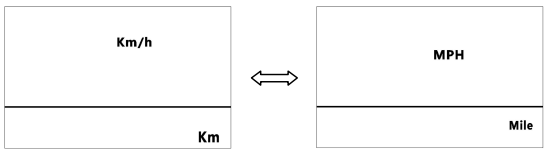


* Display will automatically quit menu when there is no operation for 10 seconds.

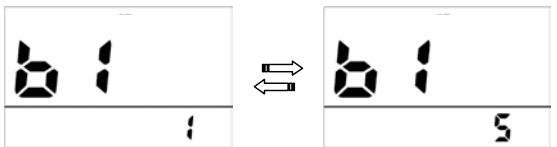
* For safety reasons, display can't get into MENU when riding.

* Display will quit MENU when start riding.

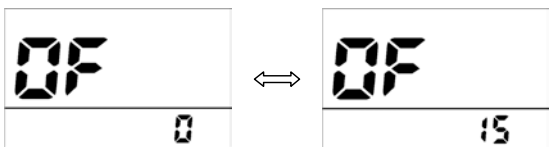
6.1 Unit (S7): Press Up / Down button to switch between Metric / Imperial.



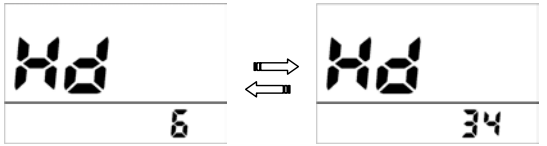
6.2 Brightness (b1): Press Up / Down button to change the brightness of the backlight. 1 is the dimmest. 5 is the brightest.



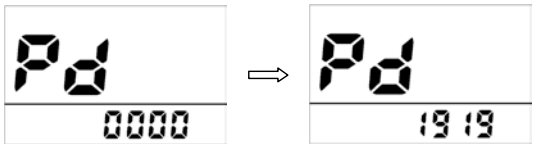
6.3 Auto off (OF): Press UP/DOWN button to change the auto power off time, from 0 to 15. The number stands for the time (in minutes) to shut down. OFF means disable auto off function, default setting is 5 minutes.



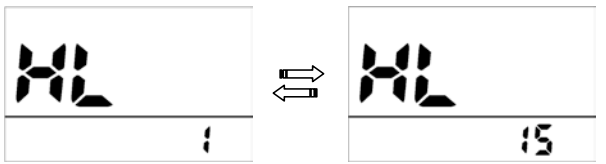
6.4 Wheel (Hd): Press Up/Down can change the wheel size setting, optional wheel diameter ranges from 6 to 34 inch.



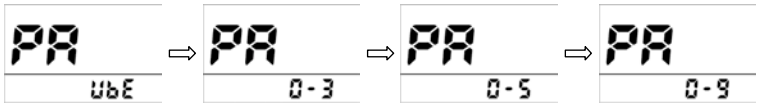
6.5 Password(Pd): Press Mode button can get into the advance setting menu, default password is '1919'



6.6 HALL (HL): Magnetic poles inside the motor, press Up/Down will change pole.



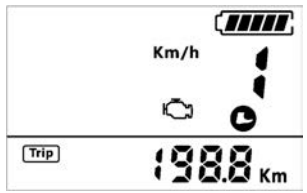
6.7 Pedal-Assist Level (PA): This parameter can customize assist levels, options are UBE/3/5/9.



7. Error Code define

The speedometer can show warning message, icon shows on the screen, and show error code at the bottom of the screen, error code is from 01 E~0nE, and the definition see the table below.

Error Code	Error description	Error display
0x01	Normal	No error
0x03	Brake signal	No error
0x04	Throttle on high position	Display 04H on speed position
0x06	Low voltage protection	Display 06H on speed position
0x07	High voltage protection	Display 07H on speed position
0x08	Motor's hall sensor error	Display 08H on speed position
0x09	Phase line of motor error	Display 09H on speed position
0x10	Controller over temperature	Display 10H on speed position
0x11	Motor over temperature	Display 11H on speed position
0x12	Current sensor error	Display 12H on speed position
0x13	Battery's temperature sensor error	Display 13H on speed position
0x14	Motor's temperature sensor error	Display 14H on speed position
0x21	Speed sensor error	Display 21H on speed position
0x22	BMS communication error	Display 22H on speed position
0x30	Communication error	Display **30H** on speed position



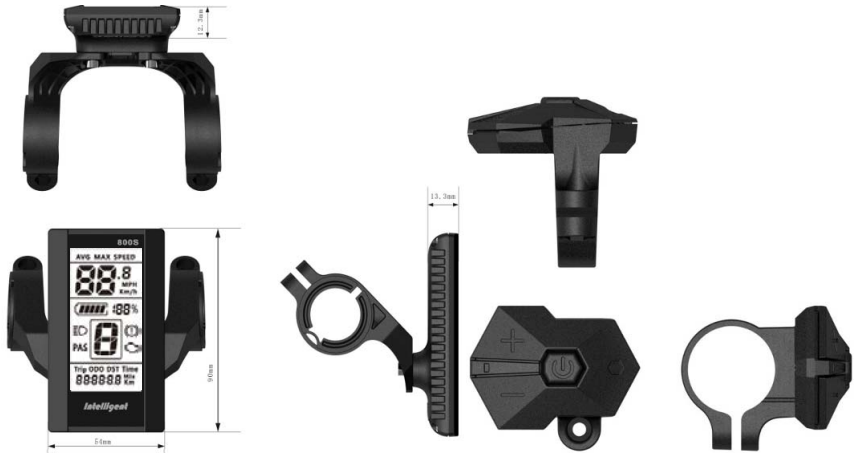
3.2.1 Display - for Monta C /E-Wild C

1.Electrical Parameters

- ✧ 24V/36V/48V battery output
- ✧ Rated operating current : 10mA
- ✧ Max Operating current: 30mA
- ✧ Off leakage current < 1uA
- ✧ Max output current to controller : 50mA
- ✧ Operating temperature : -30～70℃, Storage temperature : -40～70℃

2. Dimensions & Material

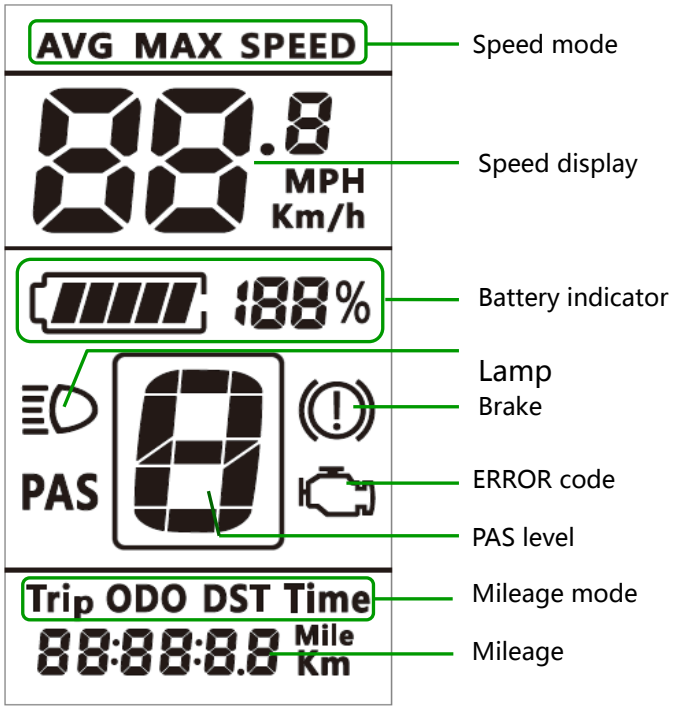
- ✧ Product Shell is made of ABS, transparent window is made with high strength Acrylic.
- ✧ Dimensions : host/L90mm*W54mm*H13.3mm



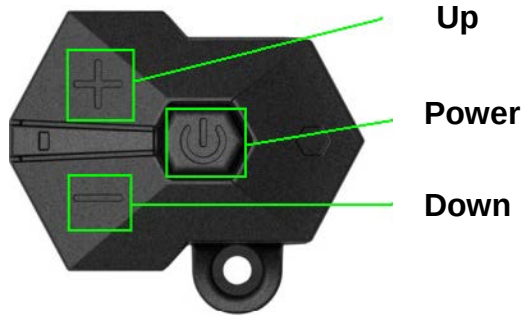
3. Features

- ✧ **Suitable for low temperature，Max -30℃.**
- ✧ Ergonomic external button design, easy to operate.
- ✧ **Speed display:** AVG Sped, Max Speed, Real-Time Speed.
- ✧ **Kilometer/Mile:** Can be set according to customers' habits.
- ✧ **Percentage battery indicator:** Provide an accurate and reliable battery indication.
- ✧ **9-level Assist :** UBE/3-level/5-level/9-level optional.
- ✧ **Mileage indicator:** Odometer/Trip distance/Riding time.
- ✧ **Speed limit value indicator**
- ✧ **Error code indicator.**
- ✧ Parameter settings: Multiple parameters can be set, including Pedal-Assist level, wheel diameter, voltage, speed limit, etc.

4. LCD Screen Instructions



5. Function Description

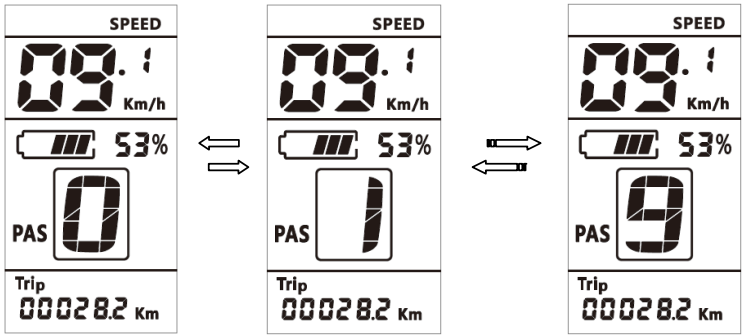


5.1 Power On/Off

Press and hold Power button for 1 second, then display will work and controller power supply turn on. During the working mode, if press and hold Power button for 1 second, then display will stop and controller output will be cut off. If no futher action to display within 5 minutes(could be set), display will cut off automatically and power output cut off.

5.2 Pedal-Assist Level Selection

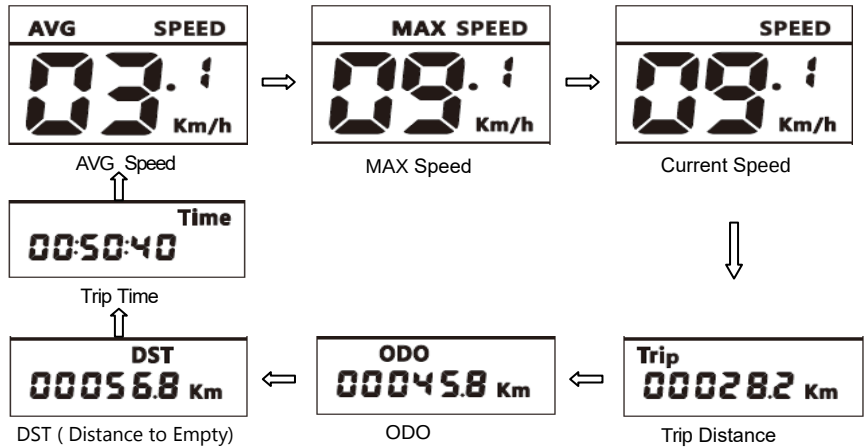
Press Up/ Down button to change the assist level. There are 5 level of assistance by default. 0 level means no assistance at all.



5.2 Pedal-Assist Level Selection

Press Power button can change the indicated information on the dashboard.

Average Speed->Max Speed->Actual Speed->Single Trip ->ODO->DST-> Time.

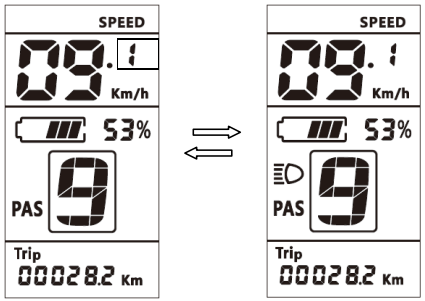


Speed Mode & Mileage mode Interface

* If there is no operation for 5 seconds, display will return to current speed automatically.

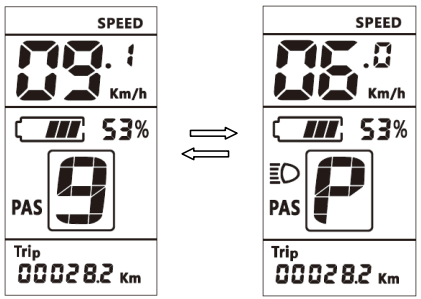
5.4 Headlight/ Taillight On/Off

Hold the Up button for 1 second, to turn on the headlight and taillight. Hold the Up button for 1 second again to turn off the lights



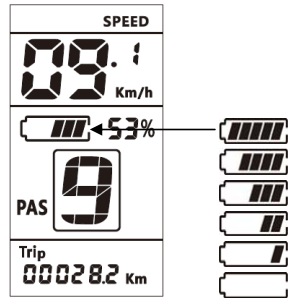
5.5 Walking Mode

Hold the Down button for 2 second to turn on the walking assistance. The bike will ran automatically at approximately 5km/h. Release the Down button can exit the walking assistance.



5.6 Battery Strength Indication

5 bars to show the battery strength. If the battery level is low, there would be no bars showing in the display, which means the battery needs to be charged immediately.



5.7 Data Reset

Hold Up and Down buttons together for 1 second can reset several temporary data including Max Speed/ AVG Speed / Trip Distance / Trip Time.

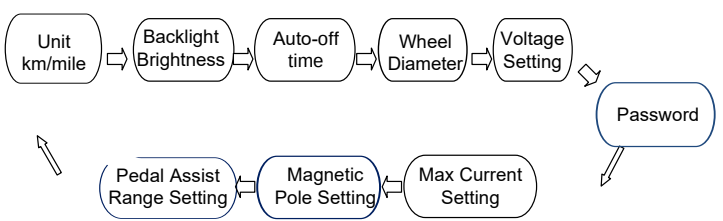
* Simply turning the bike off will not reset the temporary data.

5.8 Parameter Setting

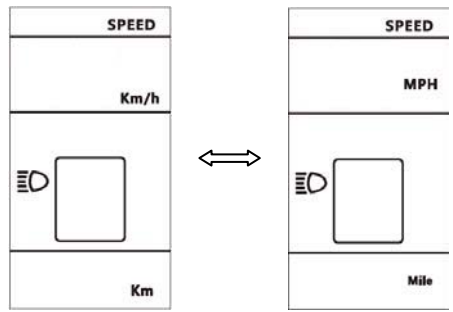
When the system is on, double press Power button (press interval < 0.3 second) can get into parameter setting menu. You can change some parameters in the setting menu. Press Up/Down button to change the detailed setting. Press Power button to switch to the next parameter.

* The display will automatically exit the parameter setting menu if there is no operation for 10 seconds.

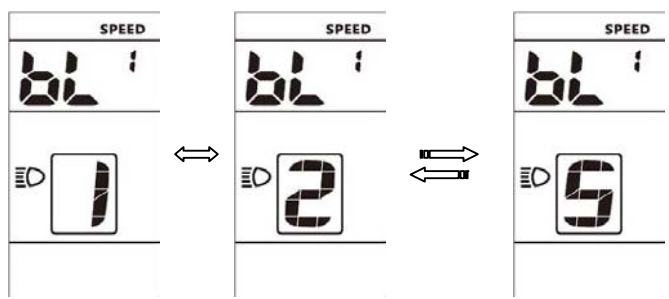
The order of the parameters is as follows:



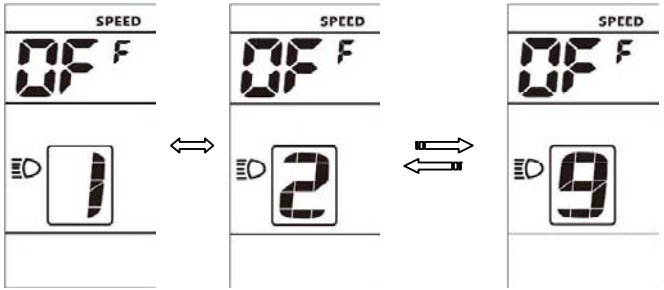
✧ **Unit (Kilometer / Mile)** : The display shows symbol S7, press Up/Down button to change the selection (km/h or mile/ h).



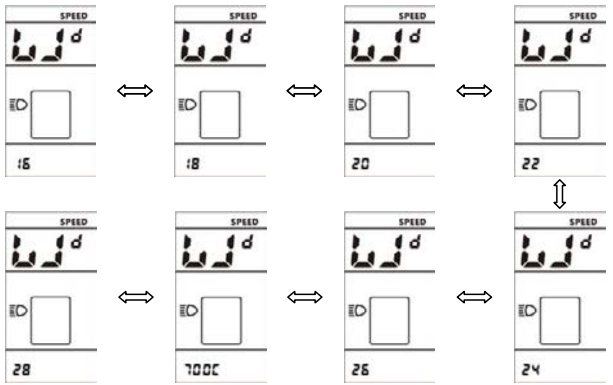
✧ **Backlight Brightness**: The display shows symbol bL1, press Up/Down button to change the selection (1-5).



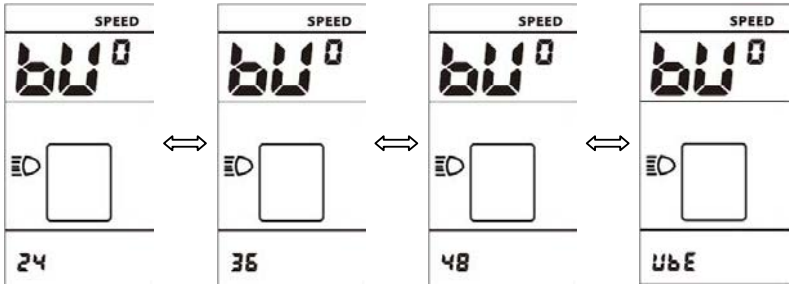
✧ **Auto Off Time**: The display shows symbol OFF, press Up/ Down button to change the selection (1-9). The number indicates the delay time in minutes before the display shuts down automatically.



✧ **Wheel Diameter**: The display shows symbol Wd, press Up/Down button to change the selection (16/18/20/22/24/26/700C/28). The number indicates the diameter of the wheel (in inch). Wrong value for wheel diameter will cause speed & mileage abnormal.

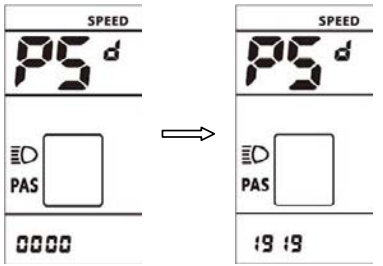


✧ **Voltage Setting**: The display shows symbol bUo, press Up/Down button to change the selection (24V/36V/48V/ UbE). UbE means user-defined voltage setting, this parameter can be set through computer.

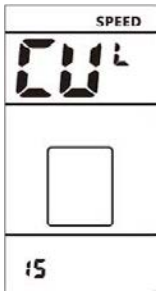


✧ **Enter Password for Advanced Setting**: The display shows symbol PSd, press Up/Down button to change the value(0-9). Press Power button to switch to the next digit. Default password is'1919'. Press Power button when finishing entering the password. Display will return to voltage setting if the password is incorrect. Correct password will enter the advanced setting menu.

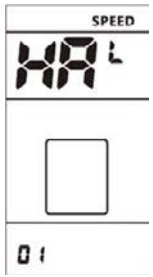
*Improper adjustment of the advanced setting parameter can result in malfunction of the bike or even damage to the bike. Please make sure you completely comprehend the meaning the each parameter.



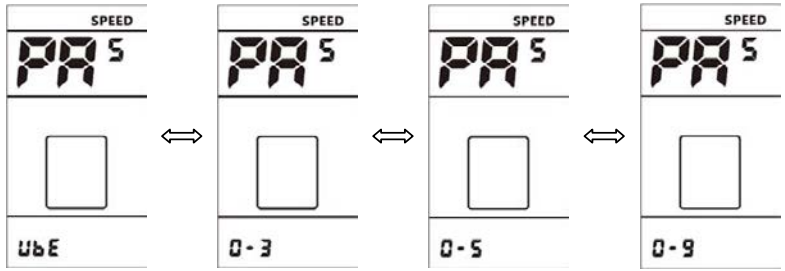
✧ **Max Current Limit**: The display shows symbol CUL The default value is 25A. Press Up/Down button to change the value.



✧ **Magnetic Pole number of the Hall Sensor**: The display shows symbol HAL. The default value is 1. Press Up/Down button to change the value.

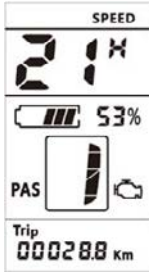


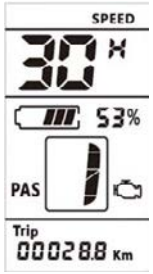
✧ **Range of Assistance Level Setting**: The display shows symbol PAS. Press Up/Down button to change the value (0-3 / 0-5 / 0-9 / UbE).



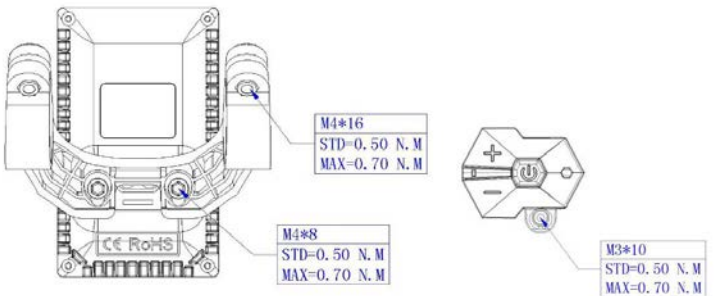
6. Error Code Definition

Error Code	Error description	Measures
0x21	Current abnormal	/
0x22	Throttle error	Check turn to connect.
0x23	Motor phase lost	/
0x24	Motor hall error	Check the hall connection
0x25	Brake error	Check the brake connection.
0x30	Controller communication error	/
0x31	Battery communication error	/





7. Assembly Instructions



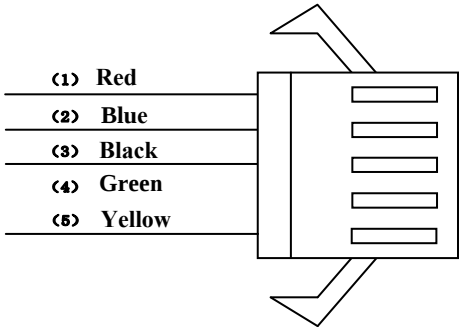
The bracket can be installed in two different ways, as shown in the picture below. Different installation will depend on the length of the speedometer cable.

The bracket can be installed on handlebar with a diameter of 31.8mm, 25.4mm and 22.2mm. The adaptor rings must be installed for 25.4 mm and 22.2mm handlebars.

8. Pedal Assistance Level Explanation

3 level	5 level	9 level	Description
0		0	No power assist
	1	1	
		2	
1	2	3	
		4	
	3	5	
2		6	
	4	7	
		8	
3	5	9	

9. Output Wire Diagram



1、 Red wire： Anode(24v/36v)；

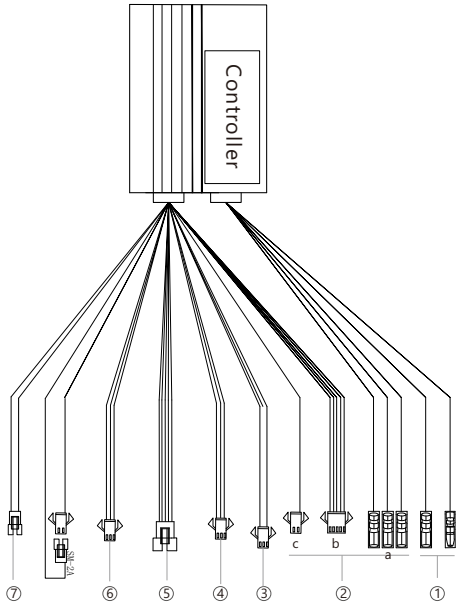
2、 Blue wire： Power cord to the controller；

3、 Black wire：GND；

4、 Green wire： RxD (controller -> display)；

5、 Yellow wire： TxD (display -> controller)；

3.2.2 Controller



Specifications

1.Power : red:V+
black :V-
2.Motor : a-b-c motor cable
3.Brake: brake signal GND
4.Throttle: 5V+ throttle signal GND
5.Display: red black yellow green blue
6.Sensor： red yellow blue
7.Front light

Note: The above wiring diagram is indicative only. There might be differences for different models.

3.2.3 Pedal-Assist System

Specifications & Reliability

. Rated Voltage : 4.5-6V (DC)
. Current without brake : <5mA
. Current with brake : <6mA
. lead tension : >20N
. Corresponding time when brake : <0.001S
. corresponding distance : 2.3mm
. Hall electrical life : >20M times
. Insulation wet condition : >20M ohm
. Insulation dry condition : >2M ohm

Connector & Cable

. The connector can be customize
. Red: +5V , Yellow: GND
Blue: pulse Signal.

Note: The above information is for the specification of the Dual-Hall sensor and 12 magnet dot disk. There might be difference for different models.

3.2.4 Motor

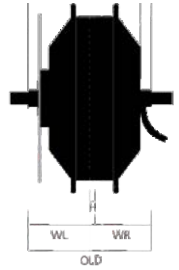
Specifications

Front - Motor

SWXK6

.Wheel Diameter (inch) : 20/26/27.5/28
. Construction : Gear drive
. Rated Viltage : 36/48
. N0 (RPM) : 290; 250
. Rated Power (W) : 250-750W
. NT(Rpm) : 255;220
. Max Torque : 32-50 N.M
. Efficiency (%) : ≥80
. Color : Black/Silver
. Weight(kg) : 3.0
. Noise Grade (dB) : <55
. Operating Temperature : -20-45℃

Mounting Parameters



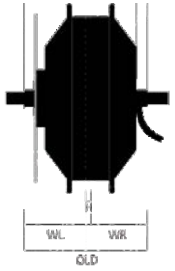
. Brake : Disc Brake
. Installation Widths (mm/OLD) : 100
. Max. Housing Diameter(mm) : 134
. Cabing Route : shaft Side , Right
. Cable Length(mm),Connection
. Type : 250 G9.1
. Spoke Specification : 36H *13G

Further Specifications

. Speed Detection Sifnal (Pulses/Cycle): 6
. Reduction Ratio : 1:4.42
Magnet Poles (2P) : 20

Rear - Motor

SWX02



Specifications

. Wheel Diameter (inch) : 26/27.5/28
. Construction : Gear drive
. Rated Viltage : 36/43/48
. N0 (RPM) : 325; 245
. Rated Power (W) : 250-750W .
NT(Rpm) : 290;205
. Max Torque : 45-80 N.M
. Efficiency (%) : ≥80
. Color : Black/Silver
. Weight(kg) : 3.4
. Noise Grade (dB) : <55
. Operating Temperature : -20-45℃
Mounting Parameters
. Brake : Disc Brake
. Installation Widths (mm/OLD) : 135
. Max. Housing Diameter(mm) : 158.5
. Cabing Route : shaft Side , Right
. Cable Length(mm),Connection
. Type : 250 G9.1
. Spoke Specification : 36H *13G
Further Specifications
. Speed Detection Sifnal (Pulses/Cycle): 6
. Reduction Ratio : 1:5
Magnet Poles (2P) : 20

3.2.4 Throttle

Specifications
. Model : 23X
. Function : 3 core wires red: +5V/ black: GND/white signal.
. Material : ABS & PVC
. Voltage : hall tube 1-4v or 41V
. Structure : one switch

. Model : 21X
. Function : 3 core wires red:+5V/ black: GND/white: signal.
. Material : ABS & PVC
. Voltage : hall tube 1-4v or 4 1V
. Structure : one switch

. Model : 76X
. Function : 3 core wires red:+5V/ black: GND/white: signal.
. Material : ABS & PVC
. Voltage : hall tube 1-4v or 4 1V
. Structure : one switch

3.2.5 Motor

Mid - motor

Specifications

. Wheel Diameter (inch) : 20/26/27.5/28
. Construction : Gear drive
. Rated Viltage : 36/43/48
. N0 (RPM) : 101/112/112
. Rated Power (W) : 250W
. NT(Rpm) : 92/101/103
. Max Torque : 80 N.M
. Pedal sensor : Speed and torque Integrated
. Shift and standard : JIS
. Efficiency (%) : ≥80
. Color : Black/Silver
. Weight(kg) : 3.9
. Noise Grade (dB) : ＜55
. Operating Temperature : -20-45℃

Function

. E-bike : Yes
. Gearsensor Function : Yes
. Light Drive Capacity (DCV/ W): 6 / 3(Max)

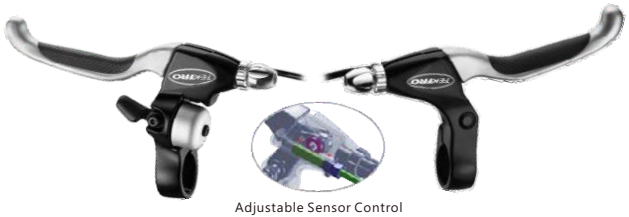
Further Specifications

. Speed Detection Sifnal (Pulses/Cycle): 1
. Reduction Ratio : 1:33.4
Magnet Poles (2P) : 8

Dimension A	232mm
Dimension B	145mm
Dimension C	35.8mm
Dimension D	150mm

Note: all motors above are from 8FUN, the actual model should refer to the order

3.2.6 Brakes

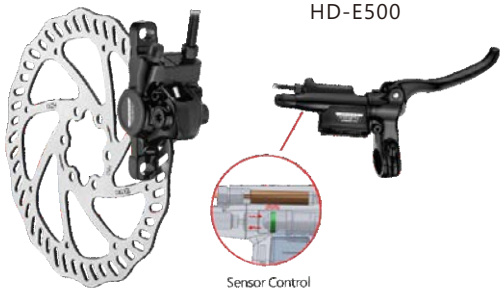


EL555-RT EL550-RS

- Integrated Bell
- Adjustable Sensor Control Designed
- For Use With Linear Pull Brakes & Rapidfire Shifters
- For Left Hand Side Only

Specifications

. Standard Finish : Satin Silver Lever / Black Bracket
. Material : Cast Aluminum Lever & Bracket
. Lever Blade : 4 Finger Lever With Kraton Rubber Grip
. Also Available : For Use With Roller / Canti Brakes
. Weight : EL555-RT 143 Grams / Pair
EL550-RS 119 Grams / Pair



Specifications

. Rotor : Light Wave Type (TR160-7),
High Heat Dispersion & Heat Tolerance
Diameter : Ø160mm
Weight : 126 Grams
Also Available: Ø180mm

. Lever : Forged Aluminum Lever / Cast Aluminum Bracket . Adjustable Angle Reservoir Tank .Two Pieces Bracket 2.5 Finger Ball End Blade. Finish : Black

. Caliper : Forged Aluminum Body . Automatic Caliper Positioning Via Front And Rear Adapters . Finish: Black
. Pads : A10.11. High Performance Metal Ceramic Compound . Easy Replacement . Also Available : Organic Compound
. Fluid : Non-Corrosive Mineral Oil . Excellent Heat Expansion Properties
. Weight : Front Wheel - 327 Grams / Rear Wheel - 343 Grams (Excludes Rotor, Adapter & Mounting Bolts)

Hydraulic Disc Brake With Sensor Control Design

- Open System, Dual Piston
- Sensor Control Designed
- Easy Installation, Adjustment And Maintenance.

Note: The above information is indicative only. There might be difference for different models, in terms of brake type and its specifications.

4.Before you ride

4.1 Adjusting the height of the seat

The minimum insertion mark of seat post must be under the seat post clip.

Unlock the seat clip lever, adjust the seat height to the desired position without ever exceeding the minimum insertion mark carved on the seat's tube, close the clip. The seat height is recommended to be set so that your leg is stretched out when the corresponding pedal is in the lower position. The insertion-depth of seat post must be exceeding the safe line. The seat post clip must be tightened properly.

4.2 Adjusting the height of the handlebar-stem

Adjust the handlebar height by changing the handle stem angle.

The recommended handlebar torque value		
Name of clamp bolts	bolt	Standard torque /N.m
Bolt for handlebar	M5	10-12 N.M
Bolt for handlebar	M4	4-6 N.M
Handle bar stem	M5	8-10 N.M
Handle bar stem	M6	10-12 N.M

4.4.3 Lights

The front and rear lights have an autonomous power supply. They are turned on and off using the switch located on each light.

Please follow the local guideline when riding the bicycle on public roads at night.

4.4 Propping your electric bike upon its stand

Your electric bike is equipped with a double or side stand. Always prop up your bike on its stand on a flat and stable ground surface.

4.5 Precautions required prior to each use

Verify that the brakes and the front and rear lights are all working properly. Also, check the pressure of the tyres.

On derailleur geared bicycles the rear derailleur automatically tensions the chain.

Make sure that the hinges on your bike are properly locked.Indeed, when using your bike on a regular basis, thetension of the hinges' adjustment and locking systems can change slightly. Whenever necessary, adjust the tension once again.

Please note: if you use your bike frequently, it is recommended that you inspect the state of the fork, the frame, the suspension and the fasteners.The materials and components may be subject to different reactions to usage and wear.

5.Routine maintenance

5.1 Lubrication

Frequency	Component	Lubricant	How to Lubricate
Weekly	Chain	Chain Lube or Light Oil	Brush On or Squirt
	Derailleur Pulleys	Chain Lube or Light Oil	Brush On or Squirt
	Derailleurs	Oil	Oil Can
	Brake Calipers	Oil	3 drops from oil can
	Brake Levers	Oil	2 drops from oil can
Monthly	Shift Levers	Lithium Based Grease	Disassemble
Every Six Months	Rear Sprocket	Oil	2 squirts from oil can
	Brake Cables	Lithium Based Grease	Disassemble
Yearly	Bottom Bracket	Lithium Based Grease	Disassemble
	Pedals	Lithium Based Grease	Disassemble
	Derailleur Cables	Lithium Based Grease	Disassemble
	Wheel Bearings	Lithium Based Grease	Disassemble
	Headset	Lithium Based Grease	Disassemble
	Seat Post	Lithium Based Grease	Disassemble

5.2 Recommended values of the nut torque

Front Wheel Axle Nuts	22-27 Newton Meters	16.2 - 19.8 ft.-lb.
Rear Wheel Axle Nuts	24-29 Newton Meters	17.5- 21.3 ft.-lb.
Seat Post Clip Nut	12- 17 Newton Meters	8.8- 12.5 ft.-lb.
Seat Post Clamp Nut	15- 19 Newton Meters	11.0-14.0 ft.-lb.
Brake Anchor Nut	7- 11 Newton Meters	5.1- 8.1 ft.-lb.
Handlebar Clamp Nut	17- 19 Newton Meters	12.5- 14.0 ft.-lb.
Head Stem Expander Nut	17-19 Newton Meters	12.5- 14.0 ft.-lb.
Crank Cotter Pin Nuts	9-14 Newton Meters	6.6- 10.3 ft.-lb.
Brake Centre Bolt	2-17 Newton Meters	1.5- 12.5 ft.-lb.

Note: The frequency of maintenance should increase if used in wet or dusty conditions. Do not over lubricate - remove excess lubricant to prevent dirt build up. Never use a degreaser to lubricate your chain

5.3 Service checklist

Frequency	Task
Before every ride	Be sure batteries are fully charged Check tire pressure Check brake operation Check wheels for loose spokes
After every ride	Be sure to fully charge batteries Quick wipe down with damp cloth
Weekly	Lubrication as per schedule 5.1
Monthly	Inspect wires / Inspect connectors Check derailleur adjustment/Check brake adjustment Check brake and gear cable adjustment Check tire wear and pressure / Check wheels are true and spokes tight Check hub, head set and crank bearings for looseness Check pedals are tight / Check handlebars and stem are tight Check seat and seat post are tight and comfortably adjusted Check frame and fork for trueness Lubrication as per schedule 5.1 / Perform safety check
Every six months	Lubrication as per schedule 5.1 / Check all points as per monthly service Check and replace brake pads, if required Check chain for excess play or wear
Yearly	Lubrication as per schedule 5.1

7. Assembly & Maintenance-Physics

7.1 Tools

Tools required

1. Open ended wrench or ring wrenches : 8mm 9mm, 10mm, 12mm, 13mm, 14mm, 15mm
2. Open end or pedal wrench 15mm
3. Allen key wrenches : 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm
4. Adjustable wrench
5. Standard flat head screwdriver
6. Standard Phillips head screwdriver
7. Standard slip joint pliers
8. Tire pump & Tire Levers
9. Tube repair kit

Travel tools

1. Spare Tube
2. patch
3. Pump
4. Tire levers
5. Multi-tool
6. charger

7.2 Wheels and Tires

. Wheel Inspection
It is most important that wheels are kept in top condition . Properly maintaining your bicycle's wheel will help braking performance and stability when riding . Be aware of the following potential problems :

.Dirty or greasy rims :
Caution : these can affect your brake performance. Do not clean them with oily or greasy materials. When cleaning, use a clean rag, rinse and air dry. Don`t ride while the rims are wet, especially when the brake is U brake.
When libricating your bicycle, don`t leave oil on the rim braking surfaces.

. Wheels not straight;
Lift each wheel off the ground and spin them to see if they are crooked or out of true, If wheels are not straight, they will need to be tuned and adjusted. This is quite technically demanding and it is recommended to bring your bike to a bicycle repair specialist.

. Broken or loose spokes;
Check that all spokes are tight and that none are missing or damaged.
Caution: such damage can result in severe instability and possibly an accident if not corrected.
Again, spoke repairs are best handled by a bicycle repair specialist.

Loose hub bearings.

Lift each wheel off the ground and try to move the wheel from side to side.
Caution: If there is movement between the axle and the hub,do not ride the bicycle. Please bring your bike to your closest shop.

·Axle nuts:
Check that they are tight before each ride.

·Ouick release
Check that they are set to the closed position and are properly tightened before each ride.
Caution : Maintain the closed position and the correct adjustment . Failure to do so might cause severe consequences

. Tire Inspection

Tires must be maintained properly to ensure proper grip and stability. Check the following:

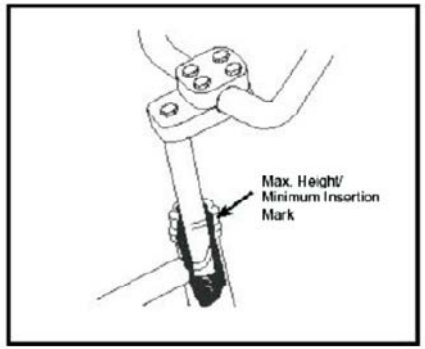
Inflation: ensure tires are inflated to the recommended tire pressure indicated on the sidewalls. it is better to use a tire gauge and a hand pump.
Caution : if inflating tires with a service station pump, be careful of sudden over inflation which can cause tire to blow out .

. Bead seating : When inflating or refitting tire . make sure that the bead is properly seated in the rim before you fully inflate the tires

Tread : check that tread to ensure no signs of excessive wear or flat spots, and that there are no cuts or other damage.

Caution : Excessively worn or damaged tires should be replaced immediately.

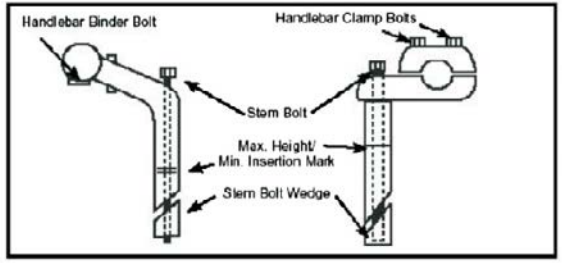
Valves : Make sure valve caps are fitted and that calves are free from dirt , A slow leak caused by the entry of the dirt can lead to a flat tire, and possibly a dangerous situation.



7.3 Handlebars and stem

Handlebar Stem
For some models The handlebar stem fits into the steering column and is held firmly by quick release clip. Please pay attention to the minimum insertion mark on handlebar stem, and make sure that it is inside the frame.

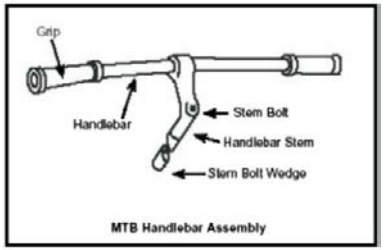
Tighten the handlebar clamp bolts to a proper torque value.



Never ride a bicycle if the stem has been raised over the max. allowed height/ minimum insertion line can be seen.

Warning : Over tightening the stem bolt or headest assembly may cause damage to the bicycle and/or injury to the rider .

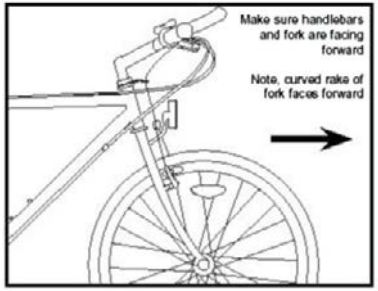
When re-fitting the stem, make sure the handlebar is correctly aligned and tightened using the appropriate hex wrench or allen key. Do not over tighten.
Test the security of the handlebar within the stem and the stem within the fork steerer tube by clamping the front wheel between your knees and trying to move the handlebar up and down and from side to side .The handllebar should not move at all.



MTB Handlebar Assembly

Handlebars

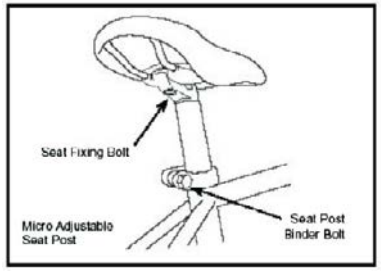
The exact positioning of the handlebar is a matter of personal comfort . For MTB bicycle the bar should be approximately horizontal with the ends pointing back and slightly up , On BMX bicycle the handlebar should remain in an approximately upright position but can be angled back or forward slightly for comfort . On MTB and racing style bicycles the handlebar is usually tightened in the stem by a single allen key bolt or hexagonal bolt . On BMX style bicycle there may be four clamping bolts.



Please note that if you need to replace the fork on your bicycle at any time . Please consult a qualified bicycle technician.

⚠ Never ride unless the handlebar clamping mechanism has been securely tightened.

7.4 Saddle and Seat Post



Saddle and Seat Post

The seat fixing bolt and the seat post binder bolt should be check for tightness and adjustment every month . On removing the seat post from the frame you will notice a mark about 65mm up from the bottom with the words "max . height " or " minimuminsertion ".

⚠ To avoid damage to either the seat post the frame or possibly the rider . the minimum insertion mark must be inside the frame.

Adjustment

As mentioned in Part 2 , the seat can be adjusted in height and angle to accommodate the rider's preference.

Seat angle is a matter of personal preference but the most comfortable position will usually be found when the top of the seat is almost parallel to the ground , or slightly raised at the front .

The saddle can also the adjusted by sliding it forward or back along the mounting rails to obtain the most comfortable reach to the handlebars .

When sitting, position the seat post into seat post clamp under the seat and place it in the frame without tightening . Adjust it to the desired angle and position and tighten the clamping mechanism.

There are two types of seat clamps commonly in use . The most common employs a steel clamp with hexagonal nuts on either side to tighten . The others type . known as a micro-adjustable clamp . uses a single vertically mounted Allen head fixing bolt to tighten. After fixing the seat to the desired position on the post, adjust the height to the required level and tighten the binder bolt .

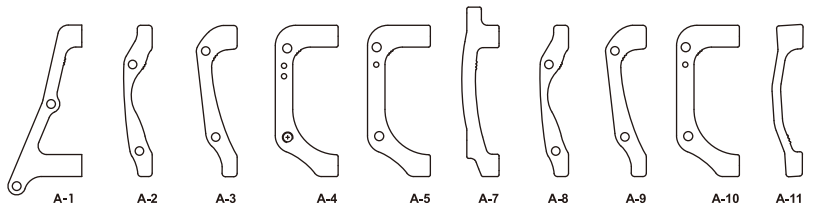
Note that the type of binder bolt can be either a hexagonal bolt an Allen head bolt or quick release mechanism. The operation of a seat post quick release mechanism is the same as a quick release hubs .

Test the security by grasping the seat and trying to turn it sideways . If it moves , you will need to further tighten the binder bolt .

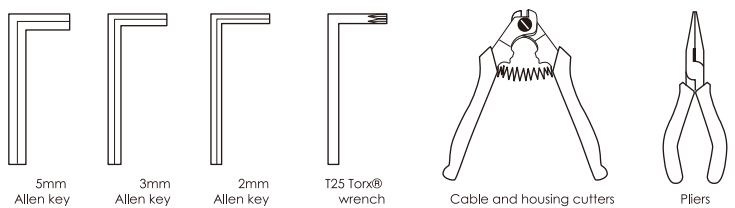
NOTE: Remember that the minimum insertion mark must inside the frame.

7.5 Disc Brakes-Tektro

ADAPTER INSTRUCION CHART



TOOLS AND EQUIPMENT REQUIRED



INSTALLATION & ADJUSTMENT

2a

Fig.2a Rotor must rotate same direction as wheel set

Tgiht rotor screw by 25 Torx® wrench

2b

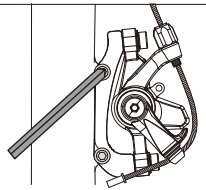


Fig.2b Adapter assembly

2c

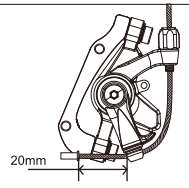


Fig.2c Cable end can not be over then 20mm

3a

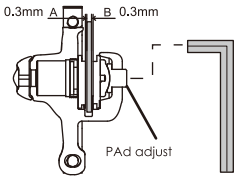
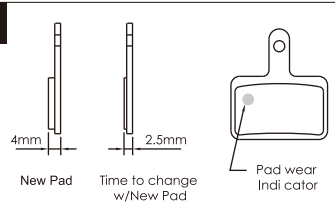


Fig.3a 0.3mm clearance between pad & rotor

3b



3c

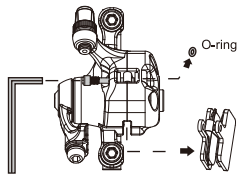


Fig.3c For Aquila / Lyra / Aries

3d

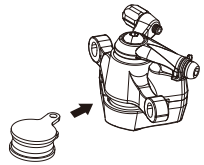


Fig.3d For Novela / Io

SECTION 1 GENERAL WARNING & CAUTIONS

Congratulations and thank you for your purchase of a Tektro mechanical disc brake. Mechanical disc brakes offer several advantages over traditional rim brakes better braking in wet, muddy or other adverse conditions, less braking power fade over extended downhill braking and the ability to continue braking even if your rim becomes bent or distorted.

Tektro mechanical disc brakes offer the following design features:

→ Quick and easy installation and adjustment of the caliper via Tektro's Automatic Caliper Centering.

→ Floating plates that ensure the pads automatically and consistently adjust to the rotor angle.

→ Pads with wear indicators.

→ Friction reducing ball & ramp actuation system.

→ Operated by standard linear pull (V-type) brakes: Model name Aquila / Novela / Aries.

→ Operated by caliper or canti brakes lever pull : Model name Lyra / Mira.

→ Rotor designed to maximize both strength and heat dissipation.

To gain full advantage of all the features of your Tektro disc brake, and to ensure safe, trouble-free riding, please read this manual thoroughly before use.

GENERAL WARNING & CAUTIONS

- Tektro MTB mechanical disc brakes are designed for use with linear pull (V-type) brake levers. Brake levers pulling less than 24 mm of cable, should not be used with Tektro mechanical disc brakes.
- Tektro Cyclocross mechanical disc brakes are designed for use with caliper or canti brake lever pull.

WARNING -

- Disc brake pads, caliper and rotor get extremely hot when used. Serious injury could result from contact with a hot brake. Care should be taken not to touch the caliper, rotor or pads while the disc brake is hot. Be sure to allow the brake to cool before trying to service it in any way.
- Read instructions thoroughly before attempting any work on a Tektro mechanical disc brake. If you have any doubts about any part of the service / operation / maintenance of a Tektro mechanical disc brake, you should seek the advice of a Tektro Service center or other qualified mechanic.
- Tektro mechanical disc brakes offer a significant increase in braking performance. Test your disc brake gradually on a flat surface until you become accustomed to the braking power. If you lend your bike to another person, make sure that they are also properly accustomed to the braking power before riding.

CAUTION -

Pads and rotor must be kept clean and free from oil/grease based contamination. If the pads become contaminated they must be discarded and replaced with new ones. A contaminated rotor should be cleaned with a detergent solution, rinsed thoroughly and dried.
NOTE - Tektro recommends the use of compression less or Kevlar® cable housing to obtain optimum performance from mechanical disc brakes.

SECTION 2 INSTALLATION & ADJUSTMENT

The caliper and rotor for the front and rear of the bike are the same. The only difference between front and rear disc brakes is which adapter should be used to mount the caliper to the bike. The adapter for the front fork is marked with an "F" and is designed to fit forks with international standard disc brake mounts. The rear adapter is marked with an "R" and is designed to fit international standard mounts. These adapters are an integral part of Tektro disc brakes. They allow the setup of the disc brake caliper to be relatively simple.

■ Mounting the rotor to the hub (See 2a)

(1) Remove the wheel from the bike. Attach the rotor to the hub with the supplied Torx® bolts and tighten with a T25 Torx® wrench. Final tightening torque: 2-4 Nm.

(2) Replace the wheel onto the bike, according to manufacturers' instructions.

Note: The rotor must be installed with the 'rotation' arrows pointing in the same direction as the forward rotation of the wheel.

■ Mounting the adapter and caliper (See 2b)

Note: Although front and rear caliper bodies are the same design, the adapter for the front is marked with an "F" and the adapter for the rear with an "R".

(1) Mount the relevant adapter to the caliper body. Insert 5 mm bolts through the two adapter slots on the body and screw into the holes on the adapter. Do not tighten yet.

(2) Mount the caliper body and adapter to the frame / fork by placing the slot in the caliper body over the rotor. The mounting holes on the adapter should be behind the frame / fork mounting holes (the hub side). Screw and tighten two 5mm Allen bolts into the upper and lower holes in the frame / fork mount. Final tightening torque 6-8 Nm.

(3) Check that the rotor is centered between the disc brake pads, and tighten the two bolts holding the caliper to the adapter. To re-adjust the caliper positioning, loosen these two bolts and slide the caliper over until it is centered on the rotor, then re-tighten the bolts. Final tightening torque 6-8 Nm.

(4) Attach the cable and housing to the brake lever according to the lever manufacturers' instructions. Route the cable along the frame / fork of the bike according to the frame / fork manufacturers' instructions. Insert the cable through the cable adjuster barrel on the caliper.

(5) Making sure that the cable housing is firmly sealed within the cable adjuster barrel, insert the end of the cable through the anchor bolt on the caliper. Take up slack in the cable, then tighten the cable anchor bolt. Final tightening torque 6-8 Nm.

(6) Be sure no more 20mm excess cable beyond anchor bolt. (See 2c)

CAUTION -

Compression less or Kevlar® cable housing MUST be used if optimum braking performance is desired.

SECTION 3 Removing the pads

■ **Adjusting the pads and caliper** (See3a)

When pads are worn , make sure to adjust both clearances between rotor and pad to be equal in 0.3mm. If adjust only one side will cause braking fail.

(1) Use 5mm Allen wrench to adjust the stationary caliper adjusting bolt at the back (hub) side of caliper. (A side)

(2) Adjust cable barrel adjustment for B side.

WARNING -

- Do not only adjust cable tension for compensate pad wear.
- After replace with new pads, check if rotor and pad contact with each other, if so, need to adjust step 1 & 2 again .

■ Pad should be replaced when total thickness is less than 2.5mm (friction material & metal plate (See3b)

■ **For Aquila / Lyra / Aries Disc Brake system** (See 3c)

(1) Pads and pad holders are held in place by a 3 mm pad retainer bolt on the caliper. To remove the pads and pad holder, unscrew the retainer bolt. Then gently push out the pads and holder this may be easiest to achieve by using the Allen wrench.

(2) Once free of the caliper, the pads may be easily removed from the pad holder.

■ **For Novela / Io Disc Brake system** (See 3d)

(1) Pads are held in the caliper magnetically. No tools are required to install or remove them. As the left and right pads are the same they may be inserted on either the left or right of the caliper.

(2) Holding the pad end-tab, insert it into the caliper slot with its metal backing towards the piston. Make sure the hole in the metal backing goes over the piston pins. When correctly inserted, the pad will be held in place magnetically. Repeat the procedure for the other pad.

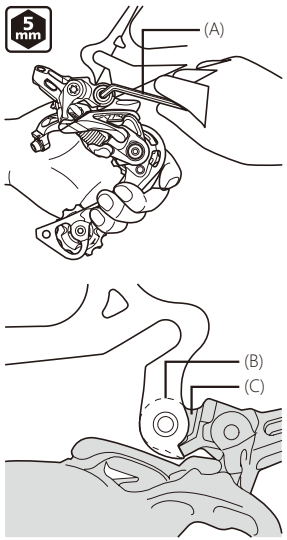
(3) Pads can be removed by grasping the pad end-tab, lifting the pad clear of the piston pin, and then maneuvering it out of the rotor slot in the caliper body.

CAUTION -

The pads and rotor must be kept clean and free from oil or grease-based contamination. If the pads become contaminated you must discard them and replace them with a new set. A contaminated rotor should be cleaned with a detergent solution, rinsed thoroughly and dried. Holding the pad end-tab, insert it into the caliper slot with its metal backing towards the piston.

Installation of the rear derailleur

Standard type



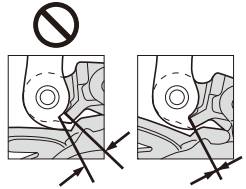
Install the rear derailleur.

(A) 5mm hexagon wrench
(B) Fork end
(C) Bracket

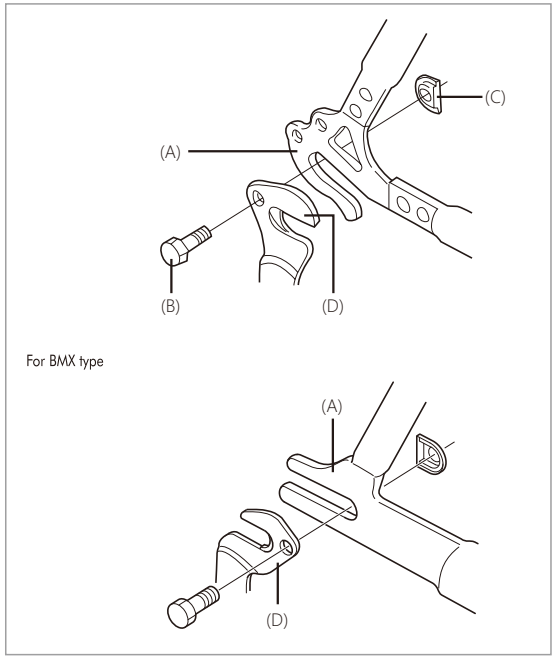
Tightening torque
8 - 10 N·m

NOTE

Periodically check that there is no gap between the fork end and the bracket as shown in the illustration. If there is a gap between these two parts, problems with gear shifting performance may occur.



Bracket type

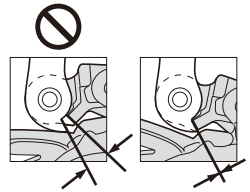


(A) Fork end
(B) Bracket bolt
(C) Bracket nut
(D) Bracket

Tightening torque
3 - 4 N·m

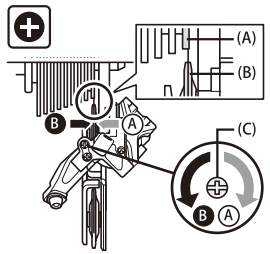
NOTE

Periodically check that there is no gap between the fork end and the bracket as shown in the illustration. If there is a gap between these two parts, problems with gear shifting performance may occur.



Stroke adjustment

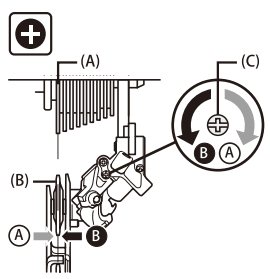
Top adjustment



Turn the top adjustment bolt to adjust so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear.

(A) Outer line of smallest sprocket
(B) Guide pulley
(C) Top adjustment bolt

Low adjustment

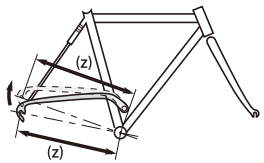


Turn the low adjustment bolt so that the guide pulley moves to a position directly in line with the largest sprocket.

(A) Largest sprocket
(B) Guide pulley
(C) Low adjustment bolt

Chain length

1



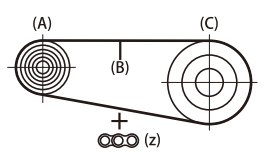
The length of A will vary depending on the movement of the rear suspension.

Consequently, an excessive load may be placed on the drive system if the chain length is too short.

The rear suspension operates and stops when dimension A is at its greatest extension.

(z) A

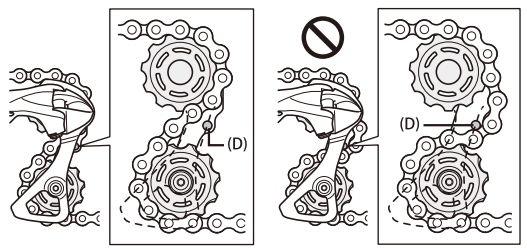
2



Mount the chain on to the largest sprocket and the largest chainring.

Next, add 2 links to set the length of the chain.

(z) +2 links



(A) Largest sprocket
(B) Chain
(C) Largest chainring
(D) Pin/plate for preventing chain derailment

NOTE

- If there is a lot of movement in the rear suspension, the slack in the chain may not be taken up properly when the chain is on the smallest chainring and smallest sprocket.
- The rear derailleur plate assembly is equipped with a pin or plate that prevents the chain from derailing.
  When passing the chain through the rear derailleur, pass it to the rear derailleur body from the side of the pin/plate for preventing chain derailment as shown in the illustration.
  If the chain is not passed through the correct position, damage may be caused to the chain or rear derailleur.

Securing the cable

Cutting the outer casing

1

When cutting the outer casing, cut the end opposite to the end with the marking.

After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

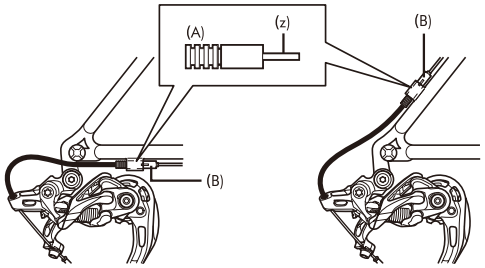
2

After cutting, attach the same sealed outer cap to the end.

(A) Outer cap

3

Install the sealed outer cap with tongue and the rubber shield onto the outer casing stopper of the frame.



(z) Be careful not to bend this section.

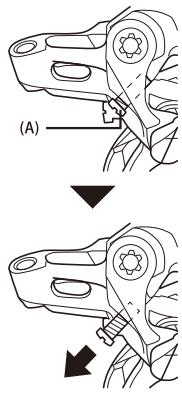
(A) Sealed outer cap with tongue
(B) Rubber shield

TECH TIPS

If the rear derailleur moves to a large degree, such as in bicycles with rear suspension, it is recommended that you replace the cap with the accessory aluminum cap.

Outer casing length for SHADOW RD

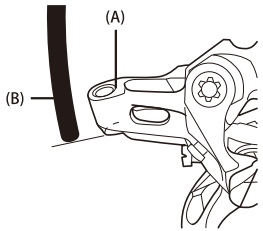
1



Loosen the B-tension adjust bolt until it is in the position shown in the illustration.

(A) B-tension adjust bolt

2



Check that there is enough slack in the outer casing.

Next, align the outer casing with the bottom edge of the holder on the rear derailleur and then cut off any excess.

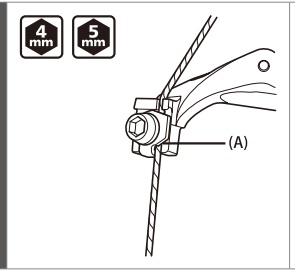
(A) Outer casing holder
(B) Outer casing

NOTE

The distance between the outer stopper to the outer casing holder of the rear derailleur may change when the rear suspension moves, so determine the length of the outer casing at the point where this length is at its greatest.

Connecting and securing of the cable

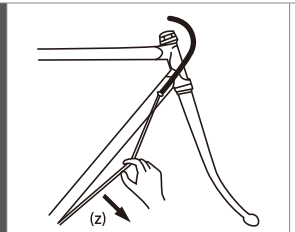
1



Connect the inner cable to the rear derailleur.

(A) Groove

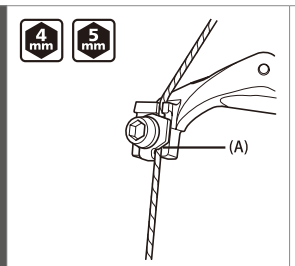
2



Remove the initial slack from the cable as shown in the illustration.

(z) Pull

3



Reconnect the inner cable to the rear derailleur.

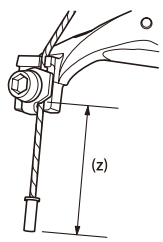
(A) Groove

Tightening torque	
4 mm / 5 mm	6 - 7 N·m

NOTE

Be sure that the cable is securely in the groove.

4



Set the inner cable so that the margin is approximately 30mm or less.

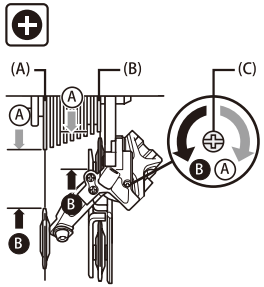
Install the shift inner cap.

(z) 30mm or less

NOTE

Check that the inner cable does not interfere with the wheel spokes.
Stop the wheel from turning while carrying out this step.

Using the B-tension adjust bolt



Mount the chain on the smallest chainring and the largest sprocket, and turn the crank arm for shifting.

Adjust the B-tension adjust bolt so that the guide pulley does not interfere with the sprocket but do not let the guide pulley come so close to the chain that they come into contact with each other.

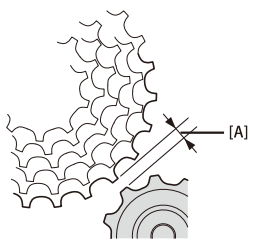
Next, set the chain on the smallest sprocket.

Repeat the above to make sure that the pulley does not touch the sprocket.

(A) Largest sprocket
(B) Smallest sprocket
(C) B-tension adjust bolt

Checking the distance between the largest sprocket and the guide pulley (SHADOW RD)

1



Set the rear derailleur to the largest sprocket and, with the wheel stopped, check that the distance between the tip of the guide pulley and the tip of the largest sprocket is within the range indicated in the table.

Gear combination	[A]
11-36T	5 – 6mm
11-34T	5 – 6mm
11-32T	9 – 10mm

TECH TIPS

When the lower gear uses the gear combination of 36T or 34T, set the distance to 5 to 6mm.
When the lower gear uses the gear combination of 32T, set the distance to 9 to 10mm.

2

Turn the crank arm to shift gears and ensure that the shift is smooth.

NOTE

If the number of teeth for the cassette sprocket is changed, try setting it again.

SIS adjustment

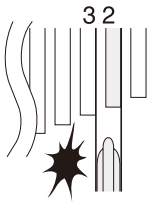
Confirming positioning on gear

1

Operate the shifting lever several times to move the chain to the 2nd sprocket counting from the smallest sprocket.

Then, while operating the lever just enough to close the gap in the lever, turn the crank arm.

2

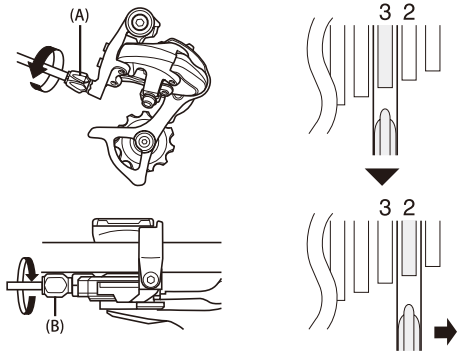


The best setting is when the shifting lever is operated just enough to close the lever gap and the chain touches the 3rd sprocket counting from the smallest sprocket and makes noise.

Adjusting SIS

When the chain shifts to the 3rd sprocket from the smallest sprocket

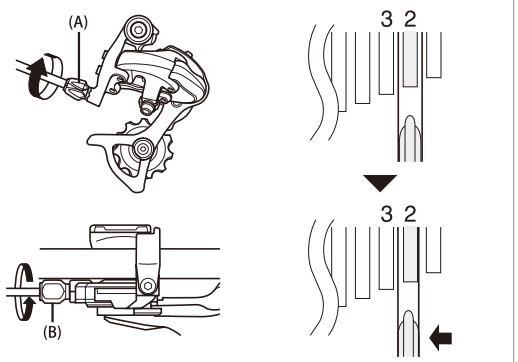
Tighten the cable adjustment barrel until the chain returns to the 2nd sprocket counting from the smallest sprocket. (Clockwise)



(A) Cable adjustment barrel
(B) Adjustment bolt

When no sound at all is generated

1 Loosen the cable adjustment barrel until the chain touches the 3rd sprocket counting from the smallest sprocket and makes a noise. (Counterclockwise)



(A) Cable adjustment barrel
(B) Adjustment bolt

2 Return the lever to its original position (the position where the lever is at the 2nd sprocket setting counting from the smallest sprocket and it has been released) and then turn the crank arm clockwise.

If the chain is touching the 3rd sprocket counting from the smallest sprocket and making a noise, turn the cable adjustment barrel clockwise slightly to tighten it until the noise stops and the chain runs smoothly.

Stop turning at the point where the noise just stops.

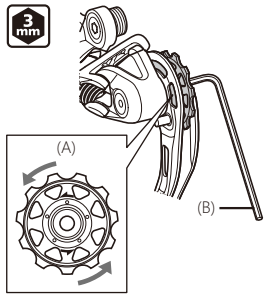
3 Operate lever to change gears, and check that no noise occurs in any of the gear positions.

TECH TIPS

For the best SIS performance, periodically lubricate all power-transmission parts.

Replacing the pulley

Guide pulley



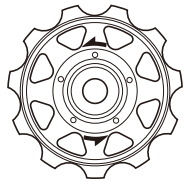
Replace the guide pulley.

(A) Guide pulley
(B) 3mm hexagon wrench

Tightening torque	
3 mm	2.5 - 5 N·m

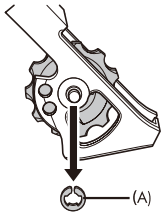
NOTE

Check the arrow direction on the pulley when installing it.



Tension pulley

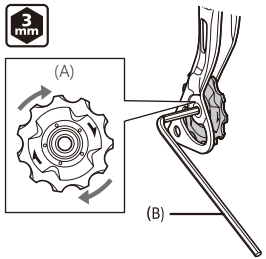
1



Remove the E-ring first.

(A) E-ring

2



Replace the tension pulley.

(A) Tension pulley
(B) 3mm hexagon wrench

Tightening torque
3 mm — 2.5 - 5 N·m

NOTE

Check the arrow direction on the pulley when installing it.

8. Battery

Li-ion battery maintenance

For the proper use , maintenance and storage of this battery, it is crucially important that you read and understand the instructions given in this manual .

Warnings:

- Never short circuit the discharge or charge terminals of the battery.

- Never charge the battery by discharge terminals or discharge the battery by charge terminals . keep the battery away from excessive heat and open flames . Never put the battery into water.

- Never subject the battery to intense physical shock or severe vibration or impact.
-
- Protect the battery from water or other moisture. Protect the discharge and charge terminals of the battery from rain or any possible water ingress.

- Keep the battery away from children.

- Never disassemble the battery without permission.

- We suggest removing the battery from the load and placing it in a safety environment at the temperature range from 15c to 35c when the battery is not in use for more than ten days and have the battery charged every 2 weeks.

- Use only the compatible charger supplied by Emmo. Never use other charger to charge the battery. Failure to do so will void the warranty and can result in severe consequences.

- If you failed to comply with the instructions and warnings described above, you would be responsible for the deed .

General use instructions

1 . Charge :

- Charge temperature range 15-40℃

- Over charging is seemly improving the battery' capacity , but it will be danger and reduce the life of the battery .

- The higher the charging end-voltage , the higher the charging current, the longer the charging time, the more harm done to the battery

- If there is any abnormal situation such as the battery transforms and bloat , or becomes very hot , please stop charging immediately.

- Do not connect the battery and the charger to power outlet for a more than 10 hours.

- The charging environment should be dry , well-ventilated and far away from fire.

There should be no inflammables in 1.5 meters around the battery when it is under charging.
Do not charge around inflammable or dangerous things It is better to take out the batteries from bike when charging for abstraction of heat. Keep children away from the battery when the charger is working to avoid danger.

2.Discharge temperature range -20℃ -55℃

- Avoid over discharging . when the voltage of per cell is lower than the limit of cut-off voltage , the battery is under over discharging condition. Excessive discharging will shorten the life of the battery.

- Avoid over-charging and over-discharging will benefit the battery life.

- Avoid large current, or it will affect the battery life

- Accelerate slowly when cycling starting. Avoid starting at still. Avoid sudden accelerating at start. Avoid starting at still when running up the hill, it is best to use pedal power when struggling uphill.

- Speed up slowly or pedal at low temperature.

- Avoid flooding the battery by the rain when cycling, which may cause danger

- When the battery is not in use for an extended period of time , remove the battery from the load for storage to avoid self-discharge by load. Do not leave the battery uncharged for more than 1 month.

Storage :

- Storage conditions for the battery circumstance temperature 15-35℃ circumstance relative humidit:≤75 % RH . The battery should be kept in storage in a clean dry and ventilated circumstance . it should be avoided to touch with the corrosive substance and should be away from excessive heat and open flames

- The batteries should be kept with 50 % of the capacity . storage time of the battery should not be more than 30 days .

- The capacity of the lithium battery will be decline when storage

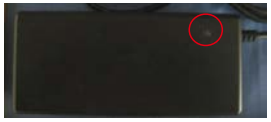
- The battery should be charged once every 30 days when storage , every time charged about 2 hours

- The battery should be with fireproofing measures when storage together . there should be safe distance or reproofing material for isolation

Charging the battery

A

B



C

Never let a battery be charged unattended. The battery strength is indicated with the 3 LED lights located on top of the battery, and also on the display unit located on the handlebars. Your battery must be charged in an ambient temperature, on a non-flammable and dry surface, away from any sources of heat, humidity or flammable materials. Also, it must not be covered.
Here are the steps to be followed when charging your battery:

Step 1 Turn the battery off. The LED lights will be off.

Step 2 Put the charger into position. (A)

Step 3 Plug the charger (which is off) into the socket and then insert the charger's plug into the battery, which is also off.

Step 4 the charger's LED indicators lit up in the following manner:• The red and orange LED lights will be on: the battery is being charged.• The red LED light stays on and the orange LED light becomes green:the battery is charged; you can unplug the charger. (B)

It takes around 5 hours for the battery to be fully charged when using the standard charger that's supplied with your electric bike.

WARNING:

As with all mechanical components, the bicycle is subjected to wear and high stresses. Different materials and components may react to wear or stress fatigue in different ways. If the design life of a component has been exceeded, it may suddenly fail possibly causing injuries to the rider. Any form of crack, scratches or change of colouring in highly stressed areas indicate that the life of the component has been reached and it should be replaced .

Warranty

Please consult your EMMO dealer for a detailed warranty policy.