

129184

> E-SERIES.
OWNER'S MANUAL SUPPLEMENT.

cannondale

In this supplement, particularly important information is presented in the following ways:

 WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
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NOTICE	Indicates special precautions that must be taken to avoid damage.
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TIP	<i>A TIP provides helpful information.</i>
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This manual meets EN standards
14764, 14766, and 14781.

Vélo certifié conforme aux exigences du décret
N 95-937 du 24 août 1995 norme NFR030

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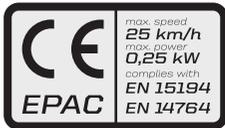
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This bike complies with EN 15194.
EN14764 - Electrically Power
Assisted Cycles (EPAC).



About This Supplement

Cannondale Owner's Manual Supplements provide important model specific safety, maintenance, and technical information. They are not replacements for your Cannondale Bicycle Owner's Manual.

This supplement may be one of several for your bike. Be sure to obtain and read all of them.

If you need a manual or supplement, or have a question about your bike, please contact your Cannondale Dealer immediately, or call us at one of the telephone numbers listed on the back cover of this manual.

You can download Adobe Acrobat PDF versions of any Cannondale Owner's Manuals or Supplements from our website: <http://www.cannondale.com/>.

Online E-Series Product Support

You may download a copy of this supplement and other manuals and instructions available for your bike at: http://www.cannondale.com/manual_ebikes/

Your Cannondale Dealer

To make sure your bike is serviced and maintained correctly, and that you protect applicable warranties, please coordinate all service and maintenance through your authorized Cannondale Dealer.

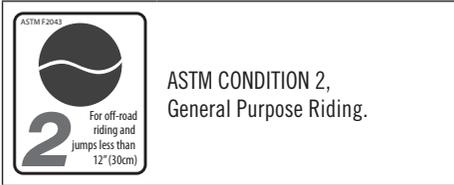
NOTICE

Unauthorized service, maintenance, or repair parts can result in serious damage and void your warranty.

Please note that the specifications and information in this manual are subject to change for product improvement.
For the latest product information, go to <http://www.cannondale.com/>

SAFETY INFORMATION

Intended Use



Your E-Series bike has an electric pedal assist drive system. It is not a moped or motorcycle. In EU countries, it is known legally as an "EPAC" cycle or Electrically Powered Assisted Cycle.

The drive assist system consists of a drive unit, a battery, a computer control, and various electronic components (harness wires, sensors, and switches). Your E-Series bike does share components common with pedal-only bikes. **See Figure 1.**

It is important to know that when the assist system is turned ON, the drive unit engages to provide power only while you are pedaling. The amount of power provided by the drive unit depends on your pedaling force and the assistance mode/level you set with the handlebar control unit. At anytime, if you stop pedaling, the drive assist will dis-engage. In all modes/levels, the drive assist system power reduces progressively and cuts off as the bike reaches a speed of 25 km/h, (15.5 mph), or sooner if you stop pedaling. The drive assist re-engages when speed drops below 25 km/h, (15.5 mph) as long as the pedals are turning.

Whenever the drive assist system is turned OFF, you can pedal the bike normally. The drive system will not engage.

WARNING

INTENDED USE: This bicycle is intended to be used as a commuter bicycle. This bike complies with the requirements of European Standard EN 15194, Electrically Power Assisted Cycles. The drive assist system is limited to a maximum continuous power rating of 0,25 kW (250 W) and a maximum speed of 25Km/h, (15.5 mph).

NOT INTENDED: You must not ride this bike in automobile traffic lanes. This vehicle must only be operated on paved surfaces that are legally open to commuter pedal bicycles. This bike is not for mountain biking use, jumping, or racing.

YOU MUST FOLLOW ALL LOCAL LAWS: It is your responsibility to identify and follow all local laws and regulations (including fitting your bike with additional equipment) necessary to comply with local laws. Ask your Cannondale Dealer for more information about operating an electrically assisted pedal bicycle in your area.

DO NOT MODIFY THIS BICYCLE/FORK IN ANY WAY FOR ANY REASON. Doing so can result in severe damage, faulty or dangerous operating conditions, or violation of local laws.

IMPORTANCE OF PRACTICE & RIDER TRAINING - Before you ride this bike, practice riding in a safe area free from hazards. Take time to learn to bike's controls and performance. Practice the controls and gain the experience necessary to avoid the many hazards you will encounter while riding.

DO NOT RIDE "HANDS-OFF - Keep your hands on and the handlebars when riding the bike. If you remove your hands from the handlebar while riding, you can lose control of the bicycle and crash.

UNDERSTAND YOUR BIKE AND ITS INTENDED USE. USING YOUR BIKE THE WRONG WAY IS DANGEROUS.

Please read your Cannondale Bicycle Owner's Manual for more information about Intended Use and Conditions 1-5.

YOU CAN BE SERIOUSLY INJURED, PARALYZED OR KILLED IF YOU IGNORE THESE WARNINGS.

Battery & Charger

WARNING

BOSCH INSTRUCTIONS - In addition to this supplement, you must read and follow the BOSCH battery and charger instructions. Go to : http://www.cannondale.com/manual_ebikes/

REPLACEMENT - Only use the battery pack and charger indicated in the Specifications section of this supplement. Do not use other batteries or chargers. Do not use the charger to charge other batteries.

PREVENT DAMAGE - Do not drop the battery or charger. Do not open or modify the battery or charger. No user serviceable parts inside.

Keep the battery out of intense sunlight. Keep away from heat. Heat will damage the battery.

Keep battery away from paper clips, coins, keys, nails, screws or other small metal items, to prevent shorting exposed battery contacts. Shorting battery contacts can cause severe burns, fire, or explosion.

ACCIDENTAL ACTIVATION - Always remove battery from bike rack before working on the bicycle or if you transport the bike by car or plane. Accidental activation of the bicycle drive system can result in serious injury.

STORAGE & TRANSPORTATION - When the battery is not in use in the bicycle, its transportation is subject to hazardous materials regulation. Special packaging and labeling requirements may exist. Contact local authorities for specific requirements. Never transport a damaged battery. Insulate battery contacts before packaging. Package battery inside shipping container to prevent damage.

CHARGING - Remove battery from bike before charging. Bring indoors and allow to reach room temperature before charging. Make sure charger and A/C outlet are the same voltage.

Locate both charger and battery indoors, in a clean, dry area with good ventilation to charge. Make sure the area is free from combustibles to avoid fire from sparks or overheating. Keep charger ventilation openings unobstructed. Do not cover the charger.

Disconnect the battery from the charger unit when fully charged. Do not leave a fully charged battery connected to the charger. Unplug the charger from the wall outlet when not in use.

DISPOSAL - Battery pack/charger contain regulated materials and must be disposed/discarded in accordance with national and/or local laws. Do not discard the battery/charger into fire, water or ordinary household waste/garbage. Take to a waste facility/recycler.



TRANSPORTATION & SHIPPING - The battery of this bicycle is subject to transportation regulations for handling hazardous materials. The battery must be removed before flying and may be subject to special handling by the carrier.

Failure to observe these warnings can result in electrical fires, explosion, or severe burns or electrocution.

YOU CAN BE YOU SERIOUSLY INJURED, PARALYZED OR KILLED IF YOU IGNORE THESE WARNINGS.

Rear Rack & Kickstand

WARNING

Do not sit on the bicycle with the kickstand down. Kickstand is not designed to support the weight of a person. Make sure kickstand is up before riding.

Do not overload the rear rack. Make sure the cargo is secured properly.

YOU CAN BE YOU SERIOUSLY INJURED, PARALYZED OR KILLED IF YOU IGNORE THESE WARNINGS.

PARTS OF THE E-SERIES BIKE

Frame



Figure 1.

- | | | |
|-------------------------------------|------------------------|---------------------------|
| 1. BOSCH Drive Unit | 9. Headshok Stem | 18. BOSCH Speed Sensor |
| 2. BOSCH Battery | 10. Lockout Lever | 19. Rear Cassette |
| 3. BOSCH HMI Unit | 11. Bell | 20. Front Chainring |
| 4. Headshok Fork | 12. Kickstand | 21. Drive chain |
| 5. Headlight | 13. Rear Wheel Lock | 22. Crankarm (drive side) |
| 6. Taillight | 14. Front Brake Lever | 23. Seat Binder |
| 7. Rack | 15. Rear Brake Lever | |
| 8. Chainguard
(KP261/ or KP262/) | 16. Rear Shift Control | |
| | 17. Pedal | |

BOSCH Drive Unit

See Figure 2. The BOSCH drive unit (1) is mounted to the frame bottom bracket node (5). Control cables from the HMI unit, battery, and speed sensor are routed to the unit inside the frame.

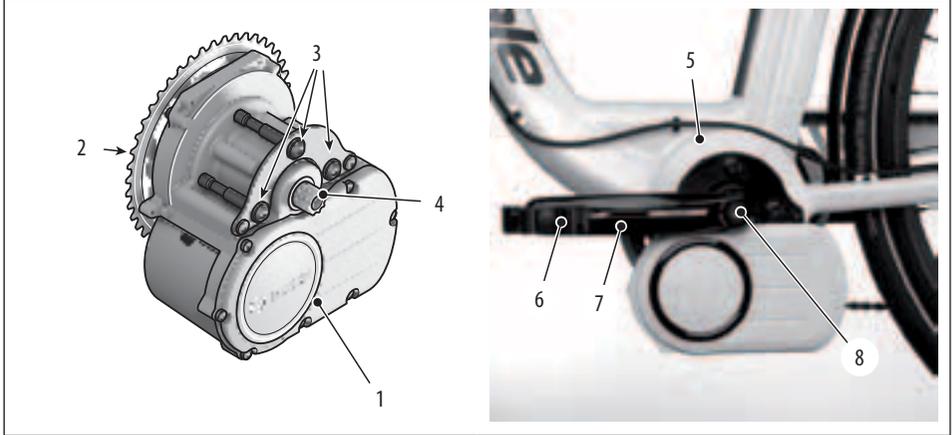


Figure 2.

- | | | |
|-------------------------------|-----------------------------------|-------------------------------|
| 1. BOSCH Drive Unit (removed) | 4. ISIS Axle end (non-drive side) | 7. ISIS Crankarm (drive side) |
| 2. Front Chainring | 5. Frame BB Node | 8. ISIS Crankarm Bolt |
| 3. Frame Mounting Bolts | 6. Pedal | |

NOTICE

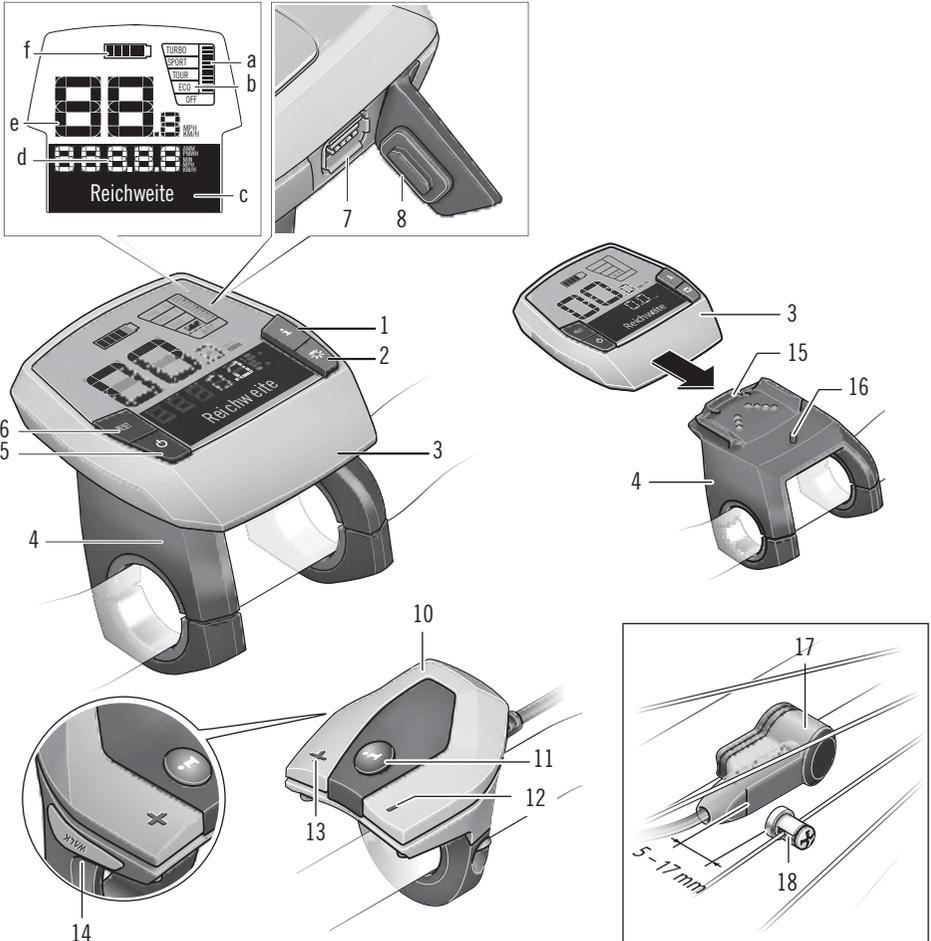
Drive unit is maintenance-free and must only be serviced at an authorized service center. This will ensure the quality and safety of the driving unit. Never attempt to open, remove it from the frame, or work on it yourself.

Other components of the eBike drive (e.g. drive chain, front chain ring, rear cassette, rear derailleur, crankarm) must be serviced by your Cannondale Dealer. Replacement parts must be identical to the original Cannondale specification for the bike. **See Specifications.** Failure to replace components with original specification can result in serious overload or other damage to the drive unit. **Unauthorized opening or service of the drive unit will void the warranty.**

The drive system will not function without the computer unit attached to the base properly. If the computer disconnects from the base during operation, the drive system will shut off. If this happens you will have to stop the bike, turn the system off, re-attach the computer to the base, and then turn the system back on to resume. **Remove the computer when not operating the bike to prevent theft or unauthorized use.**

Please note: The drive unit utilizes an ISIS standard drive axle. While the ISIS crankarms can be removed and reinstalled following crankarm manufacturer's instructions, the ISIS axle itself can not be removed from the BOSCH drive unit. It must be serviced at an authorized service center.

BOSCH Handlebar Mounted Interface (HMI)

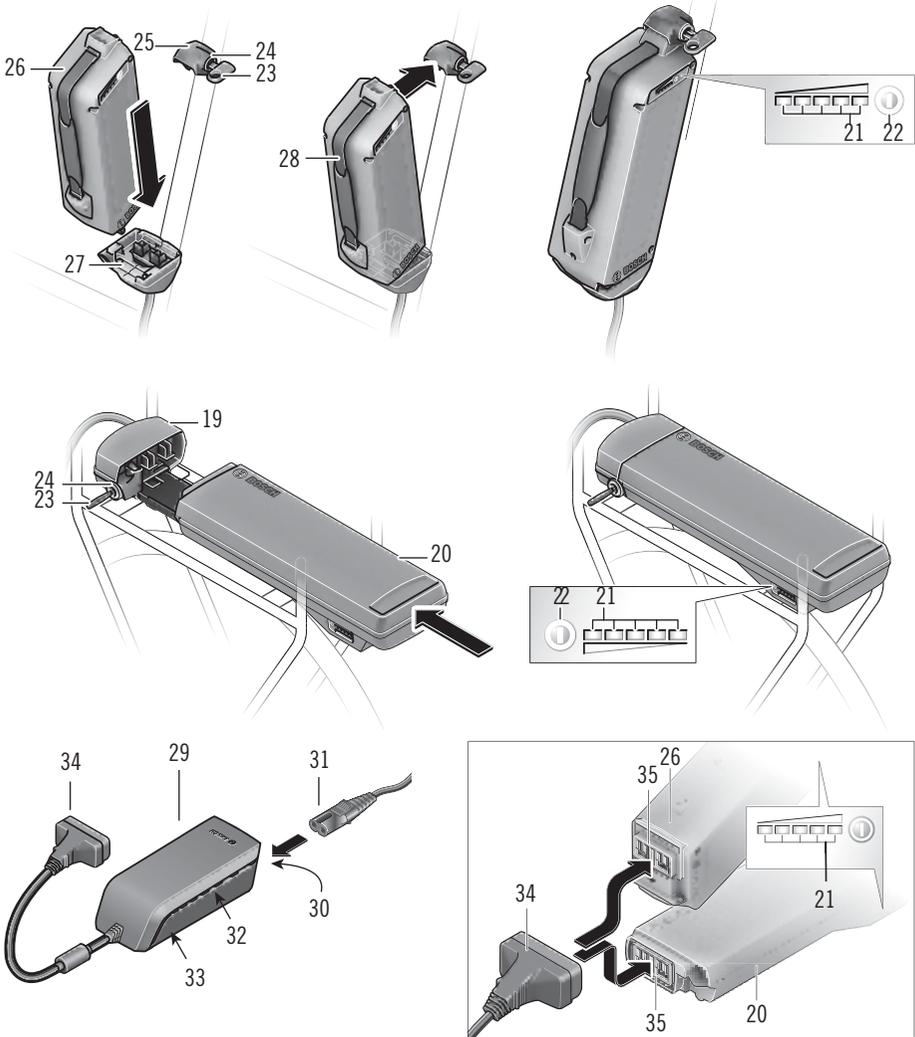


- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Display-function button “i” 2. Illumination button 3. Drive HMI 4. Holder for drive HMI 5. Drive HMI On/Off button 6. “RESET” button 7. USB port 8. Protective cap of USB port 10. Operating unit | <ol style="list-style-type: none"> 11. Display-function button “i” on the operating unit 12. Reduce value/scroll down button “-” 13. Increase value/scroll up button “+” |
|--|---|

Indication Elements, Drive HMI

- | |
|---|
| <ol style="list-style-type: none"> a. Motor-output indicator b. Assistance-level indicator c. Text indication d. Value indication e. Speed indication f. Battery charge-control indicator |
|---|

BOSCH Lithium Ion Battery Pack / Charger



- 19. Holder of the rack-type battery pack
- 20. Rack-type battery pack
- 21. Operation and charge-control indicator
- 22. On/Off button
- 23. Key of the battery pack lock
- 24. Battery-pack lock

- 25. Upper holder of the standard battery pack
- 26. Standard battery pack
- 27. Bottom holder of the standard battery pack
- 28. Carrying strap
- 29. Battery charger
- 30. Charger socket

- 31. Plug-in connector
- 32. Ventilation openings
- 33. Safety warnings, charger
- 34. Charge connector
- 35. Socket for charge connector

BOSCH Technical Data eBike System

Drive Unit		Drive Unit Cruise
Article number		0 275 007 006/ 0 275 007 007
Power output	W	250
Output torque, max.	Nm	50
Rated voltage	V=	36
Operating temperature	°C	-5...+40
Storage temperature	°C	-10...+50
Degree of protection		IP 54 (dust and splash water protected)
Weight, approx.	kg	4

Drive HMI		Intuvia
Article number		1 270 020 903
Max. charging current, USB connection.	mA	500
Charging voltage, USB connection	V	5
Operating temperature	°C	-5...+40
Storage temperature	°C	-10...+50
Degree of protection		IP 54 (dust and splash water protected)
Weight, approx.	kg	0.15

Lighting*		
Rated voltage	V	6
Power output		
– Front light	W	2.7
– Rear light	W	0.3

* Not possible via the eBike battery pack in all country-specific versions, depending on the statutory regulations

Lithium ion battery pack		PowerPack 300	PowerPack 400
Article number			
– Standard battery pack, black		0 275 007 500	0 275 007 503
– Standard battery pack, white		0 275 007 501	0 275 007 504
– Rack-type battery pack		0 275 007 502	0 275 007 505
Rated voltage	V=	36	36
Rated capacity	Ah	8.2	11
Energy	Wh	300	400
Operating temperature	°C	-10...+40	-10...+40
Storage temperature	°C	-10...+60	-10...+60
Allowable charging temperature range	°C	0...+40	0...+40
Weight, approx.	Kg	2.5	2.5
Degree of protection		IP 54 (dust and splash water protected)	IP 54 (dust and splash water protected)

Battery Charger		Charger
Article number		0 275 007 905
Rated voltage	V~	207–264
Frequency	Hz	47–63
Output voltage	V	42
Charging current	A	4
Allowable charging temperature range	°C	0...+40
Charging time		
– PowerPack 300	h	2.5
– PowerPack 400	h	3.5
Number of battery cells		10–80
Operating temperature	°C	-10...+75
Storage temperature	°C	-20...+70
Weight according to EPTA-Procedure 01/2003	kg	0.8
Degree of protection		IP 40

The values given are valid for a nominal voltage [U] of 230 V. For different voltages and models for specific countries, these values can vary.

OPERATING INSTRUCTIONS

Checking the Battery Pack Before Using for the First Time

Check the battery pack before charging it or using it with your eBike for the first time.

For this, press the On/Off button 22 to switch on the battery pack. When no LED of the charge-control indicator 21 lights up, the battery pack may be damaged.

When at least one, but not all LEDs of the charge-control indicator 21 is lit, then fully charge the battery pack before using for the first time.

- **Do not charge a damaged battery pack and do not use it.** Please refer to an authorised bicycle dealer.

Charging the Battery Pack

- **Use only the charger provided with your eBike or an identical original Bosch charger.** Only this charger is matched to the lithium-ion battery pack used in your eBike.

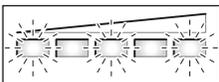
Note: The battery pack is supplied partially charged. To ensure full battery pack capacity, completely charge the battery pack in the charger before using for the first time.

The battery pack must be removed from the eBike for charging.

For charging the battery pack, read and observe the operating instructions of the charger.

The battery pack can be charged any time without reducing the service life. Interrupting the charging procedure does not cause damage to the battery pack.

The battery pack is equipped with a temperature control indicator, which enables charging only within a temperature range between 0°C and 40°C.



When the battery pack is not within the charging-temperature range, three LEDs of the charge-control indicator 21 flash. Disconnect the battery pack from the charger until its temperature has adjusted.

Do not connect the battery pack to the charger until it has reached the allowable charging temperature.

Charge-control Indicator

When the battery pack is switched on, the five green LEDs of the charge-control indicator 21 indicate the charge condition of the battery pack.

In this, each LED indicates approx. 20% capacity. When the battery pack is completely charged, all five LEDs light up.

Additionally, the charge condition of the switched on battery pack is indicated on the drive HMI. Read and observe the operating instructions of the drive unit and the drive HMI.

When the capacity of the battery pack is below 5 %, all LEDs of charge-control indicator 21 on the battery pack go out; however, the drive HMI does provide an additional indication function.

Inserting and Removing the Battery Pack

- **Always switch the battery pack off when inserting or removing it from the holder.**

In order for the battery pack to be inserted, the key 23 must be inserted into the lock 24 and the lock must be unlocked.

To insert the standard battery pack 26, place it via the contacts onto the bottom holder 27 on the eBike. Pivot the battery pack to the stop into the upper holder 25.

To insert the rack-type battery pack 20, slide it with the contacts facing ahead until it engages in the holder 19 of the rear rack/carrier.

Check if the battery pack is tightly seated. Always lock the battery pack with lock 24, as otherwise the lock can open and the battery pack could fall out of the holder.

After locking, always remove the key 23 from the lock 24. This prevents the key from falling out and the battery pack from being removed from unauthorised persons when the eBike is parked.

To remove the standard battery pack 26, switch it off and unlock the lock with the key 23. Pivot the battery pack out of the upper holder 25 and pull it by the carrying strap 28 out of the bottom holder 27.

To remove the rack-type battery pack 20, switch it off and unlock the lock with the key 23. Pull the battery pack out of the holder 19.

Switching On and Off

Switching the battery pack on is one of the possibilities to start the eBike system. Read and observe the operating instructions of the drive unit and the drive HMI.

Before switching on the battery pack or the eBike system, check that the lock 24 is locked.

Note: When switching on the eBike system, the pedals of the eBike may not be subject to load, as otherwise the output capacity of the drive will be limited.

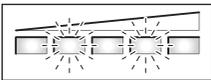
To switch on the battery pack, press the On/Off button 22. The LEDs of indicator 21 light up and at the same time indicate the charge condition.

Note: When the battery-pack capacity is below 5%, none of the LEDs of charge-control indicator 21 will light up. Only the drive HMI will indicate if the eBike system is switched on.

To switch off the battery pack, press the On/Off button 22 again. The LEDs of indicator 21 go out. This also switches off the eBike system.

When no power output of the eBike drive is requested for approx. 10 minutes (e.g., because the eBike is parked) and no button of the drive HMI or operating unit is pressed, the eBike system and thus the battery pack automatically switch off to save energy.

The battery pack is protected against deep discharging, overcharging, overheating and short-circuiting through the "Electronic Cell Protection (ECP)". In case of hazardous situations, a protective circuit automatically switches off the battery pack.



When a defect of the battery pack is detected, two LEDs of the charge-control indicator 21 flash. In this case, please refer to an authorised bicycle dealer.

Notes for Optimum Handling of the Battery Pack

The battery-pack life can be prolonged when being properly maintained and especially when being operated and stored at the right temperatures.

With increasing age, however, the battery-pack capacity will diminish, even when properly maintained.

A significantly reduced operating period after charging indicates that the battery pack is worn out and must be replaced. You can replace the battery pack yourself.

In case the carrying strap 28 of the standard battery pack should be defective, please have it replaced by a bicycle dealer.

Recharging the Battery Pack prior to and during Storage

When not using the battery pack for a longer period, charge it to approx. 60% (3 to 4 LEDs lit on the charge-control indicator 21).

Check the charge condition after 6 months. When only one LED of the charge-control indicator 21 lights up, recharge the battery pack again approx. 60%.

Note: When the battery pack is stored discharged (empty) for longer periods, it can become damaged despite the low self-discharging and the battery-pack capacity may be strongly reduced.

It is not recommended to have the battery pack connected permanently to the charger.

Storage Conditions

Store the battery pack in a dry, well-ventilated location. Protect the battery pack against moisture and water. Under unfavourable weather conditions, it is recommended e.g. to remove the battery pack from the eBike and store it in an enclosed location until being used again.

The battery pack can be stored at temperatures between -10°C and $+60^{\circ}\text{C}$. For a long battery-pack life, however, storing the battery pack at a room temperature of approx. 20°C is of advantage.

Take care that the maximal storage temperature is not exceeded. As an example, do not leave the battery pack in a vehicle in summer and store it out of direct sunlight.

Initial Operation

Requirements

The eBike system can only be activated when the following requirements are met:

- A sufficiently charged battery pack is inserted (see operating instructions of the battery pack).
- The drive HMI is properly inserted in the holder (see "Inserting and Removing the Drive HMI", page English-2).
- The drive HMI is properly connected (see "Checking the Speed Sensor", page English-2).

Switching the eBike System On/Off

Options for switching on the eBike system:

- If the drive HMI is already switched on when inserting it in the holder, the eBike system is automatically switched on.
- When the drive HMI and the battery pack are inserted, briefly press the On/Off button 5 of the drive HMI once.
- When the drive HMI is inserted, press the On/Off button of the battery pack (see battery pack operating instructions).

Note: When switching on the eBike system, the pedals of the eBike must not be subject to load, as otherwise the motor output capacity will be limited. The error message "Release pedal" is displayed in text indication (c).

If the eBike system was inadvertently switched on with load applied to the pedals, then switch it off and then on again without load.

The drive is activated as soon as you step into the pedals (except when in push-assistance mode, see "Switching the Pushassistance mode On/Off", page English-4). The motor output depends on the settings of the drive HMI.

As soon as you stop pedaling when in normal operation, or as soon as you have reached a speed of 25 km/h, the assistance from the eBike drive is switched off. The drive is automatically reactivated as soon you start pedaling again and the speed is below 25 km/h.

Options for switching off the eBike system:

- Press the On/Off button 5 of the drive HMI.
- Switch the battery pack off by its On/Off button (see battery pack operating instructions.)
- Remove the drive HMI out of its holder.

When no power output of the drive is requested for approx. 10 minutes (e. g., because the eBike is parked) and no button of the drive HMI or operating unit is pressed, the battery pack automatically switches off to save energy.

Indications and Settings of the Drive HMI

Power Supply of the Drive HMI

When the drive HMI is inserted in holder 4, a sufficiently charged battery pack is inserted in the eBike and the eBike system is switched on, power is supplied to the drive HMI via the eBike's battery pack. When the drive HMI is removed from holder 4, it is supplied with power via an internal battery pack. If the internal battery pack is low when switching on the drive HMI, "Attach to bike" is displayed for 3 s in text indication c. Afterwards, the drive HMI switches off again. To recharge the internal battery pack, insert the drive HMI into the holder 4 (a battery pack must be inserted in the eBike). Switch the eBike battery pack off by its On/Off button (see battery pack operating instructions). The drive HMI can also be charged via USB connection. Open protective cap 8 for this. Using a matching USB cable, connect the USB port 7 of the drive HMI to a commercially available USB charger or to the USB port of a computer; (5 V charging voltage; max. 500mA charging current). "USB connected" is displayed in text indication c of the drive HMI.

Switching the drive HMI On/Off

To switch on the drive HMI, briefly press the On/Off button 5. When the internal battery pack is sufficiently charged, the drive HMI can also be switched on when not inserted in the holder.

To switch off the drive HMI, press the On/Off button 5. When the drive HMI is not inserted in the holder and no button is pressed, it automatically switches off after 1 min to save energy.

Battery Charge-control Indicator

The battery-pack charge-control indicator (f) indicates the charge condition of the eBike's battery pack, and not the charge condition of the drive HMI's internal battery pack. The charge condition of the eBike's battery pack can also be read from the battery pack's LEDs.

On indicator f, each bar of the battery pack symbol is equivalent to a capacity of approx. 20 %:

Displayed/ Battery Level			
	100 - 80%		39-20%
	79 - 60%		20 - 5%
	59 - 40%		5 - 0%

100 % to 80 % capacity

20 % to 5 % capacity; the battery pack should be recharged.

Less than 5 % capacity; drive assistance is no longer possible. The LEDs of the charge-control indicator on the battery pack go out.

When the eBike lighting is powered via the battery pack (country-specific), the capacity upon first indication of the empty battery pack symbol will be sufficient for approx. 2 hours of lighting. When the symbol begins to flash, the lighting will continue to operate only for a short period. When the drive HMI is removed from holder 4, the last indicated battery pack charge condition is stored.

Setting the Assistance Level

The level of assistance of the eBike drive when pedaling can be adjusted via the drive HMI. The assistance level can be changed anytime, even during riding.

Note: For individual versions, it is possible that the the assistance level is preset and cannot be changed. It is also possible that less assistance levels are available for selection than listed here.

The following assistance levels (max.) are available:

- **“OFF”**: The drive is switched off, the eBike can be operated as a normal bicycle through pedaling.
- **“ECO”**: Effective assistance at maximum efficiency for maximum cruising range
- **“TOUR”**: Uniform assistance, for touring with long cruising range
- **“SPORT”**: Powerful assistance for sportive riding off road as well as for urban traffic
- **“TURBO”**: Maximum assistance, supporting highest cadence for sportive riding

To increase the assistance level, press the “+” button 13 on the operating unit until the desired assistance level is displayed in indicator b; to decrease the assistance level, press the “-” button 12.

The requested motor output is displayed in indicator a. The maximum motor output depends on the selected assistance level.

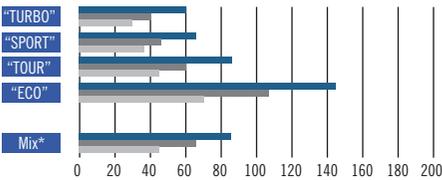
Motor Output*		
Assistance Level	Derailleur	Gear Hub
“ECO”	30%	30%
“TOUR”	100%	90%
“SPORT”	170%	150%
“TURBO”	250%	200%

* The motor output can vary for individual versions.

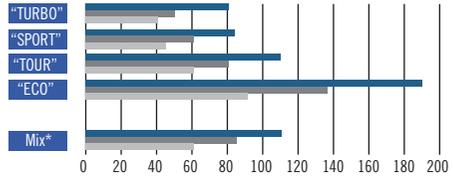
When the drive HMI is removed from holder 4, the last indicated assistance level is stored; the motor-output indicator a remains empty.

Range Estimate (at Selected Assistance Level)

PowerPack 300

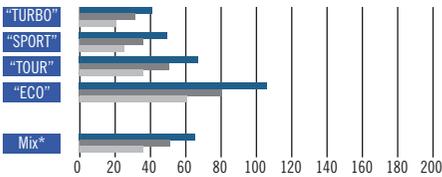


PowerPack 400

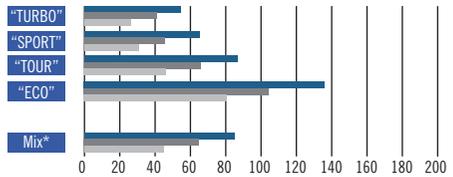


Speed Estimate (at Selected Assistance Level)

PowerPack 300



PowerPack 400



* Average value with consistent use of all 4 modes.

Ideal circumstances

Horizontal terrain at 20 km/h average speed, no wind, temperature approx. 20 °C, optimal tires with optimal tire pressure, minimum rolling resistance, experienced eBike rider (gear changing expertise), additional weight (excluding bicycle weight) <70 kg.

Good circumstances

Slightly hilly terrain at 22 km/h average speed, some wind, temperature 10 to 20 °C, mid-end tires with slightly imperfect tire pressure, medium rolling resistance, rider with medium gear changing expertise, additional weight (excluding bicycle weight) <70 to 80 kg.

Poor circumstances

Terrain with long and significant climbs, average speed 25 km/h, strong winds, temperature <10 °C, tires lacking air pressure, high rolling resistance, non-optimal gear changing, additional weight (excluding bicycle weight) >85 kg.

Switching the Push-assistance mode On/Off

The push-assistance feature makes it easier to push the eBike. The speed in this function depends on the set gear and cannot exceed 6 km/h (max.). The lower the set gear, the lower the speed in the push-assistance function (at full output).

- **The push-assistance function may only be used when pushing the eBike.** Danger of injury when the wheels of the eBike do not have ground contact while using the push assistance function.

To activate the push-assistance function, press and hold the “WALK” button 14 on the operating unit. The eBike’s drive is activated.

The push-assistance function is switched off as soon as any of the following incidents occur:

- You release the “WALK” button 14,
- You pedal in forward or quickly in backward direction,
- The wheels of the eBike are blocked (e. g., through braking or running against an obstruction),
- Your speed exceeds 6 km/h.

Switching the Lighting On/Off

Depending on country-specific regulations, two lighting versions are possible:

- The front light, rear light and display backlight can be switched on and off at the same time via the drive HMI. In this version, “Lights on” is displayed for approx. 1 s in text indication c when switching on, and “Lights off” when switching off.
- Only the display backlight can be switched on and off; the front and rear light of the eBike are independent of the drive HMI.

For both versions, the lighting is switched on and off by pressing button 2.

Speed and Distance Indication

The speed indication e always displays the current speed.

The following functions are available in the function indication (combination of text indication c and value indication d):

- **“Range”**: Estimated range of the available battery-pack charge (for constant conditions such as assistance level, route profile, etc.)
- **“Distance”**: Distance covered since the last reset
- **“Trip time”**: Trip time since the last reset
- **“Avg. Speed”**: Average speed achieved since the last reset
- **“Max. Speed”**: Maximum speed achieved since the last reset
- **“Clock”**: Current time

To switch between the indication functions, press the “i” button 1 on the drive HMI or the “i” button 11 on the operating unit until the desired function is displayed.

To reset “Distance”, “Trip time” and “Avg. Speed”, switch to any of the three functions and then press and hold the “RESET” button 6 until the indication is set to zero. This also resets the values of the other two functions.

To reset the “Max. Speed”, switch to this function and then press and hold the “RESET” button 6 until the indication is set to zero.

When the drive HMI is removed from the holder 4, all function values remain stored and can be viewed.

Displaying/Adapting Basic Settings

The basic settings can be displayed and changed no matter if the drive HMI is in the holder 4 or not.

To access the basic settings menu, press and hold the "RESET" button 6 and the "i" button 1 until "Configuration" is displayed in text indication c.

To switch between the basic settings, press the "i" button 1 on the drive HMI until the desired basic setting is displayed.

When the drive HMI is inserted in holder 4, you can also press the "i" button 11 on the operating unit.

To change the basic settings, press the On/Off button 5 next to the "-" indication to decrease the value or scroll down, or the illumination button 2 next to the "+" indication to increase the value or scroll up.

When the drive HMI is inserted in holder 4, you can also change the values with the "-" button 12 or the "+" button 13 on the operating unit.

To exit the function and store a changed setting, press the "RESET" button 6 for 3 s.

The following basic settings are available:

- **"unit km/mi"**: The speed and distance can be displayed either in kilometres or miles.
- **"time format"**: The time can be displayed either in the 12 hour or 24 hour format.
- **"clock"**: The current time can be set here. Pressing and holding the setting buttons fast-forwards the setting speed.
- **"English"**: The language for text indication can be changed. The available languages are German, English, French, Spanish, Italian and Dutch.
- **"odometer"**: Indicates the total distance travelled with the eBike (not changeable).
- **"power-on hours"**: Indicates the total travel duration with the eBike (not changeable).

Notes on Riding with the eBike System

When does the eBike Drive Operate?

The eBike drive supports you when riding, as long as you step into the pedals. Without pedaling, there is no assistance. The motor output always depends on the amount of your pedaling power.

When applying less pedaling power, the assistance or support will be lower than when applying a lot of pedaling power. This applies independent of the assistance Level.

The eBike drive automatically switches off at speeds in excess of 25 km/h. When the speed falls below 25 km/h, the drive is automatically available again. An exception applies for the push-assistance function, in which the eBike can be pushed at low speed without pedaling. The eBike can also be ridden as a normal bicycle without assistance at any time, by either switching off the eBike system or setting the assistance level to "OFF". The same applies when the battery pack is empty.

Interaction of the eBike System with the Bicycle Gears

The bicycle gears should be used as with a normal bicycle, even with eBike drive (please observe the operating instructions of your eBike).

Independent of the type of gearing, it is recommended to briefly interrupt the pedaling while changing gears. This makes changing gears easier and reduces the wear of the drive train.

By selecting the right gear, you can increase the speed and range with the same pedaling effort.

Gathering First Experience

It is recommended to gather first experience with the eBike away from roads with heavy traffic.

Try out the different assistance levels. As soon as you feel safe, you can participate in traffic with the eBike as with any other bicycle.

Test the operating range of your eBike under different conditions before planning longer and more challenging rides.

Error Code Indication

The components of the eBike system are continuously and automatically monitored. When an error is detected, the respective error code is indicated in text indication (c).

To return to the standard indication, press any button on the drive HMI (3) or on the operating unit (10). Depending on the type of error, the drive is automatically shut off if required. Continued travel without assistance from the drive is possible at any time. However, have the eBike checked before attempting new trips.

- **Have all inspections and repairs carried out only by an Authorized Cannondale Dealer.** When an error is still displayed despite corrective measures, please also refer to an authorised bicycle dealer.

Code	Cause	Corrective Measure
100	Internal error of the drive unit	Have the drive unit checked
101	Connection problem of the drive unit	Have connections and contacts checked
102	Error of the speed sensor	Have the speed sensor checked
103*	Connection problem of the lighting system	Have connections and contacts checked
104	Connection problem of the drive HMI	Have connections and contacts checked
105	Temperature of the drive unit too high (above 40 °C)	Allow the drive unit to cool down. Continued travel without assistance from the eBike drive is possible and speeds up the cooling of the drive unit.
200	Internal electronic error of battery pack	Have battery pack checked
201	Temperature of the battery pack too high (above 40 °C)	Allow the battery pack to cool down. Continued travel without eBike drive is possible and speeds up the cooling of the battery pack.
202	Temperature of the battery pack too low (below -10 °C)	Allow the battery pack to warm up slowly in a warm location.
203	Connection problem of battery pack	Have connections and contacts checked
204	Incorrect polarity of battery pack	Charge the battery pack with the original Bosch charger as described in the operating instructions.
410	One or more buttons of the drive HMI are blocked.	Check if any buttons are blocked, e.g. from dirt or debris. Clean the buttons, if required.
414	Connection problem of the operating unit	Have connections and contacts checked
418	One or more buttons of the operating unit are blocked.	Check if any buttons are blocked, e.g. from dirt or debris. Clean the buttons, if required.
422	Connection problem of the drive unit	Have connections and contacts checked
423	Connection problem of battery pack	Have connections and contacts checked
424	Communication error among the components	Have connections and contacts checked
430	Internal battery pack of drive HMI empty	Charge drive HMI (in holder or via USB port)
490	Internal error of the drive HMI	Have the drive HMI checked

* only for eBike lighting via battery pack (country-specific)

Factors Affecting Assistance Range

1. **Battery Charge Level** - A fully charged battery will provide the greatest range. Before every ride, make sure the battery is fully charged.
2. **Assistance Mode & Support Level** - The assistance mode and support level you select during the ride will affect the operating range.
3. **Temperature & Wind Conditions** - Extreme cold or hot conditions will result in more rapid depletion of the battery's energy, reducing available range. Overcoming strong winds on the cycling route will shorten assistance range since more battery energy is required. Conversely, a tailwind (wind behind you) acts to propel the cycle reducing the energy requirement.
4. **Rider Weight & Cargo** - Adding weight to the bicycle (rider or cargo) cycle will require the drive unit to work harder, requiring more battery energy - shorter range. If you carry a backpack or extra luggage on the rack, more energy will be needed, and overall range will be reduced.
5. **Tire Pressure/Condition** - Make sure your tires are in good shape (e.g., good tread, undamaged) and pressurized properly according to the tire sidewall markings. Poor tire condition or inadequate air pressure will shorten range.
6. **Shifting Gears & Braking** - You should shift gears similarly to a normal pedaling bicycle. Efficient gear changes will result in greatest available range. Maintaining a uniform speed and effective braking will help you maximize the energy stored in the battery.
7. **Accelerating From Stopped** - The drive system utilizes more battery energy during its initial acceleration. Therefore, a commute with frequent starting and stopping will consume more energy, shortening range. You can extend your range by carefully managing your speed throughout the trip to avoid unnecessary starts and stops.
8. **Drive Chain Condition** - Be sure to keep the chain clean and well lubricated. Have the chain replaced with a new one.
9. **Pedaling** - Pedaling steadily with moderate effort with the drive unit will result in the greatest range. While all that is required to engage the assistance is a turning pedal, you'll want to contribute especially on uphill or rough terrain. If you rely solely on the drive unit, the range will be much shorter.

HEADSHOK SUSPENSION FORK

Fatty w/DL50

Some models E-Series bicycle are equipped with a Cannondale Headshok Fatty suspension fork. The fork features the DL50 damping cartridge. The internal spring size can be changed to accommodate various rider weights to tune performance. This fork is designed for a 700c wheel. The brake mounts are international standard. The fork features several accessory mounting points as shown in the figure, next page.

To operate fork lockout:

See Figure 12. The lockout lever turns fork travel “on” and “off.” Be sure to rotate the lever completely to either position until it stops.

To change the lever position:

Remove the retaining screw with a 3 mm Allen key and carefully lift off the lockout lever with your fingers. Reposition the lever while aligning it with the large nut. Press it onto the large nut. Reinstall the retaining screw and tighten to 0.5 Nm, 4 in Lbs.



Figure 12.

NOTICE

Do not force lever past the stop. Do not try to unthread the large nut under the lever. It is pressed on!

To change the adjustable stem:

See Figure 13. The angle of the handlebar can be raised or lowered depending on your preference. To change handlebar height, loosen the stem angle fixing bolt (23), then raise or lower the handlebar. When the handlebar is in the desired position, use a torque wrench to tighten the fixing bolt to 17-18Nm.

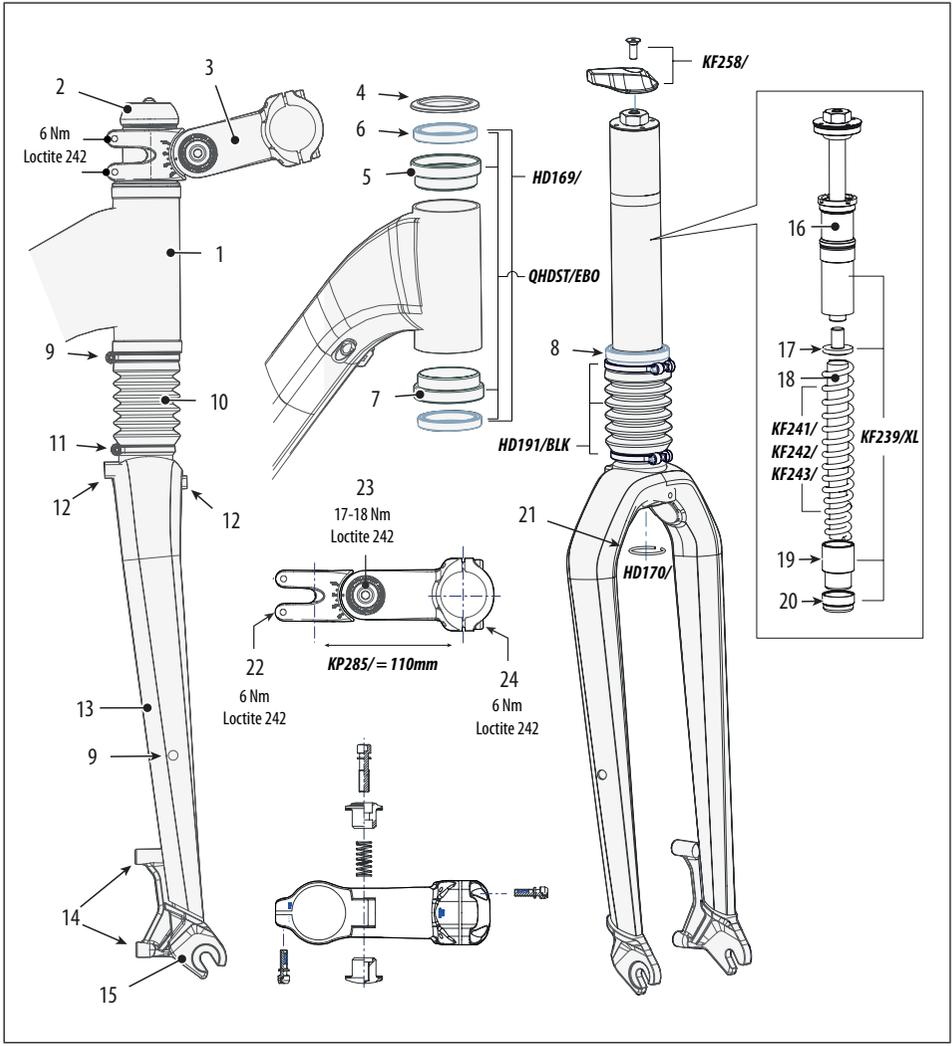


Figure 13.

- | | | |
|----------------------|-----------------------------|--------------------------------|
| 1. Headtube | 9. Upper Boot Clamp (49mm) | 17. Spring Perch |
| 2. Lockout Lever | 10. Fork Boot | 18. Spring w/ Elastomer |
| 3. Handlebar Stem | 11. Lower Boot Clamp (33mm) | 19. Spacer |
| 4. Bearing Seal | 12. Accessories Mounting | 20. Plug |
| 5. Upper Bearing Cup | 13. Fork Leg | 21. Ring Clip |
| 6. Upper Bearing | 14. Brake Mount | 22. Stem Clamp Bolts (2X) |
| 7. Lower Bearing Cup | 15. Dropout | 23. Stem Angle Fixing Bolt |
| 8. Lower Bearing | 16. DL50 Damping Cartridge | 24. Handlebar Clamp Bolts (4X) |

MAINTENANCE

The following table lists only supplemental maintenance items. Please consult your Cannondale Bicycle Owner's Manual for more information on basic bike maintenance.

CHECK THE FOLLOWING BEFORE EACH RIDE:

Make sure the battery is fully charged and locked in the rear bike rack.

Check tire pressure and wheel condition. Make sure wheel quick release are firmly closed.

Check the drive chain condition. Make sure it is clean and well-lubricated.

Check the bicycle front and rear lighting to make sure it works properly.

Check the bicycle brakes, make sure they are working well.

Inspect condition of electrical cables (i.e. Kinks free, no signs of abrasive wear)

Test the drive assist system, make sure the HMI functions normally.

Check the fork for damage (fork legs, fork boot, crown, dropouts, accessories/brake mounts, fender attachment) Look for damage (e.g., loose parts, cracks, deep scratches, dents) Make sure the fork works properly. Things that can indicate a serious problem are (1) any unusual "klunking" or knocking noises, (2) changes in travel, (3) an over-extended or compressed boot, (4) any changes in the way the fork has been working, or (5) any leaking fluids.

If you find any damage, do not ride the bike, contact your Cannondale Dealer.

TO BE PERFORMED BY CANNONDALE DEALER :

Recommended after the first 150 km, bring your bike to your Cannondale Dealer for an initial check-up. It should include checks of the drive assist system, drive chain condition, proper shifting, accessories, wheels and tire condition, brakes, etc. This visit will help you establish a schedule for repeated visits appropriate for how and where you ride.

Every 1000 km, bring your bike in to your Cannondale Dealer for a regular detailed inspection, adjustment, and replacement of wear items across the entire bike. Electrically powered assist cycle (electric bikes) can wear out wheels, tires, drive chain, brakes, more quickly.



WARNING

ANY PART OF A POORLY MAINTAINED BIKE CAN BREAK OR MALFUNCTION LEADING TO AN ACCIDENT WHERE YOU CAN BE KILLED, SEVERELY INJURED OR PARALYZED. Please ask your Cannondale Dealer to help you develop a complete maintenance program, a program which includes a list of the parts on your bike for YOU to check regularly. Frequent checks are necessary to identify the problems that can lead to an accident.

Cleaning

When cleaning your bike, use a damp sponge or a soft brush with only a mild soap and water solution. Rinse the sponge often. Do not spray water.

NOTICE

Do not use a pressure washer or dry with compressed air. This will force contaminants into sealed areas, electrical connections/components promoting corrosion, immediately damaging, or result in accelerated wear.



WARNING

KEEP WATER AWAY FROM THE ELECTRICAL COMPONENTS.

MAKE SURE THE BIKE IS SECURED UPRIGHT AND CAN NOT FALL OVER ACCIDENTALLY WHILE YOU ARE CLEANING IT. Don't rely on the kickstand. Use a sturdy portable bicycle wheel stand to hold the bike upright.

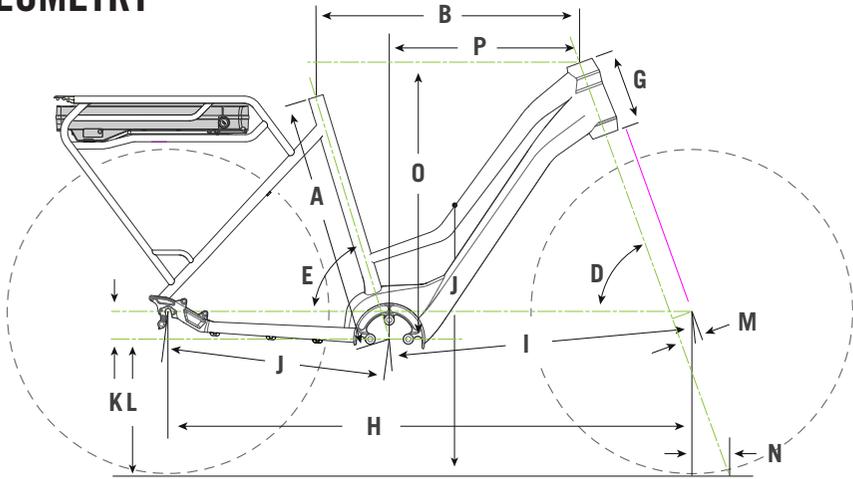
Tightening Torques

Correct tightening torque for the fasteners (bolts, screws, nuts) on your bicycle is very important to your safety, the durability and performance of your bicycle. We urge you to have your Dealer correctly torque all fasteners using a torque wrench.

DESCRIPTION	Nm	In Lbs	Loctite™
Kickstand	7.0	62.0	242 (blue)
Rear Rack Mounting Bolts	3 - 4	26.5 - 35.4	
Lockout Lever Screw	0.5	4.0	
Stem/Handlebar Clamp Bolts	6.0	53.0	
Handlebar Fixing Bolt	17 - 18	150 - 160	
Rear Derailleur Hangar Screws	2.5	22.0	

If you decide to tighten fasteners yourself always use a good torque wrench!

GEOMETRY



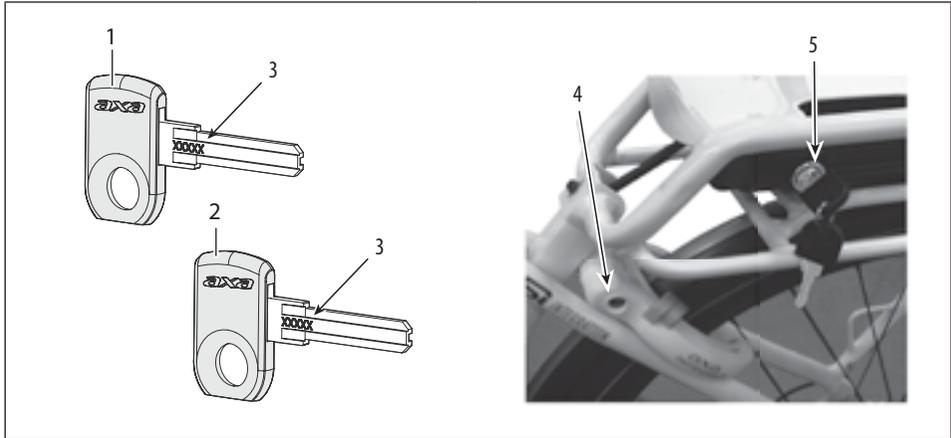
(mm)	RIGID MEN			RIGID WOMEN			CX RIGID			CX HEADSHOK		
	S	M	L	S	M	L	S	M	L	S	M	L
A Seat Tube length	520	570	620	470	530	580	440	520	600	440	520	600
B Top tube horizontal	585	599	618	570	578	590	550	585	620	550	585	620
D Head tube angle	71°	71.5°	72°	71°	71°	71°	69°	70°	71.5°	69°	70°	71.5°
E Seat tube angle	74°	73.5°	73°	75°	75°	75°	74°	73°	72.5°	74°	73°	72.5°
G Head tube length	160	160	180	160	160	180	140	160	180	160	160	160
H Wheelbase	1105	1109	1116	1107	1115	1129	1093	1108	1122	1100	1111	1123
I Front Center	649	647	654	644	651	665	632	647	660	638	650	661
J Chain stay length	470	470	470	470	470	470	470	470	470	470	470	470
K Bottom bracket drop	67	67	67	58	58	58	67	67	67	67	67	67
L Bottom bracket height	283	283	283	292	292	292	277	277	277	277	277	277
M Fork rake	45	45	45	45	45	45	45	45	45	45	45	45
O Stack	591	591	791	591	591	791	547	597	622	634	647	654
P Reach	415	423	430	398	401	401	386	403	424	366	387	414

Frame	Aluminium 6061-T6
Headtube	OnePointFive, Cannondale Headshok
Fork	Headshok Fatty DL50, Fatty Rigid
Drive Chain	9-speed, 114 Links / 10 speed 114 links
Chainring / Rear Cassette	42T 4-Bolt 104 BCD / 11-32, 9 speed 11-32, 10 Speed
Seat Post	27.2mm dia.
Dropout Spacing/ RD Hanger	135 mm / KP284/
Front Brake / Rear Brake	Post Mount / International Standard

KEYS

Your E-Series bike comes with a main key (1) and spare key (2). The keys are identified by the serial number (3). The keys work in both the rear wheel frame lock and the BOSCH battery lock. Please record the key serial number for future use and key replacement. If your keys are ever lost or stolen, or you would like additional spares, please contact AXA BASTA for ordering information.

AXA BASTA website: <http://www.axa-basta.nl/keyservice-eng.html>



- | | | |
|--------------|----------------------|-----------------|
| 1. Main Key | 3. Key Serial Number | 5. Battery Lock |
| 2. Spare Key | 4. Rear Wheel Lock | |

NOTICE

Don't ride with key in battery lock. Always remove the key from the lock after using it. Keys may be stolen or break off accidentally in the lock. Keep your spare key in a safe place.

Key is not removable from the wheel lock when riding (unlocked).

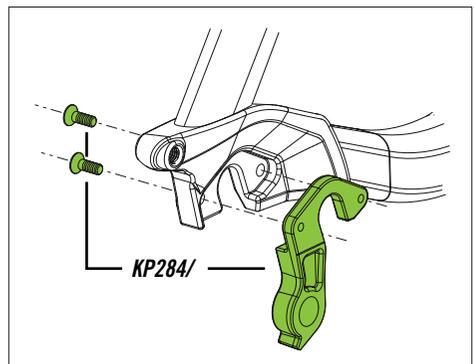
REPLACEMENT PARTS

The following replacement part kits are available through a Cannondale Dealer:

E-Series	
CODE	DESCRIPTION
2KS00/BLK	KICKSTAND SI
KP192/	KIT, CHAINRING, FSA E-BIKE WB156 42T
KP259/	KIT CHAINGUARD E-SERIES BLK
KP260/	KIT CHAINGUARD E-SERIES WHT
KP261/BLK	KIT FENDER E BIKE FRONT BLK
KP262/BLK	KIT FENDER E BIKE REAR BLK
KP261/WHT	KIT FENDER E BIKE FRONT WHT
KP262/WHT	KIT FENDER E BIKE REAR WHT
KP256/	KIT, CABLE GUIDE BB E-SERIES
KP263/	KIT SEATBINDER E-BIKE
KP284/	KIT DER HANGER SINGLE SIDED MTN2
KP285/	KIT, STEM ADJ SATORI UP2 25 4/110MM

E-Series Headshok Fork related parts

CODE	DESCRIPTION
HD191/BLK	KIT, BOOT, HEADSHOK
QSISEAL/	KIT, SEAL, UPPER BEARING, 58MM OD
HD169/	KIT, BEARINGS, HEADSET - 2
KF239/XL	KIT, DAMPER, DL50XL
KF241/	KIT, SPRING, DL50, SOFT
KF242/	KIT, SPRING, DL50, STD
KF243/	KIT, SPRING, DL50, FIRM
KF258/	KIT, LEVER, LO, DL80/50





WARNING! READ THIS SUPPLEMENT AND YOUR CANNONDALE BICYCLE OWNER'S MANUAL. BOTH CONTAIN IMPORTANT SAFETY INFORMATION. KEEP BOTH FOR FUTURE REFERENCE.

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