130374

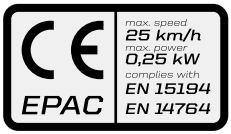
E-SERIES

OWNER'S MANUAL SUPPLEMENT

cannondale

CONTENTS

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



MODEL CODE	MODEL DESCRIPTION
CM2038	MAVARO MENS HEADSHOK
CM2290	MAVARO MENS HEADSHOK ALFINE 8
CF2293	MAVARO CITY HEADSHOK
CF2294	MAVARO CITY HEADSHOK ALFINE 8
CF2390	MAVARO WOMENS HEADSHOK
CM2389	MAVARO MENS RIGID
CF2393	MAVARO WOMENS RIGID
CM2394	TRAMOUNT 1
CM2396	TRAMOUNT 2

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/.

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

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.

cannondale

SAFETY INFORMATION

ENGLISH

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.

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 disengage. 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.

MAVARO ASTM CONDITION 2, General Purpose Riding	**INTENDED:**For paved roads, gravel or dirt roads that are in good condition, and bike paths. **NOT INTENDED:** For off-road or mountain bike use, or for any kind of jumping.
TRAMOUNT ASTM CONDTION 3, Hardtails	**INTENDED:** for "limited" mountain bike use, riding only improved trails and surfaces without jumps or obstacles. **NOT INTENDED:** for any jumping, very aggressive cross-country/mountain bike riding, racing or stunts. Jumping or riding over very technical, rough or unimproved trails (roots, rocks, embankments) can result in serious damage to the frame or drive system. Indications of such abuse would void applicable warranties. ****EXCEPTION:** This model must not be used as a commuter bike until the proper/required accessories (reflectors, lighting, and locally required safety devices have been installed by a professional bike mechanic.

⚠ 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 you 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 YOU 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 ACTIVIATION - 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.

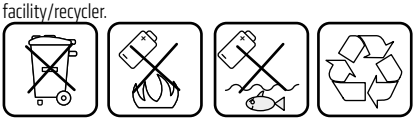
STORAGE & TRANSPORTATION - When the battery is not in use in the bicycle, its transportation is subject to hazardous materials regulation. Special packaging and labeling requirements may exist. Contact local authorities for specific requirements. Never transport a damaged battery. Insulate battery contacts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

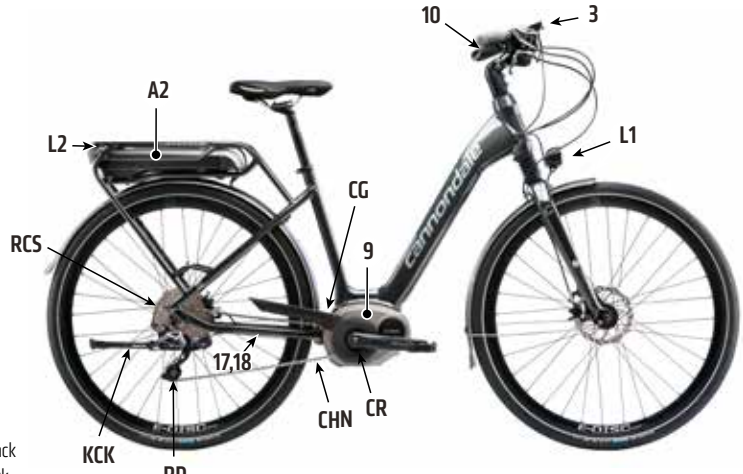
Do not overload the rear rack. Make sure the cargo is secured properly.

RACK MAXIMUM WEIGHT LIMIT: 25Kg, 55lbs

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

PARTS OF THE E-SERIES BIKE

MAVARO



3 Drive HMI
9 Drive unit
10 Operating unit
17 Speed sensor
18 Spoke magnet of the speed sensor
A2 Rack-type battery pack
A8 Standard battery pack
L1 Headlight
L2 Taillight

FB - Front Brake
RB - Rear Brake
BELL - Bell
SHFT - Gear Shift
CHN - Drive Chain
CR - Chainring
CG - Chain Guard
KCK - Kick Stand

TRAMOUNT

OPERATION

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.

Factors Affecting Assistance Range

1. **Battery Charge Level** - A fully charged battery will provided the greatest range. Before every ride, make sure the battery is fully charged.
2. **Assitance 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 it 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 requirted 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.

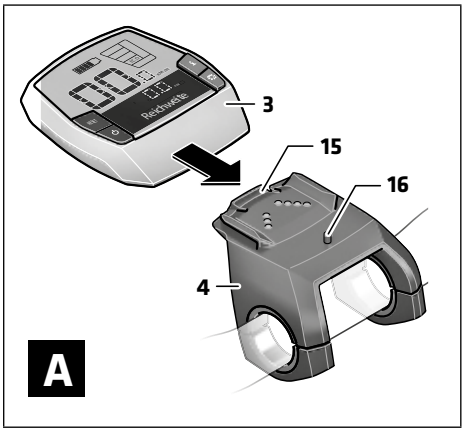
Inserting and Removing the HMI (see figure A)

To **insert** the HMI **3**, slide it from the front into the holder **4**.

To remove the HMI **3**, press the lock latch **15** and slide the HMI toward the front out of the holder **4**.

- **Remove the HMI when you park the eBike.**

It is possible to secure the HMI against removal in the holder. To do so, remove the holder **4** from the handlebars. Put the HMI in the holder. Screw the locking screw **16** (thread M3, 8mm long) from below into the thread provided in the holder. Mount the holder back onto the handlebars.

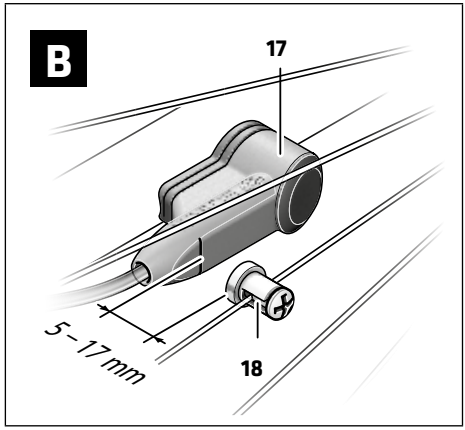


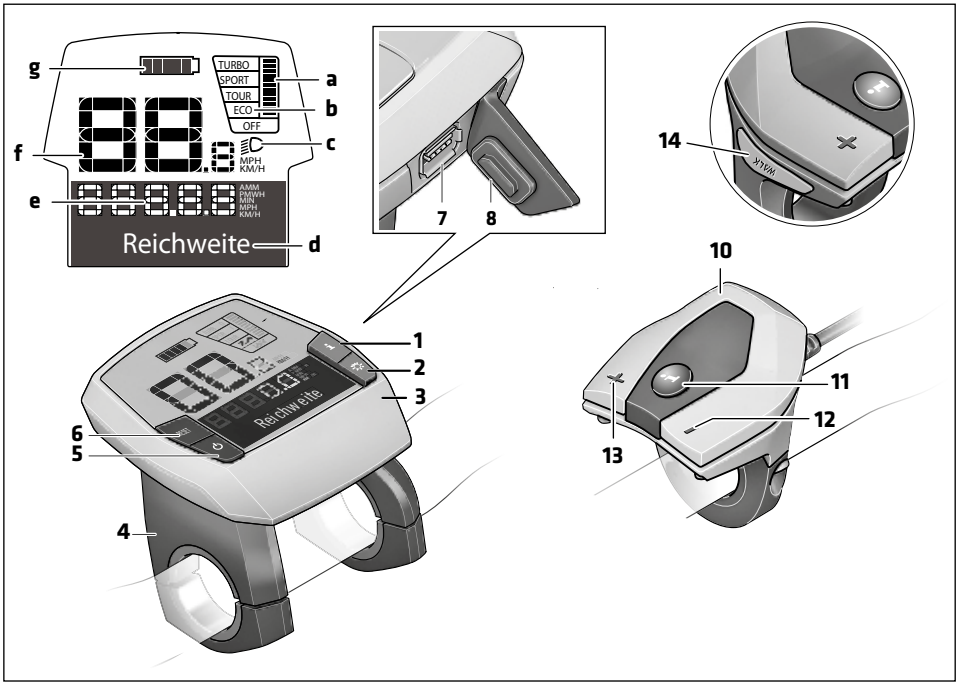
Checking the Speed Sensor (seefigureB)

The speed sensor **17** and its spoke magnet **18** must be mounted in such a manner that the spoke magnet, after a turn of the wheel, moves past the speed sensor with a clearance of at least 5mm, yet no more than 17mm.

Note: If the clearance between speed sensor **17** and spoke magnet **18** is too small or too large, or if the speed sensor **17** is not properly connected, the speed indication **f** will fail, and the eBike drive will operate in emergency mode.

In this case, loosen the screw of the spoke magnet **18** and fas-ten the spoke magnet to the spoke in such a manner that it runs past the mark of the speed sensor at the correct clearance. When the speed is still not being indicated in the speed indication f after this, please refer to an authorised bicycle dealer.





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
9. Drive unit
10. Operating unit
11. Display-function button "i" on the operating unit
12. Reduce value/scroll down button "–"
13. Increase value/scroll up button "+"
14. Push-assistance button "WALK"

Indication Elements, Drive HMI

a. Motor-output indicator
b. Assistance-level indicator
c. Text indication
d. Value indication
e. Speed indication
f. Battery charge-control indicator

Switching the eBike System On/Off

Options for **switching on** the eBike system:

- If the HMI is already switched on when inserted into the holder, then the eBike system will be switched on automatically.
- When the HMI and the battery pack are inserted, briefly press the On/Off button **5** of the HMI once.
- When the HMI is inserted, press the On/Off button of the battery pack (see battery pack operating instructions).

The drive is activated as soon as you step into the pedals (except when in push assistance mode, see "Switching the Push/Start Aid On/Off" . The motor output depends on the settings of the HMI.

As soon as you stop pedaling when in normal operation, or as soon as you have reached a speed of 25/45km/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 25/45km/h.

Options for **switching off** the eBike system:

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

If no power is drawn from the drive for about 10minutes (e.g. because the eBike is not moving), the eBike system will shut down automatically to save energy.

Switching the HMI On/Off

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

To switch off the HMI, press the On/Off button **5**.

When the HMI is not inserted in the holder and no button is pressed, it automatically switches off after 1 minute to save energy.

Indications and Settings of the HMI

Power Supply of the HMI

When the 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 HMI via the eBike's battery pack.

When the 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 HMI, "Attach to bike" is displayed for 3 seconds in text indication **d.** Afterwards, the HMI switches off again.

To recharge the internal battery pack, insert the 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 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 HMI to a commercially available USB charger or to the USB port of a computer; (5V charging voltage; max. 500mA charging current). **"USB connected"** is displayed in text indication **d** of the HMI.

Battery Charge-control Indicator

The battery pack charge-control indicator **g** indicates the charge condition of the eBike's battery pack, and not the charge condition of the 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 **g**, each bar of the battery pack symbol is equivalent to a capacity of approx. 20%:

	The battery is fully charged.
	The battery should be recharged.
	The LEDs of the charge-control indicator on the battery extinguish.The capacity for supporting the drive has been used up, and support is gently switched off. The remaining capacity is made available for the lighting and the HMI. The indicator flashes.

The capacity of the battery is enough for about 2more hours of lighting. This does not account for other consumers (e.g. automatic gearbox, charging external devices at the USB port).

When the HMI is removed from holder **4**, the last indicated battery pack charge condition is stored.

Switching the Lighting On/Off

In the version in which the driving light is powered via the eBike system, you can use the **2** button on the HMI to simultaneously switch the front light and rear light on and off.

When the lighting is switched on **"Lights on"** appears and when the lighting is switched off **"Lights off"** appears for approx 1 second in the text indication **d**. The illumination symbol **c** is displayed when the light is on.

Switching the driving light on and off has no effect on the back lighting of the display. The back lighting of the display is active as soon as the system or the display is switched on.

Speed and Distance Indication

The **speed indication f** always displays the current speed.The following functions are available in the **function indication** (combination of text indication **d** and value indication **e**):

- **"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
- **"odometer"**: Display of the total distance travelled with the eBike (not resettable)

To **switch between the indication functions**, press the **"i"** button **1** on the 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.

To **reset "Range"**, switch to this function and then press the **"RESET" 6** button until the display is reset to the value of the factory setting.

When the 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 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 **d.**

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

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 12hour or 24hour 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.
- **"power-on hours"**: Indicates the total travel duration with the eBike (not changeable).–"wheel circum.": You can change this value preset by the manufacturer by ±5%.

Setting the Assistance Level

The level of assistance of the eBike drive when pedaling can be adjusted via the 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.

Assistance Level	Assistance Factor*
"ECO"	40%
"TOUR"	100%
"SPORT"	150%
"TURBO"	225%

* The motor output can vary for individual versions.

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

Switching the Push/Start Aid On/Off

With the speed version, the push aid can also be used as a start aid. The start aid is switched off at 18 km/h.

The push/start aid can make it easier for you to push or start the eBike. The speed of this function depends on the selected gear and can reach a maximum of 6 km/h or 18 km/h. The lower the selected gear, the lower the speed of this function (at full capacity).

- **The push/start aid function may only be used when pushing or starting the eBike.**

> **WARNING**
>
> If the wheels of the eBike have no contact with the ground when using the push aid, then there is risk of injury. The wheels MUST be in contact with the ground before using the push/start aid function.

To **switch on** the push/start aid, press and hold the **"WALK" 14** button on the HMI. The eBike drive is switched on.

The push/start aid is switched off if one of the following occurs:

- you release the **"WALK" 14** button,
- the wheels of the eBike are blocked (e.g. by actuating the brakes or impacting against an obstacle),
- the speed exceeds 6 km/h.

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 **d.**
To return to the standard indication, press any button on the 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.

Error Codes

Code	Cause	Corrective Measure
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	
424	Communication error among the components	
426	Internal time-out error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
430	Internal battery pack of drive HMI empty	Charge drive HMI (in holder or via USB port)
440	Internal error of the drive unit	Restart the system. If the problem persists, contact your Bosch eBike dealer.
450	Internal software error	
490	Internal error of the drive HMI	Have the drive HMI checked
500	Internal error of the drive unit	Restart the system. If the problem persists, contact your Bosch eBike dealer.
502	Illumination error	Check the light and the associated wiring. Restart the system. If the problem persists, contact your Bosch eBike dealer.
503	Error of the speed sensor	Restart the system. If the problem persists, contact your Bosch eBike dealer.
510	Internal sensor error	
511	Internal error of the drive unit	
530	Battery pack error	Switch off the e-Bike, remove the battery pack and reinsert the battery pack. Restart the system. If the problem persists, contact your Bosch eBike dealer.
531	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
540	Temperature error	The eBike is outside of the permissible temperature range. Switch off the eBike system and allow the drive unit to either cool down or heat up to the permissible temperature. Restart the system. If the problem persists, contact your Bosch eBike dealer.
550	An improper load was detected.	Remove load. Restart the system. If the problem persists, contact your Bosch eBike dealer.
602	Internal battery pack error while charging	Unplug the charger from the battery pack. Restart the eBike system. Plug the charger into the battery pack. If the problem persists, contact your Bosch eBike dealer.
602	Internal battery pack error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
603	Internal battery pack error	
605	Battery pack temperature error	The eBike is outside of the permissible temperature range. Switch off the eBike system and allow the drive unit to either cool down or heat up to the permissible temperature. Restart the system. If the problem persists, contact your Bosch eBike dealer.
605	Battery pack temperature error while charging	Unplug the charger from the battery pack. Allow the battery pack to cool. If the problem persists, contact your Bosch eBike dealer.
606	External battery pack error	Check the wiring. Restart the system. If the problem persists, contact your Bosch eBike dealer.
610	Batter pack voltage error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
620	Charging error	Replace the charger. Contact your Bosch eBike dealer.
640	Internal battery pack error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
655	Multiple battery pack errors	Switch off the eBike system. Remove the battery pack and reinsert it. Restart the system. If the problem persists, contact your Bosch eBike dealer.
656	Software version error	Contact your Bosch eBike dealer so that he can perform a software update.
656	Battery pack configuration error	
No Display	Internal error of the HMI	Restart your eBike system by switching it off and back on.

LITHIUM ION BATTERY PACK

Technical Data

Lithium ion battery pack		PowerPack 300	PowerPack 300
Article number – Standard battery pack, black – Standard battery pack, white – Rack-type battery pack		 0 275 007 500 0 275 007 501 0 275 007 502	 0 275 007 503 0 275 007 504 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)

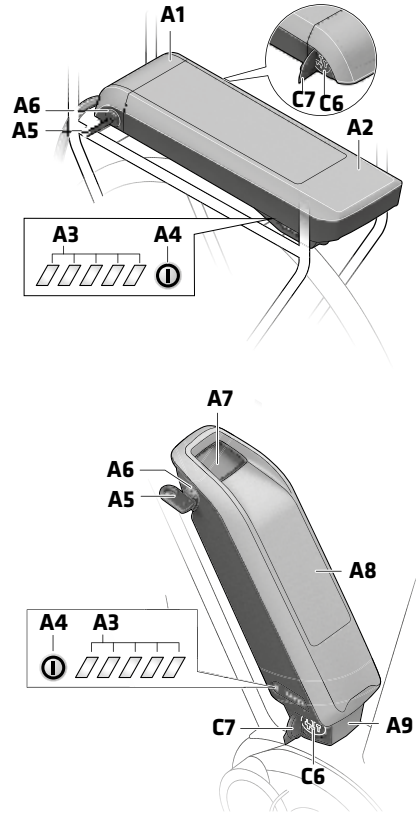
Checking the Battery Pack Before Using for the First Time

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

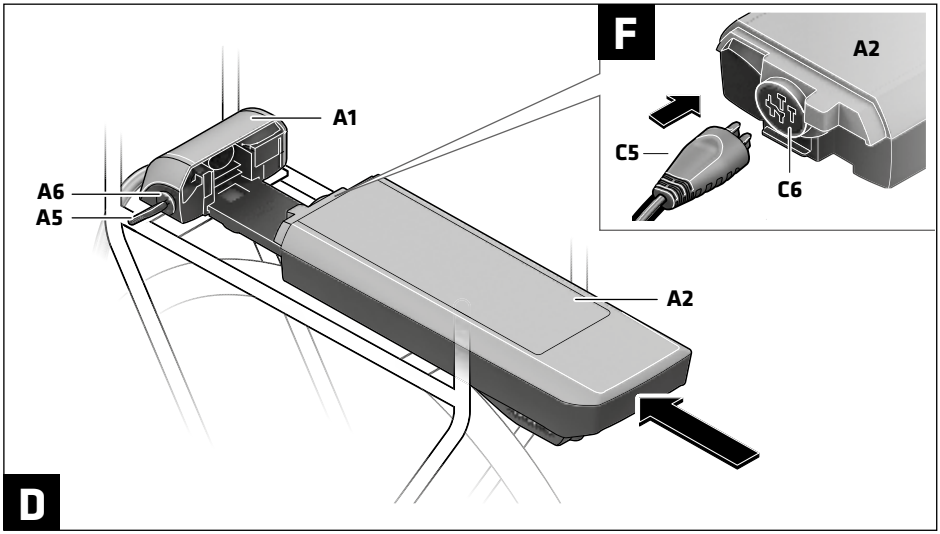
For this, press the On/Off button **A4** to switch on the battery pack. When no LED of the charge-control indicator **A3** lights up, the battery pack may be damaged.

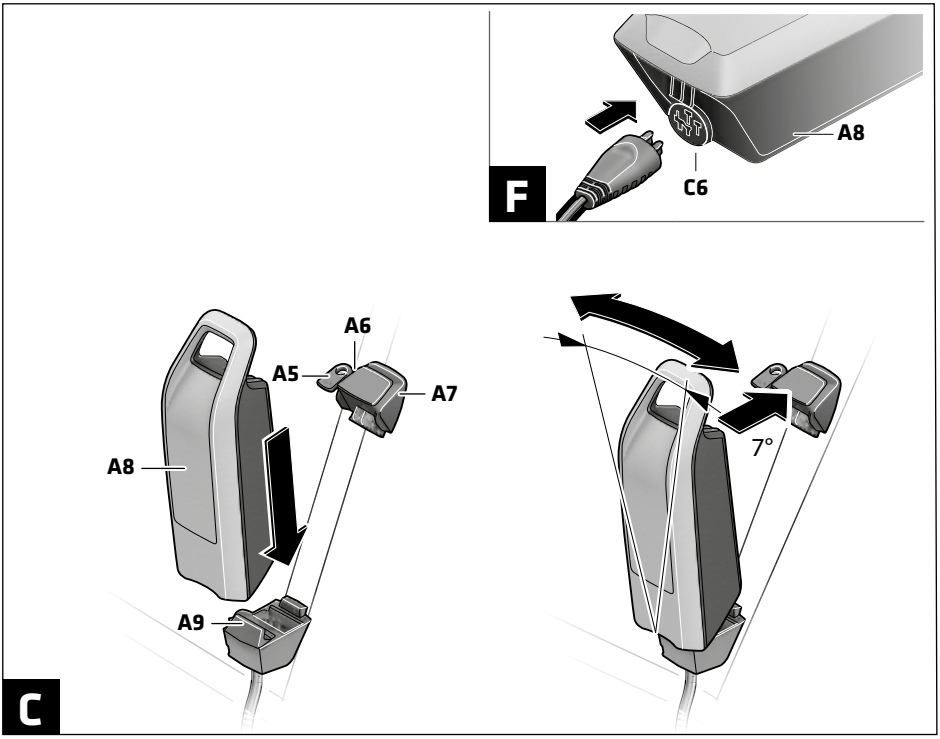
When at least one, but not all LEDs of the charge-control indicator **A3** is lit, then fully charge the battery pack before using for the first time.

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



A1 Holder of the rack-type battery pack
A2 Rack-type battery pack
A3 Operation and charge-control indicator
A4 On/Off button
A5 Key of the battery pack lock
A6 Battery pack lock
A7 Upper holder of the standard battery pack
A8 Standard battery pack
A9 Bottom holder of the standard battery pack
C6 Socket for charge connector
C7 Charge socket cover


F
A2
C5
C6
A1
A6
A5
A2
D


A8
F
C6
A6
A5
A7
A8
A9
7°
C

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

The battery pack can be recharged at any time on its own or on the bike without shortening the lifespan. Interrupting the charging process does not damage 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 **A3** 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 **A3** 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.

The charge-control of the switched on battery pack is also indicated on the display of the HMI. Read and observe the operating instructions of the drive unit and the HMI.

When the capacity of the battery pack is below 5 %, all LEDs of charge-control indicator **A3** 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 **A5** must be inserted into the lock **A6** and the lock must be unlocked.

To insert the standard battery pack **A8**, place it with the contacts on the lower holder **A9** on the eBike (the battery pack can be inclined up to 7° to the frame). Tilt it into the upper holder **A7** until it engages.

To insert the rack-type battery pack **A2**, slide it with the contacts facing ahead until it engages in the holder **A1** of the rear rack/carrier.

Check if the battery pack is tightly seated. Always lock the battery pack with lock **A6**, as otherwise the lock can open and the battery pack could fall out of the holder.

After locking, always remove the key **A5** from the lock **A6**. 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 A8**, switch it off and unlock the lock with the key **A5**. Tilt the battery pack out of the upper holder **A7**and pull it out of the lower holder **A9**.

To remove the rack-type battery pack **A2**, switch it off and unlock the lock with the key **A5**. Pull the battery pack out of the holder **A1**.

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 **A6** is locked.
To **switch on** the battery pack, press the On/Off button **A4**. The LEDs of indicator **A3** 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 **A3** 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 **A4** again. The LEDs of indicator **A3** 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, over charging, 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 **A3** 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.

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 **A3**).

Check the charge condition after 6 months. When only one LED of the charge-control indicator **A3** 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°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.

It is recommended to not store the battery pack on the bike.

Maintenance and Cleaning

Keep the battery pack clean. Clean the battery pack carefully with a soft, damp cloth. The battery pack may not be immersed in water or cleaned with a water jet.

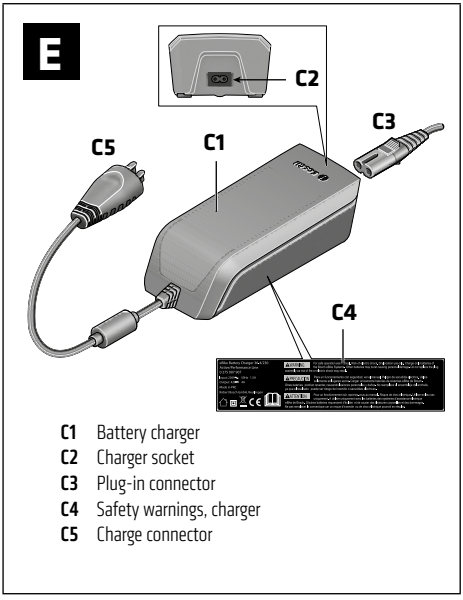
When the battery pack is no longer operative, please refer to an authorised bicycle dealer.

BATTERY CHARGER

Technical Data

Battery Charger		Charger
Article number		0 275 007 907
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 – PowerPack 400	 h h	 2.5 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.



C1 Battery charger
C2 Charger socket
C3 Plug-in connector
C4 Safety warnings, charger
C5 Charge connector

Connecting the charger to the mains (seefigureA)

- **Observe the mains voltage!** The voltage of the power supply must correspond with the data given on the name plate of the battery charger. Battery chargers marked with 230V can also be operated with 220V.

Plug the charger plug **C3** of the power cord into the charger socket **C2** of the charger.

Connect the mains cable (country-specific) to the mains supply.

Charging the removed battery (see Figure B)

Switch the battery pack off and remove it from the holder of the eBike. For this, read and observe the operating instructions of the battery pack.

- **Place down the battery pack only on clean surfaces.** In particular, avoid soiling the charge socket and the contacts, e.g. by means of sand or ground.

Insert the charger plug **C5** of the battery charger into the socket **C6** on the battery pack.

Charging the battery on the Bike (seefigureC)

Switch the battery off. Clean the cover of the charge socket **C7**. Prevent especially the charge socket and the contacts from getting dirty, e.g. by sand or soil. Lift the cover of the charge socket **C7** and plug the charge connector **C5** into the charge socket **C6**.

- **Charge the battery only in accordance with all safety instructions.** If this is not possible, remove the battery from the holder and charge it in a more suitable location. When doing so, read and observe the operating instructions of the battery.

Charging Procedure

The charging procedure begins as soon as the charger is connected to the battery or the charge socket on the bike and the mains.

Note: The charging procedure is only possible when the temperature of the battery pack is within the allowable charging temperature range.

Note: The drive unit is deactivated during the charging procedure.

The battery can be charged with and without the HMI. When charging without the HMI, the charging procedure can only be observed on the battery charge-control indicator. When the HMI is connected, the back lighting of the display is switched on at low luminosity and "**Charging"** appears in the text display.

The HMI can be removed during the charging procedure, or it can also be fitted after the charging procedure has begun.

The charging state is displayed by the battery charge-control indicator **A3** on the battery and by the bars on the HMI.

When charging the main battery on the bike, the battery of the HMI can also be charged.

During the charging procedure, the LEDs of charge-control indicator **A3** on the battery pack light up. Each continuously lit LED is equivalent to a charge capacity of approx. 20%. The flashing LED indicates the charging of the next 20%.

- **Use caution when touching the charger during the charging procedure. Wear protective gloves.** Especially in high ambient temperatures, the charger can heat up considerably.

Once the battery is fully charged, the LEDs extinguish immediately and the HMI is switched off. The charging procedure is terminated. The charging state can be displayed for 3 seconds by pressing the on/off button **A4**.

Disconnect the charger from the mains supply and the battery pack from the charger.

When disconnecting the battery pack from the charger, the battery pack is automatically switched off.

Note: If you have charged the battery on the bike, carefully close the charge socket **C6** with the cover **C7** after the charging procedure so that no dirt or water can get in.

If the charger is not disconnected from the battery after charging, after a few hours the charger will switch itself back on, check the charging state of the battery and begin the charging procedure again if necessary.

Troubleshooting – Causes and Corrective Measures

Cause	Corrective Measure
	**Two LEDs of the battery pack flashing.**
Battery pack defective	Refer to an authorised bicycle dealer
	**Three LEDs of the battery pack flashing.**
Battery pack too warm or too cold	Disconnect the battery from the charger until the charging temperature range has been reached.Do not connect the battery pack to the charger until it has reached the allowable charging temperature.
No charging procedure possible (no indication on battery pack)	
Plug not inserted correctly	Check all plug connections
Contacts of battery pack soiled	Carefully clean the contacts of the battery pack
Socket outlet, cable or charger defective	Check mains voltage, have charger checked through bicycle dealer
Battery pack defective	Refer to an authorised bicycle dealer

MAINTENANCE

The following table lists only supplemental maintenance items. Please consult your Cannondale Bicycle Owner's Manual for more information on basic bike maintenance. Consult with your Cannondale Dealer to create a complete maintenance program for your riding style, components, and conditions of use. Follow the maintenance recommendations given by the component manufacturers for the various non-Cannondale parts of your bike.

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!

Drive Unit

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 , reattach 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 a 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.

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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 accomodate 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.

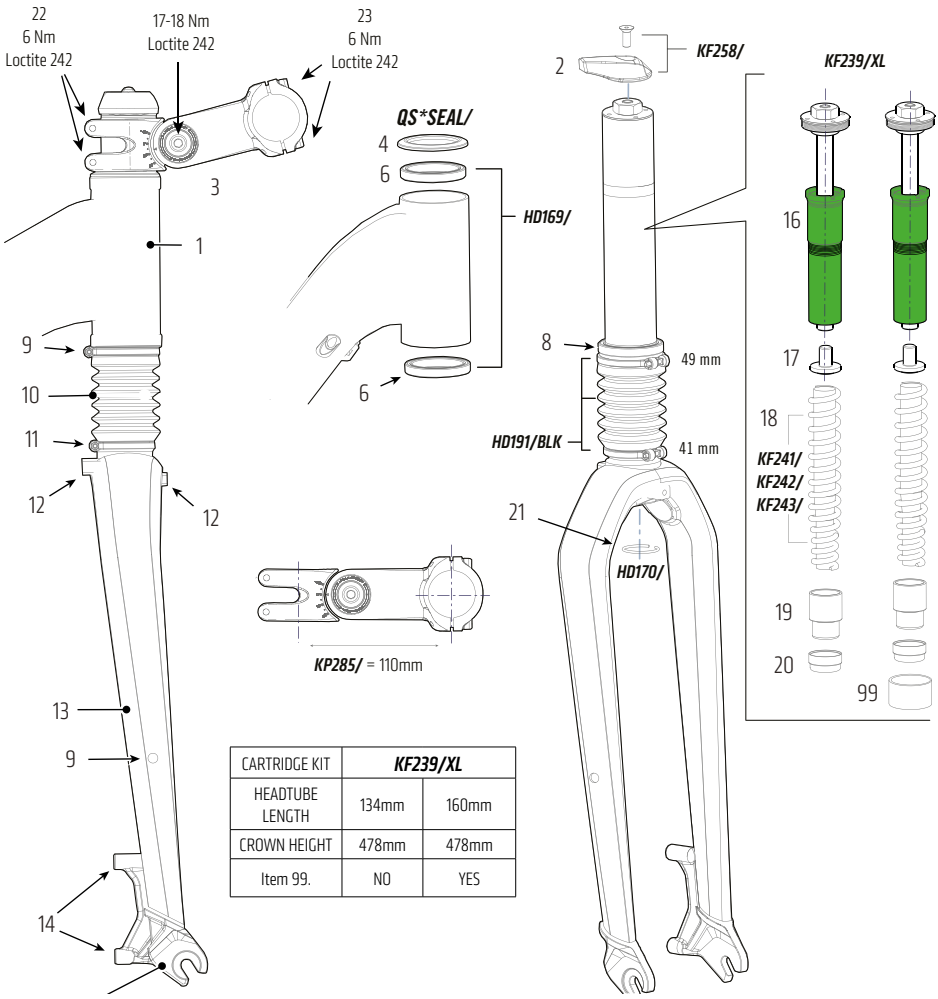
To change the lever position:
Remove the retaining screw with a 3 mm Allen key andcarefully lift off the lockout lever with your fingers. Reposition the lever while aligning it with the large nut. Press it onto the large nut. Reinstall the retaining screw and tighten to 0.5 Nm, 4 in Lbs.

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.



CARTRIDGE KIT	KF239/XL	
HEADTUBE LENGTH	134mm	160mm
CROWN HEIGHT	478mm	478mm
Item 99.	NO	YES

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

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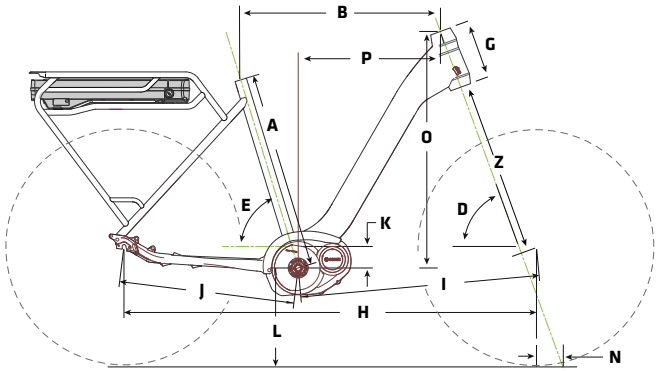
TECHNICAL INFORMATION

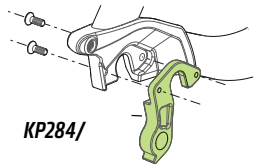
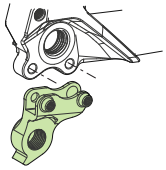


Geometry

Model	Size (cm)	A	B	E	D	P	K	M	I	L	J	Z	G	H	O
MAVARO WOMEN'S HEADSHOK	**47**	470	570	73.5	70	381.2	58	45	643	286	473	473	160	1109	637
	53	530	578	73	70	383.2	58	45	645	286	473	473	160	1111	637
	58	580	590	72.5	70	389.1	58	45	650	286	473	473	160	1117	637
MAVARO MEN'S HEADSHOK/ RIGID	**52**	520	585	74	71	401.0	58	45	652	286	473	473	160	1119	642
	57	570	599	73.5	71.5	408.3	58	45	654	286	473	473	160	1121	644
	62	620	618	73	72	420.5	58	45	661	286	473	473	160	1128	646
MAVARO CITY HEADSHOK	**44**	440	570	73.5	70	381.2	58	45	643	286	473	473	160	1109	637
	47	470	570	73.5	70	381.2	58	45	643	286	473	473	160	1109	637
	53	530	578	73	70	383.2	58	45	645	286	473	473	160	1111	637
	58	580	590	72.5	70	389.1	58	45	650	286	473	473	160	1117	637
TRAMOUNT	**S**	38	578	73	70.5	379.9	65	45	637	308	482		134	1112	648
	M	433	600	73	70.5	401.9	65	45	659	308	482		134	1134	648
	L	475	622	73	70.5	423.9	65	45	681	308	482		134	1156	648
	XL	525	644	73	70.5	445.9	65	45	703	308	482		134	1178	648

A - Seat Tube Length
B - Top Tube Horizontal
D - Head Tube Angle
E - Seat Tube Angle
G - Head Tube Length
H - Wheelbase
I - Front Center
J - Chain Stay Length
K - Bottom Bracket Drop
L - Bottom Bracket Height
M - Fork Rake
O - Stack
P - Reach
Z - Crown Height

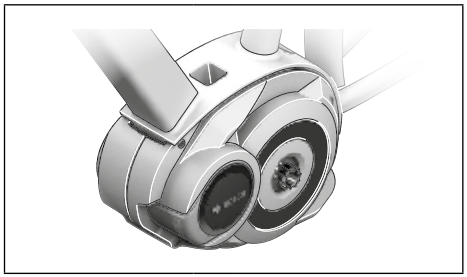
Specifications

MODEL	MAVARO	TRAMOUNT
Drive (Motor Unit/Battery)	BOSCH Active Cruise 250W/ Powerpack 400 (**A2** - rack type)	BOSCH Active Cruise 250W/ Powerpack 400 (**A8**-Standard)
Seat Post	27.2 mm	
Chainring / Rear Cassette	FSA Metropolis/ 11-36T, 10spd	FSA CK-745/10 spd, 11-36T
RD Hanger	 *KP284/*	 *KP173/*

WARNING Please read your **Cannondale Bicycle Owner's Manual** for more information on the following specifications:

Intended Use (see also page 2)	ASTM CONDTION 2, General Purpose Riding	ASTM CONDTION 3, Hardtails
Maximum Weight Limit (Lbs/Kg)	RIDER (lbs/kg): 300/136 — LUGGAGE (lbs/kg): 55/25 — TOTAL (lbs/kg): 330/150	

Drive Unit | Intuvia Technical Data



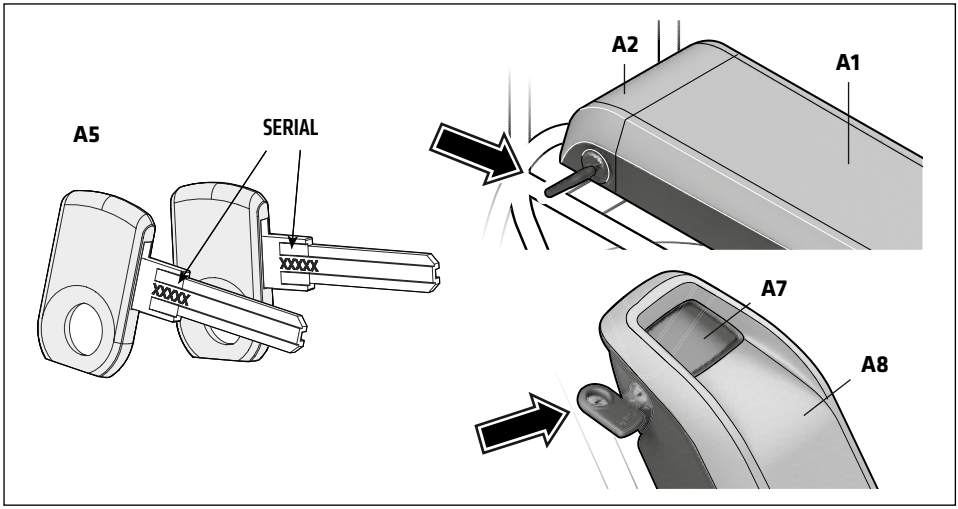
Drive Unit (9)		Drive Unit
Article number		0 275 007 020 0 275 007 022
Power output	W	250
Output torque, max.	Nm	48
Rated voltage	V=	36
Operating temperature	°C	–5...+40
Storage temperature	°C	–10...+50
Degree of protection		IP 54 (dust and splash water protected)
Weight, approx.	kg	4

Drive HMI (3)		Intuvia
Article number		1 270 020 906
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	6.6
– Rear light	W	0.6

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

KEYS



Your E-Series bike comes with a main key and spare key. The keys are identified by the serial number **SERIAL**. 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 additonal spares, please contact:

Replacement information by key manufacturer:	AXA	http://www.axa-stenman.com
	ABUS	www.abus.com
	TRELOCK	http://www.trelock.de/web/en/services/schluesselservice/schluesselservice.php

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

Record SERIAL here.

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.