

E-bike manual supplement



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Supplementary E-bike Manual

Please read this document in conjunction with the main Bristol Bicycles user manual. Both contain important safety and maintenance information. It is essential that you read them thoroughly before you ride your new bike, and keep them for future reference.

Please pay special attention to all the points of safety information in both manuals, as they are in place to help you avoid serious injury.

You must be over 14 to ride an E-bike under UK law.

The drive assist system is limited to a maximum continuous power rating of 250W and a maximum speed of 25Km/h (15 mph).

Be aware that the speed at which an E-bike accelerates may be faster than a normal bike.

Electrical Safety

Only use batteries and chargers supplied by Bristol Bicycles. Never modify the charger in any way. Do not disassemble batteries. Always check that the mains voltage is the same as that stated on the charger label.

A charger that is suitable for one type of battery pack may cause a risk of fire when used with another battery pack; never use the supplied charger with another appliance or attempt to charge the battery with a different charger, even if the plug appears compatible.

Before every use, check the charger cord for signs of damage or ageing. A damaged or tangled charger cord increases the risk of fire and electric shock. Do not abuse the charger cord. Never carry the charger by the cord. Do not pull the cord to disconnect from a socket; grasp the plug and pull to disconnect. Don't coil the cord tightly or wrap it around the charger when storing. Keep the charger cord away from hot surfaces and sharp edges. Do not handle the charger with wet hands. Do not store or charge the battery outdoors. Do not submerge your complete E-bike, battery or charger in water. The charger must be removed from the mains socket before removing the battery.

Battery Safety

This bike includes a Lithium-ion battery; do not incinerate batteries or expose to high temperatures, as they may explode. Shorting the battery terminals may cause burns or fire. Do not place the battery on wet or metallic surfaces.

When you dispose of the bike, first remove the battery and dispose of it safely in accordance with local regulations.

Leaks from the battery cells can occur under extreme conditions. Do not attempt to use or charge a damaged or leaking battery. Liquid ejected from the battery may cause irritation or burns, and may be flammable. Do not touch any liquid that leaks from the battery. If the liquid gets on the skin wash immediately with soap and water. If the liquid gets into the eyes, flush them immediately with clean water for a minimum of 10 minutes and seek medical attention. Wear gloves to handle a damaged battery and dispose of immediately in accordance with local regulations.

CHARGING INSTRUCTIONS

Determining the battery level

Press and hold the charge indicator button at the back of the battery to determine the charge level.

If fully charged the indicator will display four green lights. After some use, the battery will discharge and the number of lights displayed will drop down to three, then two, then one.

When the battery charge drops down to one green light, it is time to recharge.

Using the charger

Do not use the charger outdoors. If you bring the bike indoors the battery can be charged without removing it from the bike. First turn the bike off using the 'M' power button on the handlebar display. Then simply plug the charger into the battery on the bike.

Alternatively you can remove the battery from the bike to recharge it. Turn the key a quarter-turn clockwise with one hand, and pull the battery out backwards with the other hand.

Gently open the rubber cover on the battery's charging socket and plug in the charger. Then plug the charger into the mains socket, and switch the socket on.

The light on the charger will glow red when the battery is charging. Once fully charged, the light will turn green. Don't simply charge until the battery indicator shows four bars of charge; always charge until the charger light switches from red to green.

A fully discharged battery can take 6 to 8 hours to recharge. Once the battery is fully charged, switch off the charger and then unplug the battery.

For improved battery health, always fully charge the battery, but avoid leaving it on charge for prolonged periods of time (see the Battery Care section for more tips).

Battery Functions

charge indicator button

charge indicator



charging socket

battery release key

rear light button



rear light

RIDING

It is essential that you also read the separate Bristol Bicycles user manual thoroughly before you ride your new bicycle.

Switching on Your Bristol Bicycles E-bike

To switch the E-bike on, press and hold the 'M' power button on the handlebar display for 2 seconds. Once the display is activated the bike is ready to ride. **SAFETY WARNING: When the handlebar display is activated the bike is 'live' and the motor will drive forward whenever the pedal cranks are turned or the green button is used. Do not push on the pedals or use the green button until it is safe to move forward and you are ready to ride.**

Handlebar Display

+ button

Press to increase power-assist
Hold to turn front light on/off

battery level

power-assist level

M button

Press for modes
Hold to switch on/off

speed

distance

- button

Press to decrease power-assist



The pedal-assist design of all Bristol Bicycles E-bikes means the power assist is automatic: once you pedal, the motor will start to assist.

You can vary the level of power assist. Press the + button on the display to increase the level of assist. The maximum setting (5) will provide most power, but will deplete the battery more quickly. Press the - button to

decrease the level. The minimum setting (1) will provide least power, but will drain the battery more slowly.

“Walk Assist” Function

In addition to the automatic pedal assist, Bristol Bicycles have a “walk assist” function which provides a boost to help push the bike whilst walking, especially useful with heavy luggage or uphill. It is limited to 6Km/h and is therefore legally compliant with UK road regulations. On bikes fitted with a green button on the left-hand handlebar, press and hold this button to activate the walk assist. On bikes without a green button, press and hold the – button on the handlebar display.

Avoid using the walk assist when you are stood stationary beside the bike or walking very slowly as it could cause the bike to jump forward unexpectedly.

Display Modes

The handlebar display has a number of modes which can be selected by pressing the 'M' button to the left of the screen.

ODO: the total distance travelled by this bike.

TRIP: the distance travelled on this trip (since it was last reset). See below for instruction on resetting the trip distance.

TIME: the length of time this bike has been ridden on this trip (since it was last reset).

AVG: the average speed over this trip.

MAX: the highest speed reached on this trip.

Resetting the Display

To reset the trip distance, time, average speed and maximum speed, follow these steps:

1. Press and hold the + and – buttons simultaneously. Release after 2 seconds once the display reads *TC–n*
2. Press the + button once to change the display to read *TC–y*
3. Press and hold the 'M' button for 2 seconds. The display will now reset.

Battery Range

Once fully charged, the standard 11Ah battery will give a range of between 25 and 40 miles, assuming an average rider weight on average terrain using a medium power assist setting.

Factors that will extend this range:

- Reducing the power assist to 1 or 2.
- Switching off the power assist on flat or downhill sections.
- Keeping the bicycle in good mechanical condition, and with a correctly lubricated chain.
- Inflating the tyres to their recommended pressure.
- Less hilly terrain.
- A lighter rider, and less luggage.
- Warm weather (battery cells are more efficient at higher temperatures).
- A newer battery which has not been used very much.

Factors that will reduce this range:

- Increasing the power assist to 4 or 5.
- Keeping the power assist switched on all the time.
- Allowing the bicycle to become worn, badly adjusted or badly lubricated.
- Riding the bike with under-inflated, soft tyres.
- Hilly terrain.
- A heavier rider, or more luggage.
- Cold weather (battery cells are less efficient in cold temperatures).
- An older, well-used battery which has experienced many discharge and recharge cycles.

Lights

The rear light is integrated into the battery, and is turned on and off using the button at the rear of the battery, to the right of the charge indicator.

On bikes equipped with a front light, turn it on and off by pressing and holding the + button on the handlebar display for 2 seconds (the front light will remain lit for 2 or 3 minutes after being turned off, and will then turn off).

The lights are powered by the main E-bike battery and do not require batteries of their own.

Riding in the Rain

The display, battery and motor are shower-proof and it is perfectly safe to ride your E-bike in the rain.

However, we strongly recommend you should not pressure-wash your E-bike, or store it outdoors as prolonged exposure to rain could lead to water ingress into the controller or cabling.

Never immerse the complete bike, motor, controller, battery or charger in water.

Do not use the battery charger outdoors or any environment where it is likely to get wet.

Switching off the E-bike

Press and hold the 'M' power button on the handlebar display to power-off the E-bike.

If the bike is left unused for 10 minutes it will automatically power-off to conserve battery. It can be turned on again in the normal way (see above).

If you want to keep the front light and handlebar display switched on, but you want to turn off the power assist, simply push the – button to reduce the assist level to 0.

MAINTENANCE AND CARE

Please follow the maintenance instructions in the main Bristol Bicycles user manual. The electrical components of your E-bike do not require any additional routine maintenance.

Never pressure-wash your E-bike as this could easily drive water into the controller, cabling, battery or motor.

Never immerse the complete bike, motor, controller, battery or charger in water.

Removing and Refitting the Rear Wheel

To remove the rear wheel, e.g. to replace the inner tube or tyre, follow these steps:

1. Disconnect the rear V-brake (refer to the main bike user manual for details)
2. Remove the re-usable zip-tie holding the motor cable to the bike frame
3. Disconnect the motor cable
4. Remove the rubber cover on the right-hand wheel nut, if present
5. Unscrew both wheel nuts a couple of turns using an 18 or 19mm spanner
6. Remove the wheel from the bike

To refit the rear wheel:

1. Insert the wheel fully into the frame, ensuring that the anti-turn washers on the axle are facing downwards
2. Tighten both rear wheel nuts to 40Nm using an 18mm spanner.
IMPORTANT: if the wheel nuts are not tightened correctly the axle can turn, damaging the bike frame beyond repair
3. Reconnect the motor cable, ensuring the arrows on both plugs are aligned
4. Refit the zip tie around the motor cable and frame, and ensure that the cable cannot touch the wheel or tyre.

BATTERY CARE

All Bristol Bicycles use lithium-ion batteries, where battery life is measured by the number of charge and discharge cycles rather than, say, the total time for which it has been used. Our batteries provide between 500 and 1,000 charge cycles before the range starts to decrease appreciably (i.e. below 80% of its original). With the right care your battery can last even longer, perhaps by up to 50%.

Factors that will extend battery life:

- Maintain the battery's charge level between 40% and 100% as much as possible.
- Only charge the battery when it drops below 50% – don't keep "topping it up" if it is already almost fully charged.
- Check the battery charge every month or two, even if unused.
- Only use the standard 2A charger supplied with your Bristol Bicycle.

Factors that will reduce battery life:

- Deep discharge. If you regularly drain the battery below 20% charge, this won't cause instant damage but it will shorten the battery's life.
- Leaving the battery permanently on charge. (If you leave your battery charging once full, it will discharge a little, then charge back to full, then discharge a little, then charge again, through countless small charge and discharge cycles, reducing its life.)
- Leaving the battery unused for many months. Li-ion batteries slowly self-discharge, and are irreparably damaged if they fully drain.
- Frequently placing a heavy load on the battery, e.g. always using maximum assist, constant very hilly terrain, high rider weight or heavy luggage.
- Using a fast charger of greater than 2A.

Summary

1. Charge it to 100%
2. Remove it from charging promptly once full
3. Use it until the charge reaches 20% to 40%.

Other Useful Tips

Unfortunately lithium-ion batteries age over time. This means that even if you haven't put your battery through many charge and discharge cycles, it will start to lose capacity after about 3 years. You should therefore aim to get the most out of your battery during that time. A good 200-300 charges each year, following the best practice above, will make sure you get your money's worth.

Finally, it's worth knowing that lithium-ion batteries can recover after heavy use. So if it looks like your battery is running low, lower the power assist level or take a short break and see if the voltage bounces back a little, giving you a more accurate reading as to the amount of charge left.

No Regenerative Braking

We're often asked if our electric bikes will recharge when going downhill, or if they can be recharged by the rider pedalling. The answer is no, and there are some very good reasons for this.

Firstly, our hub motors as "zero-drag geared motors", which means the motor only turns when it is activated. The great advantage of this is the complete lack of drag when freewheeling. The disadvantage is that it's incompatible with the idea of regenerative braking. Motors which do allow regenerative braking, called "direct drive" motors, tend to be much larger and heavier, and suffer from drag when you cycle (even with the motor turned off) such that you can't cycle normally when the battery is empty, and you can't even freewheel downhill as easily.

Secondly, regenerative braking isn't very effective on a vehicle as lightweight and relatively slow as a bicycle. The amount of energy you could actually recover, taking into account the energy lost to air resistance,

charging circuit inefficiency, battery heat and other effects, is pretty small for an average journey. And although in theory that might increase your range slightly, in reality you're probably better investing the money in bigger and better batteries.

Thirdly, it makes no sense at all to try and recharge the battery by pedalling – this would make pedalling much harder work and defeat the whole point of the bike being electric. If the rider has any extra energy available to put into the pedals, it is always more efficient to put this directly into the forward motion of the bike.

WARRANTY

All electrical components come with a 12-month limited warranty on materials and workmanship. The battery comes with an 18-month limited warranty. This warranty extends for 18 months from date of purchase while owned by the original retail purchaser.

If a component should fail due to faulty materials or workmanship within the warranty period, a replacement component will be provided free of charge. The owner is responsible for the return of the bicycle to the place of purchase for any work to be carried out.

Warranty is in addition to your statutory rights and does not effect them.

Errors and omissions excepted.

All Bristol Bicycles are tested and certified to comply with BS EN 14764 and/or ISO 4210. All E-bike components are certified to comply with EN 15194.

Bristol Bicycles is a trading name of Jake's Bikes Ltd, a company registered in England & Wales with company number 07449533. Registered address: 6A Haymarket Walk, Bristol BS1 3LN

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