BIKEGEN2

Thank you for using BikeGen2, we really hope that you enjoy using this cycle-powered generator! You can find our instruction videos by scanning the QR code or go to www.demomissions/bikegen2. This generator is very easy to assemble and operate and will be charging devices in minutes! For the very best results it helps to understand how BikeGen2 works most efficiently. This guide will help you to get the most from your generator!

1.) BikeGen2 is designed for standard adult 26–28-inch bike tyres. Smaller tyres may not contact the generator roller, while oversize tyres may damage the floor surface. Generally, larger, smoother tyres lead to better and quieter generator operation.

2.) When using the bicycle indoors, make sure there is ample space between the back wheel and the floor while it's on the stand. Ensure the tyre rotates smoothly without any obstacles. It's preferable to use the generator on a level, hard surface rather than a carpeted area to prevent the moving parts from touching soft furnishings.

3.) When possible, use the generator indoors or cover it for protection. Although BikeGen2 is durable, avoid using it in wet conditions.

4.) Find a level and sturdy surface to place the generator. Adjust the rubber feet to different heights for better stability if necessary. Avoid using the generator on uneven surfaces when possible. Ensure the unit is securely positioned before mounting the bike.

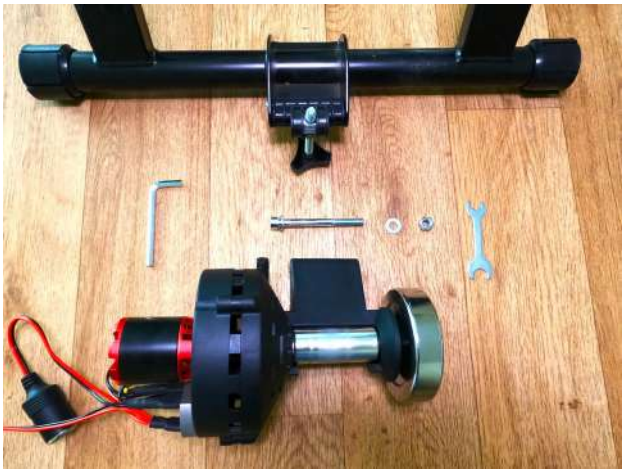
5.) Ensure all cables are properly connected to their respective sockets. The three motor wires can be plugged into any of the three terminals on that side. However, the two output cables must match their corresponding-coloured circles on the silver rectifier. Ensure no cables are touching the motor body, allowing it to spin freely. Before charging, check your output cables for good condition and safety.

6.) BikeGen2 is compatible with any 12v device that can connect to a cigarette lighter. This allows you to use an inverter for generating standard mains voltage power (110v/240v). Remember to follow the grounding guidelines for your chosen inverter, as we do not provide a specific one for BikeGen2.

7.) It is recommended to avoid using the generator in dusty or dirty environments that could allow debris to enter the motor casing (stator). Except for keeping BikeGen2 clean the generator requires little additional maintenance.

8.) BikeGen2 is a versatile variable voltage generator that adjusts its output based on your cycling speed. The faster you ride, the higher the voltage. This allows for various charging applications. To charge devices using the USB chargers we have provided, it's important to maintain a consistent pace, resulting in a voltage just above 12v. **The chargers are designed to operate at 12v so aim between 12v-12.5v**. You can check the voltage reading on the splitter, and an audible alarm will sound (if connected) when you ride too slowly. Please note: **Riding faster than this won't charge devices more quickly and may damage the chargers**. The more devices you charge, the more effort it takes to pedal. **Remember, it's not about speed - but more about stamina!** Where possible switch off mobile phones when charging as this will allow for faster charge times. **This mean that more devices can be charged simultaneously as less power is needed.**

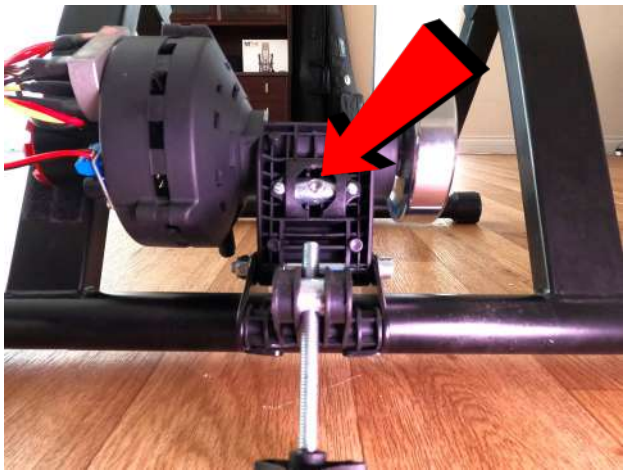
1. Unbox your BikeGen2



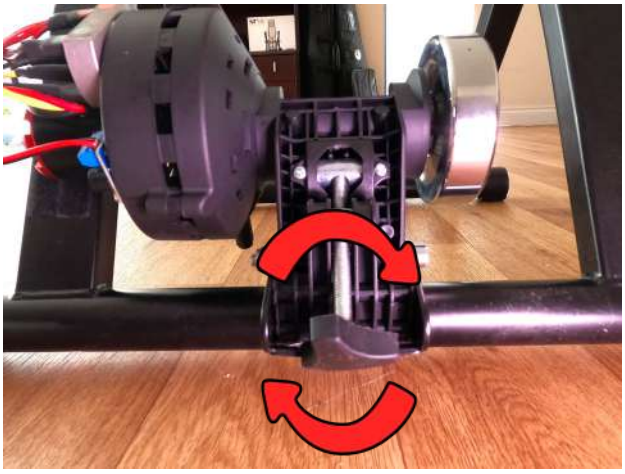
2. Get your tools ready to attach the generator

3. The large bolt goes through here to attach the generator

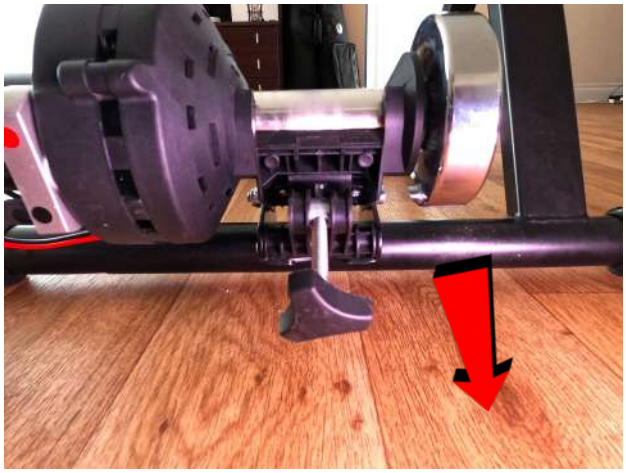
4. Use the tools to attach the generator - but not too tight!



5. Lift up the generator to find the traction bolt hole



6. Turn the bolt enough to extend it and position it in the hole



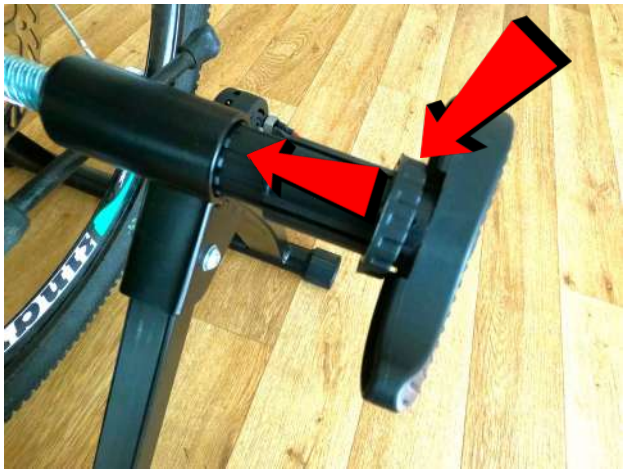
7. Pull the generator all the way back - ready for the bike

8. Line up the bolt on the back wheel with the sockets

9. Make sure the tyre is in the middle of the roller

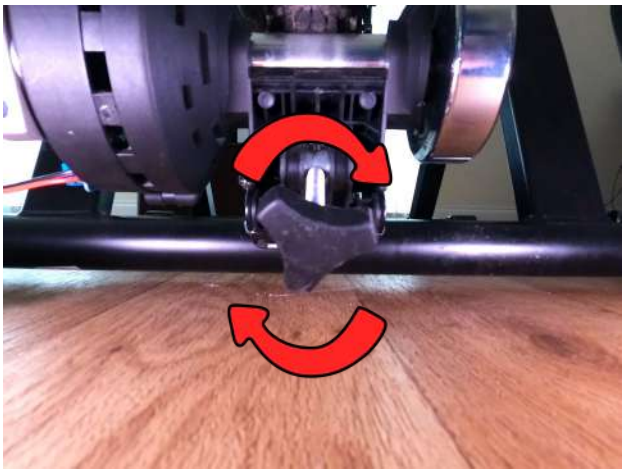
10. Turn both the handles to clamp the rear wheel in place

11. Make sure the wheel is secure - but not too tight!



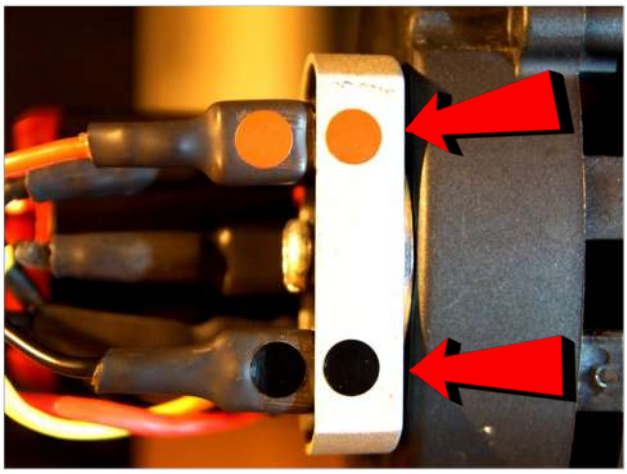
12. Lock both sides into place by sliding the ring inwards

13. The wheel is now locked safely in place

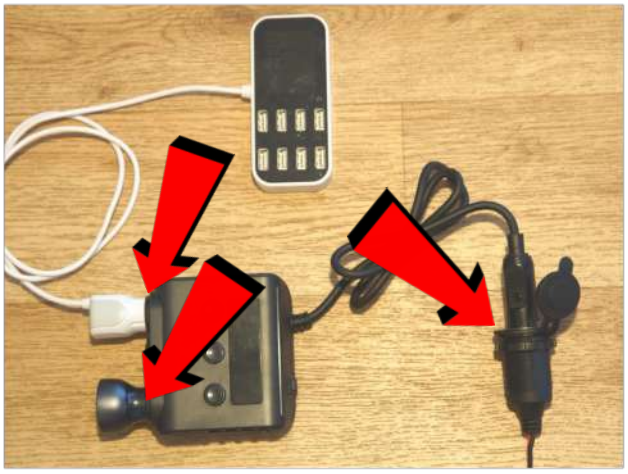


14. Turn the traction bolt until good contact is made with the wheel

15. Test that the wheel doesn't slip on the roller. If it does - increase the traction - but not too tight!

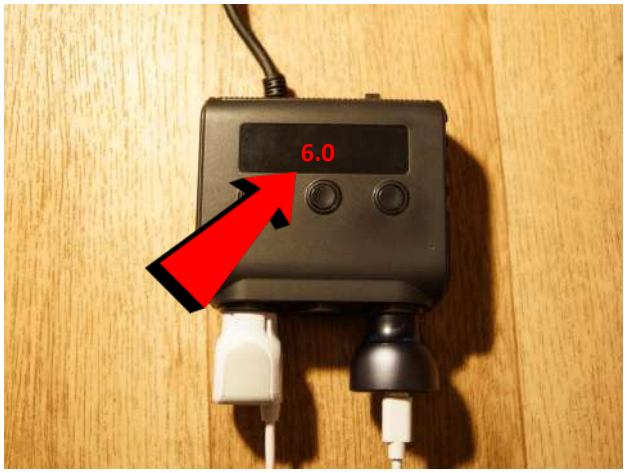


16. Check the cables are all plugged in and the coloured circles match up



17. Connect the 12v splitter and USB chargers in this order. Now plug your devices into the chargers

18. Start cycling and increase your speed at a steady pace. It is best to speed up and slow down steadily



19. Increase your speed steadily until the numbers stop flashing.

20. Aim for just over 12v. Going above won't result in faster charging. Maintain this speed to charge devices.

BikeGen2 is designed to be a community charging station and we recommend that you use it in the following way:

Whoever is cycling can plug two devices into the fast charger. This gives priority to the rider - as they are responsible for generating the power at that moment...

If you are waiting to use BikeGen2 you can plug into one of the 8 slots on the (slower) waiting charger. When it is your turn to ride the bike the previous rider will unplug his/her devices and you plug into the fast charger while you ride...

For best results switch off mobile phones while charging

Sharing is caring

12v Splitter

Inputs: Only use the two outer inputs because the chargers are too wide to sit together. Avoid adding more chargers to prevent overloading the splitter.

Volt Meter: This shows the voltage that the generator is producing. Never exceed 14.5v and aim for just over 12v for best results.

On/Off channel switch: This turns the power On/Off to the individual port connections.

Main On/Off Switch: This turns the power On/Off to the whole splitter and is located on the back

USB Ports: Avoid using the USB ports on the side of the splitter as they are not intelligent and do not use power efficiently. Only connect devices to the fast charger and waiting charger. Adding extra USB devices here when all the other ports are in use will overload the splitter and blow the fuse.

Input plug & fuse: This is the key safety feature on BikeGen2. If the generator is overloaded, the fuse will blow. BikeGen2 includes 20 spare fuses. Remove the fuse by twisting the end of the lighter contact. Before replacing it, ensure the spring is inside. If the generator stops working, it's likely the fuse is blown. Only use a 10amp fuse as a replacement. **Using different fuses or bits of metal could damage both the splitter and the chargers if overloaded.**

Fast Charger

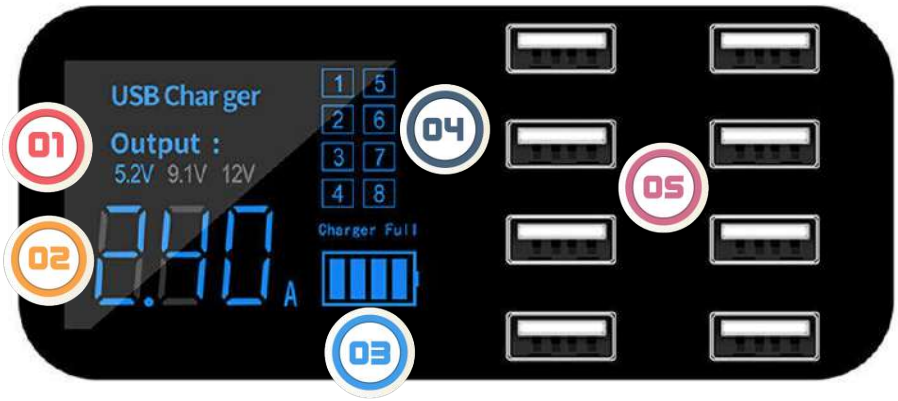
USB-C Input: This powerful input can charge laptops with a max output of 65w (when only one device is plugged in). If two devices are plugged in, it becomes 45w. Use this charger on its own for laptop charging. Make sure to use the charging cable supplied with laptop or it won't charge as fast. The same applies to high-end QC4.0 rated mobile phones, as they charge rapidly and consume a lot of energy. We have provided a USB-C to USB-C cable for standard mobile phones when charging multiple devices simultaneously (community charging).

Volt Meter: This shows the voltage that the charger is reading at the input. There is already a bigger, more visible voltage display on the splitter - so it is much easier to read the voltage from there.

USB Input: This input is still a fast charger but it doesn't have the same ability to charge laptops as USB-C. Both the USB and USB-C inputs can be used at the same time for normal community charging and both are faster than the waiting charger (depending on the individuals phone).

Input stem: Plug this into the opposite side of the splitter from the waiting charger. Make sure that the connector is pushed firmly into the socket so that a good connection is made. If there is no power to the charger but the splitter is operational then a poor connection is usually the cause of the problem.

Waiting Charger (slow multi-port)



Output voltage: This shows the output voltage of the charger. When charging mobile/USB devices this will almost always remain at 5.2v

Output current: This shows how much energy is being sent to each device. When operational the charger will cycle through each device in order (1-8) and will display the information for each one that is plugged in. If the charger is over-loaded the information won't cycle in a steady order. In this situation the devices will still charge but it will not be very efficient. Unplug devices until the information displays smoothly and in the correct order.

Charging status: This shows the charging status on each port. When a device is plugged in but the battery is full - this will be indicated here. You can then unplug that device and replace it with another.

Port Indicator: This shows what is plugged to the charger and corresponds to the information on the screen. If a device is plugged into a port but the number doesn't light up - it means the charger is overloaded or the cable is faulty. These numbers will flash in sequence as the charge cycles through and shows the information for each device. If the numbers do not light up smoothly and in sequence from 1-8 then the charger is overloaded. Unplug the last device and try again.

USB ports: Plug your devices into these ports while waiting to ride the bike. The best lead to use will always be the one that was supplied with your phone/USB device.

Bike selection: Which bike works best?

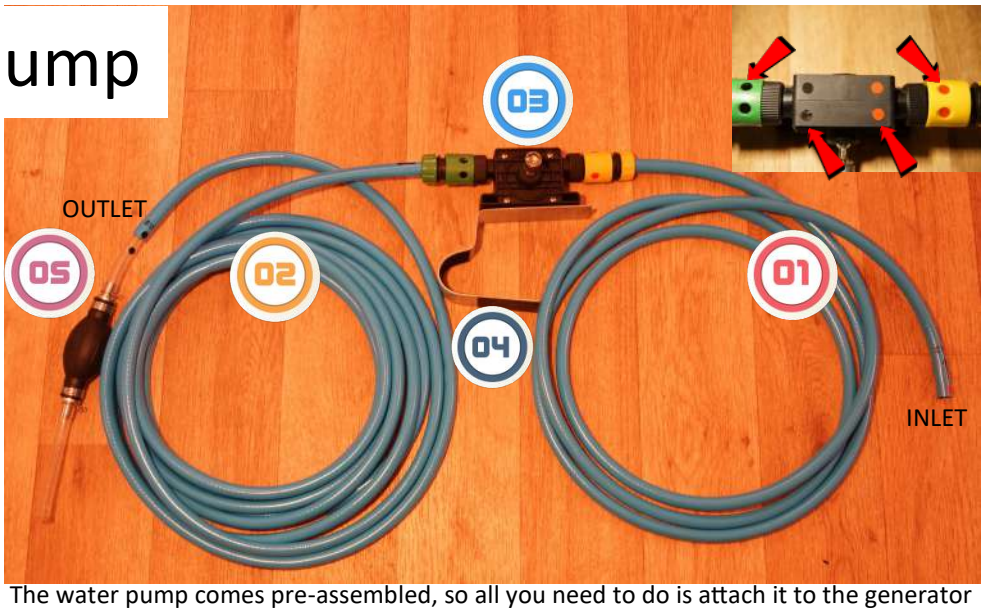
You can use any adult bike with BikeGen2 - but some cycles are more effective than others. The most important thing to remember is that the wheel size must be 26-28 inches. The generator won't work properly with larger or smaller wheel sizes. BikeGen2 also comes with a quick-release spindle so that bikes that use this system can also be mounted into in the stand (see website video for further instructions. Here are some of the things that help to choose a bike that will work best with BikeGen2.

Gearing: High gearing is a great benefit - so that the rider can easily reach 15mph. Some bikes are designed for use on hilly terrain, so the gearing is very low. Low geared bikes are not as suitable because the rider has to pedal much faster to reach the same speed and this takes a lot of effort!

Saddle: A comfortable saddle really helps if you are going to spend a lot of time cycling. It does take time to charge up devices so a comfortable seat to sit on will make a really big difference.

Tyres/Wheels: Bikes with larger diameter wheels tend to work best with this generator. Tyres that have a smoother surface are ideal because they provide better grip on the roller too. They are also a lot more quiet than chunky tyres!

Water Pump



The water pump comes pre-assembled, so all you need to do is attach it to the generator
Tighten the traction bolt (on the generator) as much as possible before attempting to pump water!

01 **Inlet Pipe:** This is the **shorter** of the two pipes. The end of this pipe needs to be placed into the water source that you are attempting to pump. **The coloured dots on the connector should always match the ones on the top of the pump**.

02 **Outlet Pipe:** This is the **longer** of the two pipes. The end of this pipe should be attached to the primer. Once the pump is primed you will need to remove the primer (by pulling it out) to allow the water to flow freely.

03 **Water Pump:** The water pump is attached to the pump stand using Velcro. The socket on the pump fits around the nut in the centre of the fly-wheel. **Grease will be expelled from the pump the very first time it is used**. Cycle this out by initially pumping water for at least 5 minutes to get rid of any contamination. **Do not use dry - always prime first!**

04 **Pump Stand:** This hooks under the generator stand to keep the pump secure while in use. Velcro on the inside curve of the stand fastens to the Velcro on the generator. Pull the stand all the way back until the Velcro makes contact.

05 **Primer:** The primer is very important because it pumps water through the system **before** cycling. **Operating the pump before it is primed will damage it**. The primer is situated at the end of the outlet pipe. **(1)** *Before cycling put the inlet pipe into the water source.* **(2)** *Pump the primer until water comes out of the end of the outlet pipe*. **(3)** *Get on the bike and begin cycling, while continuing to pump the primer*. **(4)** *Once the water begins to flow remove the primer by pulling it out of the end of the hose. This will allow the water to flow more freely*. **(5)** *Stop cycling and take the outlet pipe to where you want the water to be pumped to*. **(6)** *Begin cycling again to start pumping water*.

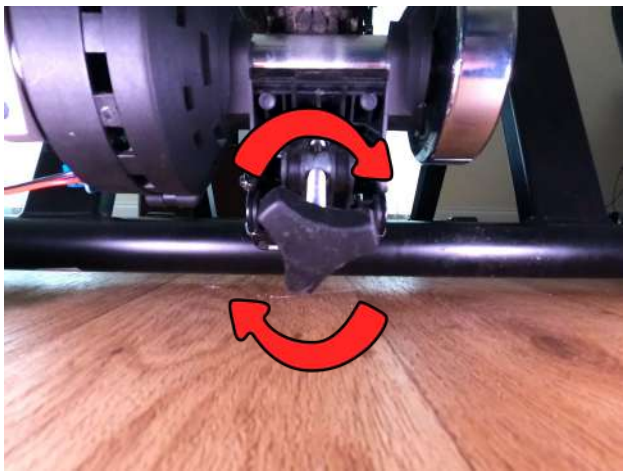
Bike selection: Which bike works best?

The water pump requires a lot of torque to operate it. The travel speed needed to pump the water is very low (around 5mph) but it would be the same resistance as cycling up a very steep hill. A bike with low gears that is designed for climbing hills will be the best option (mountain bike). **Use the lowest possible gear to begin with. Cycling too fast will damage the pump**. After a certain rate the water doesn't come out any faster - even if you cycle harder. This is the 'sweet spot ' and you will find this through practice.

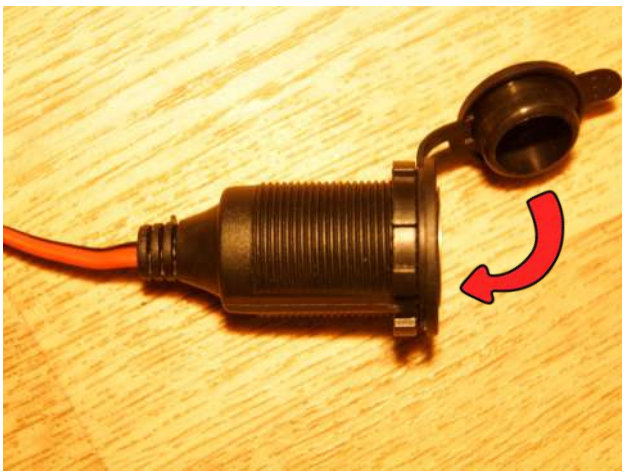
01 **Gearing:** Low gearing is what is needed to operate the water pump. Mountain bikes are the best option as they typically have the low range of gears that are needed to turn the pump. The tightness of the traction bolt and the friction within the water pump means that a lot of force is needed at the pedals. Start by using the lowest gear available.

02 **Tyres/Wheels:** Its all about grip when using the water pump! A larger, wider and smoother tyre is going give the best results. **Make sure the traction bolt is adjusted as tightly as possible - to avoid the tyre slipping on the roller.**

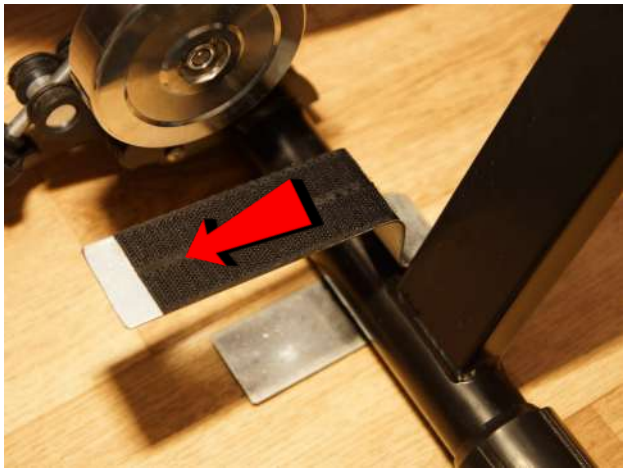
DO NOT ATTEMPT TO CHARGE DEVICES AND PUMP WATER AT THE SAME TIME



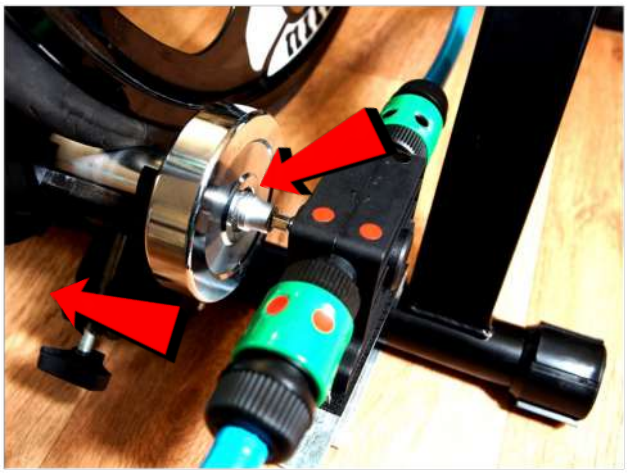
1. Tighten the traction bolt as much as possible (to prevent slipping)



2. Unplug all chargers and close the cap on the lighter cable



3. Attach the pump stand by hooking it under the leg of generator. Pull it all the way back until the Velcro sticks



4. Attach the pump to the stand, with the inlet in the water source and the outlet attached to the primer

5. **Before cycling**, pump the primer until water comes out. Then begin cycling while continuing to pump it

6. Once water is flowing, remove the primer from the outlet hose. Put the outlet in place and continue cycling

Troubleshooting Guide

- 1.) **Problem: There is no power to the USB chargers or splitter**
- 1.) **Solution:** Check the connection between the cigarette lighter port and the splitter
- 2.) **Problem: My devices don't seem to be charging properly (fast charge)**
- 2.) **Solution:** The charging speed of different phones depends on their charging protocol. Some phones and USB devices naturally charge faster or slower than others. The BikeGen2's fast charger supports up to QC4.0 which is capable of charging high-end phones such as the latest Samsung Galaxy or iPhone. It is recommended to charge these phones on their own, separately to other devices, due to their high power consumption and fast charging capability. Similarly, charging powerful phones or laptops should be done independently. If your phone is charging slowly, check the cable as a damaged cable can significantly slow down charging
- 3.) **Problem: The waiting charger isn't charging properly (behaving erratically)**
- 3.) **Solution:** In this case, the waiting charger may have been overloaded. It decides how much power to give each plugged-in device, with a max output of 40w. If there's excessive demand, the charger may behave erratically. When a device is plugged in, a number will light up to indicate the connection. The charger will cycle through each device, displaying power consumption. If it's not cycling in order from 1-8, unplug devices until it behaves normally. Excessive demand can result in ineffective charging.
- 4.) **Problem: The bike seems too difficult to pedal**
- 4.) **Solution:** Check the number of devices you are charging. The more devices, the harder you will need to pedal. The optimum speed is around 15mph, so the pace always remains the same. Charging more devices increases the force needed to pedal at that pace though. Try unplugging some devices to make riding easier. Also, ensure the traction bolt isn't overtightened (loosen by turning anti-clockwise). If the roller pushes too hard against the tyre, it causes unnecessary friction. The wheel should be easy to spin but come to a fairly quick stop after rotating by hand. Check out our Youtube channel for more information.
- 5.) **Problem: The voltage seems very low and/or my chargers aren't working properly**
- 5.) **Solution:** It is most likely that the generator roller is not making enough contact with the bike tyre. This means that although the generator may be turning - the metal roller may be slipping on the rubber tyre. Turn the traction bolt clockwise half a turn at a time. Each time test for improvement by briefly cycling the bike. Too little pressure means the generator isn't spinning in unison with the tyre. Too much pressure on the tyre will make it harder to ride.
- 6.) **Problem: I'm pedalling the bike but there is no power and nothing is charging**
- 6.) **Solution:** The first thing to check is the switch on the back of the splitter - as it may be turned off. Also check that the splitter plug is properly plugged into the lighter socket. If this doesn't solve the problem then try changing the fuse. You can change the fuse by unscrewing the end of the splitter connecter. Replace the fuse with one of the spare 10amp fuses provided.

Caution

1.) Do not operate the generator if it is not situated in a stable position.
2.) Make sure the generator stand is 'open' as wide as possible and the rear wheel of the bike is well secured before use.
3.) Do not over-tighten the generator mount, traction bolt or socket clamps, that hold the bike in position. Adjustments should be made to make the device secure and stable - without excessive use of force.
4.) Do not touch the motor or any of part of the generator while in operation.
5.) Do no operate the generator if it is wet or in wet conditions.
6.) Keep the output cables clear of any moving parts and do not allow the cigarette lighter ports to get wet or dirty (especially on the inside where contact is made).
7.) Do not use BikeGen2 if there is any visible damage to the generator, connectors, or cable insulation. Inspect the generator before operation.
8.) Children and pets should be always supervised around this device – when in use.
9.) Do not plug incompatible devices into the 12v cigarette lighter ports. Devices not supplied with BikeGen2 are powered at your own risk. We recommend chargers that operate between 12v-15v. Do not use any devices that operate at less than 12v.
10.) Do not operate this generator near soft furnishings or anything that could obstruct any moving parts, especially the bike tyre/wheel.
11.) Using an inverter to produce 110v-240v with BikeGen2 is done so at the user's own risk. Be sure to check and adhere to the manufacturer's guidelines of safe operation (including grounding requirements).
12.) Do not cycle at excessive speeds. Pedal the bike just fast enough until you reach just over 12v. Excessive speeds will create higher voltages that could damage more sensitive 12v devices. Maintain a steady pace when riding and increase and decrease speed gradually.
13.) Using BikeGen2 requires physical exertion. Stop using BikeGen2 immediately if you feel unwell or over-tired. As with any form of physical exercise it is important to stay hydrated and don't over-exert yourself.
14.) When not in use, store BikeGen2 somewhere dry. Avoid storing in damp conditions.
15.) Never use the optional water pump at the same time as charging devices. BikeGen2 does have an optional liquid pump that should only be used when no other devices are being charged. Cease using the generator immediately if it gets wet.
16.) Do not plug any damaged or broken charging devices into BikeGen2
17.) Only use chargers or charge devices have been tested and are safe for public use.
18.) Do not plug chargers into the cigarette lighter ports while in operation. We recommend that all chargers and USB cables are plugged-in and in place before you start riding. It is best practice to plug devices in before powering the generator.
19.) BikeGen2 is only designed for use with adult bike tyres between 26-28 inches in diameter. Do not attempt to use this device with larger or smaller wheel sizes.
20.) Remove any stones or hard debris from the rear tyre before mounting the bike in the generator.

Check out our online instructions for more hints and tips on how to use BikeGen2

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