

# solarbike

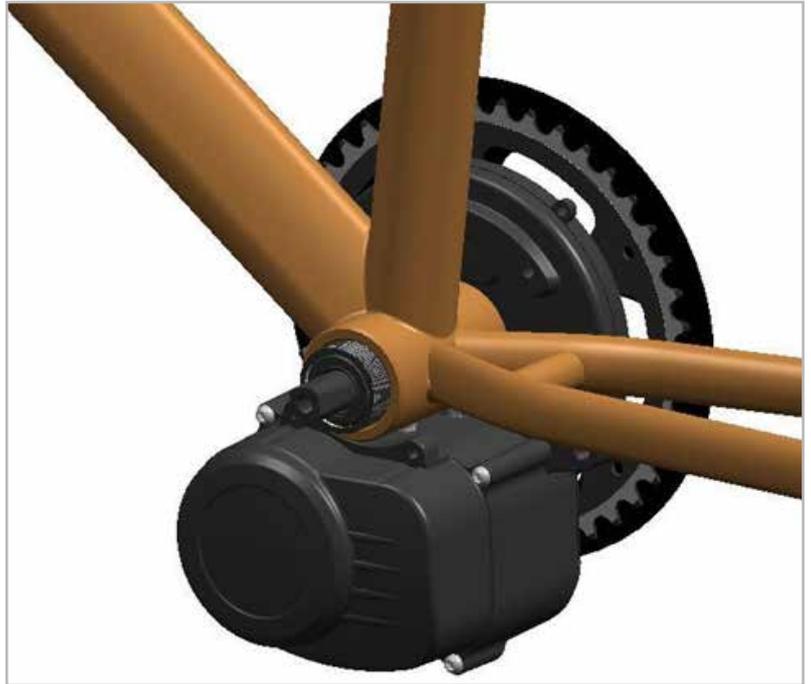
Torque sensing 250-350 watt mid-drive  
motor installation manual.



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## Step 1. Motor installation

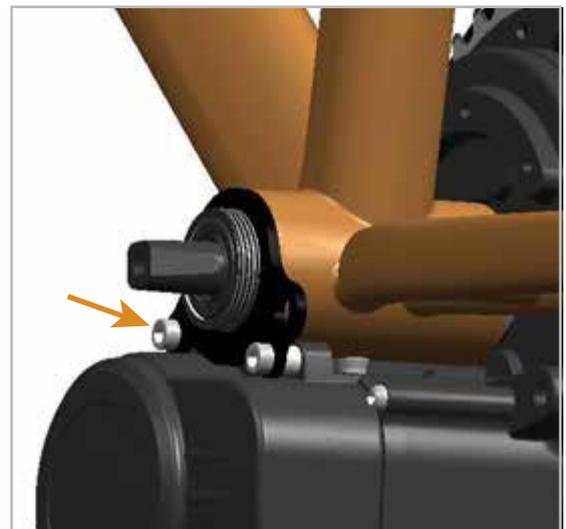
Remove the bottom bracket from the original bicycle. You'll need a crank pulling tool and bottom bracket removal tool. You should also remove your pedals at this point. The left pedal has a reverse thread and the right side of the bottom bracket has a reverse thread – usually. Push the motor through the bottom bracket shell of the bicycle. On the odd



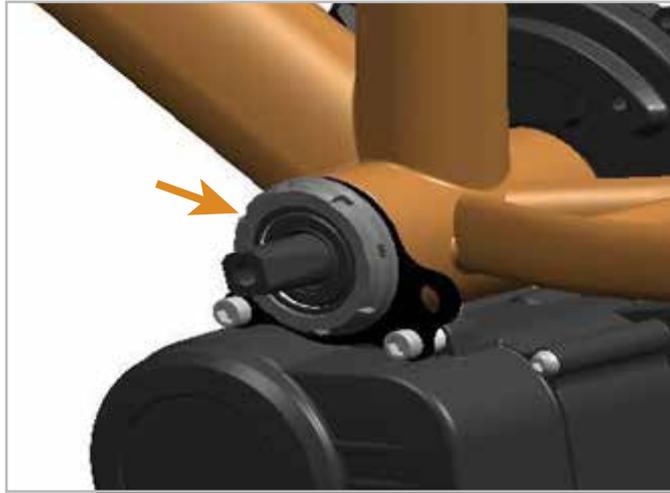
occasion, you have to file a little bit off the inside of the bicycle shell to remove any protrusions from where the welds form. These kits work with bottom bracket shell lengths of the standard 68-73mm. The motor will extend through the frame and leave enough thread to secure the motor to the frame.

## Step 2. Motor securing process

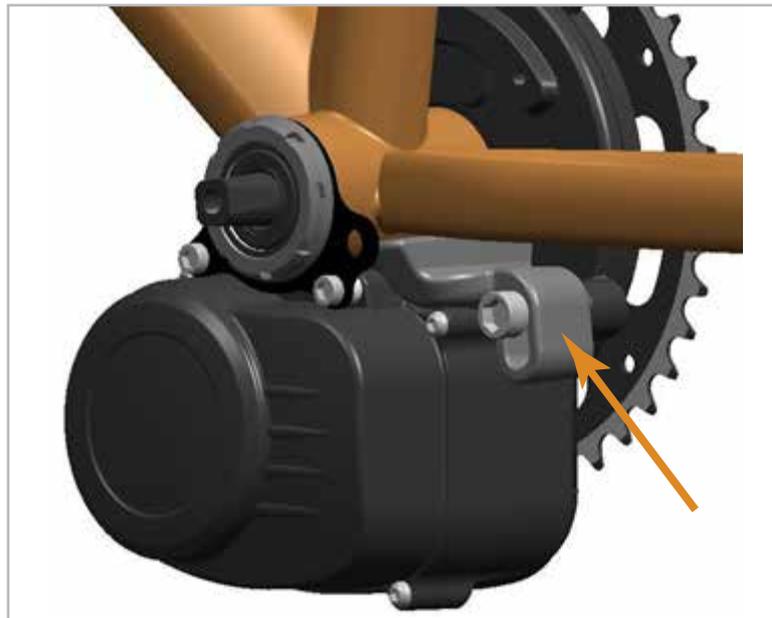
Put the securing plate onto the outside of the motor axle on the non-drive side. Secure the plate to the motor with the two M5 bolts provided. Use washers in between the plate and the motor as required to avoid having the plate pulled onto the motor at an angle. Tighten up loosely



Screw the large M33.5 nut onto the bottom bracket motor axle using the wrench provided. Put some lock-tite onto the motor axle first. Tighten up loosely, ensuring that you can still rotate the motor in the frame.



Install the fixing block onto the motor with the M8 40mm bolt. Do not tighten yet.



Put the hanging plate above the bicycle chain stays as close to the seat tube as possible. Put the M8 45mm bolt through the hanging plate and bolt into the fixing block on the motor. Tighten this securely. You can use a spanner around the end of an Allen key to get extra leverage here.



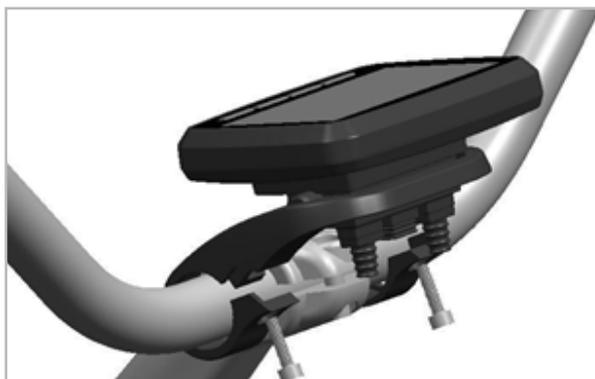
Now go and tighten all bolts to fixing block, securing plate and bottom bracket axle very securely. Use lock-tite liberally here.

### **Step 3. Putting on the accessories**

Put your cranks on remembering there is a left and right one – they will be marked. Put your pedals on, remembering the left one has a reverse thread.



Install the LCD using common sense.



Install the throttle and the thumb control next to the left grip. The throttle is not shown here but in our opinion the best order starting from the outside is left grip, brake lever, thumb throttle, thumb control. You can remove any gear levers on the left side as you will have only a single front chain ring with the motor, this allows more room on the dash on the left side for the throttle and thumb control. You do not actually need the thumb control if you have limited room as you can control all functions through the LCD. You also don't need the throttle if you don't want to use it.



Install the speed sensor. Put the magnet on an outside spoke on the rear wheel and put the speed sensor as close as you can to the magnet without it actually touching the wheel. Be careful to run the cable along the chainstay well away from the wheel.



You can install the brake levers if you want to. They are not a necessity but will cut out the motor when you activate the brakes. If you hit the brakes hard enough it will overpower the motor in any case but if you'd like to have electric motor cut off when hitting the brakes then you can install these as well. They only work with cable brakes.

#### **Step 4. Connecting it up**

Connect the thumb control to the LCD.



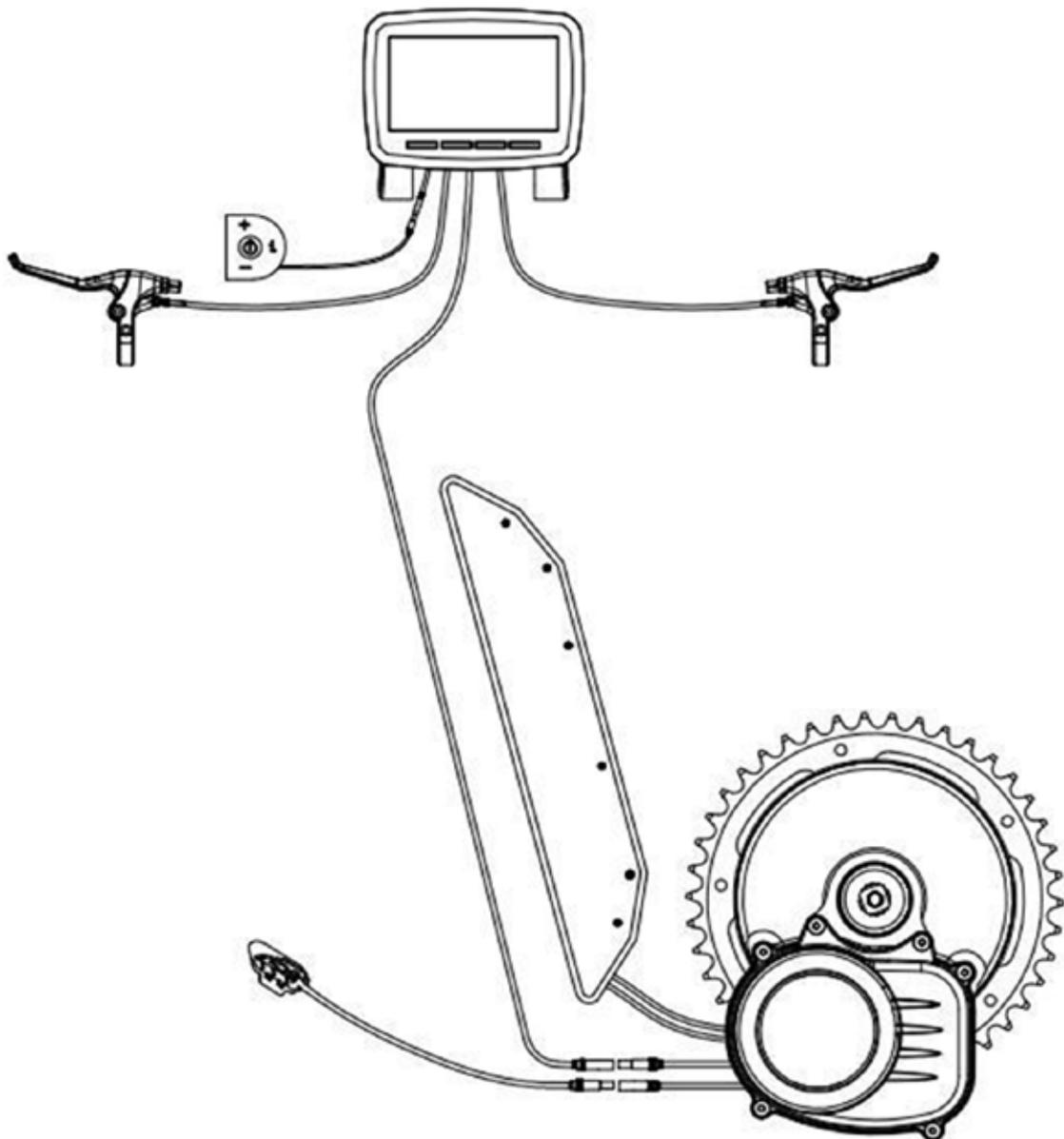
Connect the brake levers if installed to the back of the LCD display. Have a look at the diagram and at the plugs to make sure you don't install them upside down; you'll get an error message on the screen if you do. The left brake connects to the left slot and the right to the right slot. The throttle goes in the middle slot but is not shown here.



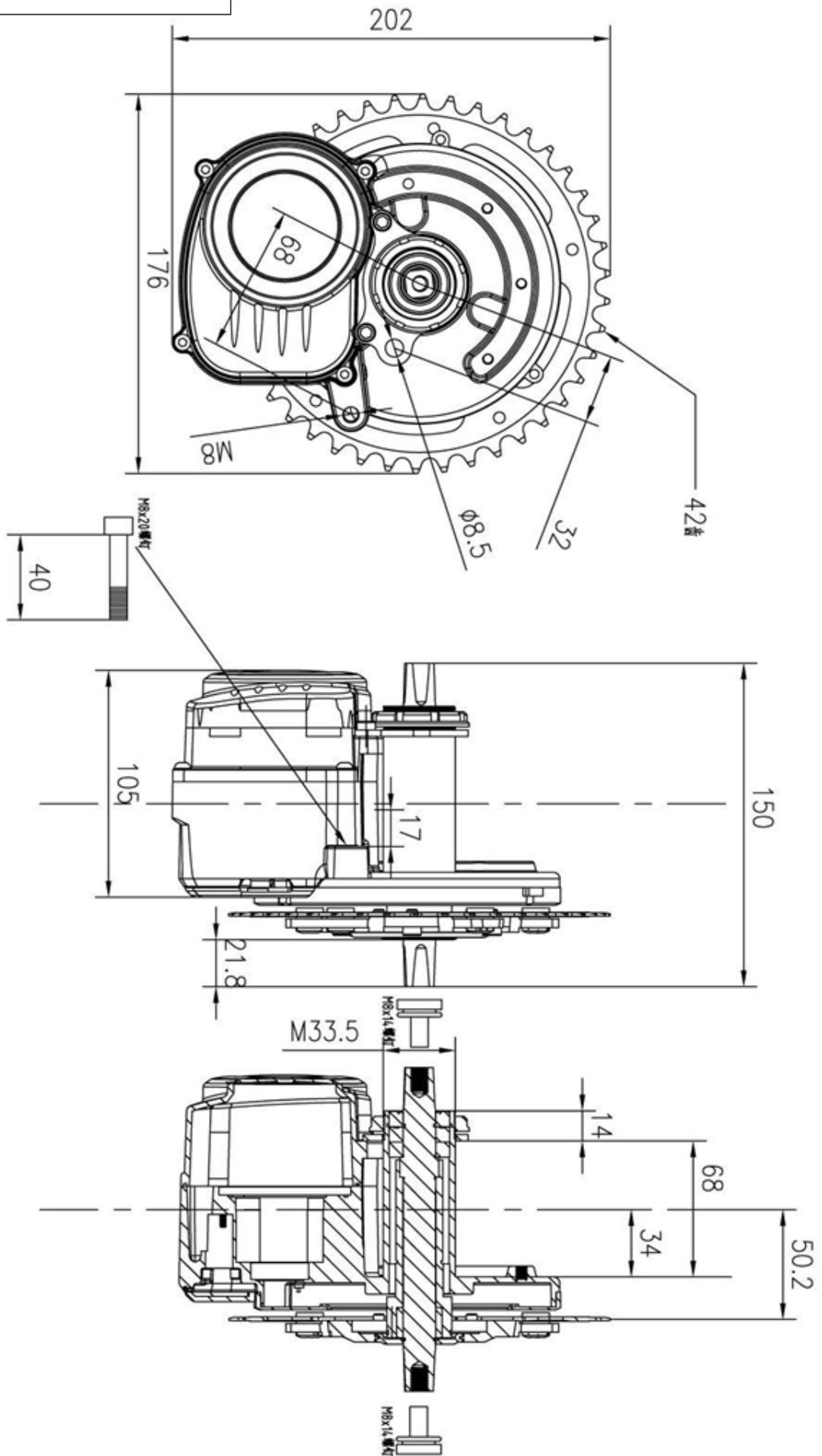
Connect the motor to the LCD display and connect the speed sensor to the motor. The plugs can only go to one place so it's rather kook-proof.



Finally, connect the motor to the battery.



# System dimensions.



## LCD Display operation and setting.

The LCD can be controlled either through the display or through the thumb control, both function the same. The LCD can display the speed, give a rough indication of battery power left, odometer reading, trip distance, average speed and time used. It also shows the power level the motor is set on.



There are four buttons. Starting from left there is a plus (+) and minus (-) button. This is used in operational mode to change the level of power from the motor in response to torque applied at the pedals. You can have it set on off, eco, tour, speed and turbo modes. The higher the level you set it on will give you more motor power in response to your pedal input. Third from the left is the information (i) button that will scroll through odo, trip, avg, dist and trip time. Finally, on the far right is the power on/off button. The power button can also be used to activate a back light on the LCD screen if pushed quickly whilst the power is on. Hold the power button for two seconds to turn the bike off. Always turn the power off at the battery as well to save potential battery drainage.

To reset the odometer, hold the plus, minus and info buttons down together for 10 seconds whilst under the odometer setting.

To reset the trip time, hold the info button down for 2 seconds whilst in the trip setting. This will also reset the trip time and average speed.

You can enter the motor controller settings to change wheel size, speed limits and motor power. Keep in mind that the two laws operating in Australia are 200W with unlimited throttle control and 250W with throttle control limited to 6km/h and top speed limited to 25km/h. To enter the motor controller setting you need to first turn the display off then hold down the power and info buttons at the same time for 3 seconds. All of the lights on the screen will light up whilst you do this. Then press the info button continuously and you will see the LCD scroll from ODO to TRIP to AVG to TIME and then it will go to settings you can adjust using the + and – buttons. Use the info button to scroll through the settings:

- d1 – use this to set the wheel size. Range are from 15 – 30 inch wheels – 700c appears in there as well. It's important to set this correctly so that the speedo works correctly.
- cc – This is the magnetic steel number selection. Leave it set at 1.
- The next setting toggles between miles/h and km/h.
- The next setting is the 6km/h setting. You can have this on or off. If you have it on then when the bike is in normal mode you can hold down the minus button to make the bike self-propel itself at 6km/h.
- Sd – This is the speed limit selection. You can set it between 15-45 km/h and the default is 25km/h. You can only enter this if you have the 25km/h setting (see three steps below) activated. You need to active the 25km/h setting first and then get out and back into the settings to change this level.
- A – This is the power setting. Values can be set between 0-32. If you set it at 16 then this is the 250W setting; if you set it at 32 then this is the 350W setting. In practice, there is not that much noticeable difference.

- Eur – There are factory set values for Europe and Japan. These are the European values and this can't be changed.
- 25km/h – This sets a 25km/h limit. It can be over ruled by the Sd speed setting (see three steps above). You must have this active for the Sd setting to be able to be changed.