



## **How to build a power meter track wheel**

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**Power-Tap Pro Racing Wheel**

Trying to evaluate an athlete's abilities and performance has been an ongoing challenge since competitive cycling began.

With the introduction of the Power-Tap wheel, coaches and athletes have been given a simpler and relatively less expensive method for tracking athletic performance during training and racing. It allows most of the major areas of physical performance to be monitored and analyzed including heart rate, power output, speed, distance, cadence, time and a host of averages and maximums.

The Power-Tap computer stores the performance data, which can later be downloaded and software is used to analyze the data. This provides the coach or athlete with a highly detailed summary of a given training session or race. However, because of design constraints, the Power-Tap has only been mass produced as a standard spoked road or mountain bike racing wheel. The only real options have been the rims used and the number of holes drilled into the flange of the hub. This means that the only real testing that can be done is on the road and off road, not on a velodrome.

CycleOps, the company who produces the Power-Tap currently has no immediate plans for making a track wheel with a Power-Tap hub. This has restricted doing testing of athletes in track training or track competition to using only an SRM, that is until now. What is presented here is a simple, inexpensive way to take the versatility and cost effectiveness of the Power-Tap hub and use it on the velodrome.



**Power-Tap Pro Hub**

Surly Bicycles, a manufacturer of single speed bicycles and equipment has come up with a device for turning a standard Shimano cassette hub into a single speed or fixed gear wheel. This after market adapter is called a Fixxer. It comes with a precision machined axle and a cassette replacement body with a sealed bearing and very detailed instructions for installing it. It is designed to take the place of the cassette body on a Shimano hub and transform the multi-speed hub into a single or fixed gear hub.



**Surly Fixxer**

While this modification can be done on just the Power-Tap hub itself, it is recommended that this procedure be done on an already assembled Power-Tap wheel.

**Step 1.** Remove the axle locking nut from the cassette end of the hub.

**Step 2.** Remove the axle from the Power-Tap hub. The Power-Tap axle has a special sensor attachment built into the aluminum binder assembly on the non-drive side of the axle.

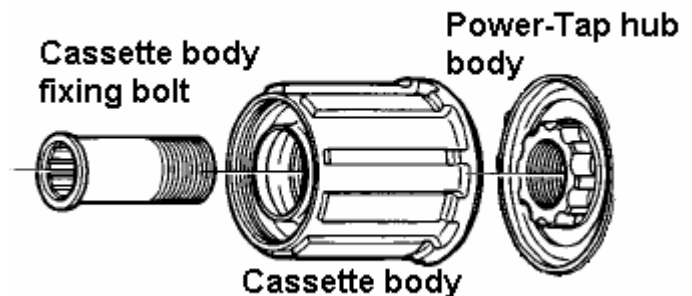
Don't loosen or remove the aluminum sensor!

**Step 3.** Remove the freewheel cassette body fixing bolt from the Power-Tap hub using a simple 10 mm. allen wrench.

**Step 4.** Remove the cassette body from the Power-Tap hub body.

**Step 5.** Remove the axle from the Surly Fixxer and set aside. (*Because of the design of the Power-Tap sealed bearing, the original Power-Tap axle must be used.*)

**Step 6.** Attach the Surly Fixxer to the Power-Tap hub body in the same location as the cassette body.



**Step 7.** Reinsert the cassette body fixing bolt and tighten completely.

**Step 8.** Insert the Power-Tap axle and reinstall the locking nuts on the end of the axle. Do not over tighten the locking nuts or you will compress the sealed bearings and damage the hub! Check the rotation of the axle to insure it has the same free movement it had prior to disassembly.

**Step 9.** Place the Power-Tap wheel into the track bike and check the spacing on the axles, relative to the spacing on the frame. In most cases, you will only need two binding nuts and no spacers on the drive side of the hub. Add spacers as needed to achieve proper spacing of the wheel.

Once the hub has been reassembled with the Surly Fixxer installed and the proper spacing has been determined, install the desired track cog and locking ring. The wheel can then be installed onto a track bike using standard axle nuts. In some cases, the dropouts of the particular track bike may be thick enough that a non-quick release type skewer can be used instead. This will depend on the track bike being used. It would be a good idea to purchase a second axle from CycleOps and cut it down to the proper length for the track bike being used. From this point on the modified Power-Tap wheel will behave like a normal version.

There are a few technical adjustments that will need to be made in the Power-Tap computer, such as zeroing the torque value. Be sure to read the instruction manual for complete details on this and other adjustments. The people at Power-Tap are well versed in their equipment and can be contacted for specific details.

For more information on Power-Tap wheels and products:

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For more information on the Surly Fixxer:

Surly Bikes  
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