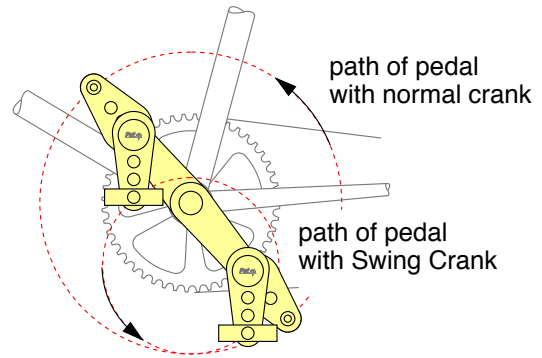


○ Long version

# HIGHPATH ENGINEERING

## Pulse Swing Crank

for cyclists with restricted knee movement



Use a Pulse Swing Crank when one of your knees doesn't bend as much as it should. It enables your leg to contribute as much effort as it can without being lifted so high.

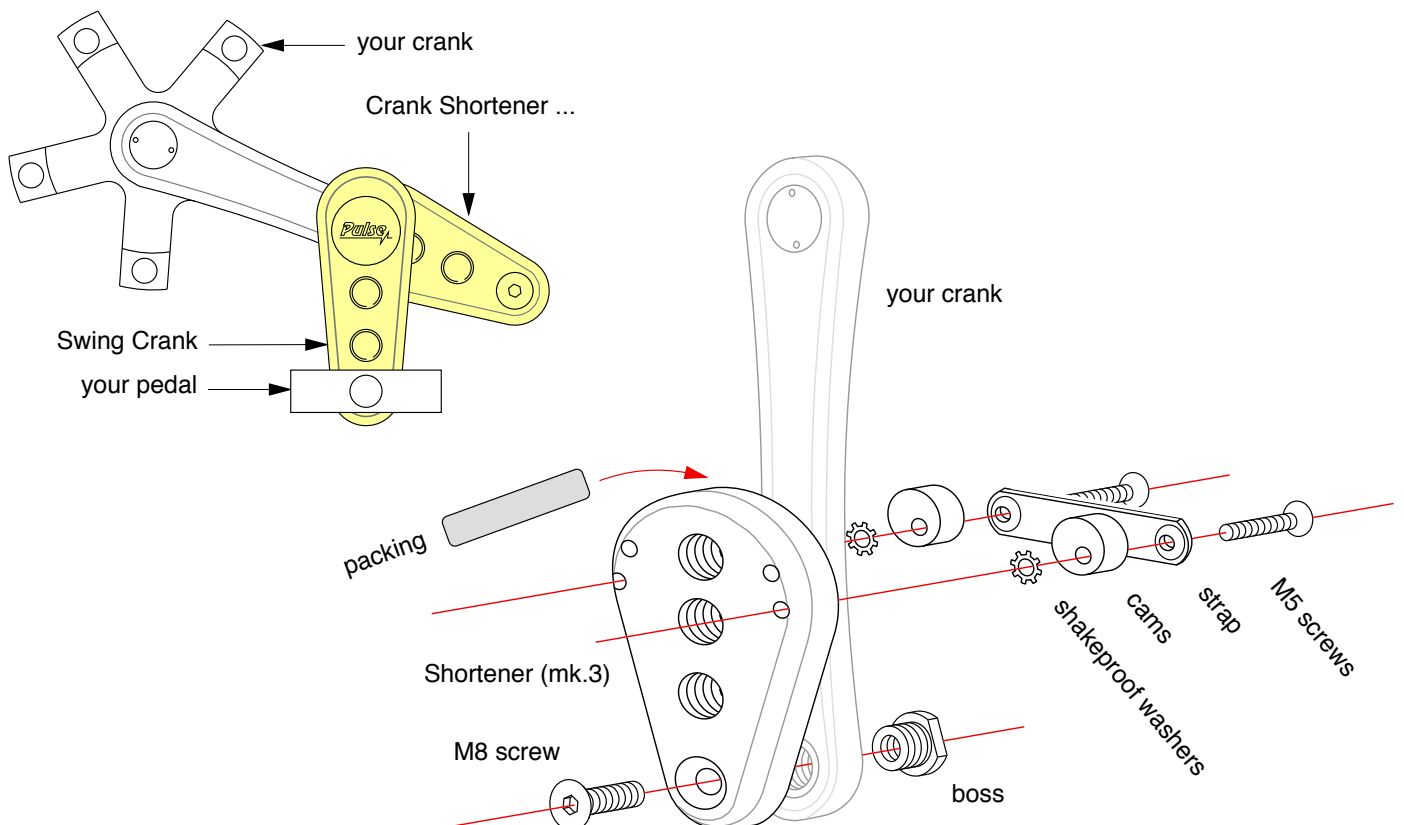
- For use on bicycles and tricycles
- Adjustable for different degrees of disability
- Uses your existing crank and pedal
- No need to alter your riding position

A Long Swing Crank is suitable for cyclists who can raise their foot at least 164mm.

The 3-hole version is suitable for all cycles - the 'A' hole is either blanked off or does not have a thread cut

The 4-hole version is for use on trikes, recumbents or static exercise bikes. There would be a risk of grounding the Swing Crank body as you lean to turn corners with the 'A' position on bicycles.

A Pulse Swing Crank includes a Pulse Crank Shortener which may also be used on its own, and it is supplied with a selection of fittings allowing it to be fitted to most cycle with cranks up to 41mm wide:



## Fitting Instructions

### **Before you start**

- 1 Remove the crank from your cycle if necessary.  
Remove any Chainrings from your crank.  
Remove the pedal from your Crank.  
(turn Left pedals clockwise, Right pedals anticlockwise)

- 2 File away any burrs around the pedal hole in your Crank.

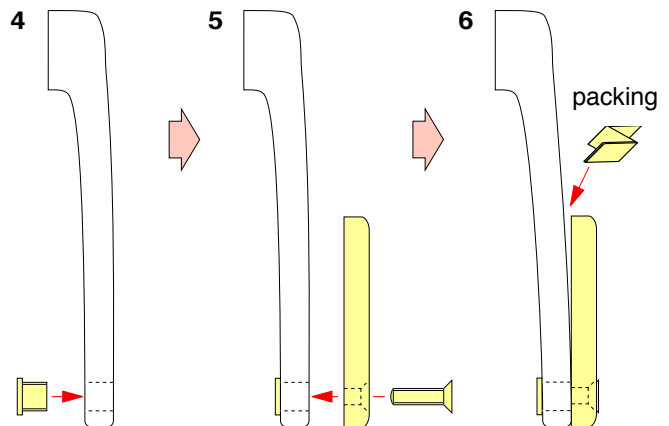
- 3 Lightly grease all the threads - the boss, M8 screw, M5 screws, Swing Crank and pedal.

NB: a left hand boss is identified by a groove

### **Then fit the Crank Shortener to your crank ...**

#### **Fit the Boss and Shortener**

- 4 Screw the boss into the back of the pedal hole in your crank and tighten it with a 15mm spanner.
- 5 Attach the Shortener to the front of the crank with the M8 Screw. Align the Shortener and then tighten the screw with a 5mm hexagon key.
- 6 If there is a gap between the crank and the Shortener, cut some packing strip (use scissors) and fold it to fill the gap. Use just enough so that it is squashed and held in place when all the screws are done up tightly.



#### **Check that ...**

- ... the Shortener is vertical,
- ... the boss and M8 Screw are really tight,
- ... the packing is squashed tightly.

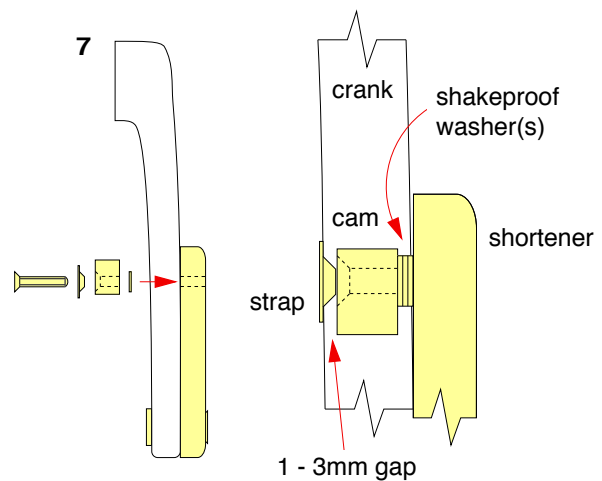
#### **Fit the Cams, Strap and Shakeproof Washers**

- 7 Select the strap and corresponding screw holes in the Shortener that best suit your Crank.

Select sufficient shakeproof washers to leave a 1 to 3mm gap under the strap when everything is assembled as shown. You must use at least one shakeproof washer on each side.

- 8 Insert the M5 Screws and rotate both cams in a **clockwise** direction (looking from the back).

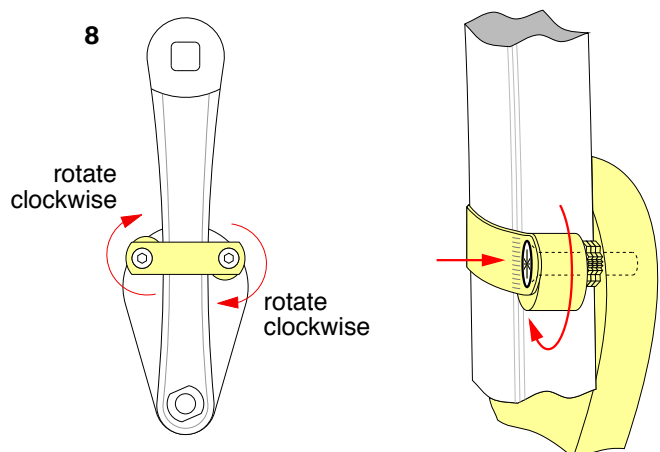
Hold the cams firmly against your crank and tighten the M5 Screws using the T25 bit (as supplied) or a long T25 Torx key. Pull the strap all the way into the cam recesses - this will bend it tightly round your Crank.



#### **Check that ...**

- ... the M5 Screws are really tight,
- ... the packing is squashed tight and can't move,
- ... both cams touch the Crank and can't move.

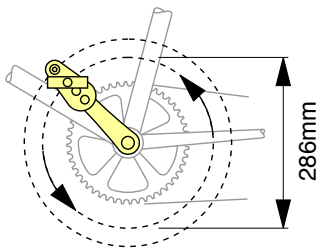
- 9 If necessary, refit chainrings/crank on the cycle.



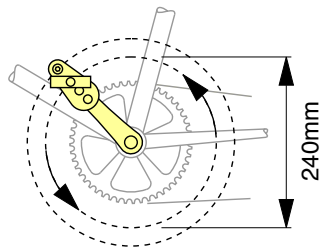
### Other possibilities

If you have difficulty straightening your leg completely at the bottom of the pedal stroke, you can use just the Crank Shortener on its own:

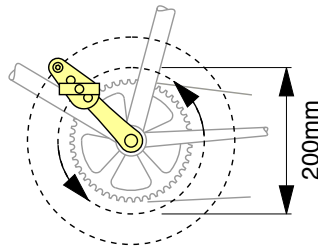
Crank Shortener: position A  
(4-hole version only)



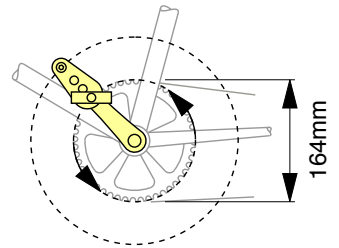
Crank Shortener: position B



Crank Shortener: position C

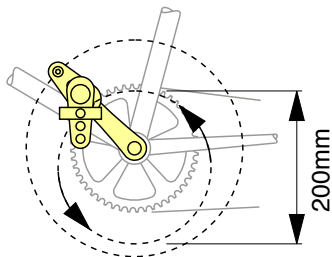


Crank Shortener: position D

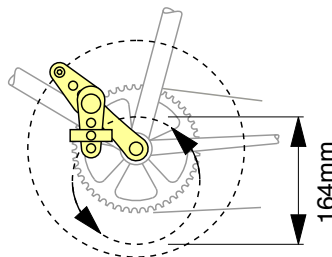


You can also use an intermediate setup, for example:

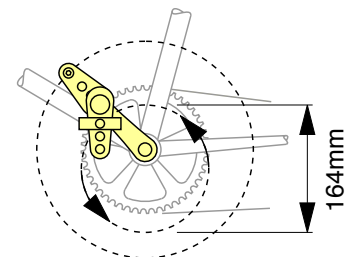
Crank Shortener: position C  
Swing Crank: position B



Crank Shortener: position D  
Swing Crank: position C



Crank Shortener: position D  
Swing Crank: position B



Experimentation will reveal the best setup for you. You may find that your knee movement improves over time.

© Patrick McLoughlin 2015

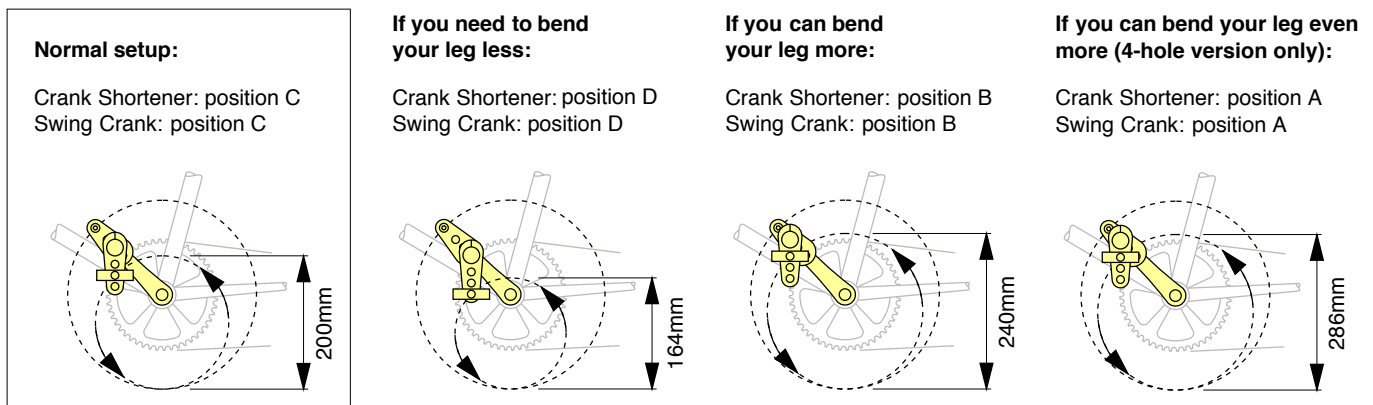
## Important

- **Your safety depends on the correct fitting of this item. SEEK PROFESSIONAL HELP IF NECESSARY.**
- The Shortener, and Swing Crank are marked L or R for fitting to a left or right crank respectively
- If your cranks are sheathed in plastic, the Shortener may fit better if this is cut away.
- **All the fixings must be TIGHT. Check them as part of your regular cycle maintenance.**

### Then attach the Swing Crank and Pedal ...

- 10 Lightly grease the threads on both the Swing Crank and your pedal.
- 11 Screw the Swing Crank into one of the holes in the Crank Shortener and tighten it with a pedal spanner.
- 12 Screw your pedal into one of the holes in the Swing Crank and tighten it with a pedal spanner.

Select the holes as follows:



*Note These lengths assume your cranks are 170mm long. Increase them by 10mm for 175mm cranks and reduce them by 10mm for 165mm cranks.*

### Finally ...

- 13 Raise your saddle, if necessary, so that your legs are almost straight at the bottom of the pedal strokes.
- If none of these setups feels right for you, experiment with the ones that are shown overleaf. Please seek professional help from your physiotherapist or local bike shop.
  - Keep your Swing Crank and Crank Shortener clean with warm soapy water.