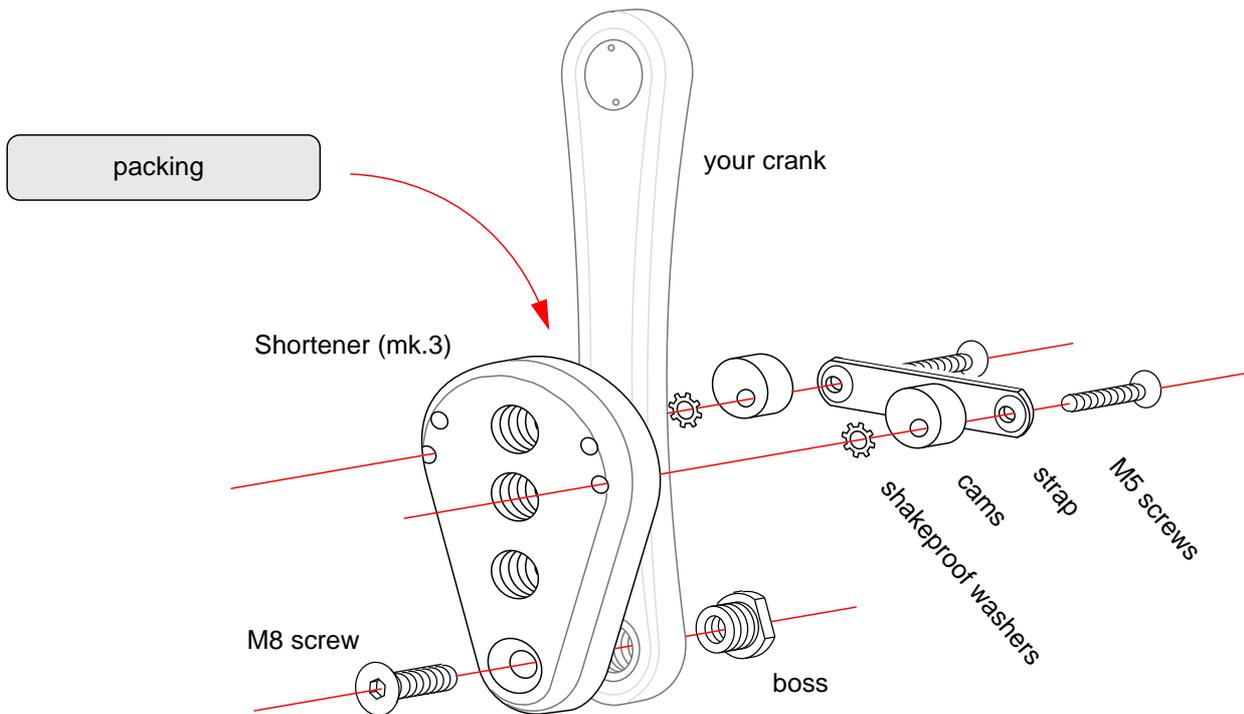


Pulse Universal Crank Shorteners (mk. 3)

Pulse Crank Shorteners adapt cranks to provide extra positions for your pedals. Two versions are available:

- Standard Crank Shorteners have 3 pedal holes and shorten cranks by 27, 50 or 70mm. They are suitable for most adults and children, and are ideal for use by children on low-back tandems.
- Long Crank Shorteners have 4 pedal holes and shorten cranks by 27, 50, 70 or 88mm. The extra position is for riders with serious mobility problems.

Both are supplied with a selection of fittings, allowing fitment to most cranks up to 41mm wide with standard 9/16" pedals



Important

- **Your safety depends on the correct fitting of this item. SEEK PROFESSIONAL HELP IF NECESSARY.**
- The Shortener is marked L or R for fitting to a left or right crank respectively. The left boss is marked by a groove.
- The thread of your pedal should be longer than 12mm. Add pedal washers if it is longer.
- Some cheap cranks are sheathed in plastic. The Shortener may fit better if this is cut away first.
- **All the fixings must be TIGHT. Check them regularly as part of your cycle maintenance.**

HIGHPATH ENGINEERING LIMITED

Cranfield, 97 Miswell Lane, Tring, Hertfordshire, HP23 4EX, UK
+44 (0) 7557 305867 www.highpath.co.uk admin@highpath.co.uk

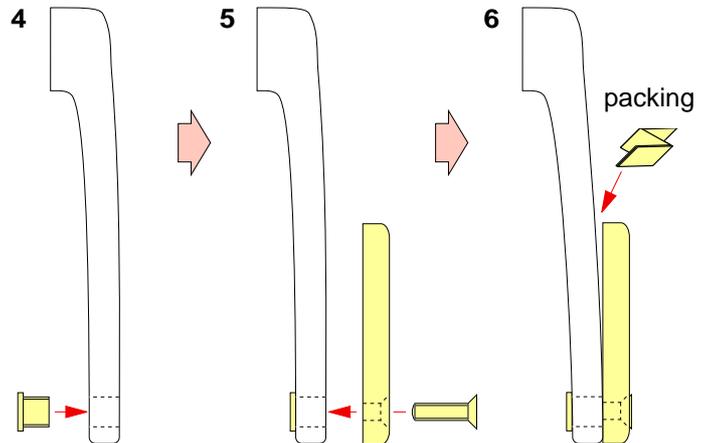
Fitting Instructions

Before you start

- 1 Remove the crank from your cycle if necessary
Remove any chainrings from your crank if needed
Remove the pedal from your crank.
(turn left pedals clockwise, right pedals anticlockwise)
- 2 File away any burs around the pedal hole in your crank.
- 3 Lightly grease the boss and pedal threads.

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 tighten the screw with a 5mm ball end 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.



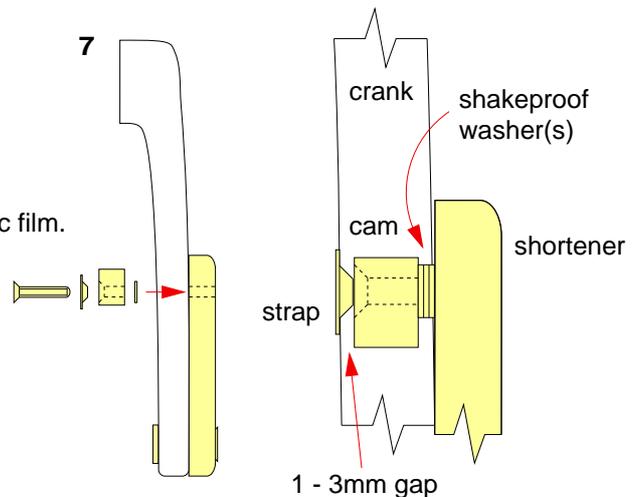
Check that ...

- ... the Shortener has its pedal holes centred on the crank and is square to the crank pedal hole
- ... 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 to suit your crank and remove the plastic film.
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.

For added security we recommend medium strength threadlocker fluid be used on the M5 and M8 screws

Finally

- 9 Replace the crank and chainrings on your cycle (if removed).
- 10 Screw your pedal into one of the pedal holes in the Shortener and tighten it with a pedal spanner.

