

Conversion Instructions:

May 11, 2006

1. The Dawning –

- 1.1. Welcome...You have made a wise decision. Now to start you will need to obtain a bicycle to convert. One that belongs to you is best, if you must modify one that belongs to another please request the appropriate permissions prior to continuing.

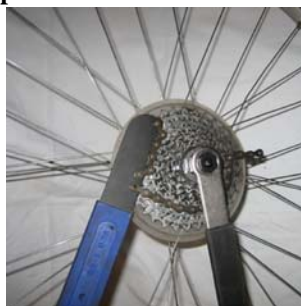


2. The Cleansing –

- 2.1. New Project? Blank (part less) frame? **Proceed to Step 2.2.2.**
- 2.2. Existing set-up:
 - 2.2.1. **The Frame** - Remove all useless CRAP from the frame. Shifters, Derailleur and cables (limit cable cutting to those associated with the shifty bits only, unless the project is a fixie...).



- 2.2.2. **The Wheel** – The rear cassette **MUST** be removed. If it has been removed or does not utilize one then **Proceed to Step 2.2.3.** Utilize a chain whip and the appropriate cassette tool. If your kit **DOES NOT** include a lock-ring you will need to keep the one removed.
- 2.2.3. **The Crankset** – If the crankset currently has only one ring **OR** the crankset is single speed specific then **Proceed to Step 2.2.4.**



- 2.2.3.1. Remove ALL chain rings that will NOT be utilized in the single speed setup. The elimination of extra rings MAY require the use of shorter chaining bolts (BMX style) OR a bash ring.



- 2.2.3.2. Using a dedicated single speed ring (non-ramped) is ideal, BUT, not necessary in many cases. If using an existing ring it must be in 'reasonable' shape. Special care MUST be taken when using a ramped ring to ensure a good/perfect chain line.
- 2.2.4. **The Chain** – Like any drive train maintenance it would be nice to replace all of the items. Given real world conditions this is not always possible so consider a few things.
- 2.2.4.1. Multi-Speed chains are NOT ramped, they alone will NOT shift your drive or cause you



derailing issues...these are ONLY caused by a poor chain line.

- 2.2.4.2. 9 Speed chains are 11/128" They do not work well with a single speed drive train.
- 2.2.4.3. Single Speed chains are available in two sizes 3/32 and 1/8". The former is the same as the majority of 8speed (and below systems), the latter is typical of a BMX setup. The latter is NOT always stronger as they tend to be of lower quality.
- 2.2.4.4. For argument sake the recommendation (here) and until further notice is that a 3/32" chain be utilized with a preferential nod given to those that are single speed specific.

3. The Assembly –

- 3.1. **Spacers/Cog:** Slide the spacers on to the rear hub body. This is a bit of a crap shoot at first because you need to install the cog in such an order as to provide a good/perfect chain line. Start with spacers installed in the following order: 12mm/4mm/4mm/Cog/12mm/2mm/Lock Ring.
- 3.1.1. Install the rear wheel.
- 3.1.2. Install the chain (the use of a tensioning device is not required at this point).



- 3.1.3. If the dropouts are horizontal: Shorten the chain to the desired length, route the chain and pull back the rear wheel to achieve tension.



- 3.1.4. If the dropouts are vertical. Shorten the chain to the very shortest length possible given the fixed distance from the dropout to the front ring. The chain may have some sag in it at this point but that is acceptable.
- 3.1.5. Standing at the bum of the bicycle visually inspect the chain line. With the bike in a stand or otherwise elevating the rear wheel pedal slowly and watch for mis-alignment at the top and/or bottom of both the rear cog and front chain ring.



- 3.1.6. If adjustments are required remove the rear wheel and modify space/cog order. If necessary (depending on the crankset used) it may be possible to move the position of the chain ring inboard or outboard. **Return to Step 3.1.1** until perfection is achieved!
- 3.2. **Tensioner:** Horizontal Drop Outs? You are almost done **Proceed to Step 4**. Vertical Drop Outs? Continue.
- 3.2.1. Spring Loaded *MisfitPcycles* variety tensioner will be the only one discussed here. Ensure that the absolute minimum chain length has been achieved in step 3.1.4. At MOST the chain should have HALF to a FULL links worth of sag.
- 3.2.2. Once a minimal chain length is obtained it is time to install the tensioner and route the chain through the tensioner. (Separate Tensioner Instructions are supplied with the tensioner).
- 3.2.3. The tensioner installs with an allen bolt in the derailleur hanger. When installing ensure that the pin to the rear of the hanger 'lip'. This pin is what holds the spring in place and creates the tension. The pin can be crushed, bent or otherwise mutilated if you try hard enough...
- 3.2.4. Once installed the tensioner should hang down and or to the back. Test the tension by pulling the tensioner up to the chain stay. If the tensioner feels stiff or sticks at any point back off the allen bolt – **IT IS POSSIBLE TO OVER TIGHTEN THE BOLT AND IMPEED TENSIONER OPERATION.**
- 3.2.5. Break the chain and route it through the tensioner. The tensioner is of the push down variety so the chain will be BELOW the tensioner sprocket. Re-assemble the chain and ramp it onto both the rear cog and front ring. If there is difficulty ramping the chain back up the chain may be too short but likely the chain line of the tensioner is 'off'. **Proceed to Step 3.2.7** then return and retry.
- 3.2.6. Once installed adjust the sprocket 'guide' to ensure that under stationary and load conditions the chain does not contact/rub it.

- 3.2.7. Verify the chain line through the tensioner (you already have a perfect chain line from the rear cog to the front ring BUT the tensioner arm has an adjustable chain line as well). Loosen the allen bolt and move the sprocket assy to match the chain line of the cog to ring.
- 3.2.8. Take one final look at the steed. The chain should be straight, not hitting the cog, tensioner or chain ring at an angle...if it does **Return to Step 3.1.5**. Next look at the chain from the side, with the tensioner installed there should be only minimal droop in the chain – if it sags too **much Return to Step 3.1.3 or 3.1.4**. Perfect? Jump to **Step 5**.

4. Chain Tension Horizontal Drop Outs:

- 4.1. Without the chain installed locate the rear wheel in the horizontal dropouts in the position you desire. Middle to front will give the greatest room for tensioning as the chain stretches. CONSIDER current and future ratios. For example; if the current setup is using an 18T cog BUT you would like to run a 16T WITHOUT changing the total chain length, run the chain as far forward as possible. This will leave ample room for adjustment/tension when the cog is changed.
- 4.2. Once located determine chain length required for the appropriate wheel position. Assemble the chain and install on the cog and chain ring. The chain will either be too long or too short for the EXACT position.
- 4.3. Too tight. Loosen axle bolts, nuts or quick release. Slide the wheel forward and mount the chain. **Proceed to Step 4.5**.
- 4.4. Too Loose. No worries, **Proceed to Step 4.5**.
- 4.5. Pull on the back wheel to achieve the desired tension. Tighten the drive side bolt moderately then (while holding the wheel with the proper chain tension and centered) tighten the non-drive side...return to the drive side and re-tighten.
- 4.6. Slowly pedal, if the chain binds or sticks the chain is likely over tensioned, **Return to step 4.5** and try again.



5. The Test –

- 5.1. Follow all steps? Tighten all bits? Reinstall all other key parts (brakes, saddle, and rubber)? Then it is time to roll.
- 5.2. Take the new guilt free utopian cycle for a spin. Local is best, just in case. Try try try. Flats, Spins and short quick climbs – no issues? Hit it! Issues? **See Step 6**.

6. HELP! It's Messed Up –

6.1. Excessive Noise:

- 6.1.1. Chain line is not straight. The chain is rubbing the chain ring, cog or tensioner sprocket. **ADJUST THE CHAINLINE. Return to Step 3.1.6.**
- 6.1.2. Drive train does not mesh. USING A 1/8" CHAIN? USING A 9SPD CHAIN? ANCIENT CHAINRING WITH NEW CHAIN AND COG? C'mon get it together...like all drive trains mixing and matching sizes and wear is NOT OPTIMAL! **Return to Step 2.**
- 6.1.3. Chain is OVER tensioned. With the bike on a stand pedal slowly and 'feel' for areas of over tension. Chain rings are not perfectly round; this is not noticeable with a derailleur because it allows

for movement. REDUCE TENSION EVER SO SLIGHTLY TO ELIMINATE NOISE. An over tensioned (rigid chain) will cause premature wear to the drive train, to the bottom bracket, hub bearings and free hub internals.

6.2. Skipping:

- 6.2.1. Chain line is not straight. The chain is rubbing the chain ring, cog or tensioner sprocket. ADJUST THE CHAINLINE. **Return to Step 3.1.6.**
- 6.2.2. Drive train does not mesh. USING A 1/8" CHAIN? USING A 9SPD CHAIN? ANCIENT CHAINRING WITH NEW CHAIN AND COG? C'mon get it together...like all drive trains mixing and matching sizes and wear is NOT OPTIMAL! **Return to Step 2.**
 - 6.2.2.1.1. Chain: 9SPD chains are no-no's. THIS IS THE MAIN CAUSE OF SLIPPAGE. Also 1/8" chains are sketchy, they may not co-operate with all 'ramped' chain rings. 3/32" chains are the cats meow (single speed or geared). A single speed 3/32 chain is a \$20 upgrade – tops.
 - 6.2.2.1.2. Rear Cog: Should be unramped SS specific. If it is from an olde cassette, consider the \$4 upgrade.
 - 6.2.2.1.3. Front Ring: A ramped ring is manageable, but, remember the middle ring of your olde geared steed was used FAR more than the granny or big ring...teeth wear and disappear – even with no shifting this is bad. The use of a ramped ring (new or used) will require extra special attention to chain line.
- 6.2.3. Insufficient tension on the chain. RE-TENSION THE CHAIN TO ENSURE THE ABSOLUTE SHORTEST LENGTH 'PRIOR' TO ROUTING THROUGH THE TENSIONER. The tensioner is intended to pick up minimal slack as a result of chain stretch NOT allow for multiple gear ratios.

6.3. Chronic Skipping:

- 6.3.1. Sure, in rare cases, chronic skipping is possible. You have tried and tried again, been through the setup dozens of times...REMEMBER: The use of a tensioner is a perfectly acceptable practice and works in the majority of cases, however, THEY ARE NOT PERFECT! So Hercules, let me tell you, it is possible to overpower ALL types of tensioners. This will result in continually skipping the drive train
 - 6.3.1.1. As a third to last FIX try the use of a chain HALF-LINK. This allows you to join to identical sections of chain together, reducing the amount of slack the tensioner needs to handle. In some cases the use of a half link will allow you to run the conversion without a tensioner at all.
 - 6.3.1.2. Second to last Fix. (If the half link is not available or doesn't work) You will need to soften the gear ratio. If you are running a 16T in the rear, try 18T. This will reduce the amount of power applied to the drive train to produce forward movement OR slippage. Can't hurt, try it and see what happens. **Return to Step 3.**
 - 6.3.1.3. Still skipping?
 - 6.3.1.3.1. If you have horizontal dropouts then you are not being entirely honest about the quality and compatibility of the drive train. Seriously, there is no reason aside from those to over power a drive train without a tensioner.
 - 6.3.1.3.2. If you are using a tensioner THEN ACCEPT IT, you are too powerful and ONLY a single speed specific drive train or 'magic gear' will work for you (magic gear is the ratio that does NOT require a tensioner to achieve perfect chain tension when using vertical drop outs).
 - 6.3.1.3.3. The above said consider this: If you make it this far without success please be aware that you are single handedly making a mess of the single speed bell curve. Difficulties to this extent are a rarity!

6.4. Still More Problems Not Listed???

- 6.4.1. Email sales@misfitpsycles.com or call 416.779.3827 and the problem will be investigated and added to the list if appropriate.
- 6.4.2. Still Not Happy – Enjoy the road Lance!