Wooden Bike Trailer Kitset Instructions

Steven Muir
Email: steve@cycletrailers.co.nz

Introduction

Take a look at my website www.cyclingchurch.org.nz for details of the hilarious book I have written called PROSACC – Profound Revelations of Sunday Afternoon Cycling Church. Articles on bike trailer design, bike trailer workshops and supermarket challenges are available on www.cycletrailers.co.nz as well as a half hour interview of me on Radio New Zealand.

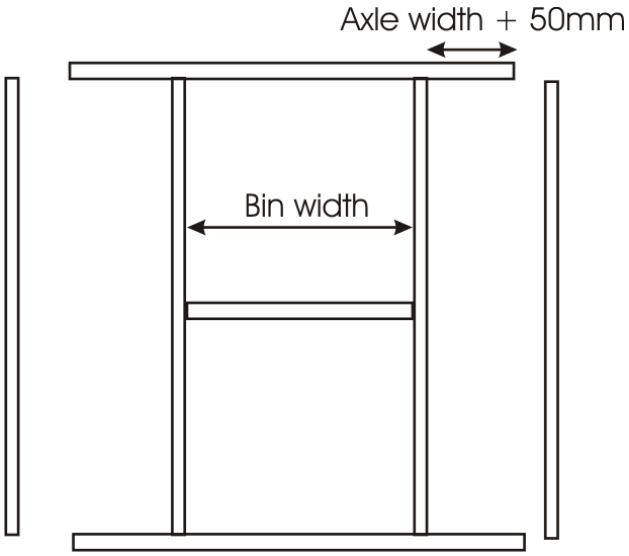
Preliminaries

- Decide whether you want to use bins or a deck, to place loads in/on. One large or two small bins from Bunnings, Mitre10 or Stowers do a good job. Custom building your own bin works well either from plywood or plastic (Agpac industries do a 6mm plastic sheet made from recycled hay bale wrap).
- Find a set of two wheels. 20" wheels are very good stability wise but bins will need a wooden spacer to ensure they don't drag on the ground. 26" wheels on a narrow trailer are more prone to rolling with higher centre of gravity but give good clearance for deep bins and are good for a wider trailer (>500mm between inner wheel struts). 24" wheels are a good compromise between clearance and stability. Front wheels are narrower (which is good), but one front and one rear are quite acceptable. Removing gear clusters is recommended if possible. Avoid 27" 10 speed wheels as the stability becomes unacceptable.

Assembly

Follow the instructions below. Please note the following:

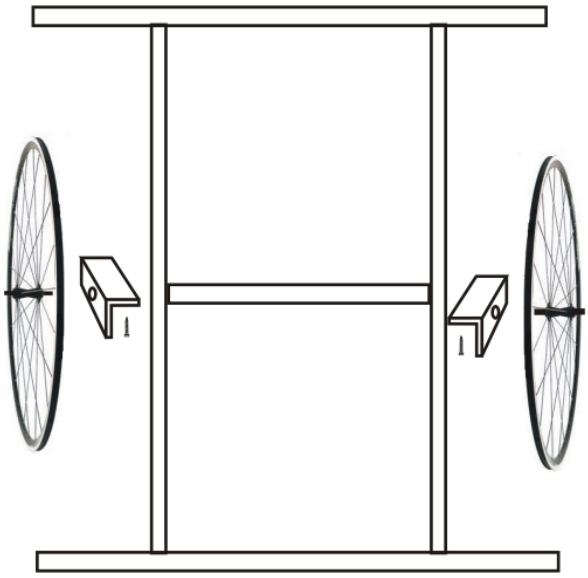
- You are responsible for the safety of the finished trailer. While I endeavour to provide parts of good quality that should perform well for many years, you are the one to put it together and make sure it operates in a safe manner.
- The wheel axles go through a hole in the dropouts to be held into place. The only way of changing a tyre or tube is to unscrew one dropout from the trailer frame. If you prefer a faster method of changing tyres or tubes you can make the hole in the dropout into a slot by cutting it with a hacksaw. This makes tyre changing easier but will weaken the angle a little and could increase the chance of the aluminium developing metal fatigue. How significant that weakening will be over time is anyone's guess.



Step 1.

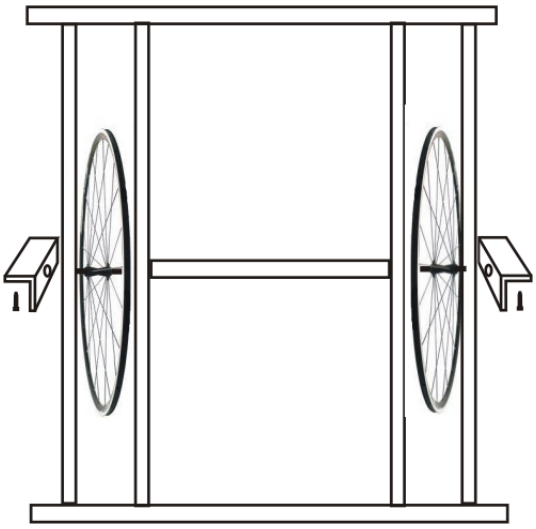
Build a rectangular wooden frame to suit your chosen bins or deck size. Ideal wood size is 75-100mm deep by 25mm wide which can be readily obtained for free from old pallets or packing crates. Make sure you good woodworking glue on each join and use two 50mm screws in each join to make it strong.

It can be difficult to get the wheel dropouts placed in the centre of the wooden strut AND get the bin width correct, so allow 50mm extra on each end of the front and rear of the trailer and work from the centre struts out, and trim any excess off later.



Step 2.

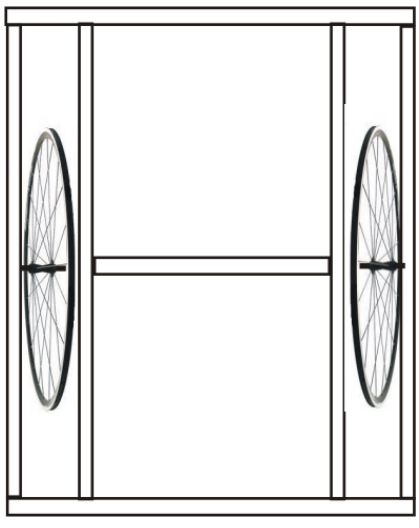
Attach your wheels to the inside dropout of the trailer and screw the dropout to the trailer frame using at least four 40-50 mm screws (i.e. make this strong) and getting the wheel as straight as possible. Check the dropout doesn't hinder the bin going in and out.



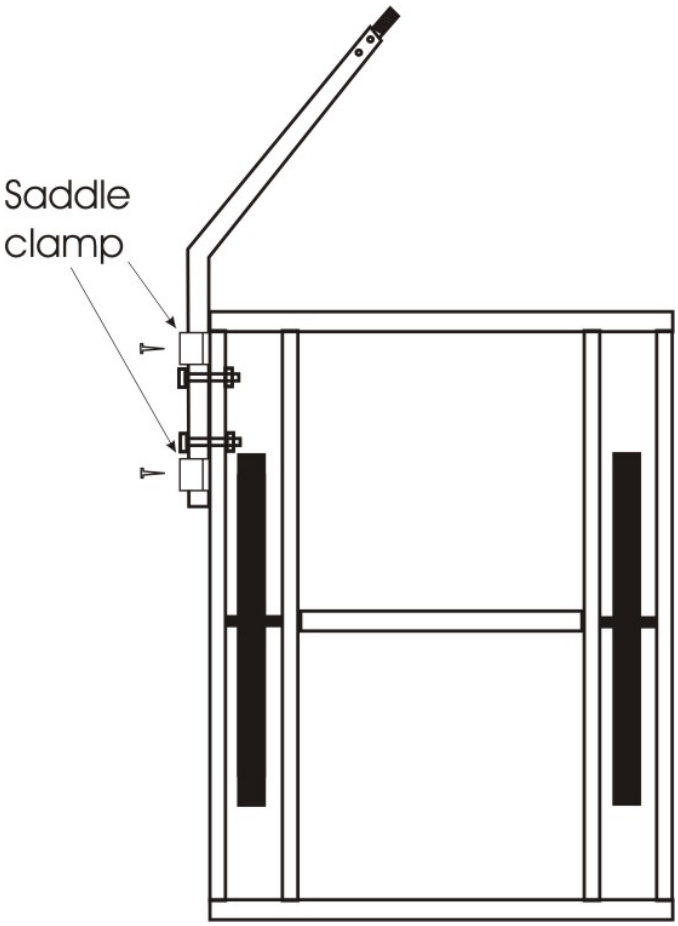
Step 3.

Attach the outer dropout to the wheel and attach the outer struts at a suitable distance to match the dropout.

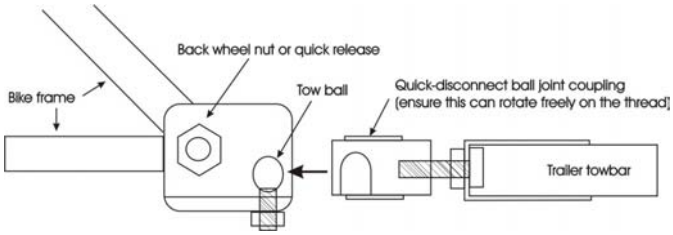
Once the outer strut is fixed make sure the wheel is straight and attach the dropout to the strut using four 40-50 mm screws.



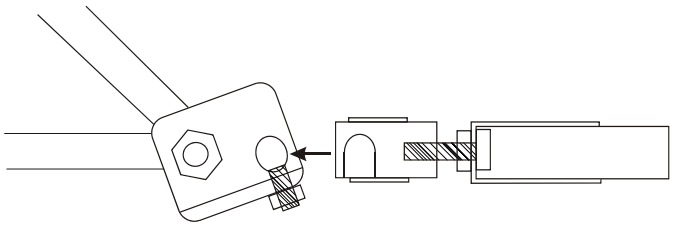
Step 4.
Trim off the excess wood on front and rear of trailer.



Step 5.
Attach the tow bar using the bolt and saddles provided.



Correctly fitted Hitch base – nicely aligned with the towbar.



Incorrectly fitted hitch base – the angle does not allow enough movement for bumps

Step 6.

Attach the hitch base to your bike underneath the rear wheel nut or quick release lever (left hand side). It stays on your bike all the time. It is important to align the tow ball with the tow bar and quick disconnect ball joint coupling to allow up/down movement over bumps. If there is a permanent angle on the tow ball there may not be enough play and the ball joint may bend or break.

It is also important to make sure the quick disconnect ball joint coupling can rotate at least 90° on the bolt thread in both directions. It would pay to get in the habit of checking this every time you connect the trailer on as it can tighten up over time and will damage the ball joint if it cannot rotate freely.

Finishing touches

- Foam or rubber glued to the top edge of the trailer will stop bins from rattling when unloaded (this can be very noisy).
- Placing some bolts or self tapping screws around the trailer for attaching bungies to is very useful.
- An additional deck on top of the two bottom bins means you can put two additional bins on top of the deck. They'll need to be well secured of course.
- A flag, reflector and reflective tape are very good additions to make the trailer more visible.
- Attaching a rear light is highly recommended so you can use it for night trips. UFO lights (topeak) mounted on a flagpole are very good for sideways as well as rear visibility.

Safety Information

- Be careful on sharp right hand turns as the tow bar can rub against the back wheel of the bike putting a huge strain on the tow ball. Most corners are fine but do any U-turns to the left.
- Don't overload the trailer. 30 kg is about the limit for continuous use, but it can cope with the occasional load up to 50kg if it's well balanced and towed carefully (and your construction skills are good).
- Don't use the trailer on a bike with disc brakes without thoroughly testing the towbar doesn't bend the disc under all turning/falling over movements. This is usually only an issue with extra large discs.
- Be careful when going up curbs particularly with an unloaded trailer. If you get a wheel hitting the square edge of the curb they will flip easily.
- Watch your load doesn't shift. Anything that touches the moving wheel spokes will be ruined very quickly. Consider fitting guards if this is a problem.
- Light weight road racing frames can apparently bend if you try towing a heavy load, so mountain bikes are more suitable for a towing vehicle.

The completed trailer attached to the bike

Closeup of the wheel dropouts

Steven weight testing the trailer