

Cheating Camel Cycle Trailer Kitset Assembly Instructions

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Bins/Deck

Decide whether you want to use bins, a deck, or a hammock to place loads in/on. If you are using bins the following table gives you the ideal width between struts for commonly available bins. 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 which is heavy but very durable. Bins usually require a piece of wood screwed to the side of the bin to hold them at a suitable height in the trailer (120-150mm above the ground).

| Trailer | Crates | Width between struts for a snug fit |
|------------------------------|--|-------------------------------------|
| Medium 760 x 400-440 mm | Two green Christchurch recycle crates | 410 mm |
| Medium 760 x 400-440 mm | One 100 litre bin (with lid) from Bunnings | 435 mm |
| Large 900 x 400-470 mm | Two Waimakariri recycle crates | 460 mm |
| Large 900 x 400-470 mm | Two IBS recycle crates 450x450mm) | 415 mm |
| Extra Large 900 x 500-600 mm | Two 75 litre RE-crates from Stowers | 560 mm |
| Extra Large 900 x 500-600 mm | Two 80 litre Malloy bin (with lid) from Bunnings | 530 mm |
| Ginormous | Three bins as for the Extra Large trailer | 560 mm |

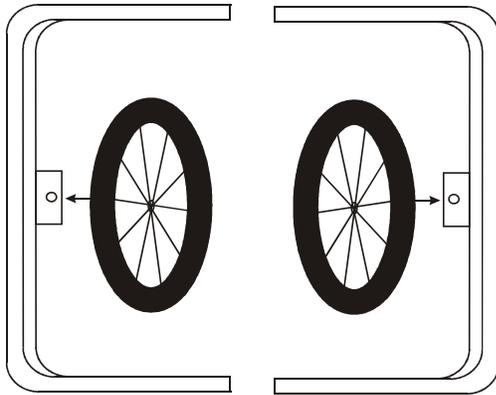
Wheels

If you haven't purchased new wheels, find a set of two wheels off a bike. 24" wheels are a good compromise between rolling resistance (the bigger the better), bin clearance and stability (the smaller the better). 20" wheels are very good stability wise. 26" wheels give better clearance for the bins, but are more prone to rolling with a higher centre of gravity and are unsuitable for use with the medium and large width trailers (< 500mm). Using one front and one rear wheel is quite acceptable as the struts are fixed in place according to the width of the wheel axle. Removing gear clusters and spacers from rear wheels is recommended if possible. Avoid 700mm or 27" wheels as they are too prone to developing speed wobbles & rolling.

Assembly

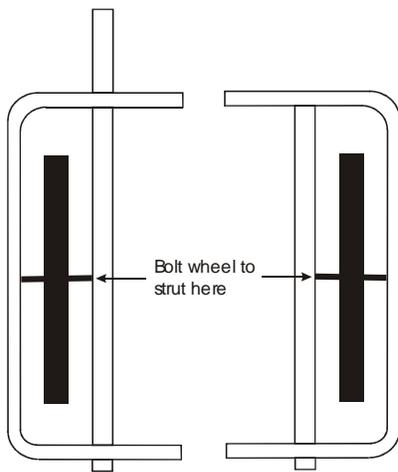
Follow the instructions below. Please note the following:

- 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 nuts provided are nylocks and should not vibrate loose. Do not over-tighten them. If you notice the aluminium tube bending significantly under the pressure of the nut, you have made it too tight. The 25mm square tube **must** have a washer wherever it contacts a bolt otherwise the bolt head will damage the tube.
- The wheel axles go through a hole in the inner and outer struts to be held into place. The only way of changing a tyre or tube is to unbolt the inner or outer strut from the trailer frame. Usually you will only need to do this once every five years or so, but if you prefer a faster method of changing tyres or tubes you can make the hole into a slot into the strut 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.



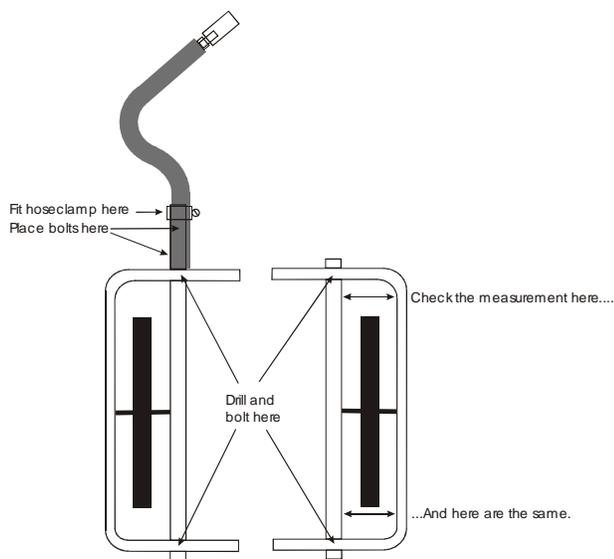
Step 1.

Attach your wheels to the outside bracket of the trailer. If it is a bolted axle tighten the bolt. If it is a quick release wait until step 2 before tightening the quick release.



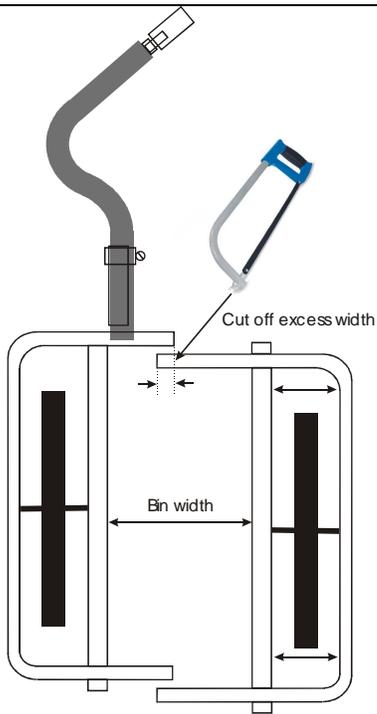
Step 2.

Attach the inner strut (30mm angle aluminium) to the wheel using the hole provided. The longer strut goes on the left side of the trailer. The strut goes underneath the trailer frame at each end. Tighten up the bolt or quick release on the wheel.



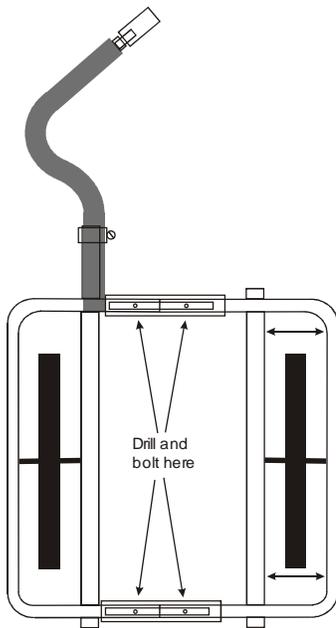
Step 3.

Check the wheel is straight by measuring from the edge of the frame to the inner strut at each end of the trailer as shown in the diagram. If possible, clamp the strut in place to make sure it doesn't move out of position, then drill a 6mm hole through the strut and frame. Note that it may be easier to turn the trailer upside down and drill the thicker strut first.



Step 4.

Measure the bin width carefully and cut off any excess aluminium on one half of the trailer so the ends butt up to each other at the correct width. Cutting it a couple of millimetres too short is preferable to having it too long as the inner and outer sleeves provide the strength across the trailer and the two halves can be a few millimeters apart if required.

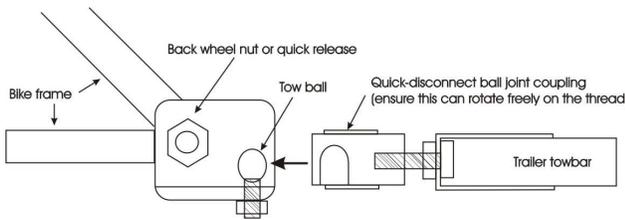
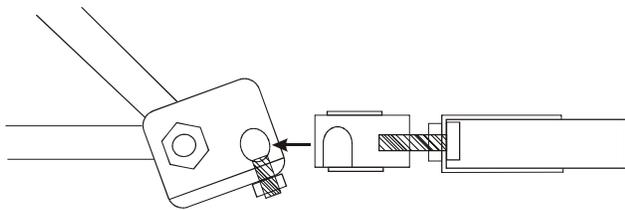
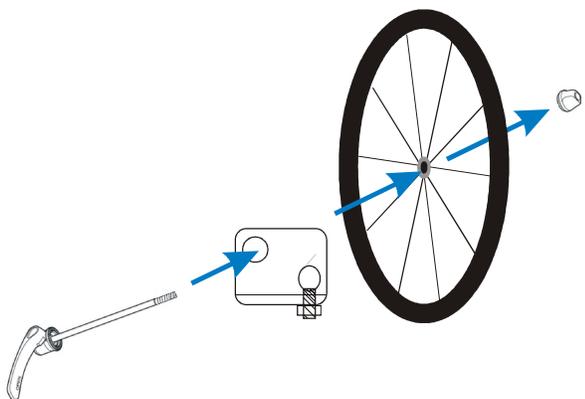


Step 5.

Insert the 19mm tube inside the 25mm frame and the 29mm tube on the outside of the frame and slide the two halves of the trailer together. If the 19mm tube does not stay central in the trailer you may need to bolt one side first before sliding the halves together. Double check the width of the trailer is correct for your bin before drilling.

Drill four 6mm holes (vertically) through the frame as shown in the diagram. Tighten the bolts making sure there is a washer on both sides of the tube.

Check the clearance of the bins is 120-150mm from the ground to avoid scrapes going over curbs. If they are lower than this fit a piece of wood to the bins to raise them up.

| | |
|--|--|
|  <p>Correctly fitted Hitch base – nicely aligned with the towbar.</p>  <p>Incorrectly fitted hitch base – the angle does not allow enough movement for bumps</p> | <p>Step 6.</p> <p>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.</p> <p>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.</p> |
|  | <p>To fit the hitch under a quick release skewer, release the lever by rotating the lever out, then unscrew the nut from the right hand side of the bike. Pull the skewer completely out from the axle being careful to notice how the two small springs are positioned. These springs are optional so it doesn't particularly matter if they don't go back in. Put the skewer through the hole in the hitch base, through the axle and do up the nut again. Check to see the wheel and the hitch base are both straight before the final tighten of the quick release lever.</p> |

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).
- A flag, reflectors and rear lights are very good additions to make the trailer more visible.

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. 70 kg is about the limit for continuous use, but it can cope with the occasional load up to 100kg if it's well balanced and towed carefully.
- 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 very easily.
- If your bike is in the habit of falling over regularly this will burr the edges of the ball joint socket and can (over time) result it the ball slipping out. Check the ball joint socket occasionally to make sure the edges are not damaged and replace the ball joint if necessary.