

Bryn Bird's View

By Bryn Bird, Shrimper 823
(Gwendoline) (2003)

One of the great things about windsurfing is that you see which way the wind is blowing, put all the kit on top of the car and head for the best beach with cross shore winds. When you have had a good sail, you put all the kit back on the car and go home leaving nothing behind, but taking good memories of where you have been. While you are at sea you are on your own and if you have a young family that is a problem. A Shrimper and trailer seemed to offer all the same potential, but we could all get on board.



Bird Trailer - General View at Normal Ride Height. Note the permanently installed submersible lights (an optional extra) the guards for which also provide steps for climbing in the back of the boat.

The boat itself lived up to our expectation but the break back trailer gave us some troubles with every use and it just wasn't a pleasurable experience. Eventually we learned, the hard way, the tricks of survival and we lived with it. One day though I turned a corner in a country lane and there was a halt just a few yards ahead. The tyres struggled to grip the loose surface and the bonnet ended up a yard over the stop line. Nothing was coming! The fright soon faded but I started to get angry because I had just refurbished the trailer brakes and they were as good as they were ever going to be. Applying my analytical abilities soon revealed why and let's just say that my engineering sensibilities were mortally offended.

I worked out a simple way of using hydraulic disc brakes. I cut off the old stub axles and installed the front brake system for a 2T Transit van. This transformed braking performance to almost satisfactory. The telescopic draw bar still reached the stop before full brakeing effect was achieved, however and then I noticed that there was a patch of melted zinc on the mud-guards. Analysis soon revealed that a decent level of braking would twist the suspension to 300% of its normal load deflection and the tyres met the mudguards at only about 200%. The awful logic of this was that these short arm trailing link suspensions actually rely on the brakes not working too well! At this point the boat and trailer were stolen so that was the end of that experiment.

We got a new replacement Shrimper, but knowing what I now know, I couldn't allow myself to buy another standard trailer. The only solution was to design and make one myself. This took a while. I had been thinking about solutions to each of the problems and a long list emerged which needed bringing together.

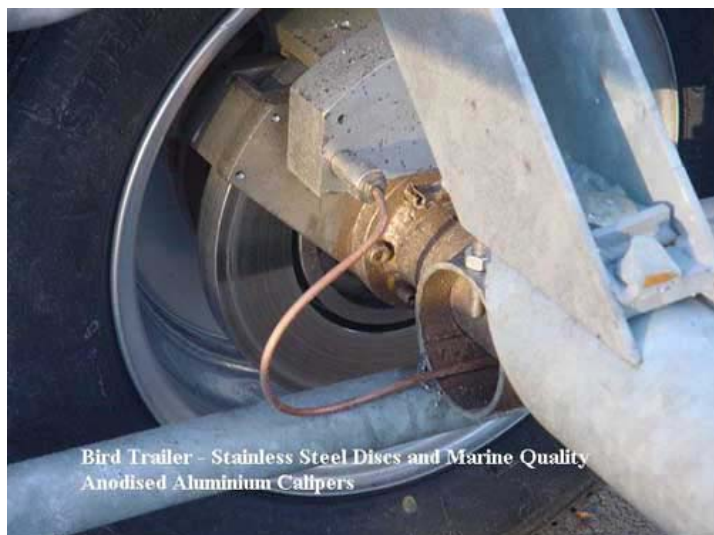
The must have's were:

Braking performance for car/ trailer combination as good as commercial vehicles.

- Brakes and hubs resistant to sea water
- Keel rollers that actually roll
- Lowerable suspension to cope with shallow slips and beaches
- No snaking
- Readily available tyres
- Safety winch to avoid broken hands and arms

The desirables were:

- Raisable suspension to take some of the back-ache out of antifouling
- Extending draw-bar to ease hitching and reduce the need to dip the car in sea water
- Soft damped suspension to be kinder to both boat and car
- Jockey wheel that doesn't rust up and survives when you drive off with it down!
- Thief proof
- Lights that don't fall off and work all the time



I made the first trailer satisfying most of these requirements over two years ago and it has given excellent performance. I couldn't resist adding a few more embellishments, some of which weren't so good and there were some residual problems. The main residual problem was that standard cast iron disc brakes don't like the lack of use over the winter and the discs rust. They are still better than drum brakes, but not what I would call satisfactory. The solution seemed to be to go for standard stainless steel discs.

These were available from the US and New Zealand, but they were expensive to import and were meant to fit their hubs, so I would have needed to import their whole systems. I wanted something more home grown. Also, as far as I could tell, all of these discs followed what has become the universal pattern for brake discs which is fine for mass production but would always be expensive to make in small batches. A similar argument applied to the callipers. In the end I designed completely new systems, for everything and the only standard components are the wheels, mudguards, ball hitch, lights and air springs.

On the first prototype these air springs exposed a big surprise. I had naively taken the weight of the Shrimper as is described in the brochure, added 400 kg for the trailer and designed accordingly. The pressure in the air springs was telling me the all up weight was about 1800 kg. I weighed the boat on its own at 1400 kg with all of our kit on board. So my measurements were pointing to 1800 kg as the gross weight. And that's what I have used for the latest trailer.

In late October 2003, as I write, the new trailer is nearly ready for galvanising. By late November I should have it all together and ready for trials. The weather is cold by then but with this new trailer you don't have to get you feet wet.

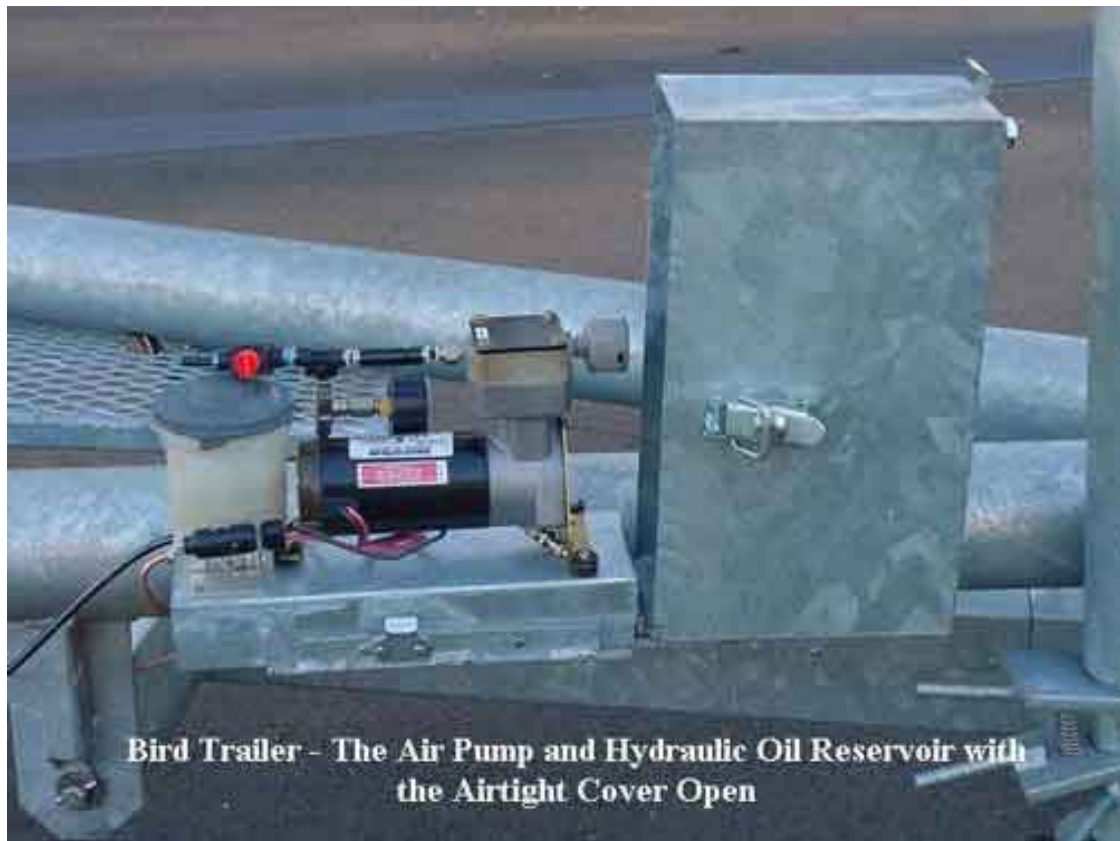
The vision is that launching a Shrimper should be as easy as lurching a dinghy or windsurfer. Then like windsurfers we can sail and leave without a trace and not clog up beauty spots with moorings.

A full set of photos is available: [more...](#)

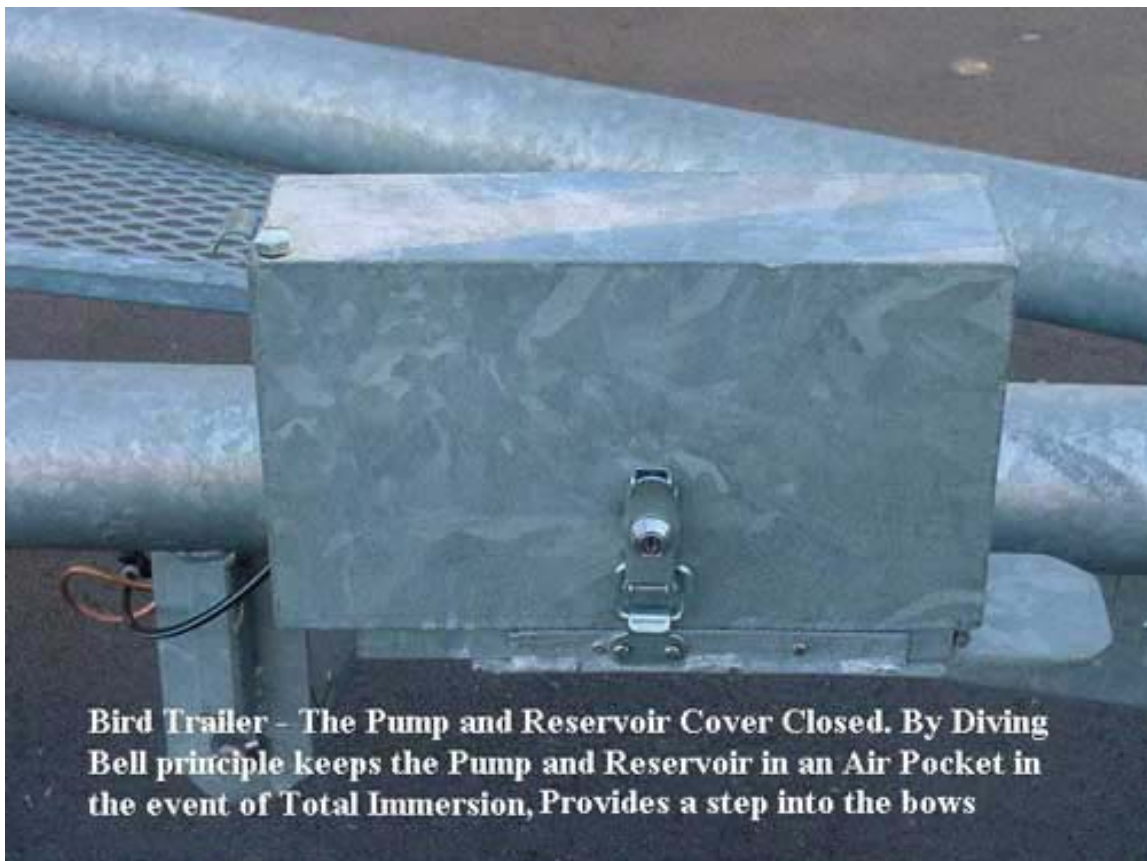
Anyone interested in this trailer please contact Bryn Bird at: bryn.bird@btinternet.com

The Bryn Bird Shrimper Trailer



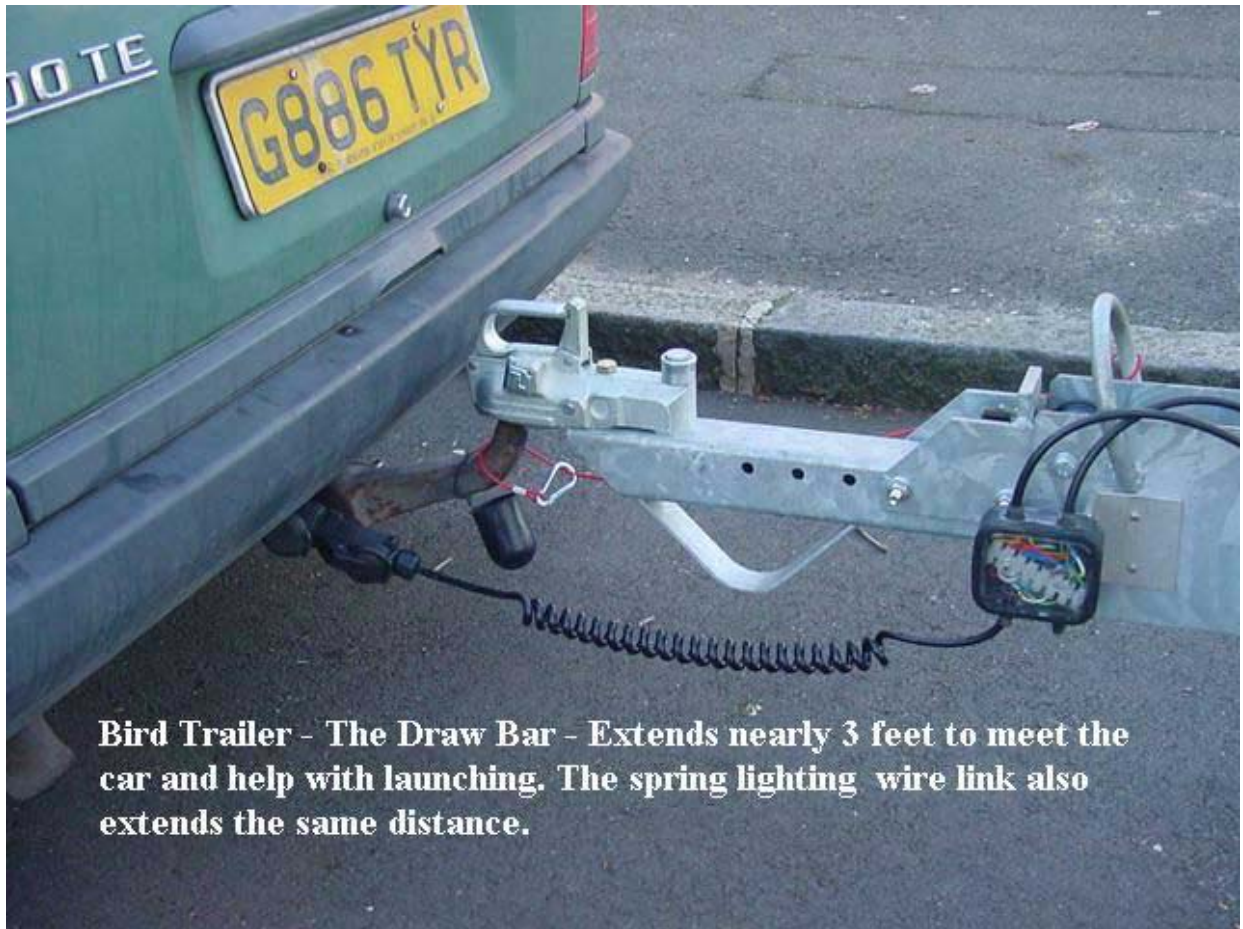


Bird Trailer - The Air Pump and Hydraulic Oil Reservoir with the Airtight Cover Open



Bird Trailer - The Pump and Reservoir Cover Closed. By Diving Bell principle keeps the Pump and Reservoir in an Air Pocket in the event of Total Immersion, Provides a step into the bows



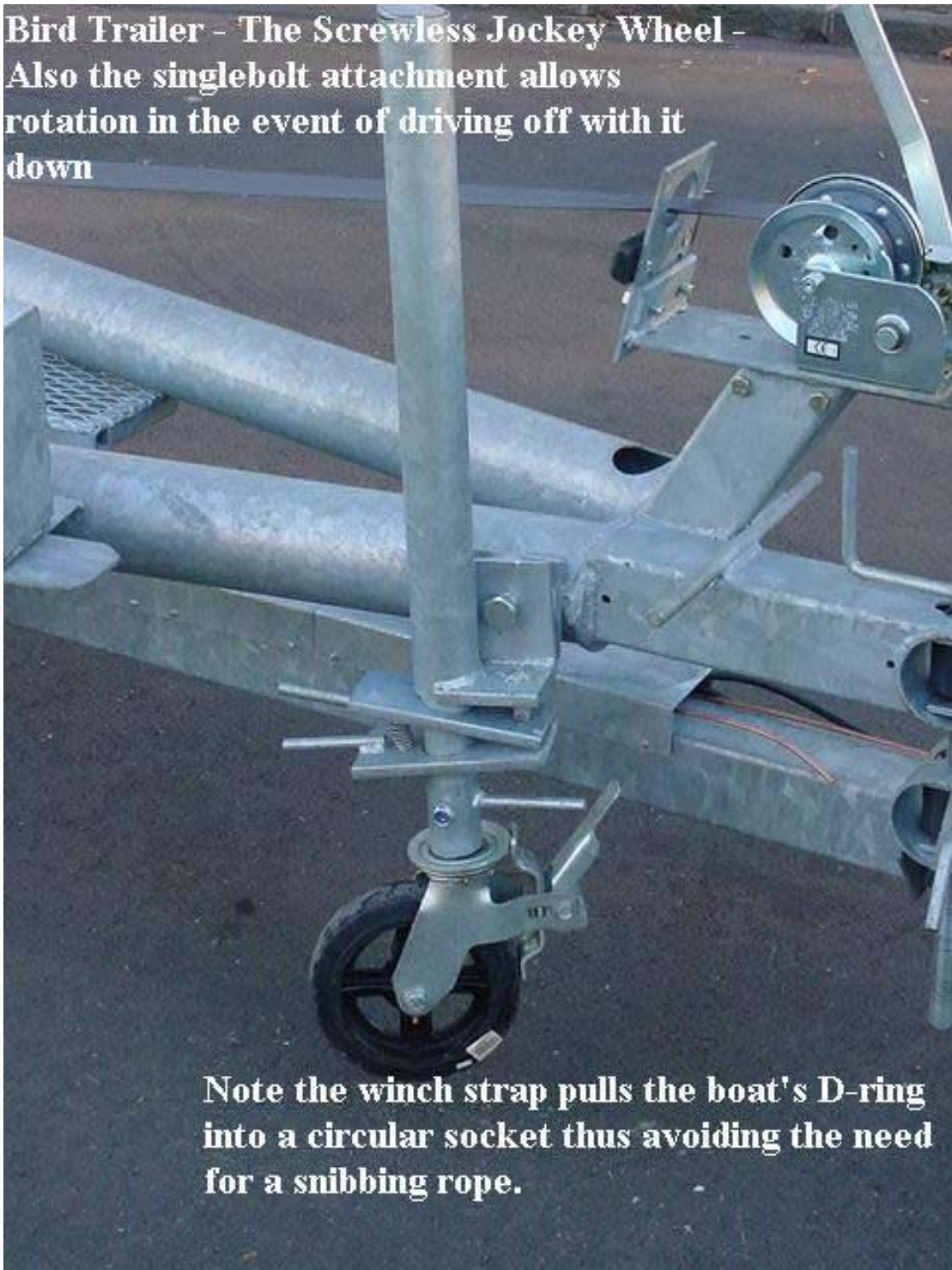


Bird Trailer - The Draw Bar - Extends nearly 3 feet to meet the car and help with launching. The spring lighting wire link also extends the same distance.

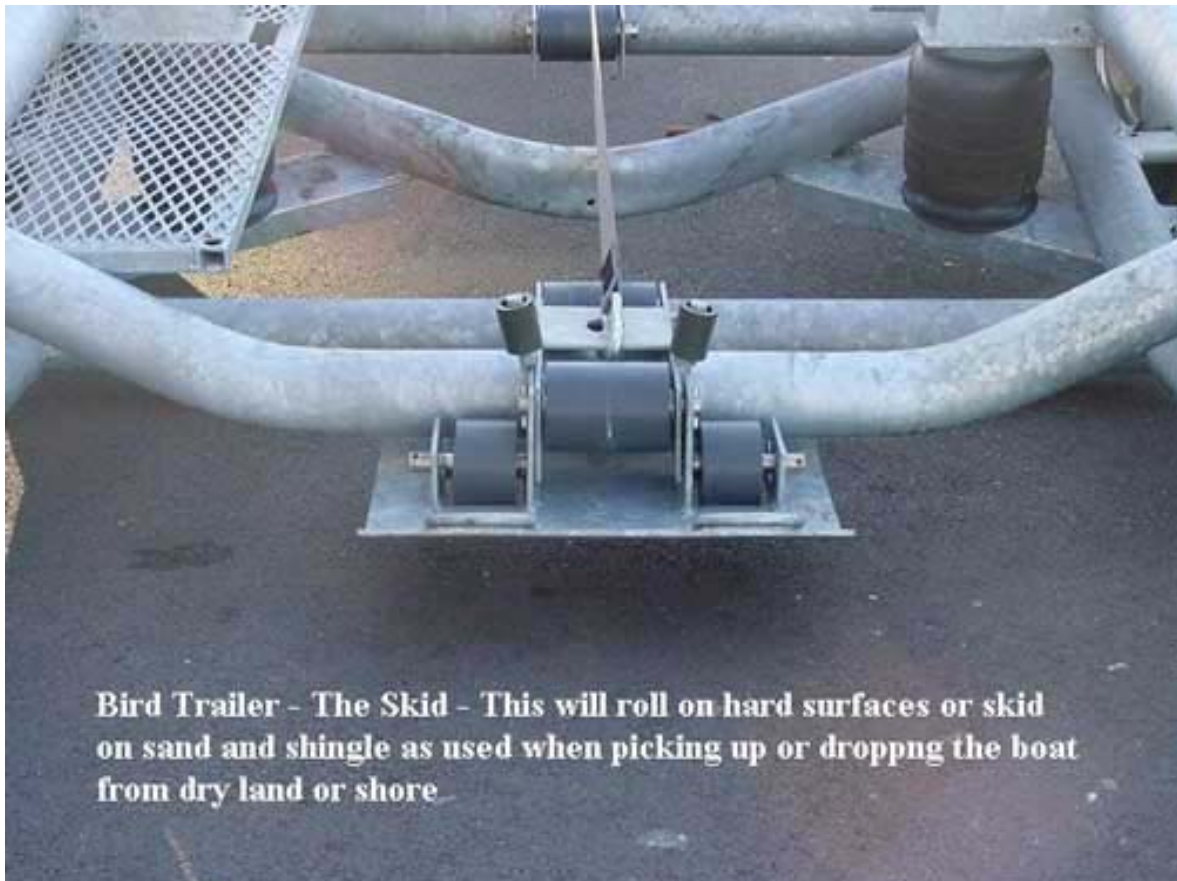
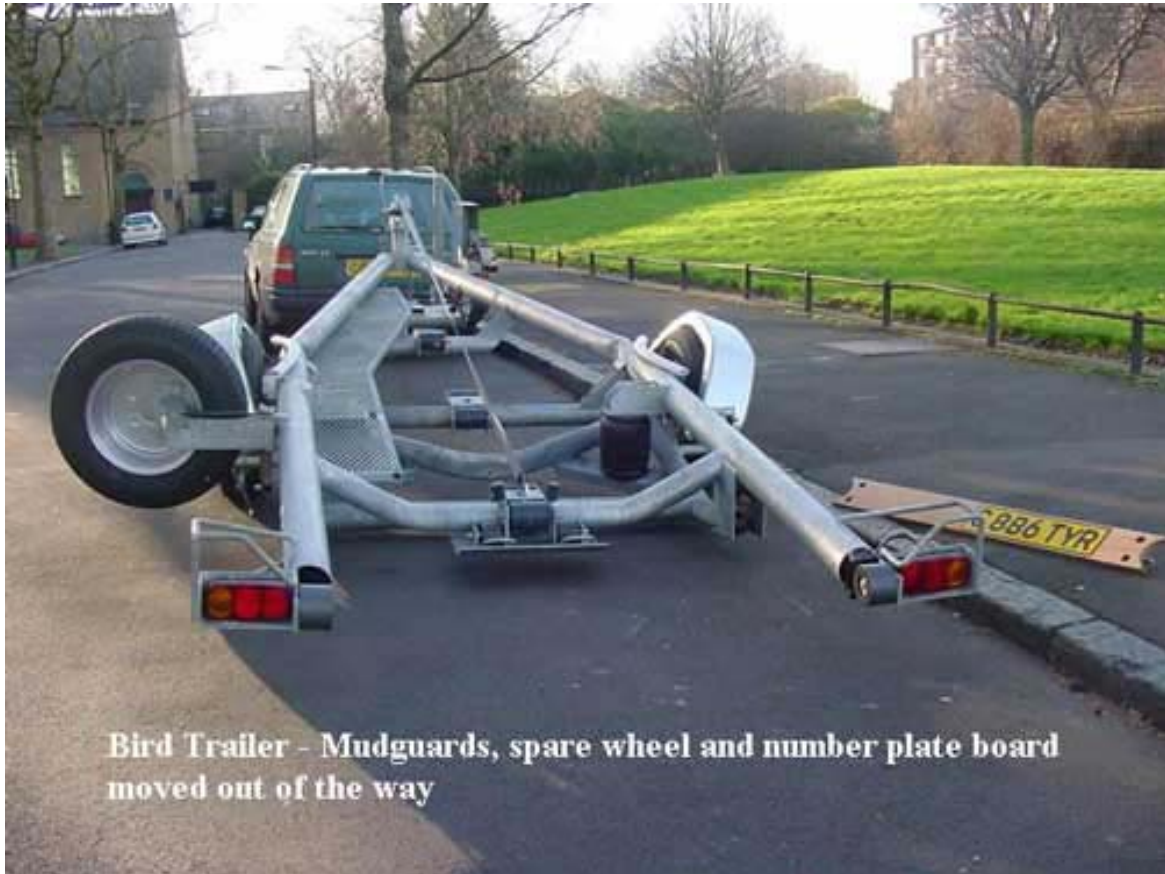


Bird Trailer - Note the clear space above to enable wide opening of side opening rear doors of FWD vehicles. Also Trip-L-Lok ball socket.

**Bird Trailer - The Screwless Jockey Wheel -
Also the singlebolt attachment allows
rotation in the event of driving off with it
down**



**Note the winch strap pulls the boat's D-ring
into a circular socket thus avoiding the need
for a snibbing rope.**





Bird Trailer - Stainless Steel Discs and Marine Quality Anodised Aluminium Callipers



Bird Trailer - Watertight Hub Cap - Also acts as a screw greaser and should be good for up to 100 bar pressure.



Bird Trailer - The Tyre Brakes for Parking - Also shows the adjustable rate Shock Absorbers