

had a reader on the phone last week who worried me with his announcement that he was going to produce his own aluminium boat trailer.

"It can't be that hard" he said, "because I've looked at half a dozen aluminium trailers now and providing I get the right I-beam section, the rest of it is a piece of cake. I'm in the trade, and have been welding aluminium for years, so that doesn't phase me. I just need your advice as to the undercarriage – and find out if you still think the AL-KO undercarriage is still the best of the various options."

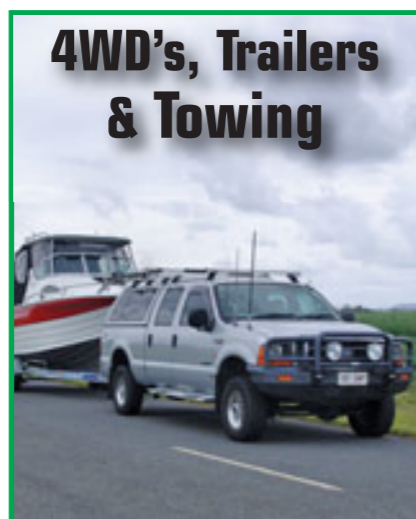
Well, I still reckon AL-KO have far and away the most comprehensive service and parts set-up for DIY enthusiasts or just boatowners who are faced with the necessity of having to rebuild their 'orrible trailer. And once the owner has decided that the chassis is worth saving, the next question is whether the axle, brake and hub assembly can be rescued too.

More often than not, it's actually cheaper to give the AL-KO people a ring and talk to them about buying all new sub-assemblies, and taking the old stuff to the local tip for a timely burial.

Replacement springs, axle(s) and brake assemblies are actually not that expensive.

So we discussed this for 15 minutes or so, with the writer describing his support of the AL-KO IRS rubber torque system, and also the "normal" leaf spring system that AL-KO also offer.

This is what makes the AL-KO team such a handy mob to have on your side, because they make just about everything for boat trailers, and have all the different types of axles



Aluminium Trailers Need Pro Engineers

and suspension systems. It's more about choosing what you'd like and what you need, than it is having to go somewhere else for the bits. AL-KO have the lot.

Good on them, and they've got good people with hands-on experience to give you a hand if you have one of those Saturday morning 'blonde moments' and are unsure how bolt A goes through the chassis to hanger B.

But back to the story – this chap was quite convinced that all he had to do was weld up the I-beam around a formed section and he could bring the whole trailer together as a welded unit. As he pointed out, he's seen plenty of all-welded aluminium trailers . . . but I fear this approach is going to lead us to a place none of us want to go.

All-welded aluminium trailers of themselves, do not necessarily involve the best methodology for boat

trailers.

A Little History

Back in 2002, the writer went through this whole process with several engineers, and in particular, with probably the most experienced aluminium trailer engineer and builder in Australia, Marcel Maujean from Cairns Custom Craft and his good mate Kevin Veness. It's Kevin who actually assembles the aluminium trailers up at Cairns Custom Craft, and he's surely built more ally trailers than anybody on the planet.

At that stage, in 2002, we were discussing this whole 'weld versus bolted' technology or theory. Marcel was adamant that you shouldn't weld aluminium structural frames in any situation where there is going to be constant moving, wracking or working of the aluminium from join to join or piece to piece.

Because aluminium is a soft malleable material, it accepts welding superbly, but by definition, you're welding aluminium with aluminium, so if you end up with a 90 degree join (to make an obvious and silly example) it's actually surprisingly easy to break that weld because you're not so much breaking the weld as you're simply breaking the junction of the T in the aluminium pieces.

Aluminium welds are not very strong of themselves, and for this reason Marcel and Kevin both hammered the writer about the critical importance of bolting the aluminium trailers together as distinct from welding them.

They both believe – to this day – that bolted ally trailers allow the trailers to 'work' or move in tiny increments as the trailer undergoes movement on the highway with its big load.

The crux of the issue surrounds the word "movement". Because aluminium is so soft, it doesn't take kindly to "working" (or 'moving') all the time, and if this occurs where sections of the ally trailer are welded together, there is a hugely increased chance of the sections or welds "working" themselves apart . . .

As a result of this debate, we built the big bolted 8.0m trailer for 7.6m *Dusty Rover*. The trailer was so good, we kept it when *Dusty* was sold, and readapted the cradle for our 8.2m *Far-Away* project. This meant we'd actually run two 4.5 tonne boats on this tri-axle trailer over countless thousands of miles of twisting, wracking, squawking and carrying on, without even the hint of a failure – and it still goes on to this day, now underneath a whole bunch of Seatime 2800s, with no problems at all.

I can't believe that we would have been able to use a trailer like this for as long as we have and keep it in such perfect condition, if it had been all-welded, and to this day, Marcel and Kevin are still proudly adamant about the point.

Subsequently, I've met quite a few of the trailer manufacturers who do believe you can weld – with appropriate restrictions and proper engineering – ally trailers quite well, providing you follow a number of basic rules. And as one of them explained to me (but didn't want to be identified because people might identify his trailers with a problem)

providing that you use good engineering practice and commonsense.

The thrust of his comments were that providing the great majority of the weight of the boat is properly located and cradled over the one, two or three axles, and it's not put on the drawbar at all, or only to the extent of about 5% of the total weight of the BMT rig, then you can develop an all-welded chassis that will work quite successfully for many, many years.

However, this is the bit that worries me, and especially with big rigs. As they get heavier and longer, exponentially, more weight has to be placed on the tow bar coupling. Most of our big rigs had 300-400kg on the special towbar assemblies and HD dollies, and whilst that was barely enough sometimes, there's no doubt this imposed a significant degree of 'working' from the coupling down through the ally trailer chassis.

In give and take country highways (such as the Gin-Gin to Miriam Vale stretch in SE Queensland) we could feel the F-250 rising and falling out of synch to the tri-axle trailer, with the boat trying to pitch itself off the chassis.

The strain on the trailer chassis would have been fearsome.

This is where we learned about the reasons why you have to strap a boat down on an ally trailer forward and amidships, as much as you do on the transom – and we strapped 'em down so tight the boat's hull ended up forming part of the ally trailer

chassis.

And for the record, or for readers moving up into big boat towing, we couldn't back off the drawbar or coupling weight, as these big long rigs will sway like a bitch with anything less than 6-7% of the BMT weight on the towbar.

In truth I suppose the jury will be out on this for some time more because we really don't know that much about the longevity of aluminium trailers, although our big tri-axle trailer is certainly still on top of the list as one of the oldest and hardest worked trailers in the market – and it's still in perfect nick. Equally, there are several others that we're keeping a watch on, that are also working very well and these are different combinations of all-welding, bolting, welding and bolting, and then you get the Quintrex or Telwater variety which are mainly bolted, partly welded and actually use a steel drawbar! So there's no rule book here – it's all about good engineering and commonsense. But that's the whole point.

This is not something the layperson should go anywhere near. Especially as boat trailers do not have any real profit margin in them, and the saving you'd make building your own is scarcely worth the trouble – and that's providing you were a fully qualified engineer.

Food for thought ?

F&B

