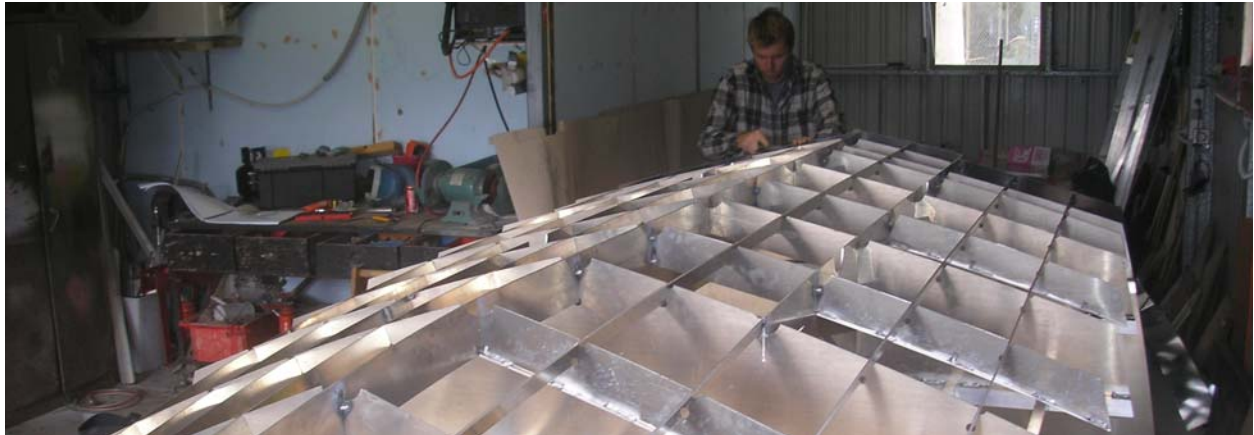


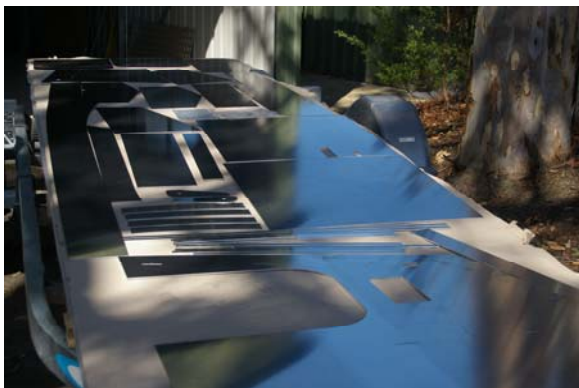
DIY ALUMNINUM FLATPACKS



Peter Booth, Naval Architect and owner of Designer Boats Australia talks about Aluminum Flat packs

WHAT IS A FLAT PACK?

A flat pack is a boat that has been designed/engineered and pre-cut by a computer controlled laser, water-jet, router or high definition plasma cutter. All the sheet products, except for some of the floor sheets are cut and packaged with all the full length extrusions, onto a pallet for transport. Included in the package with the materials is a set of construction drawings, product labels and Australia Builders Plate, (ABP).



At Designer Boats Australia, (DBA) the flat pack doesn't normally include things like the materials or drawings for seat bases, storage boxes, targa bars, live bait tanks, rod holders,

ladders, windscreens, buoyancy foam etc., as most of these items are personal preference or governed by choice. What we do offer instead is the access to drawings, photos and sketches to assist in making your choices look great and function correctly. By DBA being involved with the choices, an eye can be kept on the design side of things and additions can be checked they are within the allowances anticipated or make adjustments. DBA encourages it customers in driving range of the cutters to buy a trailer at the time of purchase, so that the money that would have been spent on transport, can be put into the trailer, also the trailer can be used during the building processes.



SO YOU ARE THINKING "CAN I BUILD A BOAT FROM A FLAT PACK"?

Basically anyone can build a boat from an aluminum flat pack, as it is rewarding with

an immense sense of achievement and self satisfaction at launching, it's worth every minute of it. Now the reality of whether I have the skills or equipment to achieve the finishes or build quality I am after. There are several ways to go about building the flat pack, this is doing a course in aluminum welding at a recognized institute like NSW TAFE, getting an experienced mate to weld it, or tack weld assembly yourself and taking it to a qualified welder to do all the main welding.



DBA has identified that people can be a bit worried or nervous about taking on a project of such magnitude or expense. Therefore the customer is offered access via the internet to a build manual and has the availability to contact and ask questions or advice on the building of the flat pack. DBA has manufacturing agents presently in Victoria, Queensland and NSW that are about to offer courses in building the flat packs.

CAN I STUFF IT UP AND RUIN THE BOAT OR EXPENSIVE MATERIALS?

I say anything is possible and where this is a will, there is a way. The whole boat is pretty well put together internal corner to internal corner and where possible tabs have been included to assist assembly. One of the beauties of having the boat computer cut is the sheets are marked with part numbers,

bending center lines, and many positional lines. Okay, so what does mean, for instance this means that the frame positions are marked on the bottom sheets and as you add them, the frames are adjusted aft or forward to line up with the lines on the sheet. You have to get the lines on both sheets lining up perfectly, but once you have done this, the shape is spot on and the geometry is correct. There are many instances where the panels are tabbed together and the slots or cutting governs the position of mating parts.



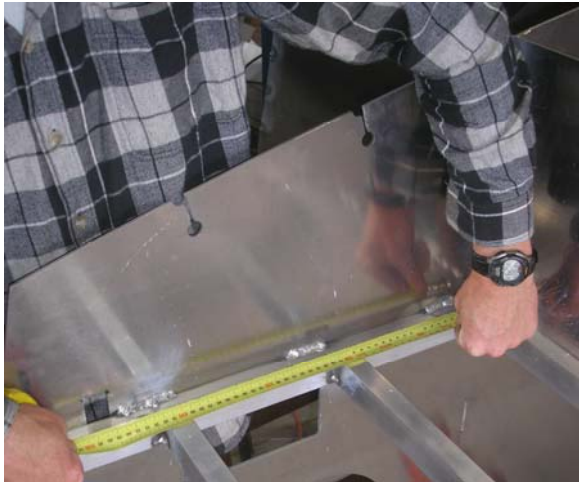
Mistakes can be made, however if you were heading down the path were you would ruin a few thousand dollars worth of aluminum, things would be going horribly wrong and the alarm bells would be ring all the way.

I do have written basic rules in the Build Manual, here are two starters:

IF THINGS ARE NOT WELDING OR GOING RIGHT, STOP PACK UP YOUR TOOLS, GO INSIDE AND WATCH TV OR DO SOMETHING ELSE.

NEVER FULLY WELD ANYTHING UNTILL THE ABSOLUTE LAST MOMENT, AS YOU MAY HAVE TO MOVE IT SLIGHTLY

The main things that do happen when people build a flat pack and make errors is oil canning, (ripples) along the side sheet, large gaps inside between parts and the side sheets and welds that look like a flock of sea gulls flew past. All of these errors are avoidable and usually caused through rushing or not being in the right frame of mind that day. Anyone that can use a tape measure and forward think/plan will produce a great boat.



WHATE KIND OF WARRENTIES AND GARENTEES ARE THERE?

All flat packs design by DBA is covered by professional indemnity insurance for the design side of things. To safe guard, keep track and protect intellectual property, each boat is allocated with a DBA serial number. This number is stamped or laser etched into the pod walls, where it is virtually tamper proof. The manufacturing warranties are the responsibility of the person building the boat. All flat packs are supplied with a welding schedule in the back of the

construction drawings that would normally meet a surveyed boats standard. This means as the welds are done, they are signed off and another person can act as a checker and then sign off on the welds in the column next to them. There is a third column, normally used by an approved surveyor, this can be checked and signed off by a surveyor or someone else in similar stature. DBA suggests that you sign off on the welds you do and then get a DBA agent or a local qualified welder to inspect and sign off on the weld schedule. DBA also offers that if you want to get Lloyds Register, at your own cost to oversee the project, as all designs are done to Lloyds SSC rules and calculations, we are happy to supply the engineering information to them.

WHAT KIND OF FACILITY OR TOOLS DO I NEED TO BUILD A FLAT PACK BOAT?

Flat packs can be assembled just about any were, sometimes it involves creative thinking in overcoming access issues. The average flat pack boat builder does it in his 6m x 6m garage, this will allow enough storage area for all the pieces, a roomy area to work. The DBA flat packs are normally turned over three times, so pick a place this can be done easily.



You can assemble and build a flat pack into a really nice boat with a few basic tools like a MIG welder, circular saw (with aluminum blade), angle grinder, six to eight clamps and a tube bender. You can build the whole boat with just the MIG welder, including hand railing and ladders, as I have done it, but a TIG is a nice addition and makes the process easier. With only using a MIG you will spend a lot of time grinding, filing, shaping and sanding welds. You will also need to add small amounts of body filler to smooth little nicks and scratches and all hand railing will need to be painted afterwards. You can still produce beautiful smooth corners, but it needs a little more work.

WHAT DO I DO ABOUT FUEL TANKS?

Fuel tanks are normally included in the flat pack. There is a lot of discussion in the industry about ethanol fuels and the impact on aluminum fuel tanks at present. Until things officially change, aluminum tanks are still in the boats and DBA customers have access to a 2.5m tank pressure test over 24 hours procedure.



All under floor fuel tanks are installed in a self contained compartment, so in the event of failure the fuel is contained and doesn't leak into the hull.



REGISTRATION AND INSURANCES

The boats are engineered and should be built to the designer's specification and requirements. The boats are registered as per a normal manufacturer and proof of purchase of materials and products is normally supplied. Quiet often the boat needs to be inspected by a yard for insurance

purposes or the Hull Identification Numbers (HIN). All flat packs boats less than 6m have to be fitted with buoyancy foam and an ABP In NSW you also have to sign a Statuary declaration that you built the boat in front of a justice of the peace.

IN SUMMING UP

Building your own boat from a flat pack is enjoyable and self satisfying. Yes you can make errors, but generally will not result in a total loss of materials or boat. The boat could end up a little rough around the edges, most people don't see that. If you have never welded aluminum before, it is probably best to do a six month course before buying a flat pack or get your qualified mate to help or teach you. The other thing, don't rush the job and read and follow all instructions.



After reading this article, you still don't feel confident in building your own aluminum boat, contact DBA as we have manufacturing agents able to build it for you.

In 2010 DBA are planning on introducing DIY composite kits. The composite kits are focused for the composite buff's and will start to be available in early 2010.