A-Cat primer

Australian A-Class skipper Glenn Ashby gets airborne en route to his fifth world title in Florida. Ashby sailed one of Peter Egner's Flyer Mk II designs for the event, the other top-scoring platform being the proven Morrelli & Melvin Nacra A3 which took the next two places in the hands of Lars Gluck and co-designer Pete Melvin. Ben Hall's solid wing (*right*) looked the fastest thing afloat off the wind, but with a combination of a difficult chop and a lack of practice the rig look harder to exploit upwind

LOU VEST

During the recent A Class worlds in Florida Lynn Fitzpatrick took time to pick some pretty able multihull minds… such as Ben Hall, Pete Melvin, Glenn Ashby, Steve Clark, Charlie Ogletree and Mitch Booth!

Each year the engineering freshmen at MIT are given a box with simple parts and are asked to create a machine that will solve a mechanical dilemma and perform better than the others in the class. A-Cat sailors are the geeks who still have the box of parts that they were given in school. Embarrassed about bringing their original pieces out of the closet 20 or 30 years later, they just moved on to trying to develop an elegant and fast solution to another set of very simple rules.

Just like the MIT professor the A-Class keeps the rules simple with only four parameters:

LOA	**18ft (5.48m)**
BEAM	**7ft 6in (2.28m)**
DISPLACEMENT	**165lbs (74.82kg)**
MAINSAIL	**150sqft (13.94sqm)**

Now go off to all corners of the globe, and it's OK to make this a group project and mix and match components from other teams. Just make sure that you return with something cool in the fall of 2007. At the 2007 Ronstan A-Cat Worlds some of the innovations were so radical that they were obvious to the eye but I admit I had to go to school on some of the others.

The obvious

Sparmaker to the America's Cup Ben Hall was a beacon for all. Ben showed up at the championships without a mast or a boom; instead the class cheerleader broke with tradition and sailed with a wing. Steve Clark, the genius behind Vanguard Sailboats, and Dave Hubbard, the designer of wings for the C-Class and for the 1988 America's Cup catamaran used by Dennis Conner, were Hall's inspiration.

You might think that the wing would be much more complicated to control than a traditional sail but that's not the case, according to Hall. 'It's easier to trim around marks because there are only four adjustments to make rather than six.'

By Hall's estimation, sailing with a wing is just like sailing with a conventional rig; 'It is easy to sail, but harder to sail well.' Hall had been experimenting with the wing for only about a month before the world championships. He finished in the top third, or, as he says, 'exactly where I would have finished with a regular rig just like everyone else!'

The less obvious

There is no limit to the mast height in the A-Class, but after much experimenting most of the class have agreed on a mast height and now stiffness is the parameter most played about with. Ben Hall and Hall Spars are the leading spar builder to the North American contingent while Scotty Anderson's Fiberfoam masts were preferred by the A-Cat sailors from down under and Europe. As for sails, Glaser Sails and Ashby Sails are today's dominant brands.

With only one sail allowed through a regatta, sailmakers have recently been focusing upon building sails that perform better across the range. It is a tall order in some classes, but in the A-Cats close co-operation between sail and spar suppliers makes it easier to find a good set-up out of the box, as Australia's Olympic Tornado representative, Glenn Ashby, explains. 'The boats are light and are fully powered up in 6-7kt. That's the point at which you start to depower…

'By 11kt you are going so fast that you think 'what's going to happen now?' The mast keeps bending and the sail keeps on twisting… At 12kt you have max Cunningham [16:1 purchase] and max mainsheet. The air drag continues to bend the mast and the sail twists closer to the deck as it gets windier.

'Now the driving force to make the boat go faster is further down in the rig. And it all works beautifully.'

And the slippery

Being so light and powering up so early, it's no big surprise that designers are getting ever more radical in playing about with hull shapes. The most easily identifiable new design was a modified A3 sailed by two-time world champion and *PlayStation* co-designer Pete Melvin.

Melvin was the blackest sheep among the flock. Not only was his hull blacker than midnight, it didn't have a bow number. I started out with the simple question… 'Why no bow number?'

Melvin's straightforward response was 'nothing sticks to the surface of this boat'. Regardless of the practicalities, or lack thereof, Melvin is definitely going to continue to experiment with HullSpeed, the coating technology he was using whose chemistry combines the hardness of epoxy resin with the release properties of dimethyl silicone. HullSpeed has a surface energy with a critical surface tension (CST) range of 20–25 dynes/cm, nearly identical to that of dolphins and killer whales.

So why haven't we seen wider use of a hull coating that renders the adhesion of barnacles and other marine life so weak that organisms typically slough off with a simple wipe or through the dynamic force of the hull through the water at speeds in excess of 15kt? The answer is that the manufacturer tried to reach some of