



View from the ground — Part 1

Seahorse has not been shy of plugging the significance of the burst of energy that has transformed the International Moth into the world's pre-eminent foiler class. Now we thought it was time to take a look at the class from another angle, less the balletic perspective of our friendly Moth aviator Rohan Veal and more the view from planet earth... enter Blue Robinson

I remember the first time I saw a Bladerider Moth sailing. I was having lunch at Middle Harbour Yacht Club in Sydney when Rohan Veal slid into view. In a light and fickle breeze he casually hiked high above the water in a way physics shouldn't allow. Gybing back and forth in front of us, he held my attention like a long tennis rally. Finally, he caught some pressure and accelerated off to the limit my neck would turn. With fork frozen halfway to my mouth lunch was forgotten — game set and match to Bladerider.

The foiling Moth is an amazing phenomenon. Such is the demand for these lightweight flyers (around 300 built to date) that visiting McConaghy's yard in China this summer, where the Bladeriders are constructed, I watched them heading out of one door at the rate of six a week... while at the time the larger but equally interesting Green Dragon Volvo 70 was heading out of the other door, albeit slightly more slowly.

There are now two Bladerider foiling Moths in full production, the X8 and the FX. The X8 has been around since 2007 and is the lighter of the two, constructed with pre-preg carbon hull, moulded carbon wing frame, pre-preg carbon centreboard, rudder,

rudder box and foils, and a carbon mast, boom and tiller. The hull shape is a flat bottom with square chines with the principal volume in the stern to assist take-off. The X8 is aimed at the high-performance end of the Moth faithful, with a hull weight close to 10kg, and a fully rigged weight around 30kg; this is the black foiler Moth most people would have seen.

The FX is its newer all-white cousin, with the same hull shape and 3.355m length as the X8 (the maximum length stipulated by the International Moth Class), but construction is different: a vacuum-infused, fibreglass foam sandwich hull, with an aluminium wing rack, giving it a fully rigged weight with foils of 40kg. Bladerider have launched the FX as a one-design youth boat and for newcomers who want to get into some high-speed sailing on something a little more rugged and less expensive than the rarified X8.

It's easy to see where a modern foiler Moth is being rigged in a boat park — you just look for the crowd. Everything about this boat draws the eye. The hull has a width of only 30cm at the waterline (just look at a ruler and check how head-shakingly narrow that actually is), but



The author, whose best Finn sailing days may well now be behind him... but who can still cut a fair dash down at Bondi on his longboard, takes one of the first Bladerider FXs out for a spin on Sydney Harbour. The all-white FX features a number of cost savings compared to the premier X8 model, including these alloy racks (above). Both Bladerider models leave McConaghy's (top right) as the complete, tidy package, and both feature this delicate-looking but reliable screw-and-ball adjuster (right) to fine-tune ride height

when the wings are fitted — front wings slide into tubes forward of the bulkhead and the rear wings are secured by U-bolt — this brings the beam out to 2.25m, so you stop looking at the hull, and shift your gaze to the beautiful and elegant T-foils.

They are big. The main foil is just under 1m long, 117mm across the section and has a movable flap on the trailing edge. The rudder foil is 830mm long, 101mm wide and is all solid — no adjustable flap. A quick glance and you know a lot of thought has been put into these lifting surfaces; Bladerider have evolved the shape so that the downward curve in the centre of the foil gives greater lift while the upward curve at the tips reduces tip vortices.

The foils obviously create lift, but they have to work across a wide range, from the 6-7kt of breeze needed to get the boat flying, to the 20-25kt of breeze the good guys sail in, plus all the combinations of conditions in between. Light, medium or strong breeze and large, medium or no waves. One analogy that comes to mind is that it's like trying to ride a penny-farthing bicycle on bumpy off-road terrain. There is a lot going on up high near you, but it's what is happening right at the bottom that counts. And if it goes wrong it goes horribly wrong...

The centreboard foil works in conjunction with the bow wand; the tapered fibreglass rod hanging down from the bow, which via stainless steel levers and pushrods is connected to the flap on the aft section of the horizontal centreboard foil. The wand hangs down 'feeling' the height of the boat above the water and, via the levers and rods, adjusts the foil flap to maintain the boat's (ie your!) height above the water.

The connecting rod's span from bow wand to main foil is set when you rig the boat, but it can be adjusted on the water by winding on the ball joint socket head adjuster at the head of the foil in the cockpit. Try doing this while stationary in a short chop to rediscover muscles that you thought were long since retired.

Bladerider have spent a lot of time working on the control system, particularly inside the centreboard, correctly identifying an efficient control system as being key not only to performance but also to the Bladerider's wider appeal in the marketplace. Poking out of the top of the board is a small stainless steel knob, like the towing hitch on your car. This is the bell crank, which when pushed aft, works to force the push rod, living inside the length of the centreboard, down. A small viewing chamber is cut out of the top of the centreboard to check these connections are working OK. So what happens is the boat flies too high out of the water — the bottom of the bow wand glides forward — pushrods work adjusting the centreboard foil flap angle to alter height and bring boat down. Simple.

The rudder foil is also adjustable, controlled by twisting the tiller extension, which moves the top of the rudder assembly back or forward — changing the foil's angle of attack.

As I said all this is simple. Simple yes, easy no — far from it. When you sail a Bladerider you have to think about controlling your boat in four dimensions: pitch, heel, heading and altitude.

Pitch. The pitch of the boat (greatly influenced by your body weight fore and aft) controls the angle of attack on the



foils, and the drag the foils are subjected to. It also has an effect on the boat's lee or weather helm, as the centre of effort can be easily moved fore and aft around the centre of lateral resistance on the foils.

Heel. The boat must be sailed flat or heeled to windward. If it is heeled to leeward the foils will push the boat over and the boat will tip over by itself — regardless of your efforts to balance it.

Heading. When learning to sail the Bladerider the best advice is to get into a reaching position, with body weight positioned in the middle of the wing frame — upwind and downwind take a bit of practice.

And finally the magic word: altitude. Once a Bladerider is clear of the water you experience something rare and slightly unnatural when sailing at speed: silence. The boat will go completely quiet, no noise at all, and will accelerate immediately to at least 11kt depending on the wind speed. But what happens next depends on the combination of foil angle and wand co-ordination, plus your weight position. And you have to be quick — the Bladerider Moth is so light and fast you must be proactive, not reactive, there just isn't time.

More about sailing the boat in Part 2, including launching, tacking and gybing a boat with almost no weight. Plus bunny hops and porpoising, and how not to let them ruin your day.