IMPOSSIBLE DREAM : PRESS RELEASE 1st NOV 2001

Today sees the turning over of the hulls and bridgedeck structure of Mike Browne's new 17.5 m catamaran "Impossible Dream' at the Multimarine yard in Cornwall. This all-carbon-fibre, fast cruising yacht has been designed by Nic Bailey to meet all of the owners requirement's for an easily handled, fast, comfortable and responsive yacht for him to sail despite being confined to a wheelchair. Although he has little intention of sailing the boat single-handedly, it was an underlying requirement that all aspects of sailing, sail handling, docking, anchoring and maintenance should be capable of being carried out by him alone.

Mike has been an active adventure sportsman all his life. He discovered sailing following a bad skiing accident some years ago, since when he has raced 2.4 m keelboats, being well placed in the Sydney Paralympics. He also sails a small trimaran and is well aware that the key to building a fast cruising multihull is a combination of high power to weight ratio and easily driven hulls. It was an early decision to build the boat in all carbon-foam sandwich, not only for the direct reduction in shell weight but to set the philosophical yardstick against which all subsequent design decisions would be made. There are a lot of features necessary in a boat that is to be managed from a wheelchair that will inevitably drive up the weight, so the design challenge has been to tackle each one with an open mind and a pooling of ideas from as many sources as possible.

The primary concept of the boat is defined by the 'racetrack' which runs around the perimeter of the bridgedeckhouse. It rises gently towards the bow, and is protected by a hollow bulwark that also provides stowage for fenders. At the aft end, the bulwark widens out to provide an outside helm position from which all sail trimming, engine controls and navigation functions can be carried out. The sail trimming from these positions applies to the mainsail and twin headsails, all of which can be tweaked by means of hydraulic rams. Captive reel winches were considered for the headsails but rejected on the grounds of size and weight. Instead the sheets are lead through the coachroof to bridgedeck level where they go to hydraulic self tailing winches. These will not backwind, and so a hydraulic ram operates a floating block in a bight of the sheet giving the external helm position a 1m quick release. The mainsheet itself is also lead forward inside the boom and down through the coachroof to a nacelle under the bridgedeck containing twin rams, a fine tune and a larger bored 'dump' ram; whilst the traveller is controlled by yet another athwartships ram hidden in the aft coachroof arch. Coupled with hydraulic headsail furling gear and hydraulic in-boom furling for the mainsail; the hydraulics systems do add considerable weight to the boat, but this is the hardware that enables the boat to carry a racing size rig area, and more importantly enable Mike to trim the sails, and thus really drive the boat, on his own. He has accepted that hoisting and setting either the asymmetric spinnaker or the code zero, from the end of the bowsprit, is something to be done by others, when on-board.

A lot of the time, the boat will be handled from inside the bridgedeckhouse. There is a forward steering position, in front of the mast and behind a curved, laminated, toughened, solar reflecting glass, heated windscreen. The wheelchair locks onto a small chassis mounted on traveller track, which enables it to traverse the width of the cockpit giving the helmsman good access to all instruments as well as both primary winches, but preventing completely uncontrolled movement of the chair in bad weather. Bringing sheets and halyards below coachroof level inevitably means a route for water to get in as well, although dorade type sheave boxes will keep most of it out. The bridgedeck floor is dished towards the centreline and sloping aft, to make it as easy as possible for whatever gets in to get out again. Because there was little point in providing storage at high level, it has been possible to put a extensive glazing into the deckhouse making it as transparent as possible. The only real obstruction to complete all round visibility is the mast support beam, but even this has been given lightening holes to improve visibility.

The bridgedeck area and the outside ‘raceway’ are effectively a single unobstructed level with no steps or door thresholds, over a metre above dwl. An internal lift in each hull enables full wheelchair access to the accommodation and heads. The brief called for two cabins primarily designed for wheelchair access only and 2 cabins with full standing headroom, also accessible by wheelchair. An easily driven catamaran hull is always going to have a narrow waterline beam, and whereas a sole width of 300mm or so is no problem for ambulant people, a wheelchair requires a turning circle of at least 950mm and 750mm wide gangways wherever access is required. Raising the cabin sole gave us the width we needed and Mike accepted that reduced headroom in the two wheelchair cabins was a concession worth giving to avoid the effect of raising the hull sheerline. The void under the sole that this created enabled us to find space for tankage as well as for pivoting centreboards. Although these boards and the associated casings and hydraulics are perhaps not as efficient as daggerboards, it was concluded that to automate a sliding daggerboard reliably would pose far more difficult technical problems; whereas a pivoting mechanism gives the added benefit of a safety release in the event of striking an underwater object.

The wheelchair lift mechanisms utilise standard track and traveller car components driven by a small hydraulic reel winch, and most of the custom components have also been used in the two external lifts that give access to the dockside. Each of the external lift platforms lies behind a hinged hull panels that can rotate into a horizontal position once the five way locking dogs have been manually released from the dockside. Because docking conditions can vary, the boat is also equipped with a two part passerelle that stows flush with the aft deck and can be manouevred into position by use of travelling hoists fitted into the undersides of the aft davits. Part of the passerelle also doubles as a bathing platform.

There was never any doubt that this boat would need a significant amount of power to operate all of the automated systems. There is a need to balance the amount of power stored in batteries, versus that stored as diesel; combined with the maximum output of the chosen generator and its relation to the likely overall demand as well as the peak demands. A lot of the choice comes down to how many powered operations the skipper is likely to require simultaneously, and the acceptability of using auxiliary power sources such as the primary engines when peak load spikes occur. It is possible to solve all the problems by simply having a surplus of fuel and batteries, and a large enough generator to cover all demands simultaneously, as is often the case in luxury cruising yachts. However, when weight is such a fundamental issue to the sailing performance of the boat, it has to be accepted that some compromises will be necessary, as the owner was adamant that he did not want to sail a boat on which there was a generator running continuously.

The boat is due for launch in July 2002, when we will have the first chance to see how much of the balancing act has been achieved.

Nic Bailey 1st November 2001