

LEOPARD3 - FASTEST CHARTER YACHT

By Guy Waddilove

In recent years Australian boat builders have been at the forefront on the world's large-yacht racing circuit. Dame Ellen MacArthur's trimaran *B&Q*, with which she became the fastest person to single handed non-stop circumnavigate the globe in 2005, was built at Boatspeed in Gosford, as was the Volvo 70 *Telefonica movistar*. Neville Crichton's very successful maxi-racer *Alfa Romeo* was built at McConaghy Boats in Mona Vale, NSW, as was the more recently launched maxi-racer *Wild Oats XI* which took line honours in the last two Sydney Hobart races.

It is no surprise then that Mike Slade's Ocean Marine project management and racing team looked to Australia when they were planning what they are billing as 'the fastest charter boat in the world'. Ocean Marine, since the late 80's, has had a history of building and operating a series of yachts that can both race competitively and provide luxury cruising, with each yacht surpassing her predecessor in both performance and luxury. *Leopard3*, currently in build at McConaghy Boats, is the latest in the line and promises not to disappoint.

Because the yacht will be taking cruising charters as well as undertaking a race campaign, the hull needs to have more volume for accommodation than her dedicated racing peers. To be competitive on the maxi-racing circuit it is necessary to be able to shift the yacht's ballast by way of a canting keel. When the keel is canted to one side, lateral resistance, which is the ability to oppose the side forces generated by the sails, is decreased considerably. To counter the resultant leeward drift, an extra foil or rudder is added, and in the case of *Wild Oats XI*, *Alfa Romeo* and many of the other latest generation maxi-racers, this foil is located on the centre line of the yacht in front of the keel. Configuring the underwater hull in this way requires a narrow beamed hull form, which did not really achieve what the Ocean Marine team wanted in terms of volume. To tackle this issue Farr Yacht Design was enlisted, and a wide beamed hull shape similar to the Volvo Ocean 70 (V070) round the world racing yachts was

designed.

The V070s have canting keels but overcome the leeway problem with two centre-board like foils, one on either side of the boat, that can be dropped down or lifted depending on which point of sail the yacht is on. This configuration allows for a much wider hull form than the single foil and therefore greater internal volume. Another feature that Farr has incorporated into the design to optimise performance are ballast tanks in the transom. The tanks can be filled with six tonnes of water to lift the bow in fast downwind conditions. Continuing the Volvo Ocean Race influence, and to

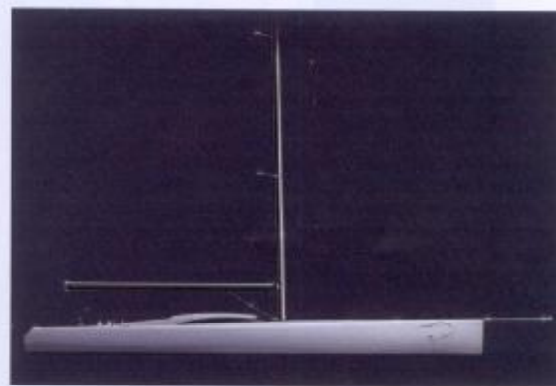
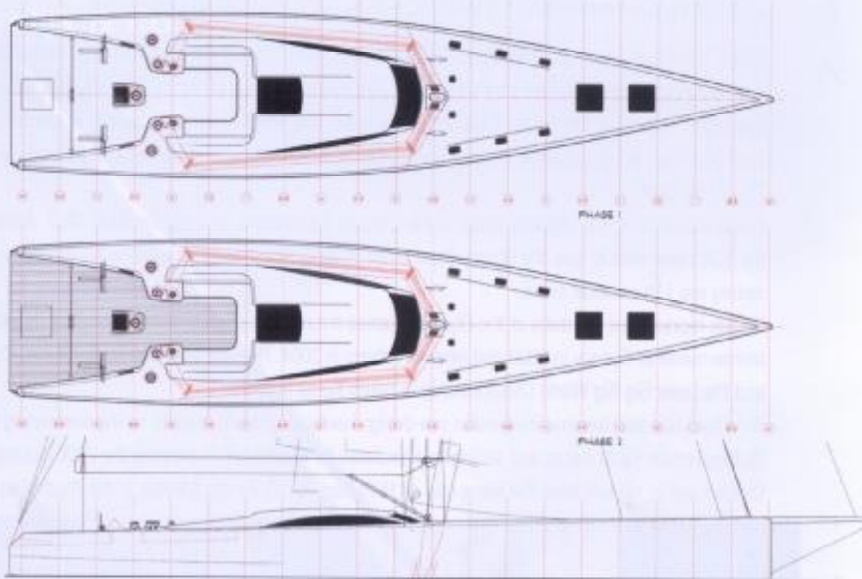


capitalise on practical lessons learnt aboard the VO70s, Mike Sanderson, skipper of *ABN AMRO ONE* and winner of the 2005 Volvo Ocean Race, is being retained as a consultant on the project. *Leopard3's* construction at McConaghys is being undertaken using state of the art materials and methods. The hull, decks and bulkheads are all being laminated in pre-preg carbon fibre over a romex core which will give the yacht a displacement of 37.5 tonnes. In March, after construction is complete, the yacht will be shipped to Southampton in England where the forged stainless steel keel fin, which is being cast in Italy, will be fitted.

Greg Waters of Central Coast Hydraulics is designing and fabricating the hydraulic systems onboard including the canting keel mechanism, the roller systems to lift the foils and the hydraulically powered rig functions. Waters brings with him a wealth of experience with canting keel technology having designed or worked on the systems aboard

many of the current crop of maxi-racers and Volvo Ocean yachts. Southern Spars from New Zealand is providing the high modulus carbon fibre mast and boom which will also be shipped to England for stepping. Standing rigging is to be PBO from Future Fibres. Using high performance fibre PBO in place of more traditional stainless steel nitronic rod rigging will save an estimated 75 percent on the standing rigging weight. Sails are being built by North UK. The sails have been developed by North's Performance Resource Group, who also design for the *BMW Oracle Americas Cup* campaign. *Leopard3* will carry a sail area of 843sq.m upwind and 1,604sq.m downwind including a 1,000sq.m A4 spinnaker flown from the 4.5m carbon bow sprit. Wind tunnel testing is being carried out at Auckland University to optimise the profiles of the laminated carbon fibre downwind and reaching sails.

After final sail trials in England, *Leopard3's* first competitive outing will be the Round the Island Race (Isle of Wight) in June. The following 13 months will be dedicated solely to racing, taking in the Rolex Fastnet Race, the Maxi Yacht Rolex Cup in Sardinia, the Voiles de St Tropez in France, the Sydney Hobart Race, Antigua Sailing Week and the Newport to Bermuda Race. *Leopard3* will not be



chartering in this period so the full cruising interior will not be fitted until 2008, after which she will take on chartering commitments in the Caribbean for the winter and race charters and corporate day sailing on the south coast of England for the summer. The interior, when added, is expected to add only around 300-400 kg to the yacht's weight. Farr Yacht Design is forecasting a maximum speed in excess of 35kts in the right conditions, and in lighter winds Farr predict that *Leopard3* will be easily capable of sailing at double the wind speed. The maxi-racers *Wild Oats XI*, *Alfa Romeo*, *Skandia* and *Maximus* will be the main competition for *Leopard3*. The team hope that *Leopard3's* larger offshore sail plan, and the fact that they have a two year technology advantage over the other yachts will give them an edge over their competitors particularly in the longer offshore races. Ocean Marine is actively looking for sponsorship for the race programme.