

## DESIGN

### Yamaha Bruce Farr

**YAMAHA** is the first boat designed to the new Whitbread 60 rule to hit the water. The rule has been drawn up in the realisation that the International Offshore Rule creates boats that are artificially limited in speed and unnecessarily expensive to build; less than ideal concepts for a long-distance offshore race.

The aim was to introduce a class with limits on exotic construction in order to keep the price down, but virtually none on speed-producing factors. For a boat 20ft shorter than the last Whitbread winner, the initial work shows a boat that will be at least as fast – much faster in some conditions – and could be built and campaigned for perhaps half the cost of a IOR maxi.

Tight controls are placed on hull dimensions, displacement, sail area, water ballast, rig and the basic mechanical equipment allowed aboard. The boats will all have a family likeness and should be similar in speed, putting a premium on tactical sailing and crew work.

*Yamaha* is the first boat of the David Glen Ocean Ventures Syndicate and will be skippered by Ross Field, an experienced offshore, inshore and Whitbread sailor. This boat will be the trial horse for the syndicate; a second will be built in early 1993.

*Yamaha* has already started her trials and crew training and doubtless will be gathering vital data for Bruce Farr and his designers. It is expected that keel, rudder and rig development will be carried out, and particular attention will be paid to the water ballast system.

The syndicate expects that the second boat will be the last Whitbread 60 to be

launched before the race, giving them maximum development time, but losing nothing in training and time on the water.

It is hard to assess this boat because the designers have not made public the overall length or displacement, in order not to tip off the opposition as to which end of the design spectrum they have gone for. (A W60 can be between 59ft and 65ft long and between 13,500kg and 15,000kg in displacement.)

However, given Bruce Farr's work with the New Zealand boat in the America's Cup, one might guess the boat to be small and light.

A shorter boat would not be at too much of a disadvantage sailing offwind in strong breezes as she would then be surfing or planing for much of the time; length is not so important as when sailing to windward. To windward a longer and heavier boat might have an advantage.

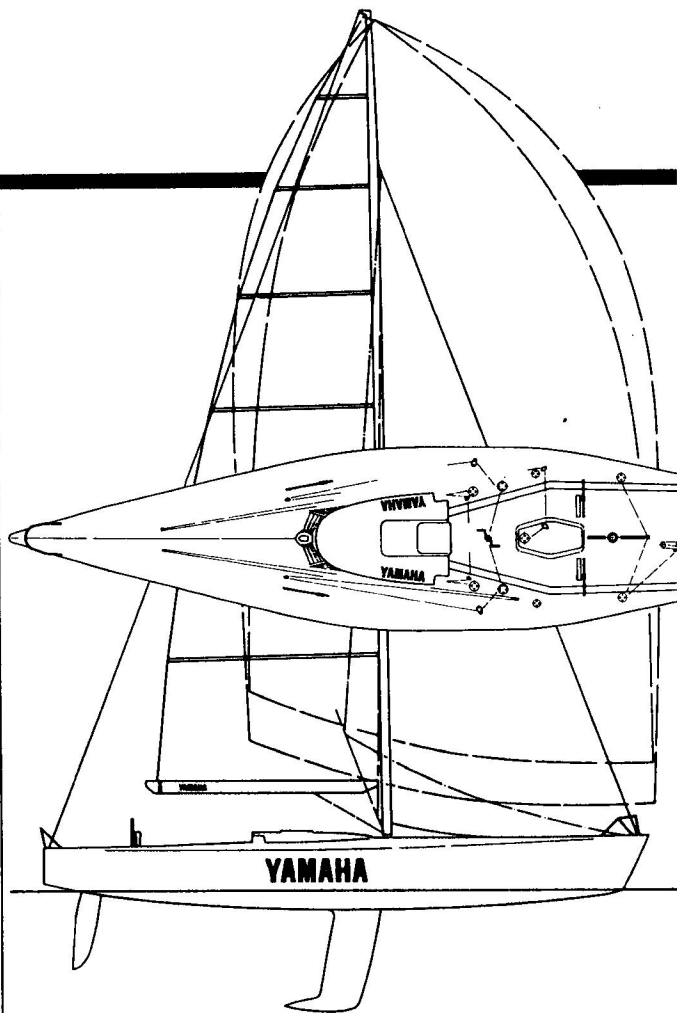
Without quantifying the point of sail the boat was on, Ross Field stated that the boat achieved 10.5 knots boat speed in 8.5 knots of wind.

Although we can probably take the drawings shown with a pinch of salt, the lines indicate a boat with a surprisingly tucked up run aft, rather like a J/24, a keel well forward and interesting features like a straight line section at maximum beam – where the water ballast will be situated – in order to get maximum righting moment.

The stern is wide for speed and power off the wind, and there is considerable flare in the bow to get lift and to keep water off the deck.

Construction is of Kevlar and foam (expensive Nomex honeycomb and carbon fibre is banned) and the mast is alloy. Carbon is only allowed in the spinnaker poles, sail battens and rudder stock.

A collision bulkhead is built in two metres abaft the bow and one just ahead of the rudder stock. There are ten bunks, five on each side, a



rudimentary galley, a head and that's about it below.

The rig shows a surprising bias towards the foretriangle, suggesting that this design has been optimised for offwind sailing. The 100ft mast sits on the forward edge of the keel and its tall alloy extrusion is supported by rod rigging which has the same dimensions as that on the 20ft longer *Steinlager 2*. Such is the stability engendered by the deep bulbed keel and the water ballast. Rigging runs over wide spreaders to reduce compression loads – another hint at the offwind optimisation of the boat.

Whitbread have limited the masthead asymmetrical spinnakers to just two legs of the race, the first and fifth, in order that these boats will not totally outclass the IOR maxis, although the fractional rig alone looks enough to produce shattering speeds.

*Yamaha* is the leading edge of current offshore technology. Combine this rule and its similarity with the International America's Cup rule, with the sponsorship advantages of the Whitbread race, and we could be witnessing the first stages of a revolution in sailing boat design.

What price a 20-knot cruising yacht with water ballast and an asymmetric kite? ■

#### Dimensions (approximate):

LOA	60ft 0in	18.2m
Beam	17ft 0in	5.20m
Draught	12ft 0in	3.66m
Disp	29,700lb	13,500kg
Water ballast	11,000lb	5,000kg
Sail area	2,200ft <sup>2</sup>	204.6m <sup>2</sup>

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