

# Prout Escale 39

A modern catamaran designed to be equally at home blue water cruising or coastal pottering



Photographs by Patrick Riech

Above: the Prout displays her nacelle, almost a third hull, in the seas off Brighton.  
Right: roller furling main is optional equipment; the rig is dominated by the headsails on this version

**W**ith multihull design going through a phase of rapid evolution, Prout have, with the Escale, introduced a yacht which is right up-to-date in terms of interior design, but have been selective in following some of the race and performance-led trends in hull form. These, say designers Rob Underwood and David Feltham, are not always in the best interests of stability and seaworthiness.

Making the most of the enormous amount of space available in a yacht 39ft long and 18ft wide, they have designed a number of alternative interior layouts. These range from an owner's version with one huge, three-cabin suite forward and two two-cabin suites aft, to a sports version with two doubles aft, a single forward and a huge saloon. The boat we tested had a four-cabin, charter design with each cabin including an *en suite* heads.

Two rigs are also offered: a sports rig with full roached, fully battened main plus roller furling genoa and boomed





staysail, and a cruising version with a simpler staying system, smaller yet still fully battened main and roller furling on both headsails. Roller furling mains (either in-mast or in-boom) are optional extras. The rigs are interchangeable with the accommodation plans.

### Design

The Escale is proportionally wider and roomier than earlier Prout designs and is built using improved materials. Stability, seakeeping, ease of handling, durability and price are still paramount considerations.

The length/beam ratio of the Escale is almost exactly 2:1 compared to some modern designs which approach 1.5:1. This, say the designers, provides an ideal balance between lateral and diagonal stability.

For the same reason, the Escale retains generous overhangs in the bows to provide buoyancy and narrow stern sections. The result is hulls of high prismatic coefficient with rounded, good load carrying profiles underwater. The



*An airy, open-plan interior is enhanced by the cutaway windows in the main bulkhead. These can be screened off with blinds.*



long, shallow keels can be fitted with a sacrificial grounding shoe.

The bridgedeck is carried almost to the bows to improve rigidity and accommodation, while buoyancy chambers are built in fore and aft to make the boat virtually unsinkable.

The Prout nacelle, designed to increase accommodation and reduce slamming, has been developed into virtually a third hull under the bridgedeck.

The rig, with its distinctive profile of small, high aspect main and large, low aspect headsails, is also at odds with some modern designs where the balance has followed racing multis in putting more area in the main and less in the headsails.

Prout's arrangement keeps centres of effort low and well aft to increase stability. The sharply raked forestay tends to lift the bow, while the mast sits on the after bulkhead which takes the high rigging loads.

On the down side, big genoas mean high sheet loads and therefore powerful winches (or winchers), while the shape of the headsails does not offer the most efficient performance.

### Construction

The hulls are laid up using isophthalic resins, powder bound mat, and biaxial rovings. In high stress areas Kevlar or carbon fibre is added. They are foam cored above the waterline and the deck is balsa cored on horizontal surfaces.

A total of sixty-five foam sandwich sub-mouldings are bonded to the main

hull and deck structure to provide a monocoque structure. The all-up weight of the mouldings - which are guaranteed for five years against osmosis - is just 2.8 tons. Despite careful weight saving, the extensively fitted interior joinery brings the Escale up to a higher than average 6.2 tons total displacement.

Furniture is also bonded-in to increase strength and rigidity, while the main bulkheads are additionally stitched with unidirectional rovings after the first bonding layers have been applied.

An aluminium alloy 'A' frame is incorporated just forward of the cockpit which takes the mast and shroud loads.

All major joinery is fabricated from foam cored composites with decorative veneers, or GRP mouldings.

### Below decks

The long, low coachroof of the Escale not only gives her a sleek appearance for a cruising cat, but also houses a most effective arrangement of saloon and forecabins. On going below one is immediately struck by the light, open feel of the boat. This is partly due to the mid-greys used for much of the finish, but also to the windows in the forward saloon bulkhead which allow a view right through the two forecabins and out over the foredeck.

These bulkhead windows have curtains or blinds for night-time privacy, but can also be opened to allow conversation between the three areas.

# On board

The horseshoe-shaped saloon seating is sufficient for up to eight to fit round the table in comfort. The upholstery throughout the boat is 5in variable density foam filled with attractive fabric covers. The table is solid wood in contrast to the composites used elsewhere and can have an inlay to the owner's own design as a centrepiece.

There is over £1,200-worth of Italian made lighting in this yacht and some of the finest is in the saloon, where a central bank of spotlights illuminates the table and up-lights bounce a subdued glow off the deckhead. They are all operated via a dimmer switch. A night-lighting strip runs round the settee, while red lights illuminate the shallow steps down to the hulls.

The galley in the starboard hull, and navigation area to port, are both built on GRP modules with textured surfaces. It is hard to find fault with a galley which offers a flush mounted, three-burner cooker, eye-level oven and grill, front opening electric fridge, three sinks, hot and cold water and more than sufficient work surfaces and stowage lockers. Ventilation, too, is good, and there is a gas cut-off switch to save the long march to the foredeck-stowed gas bottles.

The chart table slides out to provide a near Admiralty chart-sized surface. A seat folds down from the outboard locker. There is plenty of space for instruments and the electrical switch panel is a model of completeness. She is supplied with a two 105ah domestic batteries and totally independent starting batteries for each engine.

There is room to stow a comprehensive range of bosun's stores in the outboard lockers, and stowage in this part of the boat is completed by a large coolbox. There is no bookcase, though Prout say one can be built in.

The matched forecabins feature a large, comfortable double berth over the bridgedeck, a vanity unit with washbasin, hanging locker and other stowage in the hull. Needless to say, there is more than full headroom here and throughout the boat.

Through a door in the forward bulkhead is a small heads, though it is little more than a gesture to charter guests.

The spacious aftercabins are reached through *en suite* heads which include loo, basin and shower unit. The sleeping cabins are spacious and the doubles generous. Once again, there is more than sufficient stowage in various forms, including a hanging locker and drawers.

In our twin-engined version, the 35hp Yanmars are installed under the

bunks. Sound insulation is very good, but the engines will inevitably provide an element of central heating which may or may not be appreciated depending on the climate. The two units operate totally independently from starting to cooling, and even to heating their own calorifier tanks.

Prout have steered a successful course between the need to pare internal joinery and fittings to a minimum to save weight and the cruising yachtsman's desire for a good looking, solid-feeling and well-fitted home. The use of lightweight, American cherry



veneered composites has allowed a rich, woody feel without adding too much weight, while the use of laminates in many areas offers a, cheerful and modern contrast. Bird's-eye maple is used effectively in the aftercabins.

In essence, the Escalé offers a pleasant, spacious and practical liveaboard environment. With ten deck hatches and eight other opening ports in addition to fixed windows, there is no shortage of light and ventilation.

## On deck

Cockpit, afterdecks, sidedecks and foredeck spread out in all directions, providing easy access to yards of flat surfaces for sitting or sunbathing.

In contrast to some cats, the coachroof is not so high that visibility forward is impossible, but it is still necessary to stand or use the helmsman's seat to see over it. The seat is large, comfortable and well positioned for the wheel but not for the engine controls. At close quarters the helmsman can see all parts of the boat except for the midships section on the port side.

Sail controls for the most part come easily to hand, though the mainsheet and traveller at the back of the cockpit are a couple of paces away from the genoa sheet winches and the halyards and reefing lines at the foot of the mast. One of the few really annoying features



*Above: eye-level oven, plenty of light, ventilation, working area and all-round stowage; what more could be asked of a galley? Left: the navigator's domain has a slide-out chart table, an excellent switch panel, and room for a good array of instruments. All that's lacking is a bookshelf. Below: looking aft from one of the two forward cabins. Right: the twin Yanmars under the aft berths are easily reached for maintenance*



of the boat is the fact that the staysail sheet has to be adjusted from on deck.

There is a short, well-protected afterdeck between the hulls which can be fitted with davits and there are good boarding steps over the transoms. There is plenty of on-deck stowage for the usual cruising equipment.

## Under sail

The southerly Force 5 blowing into Brighton Marina during our trials was at the top end of the boat's calculated dynamic stability of around 17 knots (that is the upper wind limit for carrying full sail while retaining a sufficient safety margin for gusts and wave action before she becomes unstable. Her static stability – the point at which she



would lift a hull in a steady wind and calm sea – is closer to 30 knots).

We put a small reef in the main principally to overcome a problem with a slipping halyard and prevent sagging in the luff. In fact, the furling main on our boat never produced any significant drive to windward.

We emerged from behind the massive breakwater to be faced with a confusion of pyramid waves which had her leaping from crest to trough and caused an alarming amount of slamming. Once clear of the entrance, and with sail set, the third hull



deflected all but the most awkward waves though a degree of slamming was still present.

With 22 knots over the deck (17 knots true), she made 6½ knots with sheets just started. The awkward seaway made about 37 degrees the optimum wind angle when beating, which gave an angle from tack to tack of 90 degrees.

She came about slowly against the waves but, with the headsail held aback for a moment or two, she never missed stays or felt likely to do so.

With the wind just forward of the beam her motion settled nicely and she made a steady 8 knots picking up to a maximum 9 knots at times. Bringing the wind over the quarter reduced speed to just under 7 knots although



#### Engine options

Single 35hp Yanmar standard. Single installations up to 45hp offered. Twin 18hp Yanmars standard on charter version. Twin installations up to two 35hp units offered.

Fuel 120 lit (26 gal) stainless steel tank (increased tankage optional)

Water 650 lit (143 gal) in

two moulded tanks

Batteries Two 105ah domestic

batteries, one 75ah starter

battery per engine

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she occasionally surfed at up to 9 knots.

Unquestionably, if we had had a fully battened main we could have added a knot to her speed to windward and perhaps two or more off-wind.

Her hydraulic steering, with 4½ turns lock to lock, was very imprecise and lacking in feel. Prout are to reduce the gearing which will certainly improve matters, but the Escala is intrinsically slow to respond to the wheel – a feature she has in common with most cruising cats. The corollary of this is that she holds her course well under sail or power and is extremely light on the helm in all conditions. Although hydraulics are standard, rod or cable linkages could be devised.

#### Under power

Cruising at 7½ knots, a maximum speed of 9 knots was easily achieved with the 70hp available to us. The feeling we had was that a 45hp engine mounted centrally would produce almost the same figures but the standard single 35hp unit or smaller might struggle against a headwind and sea.

The centrally mounted engine operates through a saildrive leg which is steerable via a foot control lever. On other Prout models we have sailed, it has almost as much manoeuvrability as an engine in each hull.

Efficient sound insulation made her quiet even at maximum revs in the aftercabins. In the saloon, and particularly the forecabins, most noise came from wave action.

Not surprisingly, her twin engines allowed her to be manoeuvred precisely and in remarkably tight circles, spinning on her axis and responding immediately ahead or astern. When coming alongside in a strong cross-wind, though, her high windage meant she had to be handled boldly or she would be blown off very quickly.

#### The offshore factor

This is not the place for a dissertation on the relative merits of mono and

#### Comparisons

	LOA	LWL	Beam	Draught	Displacement	Sail area	Berths	Engine hp	Inventory	Price
Prout Escala 39	11.90m 39ft	10.37m 34ft	5.60m 18ft 4in	0.75 2ft 6in	6,250kg 13,888 lb	78.4m <sup>2</sup> 843sq ft	6/10	35	A	£139,000
Ocean Twins 38	11.51m 37ft 9in	9.75m 32ft	5.94m 19ft 6in	1m 3ft 3in	6,109kg 13,440 lb	63m <sup>2</sup> 680sq ft	6	2x18	A	£126,900
Solans Sunstream	12.17m 39ft 11in	11.48m 37ft 7in	5.49m 18ft 1in	0.99m 3ft 3in	5,986kg 13,169 lb	67m <sup>2</sup> 723sq ft	8	2x18	A	£152,750
Privilege 12m	12m 39ft 6in	10.88m 36ft	6.39m 21ft	1.83m 5ft 11in	7,000kg 15,400 lb	88m <sup>2</sup> 925sq ft	10	2x27	A	£178,600

1 Sail area is taken as main and working jib. Price may include a larger headcoat. 2 Inventory is graded from A to D. A: excellent and includes luxuries beyond sailing necessities. B: good and includes all items for manning the yacht. C: average including some essentials such as winds. D: below average including many essentials. 3 The quoted engine hp is that offered as standard or, where there is a choice, the one we consider most suitable to its role. 4 The price is the standard manufacturer's retail price inc VAT, the engine quoted above and the standard sail wardrobe which may differ from the quoted sail area.



multihulls, but within the latter category the Escal offers stability, an easily handled, tough rig and a safe working environment.

Below decks, the lack of heeling means that all berths are seaberths, the galley and chart table always usable. She is designed for offshore work and equipped, or capable of being modified for, serious ocean passages. Prout's order book reflects her potential as a liveaboard cruiser.

## Conclusions

The Escal's spacious, attractive and efficient interior is probably her biggest selling point. Considerably more fully fitted-out than many multis, she is well made and finished and she has a domestic inventory of a high standard. Her cruising weight is above average, but so is her sail area.

The inefficiency of the main during our trials slightly clouded this issue,

however, and all round she performed no better than an equivalent-sized cruising monohull (but on an even keel).

Her price must be related to her dimensions in all directions, not just length, and with accommodation closer to that of a 50-footer, the tag is not unreasonable. It includes such items as Autohelm Seataik log, wind and depth as well as anchor, warps and fenders. JJ

**T**he following notes are broad generalisations which condense entire books on the subject. I am indebted to the writings of John Shuttleworth, Dick Newick and Geoff Pack and conversations with Rob Underwood. **Beam:** broad beam increases lateral stability but can also increase the tendency to pitchpole. Length/beam ratios of 1.5 to 2 are normal but, for cruising offshore, look for a figure closer to 2.

**Transoms:** broad transoms increase the ability to surf but also lift the stern and trigger pitchpoling. Cruising designs should have narrow transoms with U-shaped stern sections.

**Bows:** buoyancy should build up rapidly as the bow is forced down. This can be achieved with moderate overhangs or topside flare or both. A shallow forefoot will help. The foredeck should be rounded to shrug off any solid water which may be shipped.

**Underwater shape:** hull rocker causes pitching, so the run should be as flat as possible. Narrow waterline beam reduces wetted surface. U-shaped sections also reduce pitching and improve load carrying. For practical reasons cruising keels should be long and low and of aerofoil section. Semi-elliptical rudders are more efficient at high speeds.

**Above waterline:** a knuckle above the waterline increases accommodation volume and generates lift. Deck edges and deck saloons should be rounded to reduce wind resistance.

**Rig:** the overall centre of effort should be kept low and well aft to reduce capsize and pitchpoling moments. This suggests large genoas and small mains, but the total headsail area can be made more manageable by breaking it up into a cutter configuration.

Catamarans have far greater stability than monohulls – up to a point. The problem is that, while monos show clear and escalating signs of distress, multihulls are largely undemonstrative under pressure.

## Boat chat

JAMES JERMAIN  
expands on some  
aspects of catamaran  
stability touched on in  
our report of the  
Escal 39

It is therefore easier to overpress a catamaran, and the point at which stability is lost comes suddenly.

Physical signs that a cruising cat is reaching the limit (effectively the moment the weather hull begins to fly) include a heel angle over five degrees, increasing spray coming off the lee bow, almost no windward hull wake or bow wave and a tendency towards lee helm.

What we need to know is the boat's static and dynamic stability figures which were mentioned briefly in the Escal report. These give the windspeed figures at which it is necessary to reef. If these are strictly adhered to, a capsize is almost impossible.

The formula for static stability is:  
 $SF = 15.8 \times \sqrt{(0.5 \times B \times D) / (SA \times CE)}$   
where

SF is the windspeed in *mph* at which the boat has to reduce sail

B is the beam between hull centrelines in feet

D is the displacement in lb

SA is the actual sail area in square feet  
CE is the height of the centre of effort above the centre of gravity in feet.

All these figures are obtained easily from the builder or designer or can be calculated.

Static stability assumes a steady wind and calm sea. Neither of these is likely in conditions when the formula becomes significant.

A further constant, therefore, has

to be introduced to produce a usable, dynamic stability figure. This is usually taken as 0.6. In other words, dynamic stability is 60 per cent of static stability (multiply the result of the above formula by 0.6).

Using these calculations, an owner can arrive at a series of figures which relate windspeed to sail area and, therefore, when and by how much to reef.

The high speed of a catamaran, particularly off the wind, and the effect this has on apparent windspeed, is often what gets a cat into trouble.

On a broad reach or run the apparent wind may be so far reduced that the skipper is tempted to set more sail. But if, through wind or wave action, or lack of concentration on the part of the helmsman, the boat is allowed to round up suddenly, her acceleration and the shift of wind angle forward of the beam can turn an apparent Force 3 into an apparent Force 5. So always be aware of the true windspeed and set sail accordingly.

Modern cruising cats tend to have dynamic stability figures which suggest similar reefing regimes to monohulls of the same length: first reef at 17-20 knots, second at 23-25, third at 27-30 (very roughly).

If caught in a panic situation, there is again a correlation with mono handling. As a mono becomes overpressed, weather helm builds up and she develops a tendency to fly up into the wind. To bring a monohull back under control, you allow her to follow her nose.

As a cat becomes overpowered, the lee hull is depressed and its resistance increases. She develops lee helm and wants to run off. At the first sign of a hull lifting, a sharp turn to leeward will tend to drop the windward hull again and also, by running off, reduce the apparent wind and weight in the sail.

Before ending this piece I must emphasise, however, that all this is *in extremis* stuff. The likelihood of a cruising cat capsizing is about the same as of a monohull being knocked down, filling and sinking. JJ