

By courtesy, Editor, YACHTING MONTHLY

L.O.A.	30 ft 0 in	Beam	14 ft 10 in
Draught	2 ft 0 in	Displacement	4.3 tons
Berths	7	Engines	
Sail Areas, ketch rig:		2 x MD2 Volvo Penta diesels	£1,650
Main	187.5 sq ft	Standard Price	£6,145 ex engines
Mizzen	74.375 sq ft	YM Basic Price Index	£8,130.50
Staysail	78 sq ft		
Masthead genoa	290 sq ft		
Spinnaker	800 sq ft		
Yankee	144.5 sq ft		

**Designer and Builder:** Bill O'Brien

Hazel Road, Southampton, U.K.

Bill O'Brien believes that he has the answer when it comes to making cruising catamarans safe. His belief, exemplified in his *Bobcats* and his *Oceanic*, is to undercanvas them, so that, however foolish the owner, unless he buys more sails, his boat will not overturn. Couple this with tubby hulls which positively invite you to load them up well and you've got another very powerful capsizing deterrent.

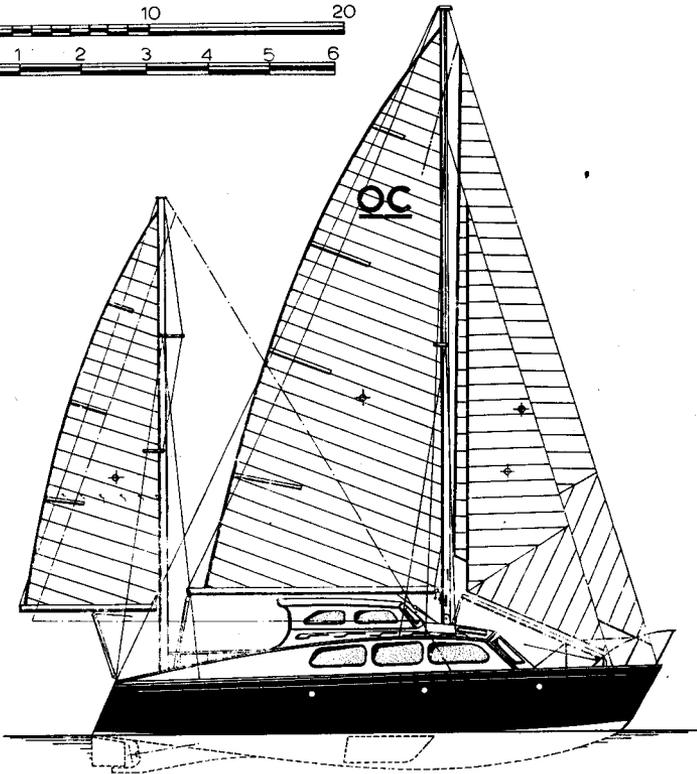
My trial sail was during the 1969 Southampton Boat Show on a private *Oceanic* called *JANIKA* with the owners Dr. and Mrs. Vandy as crew. We were also lucky enough to have with us an ex-RN officer of charming disposition. Being on a private yacht I had a much better chance of getting a true impression of the boat as *JANIKA* had been sailed for a year and was tested with all the usual gear that the average family collects.

Down below, few concessions to weight saving had been made. The interior would make the average monohull sailor gasp and it made even my eyes open a little wider.

The bunks are on the forward end of the bridge deck, where Rudy Choy says bunks should be, as they are quieter there away from the rush of the water—although I should have thought the odd thump under the bridge deck would be fairly hair-raising. These little staterooms are really palatial with full standing headroom for changing, plenty of light, and cupboards galore. Aft to starboard is the king-sized galley and in the port hull the navigation area and W.C. compartment. Plenty of room everywhere to swing a monohull, this is particularly true on the bridge deck where the dinette is. The dinette is an excellent eating area, and there is even standing headroom under the large doghouse, but it suffers from the usual complaint of dinettes. They are excellent for civilised eating, but imagine being condemned to sitting always at the dining table. Somebody one

day will design a dinette which, simply rearranged, will give comfortable lounging seats with corners that you can chock yourself into.

On deck, one steps out into a small ballroom which Bill O'Brien calls the cockpit. Under the cockpit seats were the two Penta MD2 engines, one in each hull. *JANIKA* is rigged as a yawl which is ocean cruising rig and the sails would be normally used in ideal running and reaching conditions, with the engine being used as the main form of propulsion. I think that it is a rare cruising man these days who does not use whichever form of propulsion that seems most efficient at any given moment and the *Oceanic* is immaculately powered but under-Terylened.

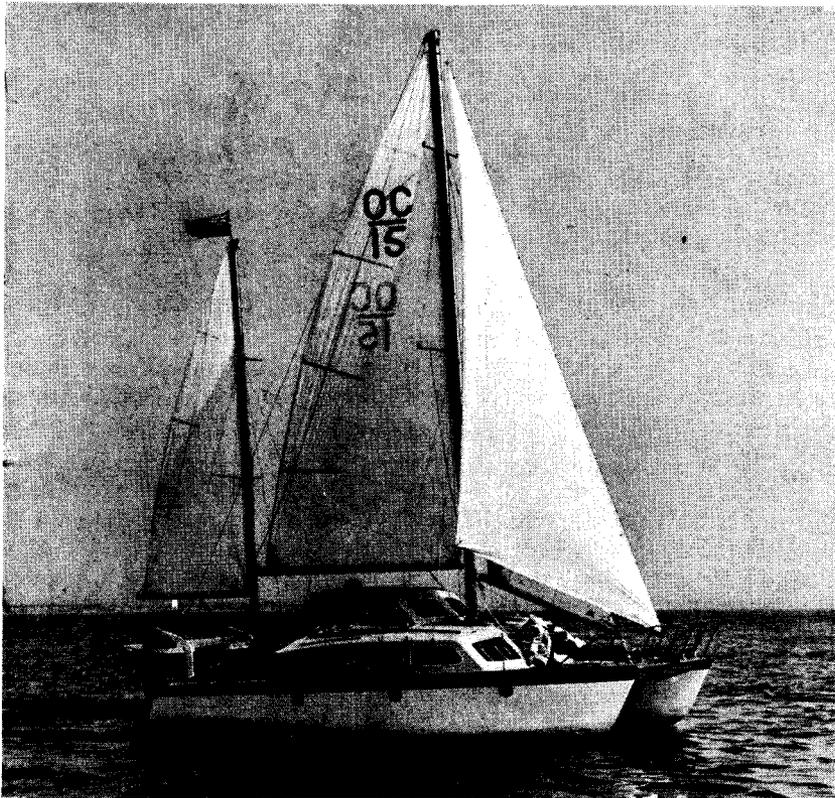


We gave *JANIKA* a thorough work out under sail and power which confirmed these findings.

The steering position is on a plinth; the helmsman peeps over the high coach-roof like Mr. Chad in front of a huge wheel mounted on the cockpit bulkhead.

*JANIKA's* had as an extra the Pinta self-steering which I imagine must make cruising across the Channel on a sunny flat calm day absolute bliss. Imagine deckchairs on the foredeck, a long cool drink, a copy of *PLAYBOY* and Pinta at the helm for hour after hour never tiring, never off course.

The rig has been designed so that a man and his wife can easily handle it. The staysail is boomed and can virtually be left alone to get on with the job. If caught out in a blow one could snug down under mizzen and staysail quite comfortably.



*OCEANIC*

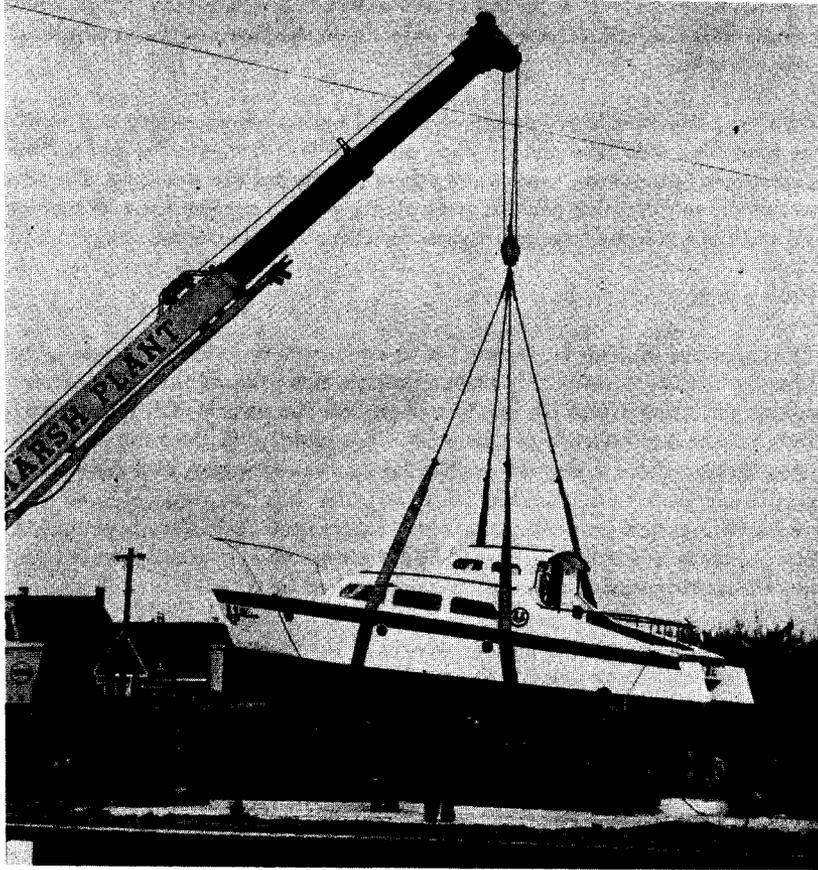
I saw the list of owners which included seven doctors, and six senior officers in both the British and American armed forces. From their ranks, I got the impression they were probably in their forties and fifties rather than the younger age groups, which is understandable when you remember the accent is on safety, comfort and ease of sailing rather than speed and sailing ability. Ocean cruisers and people wanting to live aboard are also on the list of owners.

The most significant thing I felt was that Dr. and Mrs. Vandy were delighted with *JANIKA*. They have sailed over 1,000 miles in her already and she has never given them cause for anxiety. She is exactly what they and many others want. Personally, I am inclined to echo Tom Follit's words:

"In a catamaran, if you ain't got speed, you ain't got nuttin".

But then, not everybody wants the extra anxiety that the extra sail area necessarily brings with it which would make her faster—I have heard of no *Oceanic* turning over.

It was in one of this type that the Swales family made the Cape Horn passage on the way home.



*Home built OCEANIC*

## Chapter XIII

### FURTHER WELL-KNOWN STANDARD BRITISH DESIGNS

CATALAC 28

1970

---

Sales are handled by: Tom Lack Catamarans Ltd.,

Avon Works, Bridge Street, Christchurch, Dorset, England.

This design by M.G. Duff & Partners has resulted in a very original craft, which makes the 28ft *CATALAC* one of the most attractive Cruising Catamarans on the market today.

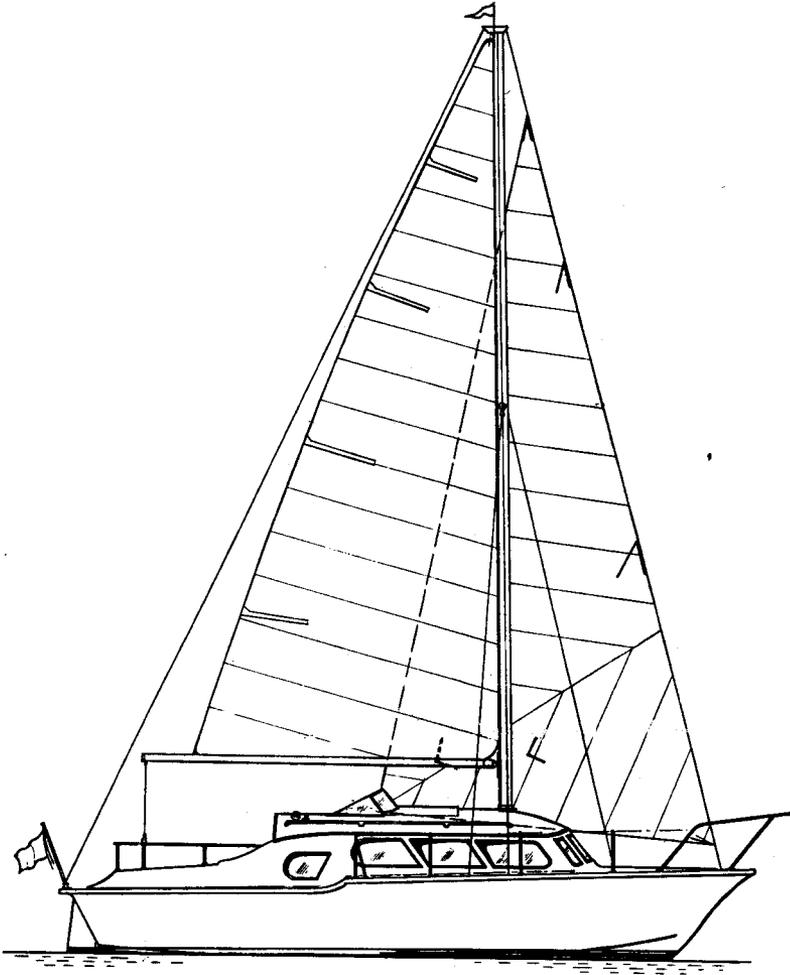
With hard chine hulls and plenty of natural ballast below, safety and comfort are assured. The well balanced sail plan, giving 425 sq ft makes for an excellent turn of speed. Spinnakers, genoas and storm jibs are readily available. The unique layout of the self-draining cockpit gives plenty of elbow room for everyone on board and the generous foredeck makes crewing a real pleasure.

Hulls will be available in kit form.

The ingenious interior layout plan is worth particular attention by all of those looking for a really comfortable cruising boat which seldom heels, but offers abundant accommodation for family and guests. The owner's Cabin forward is entirely private and boasts a 6ft 2in x 4ft 9in double berth, dressing table and hanging locker. There is also ample stowage space. In the port hull forward is a single private Cabin with a 6ft 2in x 2ft 3in bunk with the same generous locker space for clothes and gear. Amidships in the port hull, the Galley is equipped with a cooker with twin burners, grill and oven, a sink and draining board and plenty of working space into which a cold box can be fitted.

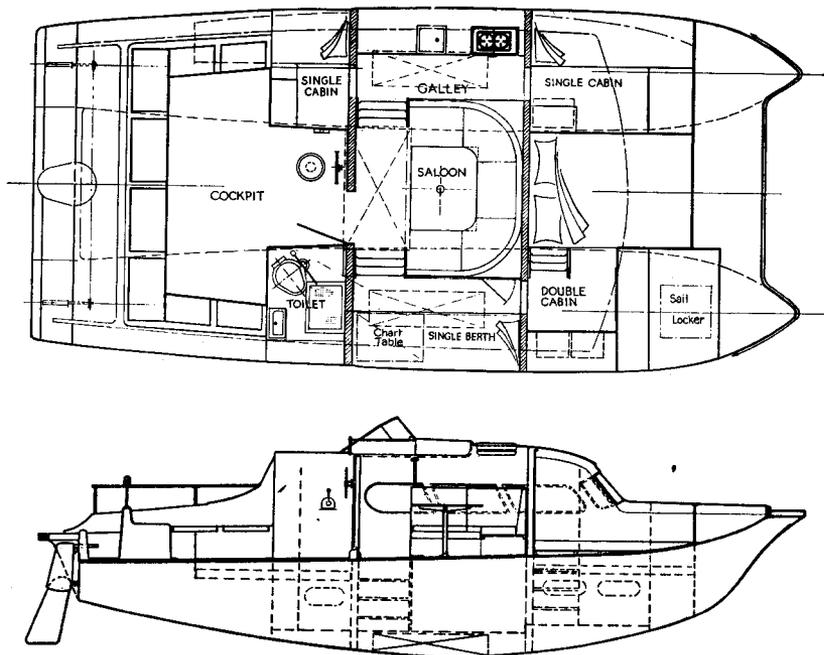
The Saloon is one of the special features of the craft and has a distinctive seating plan, normally associated with very large yachts. The table is removable and lowers to form a large double berth when more than five are to be accommodated. Another single berth aft of the galley is tucked very neatly in its own separate Cabin. The seventh berth is situated amidships in the starboard hull and is also 6ft 2in x 2ft 3in. Ample hanging and locker space is close at hand. A standard chart table is fitted over the end of this bunk, with chart stowage below.

A separate compartment houses the flush W.C. and wash hand basin. There are also facilities for fitting a shower.



*CATALAC 28*

The novel Cockpit layout provides the helmsman with full protection in all weathers, as the "Wheelhouse" can be completely covered by a pram hood type dodger. The position of the wheel enables the crew to handle the sheets without getting in the helmsman's way. The Cockpit is surrounded by excellent bench seat lockers and special attention has been paid to the siting of the fuel lockers.



*CATALAC 28*

## HEAVENLY TWINS

1972

L.O.A.	26 ft 2 in	Mainsail	140 sq ft
L.W.L.	21 ft 6 in	Jib	120 sq ft
Beam	13 ft 9 in	Genoa	200 sq ft
Draught	2 ft 3 in		

**Builders: South Coast Marine Ltd.**

Millbay Docks, Plymouth, U.K.

From the board of Pat Patterson comes a new conception in family cruising yachts. We required a safe family boat to sleep, feed, seat in the saloon and cockpit 6 persons, and easily be handled by the skipper on his own if necessary.

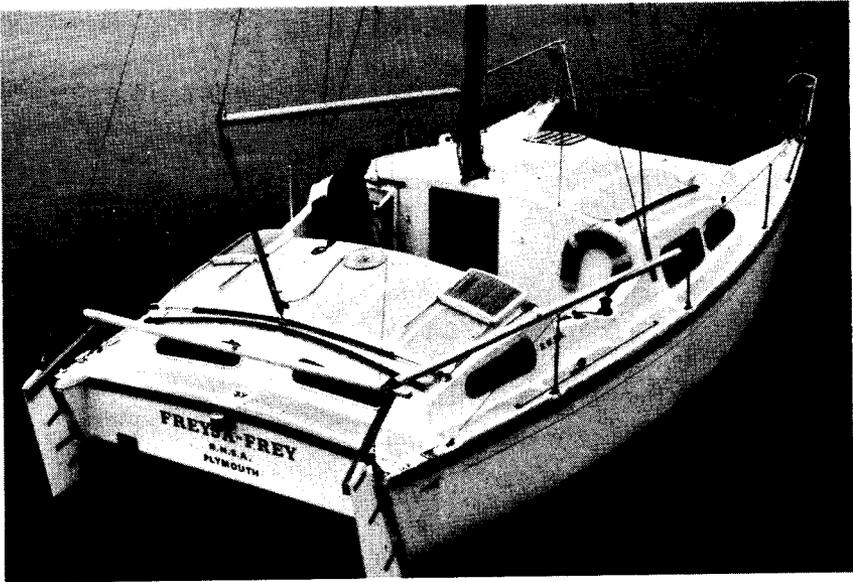
### Design Choice

Suitable accommodation is obtained in a 32ft (10m) monohull. But with a catamaran the length can be reduced to 26ft. Such a size boat is also easier to handle

by one or two persons. A 26ft cruising cat would cost about half that of the 32ft monohull and be a more versatile cruising yacht. Crew fatigue is generally less in a cat and navigation better, as you can work from a more stable platform.

### **Hull Shape**

Consideration must be given to buoyant ends to avoid bow burying and excessive pitching; but fine enough not to create unnecessary turbulence and to give a quiet wake, fine sterns being particularly sea-kindly. Accommodation is planned for central loading so trim will remain fairly constant. Round bilge symmetrical hulls have long proved to be the most efficient hull shape for multihulls.



*HEAVENLY TWINS*

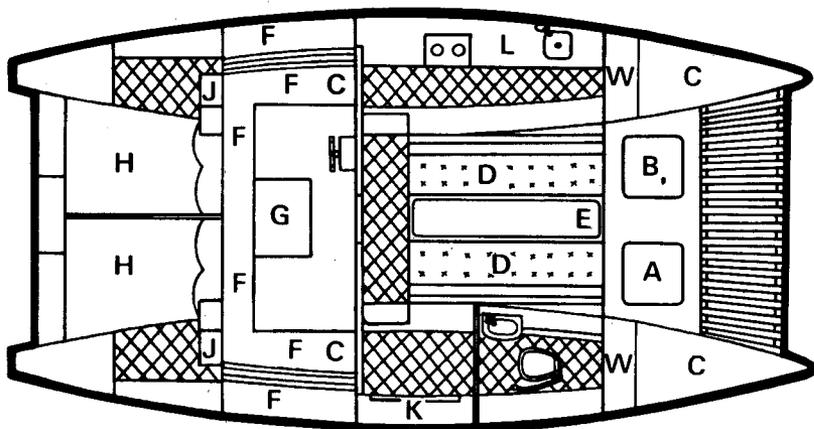
### **Low aspect ratio keels**

These have been tested over several seasons of charter work beating to windward on one occasion in a wind confirmed force 9 on Pat's Iconoclast design (42ft cat.) They have proved not to give dangerous tripping effect but do give adequate lateral resistance for good windward performance. They are much more satisfactory than centre or dagger boards in a cruising boat and protect the bottom of the vessel when grounding in stony harbours.

### **Bridge-deck**

This has been designed for minimum slam, and has therefore not been taken right to the bows (for short head sea conditions). Vertical slam in fast sailing

when the two bow waves meet and rise vertically is minimised by a central pod which also has the effect of strengthening the bridge-deck. The central pod also gives more head-room in the saloon and at last means a sensible engine installation in a cat. A small cat, if a good sailing performance is required, must not be fitted with fixed props., as the resistance is too great. Therefore if inboards are fitted they must drive feathering props. Outboards hung over the cockpit transom are unsatisfactory as they cavitate badly in a lop. However, using the central pod, inboard with outdrive or outboard can be fitted. In either case, the prop lifts clear when sailing for minimum drag, and when motoring the prop is sufficiently far enough towards the centre to avoid cavitation when motoring in a lop.



- |                               |  |
|-------------------------------|--|
| A Headsail locker             | H Double berth                                     |
| B Chain locker                | J Aft cabin hatches                                |
| C Main cabin lockers          | K Drop down chart table                            |
| D Dinette seats/Single berths | L Galley work surface with stove, sink and storage |
| E Houdini hatch over table    | W Water tanks                                      |
| F Cockpit lockers/Seats       |  |
| G Engine well cover           |  |

#### HEAVENLY TWINS

#### Accommodation

There are two after-cabins with double berths and two single berths in the saloon. The berths are all tenable even when beating to windward in a fresh wind. (In these conditions bow berths in any small boat are terrible). Galley—this is where a catamaran really scores. Any galley to feed six must be roomy with lots of stowage space. *GEMINI* has formica work-top, stainless steel sink, two burner cooker with grill and room for a fridge. The toilet compartment is separate so its use gives minimum inconvenience to others on board, with maximum privacy. It is placed to give full headroom, with a wash basin and room to fit a shower if required.

## Centre Cockpit

This allows for superb airy cabins behind. This cockpit is very well protected all round, and variable weights are kept central (4/5 people weigh ¼ ton) for trim purposes. With the mast stepped immediately in front of the cockpit, the sails be raised and lowered and the mainsail reefed from the cockpit. The advantages when you are short-handed are obvious to the family skipper.

## Rig

A ¾ sloop rig is more efficient for windward sailing than a mast head rig. Also the compression strains are reduced. (With the increased popularity of mast head rigs there are a lot more mast failures.) Also we do not need back-stays so can increase the boom length, and have a useful size of mainsail. Foresails are stowed forward in self-draining lockers which do not upset the accommodation. (Try sleeping in the fo'c's'le with the head-sails on a wet night!)

## Appearance

Finally we must have a proper, seaworthy and beautiful boat, so the hulls have been given a marked conventional sheer. Our designer's training was based on the concept 'if a thing looks right, it is right'. Some cat designs are built up with top hamper like a caravan with the result that they sail like a caravan—well, down-wind; poor windward ability and difficult to manoeuvre in harbour in a strong wind. Our endeavour has been to make this to look, and be, a yacht to give great personal pleasure.

## OCEAN WINDS

1977

---

L.O.A.	10.36 m (34 ft)
Beam	4.88 m (16 ft)
Draught	0.99 m (3 ft 2 in)
Displacement (laden)	7 tons
Sail Area	39 m <sup>2</sup> (420 sq. ft)

**Designer:** P.M. Patterson

P.T. Yachts, Foss Quay, Millbrook, Plymouth, England

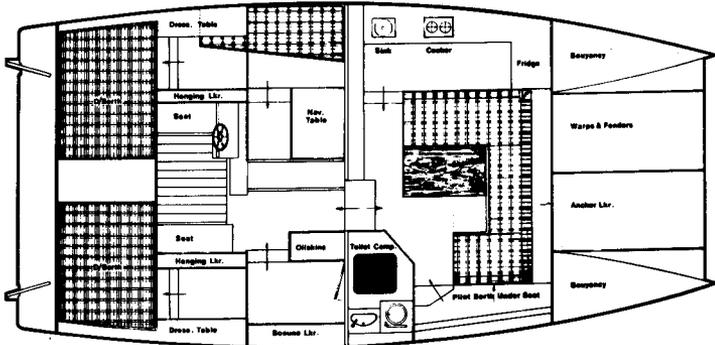
A go anywhere cruising cat with beamy hulls for accommodation and load carrying capacity a moderate sail plan for easy handling and low aspect ratio stub keels for taking the ground and giving her good directional stability.

Access to the after cabins with their two double berths is through tunnels under the cockpit coamings, which gives her a deep well protected cockpit and leaves her bridge deck free for use as a living area.

Pat Patterson plans to follow Drake's route round the world in 1977. Taking Ocean Winds from Plymouth to the Cape Verdes, across to Brazil, south to the Magellan Straits up the coast of Chile and Central America to Vancouver. Then back to San Francisco across the Pacific to the Spice Islands, returning to Plymouth via Sierra Leone.



Value Pumps 8-drive

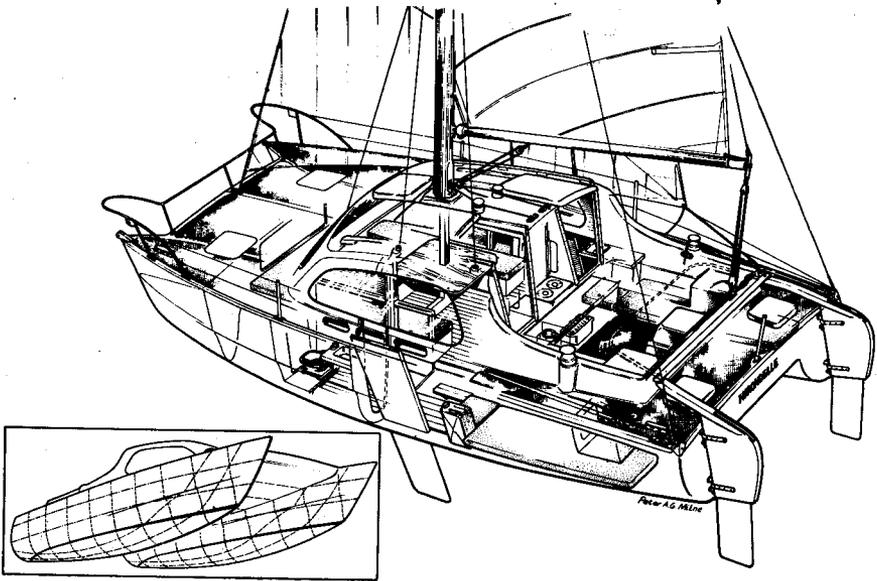


# HIRONDELLE

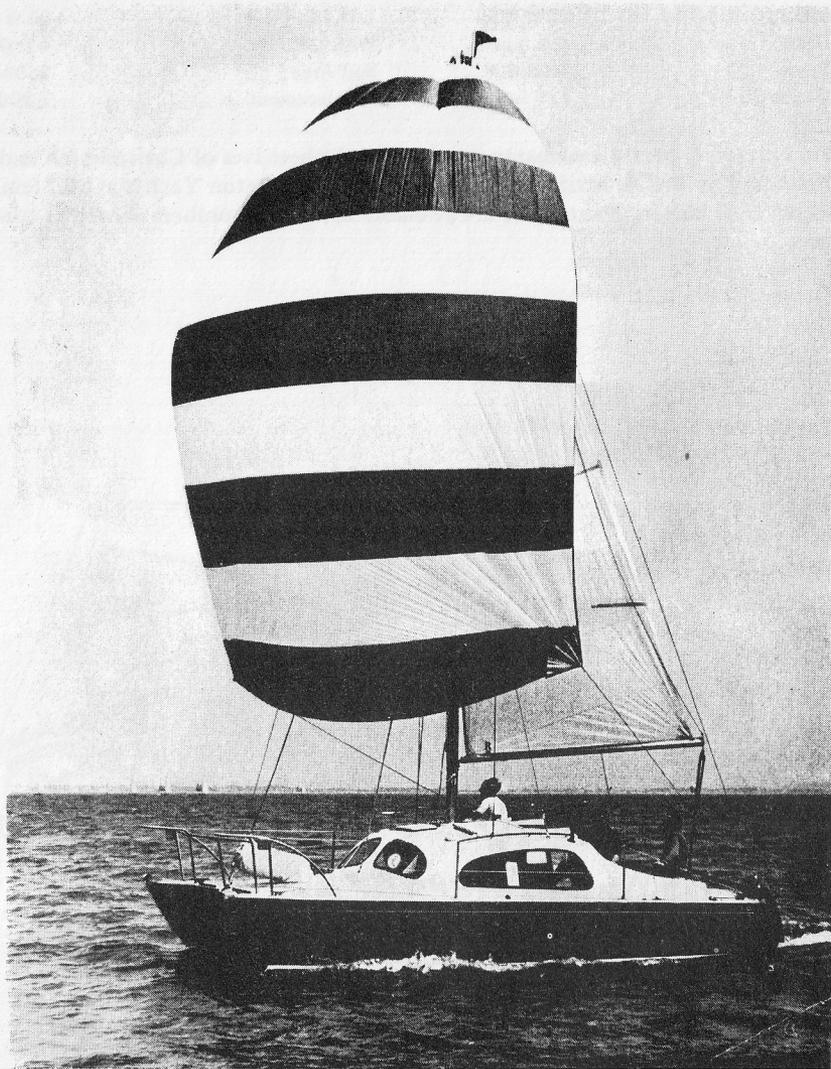
---

L.O.A.	22 ft 8 in	L.W.L.	20 ft 0 in
Draft	1 ft 3 in	With C.B.	4 ft 0 in
Beam	10 ft 0 in	Sail Area	250 sq ft
Genoa 150%	120 sq ft	Displacement	2,300 lbs

An extremely pretty catamaran moulded by Robert Ives of Christchurch and marketed by B.C.A. Marine Development and Pennington Yachts at 10 Stem Lane, New Milton, Hants. Kits are available in limited numbers as well as complete boats.



*HIRONDELLE*



*HIRONDELLE*

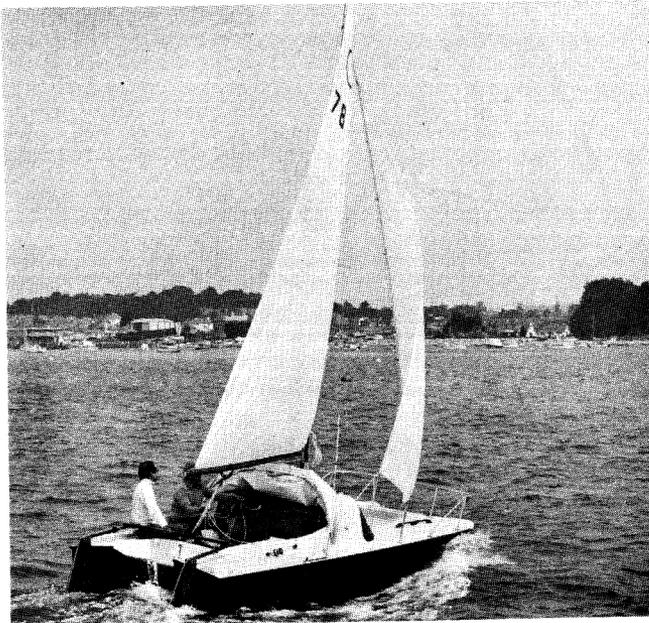
L.O.A.	20 ft 0 in	Draft: Plates up	10 ft
L.W.L.	16 ft 0 in	Plates down	2 ft 9 in
Beam	8 ft 0 in	Sail Areas: Main	125 sq ft
Weight	Approx ½ ton	Jib	75 sq ft
		Genoa	130 sq ft

**Distributed world wide by: Newbridge Boats Ltd., Church Street, Bridport, Dorset U.K.**

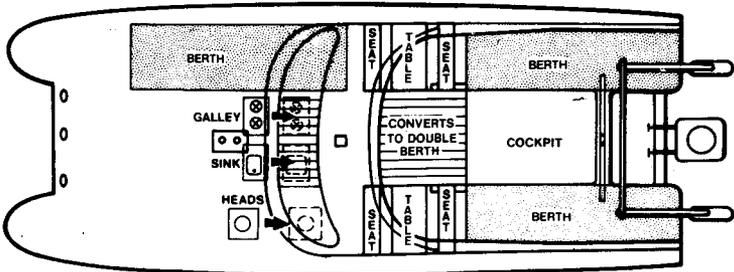
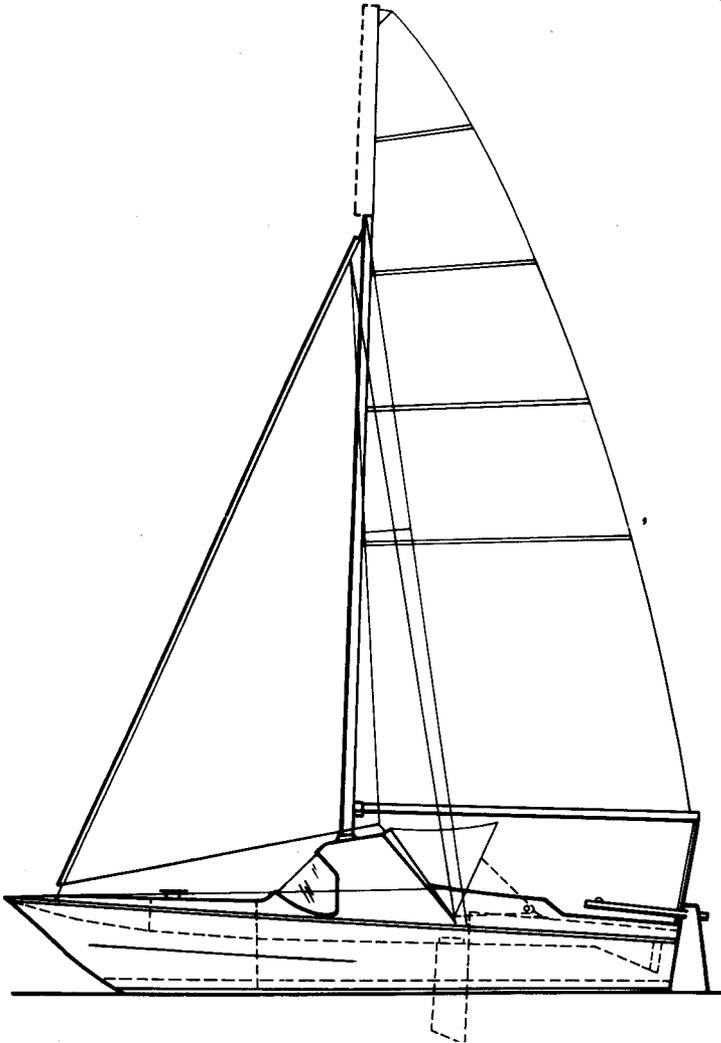
### General Description

A fast and very stable day sailer catamaran. Speeds have been logged up to 15 knots. A G.R.P. cuddy of attractive streamlined design covers the forward section of the cockpit and is equipped with a perspex wrap-around screen, giving adequate visibility and good shelter from the elements. The folding P.V.C. canopy is fixed to the aft face of the cuddy where it is rolled when not in use.

The boat is generally very suitable for family sailing and for use as a camping cruiser. The design now incorporates an anchor well in the fore-deck, new style cockpit floor and improved mast support arrangements, allowing the bridge deck to sleep two people. General equipment includes wood rubbing strake, lifting daggerboards and lifting rudders. Roller Mainsheet traveller and track, claw ring for boom, adjustable jib sheet leads.



*CRACKSMAN*

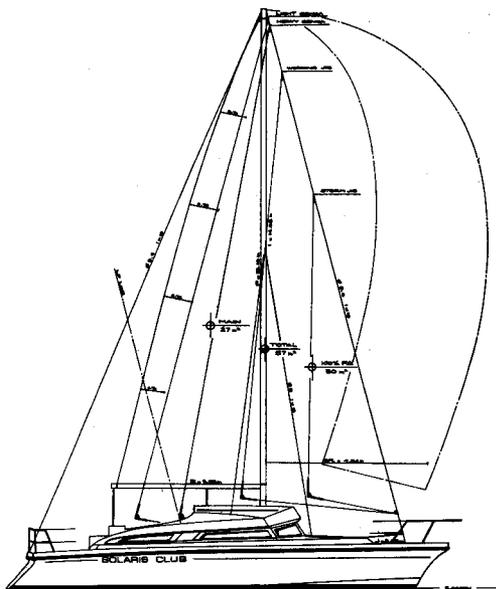


**Builders: Solaris Marine Ltd.**

**Woolston, Southampton, U.K.**

*SOLARIS* is a 42ft ketch-rigged catamaran with luxurious accommodation for eight and very popular for chartering purposes. She is built to the highest specification (Lloyds 100 A1 +) with an exceedingly comprehensive inventory. There is also a cutter-rig version with ten berths and a large saloon. More than 50 of these fine boats have been built, 90% for export.

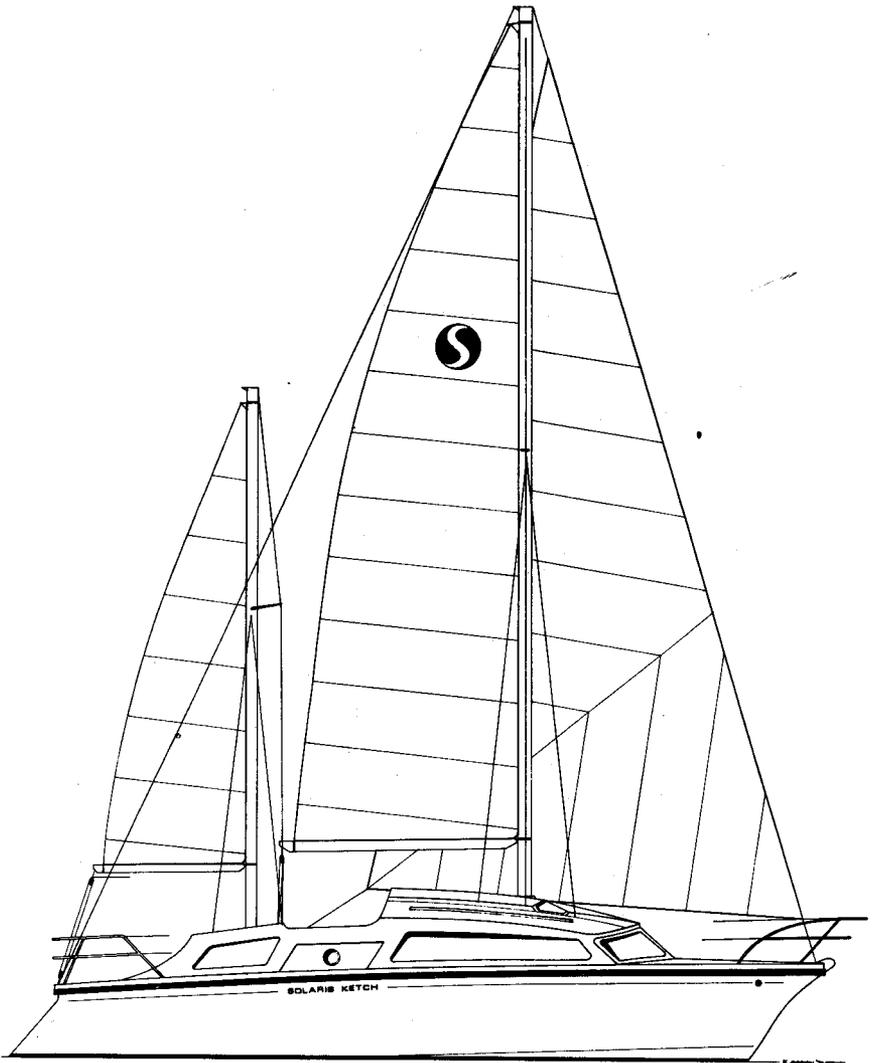
The hulls and bridge are moulded in one piece and an unusual feature is that the underside of the bridge is very near to the water-line and has a "gulls wing" profile as seen from the front. This in fact is part of the hull structure and its buoyancy restricts possible heeling to a very small amount, though naturally at some expense to performance.



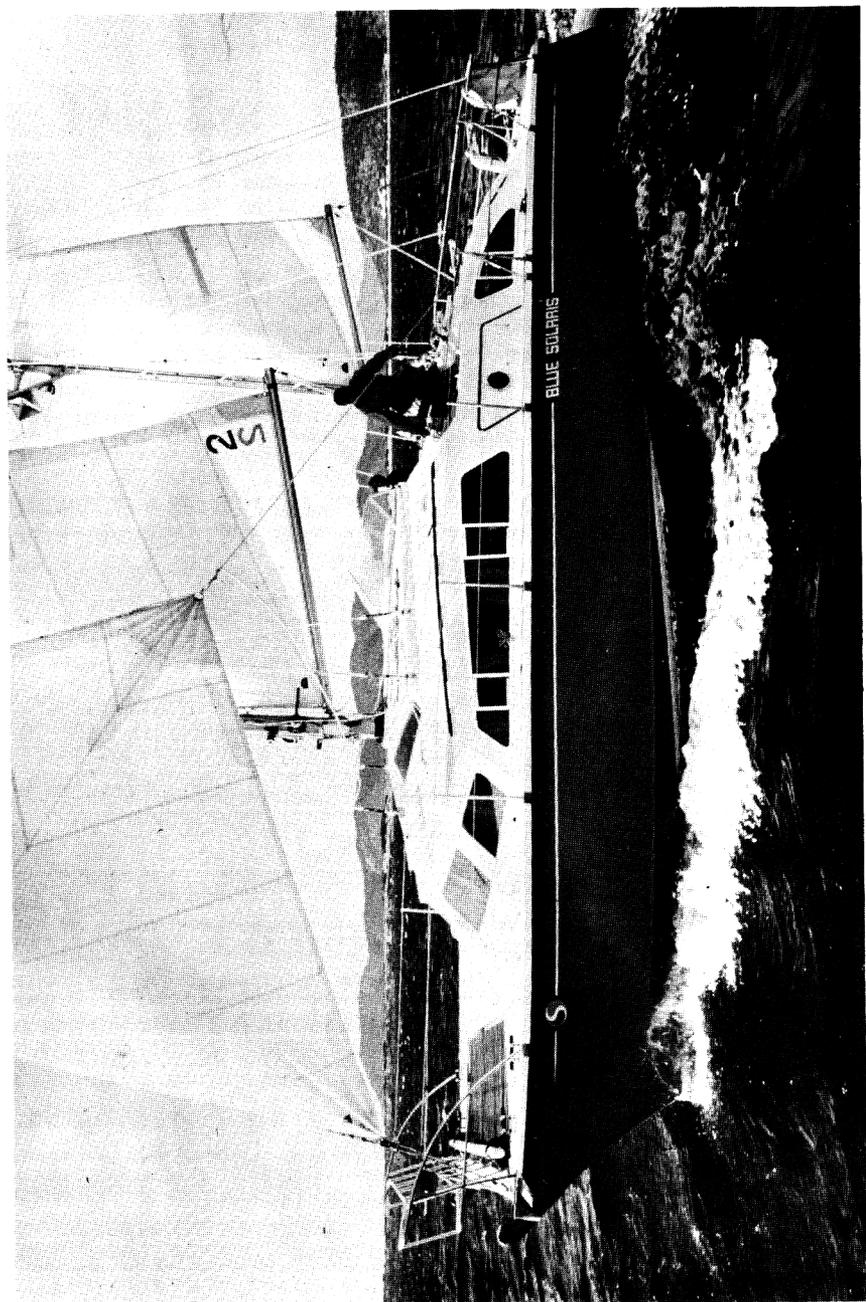
*Optional Cutter Rig for SOLARIS*

Recently the French government awarded *SOLARIS* the silver medal of the Association for the Encouragement of Scientific Progress, the gold medal having gone to *Concorde*!

A 60ft schooner version is now being built and one of these is intended for the 1977 Whitbread Round the World race.



*SOLARIS Ketch*



*BLUE SOLARIS*

## PLUTOCRAT 30

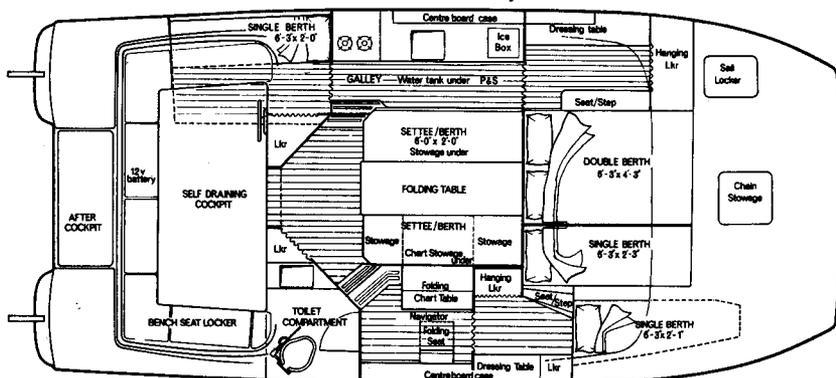
1976

L.O.A.	30 ft 6 in	9.260 m	Sail Areas:	
L.W.L.	27 ft 7 in	8.375 m	Main	220 sq ft 20.4 sq m
Beam	14 ft 0 in	4.250 m	Jib	150 sq ft 13.9 sq m
Construction:			Genoa	250 sq ft 23.2 sq m
Hull	Glass fibre		Spinnaker	560 sq ft 50.2 sq m
Bridge Deck	Glass fibre/Balsa sandwich		Storm Jib	50 sq ft 4.64 m
Deck and Coachroof	Glass fibre/Balsa sandwich			

**Transcat Marine Ltd.** Avon Works, Bridge Street, Christchurch, Dorset, England.

The accommodation comprises a comfortable saloon with seating for eight. Seats convert to two single berths. A fully equipped galley with standing headroom. Two separate cabins forward, each with dressing table and hanging locker. Port-side cabin has a double berth; starboard two singles.

A toilet compartment with W.C., wash basin and space for shower. Abundant storage space. A practical chart table which folds away. All completed in luxurious satin finished hardwood and washable Vinyl.

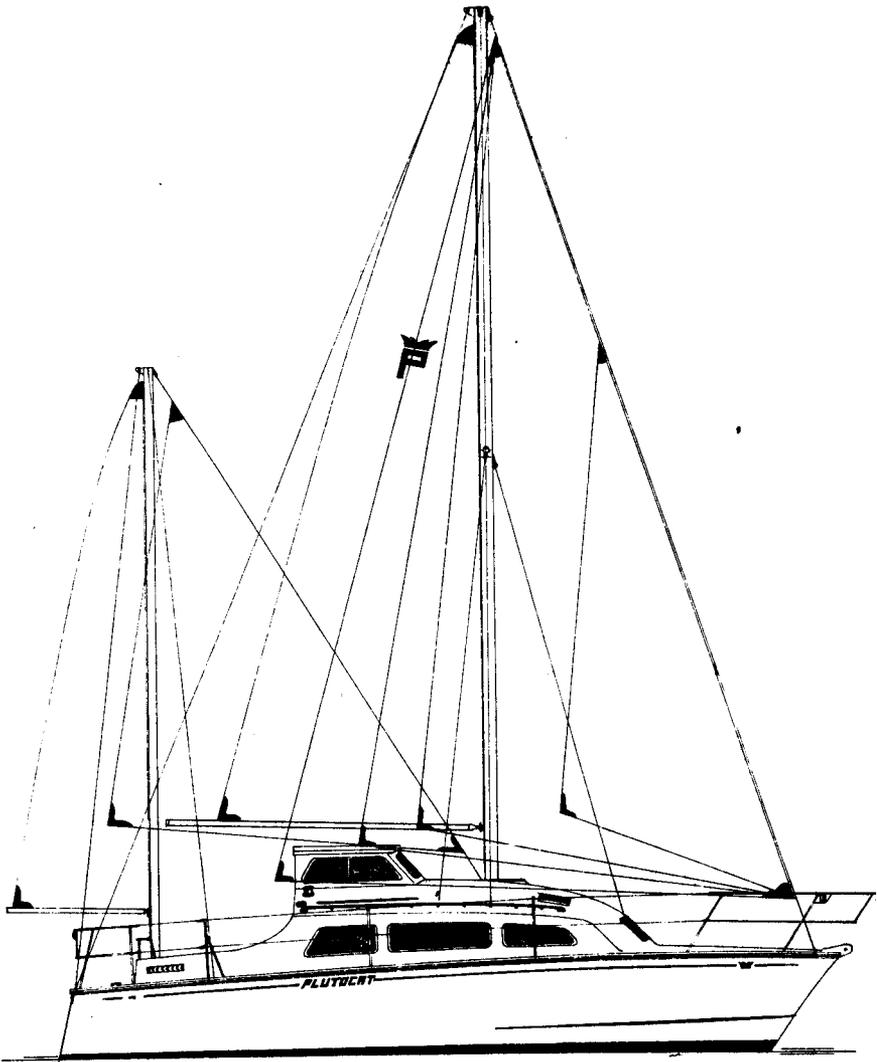


A spacious foredeck for dinghy stowage and sunbathing. Roomy self-draining cockpit for family safety. Glass fibre construction with oiled hardwood trim for minimum maintenance.

The *PLUTOCRAT 30* can be powered by inboard or outboard engines, single or twin installation, to customers' requirements.

Metal mast in tabernacle. Roller reefing and Terylene sails.

The boat is a development of the *ARISTOCAT 30* designed by R. Chaworth-Musters.



*PLUTOCRAT 30*

## Chapter XIV

### ONE-OFF, EXPERIMENTAL AND LIMITED PRODUCTION DESIGNS

#### CATACRUISER

---

L.O.A.	34 ft 0 in	Weight	6,800 lbs
Beam	12 ft 10 in		
Sail Area	510 sq ft		

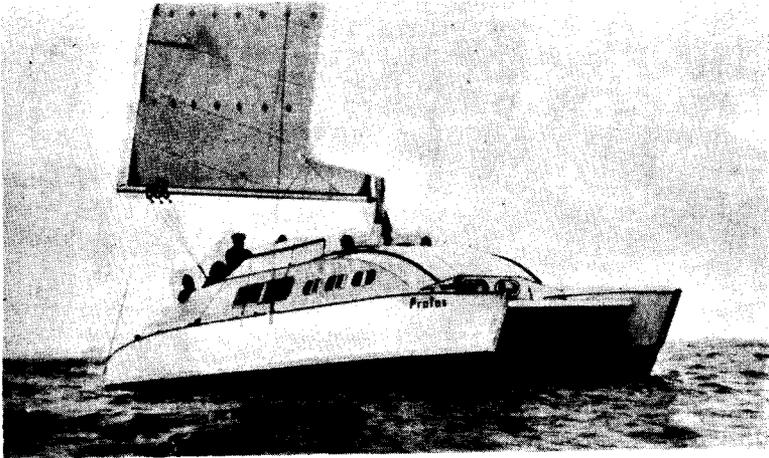
**Designer:** F.M. Montgomery

**Builder:** Border Marine, Spittal, Berwick on Tweed, England.

The basic idea with this catamaran is different from all other cruising catamarans in that the hulls are not used for accommodation. Indeed, they are of a deepish rounded V section and completely filled with polyurethane foam. Dagger boards at the outsides of the hull provide lateral resistance while the weight of the hulls and the shape of the cabin top are such that self-righting from an upside down capsized is probably possible, though this is not stated in the literature.

#### The Accommodation

This is all placed in the bridge deck, thus avoiding the "upstairs and downstairs" procedure of other catamarans, but, at the same time needing the greatly arched cabin top for head-room, which is mostly 6ft but rises to 6ft 4in in the centre-line. Four to six berths are provided with the usual offices, as well as a large cock cockpit of normal size.



*PROTUS*



*PROTUS*

The *CATACRUISER* is a pleasant and fast cruiser with comfortable accommodation in the bridge deck. This accommodation plan will suit many people.

When the design for 10 metre CataCruisers was in embryo, one of the listed requirements was that the design should be capable of reasonable expansion to other purposes.

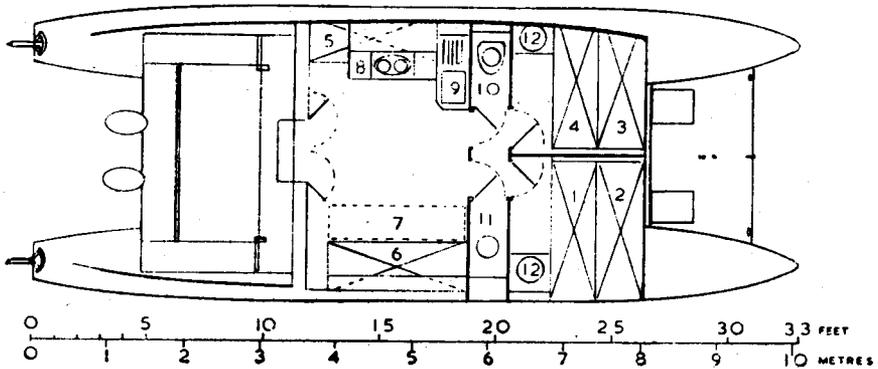
Other listed requirements were:

- 1 Easy manufacture in limited space.
- 2 Easy transportation
- 3 Easy building by amateur craftsmen
- 4 Easy winter storage
- 5 Easy repair and maintenance.
- 6 Really comfortable living accommodation.

However, no requirement was to take priority over safe, fast, comfortable performance which, above almost everything, demanded a very high strength/weight ratio.

The only design that seemed to meet all requirements to a reasonable degree was something entirely novel and thus opened to attack by all the conservative septs, who can only think of what Grandad did.

It was with some mental reservation, therefore, that the CataCraft design team went ahead and produced a yacht made from "bolted together" units, none of which exceeds 8ft x 13ft, except for the hulls themselves, which are full length.



*10 metre CATACRUISER*

The forward unit includes a massive, tube shaped, hollow beam, some 30in in diameter, to withstand the torsional stresses of the bows in a lumpy sea and the battering of solid green water hurled at high speed at the wing and hull joints.

The "berths" unit contains two separate, double berth compartments, each with private basin, also a W.C. on the port side and a shower room on the starboard side.

The central unit houses the galley and dinette to seat six, a 48in x 32in chart table and room for an optional extra berth, as well as the one or two berths that convert from the dinette settee. This central saloon unit, 13ft wide x nearly 8ft long, has an arched roof of enormous strength and gives headroom of over 6ft in the middle, a feature found on few catamarans of under 40ft.

The spacious 13ft x 6ft 6in cockpit unit enables up to six people to sit in comfort and enjoy the sun, well protected from the flying spray.

The hulls are made of expanded "Clocel", manufactured by the Baxenden Chemical Company, sheathed with "Thames" serayah marine ply, which, in turn, is sheathed with "Cascover". This results in a very light, very strong, unsinkable structure.

The hulls are decked and thus totally sealed below the superstructure and there is a space between the hull decks and the floors of the superstructure units, so that not only does any water that might enter between the hulls and superstructure drain away aft, but the entire superstructure is self draining.

On one occasion, the hatch cover blew off the forward beam hatch and gallons of water started to enter as the craft tore along in a rough sea—it simply ran out at the back.

Most of the problems we anticipated, such as leaking rain and spray between the units, have still to appear after three years and you cannot solve a problem that does not appear.

Since the first design, however, the "expandability" has been put to the test.

R. Wayte, a keen AYRS fan, has converted his 8 metre into a 10 metre simply by taking off his 8 metre hulls, lengthening the fore and aft units and bolting on a pair of 10 metre hulls.

Another increase required has been the extra load of some additional 4,000 lbs of fresh water and fuel for two independent amateur builder crews, each of whom are planned to encircle the earth and thus needed supplies for

3/4,000 mile legs between the east coast of America and the Pacific Archipelagos.

One unexpected advantage of the design has been pointed out by hire fleet operators, namely that if a yacht is badly damaged in an accident, it can be back in service almost within hours by the interchange of a new hull or superstructure unit, held in stock to service the fleet. Price, too, is an attraction when a complete new hull—ready to be bolted in place—cost less than £200. (1966)

Amateur construction is made easy by the self jiggling design and the extremely detailed drawings and cutting list, which includes the dimensions of every piece of wood used.

Professional constructors point out that they can be manufactured on upper storeys or small garage size workshops and are therefore not committed to waterside yards, with all the inherent expenses and disadvantages.

## SEATONIC

1959

---

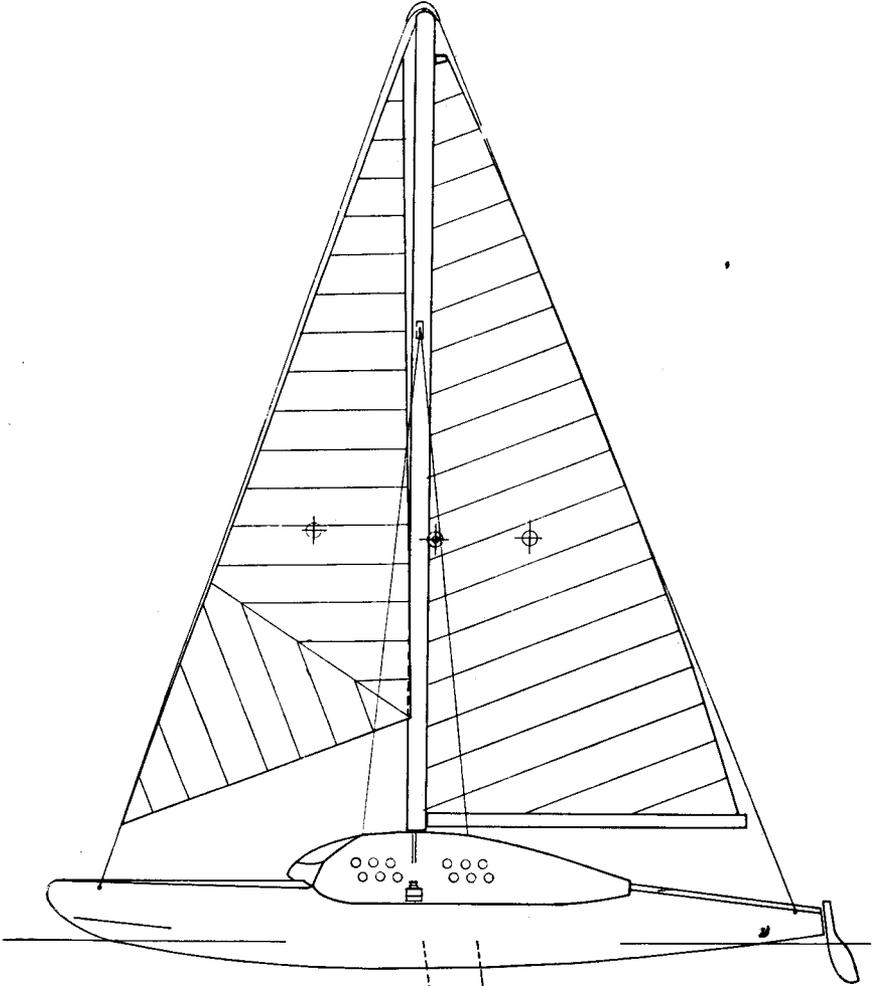
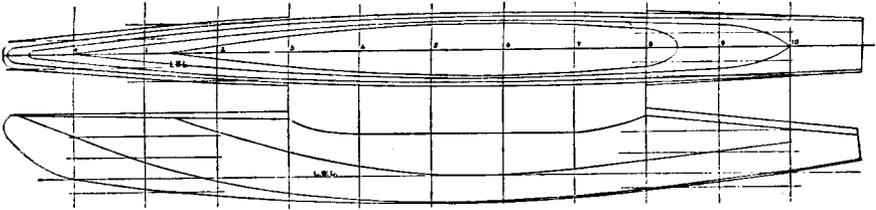
L.O.A.	30 ft	Beam (hull)	2 ft
L.W.L.	25 ft	Displacement	2,240 lbs
Beam, O.A.	12 ft 4 in	Sail Area	334 sq ft

**Designer, Builder and Owner: Eric Seaton A.R.I.B.A.**

This craft is built of 6mm veneered mahogany with ¼ in ply decks, cross beams and wing sections, though the base of this is of 1in boards. Torsion strains between the hulls are taken by an X girder which divides the wing section into four triangular shapes. Two of these are part of the two cabins, with 5ft 9in headroom at the deepest. The forward shape (a 7ft triangle on plan) is a sail locker and the aft shape is open and a sailing cockpit. The hulls are connected together forward and aft by 2in alloy tubes, eye bolted to frames and providing points of attachment for the stays.

The mast rests on a thrust race at the base of the wing section at the intersection of the X. It is fully revolving and is jacked up and down to dispense with rigging screws.

The bows are bull nosed at deck level and give buoyancy, minimum wind resistance and maximum water shedding properties on rising from a sea.



**SEATONIC**

The following characteristics are taken from AYRS No. 18: (April, 1958)

Single hull prismatic coefficient	.785
Single hull L/hull beam L.W.L.	12.5
Effective L.W.L. in feet	25.0
Spread of hull centrelines	.38
C.B. from bow % of L.W.L.	55%
Loaded weight in lbs (W)	2,240
Loaded weight in tons ( $\Delta$ )	1
Wetted surface in sq ft (S)	93.75
Maximum speed by (K) formula K	= 2.75
Maximum speed 20.24 knots	= 4.0 $\sqrt{L}$

## GOLDEN MILLER

by Michael Henderson

38 Medina Road, Cowes, Isle of Wight, England.

---

L.O.A.	21 ft	Draft	3 ft 6 in
L.W.L.	18 ft (R.T.)	Displacement	2,500 lbs
Beam, O.A.	10 ft 6 in	Sail Area	265 sq ft
		With light canvas	420 sq ft

There are, apart from questions of resistance and speed, two main problems to be solved in an offshore catamaran:

- 1 to prevent the thing falling apart from the large stresses likely to be encountered offshore and from the niggling, fatiguing little stresses set up when lying at moorings week after week in anything but dead smooth water, and
- 2 to provide full and adequate self-righting powers.

I've chosen to solve (1) by extending the deck and wing the full length and by incorporating four full and three part bulkheads along that length. This will tie the whole thing into a really rigid structure which, with reasonably careful attention to the construction, should be well able to hold together, while the extended deck and wing allow an ample platform for sails, anchors and warps.

(2) is solved in two ways; by carrying ballast on fixed fins and by having a buoyant lump at the masthead. This "flying saucer", a discus-shaped fibreglass moulding, provides about 300 lbs of buoyancy and can carry such things as a lightning conductor, navigation lights and a radar reflector, while twin racing flags, one for each hull may be flown from its extremities. These two devices together overcome the catamaran's main disability, namely, that she is as stable upside down as right way up. True, one might run into trouble if the mast went but that it is a risk which must be accepted. It is a rather remote possibility as the mast and its gear must be very strong to cope with the enormous power of the boat and the great beam allows a splendidly strong rigging layout.

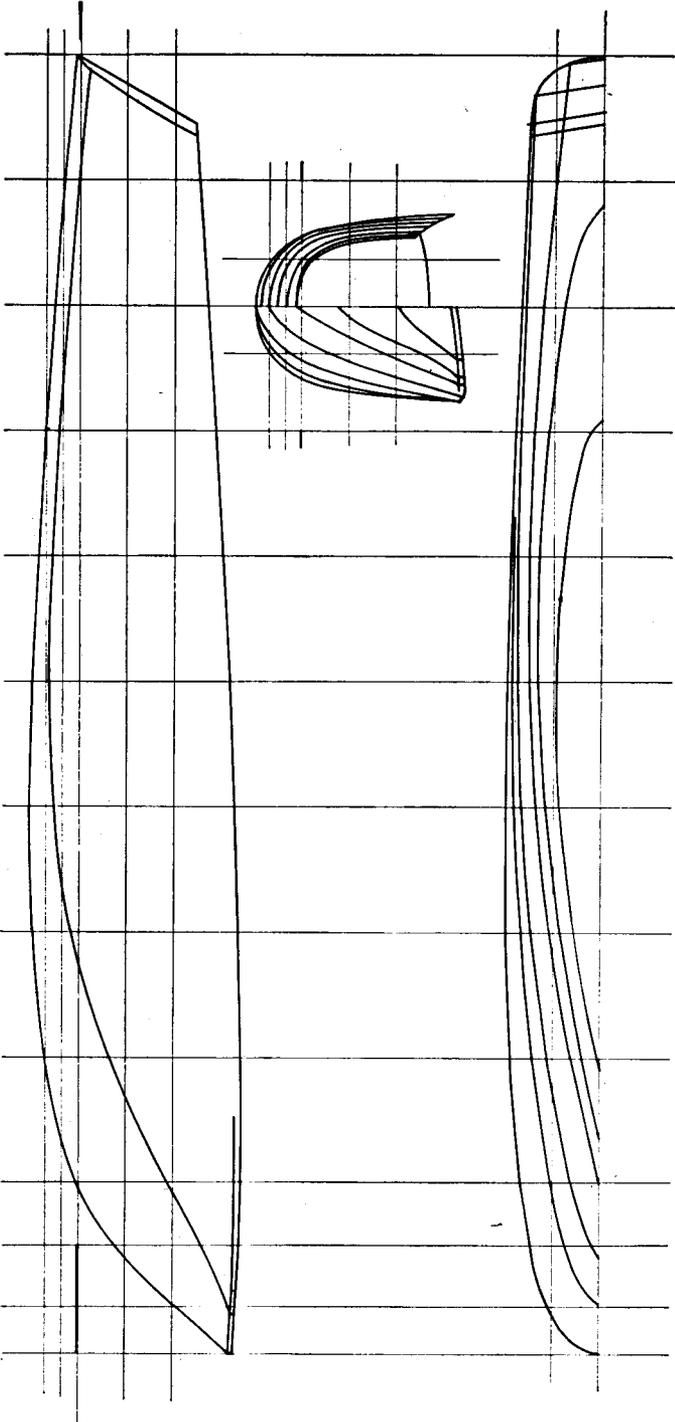


*GOLDEN MILLER*

The stability curve shows that the righting moment reaches a first peak of some 8,200ft/lbs at about  $12^{\circ}$  of heel (the weight of the crew not being taken into account). Stability then falls off until, at  $90^{\circ}$ , it has reached its minimum of 1,700 but picks up sharply again to its maximum of nearly 10,000ft/lbs as the masthead float immerses. Thereafter, it falls away again until it reaches zero at  $180^{\circ}$ , but at no time is it negative. Thus, the boat is fully self righting.

The hull form will, I hope, be suitable, tending to squat slightly at speed and having plenty of reserve buoyancy forward in full, rounded *MICK THE MILLER* type bows so as to counteract the tipping moment of the sail thrust. Cutter rig is shown with a very large Genoa whose clew comes nearly to the stern. With such a beautifully broad sheeting base, one can set such a sail to advantage and can attain something like 330 sq ft per ton displacement (400, including the Genoa staysail) without an excessively tall mast; and one can reduce sail in nicely

*GOLDEN MILLER*



proportioned lumps as the wind increases. Later on, I may try a more advanced sail plan, but first things first.

As to possible performance, it is very difficult to give a guess. Comparing with *MICK THE MILLER*, of the same length, the new boat has: 83 per cent of *MICK*'s displacement; 140 per cent of the sail area; about the same wetted surface and just on five times the sail carrying power at the "best" angle of heel.

I hope to start building on these lines soon. The new cat will be named *GOLDEN MILLER* and I hope that she will be one of J.O.G. cat fleet—hence the sail markings shown.

### Summary

An offshore catamaran has been designed for the Junior Offshore Group which will be *safe* and have a higher *average* speed than, for example, *MICK THE MILLER*. This will allow weekend cruises to be extended in distance and bring Continental ports into weekend range of the South Coast of England.

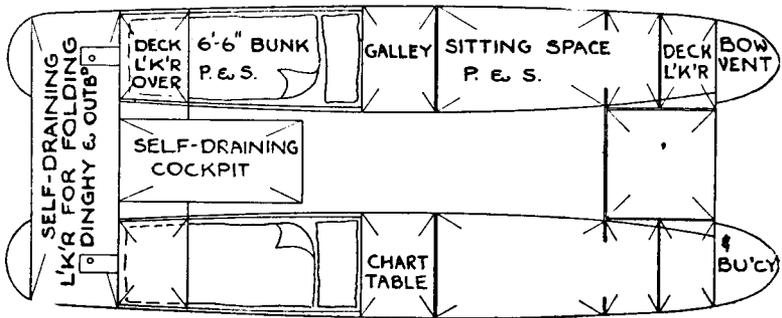
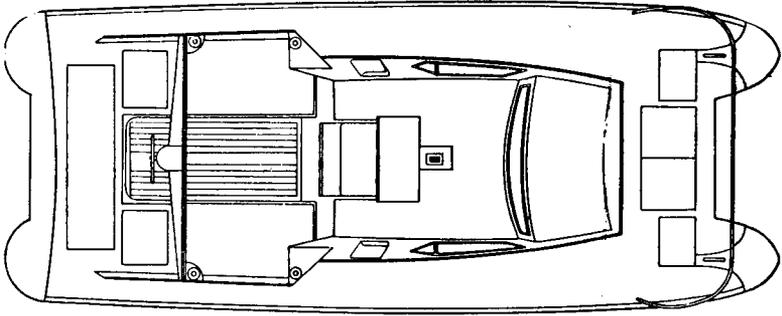
### Report by Michael Henderson

The boat reached a speed of around twelve knots when the photograph was taken. Keith Beken was unable to catch her in his ten knot launch. Generally speaking, she has behaved exactly as predicted except that her top speed is somewhat more than I hoped for. Stability is fine—we have rolled her down both by crane and by sailing and she rights from 90° unaided, without putting the mast-head float into the water.

This season has been mostly dogged by light airs as you know. The boat is a bit on the undercanvassed side and so can only sail at the same sort of speeds as similar sized single hulls, in light airs, but shows increasing advantages as the Beaufort numbers increase. As a cat should be, she is exceptionally good to windward in a blow and has logged six knots close hauled in a force six offshore with dryish decks and a heel angle of 10-15°. On the wind in a 3-4 breeze she will sail at four knots or so and occasionally reach five. Reaching, her speed is from six knots in a 3-4 to ten to twelve in a 6.

She's quite livable too, and shows a considerable improvement over *MICK THE MILLER* both in speed, space and comfort. We sailed, for instance, the J.O.G. West channel series this year, viz. Southsea—Cherbourg buoy—Dartmouth and Dartmouth—St. Peter Port, mainly in light airs and calms and in both cases were second boat home; and cruised on to St. Malo, returning thence direct to Cowes at an overall passage average of four knots, close hauled, most of the way in force 2-3. In all we sailed some 500 miles in six days of sailing.

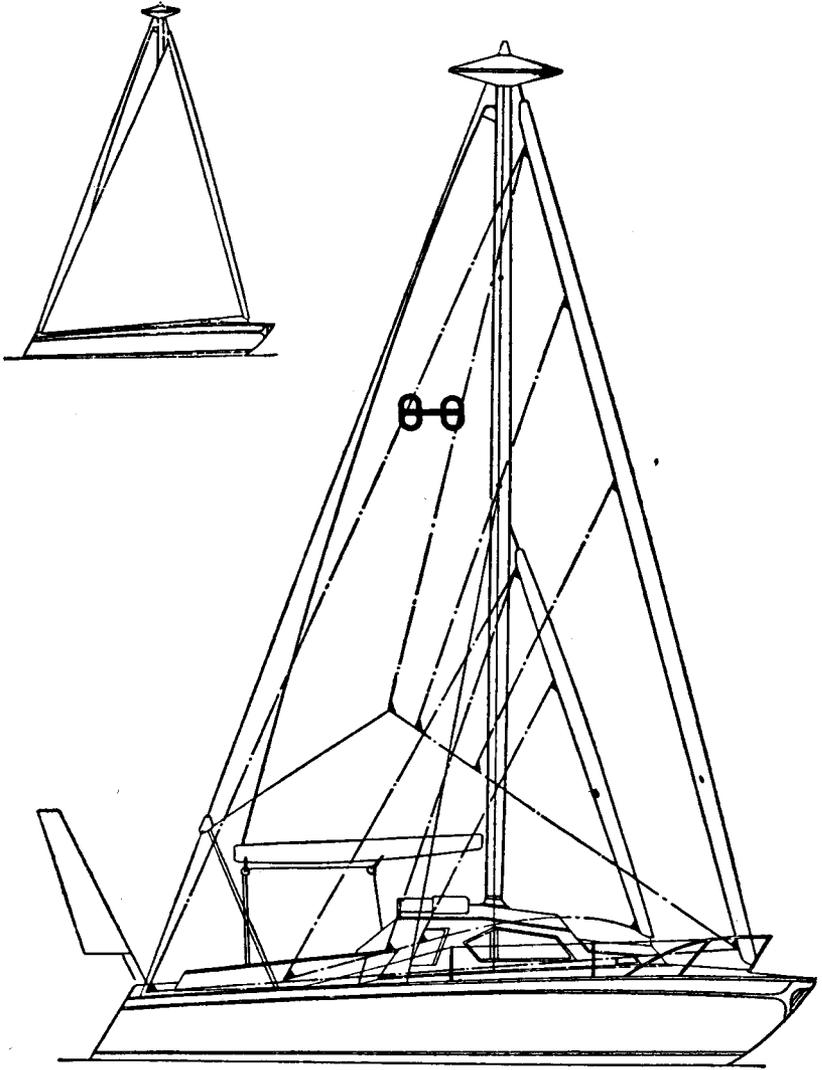
Basically one can say that the boat sails as fast as, or perhaps a little faster than comparable single hull boats in winds up to force three, and is able to make



more use of the available horse power in stronger winds. The motion, though more quick in both pitch and roll is definitely less sick-making than other boats and I believe that the small angle of heel is the most potent factor here. The helm remains light all the time, and the boat is nicely balanced at all angles of heel. The bridge slams a bit to windward—it's only 24in clear forward and 9in aft—but nothing serious and there have been no signs of failure in the structure.

I am now working up a larger version, 24ft waterline and 30 odd overall (for my wife and I have decided that we are now a bit too old to go to sea any more in a boat without a proper lavatory). The new boat will benefit enormously from the experience I've had with G.M. and looks like being a honey—quite a near approach to the optimum pleasure vessel, which ought to be a comfortable houseboat that is a sparkling delight to sail and also fast enough under power for water skiing—a combination of characteristics that only the multihull can give.

I would say that G.M. has also shown that, with reasonably sensible design, weight need not be too much of a limiting factor. She displaces around 2,800-3,000 lbs in offshore racing trim with an 18ft waterline so is by no means an ultra light.



## PETANQUE

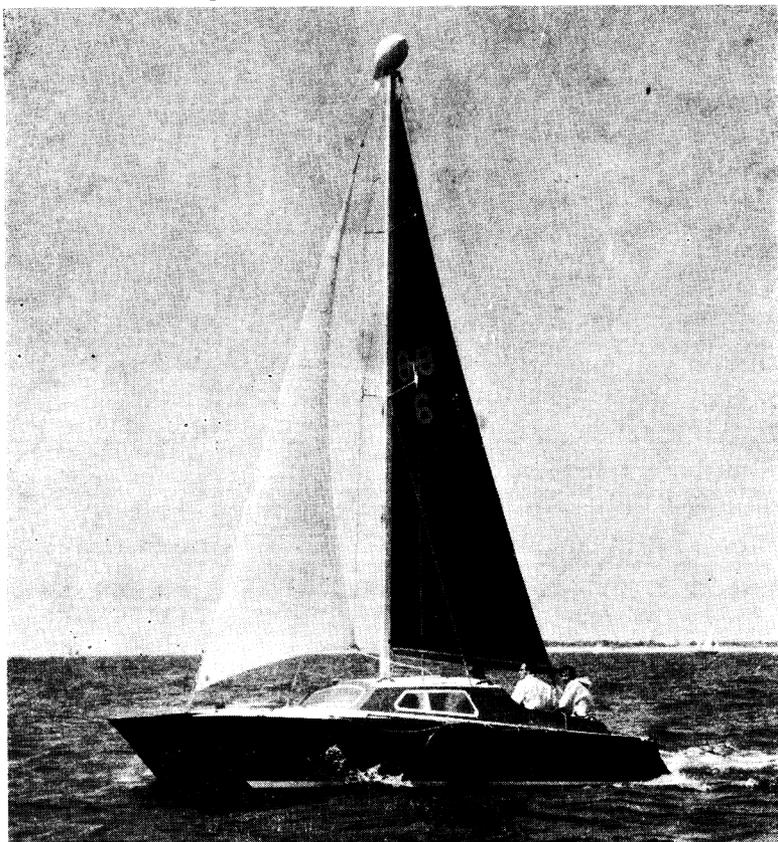
1964

L.O.A.	23 ft 6 in	Draft (Boards up)	1 ft
L.W.L.	20 ft 6 in		
L.O.A.	23 ft 6 in	Draft (Boards up)	1 ft
L.W.L.	20 ft 6 in	(Boards down)	4 ft
Beam, O.A.	11 ft 6 in	Displacement	3,150/3,650 lbs

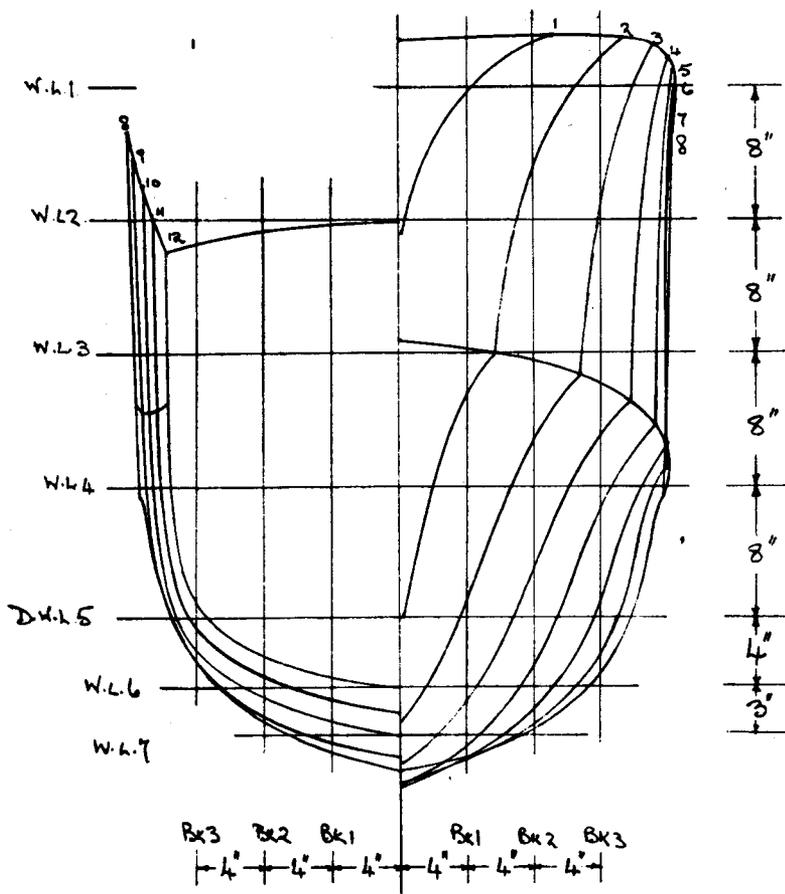
**Designer:** Michael Henderson

**Builder:** W.A. Souter

This is a later design by Michael Henderson, in which he has not used the ballasted fin keels of *MISTY MILLER* and *GOLDEN MILLER*, as the ability to sail in shallow water was important. Instead, as a compromise, he uses 300 lbs of



*PETANQUE*



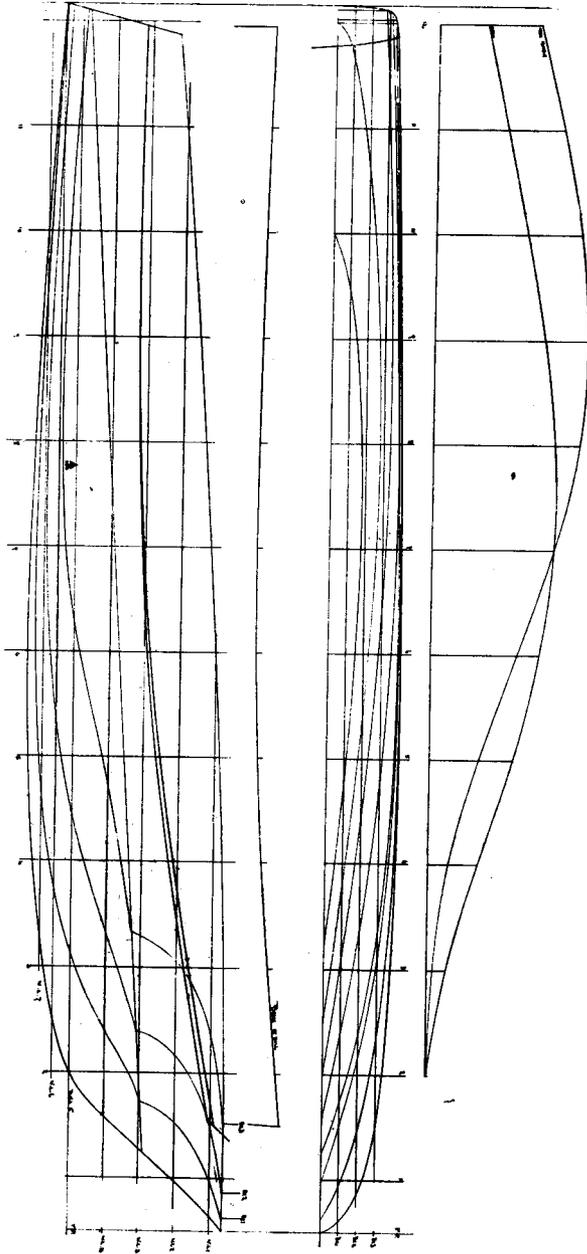
PETANQUE's Sections

righting ballast on a spar slung under the bridge. In the case of a knockdown, the boat rests in a stable attitude with her masthead supported by the masthead float first suggested by Michael himself. The spar is then extended and rights her, being hauled up into this stowed position afterwards.

### The Lines and Sections

These show a sweet shape of hull with very easy lines fore and aft. Forward, there is the knuckle bow which was found so useful on *MISPY MILLER*. This is, in some respects, a built-in spray deflector and was first suggested for use on cata catamarans by Derek Norfolk in AYRS No. 16, although in *PETANQUE* its function is to provide adequate reserve buoyancy above water to resist excessive pitching while at the same time retaining the fine sections below so necessary for good resistance characteristics.

*Lines of PETANQUE*



The transom is immersed by 4in on a level keel, which is more than on any other catamaran. This gives easier underwater lines and tank tests indicate that on this type of fairly heavily loaded hull it improves resistance, especially in the difficult "hump" speed region.

### Accommodation

The boat is described as a "Daysailing Cat" and the internal arrangements are spartan in the extreme. Nevertheless, they give four dry bunks, a galley, a chart table, a W.C. and sitting space, with reasonable stowage lockers as well. Three people have carried out some quite lengthy cruises in the boat this year, and of course a considerably larger cabin top could be fitted if the additional windage was acceptable, giving better accommodation if it were wanted.

### Summary

Michael Henderson has designed a very pleasant and fast catamaran. One suspects it of being a scale model for a much larger boat. It is interesting to see how one man's ideas can be modified to produce a boat to fit a given set of requirements, and how the free flow of information throughout the field of design coupled with close cooperation between the designer and an owner who knows what he wants can improve the breed.

### MATANI

---

L.O.A.	16 ft 7 in	Draught	10½ in
L.W.L.	15 ft 9 in	Displacement	1,264 lbs
Beam, O.A.	7 ft 6 in	Sail Area	162 sq ft
Beam, hull	2 ft	Genoa	100 sq ft

### Designer: John Morewood

I started my yachting career at the age of 16 by designing and building a 20ft four berth cruising canoe only 4ft in beam. We sailed her for four years and had a lot of fun in her and, every year, three or four of us took a fortnight's cruise. We could not have had a better introduction to sailing.

This cruising catamaran is meant to be similar in concept to my original canoe as the cheapest possible cruising craft for four young men but it would also be suitable for a family man with two children.

### The Design

This is basically my *TUAHINE* design but the bow sections are a little fuller above the waterline which gives a curve to the chine forward. One needs this extra room to get at the end of the forward berth and to give a little more reserve buoyancy in a sea. The displacement is double that of the *TUAHINE* design so great speeds cannot be expected but she will not be slow in strong winds and a

mast head Genoa will pull her along when the wind is light. The windage of the bridge deck will affect her adversely, too, in a head wind. No centreboard is shown. This is because the extra depth in the water may give enough lateral resistance and the weight should take her from one tack to the other. The full Ackerman linkage on the tiller bar will help here.

### **Accommodation**

This is the minimum possible for four people. Three foot of headroom is provided over the head of the berths with two feet at the feet. A foot well and hatch is between the berths, allowing space to wriggle out on deck. The four berths allow even more privacy than in the two berth cruiser of conventional fin keel type and this would be convenient for families.

### **The Galley**

This contains a two burner stove with plate racks and shelves which again is the minimum. A catamaran does not pitch or roll as much as a conventional craft so it should be easy to keep pans on the stoves.

### **The Toilet**

The catamaran is the one craft which needs no complex toilet. Indeed, the main trouble is to prevent continuous flushing while at sea. To this end, a baffle plate forward of the seat will do what is wanted and can be kept clean by spray action.

### **The Cockpit**

This is large for comfort and to get the weight far aft with strong following winds. The heavy hulls may tend to stick in the water and bury their bows and provision for this must be present. The helmsman can sit either at the extreme stern and steer with the short tiller or, with a tiller extension can move farther forward to the cabin top which is rather far off the floor for sitting on, being about 2ft high.

### **Auxiliary**

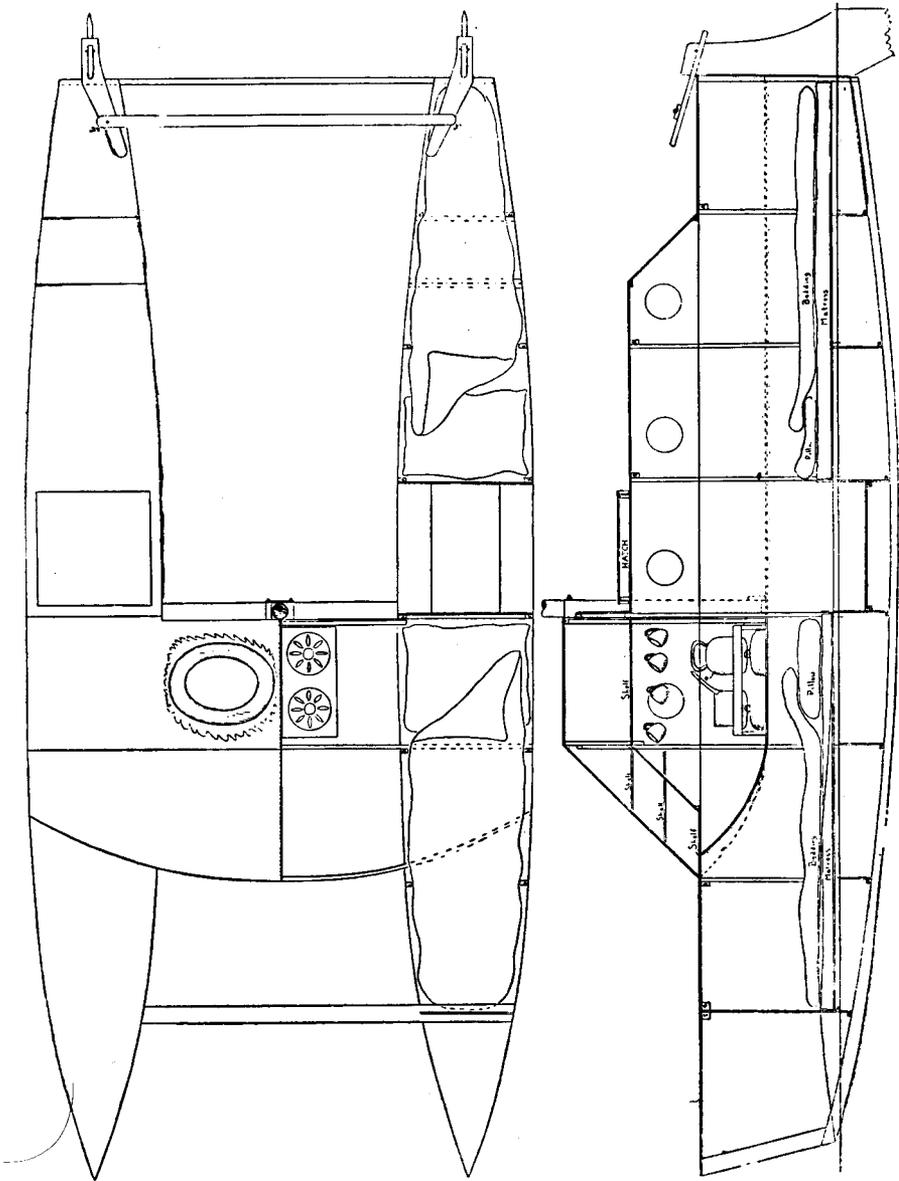
An outboard of very small power would be strong enough to drive this cat along at a reasonable speed. When not in use, it could be stowed in a box at the after end of the cockpit where its stink would not affect the sleeping quarters.

### **Construction**

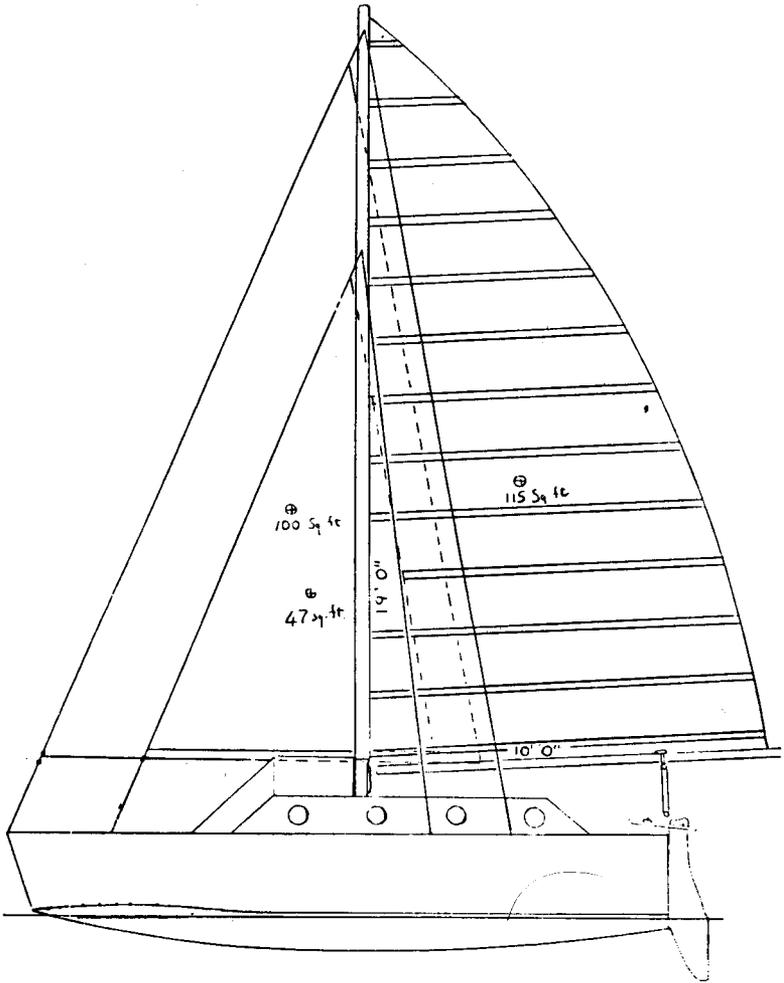
This is well within the competence of the home boat builder and should be very little more complex than the chine built catamarans.

### **Summary**

*MATANI* is the smallest conceivable four berth cruiser with adequate comfort and suitable for a small family.



**MATANI**



**MATANI**

L.O.A.	29 ft 3 in	Draught with C.B.	5 ft 10 in
L.W.L.	28 ft	Clearance of centre section	2 ft 2 in
Beam	14 ft	Weight empty	3,400 lbs
Beam on W.L.	2 ft 1 in	Rig: Masthead Bermudan with Genoa	340 sq ft
Breadth between centrelines	10 ft 6 in	Mast height above deck	38 ft
Draught light	1 ft 1 in	Speed under power on measured mile	7 knots
Draught loaded	1 ft 4 in		
Engine	Johnson 10 hp		

**Designer, Builder and Owner: Tom Dowling**

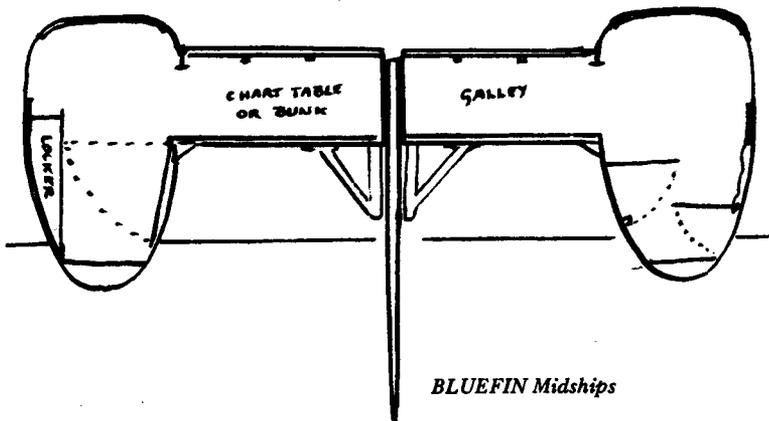
**Construction**

Moulded fibreglass hulls 5mm thick with compound curvature virtually throughout, offered up to sandwich construction beams of fibreglass on Onazote, six in number, each being one piece from side to side as in the drawing. These allow unobstructed hulls throughout the length. There is local stiffening to the hulls in the form of shelves, furniture or battens throughout. The deck is an Onazote plywood sandwich between centrelines in the centre section only.

**Hull Form**

The entry is very fine running into a "Sewer section" and out into a flattish run off aft. The transom is a semi-oval below. The deepest part of the keel line is 11ft aft of the bow.

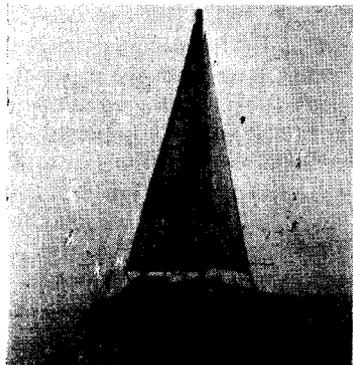
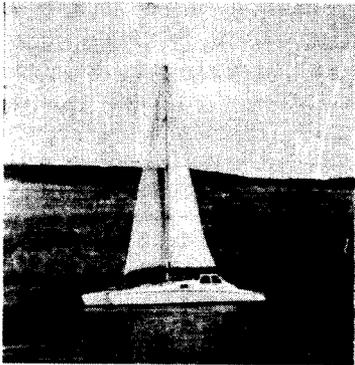
The centreboard is hung in an open support work below the centre section. It is pivoted and when lowered, the upper end rises in a keel-box in the centre section to the level of the deck.



## Accommodation

The hulls are separate to keep the height and windage down and to leave a large unobstructed deck and cockpit area between. There is headroom in each hull, where the entrances from the cockpit are and for 2ft forward of this, giving headroom for cooking and navigation. Each hull has a bunk in the stern. The port hull has the galley which is placed in the bridge deck. The cook stands in the hull with the working area (4ft 3in x 3ft 3in x 2ft 2in) towards midships. Forward of this are folding tables and seats for eating. The next bay forward of the galley is storage and in the bows is a bunk.

On the starboard side, opposite the galley space is a chart table convertible to a double bunk athwartships with access forward underneath. Forward of this is the sail locker, heads and stores.



## History

Designed and built by the owner in Malta as a fast cruiser, she was finished last year but too late in the season to get further than St Tropez. She was therefore pulled up on the beach for the winter during which modifications were made to the keel. This spring, she made the passage to the U.K. via the Midi Canal and Bordeaux without incident. The crew varied between solo (for 220 miles) and five, but three or four are found to be best. The motor was never used at sea.

## Performance

Maximum speed so far is believed to be 15 knots. The windward performance is much the same as a normal yacht up to 50 square metres, better in a lop.

*Ed: Two points are of a great interest in BLUEFIN. The first is the efficiency of the roller reefing gear which allows the whole sail to be set from the stowed position in half a minute or less. The sail can be reefed or stowed in even less time. The second point is that the original mast 38 ft long and 1 ft in fore and aft length by  $2\frac{1}{4}$  in thick was a good enough aerofoil to sail the boat on a beam course without any sail whatever being set. Onlookers thought that there was an inboard engine. The value of this is that aerofoil masts can be of value if only slightly larger than the one used here.*

## A BIPLANE CATAMARAN

by Walter Castles Jnr.

1350 Riverview Road, N.W., Atlanta, 5, Georgia

L.O.A.	20 ft
L.W.L.	17 ft
Beam	11 ft
Draft	18 in
Design Displacement	1,800 lbs
Distance between keels	7 ft 4 in
Distance between centres at deck	7 ft
Weight empty	1,200 lbs
Total Sail Area	220 sq ft
Mainsail	70 sq ft
Jib	40 sq ft
Geometric Aspect Ratio of each set of sails	2.33



*Walter Castle's Biplane Catamaran*

Effective aspect ratio of combination about 2, Lateral area of each hull about 24 sq ft, wetted area of each hull about 52 sq ft, hull waterline sections are N.A.C.A. 16000 series symmetrical airfoils with the thickness tapering from 9 per cent at the waterline to about 3 per cent just above the keel line, berth in each hull, head in port hull, 3 ft 6 in headroom in deckhouse, aluminium masts with tops 27 ft above water, parachute spinnaker = 160 sq ft.

The design, which was done seven years ago, was in the nature of a quadruple experiment. I was interested in trying out the following:

- 1 A really good two dimensional hull shape (that is one in which practically all the water goes around the sides and almost none around the bottom).
- 2 The effectiveness of rudders which are an integral part of the hull shape and have covered slots.
- 3 Rudders which can be differentially deflected for brakes and differentially set to make the boat self-steering (the tops of the rudders extend well above the waterline so that as the boat heels one rudder becomes more effective and the other less effective. Thus with the rudders cocked in a few degrees, the boat will theoretically steer itself on the wind and vice versa off the wind).
- 4 A biplane rig with its possible advantages of low centre of effort, ability to wing and wing with sails (main) ahead of the masts to make the boat self steering on down-wind courses and the structural advantages of having the masts stepped on the hulls and eliminating the big download on the bridge connecting the hulls. This made it easier to make the centre 3ft section of the bridge removable for trailering.

I have sailed the cat now for five years, first on a large lake near Atlanta and for the last two years down in the Florida Keys at Big Pine. In retrospect I would evaluate the experiments as follows:

1 The hull shape is lacking in pitch damping and is too sensitive to changes in trim for small cats. Also, with its relatively large wetted area it is very sensitive to surface condition (fouling). Pitch dampers were added in the form of stream-line horizontal plates located about 8in above the waterline at the inboard of each hull. This cured the pitching troubles when underway but not at anchor. When the hulls are clean the cat will sail about as close to the wind as a *Thistle* in spite of the excessive cabin air resistance. In light and moderate winds the cat was about 20 per cent slower than *Thistle* when hard on the wind, about the same speed on crosswind courses and faster running before the wind when we sailed on the lake. In the often steep chop off the Florida Keys the cat is dry and comfortable.

2 The rudder design was an unqualified success. There is a large difference in the ease with which the cat will come about with the rudder slot covers on versus with the slot covers off.

3 The automatic steering works fine on the wind and cross-wind. The rudders are built with about 5° twist—out at the bottom trailing edge. On downwind courses the cat will not steer itself unless the mainsails are wing and wing out ahead of the masts.

4 The biplane rig works fine but requires a little different technique. For example, the points of attachment of the main sheets to the bridge are somewhat inboard of the line of the masts so that in tacking the “lee” main will be trimmed in closer than the “windward” main on coming about with the sheets cleated. On courses where the relative wind is aft it is necessary to wing and wing the mains to keep both jibs full. On downwind courses I usually tie the clews of the jibs together. In shortening sail it is well to take in the jib on one side and the main on the other. With this combination the cat will come about in either direction with no trouble and the sails appear to be more effective. One unexpected advantage of the biplane rig was the ease of leading all the sheets to the helm without running them across the decks or cockpit. In jibing, one main will always go first which relieves the shock and gives a more gradual change in trim. The only real disadvantage to the biplane rig is that it is expensive.

If anyone knows of a good way to mount an outboard on a cat so that its propeller will stay submerged without having five extensions in the lower housing I would like to find out how it is done.

Atherfold's Boatyard, Quay Lane, Gosport, Hants.

In the late winter of 1966 *EBB AND FLO* came into my hands in very poor condition and trailing an unenviable reputation.

Working on hearsay of previous performance I decided that drastic changes were necessary apart from the work to "reconstitute" the structure.

Mr. Morwood confirmed the benefits of low aspect ratio keels and his suggested position, well forward, was the one in fact adopted. This has proved a happy choice, as, apart from sailing efficiency, harbour and anchorage problems are greatly simplified. Leeway is negligible both in a sea and in quieter water. Directional stability is excellent but in spite of this she turns like a dinghy when the helm is put down. Balancing the rudders has helped greatly in this. The only snag which appears insuperable and will have to be accepted is an insistence on shuttle-shuttlecocking head to wind as soon as the way is off with no sail up. This trick, once realised, can be overcome by quick work with the stern line on those occasions when it is necessary to come alongside with an offshore wind.



*PELINDABA*

The twin masts seemed unnecessary weight and windage so I dispensed with one and planned a rig giving a high headsail proportion. To take the new stresses a spar was made up of the discarded hollow box section booms which were glued either side of a solid beam. This formed a base on which to stand the mast and a spar to take the compression strains imposed by the four 10,000 lb breaking strain rods completing a triangulation to support a 5in steel tube, transmitting the mast thrust through the bridge deck. The loading of this structure at the ends comes directly to the inboard gunwales and is thence evenly dispersed in the hulls.

In this planning and that of the extra steel bracing which gives much needed ties between hulls and wing I was greatly helped by Mr. Marshall, of Marshal and Nicholson the original builders, who in a most delightful manner shot down my wilder flights of fancy and passed only ideas which would feasibly work. He really has to take the credit for the fact that the structure stays together and looks likely to do so for some years to come.

The interior had to be altered to suit the work of sail training and this was done with a total weight saving of 420 lbs. Mast, boards, cases, superfluous water tanks, pumps and piping account for a balance to make a total saving of 2,030 lbs leaving a final weight of under five tons ex. stores, crew and baggage.

Sail area remained at 1,000 sq ft giving a very satisfactory power to weight ratio.

The dinghy type rudder blades were given a 3in leading tab so that when lowered they are in pivotal balance.

### **Performance**

The first sail looked like disaster. The yard launch towed *PELINDABA* to clear water where she proceeded to sit sullenly—a lifeless collection of sticks, string and and rag.

I was towed back ignominiously and replaced the patent steering system, which I had dreamt up, with her original rudders.

The second sail we pushed out to clear water with the rubber dinghy—repeat performance.

Desperate, I scooted her off with the dinghy and she suddenly came to life flying off at a huge rate and controlling like a thoroughbred—until we came about and had to start all over again.

This obviously wasn't going to do for sail training or any other kind of cruising.

Back to base again. This time I centralised the swinging bowsprit and fitted a strop and strut to carry the headsails 18in further forward. This worked and she could be put about with exact attention to the foresheet handling.

Still not good enough for the purpose. Experimental tab to balance the rudders was all I had time for before the first customers arrived.

Fortunately they were old hands from other cruises and they carried me through a very shaky first week. We consolidated the rudder experiment and changed the mast spreader arrangement. We then cleared out of Poole to make a 10 hour passage in light winds to Alderney.

From then on we never looked back and I dropped into the seasonal routine, crossing the channel once a fortnight and making my usual rounds of the islands and various ports of the Bay of St. Malo and the Cherbourg Peninsula. I covered some 2,000 miles in all conditions of sea and wind with crews of varying competence and strength.

Passage times were much the same as they had been in my 60ft monohull and occasionally there were bursts of high speed. I had obviously to "nurse" her because of the nature of the work.

Stability was fantastic and never once did she show the least endency to lift a hull.

Once while surfing against a full spring ebb in the Alderney Race I pulled her away out of sheer funk at the chasm ahead. This was entirely unnecessary as I later proved she could ride these waves until they subsided.

In September the time had come to push her and while steaming past Calshot in a force 7, the bow strut—a beautiful hollow spar—disintegrated.

This forced me into trying a double headsail rig, unbalanced and of a very "lash up" nature.

The results were startling as she suddenly became a most good natured boat, tacking 90° with the sureness of a dinghy, sailing 10 knots to windward with no sense of strain and going very fast on all points of sailing.

I don't know why—it looks all wrong—but that is how she is going to be next season, without the "lash up".

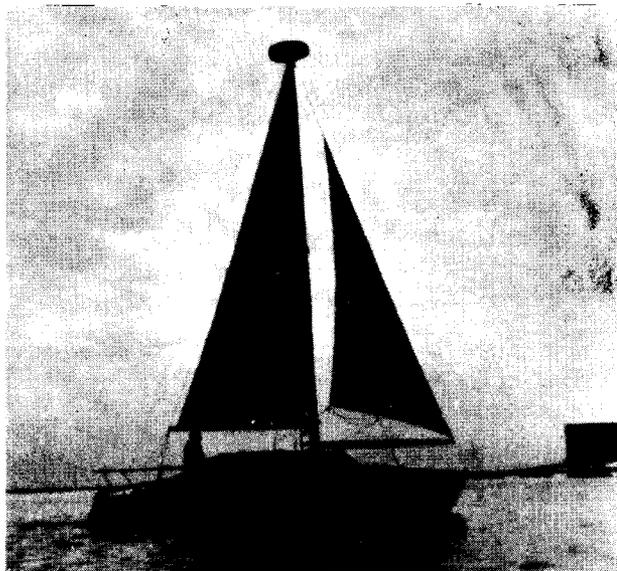
L.O.A.	24 ft	Sail Areas:	
L.W.L.	22 ft	Main	160 sq ft
Beam	12 ft	Jib	96 sq ft
Draft	2 ft	Genoa	140 sq ft
Displacement	2,500 lbs	Storm jib	35 sq ft
Berths	5/7		

**Designer: Ernie Diamond**

34 Roa Island, Barrow-in-Furness, Lancs., England

The *DIAMOND 24* is a direct development of *SHEERCAT*, a very successful 20ft coastal cruising cat, the sail numbers of which are now approaching 20. After sailing and racing *SHEERCAT* for three seasons it was felt that a bigger version would provide more comfortable accommodation and possibly a little more speed. No improvement in seaworthiness could be hoped for, except that the additional length would help her over the short steep lop which builds up in the Irish Sea in heavy weather.

The hard chine construction of the *DIAMOND 24* is almost identical to that of *SHEERCAT*, being plywood planking over ply bulkheads with Columbian pine frames and stringers and sheathed to the waterlines with glassfibre. All joints were glued with Aerolite and nailed using Gripfast nails, and none are beyond the skill of the average handyman.



*DIAMOND 24*



On *SHEERCAT*, leeway was counteracted by using self-operating leeboards hinged under the bridge deck. These were very efficient, but after drying out in several harbours around Morecambe Bay, it was felt that the bottoms of the hulls could be damaged if there were protrusions on the harbour floor. The 24 footer consequently has low aspect ratio fins acting as both skegs and as keels. Whereas it would have been difficult to capsize *SHEERCAT* because of her shallow draft, it was felt that these fins increased the tripping effect, hence the masthead buoyancy on the bigger craft.

Twin spinnaker poles are shown on the drawings serving also as a pulpit, mast raising sheerlegs, and self righting gear as they can be clipped to eyebolts beneath the bridgedeck to form a lever on which the crew or water filled dinghy could be hung to right her from a partial capsize. This latter use of the poles is unlikely to be required but would be a reassuring thought in mid-ocean.

Sailing trials showed that the boat would be quite fast, and in a subsequent race over 19 miles, *SHEBA*, as the prototype was called, won on both elapsed and corrected times. On a Portsmouth Number of 86, she beat the second boat which was also a multihull by 19 minutes and was about an hour and a half ahead of the first keelboat.

Isolated bursts of speed have been estimated at 18 knots without cruising gear aboard, though her best authentic speed by speedometer was 12 knots on a dead run. In gale conditions (30 to 35 knots by Ventimeter) she was reefed right down, and went to windward at 6-7 knots without fuss. Under normal conditions she comes about readily, but in rough water it was necessary to sail her round sheeting in as she turned. The bridge deck is only one foot above water but little slamming occurs except in short steep seas.

In flat calm conditions she makes just 5 knots with a Crescent 4 outboard (70 cc), but this is not sufficient power to drive her against winds stronger than force 4. The ideal motor would be about 10 hp, which would give 8 knots in a calm and sufficient power to manoeuvre in gale conditions.

Five permanent berths are shown on the drawings, and seven could sleep comfortably with a slight rearrangement. It is felt however that this number would be reasonable for weekending only. For serious cruising a crew of three plus all their gear would be about right, while for ocean passages two persons plus the food and water necessary would just about fill the boat comfortably. As with all multihulls, overloading will reduce the seaworthiness and performance of the boat, and a sense of weight consciousness should be developed.

Both the *DIAMOND 24* and the *SHEERCAT 20* have been designed for amateur construction. Plans and further details are available from P. Patterson, Foss Quay, Millbrook, Plymouth.

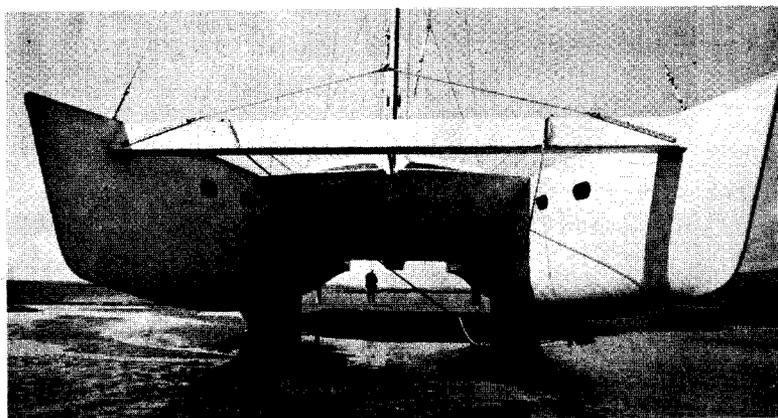
L.O.A.	42 ft	Beam	20 ft
Draft	3 ft	Sail Area	640 sq ft

Designer: Pat Patterson

Foss Quay, Millbrook, Plymouth

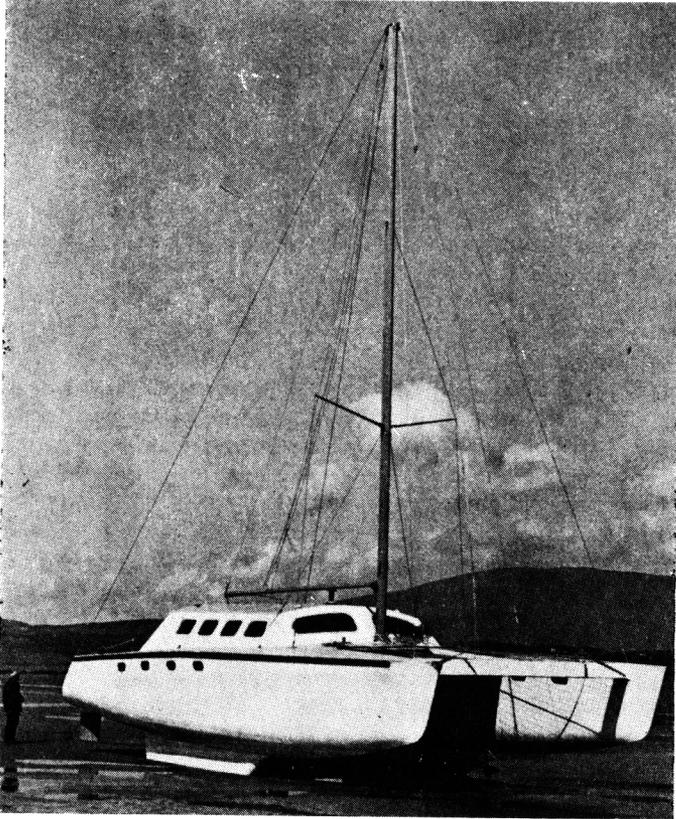
The original *ICONOCLAST* was built by Derek Kelsall of expanded PVC foam sandwich with fibreglass to the *TORCAT* design with hulls similar to his *TORIA*. Actually, nowadays all hull shapes of this type are built to the suggestions given in our publications so they are all more or less alike with little room for originality. Pat Patterson writes:

*"ICONOCLAST* is a very successful cruising boat. Sailed against a good Class I Ocean Racer—9ft draught, 56ft long, she could hold her own in reaching conditions. Close hauled in light going, the Ocean Racer was superior, possibly owing to the better sail wardrobe. In a force 4, on a 14 mile beat in a bit of a lop, up the loch to Stranraer, the Ocean Racer got in 1¼ miles ahead. She could just lay up the loch on the board, all the time on the verge of luffing. When I tried to lay the loch with *ICONOCLAST*, her leeway was too much. Paying her off and sailing much faster, she did better but obviously not as well as the other boat. I understand that that particular Ocean Racer cost something like 10 times as much as mine but I am so used to being as fast or faster than others that it was quite an eye-opener to sail against a boat of this class. As regards the 1968 Single-handed Trans-Atlantic Race, I have formed the opinion that, ignoring the human factor, it will have to be quite an exceptional multi-hull or exceptional wind conditions for a multi-hull to stand much chance against Tabarley's *PEN DUICK III* monohull.



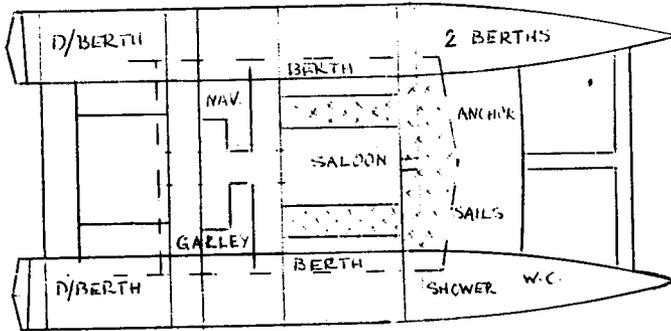
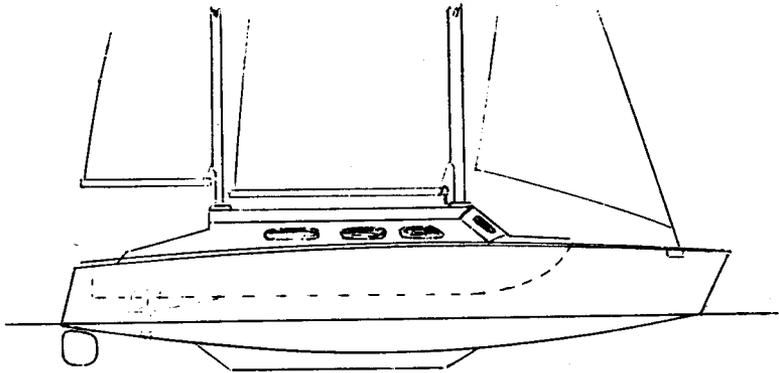
*ICONOCLAST*

“I am very pleased with the way *ICONOCLAST* handles. She is vastly superior to trimarans I have sailed and, as you know, they sail well. I was surprised to find that she would stay in a wind force 6 under main and mizzen (the jib block had broken). A trimaran normally has so much windage that it is usually necessary to back the jib in this strength of wind.



*ICONOCLAST—note keels*

“I am drawing the design out for amateurs to build of sheet ply. This is far less costly than foam/sandwich, and I feel more practicable for an amateur to tackle. I also enclose a sketch of my *LOTUS* design. My correspondence has shown that there is a real need for a cat about this size suitable primarily for amateur builders. Personally, I would like to lower the sheer and the cabin. However, cruising people are more concerned with the accommodation than a spectacular performance, and rightly so.



“The *GOLDEN COCKEREL* capsized was rather a tragedy for cats. I notice that no mention was made of trying to gently luff her up as soon as she started to lift a hull. The only time I have been in this condition was in a *DIAMOND 24* and this is what I did and she came down again very nicely. If one is over canvassed then, when on the helm, one can bear off to a run and loose the wind out of the jib if one has the wind fairly free. Otherwise, spill the wind by luffing. Once you start flying a hull, you have to act at once and this is quicker than trying to free the sheets.

“Cats make jolly good motor boats. In fact, I think they make better motor boats than sailing boats. I wonder how much longer it will be before this is generally recognised?”

Ed: The vertical after ends of the low aspect ratio keels catch the mooring rope and Pat feels that they would have been better sloped up instead. My feeling is that they should also have been sloped more forward—about  $20^\circ$  from the horizontal—and rather more pointed in longitudinal section.

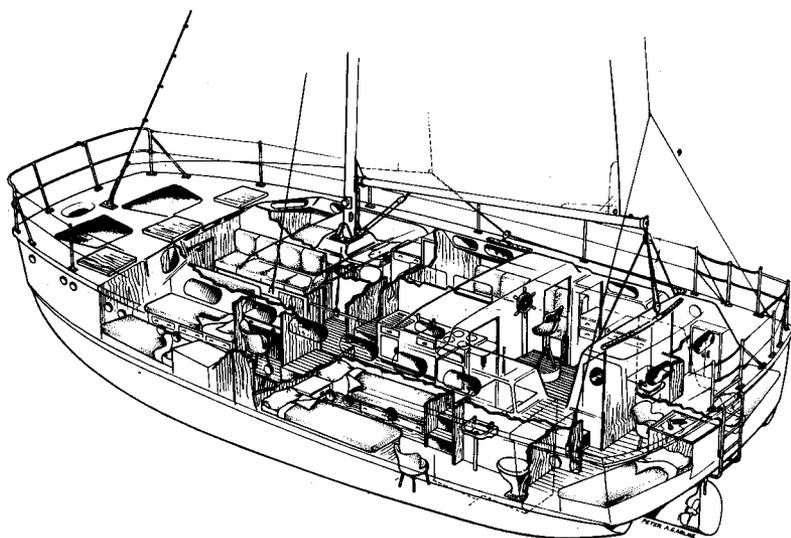
---

L.O.A.	36 ft	Sail Area	443 sq ft
--------	-------	-----------	-----------

Designed by: F.M. Montgomery

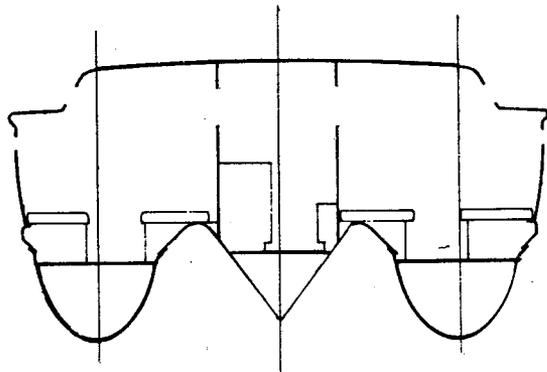
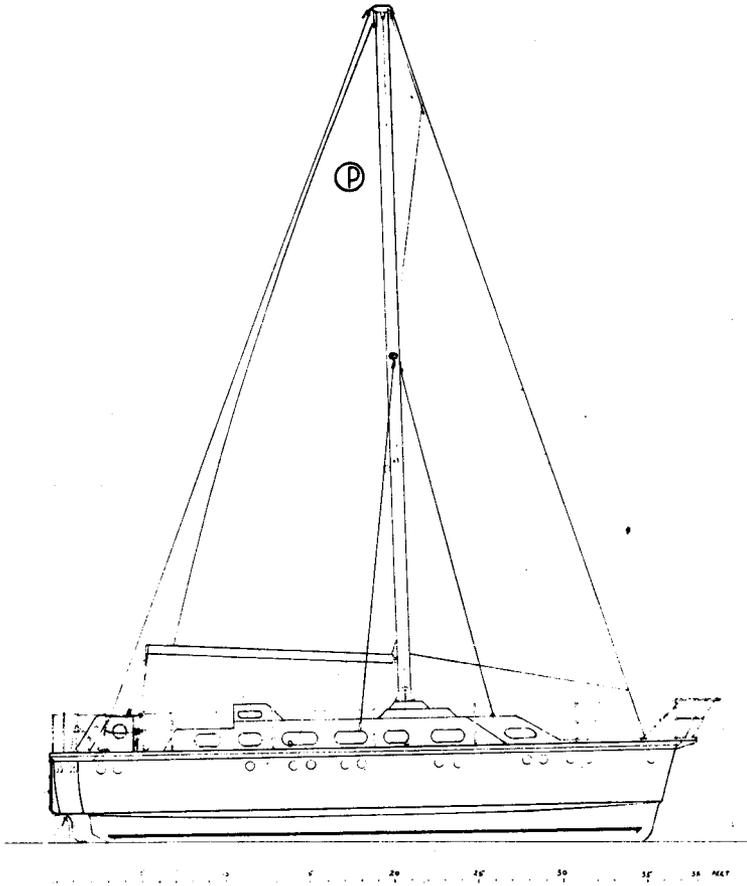
77 Melvill Road, Falmouth, Cornwall

This is a great big palace of a boat, designed on the "Tri-catamaran" principle. The two outer hulls have a round bilge section while the centre hull between them has a broad V section. The middle hull has been put in to give lateral resistance and to house the engines below the accommodation.



*OCEAN PRINCESS*

This boat has been designed for permanent living as well as coastal cruising. It has everything needed for comfort and convenience. Obviously, owing to the weight resulting, the performance under sail will be modest but a powerful engine is intended. Many people seem to buy large fast cruising trimarans and catamarans and then insist upon powerful engines which ruin the sailing performance. One wonders if they had not better buy a boat like this which is designed for them.



**OCEAN PRINCESS**

## KELSALL 50

1970

by John Morwood

---

L.O.A.	50 ft 0 in	Beam	20 ft 6 in
L.W.L.	43 ft 1 in	Draught	2 ft 6 in
Sail Area	925 sq ft		

**Builders and Designers: Derek Kelsall Ltd.** Sandwich Marine, Sandwich, Kent

Derek Kelsall must surely be one of the most fortunate yacht designers of all time. Not only is he capable of designing excellent, and often pretty, yachts but he can design and build a single hulled yacht as well as a trimaran, a catamaran or a proa. Moreover, his technique of building in PVC foam and fibreglass sandwich (in the town where the Earl of Sandwich produced the original invention of bread and beef) and his business acumen have allowed him to build yachts of all kinds. His *TORIA* and *TRIFLE* are his best known trimarans, while he built *SIR THOMAS LIPTON*, though she was designed by Robert Clark.

In Derek's yard we found ourselves wandering in a broad tunnel which turned out to be the underside of a large catamaran whose hulls and bridge deck had been completed. We climbed the inevitable ladder to the deck. The main bulkheads were in place and the "furniture" was being put in.

The drawings show the main features of the design. The main thing of note is that there is full standing headroom in the main saloon. Forward of this is the dining space with good sitting headroom. In the profile drawings these deck houses do not look unsightly to me.

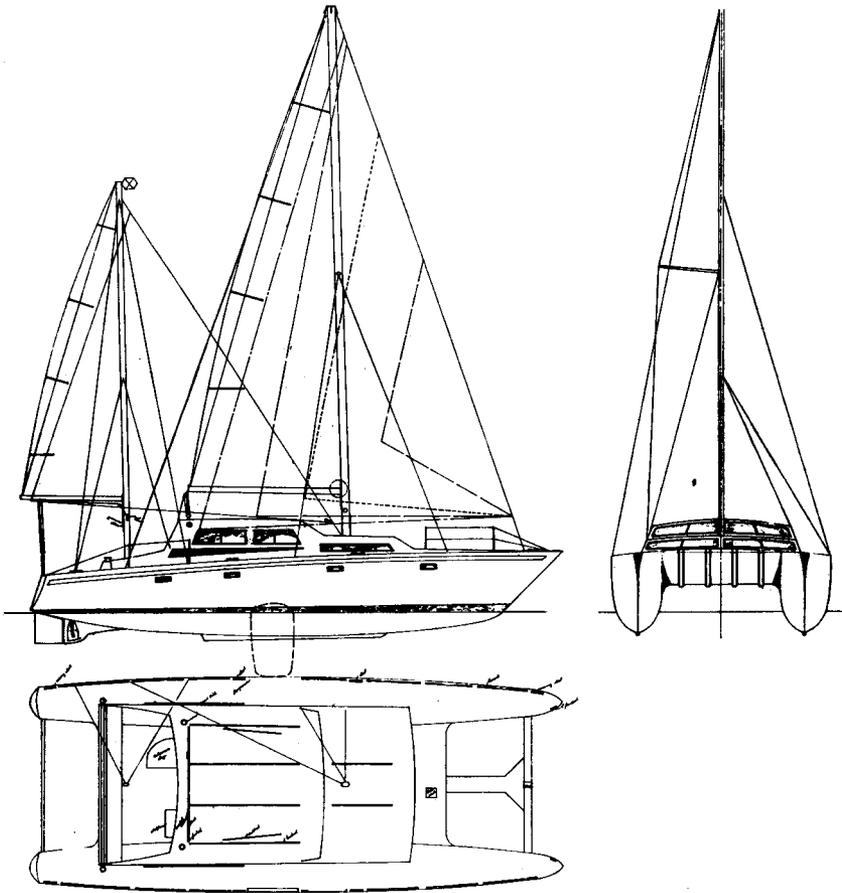
### Hull Design

This is pretty orthodox. The L.W.L. crosses the midships section of the hulls just below the centre of radius of the semi-circle and the lines show a fine bow, with plenty of above water buoyancy, sweeping to the semi-circular midships sections and then on to the narrowish transom sterns.

Dagger boards are used to combat leeway, instead of the low aspect ratio keels. This reduces the hull draught but means that the skeg and rudder are the deepest parts of the boat.

### Engines and Propellers

Twin 40 hp Mercedes engines are likely to be installed and these should give a speed of 10 knots. The propellers are fixed-bladed which will be a considerable drag when sailing but the smallish sail area and ketch rig make one think that she will be more used as a "Motor-sailer" than as a pure sailing yacht.



*KELSALL 50 ft*

### **The Rig**

The low ketch rig with a good wardrobe of headsails will make her easy to handle and she should be fast on all points of sailing. The "Walkway" to the forestay, when fitted with lifelines is essential to all cruising and racing cats of this size.

### **Summary**

This catamaran is designed for comfortable living and comfortable cruising. She should achieve just that.

## FOUR NOTEWORTHY CATS

---

When we had assembled the first edition, it was realised that several catamarans which had made outstanding voyages or were outstanding in some other way were missing. In our ordinary publications, we can only publish what we have been sent. We missed some excellent cats and apologize to our readers. We hasten to describe briefly four such yachts.

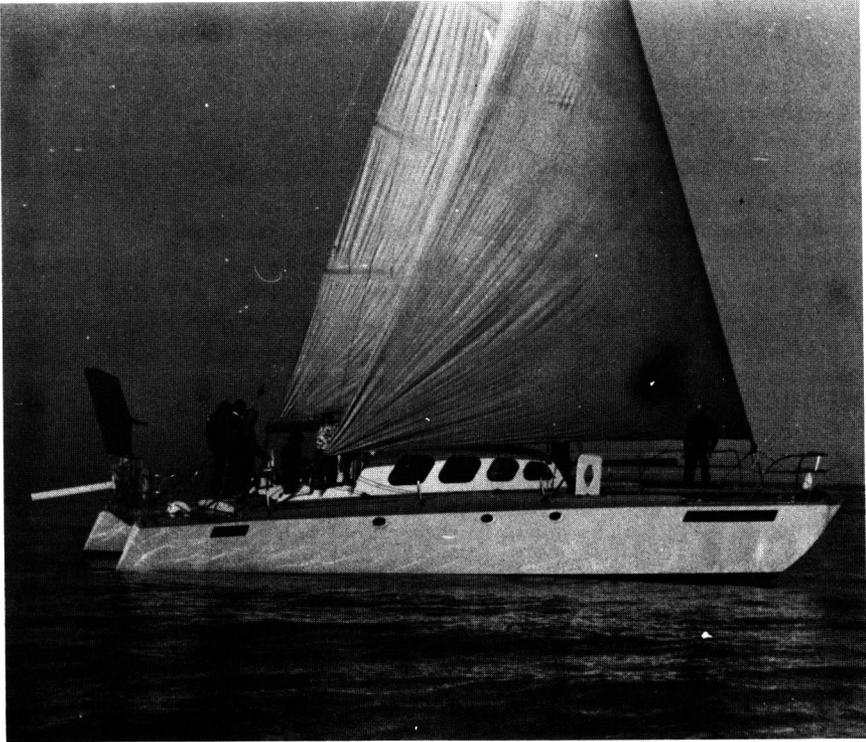
**REHU MOANA.** Designed by Colin Mudie on the Prout mould which produced *SNOW GOOSE* ( see C.XIV ). A flared bow and overhang increased the overall length to 40ft. *REHU MOANA* was built by Prouts for Dr. David Lewis, who was born in England and brought up in New Zealand. With her, David Lewis took part in the 1964 Single-handed Trans-Atlantic race, coming in 7th. He was then joined by his family and circumnavigated the world via the Straits of Magellan and South Africa—the first catamaran to do so.

**MISTY MILLER** was designed by Michael Henderson for Michael Butterfield. She is 30ft overall and is more or less an enlarged version of *GOLDEN MILLER*, described in C.XIV complete with ballasted fin keels and a masthead float. Mike Butterfield sailed in the 1964 Single-handed Trans-Atlantic race, coming in 11th. During his passage, he took the route south of the Gulf Stream and called in at Flores in the Azores, where he stocked up with some excellent local wine before setting out again. During a rough spell, the port fin keel broke off which caused a leak needing pumping three hourly for the rest of the voyage.

**MIRRORCAT** was designed for the 1966 Round Britain race by Rod MacAlpine Downie. She is 40ft L.O.A. and is composed of two enlarged C Class hulls joined by light alloy poles and a trampoline deck, all the accommodation being in the hulls. She was thus what the late Arthur Piver would have called a “Speed burner” but she hardly got to the starting line in time and had so much movement between the hulls that she couldn’t be driven. Skipped by S.Fearon Wilson and crewed by her designer, she came in 5th after *TORIA* (42ft), *SNOW GOOSE* (36ft), *IROQUOIS* (30ft), and *STARTLED FAWN* (33ft). In later races she proved very fast when the problem of securing the mast was solved by using a bridge for the forestay and backstay. Sold to the U.S. A. she was renamed “*PENDRAGON*”. She is probably still the fastest catamaran below 50ft to enter British offshore races. (1976).

**GOLDEN COCKEREL** is a C/S/K designed catamaran 43ft L.O.A. very similar to *ALLEZ-CAT* (see C.VII ). She is owned by Bill Howell and was built by Contour Craft in 1967. The hulls are the narrow, deep V, asymmetrical hulls of C/S/K and she is a very fast yacht. Bill Howell had a great deal of deep sea experience in single hulled craft before having *GOLDEN COCKEREL* built and this may have led to a capsized off the Isle of Wight in an early Crystal Trophy

race. She has been sailed with more caution since in many races. *GOLDEN COCKEREL*'s two most outstanding races have been the 1968 Single-handed Trans-Atlantic race and the Round Britain race of 1970. She came in fifth in both races against very strong opposition. All the yachts which beat her in the 1968 Single-handed race were longer than she but, in the Round Britain race of 1970, the redoubtable *SNOW GOOSE* (36ft) and *MINNETAREE* (30ft), an *Iroquois Mk. II* came in before her. She also did very well in the 1972 and 1976 Single handed Trans-Atlantic races. Later named **TAHITI BILL**. (She is for sale and may be renamed).



## Chapter XV

### DESIGNS FROM COUNTRIES OTHER THAN U.S. OR U.K.

#### BEARKOK

1959

---

L.O.A.	12 metres	Beam (hull deck)	0.90 metre
Beam, O.A.	4.5 metres	Beam (hull bottom)	0.60 metre
Draught	0.5 metre, and	Mast Length	12 metres
C.B.	1.6 metres	Sail Area	30 sq metres

**Designer and Builder:** O. Koch

Sweden

*BEARKOK* can be compared to the original *MANU KAI* for the amount of work, thought and dogged perseverance which it has involved. To design almost without help and build a 40ft cruising catamaran by one's own labours is quite some job.

#### Hull Design

The hulls have a nice profile with a V bow transforming to a flat floor and box section amidships and aft. They are asymmetrical with the flat sides out and shallow draught rather like the hulls of Victor Tchetchet. They are covered with polyester-fibreglass.

#### Bridge Deck

This consists of a streamlined cabin about 3ft in depth which will presumably have the berths which, with 6ft of headroom in the hulls, will make very comfortable accommodation. Extra berths can be in the hulls.

#### The Assembled Craft

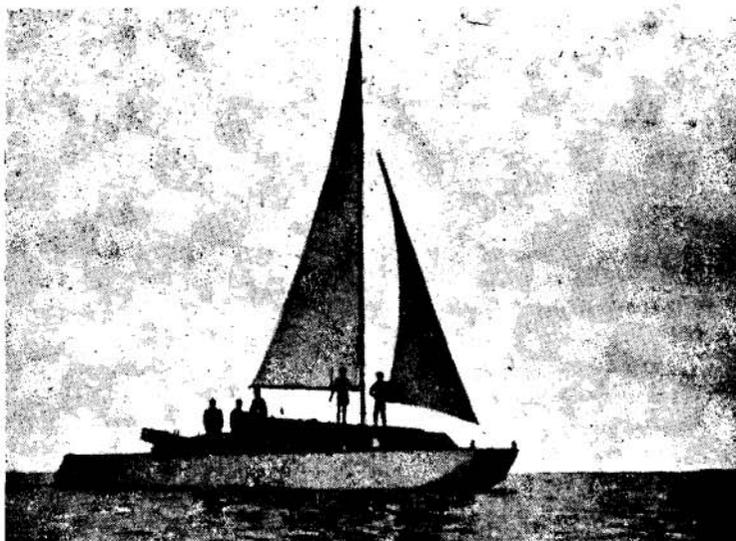
The hulls are close together and will cause some venturi effect with "rooster tail" at speed. A large centreboard is used which will improve the speed of putting about.

#### Expected Performance

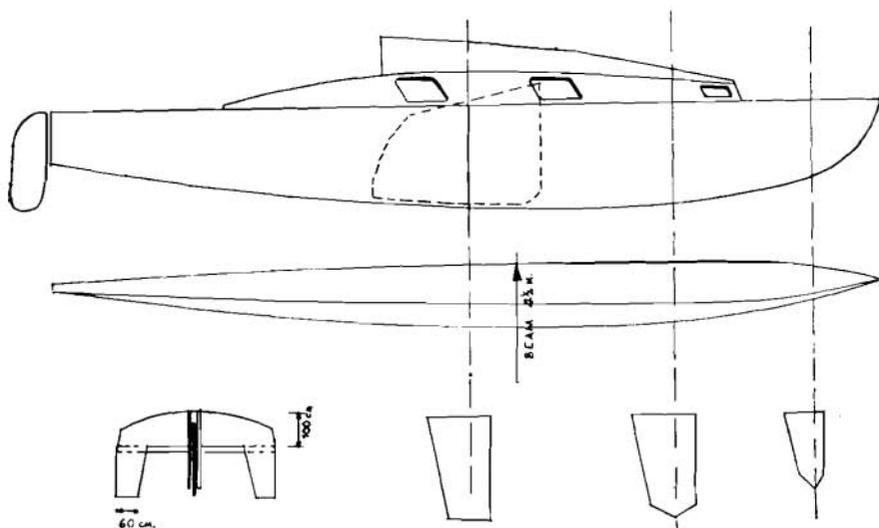
At this size, the accommodation can be easily carried and still give the ratio of sail area to weight needed to allow a catamaran its speed. The hull shape may not be ideal according to our studies but it is not so different that high speeds cannot be obtained and somewhere about the 20 knot mark (possibly higher) may be made. Light wind performance is likely to be relatively poor.

#### The Sail Rig

With a mast only the length of the boat, capsized should be extremely difficult and large sails may be used in light weather.



*BEARKOK*



## Summary

*BEARKOK* is a large cruising catamaran of good conception which should have high speeds in strong winds and be almost immune from capsizing.

## Sailing Trials

Since writing the above *BEARKOK* has been launched and sailed. Despite the small sail area, the speed is equivalent to the fast dinghies but she is so stable that it is intended to double the present area of canvas by using a mizzen mast and increasing the length of mainmast. The shallow draught is a great boon on the tideless Baltic where she can nuzzle into the shore anywhere and, I should think very useful to explore the islands where she sails. It is believed that she planes in strong winds but this indeed seems unlikely to me.

## CONDA VISTA

1959

by Douglas Glanville

---

80 Oxlade Drive, New Farm N.S., Brisbane, Australia

L.O.A.	23 ft	Draught	12 in
L.W.L.	20 ft	Weight	1,200 lbs
Beam	11 ft	Sail Area	263 sq ft
Beam (hull)	1 ft 6 in	Small Rig	179 sq ft

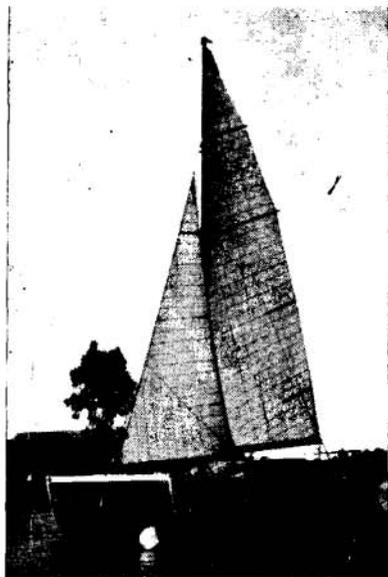
*CONDA VISTA* was designed at a time where there was no information available on catamarans. I wanted a cat with full headroom and accommodation and between 35 and 40ft overall but, not wishing to have a failure at that size I decided to try out my ideas on a 23ft boat first. *CONDA VISTA* has been so successful that I now wish I had made a 40ft craft instead.

## The Design

*CONDA VISTA* is a *Manu Kai* type with asymmetric hulls, simply made with deep box-like sections and fibreglassed to 5in or 6in above the waterline so she cannot leak. All the timber used is straight and fits together like a Meccano set.

## The Asymmetric Hulls

These were chosen in order to avoid a C.B., keels or fins. The outsides of the hulls are flat and create no bow wave. On the insides of the bows, waves form and collide just aft of amidships and pass across to press against the sterns, partly regaining the energy lost at the bows. The section is near enough that used by Victor Tchetchet. One could suspect eddying flow around the chines but none is apparent on *CONDA VISTA*.



### Water Flows around Hulls

*4 knots.* No wake or other disturbance is seen.

*6 knots.* The water flows beautifully along the waterlines and starts to show a build-up wave under the cockpit. Two feet in front of the rudders a wave, looking like a bow wave, starts to slide up the rudder and pours through the inch space between the sternpost and rudder, like a miniature waterfall. Small wakes are just visible.

*8 knots and above.* The waterfall increases to 9in but not higher than that. On our fastest run, we took colour movies by hanging over the bows and even at this unknown speed (our speedo stops at 16 knots) the water flow between the hulls was unbelievably undisturbed till, near the stern, the rooster tail formed and was spurting 20 to 30ft behind us.

At no time does *CONDA VISTA* show any broken bow waves or foaming water with seas less than 20ft high. There is no illusion of speed as in the photographs of *SHEARWATER* and *GEMINI*. The feeling is that the water must be covered with oil, so perfect is the flow. I therefore consider it rather regrettable that these asymmetrical thoroughbred hulls have been given such a death sentence on page 44.

Another thing which seems queer to me and has not been mentioned in magazines is the asymmetrical hull's ability to surf down the face of a wave in light winds. The hulls are so narrow that one would expect the wave to slide harmlessly under the boat, but it doesn't. My theory is that the venturi effect between the hulls gives the waterflow terrific velocity. The following wave tries to sweep through between the hulls but strikes the high speed water. There is a big wave build up and the cat is driven forwards by the wedge action on the curved insides of the sterns.

Quite often one reads that asymmetrical hulls tend to bear away in squalls and are therefore dangerous. This is definitely not correct. The boat turns up into the wind and handles the same as a perfectly balanced yacht, except of course that larger turning arcs are necessary. Staying is slow but sure and even when deliberately put "in irons" it is no problem to run backwards, the rudders are reversed and the cat swings round like backing a car.

### **The Bridge Deck**

The two hulls are bridged from bows to sterns. Few catamarans are built thus nowadays. The pros and cons are as follows:

#### **Disadvantage**

Under heavy conditions close hauled into winds of 25 to 30 mph, the lift from the bridge is excessive and tends to lift the cat out of the water. This gives a capsizey feeling. To prevent this, I carry the outboard motor, spare sails, anchor and chain half way between the bows and the mast. Strangely, this extra bow loading in no way tends to make the lee bow dig in.

#### **Advantages**

- 1 Gives completely dry sailing deck.
- 2 Eliminates nose-diving or the hulls burying into the backs of waves after "planing" down a steep face. In dirty S.E.s, we get very steep waves in the bay, probably 5ft high. The cat can then hurtle out into space with the hulls bare up to the mast. She then drops into the next wave. She rises fast but cannot clear the crest with buoyancy alone. The fore end of the bridge deck takes over and skids her over the top. Maybe, an inch or two of water splashes over the lee bow, just wetting the corner.
- 3 Gives approximately an extra 100 sq ft of usable deck space for changing headsails and setting spinnakers.
- 4 Lift from the bridge deck reduces wetted surface, gives a firm anchoring base for the jib and forestay. The jib can be set low to the deck and is dry after a sail. Close hauled, the jib is not affected by the "updraught" from the hull.

### **Freeboard**

This is approximately 36in and is thought by many to be excessive. However, we have had a few waves on deck and some have hit underneath. These last shake the catamaran from stem to stern and then up to the truck. The crash is terrific. One or two waves have hit together under the cockpit hard enough to lift the temporary cover over the engine hole and fill the cockpit with water which pours out at once, of course. This has only happened when driving hard under full sail into steep seas. An orthodox keel yacht would have been hove-to or flogging and pounding, making little or no headway. *CONDA VISTA*, with her very fine ends (prismatic coefficient 0.51) slices through at a steady 6 or 8 knots.

### **Accommodation**

There is enough room in the cabin to crawl in and sleep. It is 8ft x 5ft x about 3ft high. Little thought was put into this section and the craft was designed to develop a perfect cruising catamaran. At double the size, it would be very comfortable indeed.

### **Engine**

This is a small local outboard motor with a Villiers 147 cc two-stroke motor and, with a small throttle setting. *CONDA VISTA* does 3 to 4 knots at around 20 miles per gallon. The cockpit floor is removable and the outboard drops through it. The engine must be removed before sailing as otherwise it swamps itself in the "build-up" waves.

### **Performance**

Very roughly, we do 2/3rds the speed of the wind. In medium winds, this is about about as fast as a *Dragon*. In a 30 mph wind, with the wind over the quarter, we must do 18 to 20 mph as we have averaged 13 mph across the Bay and quite a bit bit of the time were only clocking 10 mph. In no way do I want to give the impression that this cruiser is going to keep up with a *Shearwater* or *Yvonne 20*. The latter machine has been timed at 23 mph over three miles but the ride is like going over railway sleepers; wet is not the word and you have to sail every second or else feed the sharks. At all times *CONDA VISTA* sails on an even keel and ambles along around 12 to 15 mph, dry as a bone and we could, if we wanted to, have our lunch on the foredeck.

by C.T. Black

---

	Constantia Flower Farm, Doordrift Rd., Constantia, S. Africa		
L.O.A.	37 ft 10 in	Weight	4,500 lbs
		Sail Area	600 sq ft

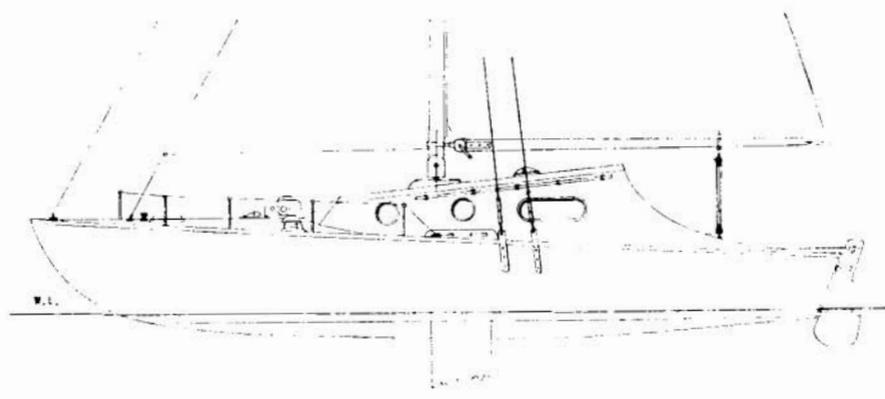
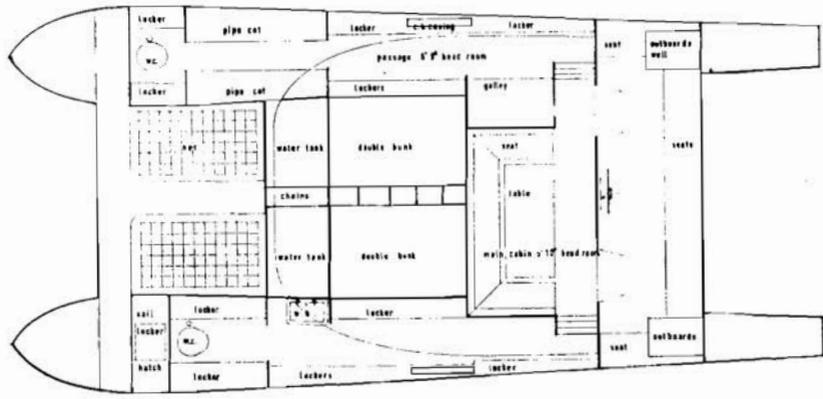
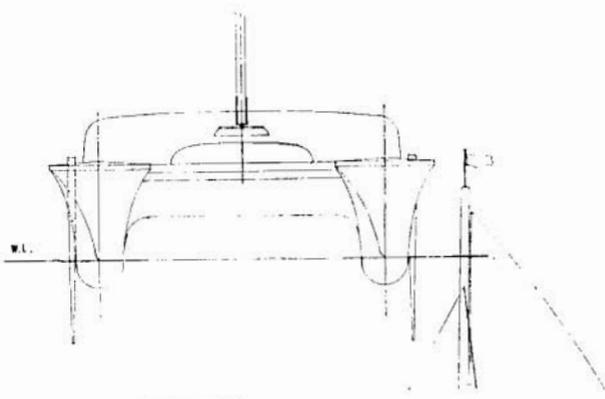
The drawings show the catamaran which I am at present building. The boat is of a round hull section very similar to the *SHEARWATER III* up to the water line. The main difference is the sheer and the quite pronounced flare to the bows. The construction is to be completely of fibreglass with the exception of bulkheads and internal fittings.

Two wells are provided in the hulls to take two 5 hp *Seagull* outboards with the large hydroplane prop which I estimate will give a speed of around 7 knots, for getting in and out of harbour. The lower ends of the wells close when the outboards are lifted by sliding hatches.

Owing to the fibreglass construction, it is not necessary to deck the boat right across the two hulls which means that one can utilize the hulls as passage ways. This allows for considerable accommodation. There is a main cabin which measures 9ft x 6ft and has 5ft 10in of headroom. The hulls are then used as passage-ways with the owner's cabin on the port side which has a double bunk, plenty of lockers, wash-basin, head and shower. On the starboard side are a galley, double bunk and two pipe cots as well as a head and plenty of locker space. This has all been made possible by the strong girder construction which is incorporated as the cabin top which is also of fibreglass. This girder bridge joins the two hulls and also forms a very strong base for the stepping of the mast.

It looks to me as if fibreglass construction is the only way to get very strong construction in a light boat, which is very important. It has taken me six months of work to make the male moulds and Frank Lawrence is at present making the female moulds in fibreglass. Lawrence has had considerable experience in this work so his help is greatly appreciated.

May I say here how greatly I have been helped by the AYRS publications. The information given in them has helped me tremendously in designing this boat. The whole thing now is how the prototype will sail when completed at the weight of 4,500 lbs, with nearly 600 sq ft of sails which works out at approximately 8 lbs per sq ft. She should perform quite well but I shall be well satisfied if we get 15 to 16 knots out of her—anyhow, here's hoping.

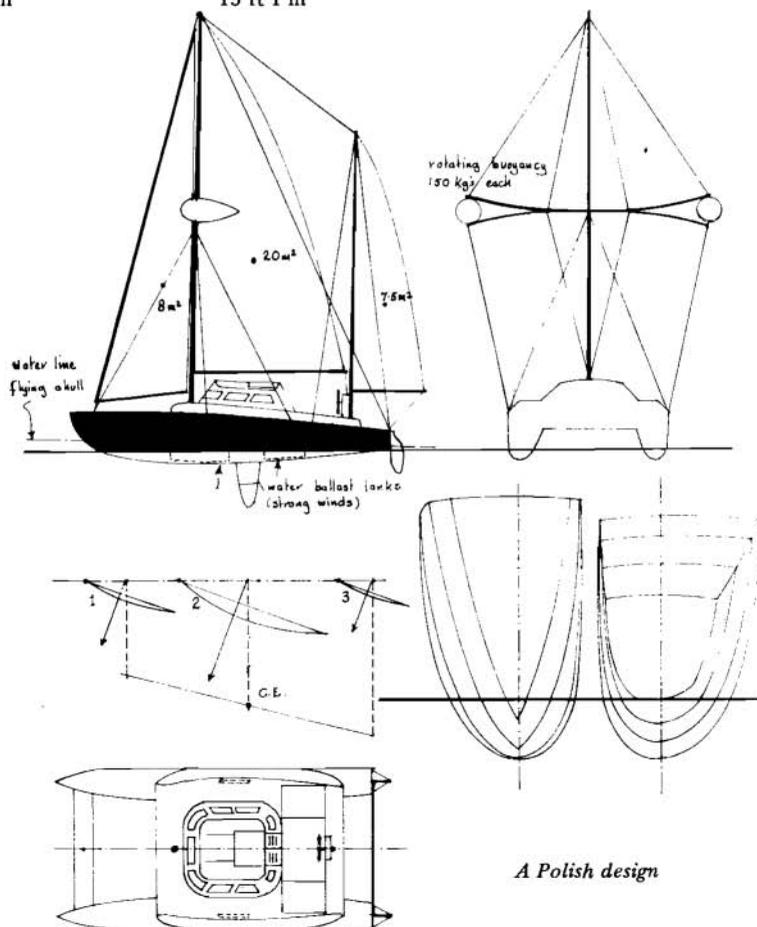


## POLISH CRUISER

Recently, there has been considerable interest in the AYRS in Poland. They also seem to be designing and building some fine yachts, though information is scarce.

Wladyslaw Koziorowski has sent me this design for a 26ft catamaran which looks very pleasant. The two main features which call for comment are the very small amount of asymmetry on a very fast and seakindly hull shape and the buoyant floats at the ends of the cross trees. The main dimensions are as follows:

L.O.A.	26 ft 3 in	Displacement	2,200 lbs
L.W.L.	23 ft 7 in	Sail Area	382 sq ft
Beam	13 ft 1 in		



*A Polish design*

## POLARIS

by Captain Dario Salata

1969

Rapallo, Piazzale Funivia, Italia

L.O.A.	60 ft	Sail Area	2,100 sq ft
Beam	20 ft 6 in	Engines, two Diesels of 35 hp each	
L.W.L.	47 ft	Speed under power	10 knots
Displacement	11 tons	Speed under sail	18 knots

**Designer: Captain Dario Salata**

I think this is one of the biggest catamarans in the world. *POLARIS* has two two-berth cabins, four single-berth cabins, three toilets, one dining room, one drawing room in which two persons can sleep and a large galley and plenty of room for sails, storing, etc.

I have designed the *POLARIS* after having studied for a long time the shape of the hull (particularly the asymmetrical shape), the construction and all the other things which are especially important in so big a catamaran. The appearance of the boat is very agreeable and the cabin is not too prominent, though the height inside is 6ft 6in.

### Performance

*POLARIS* can be easily steered and can reach very high speeds. Her performance is much better than in an ordinary single hulled boat. She is an excellent racing boat with all the comforts of a very fast motor sailer.

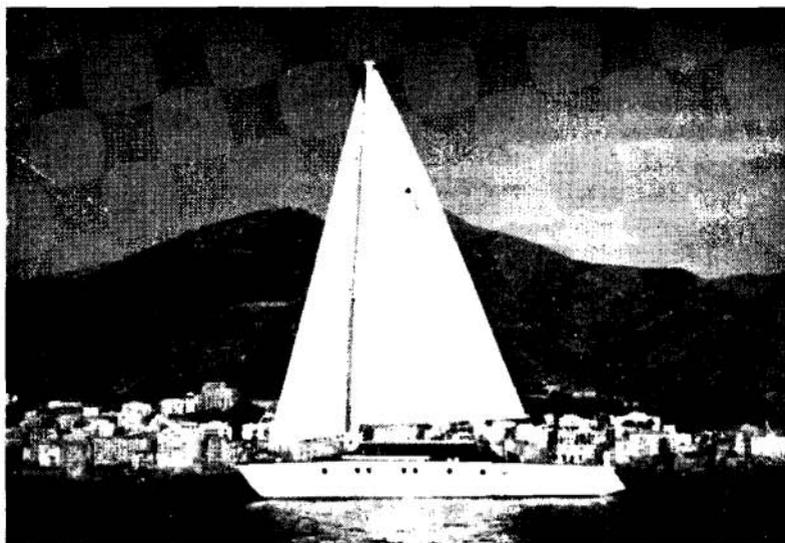
*POLARIS* is seaworthy. The tendency to pitching is normal and not at all excessive. If she were smaller, however, this might be greater but with her L.W.L. of 47ft, and with the distribution of weight and the shape of the hull, it is easy.

Owing to the shape of hull, putting about is easy and when sailing to windward, she has reached a speed of 10-12 knots with a real angle from the true wind direction of 46°. The wind speed on this occasion was 12 meters per second (24 mph).

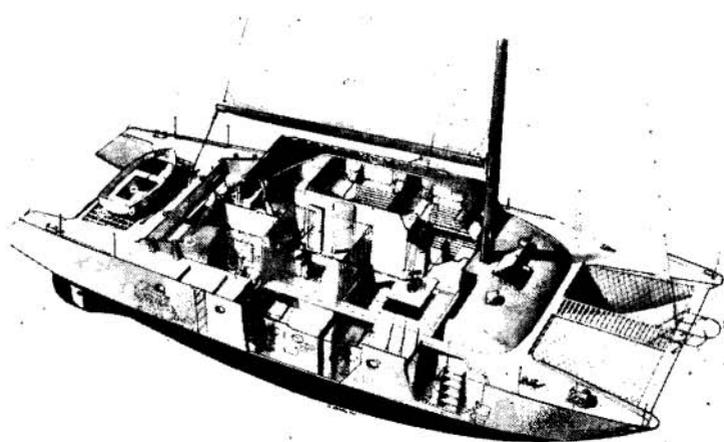
*POLARIS* is faster than racing and cruising single hulled boats both close hauled and reaching. She has a very big spinnaker of about 2,600 sq ft which gives her good performance running.

The mast is an aluminium spar made in Italy. The construction is in a special laminated wood and plywood planking.

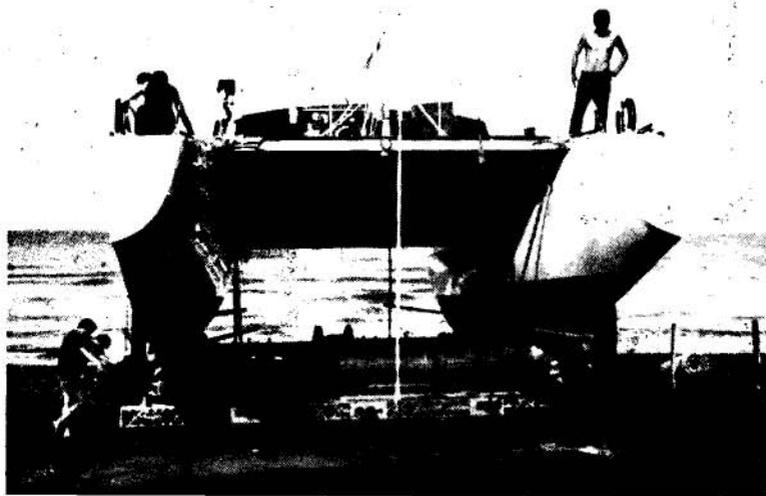
*POLARIS* was built by Cantiere Navale di Doncratico (Livorno). The sails are, of course, Salata Sails.



*POLARIS*



*POLARIS*



*POLARIS*

**POLARIS RACING**

1970

L.O.A.	21 metres	L.W.L.	15 metres
Draft	1.50 metres	Displacement	16 tons
<i>Sail Area:</i>			
Mainsail	94 sq metres	Genoa	152 sq metres
Yankee	62 sq metres	No. 2 Jib	61 sq metres
No. 1 Jib	84 sq metres	No. 2 Jib	61 sq metres
Staysail No. 1	36 sq metres	Staysail No. 2	26 sq metres
Trysail	28 sq metres		
Spinnaker	450 sq metres	Flat Spinnaker	280 sq metres
Powered by two 65 hp diesel motors.		Speed under power	12 knots

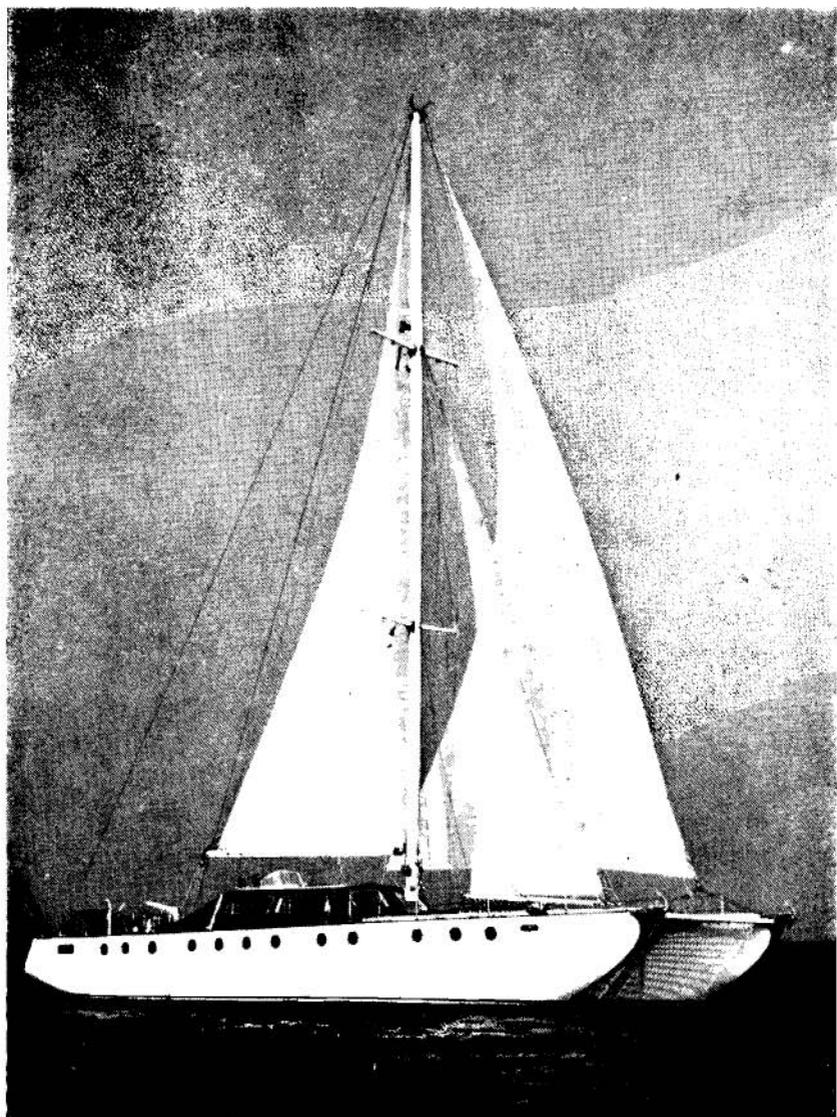
**Owner and Designer: Dario Salata**

16035 Rapallo, Piazzale Funivia, Italy

Accommodation: Six double cabins, saloon, galley with fridge etc., two toilets and vast storage for sails.

Hulls are symmetrical and are very round, with low aspect-ratio keels.

*POLARIS* is easily steered and can reach high speeds. She is seaworthy and for the shape of the hulls the pitching is normal and less than that of the first *POLARIS* above; the sails are by SALATA sails.



*POLARIS racing—Dario Salata*

by João Mendonça

---

L.O.A.	4.75 m	Displacement	(a) designed 0.542 ton
Beam	2.40 m		(b) actual 0.600 ton
Sail Area	18 sq m		

**Designer, Builder and Owner: Joao Mendonca**

I finally finished, launched and sailed my catamaran *MIGA* on 20th November, 1962 and in the first month have sailed in 19 times with winds from force 0 to force 6.

*MIGA* is a small catamaran not intended for speed but for coastal cruising with comfort. Originally, I had designed her with a L.O.A. of 3.99 m (13ft 1in) but my wife insisted that I redesign her to the full length of the 16ft length of the plywood board.

The hull lines show a very flat bottom of V section and the beam was calculated to give the necessary space inside of 0.8m. I used 1/4in marine plywood, glued and screwed, the final weight being about 1,000 lbs, without crew. The bridge deck extended right from the bows to the sterns because I wanted plenty of space and a dry cat.

The proud moment of her contact with the wind and water was wonderful and I was happy with everything. Firstly, there was the pleasure of sailing a catamaran of my own design, the second I had seen and sailed (the first was to my design, too, and it was wrecked 3 years before in the night); secondly, I was not disappointed with anything at all.

The speed was good for such a boat; she *planes* with winds of force 4. The lateral stability is enormous. She tacks in 2 or 3 seconds because of (a) the weight, (b) the big beam of each hull and (c) because I put the centre of lateral resistance 10 per cent back to obtain an exaggerated Ackermann effect. The weather rudder brakes somewhat and helps the cat to go about quickly.

On the second day, I had a strong wind of force 6 and I was forced to reef the mainsail, not because of the stability but because I was afraid the mast might break. The fore hatches were not well closed and some water got in but when sailing free, we met one wave into which the bows dived till the fore deck was covered with water about 1ft deep. But the cat recovered very well and we have never done the same since.



*MIGA*

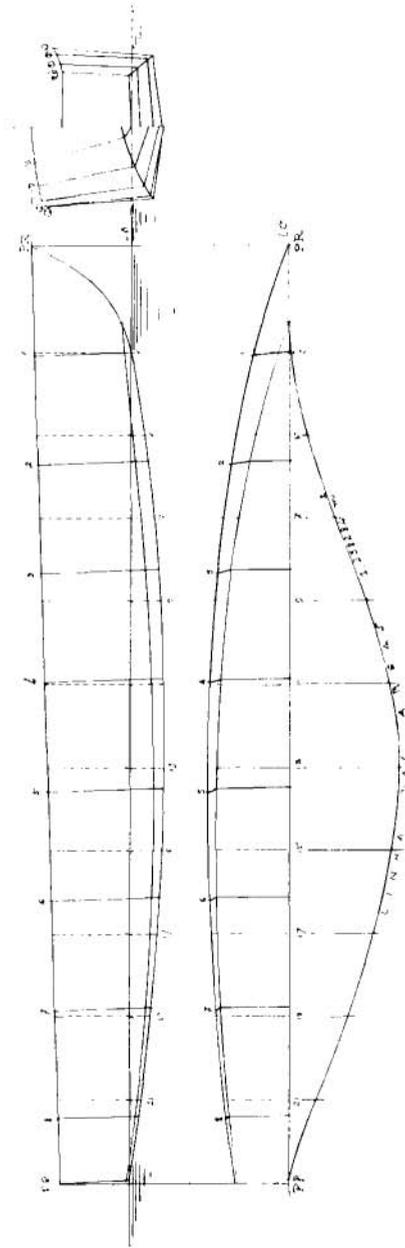
I have never measured the speed but I suppose that when planing *MIGA* reached the modest but good speed of 10 knots for short periods.

*MIGA* is very dry. The spray deflectors work well. The bottom of the bridge only occasionally is touched by waves. When close hauled, with foot high short waves, the motion is smooth, I suppose because of compressed air under the bridge. Her course, close hauled is very good, too, at  $45^{\circ}$  from the wind.

There is plenty of space for 5 adults, or 9 children, but the ideal is 2 or 3 adults only.

The only bad thing I found in *MIGA* is that it was a very expensive boat to build, £300. I suppose with the same money I could have built a small coastal cruising boat (one hull) of 20ft or a trimaran of 24ft.

If my official life goes as I hope, in October next year I will sail with *MIGA* to Lourenco Marques, 1,500 miles away.



*MIGA—Lines and sections*

### A family cruiser from Sweden

L.O.A.	28 ft 5 in	Sail Area	387 sq ft	387 sq ft
L.W.L.	24 ft 8 in	Weight		2,910 lbs
Beam	14 ft 2 in	Displacement		4,260 lbs

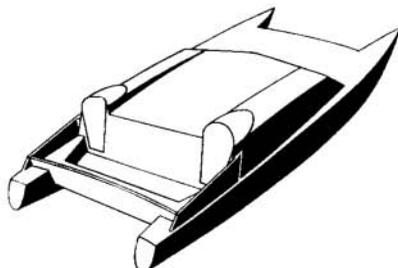
**Designer: Heinz-Jurgen Sass**

Eriksovagen 23, Vaxholm, Sweden

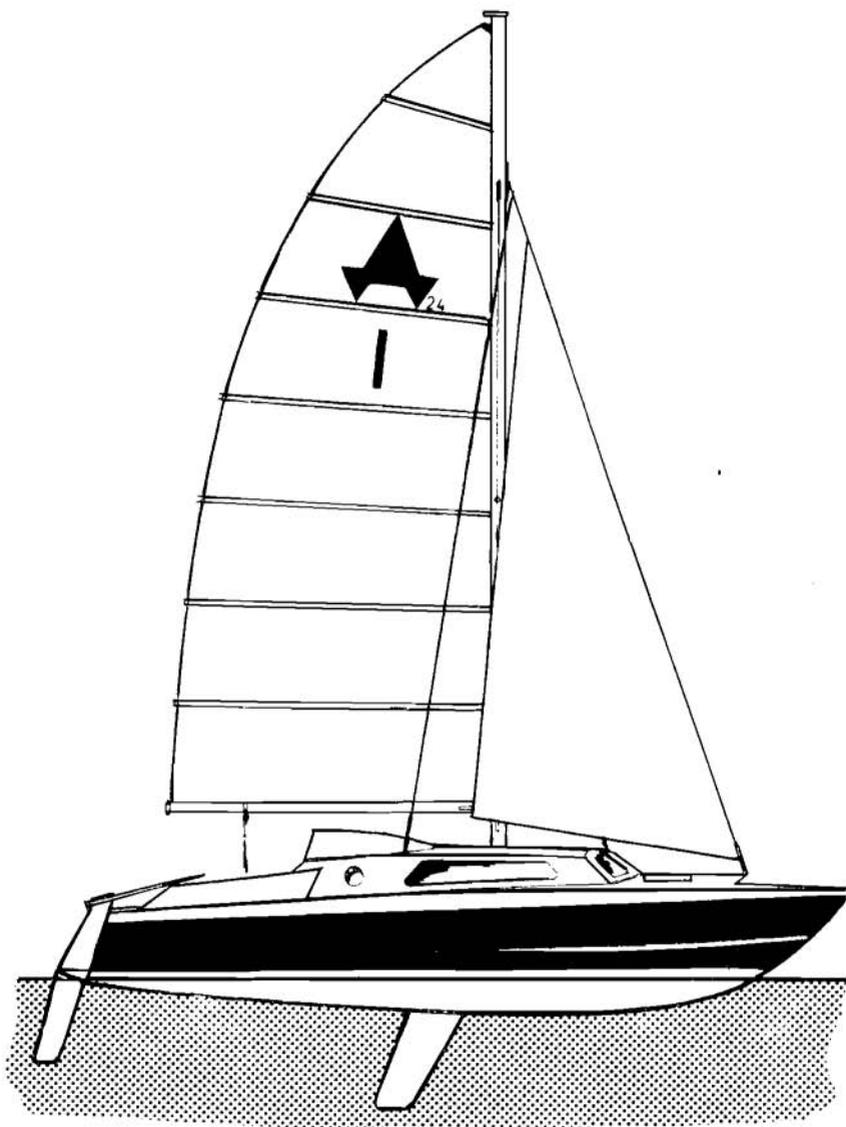
*DACAPO* 24 is the latest in a series of four boats which range in size from 23 to 35ft. It has been designed to provide enough room for a family of 4 to 6. To give the boat pleasing lines the coach-roof has been kept low. In fact the roof is so low that the helmsman can see over it when sitting in the cockpit. The centre of the roof is planked with  $\frac{1}{2}$  in teak to give added strength and more "eye-appeal".

To get full head room in the galley and chart room a "plexiglass" dome is fitted over each, or alternatively, sliding hatches can be provided. The chart room has space for extra storage and it is fitted with a table large enough to take unfolded charts.

The boat is divided in the middle by a longitudinal bulkhead which at the same time is the centreboard case. Forward in the starboard hull is an extra bunk, and aft of this there is a settee with a folding table to make a dining quarter. Situated by the hatch is the large galley with plenty of storage space. Two cabins are situated on the forward part of the wing and each includes a double bunk. Aft of the main cabin is the toilet, complete with lavatory, wash basin and hanging locker/s.



The cockpit extends across the full width of the boat. Use is made of the rear constructional beam by incorporating seats with built-in lockers. The centre locker contains safety equipment and opens outboard so that it is easy to reach in the event of a capsizing.



*DACAPO 24*

The centreboard is placed in the longitudinal bulkhead to get simple and effective construction. Advantages of this centreboard are: an effective plan with high aspect ratio, no long openings in the hulls, low weight and easy handling.

The lines of the hulls were drawn to get a low wetted area with a nearly semi-circular section. When fully loaded the transom is slightly beneath the water line. At low speeds this may not be so good but at high speeds and in open waters it is advantageous. The spray deflectors (knuckle type) and the wide transoms should prevent pounding. Plastic foam buoyancy is placed in the extreme ends of both hulls. A low sail plan is used to produce a safe boat for family sailing. The alloy mast is rotating. A genoa can be sheeted to a track on the outside of the coach roof.

Hulls are GRP and all other parts are of wood to keep down weight and costs. The GRP hulls will be available to amateurs for home completion.

## **PEROUN**

1969

by J. Perestyuk

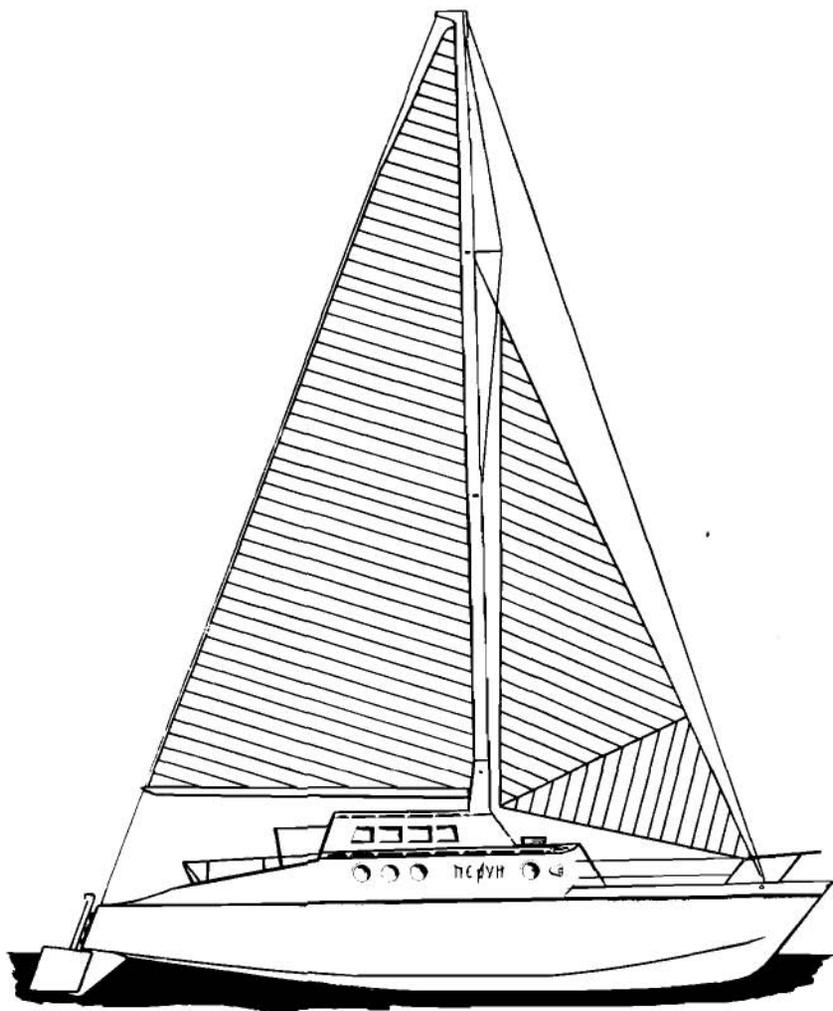
---

Vishchdubechanska 41, Flat 207, Kiev-140, U.S.S.R.

*PEROUN* was launched on the 11th June 1967 and it has already had a test-run on the route Kiev-Odessa-Kiev. It was brought ashore for the winter and at the moment is preparing for a longer voyage, this time to Batumi (this is a Black Sea port in Georgia, not far from the Turkish border).

*PEROUN* was designed using as prototypes the best foreign two-hulled sailing boats. However we often had to find new solutions because we did not have drawings or detailed data about these boats, and also because of the technological limitations such as difficulty with the welding of thin sheets of light alloy. In deciding the lines of the hulls, for example, we had to go for a less than optimum shape, a hard chine with a  $105^\circ$  angle V for the midship underwater section. This shape made it possible to avoid the stamping out of shaped frames and, most important of all to dispense with the problem of bending the plates into compound curves. However it was very difficult to avoid welding deformation on the flat smooth surfaces of the shell. We had to recourse to heating to correct the errors, but of course this did not give the best result.

The catamaran is wholly made out of the AMg-5B alloy. The framework was made up of elements of standard shapes, or else elements were stamped out with a press.



*PEROUN*

The basic measurements were chosen according to statistical data: 13.2 metres maximum length; 5.8 metres wide. The hulls at the middle point measure 0.7 metres across at the waterline and 1.0 metre at deck level, and the distance from the bottom of the "bridge" to the water level is 0.6 metres.

There are 11 beths on the catamaran, most of which are situated in the deck house on the bridge. In the front part of the hulls you have the captain's cabin



*PEROUN on her maiden voyage to Odessa*

and that of his second in command, and in the back parts a toilet and the galley. We carried a full crew when we sailed, and we can categorically state that there was no reason to complain of being cramped. Of course the warm weather meant that we could stay on deck the greater part of the time, but when we sat down to eat in the deck-house, there was room for everyone at the table.

The catamaran performed well on the water. The first joy it gave us was when after launching, it floated exactly on the waterline which we had calculated. We did not test it in stormy weather if only because during the voyage the wind did not reach Force 5 more than once or twice. But apart from that we had our sails to worry about, for they would not have stood up to the first fresh gust. The catamaran rises on to the waves well but the waves knock under the bridge section.

Manoeuvrability of the craft was satisfactory. Coming about can be carried out relatively easily even in a weak wind, although then you have to hold the foresail aback. The speed and gliding qualities of the catamaran were undoubtedly affected by the low quality of the sails, both the material and the sewing. But all the same at Force 3 or 4 we easily outdistanced a *Flying Dutchman*.

by C.H. Cunningham

---

157 Warren Road, Mordialloc 3195, Melbourne, Australia

About 1950 we, that is, Lindsay and I became interested in catamarans. We had read about the exploits of *MANU KAI* which, it seems, was the first really good performing cat. We started with the *YVONNE* which finished 20ft x 7ft 6in x 200 sq ft of sail, rightable by its two man crew. After many requests, the *QUICKCAT* followed; then the *X.Y.* 16ft; the *AUSTRAL* 20ft; *C.CAT*; *UNICAT* 12ft; *MANTA* 16ft. This took us till about 1959. We then began thinking about a cruising cat which would be self righting. We had read somewhere that Woody Brown the *MANU-KAI* designer was not satisfied with catamarans for offshore work owing to the dire consequences of a knockdown. We were also aware that the lack of heavy ballast was the main reason for the impressive performance of well designed catamarans. A compromise was decided upon—sufficient ballast to right the boat with the hull designed to be unstable when upside down. The boat to be a reasonable proposition for an amateur builder. The *QUICKCAT* hull form was decided upon as we thought that it met that requirement. Lindsay went to work with the slide rule and a beam of only 12ft 3in was found to be the ideal to suit the overall length of 35ft.

The 12ft 3in beam seemed a little narrow but figures showed that a wider beam would not be so easily rightable if upside down. A precise scale model was made from balsa wood and much fun was had sailing it on the shore of Port Phillip Bay. This gave us a wide range of conditions. We decided that the model had justified our figures and we would go ahead with the full size boat.

Dimensions were to be 35ft O.A., 12ft 3in beam, 1ft 10in draught. 6ft headroom in each hull with 3ft 3in headroom in bridgedeck. Sail area 300 sq ft in main and jib. A single centre-pivoting ballasted keel with a hoist and lowering winch. This plate was 7in thick x 2ft 3in x 11ft hung on a six leg truss under the centre of the bridgedeck, the pivot point being 6in above the waterline. Draught with keel down was 7ft 3in. The swinging plate was to be swung aft when driving hard down wind to off-set any nose-diving tendencies.

The rudders had swing up blades to be consistent with the keel. The area fore and aft between the hulls were netted over to reduce windage when heeled and also to save weight. The skin was  $\frac{3}{8}$  in Giant Reswood plywood which comes in 7ft x 25ft x  $\frac{3}{8}$  from Sydney. All of our designs even the fibreglass ones had these sheets of various required thicknesses incorporated in the design. The outside grain of the ply was vertical in the topside to gain rigidity and across the decks and bottoms for the same reason. The bottoms were double thickness. The hulls were sheathed with fibreglass to above the waterline and glued.



*ALLOUETTE*

The mast was an edge nailed barrel stave type of construction assembled over formers and sheathed with fibreglass. This mast had to be water tight to assist the self-righting requirement.

A bulkhead at each end of the cabin provided sufficient stability to keep the hulls to form. Two lines of stringers were glued and nailed to the inside of the hull skin and were backed by vertical stiffeners.

The cabin top was framed with 1½ in x 1½ in laminated, and skinned over with two thicknesses of 3/16 in plywood. We did try coloured resin as a paint but it peeled off later.

We launched *ALLOUETTE* just in time for the Xmas summer holidays—1961 and sailed her down to Blairgowrie at the southern end of Port Phillip Bay. We had quite a good holiday using *ALLOUETTE* as a day sailer only. With as many as fourteen on board we would set out across the sand banks nudging the keel up on the sand and taking up the slack on the winch. We did enter one race but were left behind by a fleet of *YVONNES*. We did find that in heavy going we could hold them on the wind, but the light weather was disappointing.

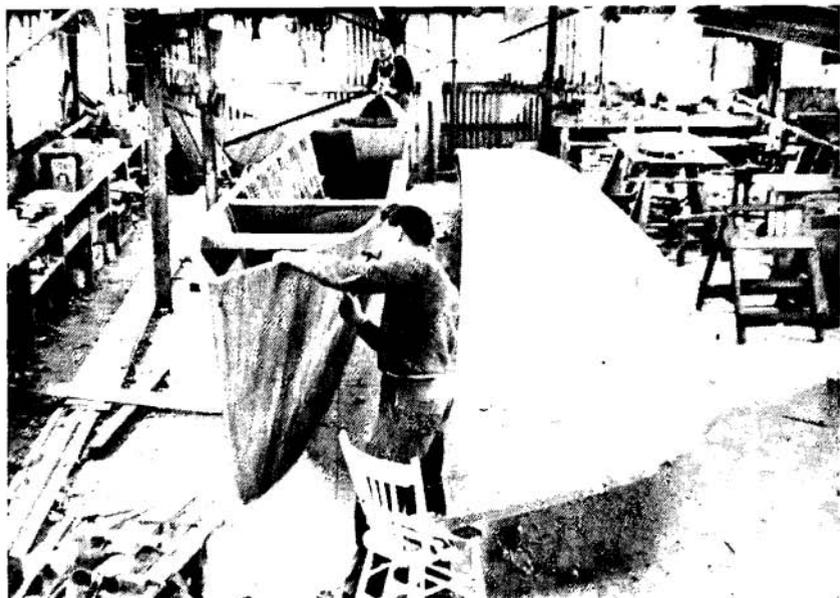
We entered in the annual Williamstown Geelong race of 30 odd miles. We had trouble before the start when the overnight anchor fouled an old mooring, so delaying us half an hour. With a flying downwind start in a hard north westerly "Allie" started to impress: the distant fleet backed towards us. We gained courage and hung up the genoa-cum-spinnaker. Entering Geelong we caught the B class fleet which had been our objective. She would go in fresh conditions anyway. Next morning in an around Geelong harbour race we were again reminded of her poor light weather ability. We sailed back to Melbourne next day in a freshening southerly easily outdistancing a smart eight metre boat.

The accommodation on *ALLOUETTE* was rather spartan. A small enclosed toilet at the fore-end of the port hull inside the cabin, and a gas cylinder with a small twin burner. It was apparent that twin bow waves were mounting up between the hulls causing too much drag against the keel pivot truss. Also the keel itself was obviously too thick. Trouble struck when some split links in the mooring chain failed and *ALLOUETTE* came ashore. The keel was plumb down and she must have been bumping full weight most of the way into the beach which was fortunately sandy. She lay on her starboard side with the lead foot of the keel buried in the sand. Lindsay performed a kind of war dance on finding that all of his structural designing had stood up to such a gruelling test. A slightly damaged topside from a joust with other boats on the way in was all that had happened.

We were not game to try and really capsize *ALLOUETTE*, as any time we approached this condition we gave up in fear of some costly breakage. We did try winching the mast down to a pier but the great strain on the tackle forced us to the conclusion that the righting moment was considerably greater than we had reckoned. We returned *ALLOUETTE* to the yacht yard and began some modifi-

cations. A steel envelope only 3in thick out of  $\frac{1}{8}$  in plate with the lead poured into the lower end replaced the wooden keel.

Six feet was added to the bottom of the mast with a 25 per cent sail increase. The result was definitely an improvement.



We could outsail our comparative opposites by 3 per cent in light conditions using a Genoa in under 10 knot winds. She was slightly closer-winded in all conditions and had no trouble outsailing big offshore keelers (some of them well known overseas) in the heavier conditions.

Lindsay sold *ALLOUETTE* when the Little America Cup was coming up as we were keen to join the rat-race. The chaps who bought *ALLOUETTE* were not racing types although they claimed that they were sure of winning in a strong wind. In the winter of 1968 Graham Candy and I were battling to get the L.C.C. C.T. challenge for Australia. Having some time to spare, I talked Lindsay into a re-appraisal of *ALLOUETTE*. A modified model was made with twin lee-boards on the inboard side of the hulls with half the ballast in each one. This was tested against the original model. However we found that we could not improve on the original design to any great extent and still retain the self righting ability.

One of the anchors of *ALLOUETTEE*'s moorings broke allowing her to swing onto a reef. Being held over this with the keel pounding on the reef for about twenty four hours proved to be a bit much for the swing plate truss and several members were replaced in metal which did provide less wind and water drag. This was about one year ago. Trouble struck again for the third and last time when the moorings let go and *ALLOUETTEE* is now no more as she crashed against a large wooden breakwater and disintegrated. The owners had had ten years of happy sailing on the waters of Port Phillip.

Summing up I think *ALLOUETTEE* was worth while. I have not garnished this account, putting the facts as I saw them. Another *ALLOUETTEE* would be a challenge to some adventurer. I would have preferred double hull thickness and a cabin top. Otherwise, she proved herself quite adequate structurally. I am satisfied that she was far more seaworthy than most of the many multihulls that have gone offshore in the last twenty years. Many of these are built by starry-eyed amateurs with little regard for their own safety or the safety of the unfortunate people who put their trust in them. I have raised great indignation in some quarters when I suggested that none of these types be allowed to take any of these or any other yacht offshore without a proficiency certificate, more particularly when others are involved. Port Phillip is a big rough bay and just outside this is Bass Strait, one of the dirtiest stretches of water in the world. The only time we took *ALLOUETTEE* out into the strait it was quite mild and was no test for sea-keeping.

The photos show *ALLOUETTEE* as she was several years ago. We made the sail ourselves, having made many successful ones on smaller boats. However, we found that the big sails require different techniques and the battens in these photos do look shocking; however we eventually had the sail setting quite well.

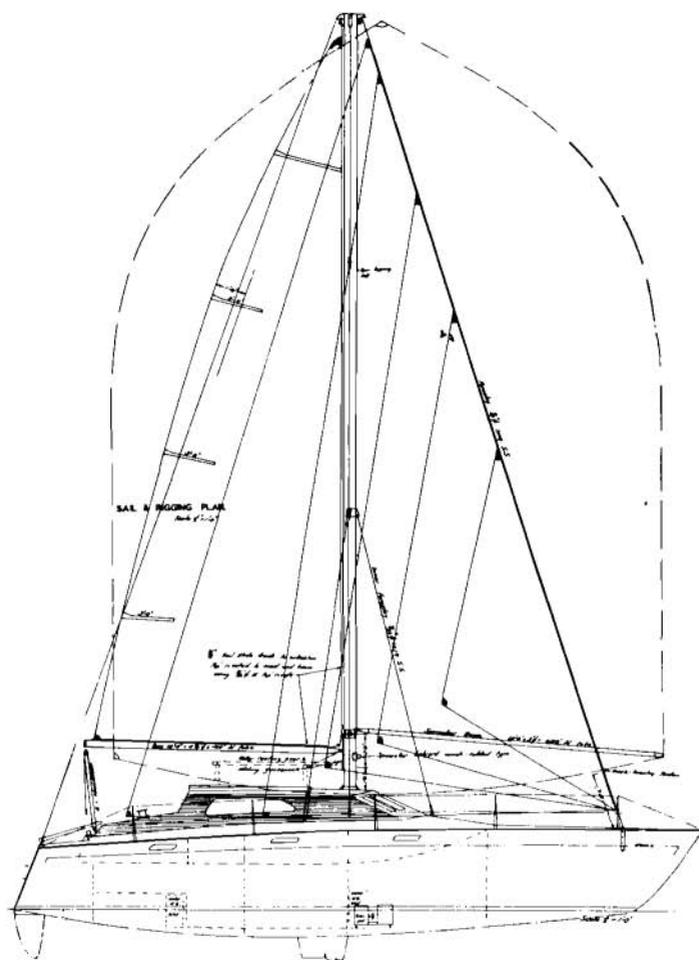
## SPINDRIFT 40

L.O.A.	40 ft	Sail Area - main & genoa	971 sq ft
L.W.L.	36 ft	- spinnaker	1500 sq ft
Extreme Beam	21 ft	Displacement L.W.L.	8000 lbs
Draft - Hull only	1 ft 9 in	Approx. Weight empty	4500 lbs
rudder	2 ft 9 in	Maximum Payload	4500 lbs
daggerboards down	4 ft 9 in	Materials Cost	A\$600 - 8000
		Auxiliary Power	20 hp O/B

**Designer: Lock Crowther**

P.O. Box 35, Turrumurra, NSW 2074, Australia.

Spindrift 40 is a cruising-racing catamaran, capable of long distance cruising or of competing with any multi or monohull design anywhere in the world. Her accommodations are very comfortable, completely self contained private double cabins with full headroom in each hull, provide privacy for two family groups.

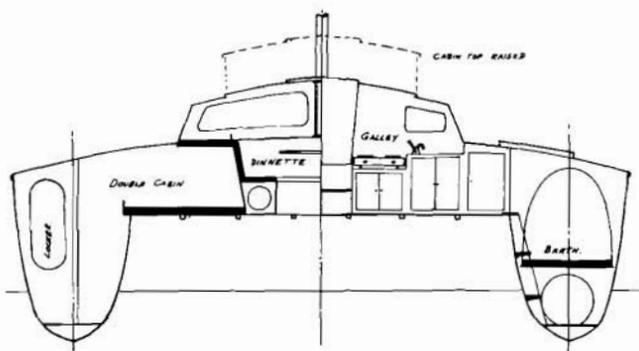
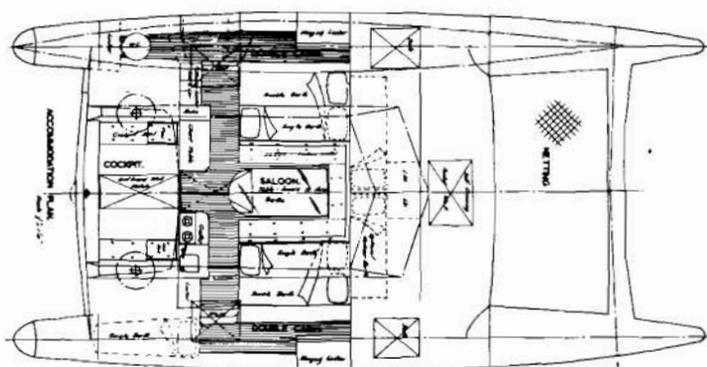


*SPINDRIFT 40*

Developed from a long line of extremely successful ocean racing and day sailing multihulls she can maintain incredible average speeds with an easy sea going motion keeping her crew alert, comfortable and efficient. She definitely has the potential to do a 300 mile, 24 hour run as did her sister *KRAKEN 40* trimaran in the 1969 Bermuda race.

The cabin has been designed to provide minimum wind resistance in a head wind and consequently is very low. This also adds to her sleek performance, yet with her unusual lift up cabin top raised, she provides full headroom in the cabin area.

The main disadvantage of a catamaran as compared with a trimaran is the reduced overall beam, and hence reduced sail carrying power. Wing clearance is inter-related with hull spacing; the wider the gap, the higher the wing. Most cat designs have insufficient stability as the designs have provided full headroom in the wing cabin, necessitating a low wing clearance and hence narrow hull spacing. Lock has used the ingenious "Thunderbird" style lift up cabin top to provide full headroom, yet under sailing conditions with the top down, the cabin is very low and the wing has been raised accordingly, allowing much greater hull spacing. In fact she has four feet more beam than the average cat of her length and therefore much greater stability and safety.



## Chapter XVI

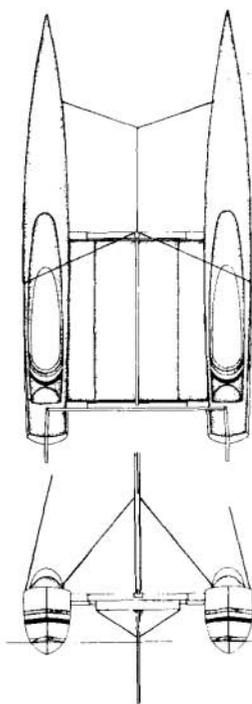
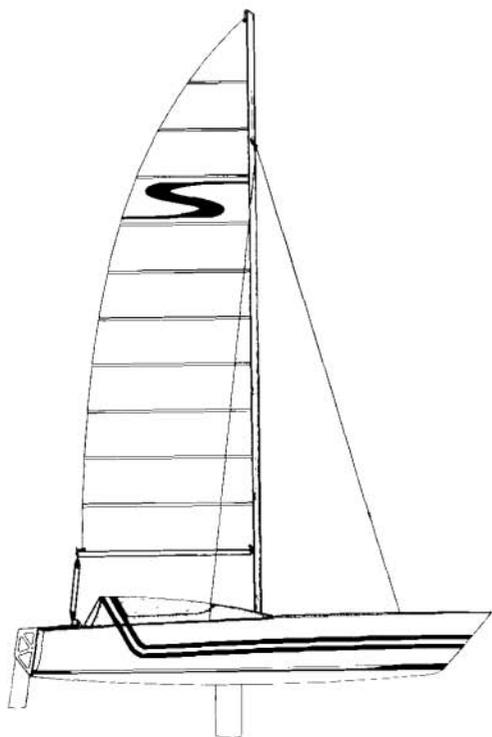
### SOME NEW DESIGNS

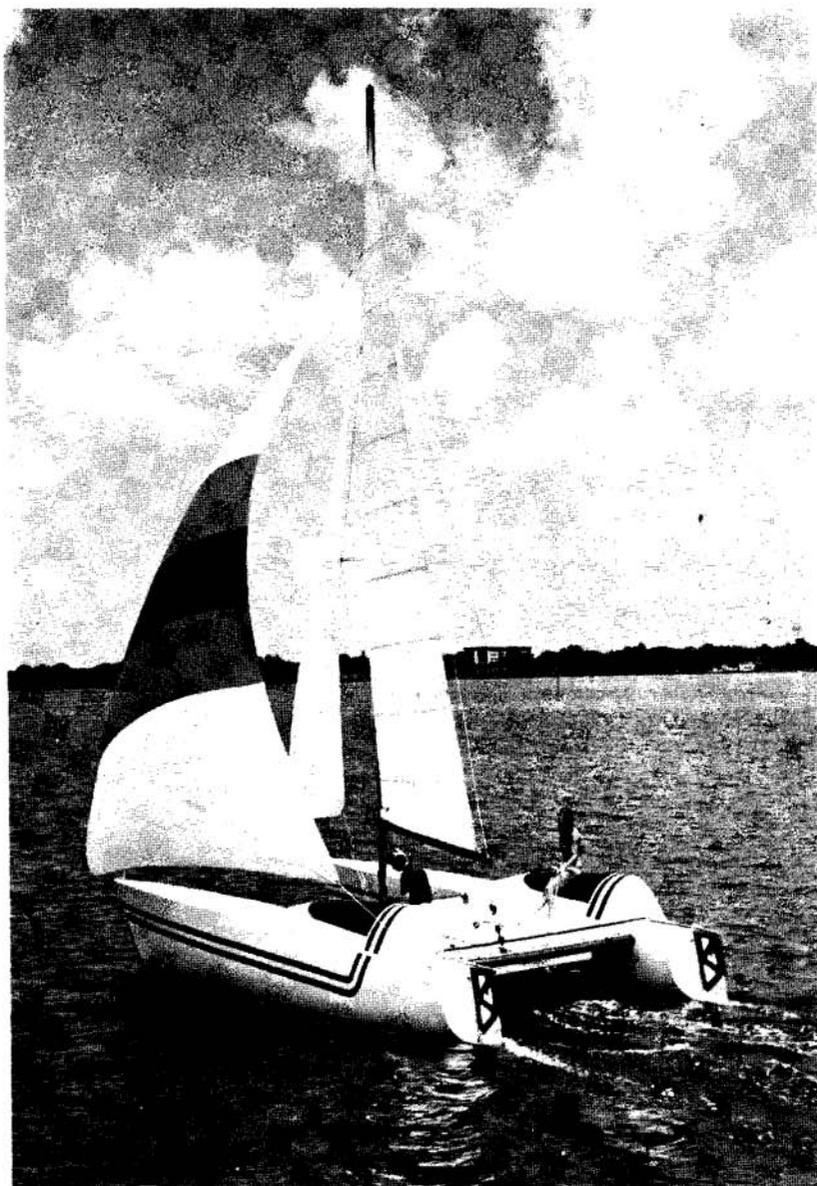
#### STILETTO

1976

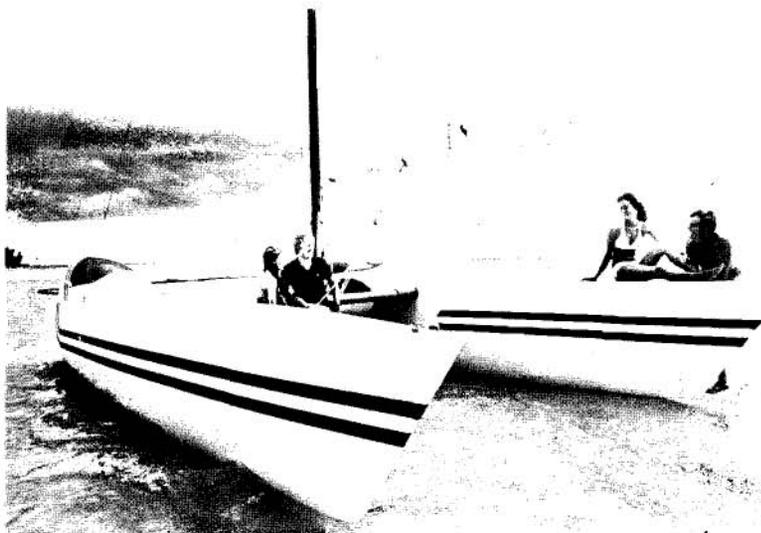
**Designed by:** Bill Higgins  
**Styling by:** Don Ansley  
**Manufactured by:** Force Engineering

L.O.A.	26 ft 10 in	Hull:	Aircraft epoxy fibreglass
L.W.L.	24 ft	Berths:	Two— 7 ft double berths
Beam:	13 ft 10 in	Weight:	800 lbs
Telescoped width: (for trailering)	7 ft 11½ in	(ready to sail)	
Draft:	9 in board up 4 ft board down	Design speed:	22 MPH+





*STILETTO*



*STILETTO*

## CATFISHER 28

1976

### The first catamaran in the Fisher tradition

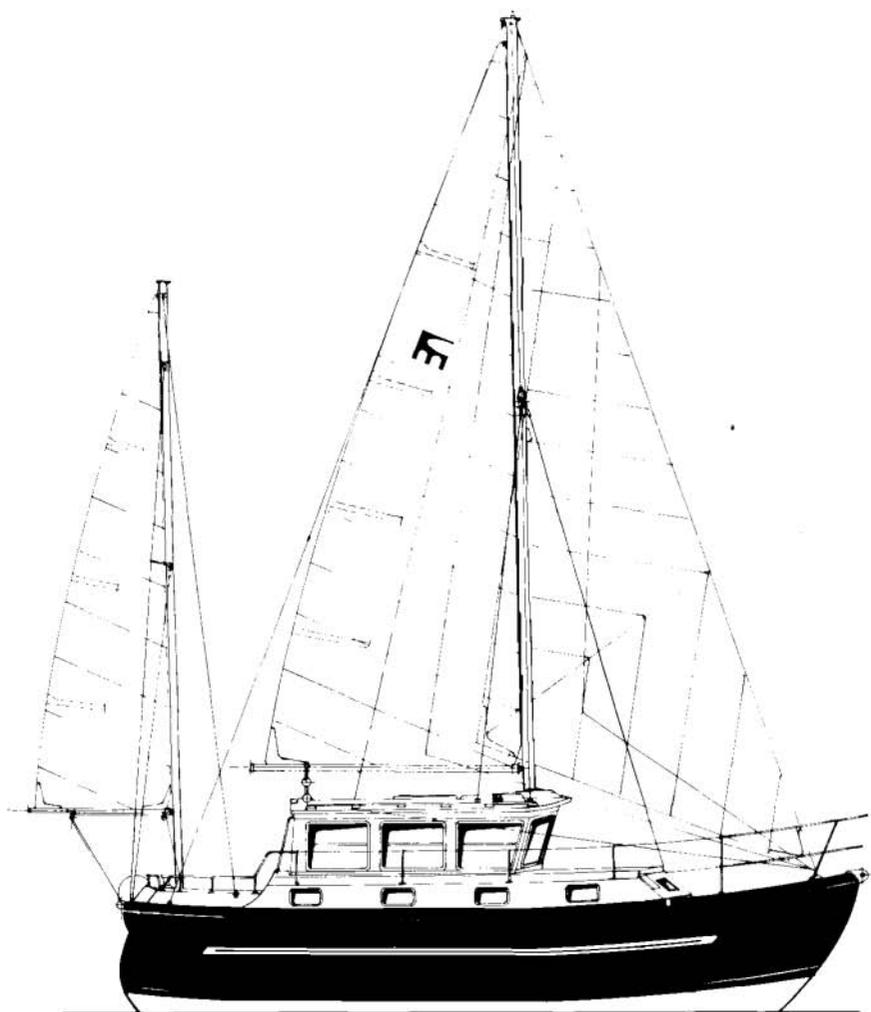
L.O.A.	28 ft	(8.53m)	Draught	3 ft 1 in	(1.03m)
L.W.L.	24 ft 5½ in	(7.45m)	Displacement	3.8 tons	(3860 kg)
Breadth Overall	13 ft 1 in	(3.99m)		(fully laden)	

**Builders:** Fairways marine

Hamble, Southampton, SO3 5HL, England.

If you have spent any time at all considering the many designs available for family family cruising, you will already be familiar with the concept of a Fisher. It means a hull design which combines ruggedness with seaworthy character which you can depend on to perform comfortably under sail or power. And especially both. It means a very non-traditional standard of comfort below decks. What others regard as a luxury, you'll find as standard on a Fisher.

Like the rest of the Fisher range, the *CATFISHER* combines flair and comfort, born of experience and commonsense. For the first time, the rugged, seaworthy Fisher character has been applied to a catamaran design resulting in an enormously spacious accommodation. Not surprisingly, the profile of the *CATFISHER* bears a striking resemblance to the mono-hull Fishers.



*CATFISHER 28*

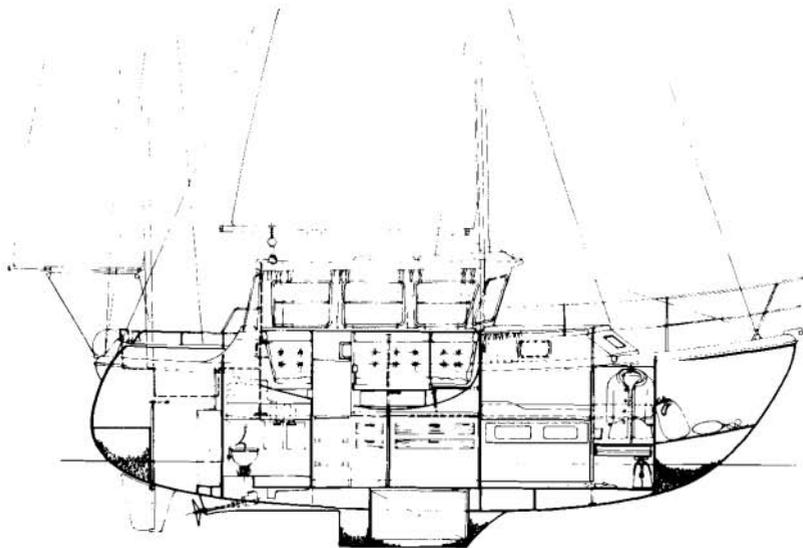
For the cruising man a catamaran offers enormous advantages. At a given overall length, more space both in interior accommodation and deck area can be offered as well as giving the family a very stable cruising boat.

The ketch rig is known for its ease of handling and the *CATFISHER* has the additional advantage that all sheets and halliards lead back to the cockpit. The cockpit itself will accommodate the whole crew, with an excellent view forward from the helmsman's position. Wheel steering is mounted on the console containing engine controls and instrumentation. Needless to say, the deck space offers sunlovers more room than on a comparable monohull yacht.

Deck space as with most catamarans is of course truly enormous. The wide foredeck has four deck lockers set in it giving anchor stowage on the central deck, and spacious sail bins in the forward end of each hull and there is a wide safe deck area around the mast for sail handling.

Power when you need it is supplied by a centrally mounted Mercedes engine, driving twin screws which can be independently controlled via hydraulic drive providing more than ample performance and excellent manoeuvrability.

With the Fisher name to it, we need hardly tell you that the *CATFISHER* is tenaciously seaworthy. Nor indeed that accommodation is unusually spacious. Yet we feel that here is one boat whose accommodation and open space above and below decks can only be appreciated by actually going aboard.



*CATFISHER 28*

The spacious deck saloon is unusual, as it offers a luxurious crescent shaped seating area that surrounds the teak dining table. Another unique feature is the two double cabins with king-sized double berths (6ft 10in x 4ft) completely self-contained with large wardrobe and dressing table.

What distinguishes the owner's stateroom from that of the guests' is the extra floor space and seating which allows it to be used as a day cabin.

The *CATFISHER* sleeps 7 and in a manner to which you may be totally unaccustomed. Unless of course, you too enjoy the lavish use of solid teak and fine attention to detail which ownership of a Fisher will bring you.

### **Deck Fittings**

Top quality stainless steel pulpits, foredeck rail, stern rails and lifeline stanchions are fitted and through bolted with  $\frac{5}{16}$  in stainless steel bolts. Lifelines are 4 mm stainless steel wire PVC covered to 6 mm and complete with end terminals and stainless steel bottle screws, etc.

Teak grabrails are fitted along deckhouse roof.

Each bow has a stainless steel stemhead fitting fixed into the moulded recess. 4 alloy anchor cleats are fitted, one near each bow and stern.

8 alloy heavy-duty fairleads are fitted, 2 forward and 2 aft on each side.

A ventilator of Tannoy or similar type is fitted over the toilet compartment.

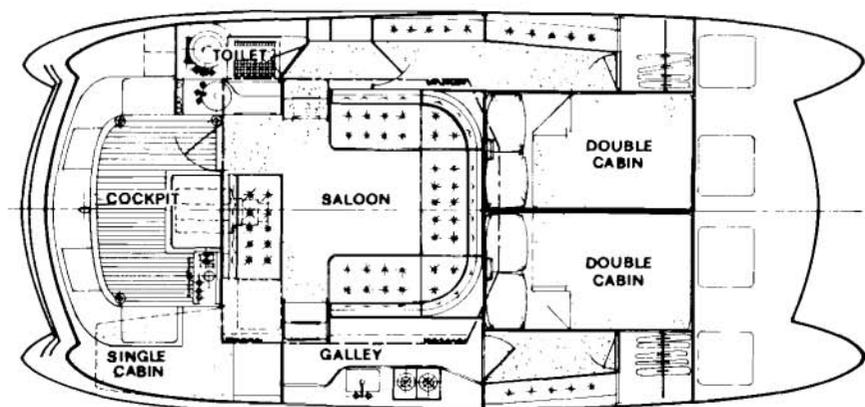
Sheet attachment eyes, tracks etc. are fitted and two halliard winches (e.g. Gibb size 2, top handle) are fitted on aft end of deckhouse roof. 2 sheet winches (e.g. Gibb Sheetmaster 16, two speed, top handle) and on the aft outer coaming of the cockpit. A hand bilge pump is mounted in the cockpit seat coming with a separate shut-off valve and pipe to the midships bilge sump in each hull. The stern liferaft stowage is arranged so that shifting the liferaft gives access to a Mediterranean stern gangway.

### **Mooring Gear**

The following equipment is provided:— Danforth type main anchor of 25-27 lbs with 3 fathoms of  $\frac{5}{16}$  in galvanised chain and 17 fathoms of 2in (16mm) nylon multiplait warp, 4 warps and 4 fenders.

### **Internal Accommodation**

The deckhouse forms the saloon and the hull accommodation comprises of 2 double cabins, a quarterberth, a galley and toilet compartment. The general layout of accommodation and furniture are in accordance with the layout plan.



#### *CATFISHER 28*

All the visible internal joinery is of teak or teak-veneered plywood.

The saloon table lowers in order to form two additional berths and is removable for use as a cockpit table.

The exposed surfaces of hull and superstructure mouldings are covered with cloth lining.

Upholstery is high density foam covered with a choice of the Fairways standard pattern materials of top quality cloth. Cushion thickness 6in for berths, 4in for saloon seats, 2in for side seats and saloon seatbacks.

All floor mouldings are covered with carpets except the galley and toilet compartments. The latter has a teak grating with moulded shower tray underneath.

Curtain track and curtains are fitted over all windows other than in the saloon.

The starboard forecabin allows for a cot berth as an extra, in place of the wardrobe.

A freshwater pressure unit is fitted and piped to draw off both tanks together or off either one; it supplies cold water to the galley and toilet compartment - but can supply hot to both as an extra.

Provision is made for water heating as an extra by a gas heater.

**Designers and Builders: Mustang Yachts**

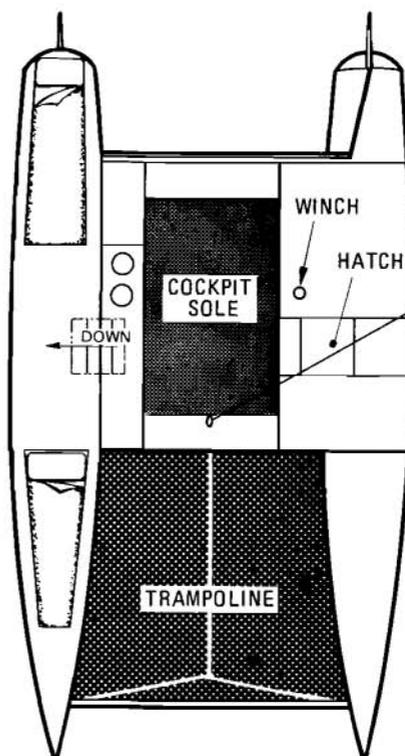
**Marketed by and enquiries to: Seawork Marine Consultants, 517 Portswood Road, Southampton SO2 3SA, England.**

Conceived on the drawing board of Rory Carter, the prototype "*STAMPEDE OF COWES*" was completed by Mustang Yachts in August 1975, since when the vessel has undergone a rigorous research and development programme to finalise the design of the production model. The philosophy behind the project envisaged a yacht fast enough to sail around the Solent in winds above Force 2, without the need to worry about adverse tidal streams, yet provide adequate family cruising accommodation.

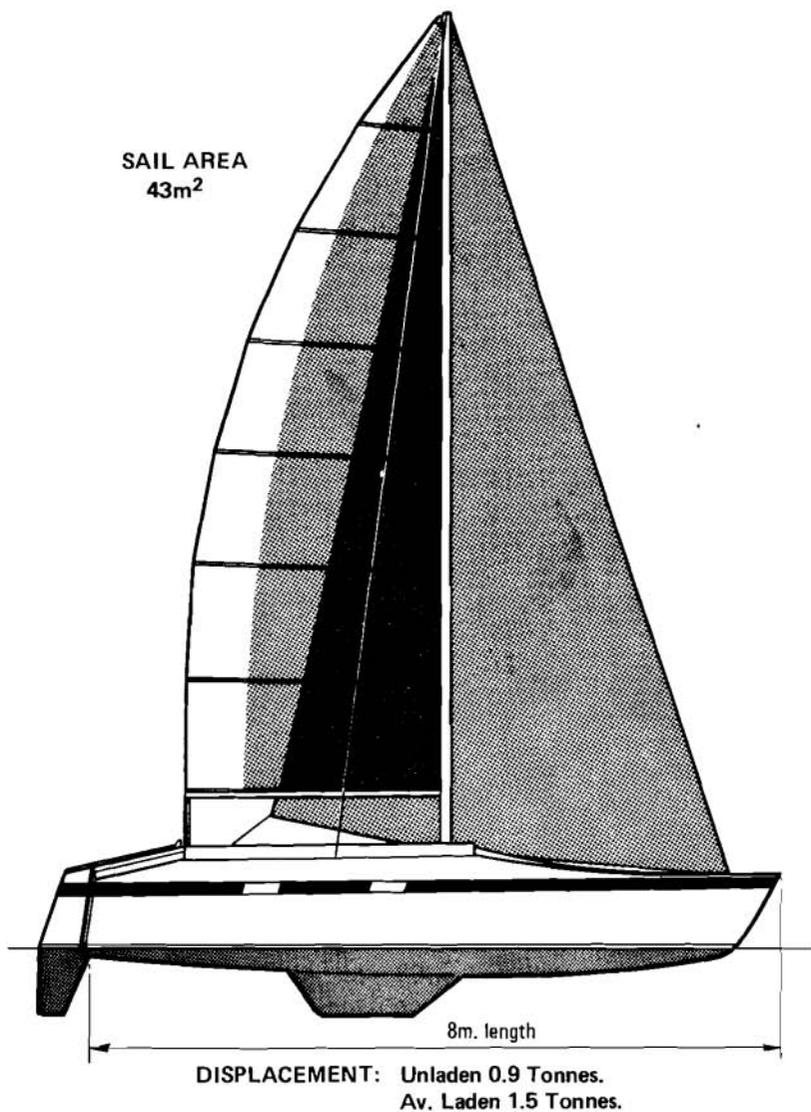
As part of Mustang Yachts' development programme, the vessel was entered in the John Player World Sailing Speed Trials at Weymouth in September 1975 and with her sail area reduced to 27.88 sq metres, won Class C. In being officially

Starboard Hull for Galley,  
Wash Sink, & Fixed Berths  
Fore & Aft.

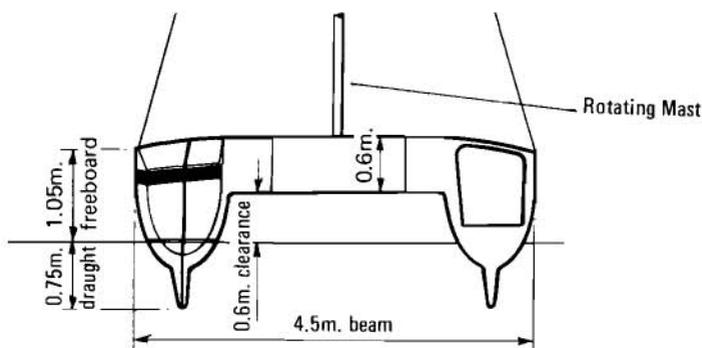
Port Hull for Navigation,  
Heads, & Fixed Berths  
Fore & Aft.



*STAMPEDE*



*STAMPEDE 8 metre*



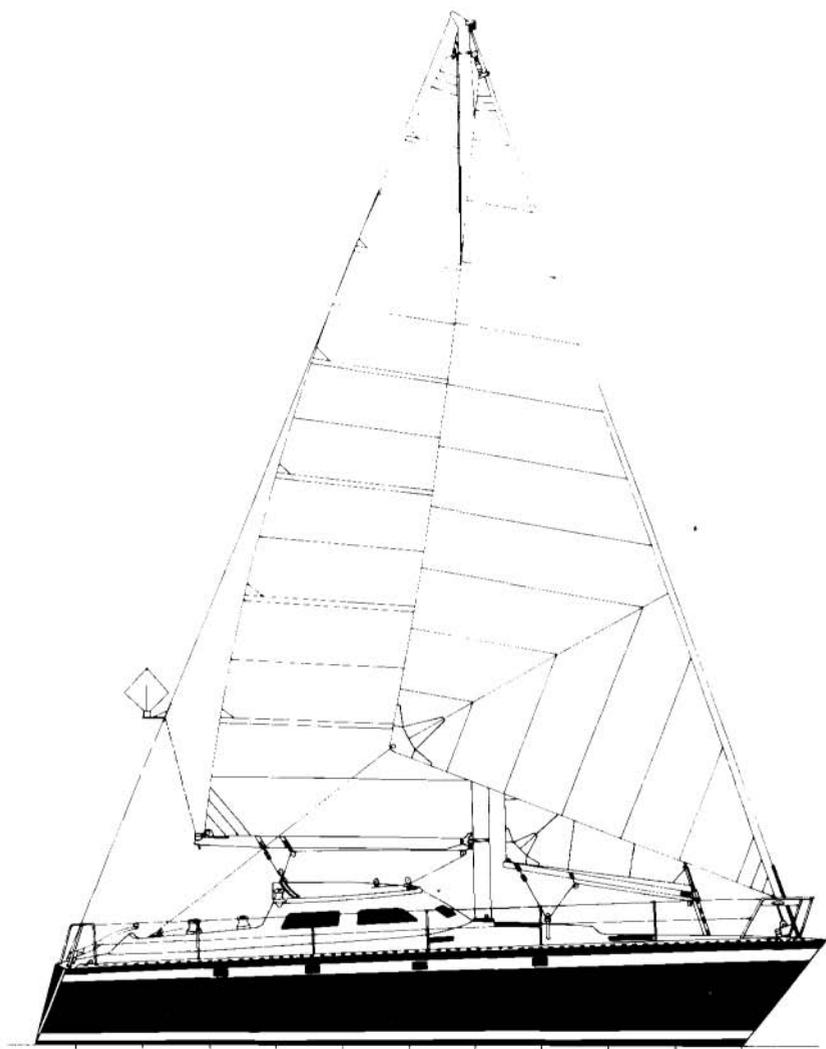
timed at an average speed of 16.4 knots, *STAMPEDE* exceeded the officially recorded speed of any production monohull or multihull of any size sailing anywhere in the world, having cruising accommodation appropriate to her size. Her more recent successes include winning the Cowes - Poole Bar race and being placed second in the Round the Island event on the 19th June 1976. In both cases she was the first catamaran and the first multihull under 35ft to finish.

*STAMPEDE OF COWES* was built using the foam sandwich method, but production models will be constructed of moulded GRP. The hulls, connected by two moulded GRP box beams and one alloy forebeam, can be dismantled for transport by road. The box beams and hulls form the edges of the cockpit area and storage space for deck gear is provided in the beams themselves. The heavy-duty trampoline incorporates sail stowage and halyard pockets. Low aspect-ratio aerofoil section keels are fitted and steering is accomplished by twin moulded GRP rudders with alloy connecting bar and tiller extension. Masthead sloop rig is standard and both the boom and the rotating mast are of anodised alloy. The mainsail is fully battened and with the genoa gives a total sail area of 43 sq metres. The main sheet track runs the full width of the boat and two headsail winches are provided with associated blocks, travellers and end-stops. Provision is made for a retractable long-shaft outboard motor.

Each hull features two permanent single berths, fitted fore and aft. The port hull also contains the chemical heads and a chart table, whilst the starboard hull is fitted with a two-burner stove, a sink unit and utensil racks. A bilge pump installed in each hull is operated from the cockpit. The large open deckspace makes an ideal eating and social area and will seat twelve people comfortably. The provision of a boom tent of 4m x 3m over the cockpit and surrounding deck area contributes to the versatility of the accommodation when in port, allowing large parties to be catered for in comfort.

This new high-performance cruising catamaran is fulfilling a long awaited need in the world multihull sector and is available at a very competitive price.  
(Editors Note: The prototype entered for the speed trials uses dagger boards).

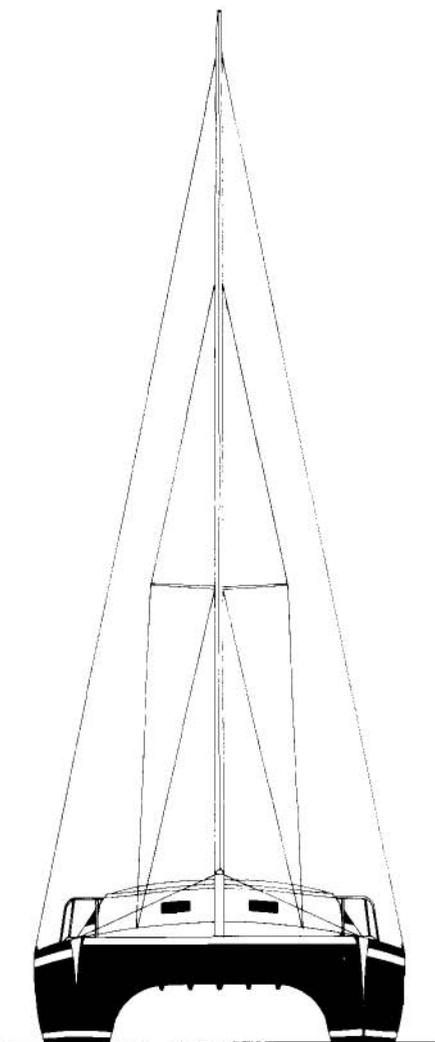




*PITCAIRN 38*

### **Stability**

Wide hull spacing equals high stability factor, **safety** - kick-up centreboards and rudders (kick-up feature for rudders optional) to clear sub-surface debris, for early warning of grounding and when beaching; quick dowsing roller furling jib topsail; **powerful structure** - C-Flex extruded rod fibreglass monocoque hull, end-grain balsa core deck and integral hull connecting beams provides water and rot-proof interior, sound and thermal insulation; a composite high strength to weight



building method suitable for one-off yachts because it requires only easy to build, cheap wood male forms to shape hulls and decks.

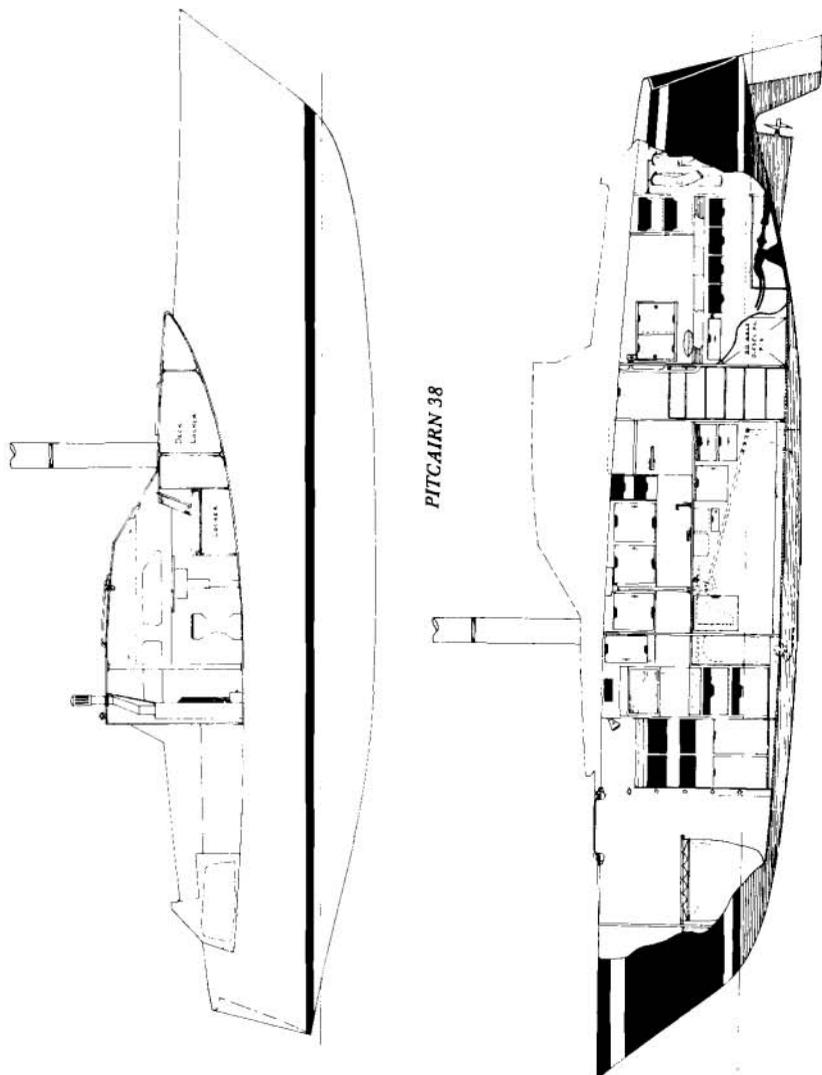
### **The Rig**

The mast on the *PITCAIRN* 38 is set well aft in the modern style to create a large foretriangle. The fully battened rig is the designer's preference. It has the advantage not only of great power per square foot of sail but of lying quiet and still in the strongest of winds when not drawing full and bye.

The rig includes a removable forestay on which to hang staysails when the main is reefed, making a snug windward rig. Running backstays are provided to oppose the forestay in heavy weather.

**Special Feature**

An 8ft 7in L.O.A. by 3ft 1in beam dinghy is tucked away under the aft cockpit seat with special door for easy launching between the hulls.



**THE BRITISH  
"MULTIHULL OFFSHORE CRUISING AND RACING ASSOCIATION"  
REQUIREMENTS**

The British "Multihull Offshore Cruising and Racing Association" require the following equipment to be carried on their 1977 race from Plymouth to Horta, Azores. This list was compiled by a very experienced team of multihull sailors and could be taken as a guide list of the amount of safety equipment to be carried on an offshore cruising catamaran.

Construction, lifejackets, flares etc. are covered by the R.Y.A. regulations for minimum equipment.

**NAVIGATION LIGHTS**

All yachts shall show correct navigation lights from sunset to sunrise throughout the period of the race. The scrutineers will require evidence of battery capacity, generators, oil capacity, etc., sufficient to enable the yacht to comply with this regulation. Failure to comply will result in disqualification.

**SAFETY EQUIPMENT**

Multihulled yachts shall as a minimum carry the equipment currently specified in the "Safety and Minimum Equipment Regulations" published by the Royal Yachting Association for category O multihulls.

In addition all competing yachts shall also comply with the following:—

- a) Total fresh water capacity shall be not less than 10 imperial gallons per crew member and shall be carried in containers or in not less than two separate tanks. (This in lieu of the fresh water capacity, other than in the life raft, specified in the previously mentioned regulations).
- b) Carry sufficient tools, materials and spares for emergency repairs at sea including underwater setting cement or similar product suitable for the repair of underwater damage.
- c) One fire extinguisher of at least 3 lbs content shall be situated in each hull of a multihull containing living accommodation. (In lieu of the requirements of the above regulations).
- d) A jackstay or stays must be securely rigged far enough inboard and run from at least the cockpit to a point forward which will permit crew members' personal safety harness when attached thereto to reach far enough for work at the forestay yet prevent the wearer from being swept overboard. (Where the lack of width of deck near the bow may make strict and literal compliance with this regulation impossible the best bona fide attempt to comply shall be accepted).
- e) An alternative method of steering in case of damage to the rudder(s). A long oar or a spare rudder blade if this can be fitted at sea is recommended. (This is already required for multihull yachts).
- f) One of the two lifebuoys must have attached to it by a line a ballasted pole and flag. The top of this danbuoy when in the sea to be at least 4 feet above the surface. This buoy shall have the drogue, whistle (referee type) and self-operating light already required by the rules but the light should preferably be fitted on top of the pole.

All lifebuoys are to be clearly marked with the name of the yacht.

- g) An adequate medical kit and instructions for its use shall be carried. As a guide it should contain in addition to its usual contents: burn or scald ointment, an eye bath, antibiotics, crepe bandages, splints and an analgesic such as pethidine and distalgesic.
- h) Multihulled yachts must carry sufficient positive buoyancy to remain afloat in the event of capsize or flooding. (A certificate from the builder specifying the quantity of positive buoyancy incorporated will be accepted as proof of its existence).
- i) There shall be a separate bunk for every crew member. If this is not possible the yacht must be equipped with not less than one bunk less than there are crew members.
- j) An additional bilge pump or adequate spare parts for the existing pumps shall be carried.

The following whilst not mandatory are also recommended by the organizers:

- k) Each personal safety harness be fitted with two lanyards each with a snap hook at either end and that both lanyards be attached throughout the hours of darkness and during adverse weather to the jackstay or other strong point inboard. If a harness is fitted with only one lanyard that lanyard must have three hooks (one at each end and one spliced at such point between as shall enable the user to use that hook during movement). N.B. Skippers are strongly urged by the organizers to dissuade crew members from attaching their safety harness to guardrails situated along the outboard extremities of the deck as such a practice tends to induce in the wearer a false sense of security.
- l) A portable distress radio transmitter be carried, accessible when capsized.
- m) A heavy canvas envelope with eyelets to serve as a collision mat.
- n) A fire blanket which should be within reach of the galley.
- o) Multihull yachts are recommended to fit masthead permanent buoyancy, otherwise they should carry some other anti-180 degree capsize device. They should have a hatch affording easy access from the accommodation to the underside. The underside of the wings or bridging should be painted a bright colour. The emergency equipment locker and life raft should be accessible when capsized. In the absence of an underwing hatch an axe must be carried accessible when capsized.

## CONCLUSION

---

This book has, I think, included in its pages nearly everything any one could possibly want to know about cruising catamarans. There is History, Design, Tank tests and very many examples. We have set out to help everyone from designers to buyers, and have, we hope, succeeded in doing so.

From the practical examples and our knowledge of catamarans in use, there would appear to be two kinds of cruising catamaran; firstly, the cat designed and used for Offshore racing and secondly, the cat which is laden with gear and used for modest cruising.

### **The Offshore Racer**

The design objective is to reduce wetted surface to a minimum either by extremely light weight (C/S/K) or having sections of the hull which approximate to semi-circles (Prout, Harris, MacAlpine-Downie etc.). A shallow semi-ellipse four times as wide as it is deep increases the wetted perimeter of a fixed area by 10% and will take heavy loading better than a semi-circle or deep semi-ellipse.

A lightly-built catamaran to these design principles with a lot of sail area will sail at spectacular speeds but will be capsizable. The same catamaran, especially of the shallow hull section, will make a fast and safe cruising catamaran if the sail area is modest and it is laden with stores.

### **The Modest Cruiser**

The broad hulled catamaran (Bill O'Brien) can take a heavy load and, with modest sail area is still faster than comparable cruising single-hulled yachts. It will not be faster than racing single hulls, however.

The catamarans with deep semi-ellipses (Myers & Ewing) will be very fast if they are very light but, in our opinion, taking loading poorly as compared with shallow semi-ellipses. It is claimed that they have an easier sea motion than broader hulls but if canoe-sterned, they can develop unpleasant pitching unless the weights are properly distributed. The *HINA* design of James Wharram approximates to that of Hugo Myers' *SYMMETRY* and is fast without centreboards. However seaworthy they may be and easy to build, the other Wharram catamarans have rarely done well in any races, though few to our knowledge have been given a good sail rig – the spritsail rig is poor and the junk rig, atrocious.

### **Capsizing**

The novice and the yachtsman who has not raced a small catamaran over a whole season has no business aboard an "Offshore racer", if fully canvassed. The O'Brien or Wharram catamarans would be quite suitable, however. Neither should capsize until the wind becomes Force 7 when, it is hoped, the size of the sea will call for a reduction of canvas. These remarks have been made because very highly experienced single-hulled sailors (Bill Howells for example) have capsized the ocean racing catamarans. We know of other examples.

### **The Supreme Danger**

Catamarans have a shallow draft. This is one of their virtues but it can also be a danger because it can lure the unwary mariner into shallow water breaking seas. In the A.Y.R.S. MULTIHULL SAFETY STUDY, a capsize was described of a catamaran running under jib only, and trying to get into a harbour up the Estuary of the River Elbe in Germany. A *NUGGET* trimaran capsized running into Salcombe in England in a modest wind. Both of these craft should have stayed in deep water. If you own or intend to buy a catamaran, please take note.

### **Finale**

In spite of the possibility of capsizing a catamaran, we feel that it is safer than a comparable single hull yacht whose deep draft and heavy keel regularly cause loss of life and yachts. Catamarans are, on the whole, faster than single-hulled yachts and sail upright. They have less sail area (cruisers) and are easier to handle. They can have large windows around the bridge-deck cabin and are, as a result, more pleasant in harbours. Some moulded G.R.P. catamarans do sink if holed, most multihull yachts are positively buoyant and float if flooded a desirable feature.

Catamarans are really no cheaper than single-hulled yachts. However, the Wharram designs can be cheaply built by amateurs and are easier to construct than a single-hull.

# INDEX

	Chapter No.		Chapter No.
Aikane	VII	Manners	XII
Apache	XII	Manu Kai	I, VII
Allez-Cat	VII	Marara	IX
Allouette	XV	Matani	XIV
Ariki	X	Miga	XV
Ay-Ay	IX	Mirrorcat	XIV
Aztec	XII	Misty Miller	XIV
Bahama Cat	IX	Morima II	XI
Bearkok	XV	Navaho	XII
Biplane Cat	XIV	Narai	X
Black Cat	XII	O'Brien	XII
Black design	XV	Ocean Ranger	XI
Bluefin	XIV	Oceanic	XII
Bo-Ann	IX	Ocean Princess	XIV
Cabinmaran	XII	Oro	X
Catacruiser	XIV	Pelindaba	XIV
Catalac	XIII	Peroun	XV
Catfisher 28	XVI	Petanque	XIV
Cherokee 35	XII	Pitcairn 38	XVI
Conda Vista	XV	Plutocrat	XIII
Cracksman	XIII	Polaris	XV
Cross 34	IX	Polaris Racing	XV
Cross 41	IX	Polish Cruiser	XV
Cunningham Cats	I	Prout 19	XI
Decapo	XV	Prout 27	XI
Del Rey Tricat	IX	Quest	XI
Diamond 24	XIV	Quickstep II	IX
Dreamer	VII	Rehu Moana	XIV
Eunike	IX	Seabird	VIII
Ebb and Flo	XIV	Seatonic	XIV
Flamingo	XI	Shamrock	XII
Golden Miller	XIV	Solaris	XIII
Golden Cockerel	XIV	Snow Goose	XI
Golden Miller	XIV	Snowgoose 34	XI
Heavenly Twins	XIII	Spindrift	XV
Helani	VII	Stiletto	XVI
Hirondelle	XIII	Stampede	XVI
Iconoclast	XIV	Starlight	IX
Imi Loa	VII	Tahiti Bill	XIV
Iroquois	XII	Tane	X
Kelsall 50	XIV	Tangaroa I	X
MacGregor 36	IX	Tangaroa II	X
MacLear and Harris 47	IX	Tehini	X
MacLear and Harris 52	IX	Tsulamaran	XI
Malibu	VII	Waikiki Surf	VII
		Wharram Cats	X
		Windsong	VII

## THE AMATEUR YACHT RESEARCH SOCIETY

(Founded, June 1955 to encourage Amateur and Individual Yacht Research)

*President:*

HIS ROYAL HIGHNESS  
THE PRINCE PHILIP, DUKE OF EDINBURGH  
K.G., P.C., K.T., G.B.E., F.R.S.

*Vice Presidents:*

The Rt. Hon. Lord Riverdale, D.L., J.P.  
Austin Farrar, F.R.I.N.A.,  
Beecher Moore

*Founder and Consultant Editor: Dr. John Morwood*

*1977 Committee:*

*Chairman:* Dr. R. Bennett, V.R.D., M.P.  
*Vice Chairman:* Andre Kanssen  
*Hon. Secretary:* Jane Ellison  
*Hon. Treasurer:* Tom Herbert  
W Cdr. Jock Burrough, D.F.C., Michael Butterfield,  
David Chinery, S.A. Coleman-Malden, Mrs. Pat Morwood.

*National Organisers:*

France: Pierre Gutelle, 3 Rue Jules Simon, 75015 Paris.  
Norway: Civ. Ing. Helge Ingleberg, Granaasen 66a, 1347 Hosle.

*Administration and Membership:*

Michael Ellison, AYRS, Hermitage,  
Newbury, Berkshire, England, RG16 9RW.

*AYRS is Registered as an Educational Charity.*

All AYRS publications are copyright. Extracts may only be used by permission of the Editor and Contributor, which will not ordinarily be refused as long as proper acknowledgement is made.