

THE AMARAN

Piet Vieggers has long been inspired by multihulls. In 1972 he built a 10m catamaran and sailed from the Netherlands through France to the Mediterranean and Greece. Not long ago he returned to Holland and started designing and building.

Multihull Research. Design: AMARAN - the flying proa -

1. Seaworthy under all conditions.
2. Recovery after capsizes.
3. Excilerating speeds unknown before.
4. Commercial possibilities.
5. Alternative to catamaran, trimaran and proa.

Prototype 1 had three amas (hulls) built using the West system. The centre frame is a circle of ϕ 80 cm. The length of each ama (float or hull) is 4.61m. (15 feet)

When the Amaran is sailing close hauled, the entire boat is 14.61m (48') long and 6.95m (22.8') wide.

When sailing before the wind the vessel is shaped like a trimaran, one ama (float) at the back in the middle and two in line in front. Dimensions then 10.76m (35.3') beam 10.8m.

The Amaran weighs + 400kg., including mast and rigging, each ama (float) weighs not more than 60 kg. and they have a minimum wetted surface. The weight is concentrated in the middle of the 'delta', the amas are at the extremities.

By using a Polynesian lateen sail, one achieves an enormous efficiency with many trim-possibilities.

It is hardly necessary to reef the sail, the more the wind, the better the surf-capabilities.

To build a vessel with less material is hardly possible, so it is most economic, smallest price, biggest boat.

Three amas (floats) are constructed very close to the ideal design for aero and hydrodynamics giving 2,000kg of buoyancy each.

The leeward amas have 2 big centreboards which can be trimmed (turned) up and down from the steering platform. Also the three amas have skegs. Each ama has four watertight bulkheads. The loading capacity of the Amaran is 500kg or more as we have a huge margin of + 5,500kg buoyancy excluding the wingsail.

Prototype 1 is suitable for 1 - 3 people. The sail has a wing-yard of 12m (39.3') long. The whole construction is put together and taken apart on the spot; beaching, beach-sailing and trailering are in the project.

What to do after capsizes ? No problem ! One person can rectify this situation in a few seconds. The whole thing is unsinkable. The wing sail buoyancy prevents total capsizes and by manipulating the shrouds (all running) one can jump back to the normal state.

The prototype was ready for the first trials in April '82. Who knows the first aeroplane looked like a spider as well.

Steering is done by changing direction of the forward or aft ama when sailing close hauled. When running the aft ama steers.

The akas (the legs of the spider) also have buoyancy. The platform (cockpit and crew space) is underneath the mast far

above the water. To give access to the amas (floats) there is a sloping net on each side of the akas (beams).

The biggest problem with a proa is how to tack ? (shunt) That means gybe in this case. No problem with this Amaran; sailing before the wind the yard is horizontal with the sail flying.

So the first prototype was sailing ! Success for the basic principles, but there are many things to change and it took two months to get things ready again with a second prototype for test runs in August '82. At last it worked; everything seemed to be strong enough. So entry forms were filled in for 'Speed Weeks' at Brest, Weymouth and Veere. (Holland).

Taking the amas (floats) of the prototype I have seen horizontally half way through, which enabled me to lower the akas (beams) deeper into the amas, which gave a stronger result.

The Amaran is still the same stress frame, i.e. tetrahedral tensegrity strut, the lightest yet strongest, yet most stable construction possible.

The big centreboards which were placed in the leeward amas have been changed to only one small centreboard to windward. There were some minor changes to make the last trials acceptable. The Amaran is still in a 'to be developed' phase, therefore it will be hard to conquer the established world record. During trials we obtained speeds equal or better than windspeed on many occasions, sailing at 10 knots in force 2 and 15 in force 3. The stronger the wind the more the sail leans to windward. As the proa sails always with the same side to the wind one changes the direction of the amas, but not the tetra-structure. Tacking is done by loosening up one end of the yard down towards the "new" stem after which the sheet can be grasped in on the new stem-end of the structure. The sail is passed over the top of the mast.

Our intention is to develop this succesful basic concept and to create a new model which will be suitable for 3 - 4 crew, and will be able to make fast ocean-crossings unknown before. The long range surfer will be born, camping at sea, high above water and waves.

This Amaran will have a length of 20-25m, and a beam of 10-15m.

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Editors Observations: The Amaran as presented at Portland was very heavy for its sail area. When the loads in the beams have been measured it should be possible to make a much lighter structure. For any craft which is intended to sail at or above wind speed hull windage is very important and netting must be a disaster equal to towing a bucket. Every skipper and every sailmaker who uses a bermudian rig with a genoa and who would like to improve performance should take a long hard look at Piet Vieggers sail. It is the same as Reg Bratt's "Auster" sail but inclined. If you need a 'clew' look at almost any snap of a genoa taken from windward, especially with the sheet eased.

1982 Portland Speed Week.

As in previous years the 'week' had eight days during which any person who applied to the Royal Yachting Association could attempt to break the world sailing speed record in the unlimited sail area or the established classes. Three courses carefully surveyed along Chisel beach with transit posts set in concrete provided limited choice of direction. Official observers and time keepers were present so that records set may be ratified.

The dates from 9th October to 16th were chosen to have neap tides and gale force winds from South West. Tides are reasonably predictable and being a period of rapid change in the suns declination the weather is usually unsettled.

The world records are now so high that special conditions of strong wind and flat sea are required to improve them. It was shown at Brest in September that the offshore multihulls at their present stage of development have a maximum speed of around 23 knots without wave assistance. Limited room and the absence of a publicity circus with vast sums of prize money mean that there is no reason for them to come to Portland.

This year the RYA event was paid for by the entrance fee of £ 50 which just covered the cost, helped by numerous A.Y.R.S. members who gave their time free. There were very limited press facilities, reporters who bothered to turn up had to ask what was happening for themselves. If publicity is wanted it has to be bought with free beer and proper facilities although T.V. South did send a camera team and showed a short report.

Lack of funds prevented the raising of the circular 'clock' course but in the strong winds necessary for new records the water is considered too rough even by Tim Coleman who established two of the shore transits which were used to set his 36 knot record with "Crossbow". The original 'shore' course of 500 metres is marked by orange diamonds visible from seaward but the two "Crossbow" courses can only be used by shore observers and can not be seen when afloat. To enable the course to be angled the base has to be considerably longer than 500 metres. The extra length and invisible marks does not worry boats but for board sailors with no compass trying to sail at 90 degrees to the transits proved too difficult. "Sabu" was anchored just beyond the end of the course in a minimum depth of four feet to guide people making runs but for many this did not cure the problem. Perhaps a coloured line should be drawn along the course as in road works or swimming pools to indicate the shortest distance? It is very difficult with a strong wind, perhaps driving rain, to keep a craft of any type at her ultimate top speed and on a true course for the 30 seconds or so needed. There is no doubt that all the records will be increased by large amounts but this will involve lots of waiting for ideal conditions.

At Portland the computer was located in a caravan on Chisel beach and powered by a portable generator. The start and finish of each run is reported to the operator by radio but the watches previously used to time the event were also used to check the times. Various ways of improving the accuracy and avoiding runs which are not recorded were discussed but all would involve an increase in cost.

The only craft in the open 'unlimited' sail area class at Portland was the 'Amaran' called "Fastfit" entered by Piet Viegers from Holland. Unfortunately this craft suffered a torn sail after a trial and the yard broke while it was being lowered and she was retired without making a timed run so that she could be prepared for the event in Holland - where there was not enough wind. The prize for an outstanding design was not awarded this year, it is one of the conditions that the craft must complete a run down the measured course.

The Dutch event, Pall Mall Cup '82, was set up on a lake with sheltered water and unobstructed wind but this year there was unfortunately very little breeze. The course is surveyed and a video camera at each end is lined up with a light on the distant shore. A clock is run and the time shown superimposed on the screen. An observer afloat records the number of each 'competitor' as the run starts. When there is a fast run the pictures are run frame by frame and the exact time of start and finish can be confirmed. The main problem with this very accurate system is the time needed to change from one course to another as the wind direction alters.

There were 180 sailboards and 30 'boats' at the Pall Mall event which was very well run from a special events centre with six full time staff and thirty seamen.

Karlskrona Results 1982

IO sq.m. class	Jaap Van Der Rest	Windsurfer	Holland	22.82 kts
A Class	Erec Quorning	Trimaran	Denmark	13.05 kts
B Class	Ulf Nilsson	Tornado	Sweden	18.44 kts
	Richard Holmquist	Hobie 16	Sweden	18.07 kts
C Class	Leif Wagner Smitt		Denmark	16.90 kts.

Previous Records

Open	"Crossbow"	T. Colman	G.B.	36	Knots	1980	Catamaran
'C'	NF	D. White	U.S.A.	24.4	"	1978	Canard foil
'B'	"Icarus"	A. Grogono	G.B.	24.5	"	1981	Tornado/foil
'A'	"Mayfly"	B. Wynne	G.B.	23.0	"	1977	foil cat 16'
10sq.	Windsurfer	Jaap V.D.Rest	N.L.	25.1	"	1982	Sailboard

Unofficial Records listed for Brest Speed Week were

IOsq.m. fastest 'boat' = T.Crumpton & C.Douglas "Seafly" 21.3 knots
and fastest female = Erica Keller of Holland @ 20.5 knots on TC2 board.

