A FIBREGLASS VERSION OF THE KIR-2 SAILING CANOE

by

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In recent years the 7.3 m KIR-2 plywood sailing canoe (Figure 1) designed by O. Gulbrandsen and constructed under the supervision of M. Savins in Tarawa has become popular in several Pacific Island countries.

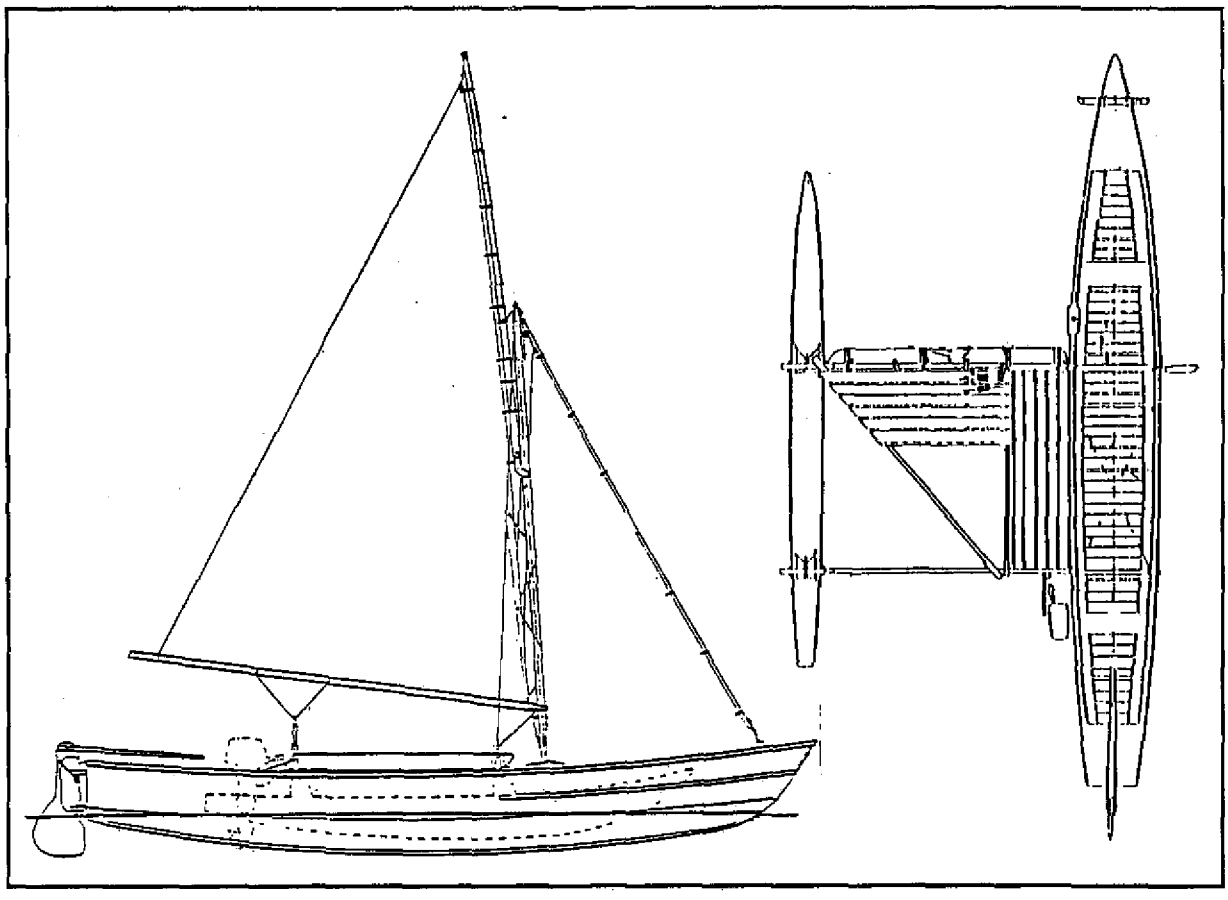

Figure 1: The KIR-2 sailing canoe

I decided to obtain one for my personal use in order to be able to speak with conviction about the positive and negative aspects of the design. Living in Suva, a location with several boatbuilding firms, I thought it would be easy to find someone to build the plywood canoe. It wasn't. Suva's leading builder of wooden boats quoted a price over four times the Tarawa cost and smaller builders were not interested in the job. Finally, one firm agreed to undertake the project but kept it on the 'back burner' for over five months.

At the beginning, the plan was to build a KIR-2 canoe which would, as closely as possible, resemble the craft presently in use in Tarawa and elsewhere. The offer by a reliable local fibreglass shop to build the boat out of fibreglass caused me to reconsider the original plan. Why not try a new material which, in some Pacific Island situations, may be more appropriate than plywood?

To start the construction, a wooden jig (temporary frame) was constructed (Figure 2) and sheets of 6 mm Divinycell foam were stapled to it (Figure 3). Seams between the foam sheets were filled (Figure 4) and faired. Over this surface (eventually to become the outside of the hull) three layers of fibreglass cloth (300 g and 450 g chopped strand mat, 330 g woven cloth) were laid. The structure was then removed from the jig, turned over and glassed on the inside (two layers of 300 g chopped strand mat, and one layer of 450 g roving). Departures from the original plywood design included a completely sealed stern section and floor area, reinforcement of the hull in the area of the outrigger support attachments, extension of the foredeck further aft, and the use of a fibreglassed solid foam outrigger float. The canoe's standing rigging was as specified in the original plans. With the exception of the mainsheet, all running rigging was either longline cord or braided fishing line.

The cost of the first fibreglass KIR-2 was considerably increased by the necessity to construct a jig, but this could be re-used in the future. Tradewinds Marine Ltd (Box 3084, Lami, Fiji) estimates that the cost of a subsequent canoe (completely rigged, with sails, without outboard engine) would be approximately US$ 4 000. Alternatively, the company would be willing to produce just the main hull and outrigger float for about US$ 2 700.

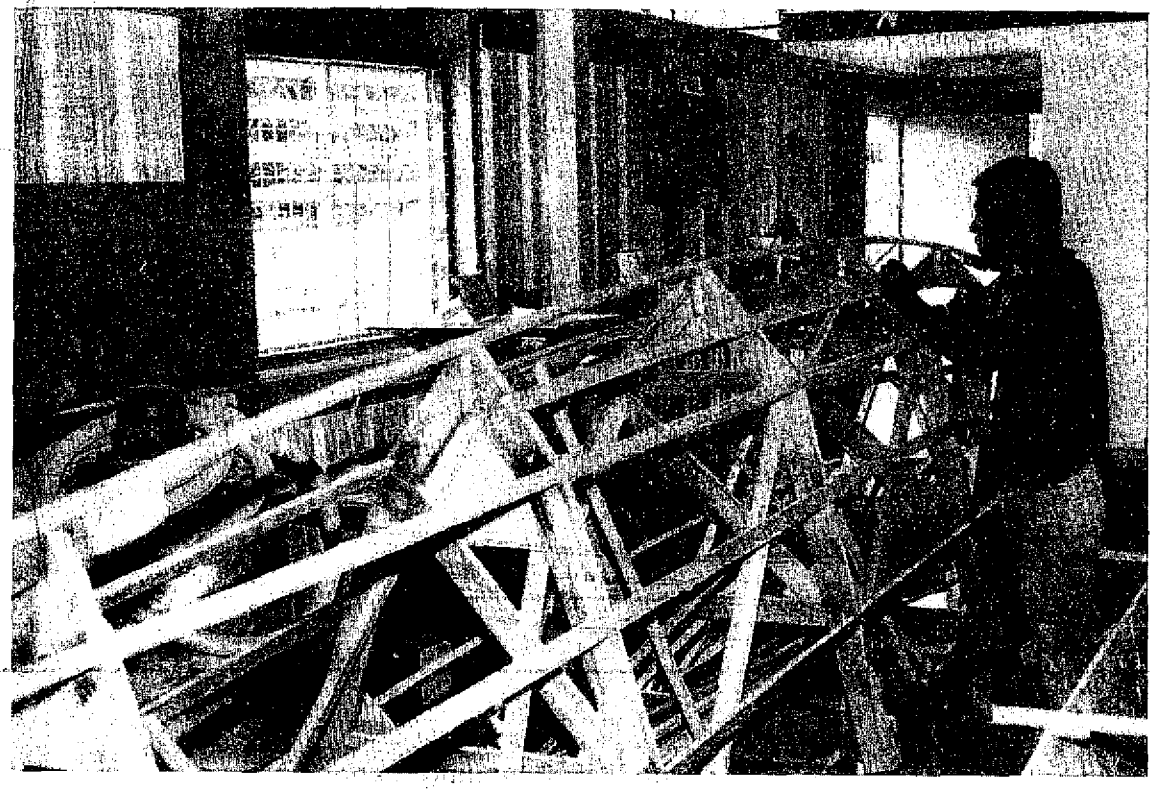

Figure 2 : The wooden jig

Figure 3: Stapling Divinycell foam to the jig

Figure 4: Filling the seams

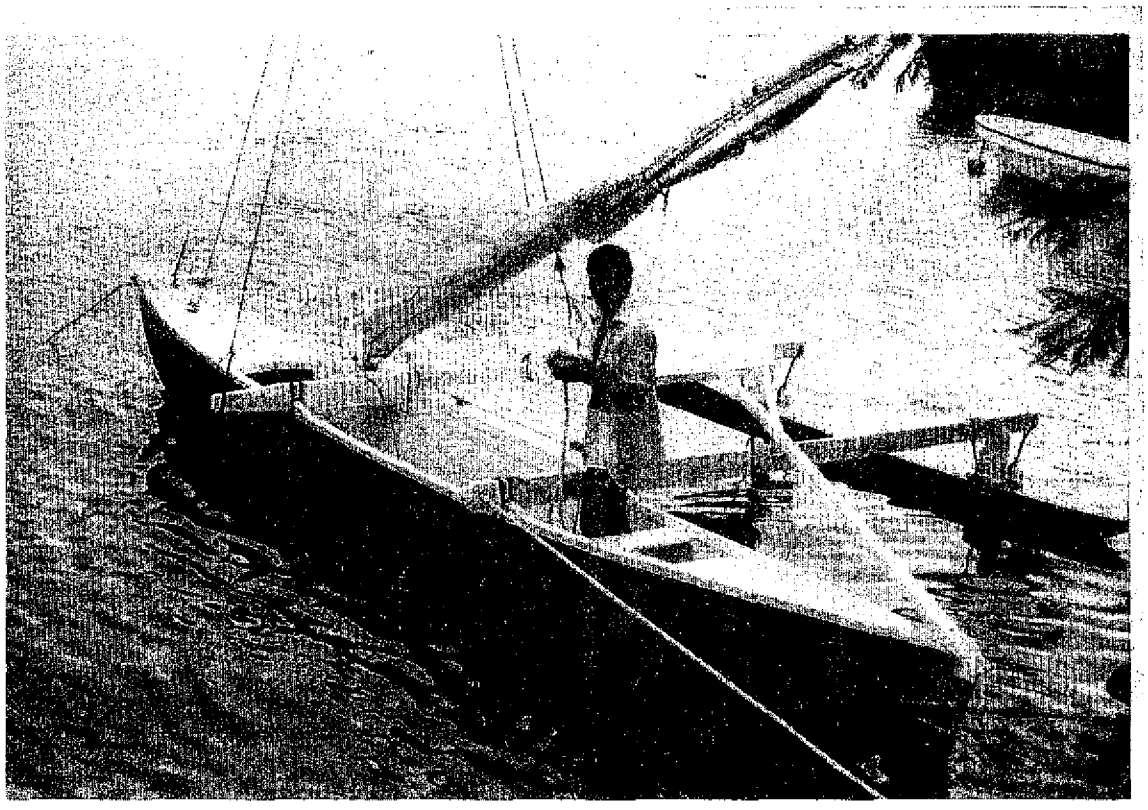

Figure 5: The finished fibreglass KIR-2

The finished product (Figure 5) was launched in September. Judging from the level at which it floats in the water, the main hull of the fibreglass canoe is somewhat lighter than its wooden counterpart. The glassed outrigger float behaves about the same. The relative sailing performance of the two canoes remains to be tested. However, due to its weight advantage, I suspect the glass version will prove to be faster.

My first serious trials of the canoe took place on 23 December, 1986 when a friend and I departed the Tradewinds Anchorage near Suva on a 5 day trip over the long Christmas weekend to Savu Savu on Vanua Levu in the north. The trip was to consist of a series of five 20-mile segments: Suva-Toberua, Toberua-Levuka, Levuka-Makogai, Makogai-Namena, and Namena-Savusavu.

I had been sceptical of the value of reefing such a small sail. My first lesson on the trip was to learn how wrong I was. With a wind of about 18 knots, it was difficult to beat to weather even inside the lagoon. The next day, in stronger winds and choppier conditions, a double-reefed main made a 4.3 mile beat to weather easier, drier and faster. We entered the Rewa river and motored for the next three hours. A newly-constructed bridge necessitated pulling down the mast. We were able to take it down and put it up again in less than five minutes.

As much as possible, we motor-sailed in the river, but it is doubtful if the sails increased the speed much, due to the winding nature of the river course. At about 17.30 hours we popped out of the river and spotted Toberua Island. The Island was reached after an hour of sailing on the starboard tack (outrigger to leeward). I suspect that the canoe makes less leeway on a port tack.

We arrived at the Island, and had a 'Toberua cocktail' and dinner courtesy of the resort Manager, Mike Dennis. Both Mike and the manager of Namena Island Resort are interested in the purchase of KIR-2 type canoes for the use of their hotel guests. We were offered accommodation ashore, but I declined as I wanted to see how it would be to sleep on the canoe. The platform was great to sleep on until the rain started. On future trips I will drag the canoe up on the beach, drape a canvas tarpaulin over the outrigger platform, and sleep on the sand between the main hull and outrigger float.

When we woke in the morning, the wind had increased considerably to about 25 knots. We took some of the hotel staff out for a sail. I was surprised at how the canoe handled considering all the weight. With five people, outboard, fuel, and lots of gear, I estimate there was the equivalent of seven men. On the port tack the boat was noticeably slower, but the extra weight in the main hull on the starboard tack resulted in a better performance than with just two people. Our plan was to reach Levuka on this day, but the depression hanging around the north was upgraded to cyclone 'Rajah'. Winds of up to 60 knots were forecast for nearby Taveuni Island. We quickly decided to return to Suva.

Motoring through the Rewa River was uneventful. When we came out into Laucala Bay, the wind was blowing approximately 30 knots. At this point I decided to push the canoe to the limit as I would much rather something failed in this sandy, near-shore area than hopelessly offshore. I should stress that these were probably more extreme conditions than a fishermen would ever subject his canoe to.

We shook out both reefs in the main and took off with the wind slightly aft of the beam on a port tack (outrigger to weather). The gaff was whipping around, but I recalled Oyvind Gulbrandsen a few days earlier saying not to worry about breaking it. As the fetch of the wind increased, the gaff was really doing a 'wet noodle' act. I soon became painfully aware that it would be very difficult if not impossible to reef the sail in these full-battle conditions - do it before departure or not at all.

With the wind and about 3 ft of following wind chop, the canoe was really scooting along - easily the fastest I have ever gone under sail. The outrigger beams, which I originally felt were the weakest component of the canoe, were not working that badly despite the roller-coaster action of surfing down the backs of waves and crashing into the troughs. At this point I was most worried about the rudder-tiller connection. Extreme weather helm alternated with slight lee helm and made for considerable pressure on the aft end of the tiller. On one especially spectacular slough to weather I was really concerned that I was going to actually break the tiller off. I promised myself that I would beef up this component upon return to Suva. I have since decided to fabricate a 'U'-shaped fitting which will extend down one side of the tiller, across the aft end, and back up the other side.

The other main area of concern was the amount of water coming on board. Waves hit the port side of the main hull forward of the mast and sometimes dumped as much as 20 gallons in the section just aft of the deck. The bow section of my canoe has been modified to extend decking much further aft than the original design. However, I feel that it is still in need of modification. My second promise to myself on return to Suva was to correct this situation. I feel the best remedy would be to have a heavy canvas cover made so that it could be tightly stretched and lashed to cover the area from the outrigger beam forward to the breakwater on the bow decking. This would not be entirely watertight, but would keep out most of the water.

I timed the dash across Laucala Bay precisely. From the mouth of the Rewa to the seaward end of the USP breakwater is 4.3 nautical miles. We covered the distance in 22 minutes for an average speed of 11.7 knots. It should be noted that this average includes 3 periods of luffing to bail out accumulated water.

In summary, the performance of the canoe in such full-battle conditions was pleasing. I now have a fair deal of confidence in the seaworthiness of the craft.