

July 2015



Windrush Wavelengths

Newsletter of the Windrush Catamaran Assn of Western Australia

www.windrushassociation.com



AMERICA'S CUP
WORLD SERIES
— PORTSMOUTH —



Welcome to the July 2015 edition of Windrush
Wavelengths.



Pete Robinson
Editor

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**When someone says sailing
isn't a sport**



1.0 WINDRUSH FACTORY NEWS

Brett and the factory have been hard at work improving the Tornado catamaran. Excited to see the new boat on the water in September in France. All the best Brett!!!

Olympic Class Racing Catamaran Hulls Designed Stiffer and Lighter Using a 'Carbon Free' GMS Epoxy Prepreg, S-Glass, Honeycomb Sandwich Design

The legendary Olympic Games Tornado class multihull was selected by the International Yacht Racing Union (IYRU, now ISAF) for the first ever Catamaran open event in the 1976 Olympics in Canada up until the last appearance in the Beijing 2008 Games in Qingdao, China, before multihull sailing was taken out of the Olympic program. The Tornado is still recognized by ISAF (International Sailing Federation) and is competitively raced all around the world annually at both regional and world championships. It remains one of the fastest double handed small (20ft / 6.1m long) catamarans, characterized by some in the multihull racing world as the "the Formula One of sailing"; top class sailors have been able to reach speeds approaching 30 knots (almost 60 km/hr) on a reach, the fastest point of sail.

Carbon free hull regulations

Unusually for a competition racing boat of this type, the Tornado class catamaran maintains echoes of its 1966 design heritage, originally produced with epoxy fiberglass sheathed 'tortured ply' wood construction hulls. Today, the International Tornado Association (ITA) still does not allow the use of any carbon fibre materials in its hull build regulations. As a result, the Australian multihull specialist, Windrush Yachts, manufactures all of its Tornado hulls with a GRP sandwich laminate design, moulded out of autoclave (OoA) at low temperature (~100 °C/ 212 °F) using GMS EP-270 epoxy prepreg and an S-glass cloth multilayer combination, with a Nomex® aramid paper honeycomb core; the use of a honeycomb core also helps to provide buoyancy that enhances speed. Windrush Yachts has manufactured Tornado FRP sandwich hulls since 2007 at its production facilities in Perth, Western Australia. Surprisingly, this carbon exclusion rule was retained even after the official ITA sail specifications were significantly increased in 2000, with the addition of a new 25.00 sq. m (269 sq. ft) spinnaker sail, as well as increasing the area of the existing jib and mainsail up to 21.94 sq. m (236 sq. ft). In contrast, for the boat's rigging with its 9.08 m (29.8 ft) mast, the use of carbon is permitted by the ITA, and so rigs are now almost exclusively manufactured using carbon fibre reinforced high performance composites.

Solving design challenges

This significant increase in sail power has created particular design challenges for leading boat builders of new Tornados, including Windrush Yachts. The 'carbon free' epoxy based composite hull and deck structure needs to be stiff enough to take the immense forces (mainly inwards at the bow) that the large rig exerts, yet still provide the high speed 'slam' impact resistance and flexural bending demands placed on a hull when racing. An added engineering challenge is the fact that a single hull has to be able to handle all of these forces alone since, whenever possible, the Tornado 'flies' with one hull typically out of the water to minimize drag resistance. Selected after a number of comparative trials and mechanical testing, the epoxy prepreg specified is a variant of the standard GMS EP-270 grade, custom produced by GMS Composites Pty Ltd. with the specific flow and tack properties Windrush Yachts need to consistently achieve the desired OoA vacuum moulded laminate properties and finished part quality. The custom made GMS EP-270 prepreg provided the best combination of high

performance dynamic strength properties with the thinnest, lowest weight, outer laminate possible. It also provided shop floor production benefits including: its ease of use and handling properties, being able to position the prepreg accurately even into tight mould corners; a shorter ramp up and dwell time, with a lower cure temperature; and a long shelf life. Another major benefit to Windrush Yachts is on the supply side, as the bespoke GMS-EP270 prepreg is supplied to order in small batch quantities as needed, and within a comparatively short lead time. GMS Composites Pty Ltd. is also an Australian company, located in Dandenong South, Victoria. Its extensive production facility has a variety of different prepreg product lines, manufacturing to order for prototype developments and small volume batches, as well as higher volume production orders. GMS Composites has particular expertise in developing and supplying custom designed BMI and epoxy prepreg solutions for both moulded parts and robust tooling, not just for the marine market, but also for demanding applications in Aerospace (including MRO tooling), Ballistics and Defence, Automotive and Motorsport.

Stiffer and Lighter GRP Honeycomb Epoxy System

Brett Burvill, is a director of Windrush Yachts and a world class Tomado racing skipper, who ranked No. 2 in the 2014 Tomado Worlds leader board at the end of last year's racing season. His passion for Tomado racing is matched with a strong desire to make top class boats, commenting: *"When Windrush Yachts was first awarded a Tomado class construction licence by ISA, our aim right from the start was to make our boat hulls perform as well, if not better, than the existing class leading hulls built in Europe. This was not only to win races, but also to offer greater durability so hulls would last longer, which we knew customers wanted."* The Windrush team has been able to maximize the strength and stiffness modulus required, while at the same time reducing overall hull weight despite not being able to turn to carbon fibres. Burvill explained how they have been able to do this: *"We have found that the best combination is to use GMS Composites EP-270 epoxy prepreg, which we reinforce using a 200 gram +/- 45 deg S glass in combination with a heavily unbalanced 300gm glass cloth that together effectively produces an unbalanced Quad for the outer skin laminates, with a 12mm thick Nomex sandwich core for maximum stiffness, shear modulus and deformation resistance."* The complete finished weight of each 6.10m long (20ft) hull, which is only 405 mm at its widest beam point, is around 38kg (84 lbs), giving a combined twin hull weight of a Windrush Tomado of just 76kg (168 lbs) of the complete sailing craft weight, fully rigged at 155kg (330 lbs). Burvill went on to say: *"Along with a careful laminate layout, this combination of materials for the sandwich structure gives us the very high stiffness needed in the hull, especially longitudinally, yet still provides excellent damage tolerance with a hard, but tough, outer surface which feels reassuringly durable to our customers."*

Windrush Yachts specializes in the marine sector, and uses its composites expertise not only for sailing boat hulls but for producing lightweight FRP foils, centerboards, cross bars and tillers. It also uses its knowledge and production capabilities to manufacture high performance composite parts for motorsports, defence, mining, industrial and recreation applications. More details about Windrush Yachts can be found on line at www.windrushyachts.com.au.

For more information about full range of moulding and tooling resin systems and custom prepreg design services provided by GMS Composites Pty Ltd., go to www.gmscomposites.com.



Photo 2 (a), (b), (c) and (d): Windrush Yachts Tornado catamaran hull under construction



Photo 3: Windrush Yachts Tornado catamaran hull and deck moulded sections



Photo 3 caption: The 'carbon free' epoxy based composite hull and deck structure needs to be stiff enough to take the immense sail rig forces, yet still provide the high speed 'slam' impact resistance and flexural bending demands placed on a single hull when racing.

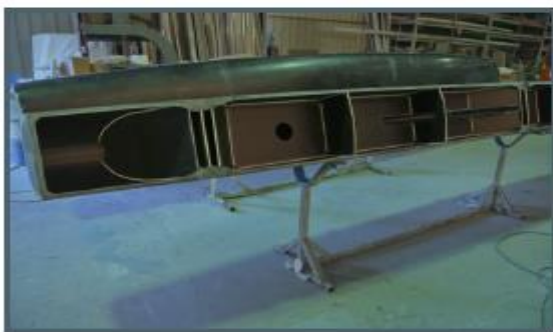


Photo 2 (a), (b), (c) and (d) caption: Using a customised GMS EP-270 epoxy prepreg with an S-glass cloth multilayer combination, provided Windrush Yachts with the best high performance dynamic strength properties, and thinnest, lowest weight, GRP outer laminate possible for its Tornado catamaran honeycomb sandwich composite hull design, according to ISAF build design restrictions.

About GMS Composites

GMS Composites is located in the Melbourne suburb of Dandenong South, Victoria, Australia, where they have their R & D, production and warehousing operations. GMS Composites has been manufacturing epoxy prepreps for over 12 years and now have an established range of over 10 different prepreps resins systems, which cover a wide range of industries including: aerospace, defence, ballistics, rail, motorsport, automotive and tooling. GMS Composites also provide CNC machining services and distributes nationally across Australia a wide range of vacuum consumables, reinforcement fabrics, cores and mould release agents from leading global ancillary and reinforcement suppliers.

GMS Composites Pty Ltd., 42 Redgum Drive, Dandenong South, Victoria 3175, Australia.

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2.0 PRESIDENT'S REPORT

Congratulations are in order to our Vice President and Secretary, Cherie and Anthony Saw on the birth of their daughter Ashlyn from all reports Mum and daughter are going well.

States are progressing slowly. Talks are ongoing with Rockingham Shire regarding camping at the yacht club. Cherie has emailed you all a list of camp sites around the area.

The Carnarvon Regatta was a great event with 10 Windrush competing and some good close racing through the obstacle course. CYC go to a lot of effort to look after the visitors, plus the camping is free at the yacht club. For this regatta to continue we do need participation from the South. The one downer was that the computer spat out some form of handicap results instead of Championship. We apologies for this.

For some years Viki and I have been storing Windrush books and newsletters from the 1970's onwards, it would be helpful if someone had the time to scan and store these items.

The Windrush National Sloop shield is still missing; nobody has come forward, so I've been searching the old newsletters to fill in the winners from by gone years for the "Hall of Fame" that is on the Windrush website.

All other Windrush shields not being used are now stored at SBYC.

Rob Thompson
Strawberry Wave

3.0 TREASURER'S REPORT

Thanks Simon for putting this together and for Viki/Rob's massive help too.

FINANCIAL REPORT

For the year ended 31 May 2015

Prepared by
JMC Taxation & Accounting Services
PO Box 2
NORTHLANDS LPO WA 6905

TRADING, PROFIT AND LOSS STATEMENT

For the year ended 31 May 2015

	2015 \$
SALES	
State Titles Camping Deposits	300.00
Misc	15.00
Membership	815.00
State Titles Entry Fees	2,110.00
Presentation Dinner	1,980.00
Late Entry Fees	180.00
	<u>5,400.00</u>
GROSS SURPLUS FROM TRADING	<u>5,400.00</u>
INCOME	
Interest received	128.84
EXPENDITURE	
Bank charges	120.00
Camping Fees	450.00
Motor vehicle expenses:	-
Trailer Registration	61.90
Postage	9.05
Princess Royal Sailing Club	1,200.00
State Title Trophies	919.12
State Titles Presentation Dinner	2,360.00
YA subscriptions	130.00
	<u>5,250.07</u>
SURPLUS FROM ORDINARY ACTIVITIES BEFORE INCOME TAX	<u>278.77</u>
Retained surplus at the beginning of the financial year	<u>6,878.02</u>
TOTAL AVAILABLE FOR APPROPRIATION	<u>7,156.79</u>

BALANCE SHEET

As at 31 May 2015

	2015 \$
ASSETS	
Current Assets	
Bankwest 4197305	1,724.41
Bankwest 0213164	5,432.38
	<u>7,156.79</u>
TOTAL ASSETS	<u>7,156.79</u>
LIABILITIES	
NET ASSETS	<u>7,156.79</u>
EQUITY	
Accumulated surplus	7,156.79
TOTAL EQUITY	<u>7,156.79</u>

4.0 MEMORABILIA

FEATURE OF THE MONTHPERTH TO GERALDTON THE HARD WAY

Having already tried to sail a Windrush 14 to Geraldton in September 1981 against bad weather and prevailing winds I decided to give it another go in January 1983 with summer time S/W winds making it relatively easy. My provisions were packed into two 20 litre plastic drums and lashed down on the tramp. By phoning my wife from the small towns along the coast she would know within a few kilometres where I was and when I was due at the next stop.

Monday 24th, 7 a.m.

Left Whitfords, good winds, medium swell, arrived Lancelin 12.30, half hour lunch then on the way again. Perth side of Wedge Island very big waves and over 20 kt winds, a constant struggle on port reach to keep starboard bow from digging in and with large following seas, to stop it from pitch poling. Arrived Cervantes very tired, 4.30 p.m., 160 km in 9 hours.

Tuesday 25th, 7 a.m.

Left Cervantes in good conditions, when off Leeman at 11.30 a.m. hit by 30 kt winds. I had to get into Leeman couldn't control boat plus maintain direction with any safety through unknown waters. Made a very unseamanship mistake which could have ended the trip, by jibing from port to starboard with a 30 kt plus following wind. The boat stood on its bow, seeming to hang there forever but only a second or so then the stern swung around hit the water and then a mad reach for Leeman. Camped under the tramp on the beach until next morning. 70 km in 4½ hours.

Wednesday 26th

Left 6 a.m. absolutely perfect sailing conditions. Hanging out on a reach when a large seal surfaced 20 metres away. I don't

know who received the biggest shock. Port Denison 10.30 a.m. 80 km 4½ hours where I introduced myself to Beth Fitzhardinge. John, her husband, is the racing captain of Port Denison Sailing Club. He is also a cray fisherman and was out working. Sailed at midday for Geraldton. At 1 p.m. 30 kt S/W came in and with a large swell and broken water I knew I was in trouble. I became tired quickly and found my reflex actions were doing the sailing and my mind was wandering. This is a bad patch of coast with only a few safe spots to get ashore. When you are tired and scared your natural instinct is to make for the beach, but I needed deep water and sea room for safety, shallow water with steep waves and reefs was bad news. There was no way I could get through the channel in the reef around Point Moore at Geraldton. There was just too much white water to see the rocks, so I beached the boat on the back beach at 3.30 p.m. 3½ hours 65 km.

Total 375 km in 21½ sailing hours.

I contacted the commodore of St George's Catamaran Club Ray Robinson who displayed typical Geraldton hospitality by helping a friend of mine, Phil Charles, to carry the boat and gear over the sandhills to Ray's car and trailer and then up to Phil's place. Having a quiet drink or two with Ray and Phil that night I found it difficult to adjust, I felt like I had been dreaming. If you asked if I would do the trip again the answer would be a very quick no, then again maybe.

"Mouse"

It behoves me to mention here, the quick hitch hike back to Perth to pick up his car, trailer and 20 litres (?) of gelcoat to rebuild the keels and then on to the Port Denison Regatta - see "Club Notes" - ed.

5.0 REGATTA REPORT

5.1 Carnarvon regatta

Once again CYC turned on beautiful weather and hospitality, only the hardy few made the trip up. Troy and Cheryl Hobbs arrived without the family and had some lame excuse about staying at the motel. Ray and Ben Hughes camped in their ute's and James Chapman and family had the tent, Billy Chapman is thirteen years old, sailed Cat rigged and finished seven races, Billie's teenage sister only left the tent to recharge her phone, otherwise you would not have known that she was around.

Steven Gallagher flew in with his 23 Kilos of luggage which included his tent and sailing clothes, hopefully he didn't carry his board shorts home again, thank God for good undies. We all camped behind the abolition block as there are major works going on with 23 floating pens and retaining wall. So next year the Marina will take on a new look.

I should just add that if this regatta doesn't get a better up take from the Windrush sailors, then it may not happen in the future.

Benny and his Carnarvon crew give wonderful support and the costs are kept low with camping and amenities free. I must thank Craig Chapman for a loan of his boat, also Steven Gallagher borrowed Benny's second boat B11 and James Chapman put a club boat together, to help make up numbers meaning that there were 10 boats on the water.

Saturday afternoon the breeze was good, had to hike out and had some good rides, the water was quite murky from the storms, which made seeing the bottom impossible and pushing the envelope on when to tack usually caused a blade to kick up.

Saturday night I taped a table leg to the tiller so it was long enough to push the blades back down (didn't work too good). Ben Hughes was having the same trouble so attached a cord up to the tramp so he could pull the blade back down, this worked a treat.

Heat one was a close affair up the Fascine for the first time sorting out the obstacles and the sand bar, Steven did it best with a win.

Then Heats 2 & 3 Troy had a good run with 2 wins from Ray and myself and Steven taking third spot in the next four races.

Heat 4 on Sunday morning was a close call between Troy and myself, with both of us having to tack to finish with Troy in the box set but the only trouble was he parked head to wind, so I said thank you very much. I then went on to win the last three heats. Troy, Ray and Steven fought out the minor placings in Sunday's heats.

James Chapman had his big square top sail with him, which was made long before Windrush introduced them, but by Saturday night he wasn't going so well, so after having a look we decided on heavier battens. Best we could do was two battens in each of the upper pockets which improved the leech shape no end and his performance was better in the Sunday's races.

After racing we cleaned the boats and packed up as most people had to head home Monday morning. Thanks to Benny for returning my boat back to Craig Chapman's front lawn.

Presentation night was big show with the cruising boat crews present as well.

Monday morning Barry Scott offered to take out his 36' Cat Spindrift for a day cruise, so Ray and Ben Hughes along with Viki and myself were the only takers. We motored out of the Fascine and cross the shipping channel before coming around into the wind and hoisting the sails. Headed off downwind for about one hour in a dying easterly was very peaceful and smooth, on reaching our destination the water was very shallow so lowered the sails and motored around the sand banks looking for wild life, but the water out here was also murky from the recent storms, so we motored back towards the long jetty, dropped anchor and had lunch provided by Barry and Viki putting the sandwiches together. Came back into the Fascine at low tide, hit the sand once, had to quickly reverse up, only had 100mm of water to spare at times. We had a wonderful day and covered 55Kms. Once again a big thanks to Barry and Kaye Scott for their hospitality. Must say it was the best day out and cannot wait to be invited again.

P.S Viki would like donations so she can become the proud owner of a 36' footer.

Strawberry Wave

Rob Thompson

6.0 CARNARVON REGATTA RESULTS

SAIL NO.	Rob Thompson 6390	Troy Hobbs 6362	Steve Gallagher 6365	Ray Hughes 6389	James Chapman X2	Ben Hughes 6342	Brian Williams MC	Michael Brown 6320	Billy Chapman 6330	Peter 3939
HEAT 1	3	4	1	2	9	5	8	6	7	DNS
HEAT 2	2	1	3	4	6	8	9	5	7	DNS
HEAT 3	4	1	3	2	7	8	10	6	5	9
HEAT 4	1	2	3	4	6	7	DNS	8	5	DNS
HEAT 5	1	2	3	5	6	7	8	9	4	DNS
HEAT 6	1	3	4	2	5	6	8	7	9	DNS
HEAT 7	1	4	2	6	5	7	3	8	9	DNS
	9	13	15	19	35	40	36	40	37	

BOLD shows race dropped

7.0 AMERICA'S CUP PORTSMOUTH

On the Saturday I went to see the first two races. Luckily I did as by Sunday it was called off after 30knot winds put an end to the day's racing.

Having this been the first time the Americans controversially won the first cup on the in Portsmouth, England when the Americans turned and were the fastest boat around the Isle of Wight all those many years ago, reputations and National pride was on the line.



This time the course on the Solent was shorter, but undoubtable way more demanding on the sailors. The amount of Australians and New Zealanders either skippering or crewing these boats speaks to the strength and skill of the ANZAC sailing community. Who would have thought all those years ago in the 60's and 70's those weird 14ft Hobies and Windrushes were to foster the foundation of these boats in the America's cup today. It's great to see that catamarans are now not only embraced by the sailing community, but set the benchmark.



Before the racing there was a scratch moth race and some aerobatics, with commentators bantering and speculating just what might happen in racing today. There was a great vibe in the air, with many displays in the festival area by the likes of boat builders, youth sailing training and the Navy.





(French cut the course 20min before start with an Ocean liner)

7.1 The Boat



7.2 The Course

The race course set was a top and bottom gate course with a start gate to the right mid-course and finish gate to the right of the bottom gate.



6. COURSES

6.1 A course shall be constructed by combining a Start, a Middle, and a Finish option.

Start	Middle	Finish
P Port tack start Start - M1 (stbd) - or S Starboard tack start Start - M1 (port) -	D Course to finish downwind L Gate - W Gate - L Gate - W Gate - or U Course to finish upwind L Gate - W Gate - L Gate -	P Port tack finish port mark* of gate (port) - Finish or S Starboard tack finish starboard mark* of gate (stbd) - Finish

*(looking from previous mark)

Course Example:
 "PUP" = Port tack start, Upwind course, Port tack finish:
 = Start - M1(stbd) - L Gate - W Gate - L Gate - port mark* of gate (port) - Finish

7. MARKS

7.1 The marks are rectangular profile vessels of 5.5m x 2.4m with truncated pyramid shaped superstructure with a signal mast at one end.

7.2 In the event of a mark not being available, a Race Committee boat may be used as a substitute mark. Details and descriptions of such a substitute mark will be communicated via the RO Comms.

7.3 The starting line will be between the signal masts on the marks used in the starting area.

7.4 The finishing line will be between the signal masts on the marks used in the finishing area.

Laps: 2 laps, three down course reaching legs, two up course tacking legs

7.3 Race time

Come race time.....wow..... the pace of racing is breath taking.



To see a boat trailing the field on the first leg to come back and win the race is testament to a winning formula of:

- Good tactics
- boat set up
- tide and wind conditions
- who can hold their nerve
- big injection of cash

First race, the Ben Ainslie Racing - BAR (all British crew) took the win much to the pleasure of the home crowd.

Come second race the crowd went silent when BAR were trailing the field on the first leg the crowd went silent, but by the finishing leg BAR were hot on the heels of race leaders (Emirates), but just missing out on the win by a few boat lengths.

- *Peter Robinson*



8.0 SPINNAKER KITS

Great to see boats trying on the new Spinnakers which are available now for the 14s. With some more interest there is a real possibility of getting a new fleet going.

Garth was the first to get one his is all green then Simon Ellis now sports a black and yellow one and it's believed Dion has just order a kit. So there is a bit of interest with spinnaker and hoping to get a few more on the water.

The full kit is just over 2K



9.0 WINDRUSH ON THE WEB

9.1 Windrush online forum

There is a web forum site which is good and all about cats. It's mainly used by over east guys but us WA guy should get on there and start using it: <http://catsailor.net/forums/forum.php>

It's got a Windrush page now as well, maybe you could put it in a web site section

9.2 Windrush Association Website

Check out our association website: www.windrushassociation.com

If you want to add something or perhaps give Robin, (our website administrator) a hand with it get in touch with him.

ROBIN HOLMES M: 0400 226 836 E: admin@windrush.com