

# Project - Sidewinder Mk1 2015 Upgrade

**Designer:** Frank Russell

**Owner:** Mark Shepherd

**Objective:** To improve upwind performance by upgrading the 2004 design of the rig, keel fin and bulb.

**History:** The boat was originally built for Daniel Weizman by Paul Cohen back in 2004 under the name of "Suicide Blonde".

The photo right shows the boat in the configuration I purchased it from Daniel.

According to Daniel the boat has won a NSW State title once or twice.

I bought the boat from Daniel back in 2011 and sailed it as is before giving it a yellow and black colour scheme. I didn't change much else other than increasing some of the deck cut-out's.



The boat performed reasonably well for an older design, but I always felt it could perform much better.

In a stiff breeze it was a rocket ship down wind, but it struggled upwind and came across as rather unbalanced.

After not sailing for a few years, due to business commitments, I decided to relaunch my radio sailing by renovating the Sidewinder.

I contacted Frank Russell and asked if he wouldn't mind helping me through the process and he said yes.

Frank has just been incredibly generous with his support and I very much appreciate the time and effort he has put in.

**Step One** was to fit a new fin and bulb.

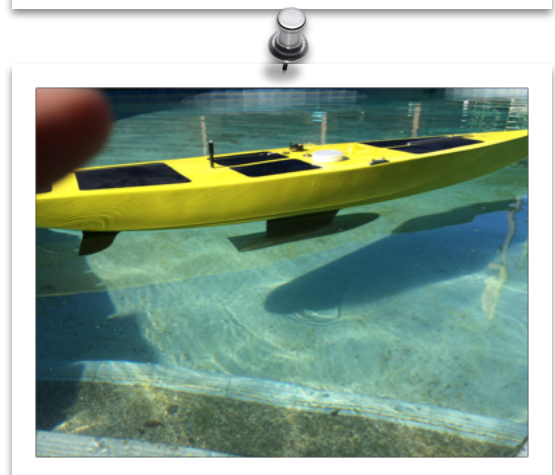
I purchased a Sails Etc Carbon fin and with Franks guidance fitted a prototype Mk1 version bulb.

I was fortunate enough to be given a bulb that Ian Sheriff had discarded and I was able to shape it using a flapper wheel fitted to a four inch angle grinder.

The photos on the right show the first Mk1 bulb and the Sails Etc fin as well as the old fin and bulb (painted yellow).

The Mk1 bulb weighed in at 9.6 kg and the original bulb and fin was 9.8 kg all up.

The bottom photo is a quick float test to check the water line to see if we were in the ball park. As it turned



out, we later found out that the boat had been incorrectly measured first time around, or it had been modified and not re-measured, more about that later.

**Step Two** was to sail her with exactly the same rig and sail configuration.

The improvement was immediate.

After sailing it for some time I felt that the Mk1 version bulb could be lighter, with a thinner but longer profile.

So, Frank designed a Mk2 version bulb and I made my very first plug and poured my very first bulb.

One of the things I did do was to fit the plug to the fin so i could get an idea of where it need to go. As it turned out it got moved it anyway.

I choose to use cement for the mould as it's pretty simple to use compared to Plaster of Paris.

If you were going to make six or more bulbs it would be worth having them done professionally.

I found the mould boxes over the road during a neighbourhood verge side throw-out, which was a real bonus.

I recycled the lead from the original fin and bulb and used a 3 litre fruit tin on a portable gas cooker to melt the lead. If you attempt to do this yourself make sure your wearing the correct safety equipment as the lead fumes are highly toxic.

The photos below should be self explanatory.





I then sailed her with the Mk2 bulb and it performed equally as well with the lighter lead.

At this point we had still had not discovered how far the original measurements were out and were under the assumption that the improvement in weight was going to pay off with a larger sail area.

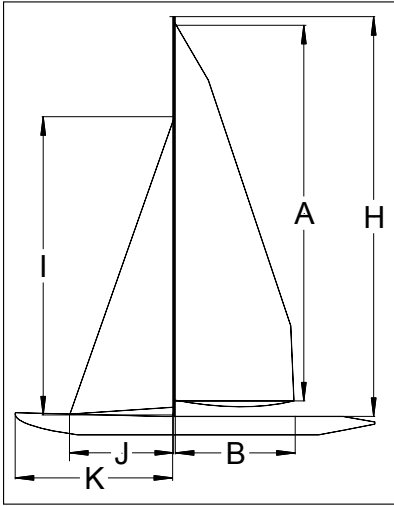
Also I was unaware what the original design weight was 14.1kg, again I was about to find that out.

Frank was awesome through this whole process, the more curious I got, the more questions I asked, and eventually I asked him if he wouldn't mind sending through the original measurement spread sheet so I could compare his design measurements with the certificate measurements Daniel had supplied me. The differences are considerable.

The top sheet is Franks original calculations and the bottom is the original certificate measurements.

## DATA INPUT FOR INTERNATIONAL "A" CLASS BOAT MEASUREMENT

Boat registered number	9
Boat name	Sidewinder Mk 1
Owner's name	
Builder's name(s)	
Design's name	Sidewinder Mk 1
Designer's name	F.Russell
Date of this fundamental measurement	12/07/91
Date of first fundamental measurement	



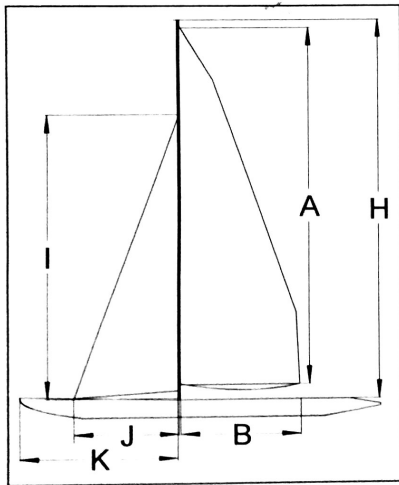
<b>Hull</b>			
Weight of boat, kg	14.2		
LOA, overall length, mm	1760		
FOH, forward overhang, mm	225		
AOH, aft overhang, mm	235		
LWL, waterline length, mm	1300		
Quarter beam length - port, mm	1222		
Quarter beam length - starboard, mm	1222		
Draught, mm	295		
Freeboards, mm		Port	Starboard
	Fore	115	115
	Mid	90	90
	Aft	78	78
<b>Sail Plan</b>			
H, Height of rig, mm (max. 2167)	2150		
A, Mainsail luff, mm	2050		
B, Luff perpendicular, mm	443		
I, Foretriangle height, mm (Max. 1625)	1625		
J, Foretriangle base, mm	495		
K, Bow to mast, mm	780		
<b>Derived Measurements</b>			
Maximum mainsail 1/4 width, mm	422		
Maximum mainsail 1/2 width, mm	332		
Maximum mainsail 3/4 width, mm	216		
Maximum jib cross width	298		
Maximum foot length for other headsails	248		
Maximum value of spinnaker foot and widths	647		
Minimum value of spinnaker 1/2 width	595		

*Calculated  
Values  
as Advice  
to Measurer*

With complete data, RATING = 1000

## DATA INPUT FOR INTERNATIONAL "A" CLASS BOAT MEASUREMENT

Boat registered number	AUS 472
Boat name	Suicide Blonde
Owner's name	Daniel Weizman
Builder's name(s)	Paul Cohen
Design's name	Sidewinder
Designer's name	Frank Russell
Date of this fundamental measurement	01/08/04
Date of first fundamental measurement	16/12/04



<b>Hull</b>			
Weight of boat, kg	13.1		
LOA, overall length, mm	1767		
FOH, forward overhang, mm	295		
AOH, aft overhang, mm	216		
LWL, waterline length, mm	1256		
Quarter beam length - port, mm	1193		
Quarter beam length - starboard, mm	1193		
Draught, mm	292		
Freeboards, mm		Port	Starboard
	Fore	110	110
	Mid	90	90
	Aft	75	75
<b>Sail Plan</b>			
H, Height of rig, mm (max. 2167)	2108		
A, Mainsail luff, mm	1970		
B, Luff perpendicular, mm	505		
I, Foretriangle height, mm (Max. 1625)	1528		
J, Foretriangle base, mm	515		
K, Bow to mast, mm	785		
<b>Derived Measurements</b>			
Maximum mainsail 1/4 width, mm	469		
Maximum mainsail 1/2 width, mm	363		
Maximum mainsail 3/4 width, mm	231		
Maximum jib cross width	308		
Maximum foot length for other headsails	258		
Maximum value of spinnaker foot and widths	667		
Minimum value of spinnaker 1/2 width	615		

*Calculated  
Values  
as Advice  
to Measurer*

With complete data, RATING = 1000

NOTE: THIS FORM IS NEITHER PART OF THE CERTIFICATE NOR THE MEASUREMENT FORM

Version 5 May 2004

We still weren't aware as to the inaccuracy's of the original measuring and it wasn't until Graham Howie and I did a proper first measure using the tank and the jig that we discovered the truth of the matter.

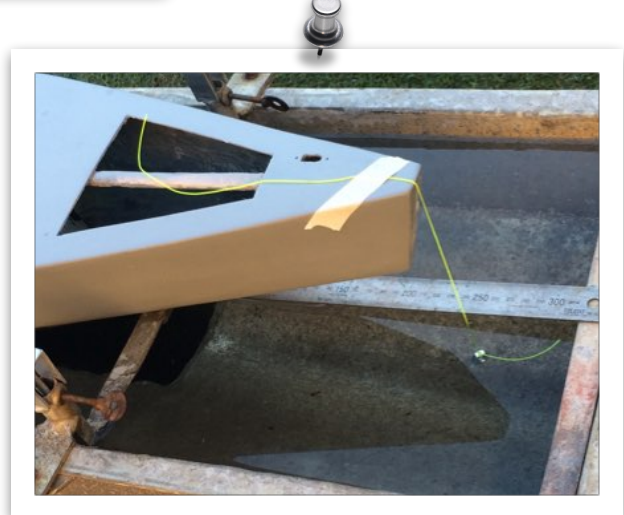
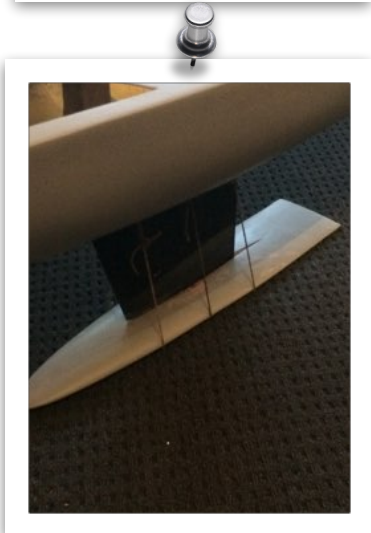
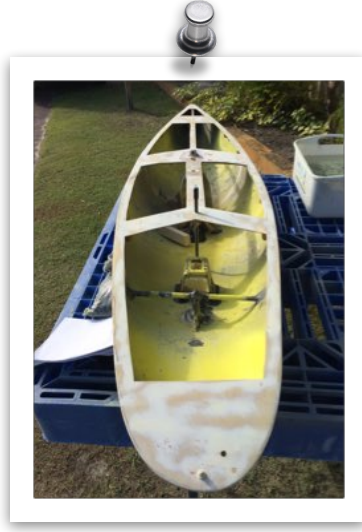
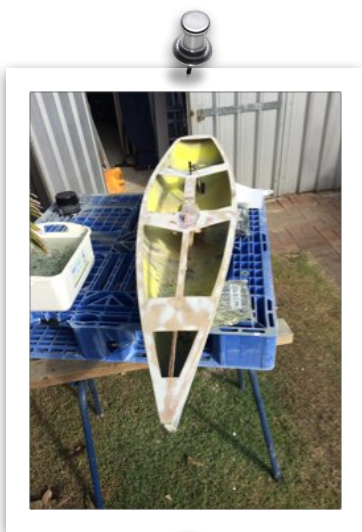
At this point I was a little bit deflated, because we expected that we would be able to increase sail area and the went out the window with the incorrect measurements.

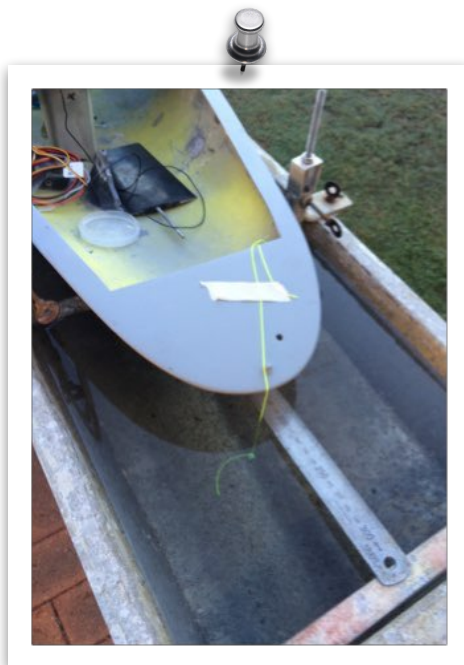
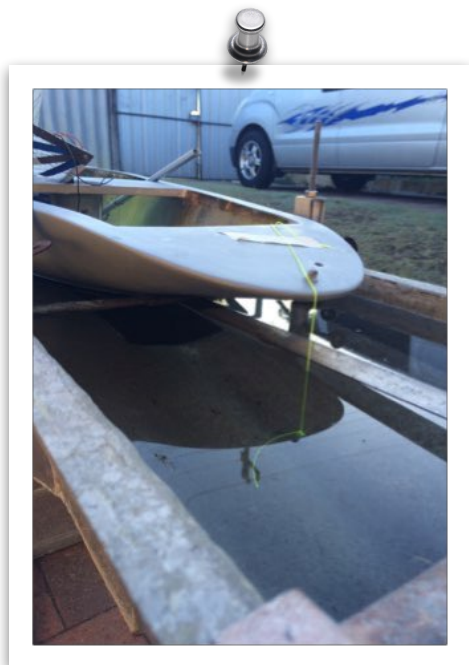
I kept pushing forward with the testing and decided to strip the boat back to bear bones in an effort to take more weight out of her to see if it was possible to gain back some of the sail area that had been lost with the correct measuring process.

I have included some photos below;

The changes I made other than the fin and the bulb was to;

1. Remove any unnecessary reinforcement. In this instance there was quite a lot and I was able to extract around 500 grams of unnecessary weight.
2. From the photos you can also see I have made the deck patches much larger. I decided to keep the skeleton of the existing ply deck as the ply is very light and I couldn't really see any sense in creating more work for little gain.
3. The next area of weight saving was in the rig. The old rig weight close to 1.1kg fully rigged with a 12mm carbon groovy mast, spreaders and diamond stays fitted sporting a set of fairly heavy weight Gibson sails. The new rig weighs 750 gms and I am using a 14mm Sails Etc carbon tapered section with 16mm stainless steel rings to attached the main and a set of Garry Taylor's G-TEC sails.
4. I opted for a radial jib fitting which I made myself. The first attempt was a bit light and flimsy, however with some advice from Denton Roberts at Radio Yacht Supplies Australia we soon sorted that out.
5. The last thing was to repaint everything, re-rig her and then a final measure and weigh in.



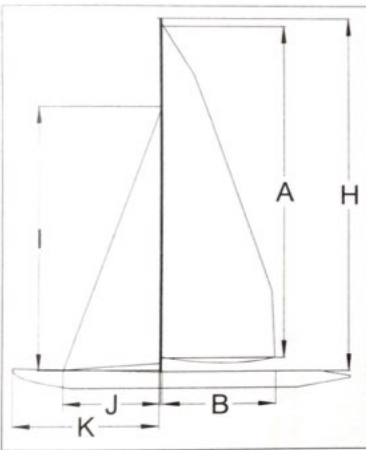


I have included copy of the final measurement sheet below. You will notice significant differences when comparing the three measurement sheets.

One other benefit that came out of the rebuild was the additional length in the draught. 11mm might not seem like a lot, but when you have 9.2 kg of lead swinging off the bottom on a boat this size it's significant.

**DATA INPUT FOR INTERNATIONAL "A" CLASS BOAT MEASUREMENT**

Boat registered number	AUS472	
Boat name	SEA EAGLE	
Owner's name	MARK SHEPPARD	
Builder's name(s)	PAUL COHEN	
Design's name	SIDEWINDER MARK 1	
Designer's name	FRANK RUSSEL	
Date of this fundamental measurement	21/08/15	
Date of first fundamental measurement	16/12/04	



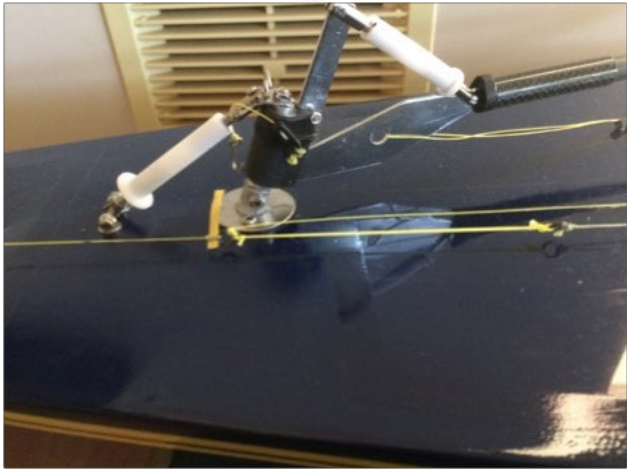
<b>Hull</b>		
Weight of boat, kg	12.9	
LOA, overall length, mm	1769	
FOH, forward overhang, mm	252	
AOH, aft overhang, mm	242	
LWL, waterline length, mm	1275	
Quarter beam length - port, mm	1213	
Quarter beam length - starboard, mm	1247	
Draught, mm	294	
Freeboards, mm	Port	Starboard
Fore	105	108
Mid	89	87
Aft	83	88
<b>Sail Plan</b>		
H, Height of rig, mm (max. 2167)	2150	
A, Mainsail luff, mm	2047	
B, Luff perpendicular, mm	420	
I, Foretriangle height, mm (Max. 1625)	1622	
J, Foretriangle base, mm	485	
K, Bow to mast, mm	810	
<b>Derived Measurements</b>		
Maximum mainsail 1/4 width, mm	405	
Maximum mainsail 1/2 width, mm	320	
Maximum mainsail 3/4 width, mm	210	
Maximum jib cross width	293	
Maximum foot length for other headsails	970	
Maximum value of spinnaker foot and widths	1122	
Minimum value of spinnaker 1/2 width	585	

Calculated Values as Advice to Measurer

*Howie GARDNER B HOWIE 21/8/15*

**With complete data, RATING = 999**

NOTE: THIS FORM IS NEITHER PART OF THE CERTIFICATE NOR THE MEASUREMENT FORM Version: 28 July 2007



### **In conclusion:**

Has the rebuild be worth it? Absolutely... even though there was some initial disappointment regarding the loss of sail area, overall the boat is performing much better.

Also what I have personally learnt through the experience has been well and truly worth it.

Working with a generous soul such as Frank Russell has been a rewarding experience, hopefully Frank got as much out of it as I did.

The support from others as well has been just as incredible. Glenn Dawson was generous enough to lend me his compressor for the painting and continues to provide input at the lake.

Graham Howie gave up his time with the measuring (8 hours). My father Des Shepherd also

helped out on occasion. Garry Taylor for his input on sails. Not to forget my wife Holly, who had to put up with the whole rebuild process even though she has absolutely no interest... lol.

It is only about 3 weeks away from the Australian 2016 Nationals, which I will be attending for the first time and I am quite excited.

The prospect of winning the event is quite unlikely, but the boat in it's current form is competitive enough that, if I sail her well I can get amongst it.

There is still more tuning to be done on the rig and more gains will be had as a result.

My gut feeling says that we may even be able to go lighter and longer on a Mk3 lead, but I think I will sail her for a good period before considering that option.

I love sailing the A Class. They are a majestic displacement hull that can provide just as much fun, if not more than the IOM's and being a development class there is ongoing scope to continue your own development past that of what the designer may have considered.

Also, if you have an older design don't for one minute think that you cant improve it. Given what I have learnt there is definitely room for improvement with older designs and finding and then getting the absolute best out of the boat should be the goal.

If your a bit daunted about doing a rebuild or even building from scratch, don't be.

Radio sailing has some wonderful people in it and they are only to happy to help out if you reach out to them. Also ignore any negative feedback or comments you might get. Just be willing to try your ideas out. If you have a strong gut feeling about something give it a go. The satisfaction you will get from the the journey will be just as satis as the end result.

My thanks, blessings and appreciation go out all those that have been a part of this journey, especially Frank Russell, Des Shepherd, Holly Shepherd, Glenn Dawson, Graham Howie an Garry Taylor.

Thank you.

Mark Shepherd

Happy Sailing... !!

