

Introduction >

The process of developing **new sails for the RS200** was driven by the **lack of ability to continue to securely source the old mainsail material** at an acceptable cost, resulting in the need to produce a new mainsail.

Rest assured that our **sole purpose in this process is to increase longevity** of the sails (maintain the longevity of the mainsails in a new cloth and increase the longevity of the jib and spinnaker), **maintain performance** and **if at all possible reduce costs** for you the members of the RS Association.

The **duration of the process was always restricted** at the start due to the availability of existing main sail cloth. In order **to have sails readily available in quantity for April we need to go to a class association vote by the end of January**. We are now in a position to go to vote.

Recognition >

At this juncture I feel it is only appropriate that on behalf of the fleet the following individuals are recognised and thanked for there huge contribution to enabling the project get to this stage:

**Matt Mee Emma Norris Ben Palmer Ian Pickard Lucy Preston Francis Peters Alex Southon Edd Whitehead
Mike Lennon**

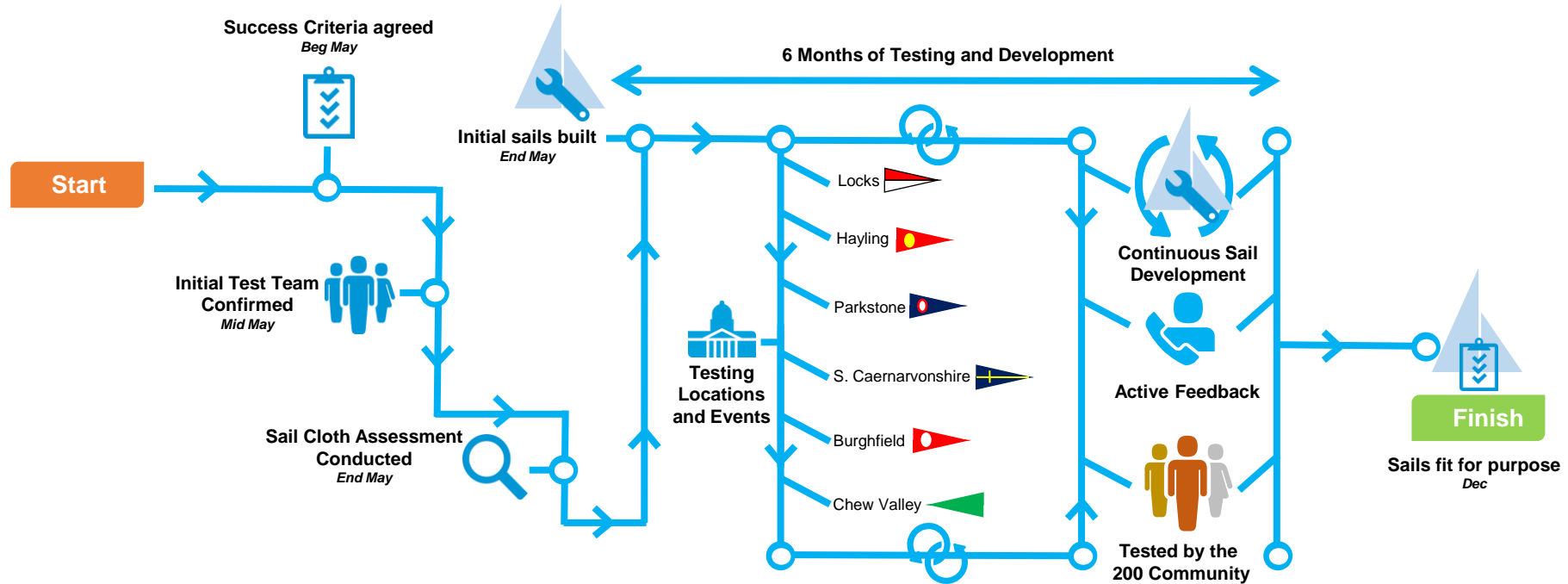
This has been a significant undertaking, not only from the time given up to testing the sails, but the complete and absolute ownership of responsibility these guys have undertaken to ensuring that we get a great product that meets the need of all RS200 Sailors and the class continuous success.

Secondly, we need to thank RS boats for there massive support. This project has shown that there is a really strong relationship between the builder and the owners. They have shown equally as much passion and drive for our beloved class as the sailors. They have provided multiple sets of test sails all individually designed and tweaked to enable development; in excess of 27 sails to date. They have provided access to Sail Designers, guidance and

Success Criteria	Objective
Like for Like performance	There is no performance difference between the legacy sail plan and the proposed new sail plan ensuring all boats race on equal terms
Sail Plan power to weight ratio	The new sail plan will provide the same power performance as the original ensuring the current weight bracket of crews is retained
Quality and longevity of the sails	The new sail plans will be built to provide further longevity. For example the spinnaker and jib
Cost	The new sail plan will be similar in price. Our ambition is to try and reduce cost. However, if sails can last longer then there is benefit to the sailors

New Sail Success Criteria, originally published in May

So how have we tested ?



Sails tested at multiple events and actively seek feedback



Tested by all representatives of the community



Consistency of Test Sailors



In excess of 27 Development Sails



506 Man Hours of Sail Testing and Consultation



RS Boats has covered the cost of development and consultancy of sails

Jib



Success Criteria	Objective
Like for Like performance	✓
Sail Plan power to weight ratio	✓
Quality and longevity of the sails	✓
Cost	✓

Overview



The sail that has been produced is made from exactly the **same Dacron material as the original sail**. Although the top of the sail is the same as the original, **the lower part is now made up of to radial cut panels** and has a **larger window** than the original. The **Sail is 99.9% the same design** as the original, but with the radial cut the bottom of the sail it is just **fractionally flatter in the lower section**. This has **not adversely affected performance** and to the naked eye it is unlikely you would see a difference. The sail also now has **an adjustable luff tension cleat and cover** compared to the original sail. Although the sail is slightly more expensive (£15.00) than the original the **radial cut will improve longevity and aesthetically matches the new radial cut mains**.



New radial jib

Adjustable luff cleat and cover



Adjustable cleat arrangement



New radial main & jib

Testing Feedback

Performance

The sail has been used by Gold, Silver and Bronze fleet sailors and we have not seen any performance differences in the testing conducted or at the events where we have used the sail. Due to the sail being slightly flatter in the bottom, we have had to move the jib car forward by one hole and would expect more adjustment than the original in different conditions. Many of the sailors have commented on the new increased size of window, stating it gives far more visibility even when in the hiking position.

Quality and longevity of the sails

The original development sail has seen some significant use equivalent to a circuit jib; used in very strong winds and has been flogged considerably on the beach. The sail looks in pretty good condition and better than its predecessor. The adjustable luff cleat also is adding some longevity of the sail, by releasing the tension when finishing sailing.

Spinnaker



Success Criteria	Objective
Like for Like performance	✗
Sail Plan power to weight ratio	✓
Quality and longevity of the sails	✓
Cost	✓

Overview

The sail developed uses the **same spinnaker cloth material as the current sail**. The **difference is in the radial cut design**. Due to the radial cut; we have had to make some design modifications from the original to ensure **downwind like for like performance is maintained**. This has meant that the sail does look positively more like an Asymmetric sail, and if laid over an original is bigger in the shoulders of the sail. The sail has been used significantly the most during the 7 months of testing and has required the least amount of development. Although the sail is slightly more expensive (£10.00) than the original the **radial cut will improve longevity and aesthetically matches the new radial cut main and jib**.

New radial main, jib & Spinnaker



Like for Like Performance:

Straight downwind sailing there **is no adverse difference in performance to the original sail**, which would not affect circuit sailors based on course formats. It would help improve handicap, 'round the cans' racing for club sailors.

Testing Feedback

Performance	Feedback from the test sailors is that the sail performs exactly as the original downwind (this has been tested extensively), however, does performs better across the wind (20% higher than original with some minor speed improvement). Some crews have said it is harder to keep the spinnaker full through the gybe, while others have seen no difference at all. The sail has been raced at the Inlands and regional events and no adverse downwind performance increase has been noticed.
Quality and longevity of the sails	During the testing we have compared performance with a new Spinnaker, effectively both sails have come out the packet the same day and used in the same conditions. The radial spinnaker, is without question in better condition than the original

Main Sails



The Contender C581 sail cloth is a very different modern material compared to the original 20 year old material. It has the potential to act differently to the original cloth in terms of use of controls and performance.

Although presently performing against the published performance criteria there is a small risk of some performance differential from the original. With the lack of availability of legacy cloth we have no choice but to except this risk.



New radial main options. Please note jibs are old design concepts

Standard Radial Main

Success Criteria	Objective
Like for Like performance	✓✓
Sail Plan power to weight ratio	✓✓✓
Quality and longevity of the sails	✓✓✓
Cost	✓✓

Overview

The sail developed uses **Contender C581 cloth**. This has been similarly **used by the RS400 and RS800**. We therefore have a **proven material** which **can be easily sourced**. With the material selected the mainsail would have to have a radial cut and no exact replica could be made of the original mainsail due to the way the modern fibres are laminated into the material. The sail is a like for like of the original in terms of size and shape, though like the jib is a radial cut in design to provide longevity and align both sail plans. There is a slight 3% difference in draft position to the original, to bring the draft further forwards as per the original sail as a result of the radial cut.



New radial main & jib



Testing Feedback

Performance

The test sailors have spent a great deal of time sailing and have not seen any significant performance advantage compared to the original. When in the boat, it is apparent how much more visibility the crew have. This is even more so when sailing downwind where the helm can see the whole spinnaker. We have observed that there is the need for more early application of controls such as Cunningham and kicker compared to the original. This is simply due to the different loading within the sails fibre and construction being compared to the original horizontal. This is not a considerable but appropriate to highlight

Quality and longevity of the sails

The sails appear to have the same longevity as the originals and we have actively sought feedback from the RS400 and RS800 community who seem content. The material will still shrink in sunlight as does the original, but the rate of shrinkage is comparable. Being honest we retrieved one early concept sail from the bottom of a skip, and went sailing with it..... You would have never have known it had been screwed and thrown away a week prior.

Square Top Main



Success Criteria	Objective
Like for Like performance	
Sail Plan power to weight ratio	
Quality and longevity of the sails	
Cost	



Figure 1



Figure 2

Overview

The sail developed uses **Contender C581 cloth** as per the **new radial standard main sail option**. The sail has been designed as square top. The sail is the **same physical size as the original**. This has been achieved by using cloth from the foot and redeploying on the head (See Figure 1&2)

The sail is flatter than the original to ensure the performance and sail plan power are retained as the original.

In recent testing we have **witnessed performance inconsistency upwind compared to the original and standard radial option**. Likewise it is **evident that the current Square Top sail is lower downwind compared to the original and standard radial options where performance was consistently more alike**.

Although unlikely to adversely affect boat handling, the sail would present new learning for all and this is a **significant departure from the tradition sail, which could adversely affect our one class design and current dynamic**.

Although **the sail has not met the published success criteria**; the association has **included as a vote option as the fleet may adamantly feel this is the right direction for the class and rightly the opportunity to express that intent**. If the vote results in favor RS and the design team have no doubt we can get the sail to work in the future and will commit to doing so based on a majority vote only.



New radial square main & new jib and spinnaker options



Like for Like Performance:

In testing conducted to date the Square top sail has been inconsistent upwind compared to the original design shapes. Downwind the sail was surprisingly slower than the original sails

Sail Plan power to weight ratio:

Until a sail that can be produced to meet the like for like performance test, we have not been able to test. On previous sails developed there were promising signs this could be achieved.



New Spinnaker:

“The new spinnaker feels slightly fuller due to more shaping created by the radial seam layout and requires more carefully trimming in light downwind soaking mode.”

“The spinnaker is mostly comparable in speed in light winds, some crews initially may find it hard to sail as low as they used to but after a bit of practice it will feel the same. Due to its better shape it is slightly faster reaching and downwind in a big breeze.”

“Due to the radial layout the sail is maintaining its shape after significant use.”

The New Jib

“The radial jib is flatter in the base. “

“Crews may need to put cars forward in light winds to max power conditions to get the required sail shape.”

“Once you have got your head round the leech and car positions no major performance difference has been noted between the two jibs.”

The New Radial Main Sail

“This mainsail is very similar in performance and feel compared to the old sail, it has proven to be similar across the wind range in testing.”

“The leech profile is similar resulting in the same use of mainsheet to the standard old main, the transition from mainsheet tension to kicking occurs at the same wind strength.”

“Due to the radial design the maximum depth of the sail is lower than the old sail giving a slightly flatter head, in max power conditions this could feel like a slight reduction in height however will be more efficient and less drag in big breeze”

“The mainsail requires slightly different use of Cunningham, which works well as a de powering control, crews would end up using more Cunningham compared to the old standard sail.”

“Overall a very similar sail in performance, setup and feel”

The New Square Top Main

“This mainsail due to its square head has a unique relationship with the top two battens and is significantly flatter than the original sail.”

“In light breeze around 6kts the main feels underpowered, with an inability to sit on the side when others can and less pointing ability. You need to be careful on mainsheet tension, the boat will struggle to point as high and increasing mainsheet tension does not close the leech at the top but results in a hooked leech at the base and the top batten wanting to hinge off more.”

“In max power conditions the current square top really struggles for height as it is much flatter with no leech return.”

“In big breeze the sail is more efficient in terms of shape and is very flat with little kicker now the hinging top batten works in your favour, you can sail lower and slightly faster but still works out as an overall loss compared to traditional main.”

“Downwind the current square top was slower in planning conditions, it started planning later and drop of the plane earlier than the traditional mainsail due to a lack of power caused by no depth or twist of the sail.



The Class Association has been in discussions over the commercials and the following principles have been agreed:

- An RS200 member of the Class Association will receive a one off introductory voucher for each sail. Please see discount rates below.
- The introductory discounts will be honoured for a period of 36 months providing Association Membership is maintained without absence throughout this period commencing 1st April 2015.
- Discounts apply to one association subscription and not multi family membership.
- RS boats have assured that sail prices will be fixed for a period of 24 Months commencing 1st April 2015 but will honour 15% reduction on Retail price from 1st April 2017-1st April 2018.

Sail	Unit Cost of Original	Unit Cost of New	Delta	Sail Longevity Increase
Jib	£279.00	£294.00	+£15	
Standard Main	£619.00	£610.00	-£9	
Spinnaker	£349.00	£359.00	+£10	
Square Top Main	N/A	Same as Standard		
Total:	£1,247.00	£1,263.00	+£16	N/A

Without Class Association Discounts
Price list from RS website 10th Dec 2014





Association Discounts	Year 1	Year 2	Year 3
Jib	25% (£220.50)	20% (£235.20)	15% (£249.90)
Standard Main	25% (£457.50)	20% (£488.00)	15% (£518.50)
Spinnaker	25% (£269.25)	20% (£287.20)	15% (£305.15)
Square Top Main	Same as standard radial		
Total:	£947.25	£1010.40	£1073.55
Saving:	£315.75	£252.60	£189.45

Illustration of the proposed introductory sail discounts

The Vote



In order to maximise the members vote, subject to availability of sailors association members who vote will be given priority to purchase sails.

Sails:		Vote: (Please Tick Box)	
Legacy Sail	New development option	In favour of new design	Keep the original
No option to retain original sail		<div style="background-color: red; color: white; padding: 10px; display: inline-block;">OR</div>	No option to retain original sail
			
	<div style="background-color: red; color: white; padding: 10px; display: inline-block;">OR</div>	Radial Jib Design	
Original spinnaker Design			

In order to gauge how much initial stock RS boats should be ordering please can you confirm if you are likely to purchase sails in April *Please tick box*