

# ***CHOOSING RIGS***

## *for Marblehead class yachts*

### *introduction*

The unrestricted nature of the class rules and the relatively large number of rigs permitted in this class means that the cost of providing rigs for a competitive Marblehead usually far exceeds the cost of the hull.

As the rigs are often retained for further use when the yacht is replaced, it makes good sense to carefully consider their choice.

Correct choice of rigs at the planning stage will help to make your yacht more competitive over a wide range of conditions and maximise your benefit from the expenditure made.

# *first steps*

## **Understanding the limitations in the class rules**

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Three sail measurement groups (each comprising a mainsail and a headsail) with the full measured area, but with different aspect ratio, are permitted to be recorded on the certificate. These are termed A, B and C sail measurement groups and must be (current class rules) in descending order of height.

There may be two additional mainsail/headsail pairings, which are smaller in all respects, within each of these A, B and C certificated sail measurement groups.

For example there will often be C2 and C3 mainsail/headsail pairings which have the same (or smaller) foot lengths as the C certificated sail measurement group but which have progressively lower total rig heights.

There may also be B2 and B3 mainsail/headsail pairings which have the same (or smaller) foot lengths as the B certificated sail measurement group but which are even lower than the C3 rig.

In extreme cases an owner may have an A2 mainsail/headsail pairing which is very slightly smaller than the A certificated sail measurement group sizes but with super light sails, and perhaps an A3 mainsail/headsail pairing which is really very small for sailing in extreme conditions.

Hence the maximum number of rigs a yacht may check in at an event is nine.

At an event (current class rules) it will be permitted to use up to a maximum of six mainsail/headsail pairings chosen from the maximum number possible (nine).

## *where should you start?*

### **Consider how many mainsail/headsail pairings (rigs) you intend to finish with**

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Your decision about **how many rigs** will have a bearing on which **size and type of rigs** those should be and, if you do not wish to start by purchasing all of them, **which rigs should be purchased first**.

Most competitive Marblehead owners will have 5 rigs. Some will have more than this especially if they are travelling regularly to major open events and do not wish to be let down by not having small enough sails.

Many owners manage very well with 4 rigs. If you do not plan to sail at major events and are prepared to spend time sailing with the wrong rig, or not sailing because you do not have small enough sails, then as few as 2 or 3 rigs may suffice.

# *swing rig or conventional rig?*

## ***Swing rigs***

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These offer the advantage of lower cost for a given level of quality because of their simplicity. They are somewhat easier to tune and maintain. If you have not used this type of rig before, don't let the appearance put you off. With practice the rig handles perfectly well and the performance in lighter winds is wonderful.

## ***Conventional rigs***

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True conventional rigs with shrouds, spreaders etc are now rarely used by the better placing competitors. They have been replaced by the so called **shroudless rig**. This is simply a normal Bermuda mainsail/headsail rig with a very stiff mast which does not need shrouds to hold it up.

One reason for their popularity compared with swing rigs is their apparent superior performance in heavy winds. The yacht is easier to handle especially off wind and on a reach. Many people are happier using a rig which looks 'normal' to them. Keeping the headsail goosewinged on running courses can be difficult.

In an attempt to save keep weight low and rig performance high it has become normal to add shrouds and spreaders for the tallest rig only. The tallest rig has to work well in very light airs and so a pocket luff mainsail is not a practical proposition. The addition of shrouds and spreaders is not a problem.

## ***Recent developments***

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The period from 1992 to 2000 has seen a steady move towards using a swing rig for the tallest, A, rig and shroudless conventional rigs for all the lower rigs. Not all have followed this pattern and some continue to use all swing rigs while others use all conventional rigs.

After 2000 many of the top results have been achieved with a conventional A rig.

The habit of designing hulls with a raised foredeck and a lowered deck where the mast is placed has enabled conventional rigs with a mainsail luff as long as the luff on a swing rig to be used. This has promoted light airs performance, partly by getting the sail area higher and partly by gaining extra 'free' area.

For some years now SAILSetc has been making pocket luff mainsails that are well shaped and comparatively wrinkle free when the sail is twisted off. The pocket luff sail generates less drag than alternative attachment methods and the result is a closer winded, or faster, boat.

Choose a pocket luff mainsail for the B rig and lower rigs where the extra weight of sail does not prevent the sail from working well. The snag with these sails is that they cannot be rolled for delivery and have to be sent packed up like completed rigs. If you are having completed rigs this is not a problem of course. We are looking for a neat solution to this problem.

Whereas lower rigs perform far better if pocket luff mainsails are used, the tallest rig has to work well in very light airs and the extra weight and stiffness of the pocket luff is too much of a handicap

The use of pocket luff sails accentuated the need to have the centre of rotation of the main boom coincident with the centre of rotation for the mainsail i.e. on the centre of the mast. We developed gooseneck 12b to provide this. Use it with pocket luff mainsails for best results.

## *which rigs are recommended?*

### ***A RIG***

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In 1992, for the first time in four years, one of the yachts placing in the top ten at the RM National Championship used a 'conventional' A rig rather than a swing rig. Top results have been totally dominated by boats using swing rigs in light airs up to 2001 when the UK national championship was won by a boat NOT using an A swing rig. The 2002 and 2003 UK national championship was also won by boats not using swing rigs.

The swing rigs listed on page 14 of the SAILSetc catalogue are suitable for a wide range of yachts. The mast tubes we use are now all in high modulus carbon. Hence the 92 Series kit, A(92), is sufficiently stiff even for the most stable designs.

On designs like ASTRA, ROK and PRIME NUMBER featuring a raised foredeck the swing rig will give very good results in light airs up to a 15 degree heel angle. Above that heel angle stability begins to become the predominant factor and a conventional rig placed lower in the hull can be expected to give better results.

The conventional shroudless A rig (we suggest using with shrouds and spreaders) listed on page 15 is suitable for ASTRA, ROK, PRIME NUMBER and other similar designs and is capable of giving excellent results in light airs as well as a breeze.

### ***B RIG***

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My own preference was for a swing rig until 1992. Since 1992 I have used a conventional shroudless rig with an 1800 mm mainsail luff length. Thanks to the very stiff mast tubes the 92 Series B+ swing rig and the 1800 conventional shroudless rigs are suitable for use on all current designs.

### ***C RIG***

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Since 1988 I have used a conventional shroudless rig of 1600 mm mainsail luff length and this seems the safe option for all designs.

### ***LOWER RIGS***

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If the C Rig is a conventional shroudless rig then all the lower rigs will normally be the same.

### ***COMMON OPTIONS***

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Gizmo on an A swing rig.

'Specials' headsails on all A rigs.

'Specials' mainsails and headsails on all A rigs.

Shrouds and spreaders should be used with an A conventional 'shroudless' rig.

Ball raced goosenecks may be included in the conventional shroudless rig kits.  
 Ball raced gooseneck with axis on the mast centreline, item 12b, is a useful refinement.  
 Ball raced head & tack fittings, items 23g & 23k, on 1800 conventional shroudless rig kits.  
 Flat wire for standing rigging instead of round wire in all kits.

Pocket luff mainsails on all B and C rigs – cannot be rolled for delivery.

### **SIZES OF RIGS – for a boat with a flat deck like PARADOX**

The following selections, although not necessarily the only possible combinations, will give good coverage of wind speed range and excellent performance in a wide range of conditions.

#### **3 Rigs**

|          |          |          |
|----------|----------|----------|
| A SWR    | B+ SWR   | C1 SWR   |
| A SWR    | 1600 SHR | 1300 SHR |
| 2050 SHR | 1600 SHR | 1300 SHR |

#### **4 Rigs**

|          |          |          |          |
|----------|----------|----------|----------|
| A SWR    | B+ SWR   | C1 SWR   | C2 SWR   |
| A SWR    | B+ SWR   | 1600 SHR | 1300 SHR |
| 2050 SHR | 1800 SHR | 1600 SHR | 1300 SHR |

#### **5 Rigs**

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| A SWR    | B+ SWR   | C1 SWR   | C2 SWR   | C3 SWR   |
| A SWR    | B+ SWR   | 1600 SHR | 1400 SHR | 1200 SHR |
| 2050 SHR | 1800 SHR | 1600 SHR | 1400 SHR | 1200 SHR |

#### **6 Rigs**

|          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|
| A SWR    | B+ SWR   | C1 SWR   | C2 SWR   | C3 SWR   | B2 SWR   |
| A SWR    | B+ SWR   | 1600 SHR | 1400 SHR | 1200 SHR | 1000 SHR |
| 2050 SHR | 1800 SHR | 1600 SHR | 1400 SHR | 1200 SHR | 1000 SHR |

#### **7 Rigs**

|          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|
| A SWR    | B+ SWR   | 1600 SHR | 1400 SHR | 1200 SHR | 1100 SHR | 1000 SHR |
| 2050 SHR | 1800 SHR | 1600 SHR | 1400 SHR | 1200 SHR | 1100 SHR | 1000 SHR |

Code            SWR = SWING RIG            SHR = SHROUDLESS RIG

### **SIZES OF RIGS – for a boat with a raised deck like PRIME NUMBER**

The following selections, although not necessarily the only possible combinations, will give good coverage of wind speed range and excellent performance in a wide range of conditions.

#### **3 Rigs**

|          |          |          |
|----------|----------|----------|
| 2150 SHR | 1700 SHR | 1300 SHR |
|----------|----------|----------|

**4 Rigs**

2150 SHR    1850 SHR    1600 SHR    1300 SHR

**5 Rigs**

2150 SHR    1850 SHR    1600 SHR    1400 SHR    1200 SHR

**6 Rigs**

2150 SHR    1850 SHR    1600 SHR    1400 SHR    1200 SHR    1000 SHR

**7 Rigs**

2150 SHR    1850 SHR    1600 SHR    1400 SHR    1200 SHR    1100 SHR    1000 SHR

Code            SHR = SHROUDLESS RIG

**PROPORTION MAINSAIL & HEADSAIL**

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Our conventional shroudless rig kits use Marblehead STOCK sails as standard components. These are available in two different mainsail/headsail proportions i.e. 62%:38% (500/300\*) and 59%:41% (475/325\*) (\* ratios of measured area in square inches).

Our yachts are built for the 59%:41% proportion. There is no apparent performance difference although some people believe the larger headsail rig is better on reaching and off wind courses, and this seems to be the most popular choice for other designs.

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