

# Rigging and Racing an Older Wooden Hampton



*By Mark Merriner*

## Introduction

So now you have acquired an older wooden Hampton, and you are trying to figure out how to fix it up, get it on the water, and make it more competitive. This article will discuss some of the things you may need to repair, and what some priorities for improving the boat might be. If you have some ideas or experiences that are not mentioned in the article or know of some different approaches that you would be willing to share with the fleet, please contact us so that they can be incorporated into the article.

## Things to do:

1. Determine your objectives
2. Hull repairs
3. Removing excess weight and stiffening the hull
4. Refinishing
5. Basic fittings and rigging
6. Fittings and accessories
7. Standing rigging
8. Forestay
9. Shrouds
10. Mast ram or deck support



## Determine Your Objectives

The first and most important thing to do is to set reasonable objectives. If you are the proud owner of a 100 series Hampton (probably over 60 years old), probably no amount of effort is going to make your boat competitive at the top level of the fleet due to its weight. There are lots of improvements that you could make, but you have to decide how much money and time you are willing to risk investing in "go-fast" equipment on a boat that might be best suited to cruising. If your goals are to be competitive at the top levels of the fleet with the minimum amount of effort, you should consider purchasing and racing a more recent boat to become familiar with it, and then selling it and buying a better one when you are ready.

An older wooden boat probably does not have a light rudder, cut down centerboard and trunk, current sails, and a Proctor Gamma spar and boom rigged to current specifications. You could add all that; upgrading to a contemporary rudder costs around \$400, a new centerboard is around \$500, a new suit of sails is about \$1,300, and a mast and boom are about \$1,400. You could spend \$3,600 on your boat, and you have not even started repairing the hull and updating

the control systems! These investments are probably not reasonable for a hull prior to the 300 series boats, but might very well be for a later one in good condition.

There are lots of things that you can do to make your old Hampton better and more competitive without spending an obscene amount of money. Some of your priorities for improving an older boat might be:

- Making necessary hull repairs
- Removing excess weight
- Stiffening the hull
- Setting up the boat to standard tuning numbers
- Making basic control systems work
- Fairing the blades and bottom

## Hull Repairs

One of the most common repairs that must be made to wooden boats is splits in the planking and frames. Most commonly, splits are repaired by opening them up and filling them with thickened epoxy (the cheap approach) or opening them with a circular saw or router and then epoxy gluing wooden splines in the seam (the preferred, more expensive approach). This stiffens the boat and prevents leaks. The disadvantage of doing this is that after you make this type of repair, you must dry-sail the boat. If you leave the boat in the water for an extended period of time, (several days) the planking will expand and cause stress to build up in the hull, possibly causing severe structural damage. You should read a copy of the Gougeon Brothers/West System pamphlet on restoring older wooden boats before you attempt this job.

Other types of hull damage such as localized rot or holes in the planking or deck due to collision can be repaired by replacing the plank(s) that have been damaged, or scarfing and gluing-in a new section of planking or patch.

Frames in some boats may be split or rotted. Any damaged frames should be removed and replaced. Be certain to remove all of the old fasteners before replacing the frame. This reduces weight. Most wooden boats have been fastened with bronze screws; however, some have also been built with bronze anchorfast nails, galvanized nails, and stainless steel screws. If the planking is damaged in the process of removing fasteners, overdrill the area and plug the hole with an epoxy-glued wooden bung of the same type of wood as the hull planking.

The mast steps and centerboard trunks of the boats often need repair or reinforcement due to the extreme force they endure. Ensure that the centerboard trunk (1) is securely fastened in the boat and to the adjacent frames, and (2) is leak- and rot-free. Water tends to accumulate in the bottom of the trunk, allowing rot to attack the adjacent wood. If the trunk must be removed to make repairs, it is a good idea to seal the inside of the trunk and the hull, both where the trunk fastens and in the slot, with epoxy resin and light glass cloth. This precaution should prevent the trunk rot problem.

Deck frames in the area of the mast partner often fail because of the high loads they are subjected to. As with any other frames in the boat, you should replace them instead of "sistering" in new frames to keep the boat as light as possible.

Your guiding philosophy at this stage of the process should be to stabilize the structure of the boat and prevent further deterioration.

## Removing Excess Weight and Stiffening the Hull

Very few wooden boats are at or near the class minimum weight of 500 pounds with all equipment. The lightest wooden boats tend to be the Lauterbach cedar boats and the Harrell plywood boats. Some competitive Serio boats weigh in as

low as 530 and as high as 600 pounds. Some of the Lauterbach and Harrell boats weigh between 510 and 530 pounds. Of course this is without the cooler of beer, spare tire, and ample buttocks that some skippers and crew may carry around with them.

For optimum light-air performance, you will want to eliminate as much weight from the boat as permissible under the class rules.

One of the most rapidly rewarding areas from which weight can be removed is the centerboard trunk and centerboard. In the 1960's the class specifications were modified to allow the top of the trunk to be lowered several inches to make it easier to tack. The specifications were also changed to allow for a small triangle to be cut out of the top forward corner of the board to allow installation of a boomvang. Since most wood boats were made before these changes, you should check the class specifications and measure your boat to be sure that these modifications have been made, and made properly. If they have not been made, circular saw and a batten nailed on the trunk to guide the saw at the proper height work best on the trunk. Unless you have access to a plasma cutter or a metal-cutting band saw, you will probably want to have the aluminum centerboard cut down by a machine shop.

You will need to remove the vertical support member between the top of the centerboard trunk and the mast partner in order to cut down the trunk. This is an important structural member which will need to be replaced with transverse bracing aft or forward of the trunk and vertical bracing between the floor frames and deck frames forward of the mast. The aft bracing is commonly provided with a wooden traveler bar and/or aluminum traveler track, both of which are also very handy when the skipper hikes out. The ends of the traveler bars and track are commonly attached to the side frames of the boat, and the center is attached to the back of the trunk. Other options are using wood or metal bracing at the forward or aft end of the trunk in a variety of configurations. The vertical bracing, if installed, is normally accomplished with threaded rod or small wooden members spanning between deck and floor frames forward of the mast. If you install these, consider offsetting them slightly so that there is adequate room to allow you to squeeze by into the bow to make repairs and do rigging work.

Hardware and running rigging are another significant avenue for weight savings. If you want to race and be competitive, pitch the cast bronze. The class keeps boxes of original cast bronze hardware for people desiring to outfit traditional boats for cruising. Donations are appreciated and will go a long way towards reducing your boat's weight. Install aluminum lifting points, track, rudder pintles and gudgeons, and minimum weight modern fittings to help prevent frustration on light air days. Minimize the amount of hardware you install on the boat, as well. For example, having too much purchase for a control line is a waste of not only money, but also of line and hardware weight. Don't forget about how much water weight line picks up when it rolls around in the bottom of the boat. Be certain to evaluate the cost and weight advantages of doubling up purchases as opposed to simply increasing the number of multiple-sheave blocks and the length of line on your boat.

I'll discuss rigs more fully in a later installment, but must mention that the wooden masts in use today are not competitive with the modern aluminum Proctor Gamma spar with respect to performance or weight. This may change if someone makes a daring effort with wood/composite construction, but for now aluminum is the lightest option allowable under the class rules and most sailmakers are building sails to match the Proctor Gamma spar's characteristics. If you are going to race, buy a contemporary spar. However, with respect to booms, Charlie McCoy sails just fine with his wooden boom. Everybody else seems more comfortable with aluminum. Aluminum and wooden booms can be lightened with lightening holes and tapering in the ends, if you feel comfortable pushing the margin of safety.

If you are performing an extensive restoration, you may want to consider installing a plywood transom and centerboard trunk. Depending upon the type of plywood you use, you may be able to shave some weight off the boat. The rules allow plywood to be substituted for (1) mahogany in the transom, and (2) cedar/spruce in the trunk. If you install a plywood transom in an otherwise non-plywood boat, you will need to provide a shim between the knee and transom to fill the space left vacant by the thinner plywood. If you elect to install a plywood centerboard trunk, you may want to consider installing a conventional plank bed log and rabbeting the plywood into it to prevent the plywood from wicking moisture from the bottom of the boat through the end grain. Before you put it all together, be certain to completely seal the

inside and outside of the trunk with epoxy to prevent warping. A layer of light glass cloth or veil set in epoxy on the inside of the trunk and slot will ensure years of trouble-free service.

Plywood boats have a potential weight advantage due to the provision in the rules allowing reduced numbers of deck frames. The additional strength of the plywood relative to conventional planking ensures structural integrity. Laminated wood has also been used to reduce the weight of tillers and rudders. The laminated rudders and tillers are much lighter than the solid ones originally built. An added benefit is reliability, since in sharp contrast to fiberglass and mahogany plank rudders, no laminated rudders have sheared off to date.

As I indicated in the section on basic hull repairs, you should minimize the number of fasteners that you use in the boat. Illustrate this to yourself sometime if you have to replace a frame by collecting and weighing the screws that held the old frame in place. Use epoxy resin and minimal fasteners to glue frames in the boat. The epoxy will hold the boat together better. The fasteners are just there to hold the frame in place until the epoxy cures. Without epoxy resin, every time the boat endures a load cycle (a big wave), the fasteners will move slightly. Over time, they will tend to crush the surrounding wood and lose their grip, with adverse consequences for boat stiffness, and ultimately structural integrity.

Splining and filleting are two other ways to stiffen the boat. We discussed how to go about splining the boats last month. Splining stiffens the boat by stopping plank movement in the seams. Filleting provides a better frame/plank joint and more support for the boat. If you want to have some fun sometime, go out on a heavy air day in a splined and filleted wooden boat and sail beside a plastic boat upwind into big waves. Make the boats pound. Compare the sound and the flexing of the hulls. You should be able to see the plastic boat flex, rattle, and roll. The wooden boat should slice right through it and reveal its most significant advantage.

## Refinishing

The exterior surfaces of a wooden Hampton can be either epoxy-coated or primed prior to painting. Most people prime and paint rather than epoxy-encapsulate due to weight and ease-of-fairing considerations, but some of the penetrating epoxy sealers introduced recently show great promise. If your boat has a propensity towards splitting, you may have to sheath it with light cloth or veil and epoxy in order to control the splitting. Many people have obtained good results with the Interlux™ 404/414 two-part epoxy primer and Brightside™ one-part polyurethane primer, depending upon the type of paint they planned to use as a finish coat. I once sailed my boat with nothing but wet-sanded 404/414 on it for two seasons.

Spend your time fairing the bottom and sides of the boat before you start encapsulating and priming. Once you get coatings on the boat, it will become much harder to sand. Pay particular attention to making certain that the bottom is fair - locally and overall. Finish coats are a matter of personal choice. Two-part polyurethanes have the highest gloss and best durability, but they are finicky and expensive. One-parts are less durable, but nearly foolproof, inexpensive, and close to the two-parts in gloss. Some people have used acrylic automobile finishes with good results, too. If you are racing the boat, you will probably need to repaint every other year due to dings sustained on the course, at the dock, and on the road. Spraying is best if you can do it, but the roller/brush technique works almost as well.

The same finishing approach should be taken inside the boat and on deck, unless the condition of the boat lends itself to varnishing. Try to avoid using glass cloth or veil inside the hull or on deck unless it is absolutely necessary for structural reasons. If you paint, choose a color that will be easy on your eyes and extremities in the baking summer sun. Dark paint absorbs heat, and can be uncomfortable to the touch, as well as hard on the boat. If the boat is in good shape, you should go ahead and varnish the interior. A varnish finish will enable you to keep better tabs on moisture or fastener corrosion problems in the hull, as well as splits and other defects in the making. Do not put a canvas deck on the boat unless you really want it to be heavy. Canvas looks and feels nice, but is nothing more than unnecessary weight on a racing boat.

## Basic Fittings and Rigging

### Fittings and Accessories

Bailers are essential in a wooden Hampton. If you have any leaks, the bailers will make it easier to keep the boat dry. If you capsize, the bailers will enable the boat to be dewatered quickly and easily. Nearly all boats use the Elvstrom™-type stainless steel bailers. The large size is most popular, and you will need a minimum of two. They should be installed between the frames adjacent to the centerboard trunk, centered longitudinally along the trunk. Cast them in place with epoxy to ensure a good seal. Some people may install a second set of bailers at the chines. They really come in handy on heavy air days when it is difficult to keep the boat flat so that water drains away from the center.

Leaky bailers should be repaired or replaced. One of the worst agonies is to be ghosting along in light air, taking on water through the bailers, and not going fast enough for them to remove water from the boat. Usually the fixed portion of the bailer is fine, but the moving portion and/or the seal between the moving and fixed portions needs to be replaced. The seals are available separately. If the moving portion has to be replaced, buy a complete new bailer, remove the moving portion, and replace the one in the boat with it. Use soap to lubricate the bailers enough to remove and then install the inner moving piece. You have to bend a small stainless steel tab at the back of the moving portion to get it in or out.

Lifting points and a strap are a must if you intend to sail at Hampton or Cambridge. Pitch the original bronze lifting points that were originally installed in the boat and replace them with aluminum. Installing them between the mast step and forward end of the centerboard trunk and at the aft end of the centerboard trunk is the most common solution. Some people have also installed light U-bolts on the mast step and traveler bar or in the bottom of the boat with good results.

The original mahogany rudders tend to shear off near the waterline due to the high load they experience during poorly executed jibes. The bronze drift pins in them also add unnecessary weight in an undesirable area of the boat. The best cure for this situation is the laminated rudder introduced in 1994. Although the new laminated rudder is much lighter than the original mahogany one and the more modern fiberglass ones, none have failed yet. Thus far, they have been constructed of all-mahogany and alternating mahogany and spruce laminates.

When you set up the rudder, be certain to allow the tiller to lift vertically. This makes it much easier for the skipper to tack the boat and steer from awkward positions. The tiller extension can be made of any material, although most people elect to use commercially available anodized aluminum extrusions. The universal joint is a critical fitting. Be certain that you install one that pivots smoothly in all directions, yet remains rigid. Most skippers prefer the feel of rigid stainless steel universals to flexible synthetic ones. The metal universals also tend to last longer if properly maintained.

Centerboards tend to chafe at the strakes inside the centerboard trunk, wear down from running aground, and become pockmarked from corrosion. If you aim to be competitive in the racing fleet, you may want to consider installing a new centerboard in the boat. State-of-the-art centerboards are made of marine aluminum, have tapered trailing edges, and smooth, fair radius cuts. If a new centerboard is too much for your budget, you can acid-etch the board, coat it with epoxy/graphite mixture, and fair it. This will enable you to get a smooth surface, but it will not recover the surface area that was ground off on shoals. It is also a very time-consuming process. Gougeon Brothers sells the aluminum etching kit and the graphite powder that you will need to do this.

You will need some means of transporting the mast and boom in the boat when it is on a trailer. Some trailers have mast racks built into the tongue. Some people build a removable rack that fits into the mast step instead. Aft-racks commonly fit on the rudder pintles/gudgeons or in a slot at the aft end of the cockpit. You should install a rack that holds both the mast and boom in order to protect the inside of the boat. Anything that sits in the boat when it is on the road will tear it up and ruin that nice finish you sweated over.

If you are planning to be competitive at the top of the racing fleet, there is only one rig you want, and that is the Proctor tapered mast and Proctor boom. The SuperSpar tapered mast and the Proctor gold spar are also competitive, but lag slightly in performance. Most sailmakers are designing sails to the Proctor tapered mast, so at this time, the odds of success are much greater with the standard rig.

The most popular sailmakers used by the class are Quantum, Cambridge, and Baxter. Deal with the loft that you find most responsive to your needs and convenient for you. Some sailmakers may require a deposit before taking your order. Be certain that you get a contract with a specific delivery date before you proffer a deposit, so that you will not be stuck on the sidelines with old blown out sails. Test the sailmaker's responsiveness to your calls and specific needs before making any commitments. Get a contract with a firm price and delivery date before putting down a deposit, and spread the word to your friends about good service, and, when necessary, bad service.

## Standing Rigging

Standing rigging in a racing Hampton is very simple – shrouds, a forestay, and mast support somewhere between the boom and the step. In contrast, the means for adjusting the standing rigging can be quite complex.

## Forestay

The purpose of the forestay is to hold the rig up when the jib is not hoisted, and to provide a straightedge against which one can measure jib luff sag whilst sailing. The standard jib is equipped with a luff wire adequate to support the rig, so weight aloft can be reduced by skimping on the forestay. I generally use  $1/16$  inch 1 x 19 stainless steel wire for the forestay and  $3/16$  or  $1/4$  inch shock cord to tension it at deck level. Without a means of tensioning the forestay, it will be impossible to use it to judge jib luff sag, as it will just flop around.

A heavier, more conservative approach is to install a forestay of the same thickness as the jib luff wire, route it through a turning block at deck level, and make the end of it into an eye to be used as the jib tack. This system equalizes tension between the jib luff wire and forestay, and thus eliminates the advantage of being able to measure jib luff sag against the forestay. It also puts the most weight aloft of all options. A variation of this approach routes the forestay through the deck to a purchase system used to keep it tensioned straight. This restores the advantage of being able to measure jib luff sag against the forestay, while putting the same amount of weight aloft. However, this option is the heaviest overall because of the addition of the belowdeck tensioning system.

## Shrouds

There are two equally popular ways of fixing the shrouds at the deck level. The simplest is to use tracks and sliding cars, in conjunction with highfield levers to connect the shrouds to the cars and provide a means of quickly relieving rig tension. A more elegant, but heavier and more complicated method is to attach the shroud to a short wire strop that runs through a turning block at the deck to a purchase system below deck. Which-ever system you chose, and however you decide to execute it; the most important design criteria is that the system allow the leeward shroud to be eased off when going downwind. All Hamptons ease the leeward shroud off the wind to allow the boom to go out further, allow the mast to stand straight up (or rake forward if you're well-insured), and reduce mast bend to create a fuller main. It is important that your shroud system allow this to be done easily. However, it is even more important that the system allow you to easily pull the shroud back tight before you start heading back up wind!

## Mast Ram or Deck Support

The final element in the standing rigging is a means of supporting the mast at the deck level. Most new fiberglass Hamptons come equipped with a mast-ram that allows the amount of bend in the lower part of the mast (around the gooseneck) to be controlled while under way. The mast ram itself is an aluminum tube that extends diagonally from the deck to the mast where it attaches to a sliding car on a track which is attached to the front of the mast. The sliding car is

controlled by two block and tackle purchases that pull the car either up or down, and thereby control the amount of fore/aft bend, and generally stabilize the mast.

An alternative to the mast ram is to use mast chocks at the deck level. The same control, or almost the same control can be achieved on a wooden boat by simply using wooden blocks in the mast partner to hold the mast in whatever position you choose. This simpler/lighter/cheaper approach is more effective in a wooden boat than a glass boat because the step is lower which gives the deck-level blocks more leverage than they would have in a fiberglass boat. The principal disadvantage to this approach is that the chocks are hard to adjust underway, particularly when it is windy.

Obviously there are many ways to set up the standing rigging on a Hampton and still be within the guidelines established by the specifications. There is even more flexibility in the choice of running rigging and control systems. This flexibility is particularly evident in wooden boats which offer the best access to and widest variety of attachment points for various systems. This flexibility allows an owner of a wooden boat to customize his or her boat to their own preferences, exercise creativity and ingenuity, and is an important part of what makes restoring and competing in a wooden boat so satisfying for those who chose to take on the challenge.