



The SHOCK of the OLD

Part 32: Really Getting You Going

Moray MacPhail continues his series on refining traditional rigs with advice on gaff mainsails and how to tame them.

We did the gaff at the top in W174 and the boom at the bottom in W175, now for the sail between them.

Assuming two halyards, when hoisting a gaff mainsail the normal way is to hoist the gaff horizontally until the luff is tight, then 'peak up' to set the sail. When lowering, it depends how easily everything runs. Sometimes it is possible to lower with the gaff horizontal but usually the saddle needs a shove by keeping the gaff at an angle. The main halyards should be led to starboard so when you are reefing or hoisting you are on starboard tack.

Ideally the purchases on the peak and the throat halyards should be the same. This makes it easy to keep the gaff horizontal – on a smaller boat by holding both halyards together; on a larger craft by two people hoisting at the same rate.

The throat and peak halyards should also operate independently, so that peaking up does not affect the tension on the luff or throat halyard. This is easily achieved by fixing the throat halyard to a cross bolt, which is also the point of attachment for the throat of the sail and the pivot for the gaff on the saddle. On wooden jaws a tang set through the jaws connecting the throat to its halyard will do the same.

Sometimes you see an arrangement where the throat halyard is fitted some way aft of the throat attachment on the sail. Peaking up then slackens the luff, while easing the peak tightens it, with considerable leverage, both of which are undesirable.

We noted a couple of articles back in W173 that it was important to keep throat halyard blocks well clear of the saddle to ensure it is not forced one way or the other.

Halyards can foul mast hoops if they are taken to cleats on the mast, to pins on the gooseneck or to turning blocks mounted close to the mast. You can fit pinrails on deck or in the shrouds to get the lower part of the halyards out of the way, as in Figure 1. Another way round this is to use lacing instead of hoops.

Hoops & Lacing

This leads me to a brief digression on mast hoops and lacing. The traditional British way to attach the luff of the mainsail to the mast is to use wooden mast hoops, usually made from steamed ash, sometimes oak. These are shaped on the inside face to prevent binding on the mast and comprise about 2½ turns of wood, key-ring fashion. They are almost impossible to fit once the mast is dressed, so the prudent owner fits

a spare one or two. There are two principal variations on the theme. The first is to use metal hoops – usually galvanised steel but stainless tube is very light – covered with leather or served with marline. These don't break as easily, if ever and they can be re-galvanised and re-covered as needed. It is also possible to make them in such a way that they can be fitted onto a rigged mast.

Or use mast lacing; hundreds of Dutchmen can't be wrong. Lacing has the advantages of costing as many pennies as hoops do pounds, reducing weight and windage aloft, being fit-able at any stage and lying close to the mast, do not foul halyards led to mast cleats or turning blocks at the base of the mast.

The two most commonly quoted disadvantages are that lacing jams more readily, a situation improved if the lacing runs in a round-and-back fashion rather than spirally – see Figure 2 – and that mast hoops also provide a ladder for you to climb the mast! On my own boat I found that ignoring the luff lacing completely and having decent tension on the throat halyard simply leaves the luff flapping gently behind the mast – it wasn't doing much anyway.

Topping Lifts...

... are handy, even on smaller craft. The presence of a gaff or yard more or less compels a topping lift on each side of the mainsail. This can form rudimentary lazyjacks; also popular with the people who have one corner of the sail missing. However complex these things become, they will never be an automatic sail stowage system. You will still need to rummage around for sail ties at embarrassing moments. It doesn't really much matter how the things are arranged: separate lifts, double ended, single ended, adjusted from boom end or mast; all these variations work.

For smaller craft it may be possible to arrange a loop of fixed length



Facing page: A gaggle of gaffers and luggers waiting for the wind. Photo: Chris Perkins.

Above – Figure 1: Leathered wooden mast hoops on the Fife yacht Kismet, with the halyards held clear either by the pinrails on the deck or at the base of the shrouds.

Below – Figure 2: Lacing simply wound in a spiral (a) can easily jam when hoisting or lowering; a round-and-back arrangement (b) works better.

which passes through a block on the mast and is located by a clip or saddle under the boom. You set the length so it goes slack when the sail is hoisted but the boom settles into it, ideally over head-height, when the peak halyard is slackened.

Of course, the distance of the point of attachment on the boom of the topping lift from the gooseneck must be less than the length of the gaff or yard. When the sail is lowered, the spar stays between the topping lifts, rather than escaping sideways. Yes, I did lose a burgee that way.

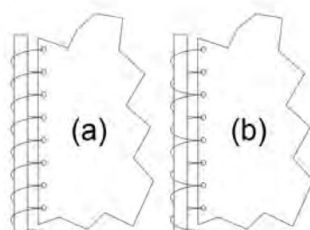


Figure 2. Lacing the Sail

I find this scheme very convenient; by eliminating one operation, it quickens reefing time and reduces mistakes. You can see it in action in Figure 3 a slack line from the masthead to a point on the boom just ahead of the forward mainsheet block.

Shaping the Sail

To get the full benefit of the power of your mainsail you should ideally be able to independently control the angle of incidence of the sail to the apparent wind, the amount of twist from foot to head and the camber of the sail at all points. How near you can get to this ideal will depend on whether the sail has a boom, how the foot of the sail is attached to it, and the width of the sheeting base.

In light winds, the difference in wind speed with increasing height means that you need twist in the sail anyway on all courses. Without a kicking strap, a mainsheet on its own

will do most of what you want in light winds if you can adjust the sheeting point on horns, a track or a sheet horse.

In medium and stronger winds, the mainsheet helps to control twist as long as it loads the sail in the same plane. The position of the mainsheet on the hull then controls the angle of incidence. The wider the sheeting base, the wider the range of angles where this happy state can apply.

Further off the wind, you end up with a random selection of incidence and twist, with usually far too much of the latter. As we saw in W174, a heavy boom will do little for you. What about fitting a kicking strap to restrict the lift of the boom and hence the twist of the sail, leaving the mainsheet to control the incidence? It's a good plan in theory but there are practical issues to overcome.

Firstly, there is no point in fitting one if it is too small or acute to be effective. It needs to be at an angle of between 30° and 45° to the boom and needs to be fitted at least a quarter of the boom away from the gooseneck. In the first instance, lash one up with spare bits of rope and blocks to see how effective it is and be very careful when using it.

Since I can't really afford a new boom, I am a wimp when hauling on my kicking strap but will set it on a long leg on a steady course. If you have a loose footed sail, the boom may not be sized to cope with a point load forward. If you can't fit one at all – perhaps because of a protruding cabin top, because it will foul up too much of the cockpit space in a smaller craft, or the boom won't take it, then you might try to find ways to extend the sheeting angle by using a different sheeting arrangement. I have never seen an upside-down kicker on a gaff rigged boat but there is no reason why it shouldn't work.

To help with twist, vangs set to the peak of the gaff are sometimes proposed: unless you like the sound of eyebolts pulling out of the deck, I reckon it's hope triumphing over experience.

Moving to camber, we have looked at the potential usefulness of the clew



Above – Figure 3: Note the topping lift loop running to the masthead – slack when the sail is set. See also the tell tales setting well at the head of the sail.

Below – Figure 4: The author's cunning system on his own boat for bending the gaff to change the sail shape at the head.

outhaul in adjusting the camber at the foot of the sail but what about elsewhere? The peak halyard will influence the position of the belly of the sail and to some extent the camber.

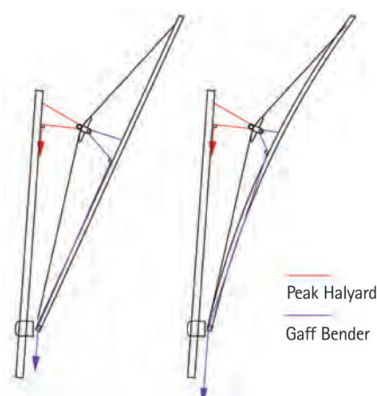


Figure 4. Bending the Gaff

You can have more fun though with a bendable gaff – by which I mean one whose bend can be controlled, which in turn means you can affect the camber at the head of the sail. I'm sure there are plenty of ways to do it but the scheme I have been using involves a span which

runs the length of the gaff, in the middle of which is a small tackle which bends the gaff – see Figure 4.

Starting with a round wooden spar, I shaved off top and bottom to allow it to bend easily in the vertical plane but not so much sideways. After some experimentation I have a spar which fits the sail nicely and has about twice the stiffness sideways as it does vertically. What's great is the combination of mainsheet, peak halyard, clew outhaul, gaff bender and kicking strap – if I dare! – lets me dial up pretty much any sail shape I want to get effective airflow over the whole sail.

How do I know? Tell-tales set along a line about 25% forward of the leech, and across the head of the sail above the saddle. Get them all streaming and you are in business. It is remarkably satisfying overhauling modern Bermudan boats to windward in an 1896 design with a 1907 gaff rig. Downwind, they are easy meat anyway!

Next time we'll take a closer look at arrangements for mainsheets.

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