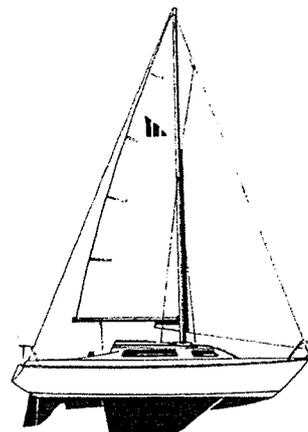


The Tomahawk Owners Bulletin

March 2001



Editorial Column

*Michael Juer
Warpath*

Welcome to the 4th TOA bulletin. Winter is beginning to retreat and boat maintenance is now at the top of the agenda again – wonderful. Even the family are asking when we launch and sailing plans are emerging. So out with the maintenance list, (remember as you put the boat away last year you agreed this year it would be different – shorter list, less expense, more DIY) and it just seems to grow and grow by itself. For us there is particular attention also to the one or two weekends we sail with out children. Round the Island Race, (and this year there is a cup!) is jealously guarded as a “children free zone” but the baby sitting arrangements always need planning months in advance. Crystal and Warpath are entering – we need some more Tomahawks and there is no shortage in the Solent so please let me know if you can join us. Also for any Solent boats who are interested I am planning a weekend to Cherbourg at end May (Bank Holiday weekend) in

the company of around 50 other boats (Warriors, Westerly and Rassy). It would be good to have some extra Tomahawks. The AGM was held recently and it was good to meet new people. The AGM Minutes are included with this bulletin.

Well all over Xmas and New Year I became the family bore. Each and every day for 3 months at least three times a day I logged on to the official Vendee Globe site and monitored the race and of course in particular Ellen MacArthur. Everything that has been said about her achievement is an understatement and I am certainly not going to compete with professional journalists anyhow. However what I did find very exciting that no one has commented on was the use of the Internet as a medium to watch such a race. With position reports every 12 hours, position and weather charts, regular email reports from all skippers every day, video footage sent via satellite to watch as web casts, recordings of voice communications and stunning photographs from around the globe at sea you were actually almost with them. By the time they do it again in 2005 the technology will have moved on even more and no doubt we will

be able to see and hear them live if the organizers and competitors permit. For those of us who have Sky we are also seeing increasing coverage of other sailing & racing and camera and coverage technology is immensely improved. Its great to see sailing becoming more accessible and understood. Also certain is the fact that all these technological developments will in some way at some time in the future provide benefits even to pleasure sailors like ourselves. How that comes about is thankfully beyond my remit.

We have received details of the Friendship route Rally to be held in Brittany July 27 to August 4 2001. You can either race or sail leisurely from Cap-Sizun (Audierne) to Sauzon (Belle Ile) calling at various places on the way. One stage every day, parties & festivities every evening. Around 100 boats take part and it seems it's a very enjoyable way of spending a week on board. I have full details if anyone is interested. Thanks again to all the contributors to this bulletin including Kemp Sails who again have provided excellent articles and actively supported us.

Belgium & Back Summer 2000

After much heart searching, Phil decided to sell his trusted and much travelled boat Aeolus. We had discussed possible names for a new boat, but dismissed a combination of our names, PHIL LYNN as the coast guard would have confused us for a couple of dentists. We spent more than a year looking for another boat. After a few near misses, Phil got a message in February on the Internet about a boat at Pin Mill. The boat, a Tomahawk seemed too good to be true. Phil arranged to see the boat a couple of days later, and after a good look round, bought Sequoia the same day. We spent alternate weekends travelling to Pin Mill, where the boat was ashore in the 'Meadow'. Phil spent a lot of time and effort during the day preparing the boat for the sailing season. The dark nights were spent very pleasantly at the Butt and Oyster in front of the log fire, with a few pints of Tolly Cobbled bitter for sustenance.

The boat went on the water in May, then we really realized what a dream we had purchased. We spent the Spring Bank holiday cruising up to Malden, then onto Brightlingsea. Walton Backwaters became a favourite anchorage, being free and unspoiled being some of its many advantages.

As we were nearer to Europe, crossing to Belgium seemed a possibility. Our plans were delayed a little as Lynn had an appointment on the first day of the holiday. It was the first time she had to consult the tide timetables before accepting an interview date. To prevent departing from the boat at 7am, in full interview suit, to be rowed ashore, we decided to go into the Dock Marina at Ipswich. This move proved to be of more benefit than the interview. We discovered, when dock control did not answer, that the radio was receiving, but not transmitting. We crossed the river to Fox's Marina. Phil announced he was popping to the toilet. Two pints and a few vol-au-vents later he returned with a grin on his face. The boatyard were launching a new boat and he had tagged onto the celebration. Fox's were very helpful and fixed us up with a new radio. Onto Suffolk Marina so we

could make a quick get away the following day. At 10.30 Thursday 27th of July we set off for Belgium.

All went well until darkness fell and Lynn spotted flashing lights in the sky. Fearing an enormous storm, Lynn demanded that the sails were reduced in preparation for the fury to follow. After some hours with spectacular flashes but no thunder, Phil decided we were witnessing a meteor storm and may live long enough to reach Belgium. We sailed most of the way, crossing two main shipping channels. At West Hinder junction, a precautionary area where all traffic seems to alter direction, two large passenger ferries appeared out of the dark a few yards either side of us. A very scary situation as they past at about 20 knots, disappearing

as fast as they had appeared. I wonder if they knew we were there? We could have been wiped out and no one would have known.

Cable operations were being carried out in the second shipping lane we encountered, and vessels were warned to keep their distance. The 'Landing Vessel' heard over the radio seemed to disregard some of these requests and sent the cable guard boat radio operator into a high pitched frenzy.

The approach into Ostend was very choppy and the boat heaved about. We were pleased to reach the entrance of Ostend harbour. At this point the landing craft came on the radio to confuse the Belgian authorities who asked if it was a 'man of war', perhaps wondering if the British were invading yet again. We turned to the sight of a 50-meter black metal box crashing through the waves, perhaps a reject from Anchor stores.

We held onto some basin ropes while we waited for the dock gates to open.

After 10 minutes we tied on. When we had completed breakfast an hour

Later we eventually gained entry to the lock and made our way into the

Mercator Dock, passing under several road bridges.

On mooring Phil went ashore to the toilet. He came back a little shocked, not only had he had to pay 20 p to have a piddle, but a lady entered his cubicle and wiped the seat before he could enter. We obtained a swipe card that allowed us into the shower, this was metered and added to the bill. Everything was at hand at the mooring, we were in the middle of town. We could see the supermarket from the boat, Phil discovered the delights of cheap Belgium beer. After six nights in Belgium we never saw a free toilet and Phil was getting quite perturbed. It was costing more to piddle than a bottle of beer.

We hit lucky in Ostend and visited in the middle of a festival where street and beach entertainment were on offer each day. We spent a baffling, but entertaining evening watching a performance on the beach about, we think, mans relationship with cattle, culminating in mad cow disease. The performance started with two drummers being lowered from the four storey stage by ropes, and it just got more bizarre. Whenever the excitement rose, fireworks went off at random. Phil's favourite entertainers were a bunch of pirates parading around the streets in a bottomless dinghy.

The tram and train station were near and we had a day out in Bruges and another at Nieuwpoort. The forecast was poor for the first few days we were in Belgium, although it was mainly good for us on shore. We left for Harwich at 5.30 p.m. following a good forecast.

Another night sail, without the light show, then a pleasant weekend in Walton Backwaters before returning to Tetney via Lowestoft and Blakeney.

Lowestoft and Blakeney.

Lynn Kenyon & Phil Martin
Sequoia

“IOLA” AROUND ANGLESEY

For those of you not familiar with Anglesey it is an excellent and challenging sailing area set against the backdrop of the mountains of Snowdonia and separated from mainland Wales by the 19 mile long Menai Straits. Anglesey's circumnavigation provides an interesting passage with a number of “tidal gates” to be considered and a wide variety of coastal scenery. The tides through the Menai Straits can appear complicated and maybe a little daunting to the novice although, once the basic reasons behind them are grasped and timings are understood, they can, as elsewhere, be used to your advantage when planning a passage either through the straits or around the island. The main reason for the strong tides through the straits (up to 8 knots at springs through the narrow constriction – the Swellies – in the centre of the straits with very little period of slack water) is the fact that High Water at the Northern end occurs about 1 ½ hours later than at the Southern end and the spring range is 25 feet in the North and only 14 feet in the South. The nett result of these factors is an almost constant tidal gradient with the short slack periods occurring when either the opposing floods meet (High Water slack in the Swellies) or the South going ebb is met and equalled by the North going flood (Low Water slack in the Swellies).

My boat “Iola” is based at Beaumaris towards the Northern end of the straits and last August I was joined by a colleague and a customer of mine to “circumnavigate” the island on what soon was christened our “Corporate Sailing Event” so that the customer could skive off work without using up a days holiday! Steve and I arrived at Beaumaris at around 1900 on Thursday evening and rowed out to “Iola” on her mooring. We were soon underway for the short trip down to the landing stage at Menai Bridge town where we were lucky enough to find a berth alongside for the night. We met up with Peter (the customer) in the pub and then dined at the local Tandoori followed by some more liquid refreshment before turning in at around 2330. There wasn't much wind outside that night but there was plenty down below!

We were up at 0700 in order to pass through the Swellies at High Water slack timed to be at around 0745 so we cast off at 0735 for the short trip under Telford's suspension bridge and through the Swellies to Stevenson's railway bridge – it was like a mill pond without so much a breath of wind or a ripple on the water. We carried on under motor to Port Dinorwic where we picked up a vacant mooring and cooked breakfast. By the time we had eaten a light South-West breeze had piped up so we raised the main, cast off and motor-sailed past Carnarfon with its magnificent waterside castle, through the narrows at Abermenai and out towards the Carnarfon Bar. Even though it was neaps the ebb was running strongly as we approached the Mussel Bank buoy (3-1/2 knots according to the GPS) and the usual short, steep chop was kicked up by the wind over tide conditions over the 3 miles or so to the entrance buoys. In my mind the Carnarfon Bar is a dangerous place in all but the calmest of weather and I would never attempt to cross it in above a F4 with wind over tide. Once past the entrance buoys we turned towards the North, stopped the engine, unfurled the full genoa and set off towards Holyhead on a broad reach. Steve and Peter had both gone a little quiet on the passage over the bar and their general listlessness suggested that “mal de mer”

wasn't far away. Peter took the helm but it wasn't long before he was visiting the lee rail – what a waste of those lovely Cumberland sausages so thoughtfully provided by the caring skipper!

It was a glorious day for sailing, clear blue sky, 8-10 knots of warm South-Westerly wind on the Port quarter and a gentle swell – “Iola” was sailing well averaging a reasonable 5 knots and the Anglesey coast from Llandwyn Island up towards Holy Island was slipping by nicely. This side of Anglesey is generally low lying with many beautiful sandy coves, some only easily accessible by boat although there are a number of dangerous offlying reefs so, if you are going close in, you need to keep an eye on the chart. Steve has sailed with me on and off for 15 years but he is what I would describe as a “social sailor” – he puts up with the sailing to enjoy the eating and, more importantly, the drinking at night after the passage! He had by now retired below to lie prone in the forepeak with one of his legendary “bongy heads” – a name my daughter invented for when he moves in slow motion and retires below to sleep in whatever the conditions! By 1300 we were ½ a mile or so off the Rhoscolyn Beacon and feeling the effects of the ebb flowing around the Stacks at the Northern end of Holy Island. At springs the Holyhead Races occur frequently and run fiercely off the North and South Stacks and, especially in wind over tide conditions, can set up horrendous seas so, even at neaps like today, it is prudent to pass at or near slack water. We turned onto a dead run at 1430, Low Water slack give or take a few minutes, and ran close in past South Stack with its impressive lighthouse and continued goose-winged right across Holyhead Bay to Carmel Head in the distance, the next “tidal gate” in our passage. Steve and Peter had by now both recovered enough to enjoy both the magnificent coastal scenery and a somewhat late lunch. Luckily we'd missed the HSS Stena Explorer which roared out of Holyhead bound for Dun Laoghaire as we were passing South Stack although a large conventional ferry and a dredger passed a few hundred yards astern when we were near to the Langdon Ridge buoy. The flood was beginning to run as we approached Carmel Head and we were swept round the low headland amidst various swirls and eddies at 1515. The North coast of Anglesey has many offlying dangers and was a graveyard for shipping in the days of sail and, with its high cliffs and strong tides, is no place to be caught on a lee shore in a rising wind. We continued on a run past the Harry Furlong buoy, which marks the end of a nasty reef of the same name, then gybed and enjoyed a reach into Cemaes Bay where we dropped sail and anchored in Porth Mawr off the harbour to await the tide at 1645. It had been a super days sail with 38.1 miles run on the log (41.5 miles over the ground by GPS) in 8 ¼ hours. Dave Meacher, the owner of “Malibu” and his young son rowed out to see us and to tell us that we moor alongside “Malibu” in the harbour that night and we arranged to meet up later for a pint. Apparently Dave had been most impressed by the timing of our arrival – I'd contacted him earlier in the week and said that, weather permitting, we'd arrive around 1630 – he said at 1630 he'd looked up from the mouth of a patient (he's a dentist) and looked out of his surgery window to see “Iola” coming around the headland! It was pure luck honestly Dave, we hadn't been anchored round the corner to get the timing spot on!

At 1915 we motored slowly into the tiny harbour and tied up alongside “Malibu” which was moored fore and aft and after a quick tidy up of both boat and crew we went ashore and made for the “Stag” for some well earned refreshment and a meal. Dave and his wife Françoise soon joined us and we spent a pleasant evening yarning and swapping tales and ideas, finishing up back on board the brace of

Tomahawks to look at the differences between the layouts of the Mk 1/2 and the Mk 3. ("Malibu" is a Mk 2 built late 70's and "Iola" is a Mk 3 built by Seabourne Engineering in 1983) The 1754 shipping forecast had given S 4/5 occasionally 6 for the Irish Sea which seemed unlikely when we turned in just before midnight in flat calm conditions with barely a cloud in the sky – oh ye of little faith – when I went for a call of nature in the middle of the night it was drizzling heavily and, by the time we roused ourselves at 0730, the wind was whistling in the rigging. With the wind on the beam it proved a tricky manoeuvre to motor astern out of the berth and turn around in the crowded harbour but, more by luck than skill, we managed it without any collisions (what's your boat like going astern?) and we motored out into the bay to set the main with the first reef in and the genoa furlled to working jib size. By this time Dave appeared in "Malibu" and he set the same sail plan and a fine sight she made as we ran out of Cemaes Bay taking photos of each others boats. We then turned East and set off on an exhilarating reach towards Point Lynas, the North Eastern tip of Anglesey, the next "tide gate" on our passage with its nasty race which is best passed close in at slack water. It was super sailing with the wind straight off the land at 20/25 knots and a flat sea a few hundred yards off the high cliffs. "Malibu" pulled ahead of us as we temporarily lost the wind near Hells Mouth but we were soon romping along again in pursuit at up to 7.4 knots – "Iola's" record! "Malibu" turned back for home off Bull Bay and we carried on and passed within 100 yards of Point Lynas at 1000, a few minutes before High Water slack with no sign of any race. We hardened in the sheets and set off on a close reach for Puffin Island Sound the next and final turning point of our circumnavigation. I had intended to anchor for lunch at Moelfre but the fresh Southerly meant that there would be little shelter there so I decided to press on for the Straits where there should be calmer conditions. Luckily both Steve and Peter had their sea legs today which was just as well as it was a wet and lively sail up to Puffin, but exhilarating and very enjoyable. This leg was against the tide (as we had to wait to float in Cemaes harbour) but it still only took us 3 hours to cover the 12 miles to Puffin Sound. Once through the narrow Sound (which can be very rough with fresh or strong winds over the ebb) the wind began to ease and we soon had to start the engine to make any progress against the ebb. We had to motor-sail all the way up to the Gazelle Hotel at Garth-Y-Don. By now the rain was lashing down as we picked up a free mooring off the Gazelle, blew up the dinghy and rowed ashore for a late lunch. Later we motored back up to the landing stage at Menai Bridge, now against the North going flood, and dropped Peter off to collect his car and thus complete our "circumnavigation" of 67.5 miles.

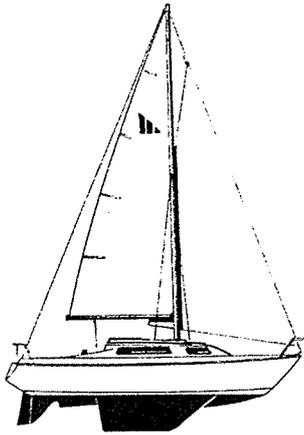
Steve and I motored back to Beaumaris and picked up our moorings at 1915. It had been an excellent 2 days, with a variety of sailing conditions, good company, the "odd pint", plenty of "boys type" jokes and the opportunity of meeting and sailing in company with another Tomahawk. It also proved what all us Tomahawk owners know – our boats are fast, seaworthy, fun to sail and will look after us when the going gets rough. Roll on next season!

Geoff Hilditch
Iola

A "Tail" of a Tomahwak

Our yacht Macaw is based in Porth Penrhynin north Wales, at the northern end of the Menai Straits and we have been quite used to cruising over to Ireland and even to Scotland in recent summers. However at the "time of speaking" Macaw was near her 13th birthday and we had started to notice a very small amount of play in the tiller. It was a problem that had crept up so gradually that we had simply got used to it, and as, like so many modern yachts, her rudder post did not swing on outside pintles but dropped through the deck & it would be quite a major job to extract we had, once again, passed it over during the Spring fit out. It was now early September, the last cruise of the season was coming up and as we had had no serious trouble so far we crossed over to Ireland as usual (though we did take the precaution of drying out in Holyhead first and fitting a set of outside steering ropes, just in case).

All went well until the penultimate day when we set out from Wicklow to cross back over to Port Dinllaen, a small natural harbour just north of Bardsey Island on the Lleyn peninsular. We had missed the 0555hrs shipping forecast, (a careless and as it turned out potentially fatal mistake), and instead of a force 4 to 5 predicted the night before we found ourselves, once clear of the Irish coast, having to deal with a thick sea mist and a Westerly Force 6 which soon backed to the south with the incoming tide and then increased to Force 7. This in itself was not a problem for we had long since reefed hard down and clipped on our lifelines, but when the ebb started it was wind against tide with a vengeance, Lumpy, vicious, breaking seas of 10 to 15 ft. and occasionally higher (oh yes they were – the Irish Sea is quite shallow and conditions like this are common), began to batter our starboard quarter, and twice we were pooped. Once, we were lifted and thrown bodily to port on the crest of a wave and I remember leaning out and watching in disbelief as our starboard bilge keel rose almost to the surface. Why not wait for a lull and then tack and take it on the port bow instead? After it would be far safer, the seas would go down as the tide turned again and Port Dinllaen is a deep water little harbor anyway. Because of course coming about in a sea like that would put enormous strain on



the rudder and if anything broke our outside rudder ropes would be almost useless. We hung on and reached port by late evening both physically and mentally exhausted – the boat however was fine a great tribute to the design and sea keeping qualities of the Tomahawk. Such an operation concentrates the mind and we immediately started

Operation Rudder. The whole process has been carefully recorded in full technicolor details (including photos) and we would be happy to provide this to anyone who was interested. The point however that has to be made here was the awful discovery during the process of identifying the cause of the rudder problem that the three main flanges that were there to give the necessary leverage support in the rudder had all completely rusted through at the weld and without exception were no longer attached to the rudder pole. The only thing that had held the rudder together was the friction

build up in the close fitting fibre casing along the full length of the pole, helped by the broken remnants of the weld. We looked at this in rather shocked silence; in view of the situation and weather encountered during that last cruise it was almost certain that friction and those insignificant bits had been all that had stood between us and a lifeboat call out. Our repairs looked as good as new and Macaw has sailed a good many miles since then.

Lessons learned:

- 1) Never ever put to sea without the very latest forecast.
- 2) If a piece of vital equipment even looks suspect do something about it quickly/
- 3) Don't believe what you want to believe – you will be wrong.

Brian Wheaton
Macaw

Kemp Sails

Tuning the masthead rig

Rig tuning is an essential but often overlooked aspect of boat ownership. Not only will your sails be unable to work efficiently if the mast is leaning over sideways and bending the wrong way, but insufficient rig tension places unfair stresses on the mast, terminals and standing rigging. Many cruising sailors are frightened of winding their bottlescrews down as tightly as they should - believing that slack shrouds are kinder to the boat - and are consequently running a far greater risk of rig failure.

Fortunately, the principles of tuning are simple. Once you've applied them to your boat, you'll have better-setting sails with all the associated benefits - more speed, better balance, improved pointing ability, less heel and, significantly, a safer, longer-lasting rig.

Getting started

To do its job properly, the mast must be straight and upright athwartships. The right amount of rake and pre-bend are important too, to balance the helm and ensure efficient sail shape. Finally, adequate rig tension keeps the mast where it ought to be as the wind builds. It also reduces the damaging "snatch-loading" in a seaway that's a principal cause of rig failure. These principles apply to virtually any boat with a stayed mast, and though we're going to concentrate on the most popular type of masthead rig found on smaller boats - with a single set of spreaders and either fore-and-aft lowers or a babystay - we'll also touch on the subtleties of double-spreader rigs.

The right amount of rake

Rake is often associated only with racing yachts. In fact most boats perform best to windward with a few degrees of aft rake, though it's true that racing sailors generally prefer a little more than their cruising counterparts. As a rule of thumb, start with around 2°, measured at the gooseneck with a weight on the end of a halyard and the boat level on her lines. Since 1° is 1 foot in 60, 2° of rake on a 30 foot mast is 12 inches.

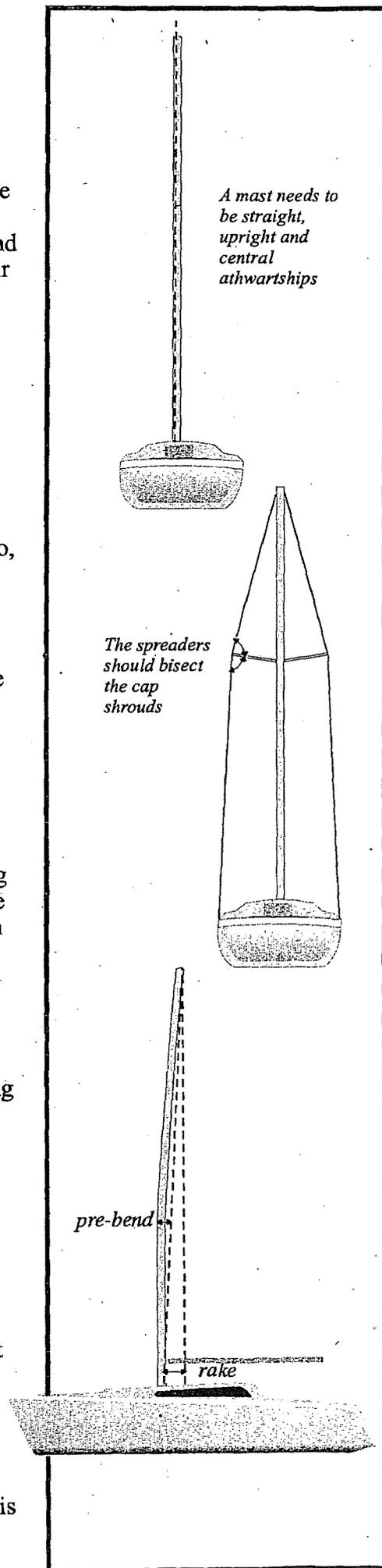
If you have a bottlescrew or rack adjuster on the forestay, you can experiment with different angles; it's the forestay's length that determines rake. You'll know that you've got it right when, sailing upwind under full sail in about 12 knots of wind, you're just beginning to feel a little weather helm.

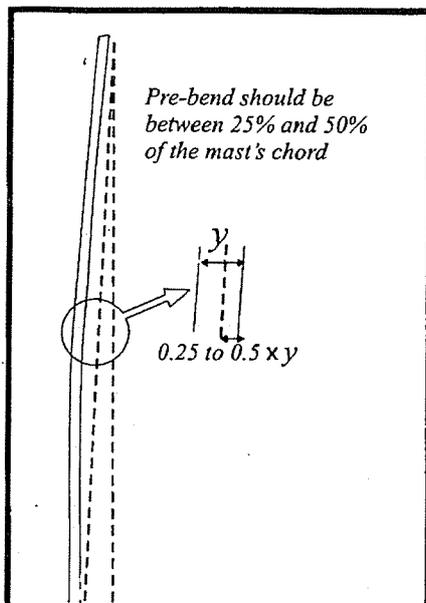
Angles aloft

Before you progress with setting up the rig, make sure that the spreaders bisect the cap shrouds. This means angling them slightly upwards towards the tips, which should be prevented from slipping down by, for example, a swaged fitting around the shroud. Droopy spreaders can lead to mast failure.

Standing straight

With the forestay set to the right length, check that the mast is upright athwartships: tighten each cap shroud by hand, then take a halyard from a central sheave to a fixed point on each side of the boat, like a chainplate or stanchion base. The same amount of tension on the halyard should be needed to make it touch both sides. You can normally feel this reasonably accurately by hand, but use a spring balance for greater precision. Like the rest of the tuning process, this is best done on a calm day. If the masthead is off-centre, adjust the cap shrouds until the halyard test tells you it's in the middle.





Tuning to perfection

With the mast upright and the rake set, it's time to tension the cap shrouds - but just how tight should they be? The answer is probably much tighter than you think! It's almost impossible to over-tighten the rigging using hand tools less than about 18 inches long, and in most cases it'll feel tight before you've reached the tension you're aiming for - about 15% of its breaking strain. If you're worried about straining the boat, bear in mind that the tension you apply on the mooring will be nothing compared with that taken by the rig when the boat starts heeling. The best way to see if you've got it right is to check under sail, as we'll discuss later. In the meantime, take the same number of turns on each bottlescrew to tension the caps equally before turning your attention to the lowers. Their purpose is to support the middle of the mast and determine the pre-bend - the slight forward curve your sailmaker will normally allow for when cutting the mainsail, and which ensures that the mast bends in the right direction when you apply backstay tension. An "inverted" bend is both dangerous and highly inefficient.

Setting the pre-bend

As a rule, the amount of pre-bend should be between 25% and 50% of the mast's chord (i.e. its fore-and-aft length) - a distance that can be judged from the deck if you pull the main halyard tightly down the gooseneck.

Tensioning the backstay first will make setting the pre-bend easier, then take up the forward lowers to put in a little more bend than you want. As you go, make sure the mast remains straight athwartships by sighting up the luff groove; any bends or kinks can be removed by balancing the turns on each bottlescrew. Next, take up the after lowers to remove some of the pre-bend, then add another turn or two on the forward pair to ensure that they're tighter than the after set, whose principal job is to limit the amount of bend when the backstay is wound down to its maximum. Finally, release the backstay to its normal position and check that enough pre-bend remains.

Checking afloat

Choose a day with flat water and about 15 knots of wind. With the boat sailing close-hauled under full sail, the leeward cap shroud should still be hand-tight; if you can easily deflect it more than an inch or two with your finger, take a couple more turns on the bottlescrew before tacking and doing the same the other side. Check and repeat as necessary, always adjusting the leeward (unloaded) bottlescrew.

Now look up the luff groove for kinks, removing them by adjusting the lowers. Remember that a slack lower on the weather side lets the middle of the mast fall away and makes it look as though the masthead is curving to windward.

Another check is to tension the backstay. This not only tightens the forestay to flatten the genoa as the wind builds, but bends the mast a little further to de-power the mainsail. If the mast bends too much, take up the aft lowers. With a double-spreader rig, treat the intermediates like the lowers to remove any kinks or S-bends. They should be tighter than the lowers but slacker than the caps.

Additional pointers

- New rigging stretches - check it after a few hours' sailing.
- Grease bottlescrews before adjustment.
- Make sure the mast doesn't bend aft in the middle when the mainsail is reefed.
- With a keel-stepped mast, remove the wedges from the partners before tuning.
- Treat a babystay like the forward lowers.
- Swept-back spreaders on modern rigs will induce pre-bend as the caps are tensioned. Intermediates will reduce pre-bend at the upper spreader level.
- Lock the bottlescrews with split pins and tape over them after adjustment.
- Many modern masthead rigs with swept-back spreaders and thin mast sections are tuned more like fractional rigs - see our fractional tuning guide.



KEMPSAILS PRICE LIST

Imperial (ft)

Metric (m)

TOMAHAWK 25

I: 30.37	J: 10.23	I: 9.26	J: 3.12
P: 25.48	E: 8.98	P: 7.77	E: 2.74

LOA:

Beam:

Prices in Bold-Italic include VAT @ 17.5%

Mainsail	Area (sq.ft)	Area (sq.m)	Coastal (Bermuda)	PC (Bermuda)	PCP (Bermuda)	PCR (Radial Weave)
Mainsail	114.41	<i>10.64</i>	418.72 492.00	507.96 596.85	589.19 692.29	699.02 821.34

Headsails	Area (sq.ft)	Area (sq.m)	Coastal / Xcut / Bermuda	PC / Xcut / Bermuda	PCP / Xcut / Premium	PCR / Radial Cut / Radial Weave
150% No.1	233.01	<i>21.67</i>	466.03 547.58	549.91 646.15	633.80 744.71	659.43 774.83
145% No.H1	225.25	<i>20.95</i>	457.25 537.27	545.10 640.49	612.67 719.89	648.71 762.23
135% No.2	209.71	<i>19.50</i>	425.72 500.22	507.50 596.32	570.42 670.24	603.97 709.67
95% No.3	147.58	<i>13.72</i>	348.28 409.23	379.27 445.64	425.02 499.40	439.77 516.74
80% WJ	124.27	<i>11.56</i>	280.86 330.01	311.93 366.52	345.48 405.94	364.12 427.84

Downwind Sails	Area (sq.ft)	Area (sq.m)	Coastal / Radial Head	PC / Tri Radial	PC+ / Full Radial
Spinnaker AP	559.23	<i>52.01</i>		592.79 696.52	777.33 913.37
Spinnaker 80%	447.39	<i>41.61</i>		514.49 604.53	621.87 730.69
Aysmetric	397.68	<i>36.98</i>		489.14 574.74	552.77 649.51
Cruising Chute	397.68	<i>36.98</i>	401.65 471.94	489.14 574.74	552.77 649.51

Other Products

Packaway Inc LJ	206.54 242.68
Packaway Ex LJ	179.60 211.03
Boom Cover	85.31 100.24
Sunsleeve	191.33 224.81

Other Products 2

Extra Reefs	35.92 42.21
UV Strips	45.56 53.53
Foam Luffs	60.74 71.37

NB. Prices in bold include VAT @ 17 1/2 %.

Snuffers Size 1	Luff to 36	£143	£168
Size 2	Luff to 45	£162	£190
Size 3	Luff to 60	£187	£220

Fabric	DIAX P + 5%	CL + 12%
Upgrades	DIAX PP + 7%	KEVLAR POA
	LSP + 10%	