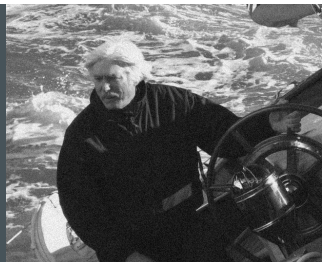
Tom Cunliffe



Heaving To

The author heaving to in order to sort things out on the foredeck

To heave a boat to under sail is to keep her at a near standstill under perfect control. For a thousand years, heaving to has been the seaman's ace in the pack, but in one generation it has been cast aside. Tom takes a look at some of the ways in which it can still do a lot to help even a vessel not really built for it

A few years back I was delivering a light, modern, fast cruising sloop. At 0200 one morning in the Bay of Biscay I decided that she needed a reef. There was no autopilot and my two mates were turned in. I had a problem. I had just tried to leave the helm to make a much-needed cup of tea and, after spending five minutes optimistically locking the wheel in various likely positions, had never got further than the bottom companion way step before the shaking of the sails, or the sickening change of balance as she bore away towards a gybe, had me galloping back up for another session. Just why this sort of nonsense is tolerated in current cruising designs is beyond me, but one thing was clear; unless I resorted to the ludicrous and socially terminal step of turning out the watch below to put a tuck in the main, I would just have to stop the boat.

So I hove to.

A couple of minutes later, with the wheel locked and the wild-horse motion changed to a gentle nodding, the reef was in and I hadn't even got wet. I looked round.

Stripped of the demon of the apparent wind, the night had now become altogether more benign. The watch below snored gently on. 'Well,' I thought, 'I may as well try a cup of tea while we're here ... and while I'm at it, I'll do a spot of navigation... and check the state of the batteries... and maybe even the heads will work now we've stopped leaping about.'

It only took a quarter of an hour to do my chores with the boat hove-to. Cost: one mile and a quarter. Gains: safety, refreshment, reassurance, a good sleep for the hands and, last but not least, personal relief! No other manoeuvre would have allowed me to do all these things so easily. The weather could not have been described as heavy by anybody's standards, but because of the rapid motion of this typical production cruiser, the simple tasks of living were just too difficult to perform as she bounced to windward.

In the days of hemp, canvas and tired wooden hulls, when conditions became too lively from forward of the beam, heaving to was a vital part of keeping the ship together. Most wooden working boats over a certain age leaked when driven to windward. The skipper would keep his eye on the number of pump strokes per hour and, if it got above what he thought reasonable, he'd heave to - unless he was rushing his catch home. His ropes and canvas were vulnerable and often past their best. Heaving to in a blow eased the strain on them most wonderfully, just as it does for the gear of contemporary yachts.

In the third millennium we've been largely set free from fear of gear carrying away by the plastic revolution, but we have other difficulties. Whilst the boy on a 19th century pilot cutter would cook the pilot's dinner whilst going to windward in a gale and think nothing of it, very few of us in a modern production cruiser could do much better than boil a kettle in similar conditions, let alone introduce the hot water to the teabag and get the whole thing back to the helmsman without spilling it over the engine box.

Crew fatigue is our first problem in bad weather. Like the old skipper watching the pump, we have to watch the crew and ourselves. When we can't add up the log any more; when the banter thins out and the skipper is wondering why on earth he didn't save his money and join the golf club, heaving to can still be a useful option. On a long leg, it offers a civilised way to await an improvement in the weather or simply to have a rest.

Time to heave to, pump ship and give the seasick helmsman a chance to recover

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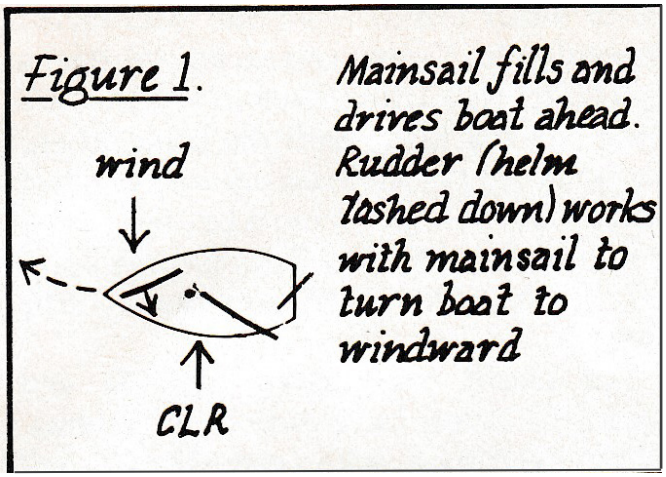
Terminology

Conjugating ‘To Heave to’

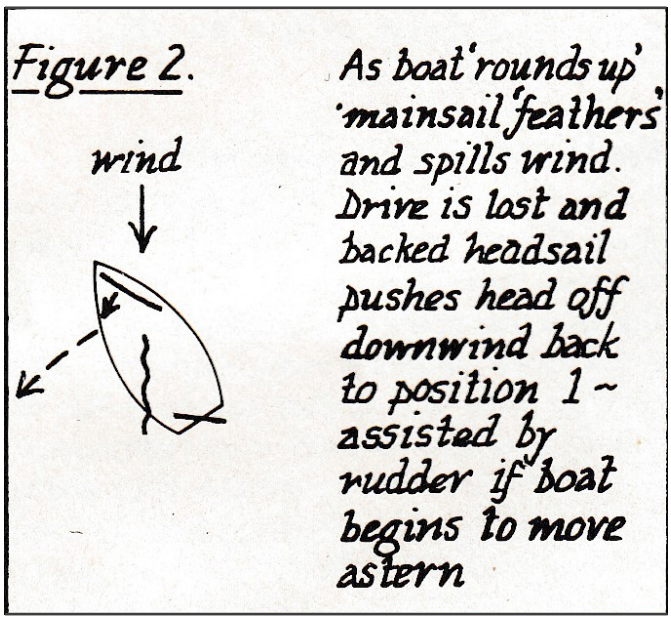
Remember conjugating verbs in Latin back at school? Well, ‘To Heave To’ is a case in point. It is much mis-spoken, so here goes:

Present active - ‘I heave to’. ‘The boat heaves to beautifully.’
Present passive - ‘The boat is (lying) hove to’
Future active - ‘I will heave to’. ‘I will heave her to in half an hour’.
Future passive - ‘By tomorrow, she will be hove to’.
All past tenses - ‘She was hove to’, ‘I hove to’, ‘By then, he had hove her to’, ‘She hove to like a duck’, etc.

I think that more or less covers it...



The classic hove-to position



The mechanics of heaving to

Figures 1 and 2 show a sloop in the classic hove-to position. The mainsail is sheeted in something like a close-reaching position and the clew of the headsail is held up to weather. The helm is lashed ‘down’, which means the rudder blade is pointing to windward and held there by either tiller or wheel. The equilibrium which is achieved needs to be dynamic, but in practice most boats can be persuaded to settle down fairly quietly in this attitude.

The characteristics of different types of boat when hove-to vary tremendously, but the principles remain the same. Two extreme cases are shown in Figure 3. Boat (a) is a traditional working boat shape. The deep forefoot will resist the tendency of the waves to knock the boat off the wind and hence beam-on to the waves. The peak of the gaff mainsail is well abaft the centre of lateral resistance and so has a good, long lever arm to help the boat point up. This type of craft will settle down between 30 degrees and 55 degrees from the true wind when hove to and because of her large, immersed area and even weight distribution she will be docile, with a minimum of ‘gilling and filling’.

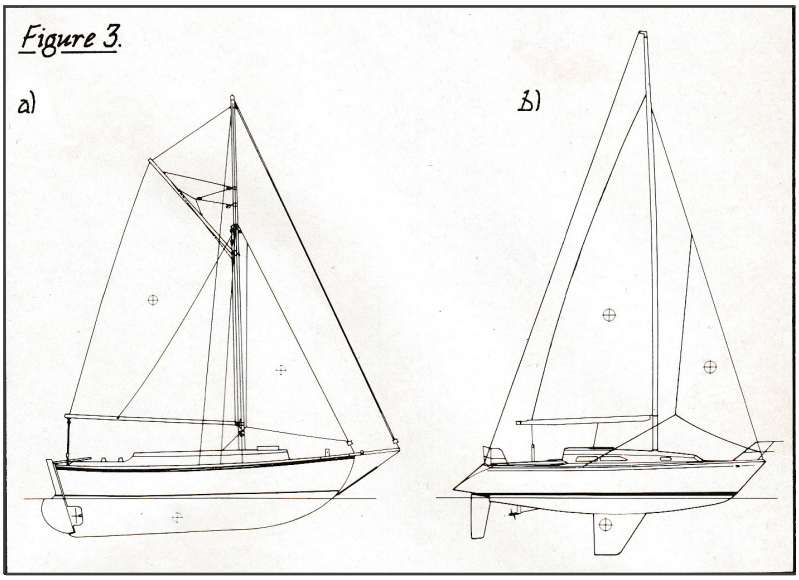


Figure 3
Note the different keel configurations

Boat (b) will tend to lie further from the wind because each wave will knock the bow off, while the mainsail, because of its position relative to the keel, will have less power to point the boat up again. In spite of this, the boat can still be persuaded to heave to satisfactorily in moderate conditions without too much sea running, but a bit more effort will be required. The crew will have to experiment with how far to windward to settle the jib clew and how close to pin the mainsheet in order to bring the boat away from her natural beam-on tendency. This type of boat also generally carries far more headsail area compared to the mainsail than the older type. In order to find a balance it is usually important to use a small headsail, or to take enough rolls in the genoa to get rid of any suggestion of overlap.

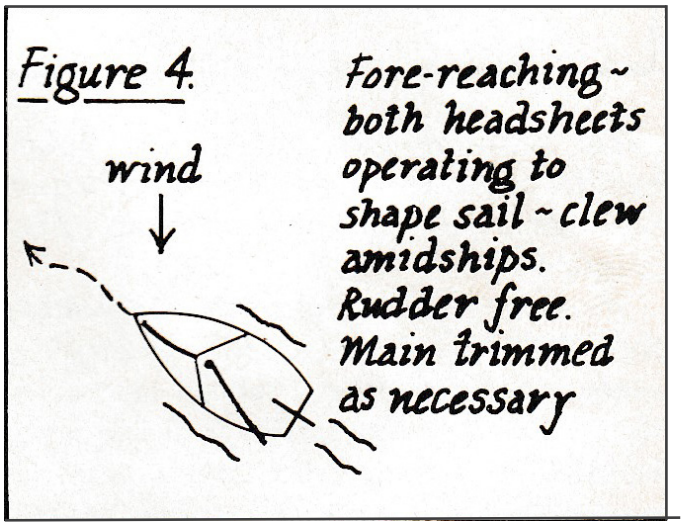
Drift

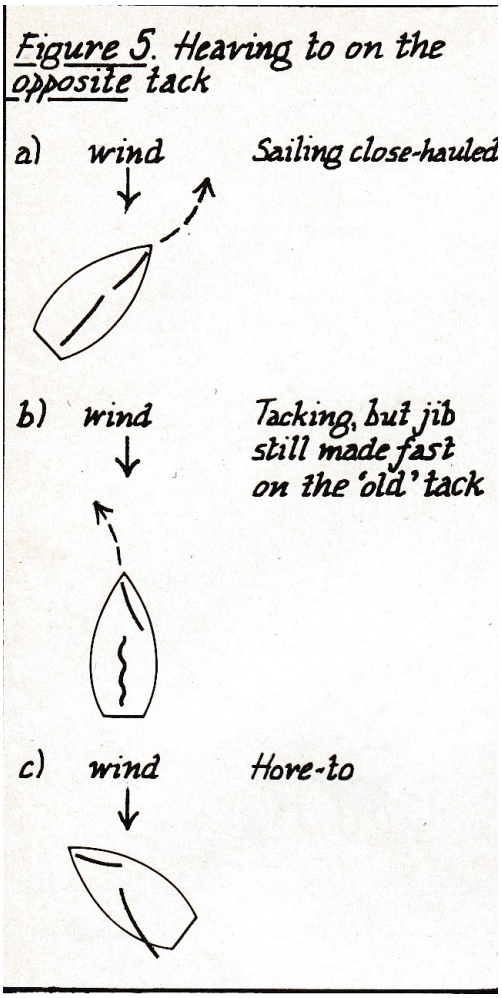
Once a boat is hove to and making no effective headway, her keel stalls. No matter how efficient a deep, high aspect-ratio fin keel may be when travelling at speed, once it stops, it is only as useful as its total area allows. The lateral resistance of a boat that is moving is very different from the static resistance of one that is not. For this reason, the traditional long-keeled hull forms, with their comparatively large wetted areas, make much less leeway when hove-to than their modern counterparts. A Bristol Channel pilot cutter hove-to in a Force 8 will drift almost sideways across the wind, losing little more than 12 miles per day downwind. In similar conditions, a light, modern 35ft cruiser could easily be slipping to leeward at 2 knots or more.

A light modern cruiser makes more leeway when hove to than her traditional counterpart

If it is important not to lose ground in this way, the hove-to skipper will have to persuade his boat to fore-reach. This is done by easing the weather jib clew towards the boat's mid-line and perhaps adjusting the helm so that the boat begins to move slowly ahead. Once the boat is underway the keel bites and counteracts the tendency for the boat to disappear rapidly to leeward. A new equilibrium can then be found which will be a compromise between being perfectly hove-to and fully sailing.

The ultimate fore-reaching situation can be achieved in many higher-class fin and skeg boats. In Figure 4, the helm is left to idle amidships without lashing it; the main is sheeted just off close-hauled and the jib clew (or well-rolled genoa) is brought right up to the mast by using both sheets. Left like this, a Contessa 32, for example, will sail gently to windward indefinitely with no one at the helm, going easy on herself and her people and maintaining her weather gauge. The permutations are endless, between the perfectly stalled and hove-to pilot cutter and the briskly fore-reaching Contessa, but each vessel has its favourite mode. I've had a lot of fun going out on a breezy day and finding out what best suits a particular boat.





The procedure of heaving to

The obvious way to set about heaving to is simply to winch the clew of the jib up to windward, put the helm 'down' steadily and then adjust the mainsheet as the boat stops. The trouble with this is that the sheet handlers don't like it. It's a long, hard grind. Guts can be busted and harsh words exchanged. It's a lot easier simply to bring the boat up close-hauled and tack smoothly, but leave the jib made fast on the old tack. When the boat is through the wind and almost stopped with the jib well aback, the helm is lashed down (or the wheel to windward) and that is the end of that (see Figure 5).

This method is popular with everyone except those asleep on the old lee bunks because, as the boat tacks on to the jib held aback, she will lurch quite unpleasantly for just long enough to tip them out. If you care about this (some do, some don't) a third method, equally easy, is to run the boat off the wind for a few seconds. While the apparent wind is right down you can gybe the jib.

As soon as this is done, bring the boat gently to the wind on the same tack, and then lash down the helm. This is probably the kindest way of all. The watch below won't know it has happened, the watch on deck will enjoy gybing the jib in peace without reverting to the winch handle, and none of them will ever realise how easy you made it look, which is as it should be. (Figure 6)

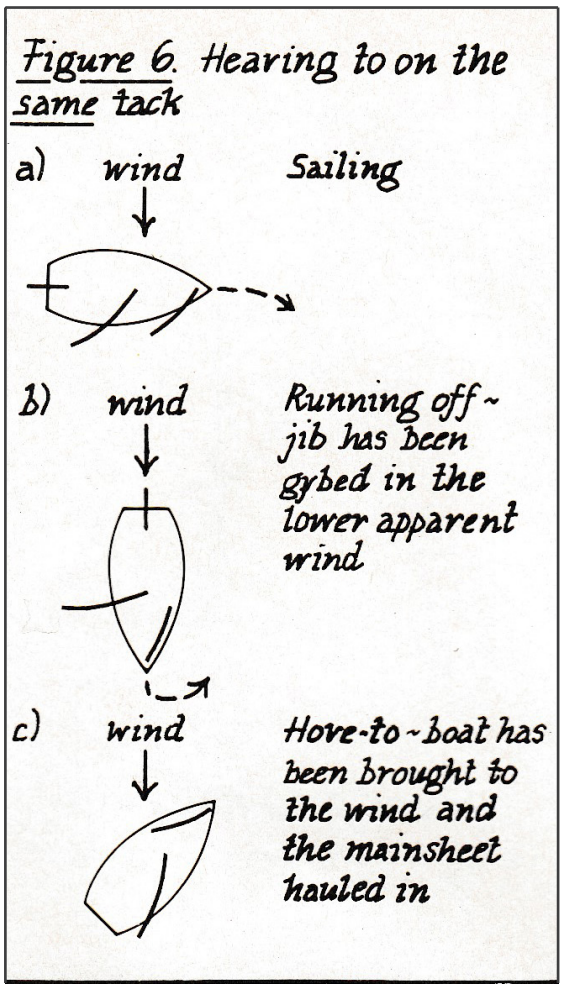


Figure 6

If you are heaving to in moderate weather for only a few minutes to tie down a reef, to cook a meal, to effect a repair, or even to throw up, it's not worth going to great lengths to balance the boat. This is especially so if you are going to reef because, as soon as you ease the mainsheet to pull down the clew, the boat is going to bear away anyway, though not so much in the case of a decent cruising boat as to render the operation too difficult.

If you are intending to remain hove-to for some time, either because of heavy weather or perhaps to wait for dawn for a harbour entry, as soon as the boat has stopped you'll spend some time playing around with the controls to persuade her to go as slowly, or fast, as you want; or to point up, or not, as much as suits the conditions. Once this is done the last step before going below to check the level in the whisky bottle is to observe your drift.

Take the hand-bearing compass and sight down the slick you are leaving. The reciprocal is your 'drift course'. In these times of GPS, this is a bit academic, but back in the day, if you were going to estimate a position after a while, you'd be looking for this information. A trailing log told you how fast you were drifting if the drift was more than a knot or so. If you hadn't a log, you were left with a 'guesstimate', because a through-hull impeller isn't designed to measure distance run at 60° degrees to the ship's head!

Special cases in heavy weather

Not all boats need to have two sails balanced in the classic way in order to heave to satisfactorily. Some can manage with one, and when the weight of wind is getting a bit much for two sails this can be a life saver. The longer you can keep some sail up the better if you are trying to maintain your weather gauge because, once all your canvas is down and you are lying a'hull, your boat becomes the victim of its tendency to make leeway.

Some schooners with a gaff foresail can lie-to under lashed helm and well-reefed foresail only. To my certain knowledge, a substantial gaff cutter with a deep forefoot will hold her own in a big blow with the helm down showing only a reefed stay sail with the clew amidships. She will, it must be said, gather way, point up, stall and then fall away beam on for a short while, but she will make remarkably little leeway and so long as the seas are not notably dangerous, all will be well.

No doubt experienced junk-rig and multihull sailors have their own systems. Only experiments with a given boat can tell the truth, but it's a great idea to carry out your experiments before the chips are down on a dark night!

Getting under way again

There are two ways of getting the boat moving after being classically hove- to. The first is the obvious one. Simply unlash the helm, let the jib across to the side of the boat on which it will draw, winch it in and sail away. As with getting hove to in the first place, this means that someone has to wind the winch. If there is an enthusiastic queue of volunteers for the job, that is the way to go. If, as is usually the case on boats I'm running, the hands are trying to look busy doing other things, you'll have to settle for method two.

Where the boat is well mannered, putting the tiller or wheel all the way from 'down' to 'up' (rudder fully to leeward) will be more than enough to excite her into turning steadily further and further from the wind until finally she gybes gently and gets herself under way. If the boat is less well balanced than this, you'll have to ease the main sheet to persuade her to bear away, and then you'll be stuck with pulling it in again as you gybe. If you don't fancy all that work, it's method one for you, Matey!

For pre-war yachtsmen, it would have been unthinkable to have spent any significant time at sea without heaving to for one reason or another. Inexplicably, the art has been allowed to fall into disuse. Like Cinderella, it is left at home, forgotten in the scullery. Next time you're at sea and are looking for a way to defuse a difficult or uncomfortable situation, try the glass slipper. Heave to. Everything will go wondrously quiet and, stand on me, the boat won' t turn into a pumpkin!

The author's yacht Constance, *comfortably hove to*