



About the Author
Duncan Wells is an RYA
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Will your boat go backwards?

Thank you

We were helped both by Ian Collins, who very kindly let us use his Westerly Centaur, Vouvray, and Charlie Tulloch of First Class Sailing at Shamrock Quay who lent us one of his brand new Jeanneau Sun Odyssey 36is, Bellini. Much appreciated.



Going astern under power can cause enormous anxiety. **Duncan Wells** takes three different boats to investigate the forces at work and to see how we can make the best use of them.



Westerly Centaur
Bilge keels and spade rudder
Jack Laurent Giles



Hallberg Rassy 352
Long fin keel and skeg hung rudder
Olle Enderlein



Jeanneau Sun Odyssey 36i
Short fin keel and spade rudder
Marc Lombard

I wanted to look at boats with three different keel configurations: a long fin keel and skeg hung rudder (Hallberg Rassy 352), twin keels with spade rudder (Westerly Centaur) and short fin keel and spade rudder (Jeanneau 36i) to find out how they behaved when going astern.

If I had a pound for every time I've heard, "Going astern my boat's got a mind of her own", I'd be rich.

Your boat doesn't actually have a mind of her own; she will always do the same thing astern in the same set of conditions, though that may not be what you want her to do.

The exercise

We decided to run each boat astern in three ways: stern to the wind, head to the wind and across the wind.

The turbulence test

The first thing we need to find out is which way the prop walk will take us when we put the engine astern. For this we run the 'turbulence test', where we moor the boat securely to the dock, put

the engine astern and see on which side of the boat the water is being churned up. The effect comes out where the prop is (**Pic 1**). You often get turbulence on both sides, but the side opposite where you have the greater turbulence is the direction in which she'll kick astern.

Left- and right-handed props

The turbulence test merely confirms whether you have a left- or right-handed prop. A right-handed prop – which turns clockwise as you look at it from astern, to propel the boat forward – will kick to port astern. A left-handed prop – which turns anti-clockwise to propel the boat forward – will kick to starboard astern.

Westerly Centaur

Ian recently had his Centaur re-engined and was fairly certain that his new Beta engine had a left-handed prop, which would kick to starboard, astern. We conducted the turbulence test and to my surprise there was a lot of turbulence on the starboard side (**Pic 2 and 3**), suggesting that she would actually kick to port in astern. We were starboard side to and a couple of hours into the flooding spring tide, which was kicking our stern off the dock. If she had been going to kick to starboard, it might have been an idea to give her a bit of sheer (**Pic 4**), which is to say let her settle off to port so the initial kick of the prop walk astern would bring her into line.

So we left the boat as she was after all. Ian had the engine in gear and I was holding a spring – we were in control. With the engine in neutral and spring taken off, I stepped on board. Ian put her astern, whereupon she kicked positively to port (**Pic 5**). Thank goodness those »





4. Giving a little sheer to port to allow for a starboard kick. 5 Then she kicked to port. 6 Ian quickly had her under control. 7 Stand facing aft, pointing the rudder where you want to go.



8. Avoid getting pinned by the tiller. 9. Stern to the wind and straight. 10. Note the turbulence to starboard. 11. Head to wind and straight. 12. Beam on to the wind and going nice and straight.



berths are spacious, because we came closer to the neighbouring boat than I would have liked. *Vouvray* kicks to port then, so she has a right-handed prop and the turbulence test had not 'lied'.

The Centaur has a tiller and very quickly Ian had control (Pic 6) facing the stern and pointing the tiller in the direction he wanted to go (Pic 7). The advantage of standing like this is that you won't get pinned by the tiller with the pressure of the water on the rudder (Pic 8).

We ran *Vouvray* stern to the F3 wind and she was as sweet as can be (Pic 9 and Pic 10). We then ran her head to wind (Pic 11) then across the wind (Pic 12) and each time she behaved beautifully. Was this Ian or was this *Vouvray*? Ian very kindly let me take the helm and, while Ian is an excellent helmsman, I have to report that *Vouvray*, the Westerly Centaur, behaved impeccably astern. She has a fixed, three-bladed prop and was able to gain sufficient way for the rudder to be effective very quickly. Reversing *Vouvray* into a berth would be no problem.

Hallberg Rassy 352

Next stop, 'A' jetty pontoon 15 and *Dorothy Lee*, a Hallberg Rassy 352. She weighs 8 tons and has a three-bladed, left-handed, feathering Autoprop from Brunton. One of the selling points over the three-bladed fixed prop that it replaced, was that it would reduce prop walk and I think it may have done, but not by very much, because we still have a very noticeable kick to starboard in astern and we use this for our crash turn to port. It goes rudder to port, a big burst of ahead to throw some water off the 'barn door' of a rudder to get the bow moving to port and the stern going to starboard, then astern to use the prop walk to 'walk' the stern to starboard – then ahead again, etc until you've effected a 180° or indeed a 360° turn and she'll turn within her own length. As for going astern, some crew members have arrived confident and left with their tails between their legs; others have treated her with respect and appreciated that some things are just not possible. The key is to use enough revs to get way on so that the rudder becomes effective as quickly as possible and then you can begin to counter the effect of prop walk. I also tend to face the stern when going astern and use the helm like the steering wheel of a car (Pic 13). If I want to go left I turn the wheel to the left. By the time we got to *Dorothy Lee* the spring tide was in full flood and the wind had piped up a bit too. Running her stern first into the

tide and the wind worked well (Pic 14). Running her stern first downwind and down tide was trickier, but we managed to keep her straight for a while. Then the wind took over and ruined our run (Pic 15 & 16). Across the tide and across the wind, we were unable to achieve anything. We moved down river to go across the wind, but keeping the stern into the tide. Again she would have none of it (Pic 17 & 18). Once the wind blows the bow off it really is impossible to get it back. There is a speed at which the rudder can control the bow and keep it in line, but this would mean dangerously fast for the confined space, especially because her weight means she takes ages to stop, even with the engine full ahead.

However, we only need to go astern in close quarters situations when we don't want to be going too fast. Working with *Dorothy Lee* and her long fin keel and skeg hung rudder in a confined space, I use the crash turn to port to turn her in her own length and try to manoeuvre her ahead if I'm unable to steer sufficiently well astern. A bow thruster would help.

Jeanneau Sun Odyssey 36i

Our third trial was on the short fin keel and spade rudder of a Jeanneau Sun Odyssey 36i. Charlie Tulloch, principal of First Class Sailing, took the helm. We conducted the turbulence test and noted that the side with the greater turbulence was starboard (Pic 19), so she had a right-

handed prop and would kick to port astern. Like the Centaur, she had a fixed 3-bladed prop. Stern to the wind she was perfect (Pic 20). Bows to was the same (Pic 21). Across the wind she picked up speed quickly and in no time at all the rudder was controlling the direction of the boat. In a F5 on the beam she motored astern in a straight line without having to go too fast and with the bows firmly at 90° to the wind (Pic 22). Charlie then showed us how to berth her stern to the dock, which he effected beautifully with *Bellini* side on to the wind (Pic 23) and finally he berthed her back on the pontoon and we went in stern

first (Pic 24). The wind was blowing us off the dock and the kick was away from the dock too, but without any fuss Charlie got us close enough for me to step off and attach a stern line to hold her (Pic 25).

So, what did we learn? The turbulence test will tell you before you depart which way any boat will kick astern. The heavier the boat, the more revs you need to get way on so that the rudder can start working. A positive approach with revs pays off every time. A gingerly approach is likely to have you slowly making your way to the scene of the accident – albeit a slow speed accident. Above all, try your boat out. Take her out of the confines of the marina and see how she behaves when going astern. See if you can hold the bows across the wind and retain control. A bit of practice could pay dividends later in a crowded harbour.

Long keeled boats

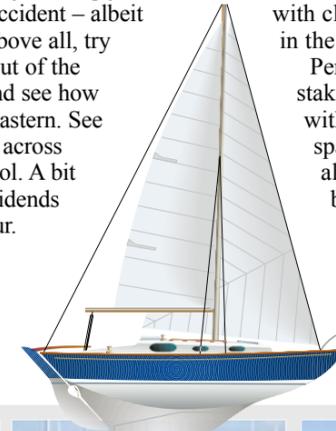
It's an unfortunate fact that everything that makes a long keeled,

heavy displacement boat with plenty of draught aft, such a beauty to sail, works against her going astern. Also, the crash turn is not an option for long keeled boats, because, with the rudder mounted directly to the keel and the aperture in the rudder to allow for the prop, there is no way that one can throw a burst of ahead against the rudder.

It's even worse if she has an offset propeller. We will have a look specifically at long keeled boats and what can be done, if anything, with close quarters manoeuvring in the future.

Perfection in the going astern stakes is a flat bottomed boat with a short fin keel and a spade rudder, which is not always the most comfortable boat to sail.

That's not to forget *Vouvray*, the Westerly Centaur, which was also impressively easy to manoeuvre under complete control.



Facing the stern to use the helm.



Stern to the wind and doing OK...



...but head to the wind and...



...the bow is quickly blown off.



When she's beam on to the wind...



...the bow is immediately blown off.



Turbulence to starboard.



Stern to in a gusty F5 and she remains steady and under control.



With the boat beam on to the wind she's as steady as a rock.



Beam on to the wind and reversing up to the dock, it's all perfectly straightforward.



Charlie brings her stern first into the berth without any fuss



The manoeuvre completed, we're ready to secure the stern line.