YOUR PERFECT CREW MEMBER

IT'S THE GREEN VERSION OF AN AUTOPILOT, HELMING YOUR BOAT WHILE CONSUMING NO POWER. **SARAH CURRY** ADVISES HOW BEST TO USE A WINDVANE STEERING SYSTEM

t's not surprising that sailors name their self-steering windvane, and then start talking to it. Why not? It is their most comforting crew member – steers tirelessly, eats nothing, never sleeps and, best of all, is a very attentive listener on those long nights at sea.

'Ernest' steered our Beneteau First 405 every mile across the Pacific Ocean, without complaint!

I'll never forget one particularly rough passage between the Marquesas and Tuamotu islands with squalls catching us every hour for 24 long hours. Alone in the dark cockpit on my watch with wide eyes on the radar screen watching the next approaching challenger, I wasn't truly alone.

"Ernest! Brace yourself. Next one's about to hit!" I yelped from the cockpit as I furled in more jib and released sheets. I tweaked the course adjustment line to fall off the wind and run with the 30+ knots that piped up from the quarter.

And Ernest, not a shouter himself, was also always one to take direction well. My kind of guy.

MECHANICAL WINDVANE SELF-STEERING

The overall concept is simple: a non-electric device mounted on the boat's transom has a vane that takes a signal from the wind. Based on this input, the boat is steered – by various mechanisms – on the apparent wind-based course you set.

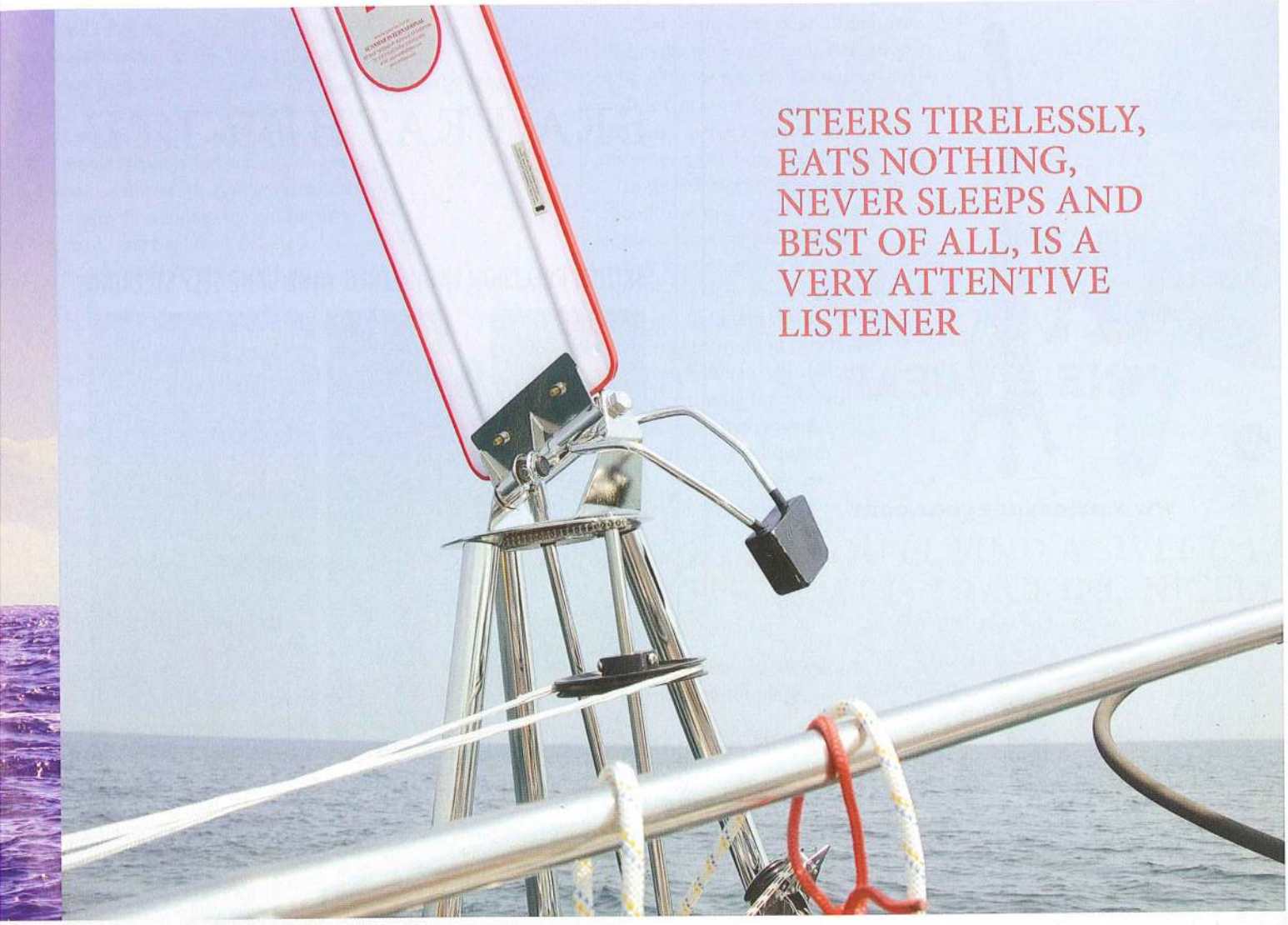
The beauty of an apparent wind-based course is that as you sail along in ever fluctuating winds, your boat stays properly trimmed. Your course follows the wind, but over long distances this is much more efficient, comfortable, and surprisingly faster than a magnetic compass course.

ABOVE
Windvane steering works on all points of sail and can even be used with a spinnaker

SETTING AND ADJUSTING A COURSE

The first step is to sail your boat on the desired heading; easy enough. Let's say this happens to be on a beam reach. Set a balanced sail plan and trim the sails for that point of sail. It's important to feel the helm; the boat should almost be steering herself by the time you are ready to engage the windvane.

Set this course (a beam reach) for your windvane by feathering the vane so it points directly into the apparent wind, and engage the unit. As your boat falls off course the new wind angle will push the vane over



STEERS TIRELESSLY, EATS NOTHING, NEVER SLEEPS AND BEST OF ALL, IS A VERY ATTENTIVE LISTENER

and the system will take control to bring you back to that beam reach.

The apparent wind at the top of the mast (which is where your wind instruments are measuring from) may be different from the apparent wind the vane feels. Attaching a piece of yarn to the top of the vane is helpful for determining the wind direction.

If the boat constantly wants to round up, don't look to your windvane. First look to your sails and make adjustments there. Make sure the boat isn't over-canvassed or sails over-sheeted.

Has your electronic autopilot made you lazy when it comes to sail trim and boat balance? We are all guilty. You may ignore your autopilot grinding away and wearing itself out, but your windvane will tell you if your boat is not well enough balanced by not keeping course. Bear in mind she's one of those silent and observant type teachers – but she's a good one; you'll become a better sailor for it.

A pole on the jib or genoa is a must for downwind sailing with a windvane; a collapsing headsail puts the boat off balance with every swell.

Keep an eye on the heading. Tradewind sailing is lovely with fairly consistent wind direction, but if there's a wind shift over time your heading will also be changing. Adjust course back to your desired heading by changing the vane angle and readjusting sails for the new point of sail.

Such course adjustments are done on most units by pulling a line that can rotate the vane through 360 degrees – to whatever point of sail you want to be on. This course-setting line is usually an endless loop that you run into the cockpit, so that you can adjust your heading without having to reach over the boat's stern. This line is best run down a lifeline so it's reachable from the cockpit, but not in the way.

Minor tweaking is fairly normal – to fall off or head up a few degrees. But if the wind shifts more drastically, let's say 20°, then your course will also shift by 20° following the wind. To get back on track Pull on the course line to change the vane by about the same amount (20°), so you are back on the desired heading. At the same time you are trimming your sails to this new point of sail. In a circumstance where the wind →

ABOVE
Especially useful on long passages, windvane steering such as this servo-pendulum type Windpilot, frees up crew to do something more useful

THE BOAT SHOULD BE 'SAILING HERSELF' BY THE TIME YOU ENGAGE THE WINDVANE

SARAH CURRY: RICHARDS CUSTOM MARINE

suddenly backs, you will probably jump on the wheel, trim your sails and then adjust the vane to suit.

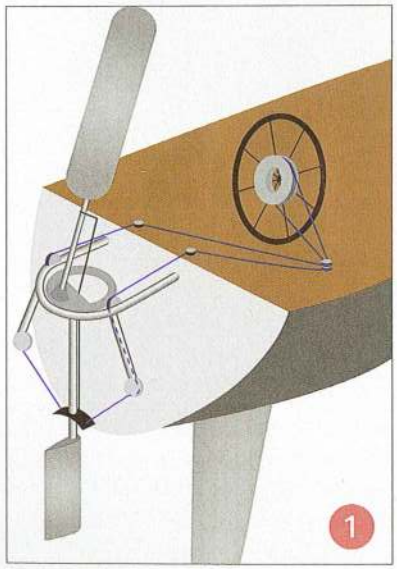
All types of windvane steer to a wind-based course, but do so by very different methods. There are two common styles of windvane in production today (see sailingtoday.co.uk/practical for a detailed side-by-side comparison).

1. SERVO-PENDULUM SYSTEMS

Most servo-pendulum models steer using the ship's rudder via control lines led to the ship's wheel or tiller. Brands are Aries, of which 14,000 have been sold since 1968, and which is now based in Amsterdam, Cape Horn (direct connection to quadrant), Fleming, Monitor, Sailomat, Navik (out of production), Norvane, Neptune, South Atlantic, Voyageur, and Wind Pilot Pacific. These systems cost £1,500-£5,000.

As the boat falls off course the wind angle changes and the vane is pushed over. Movement of the vane rotates the in-water servo oar (also called paddle or blade). Once moved from dead ahead position, the flow of the water pushes the oar to one side with force. A connecting line is pulled to turn the wheel or tiller so the main rudder moves to bring the boat back on course.

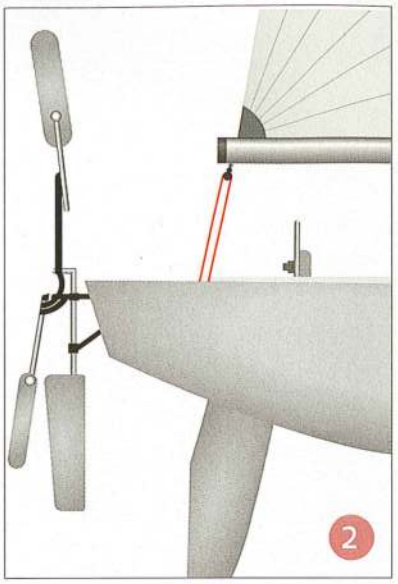
For deteriorating conditions, some servo systems have a smaller vane to change down to. The good news is that more wind means the boat moves faster through the water, and more power will be generated to pull the connecting pendulum lines. Light airs are a major consideration, especially for downwind sailing with less apparent wind and less boat speed. Performance becomes more boat dependent.


1

To increase sensitivity, you may change out to a larger vane or adjust a vane counter-weight.

Any friction in the boat's main steering must be dealt with ahead of time – the main rudder needs fairly free movement otherwise, a servo windvane will struggle.

Proper tuning for a servo system also involves ensuring the connecting pendulum lines are not overtightened (this will cause friction) or too loose (the main rudder won't respond appropriately).


2

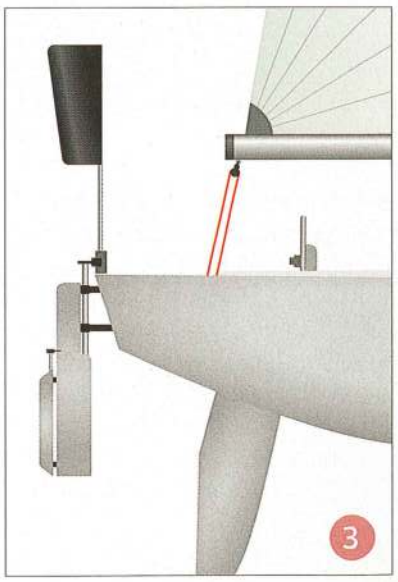
FEELING THE HELM YOU'LL FIND A SWEET SPOT WHERE THE BOAT IS TRACKING NICELY

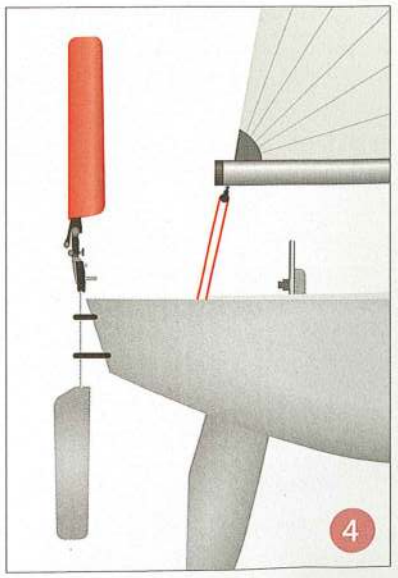
AUXILIARY RUDDER SYSTEMS

Auxiliary rudder systems are independent from all other aspects of the boat. As a complete second steering system and rudder, the loads they must deal with are far greater in comparison.

After the vane is feathered into the wind, the main rudder must be 'locked off' so it is stationary. While setting up and with hands on the wheel to feel the helm, you'll find a sweet spot where the boat is tracking nicely. Often the main rudder won't be centreline, depending on how the boat sails, the conditions and the seas. Lock the main rudder in that comfortable position, and it becomes a giant trim tab to the auxiliary rudder. The system is then engaged and the auxiliary rudder will take over steering the boat.

The three main Auxiliary Rudder system types, all of which function differently, and which cost approximately £3,000-£5,500, can be tuned even further if you're someone who likes to tune and tweak.

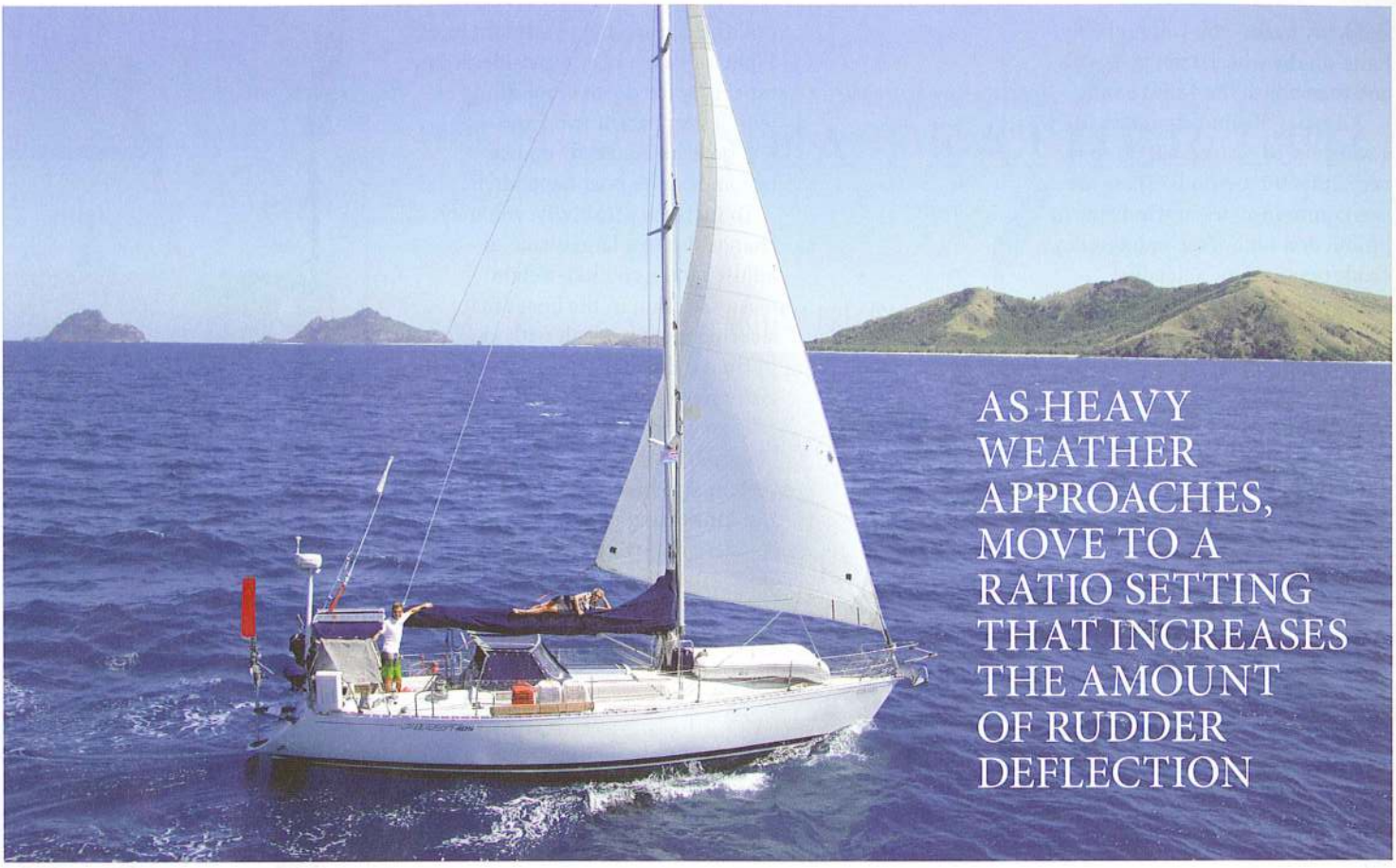

3


4

CALISTA PAXTON

2. WITH SERVO PENDULUM

Some auxiliary rudder systems, such as the Fleming Global Auxiliary Rudder, Sailomat 3040 (out of



AS HEAVY WEATHER APPROACHES, MOVE TO A RATIO SETTING THAT INCREASES THE AMOUNT OF RUDDER DEFLECTION

production), South Atlantic, and Windpilot Pacific Plus, are servo-driven. They also incorporate a servo oar, but the pendulum movement of the oar is connected to move the system's own rudder, rather than the ship's main rudder. Some have different vane sizes for different conditions: small vane for heavy weather and larger vane for light air.

3. WITH TRIM TAB

In the case of the Auto-helm, Ratcliffe (out of production) and RVG (out of production) models, the vane is linked to a trim tab fixed on an auxiliary rudder. The vane easily provides enough power to move the trim tab, which, as it swings, powers the attached rudder to turn in the opposite direction and bring the boat back on course.

Fine-tuning of the unit itself is somewhat limited other than 'reefing' the vane in heavy conditions: pull the vane down horizontally to control the power of the trim tab as needed.

4. WITH LARGE VANE

With this system from Hydrovane, the vane is much larger as it's not just the wind sensor. Vane movement is also converted to power to directly turn the unit's semi-balanced rudder through a sophisticated linkage mechanism.

As heavy weather approaches, move to a ratio knob setting that increases the amount of rudder deflection – more steering power. In light air, you may click over to a light air ratio setting for a more sensitive vane but less rudder angle applied which prevents over-steering.

If there is still too much power from a strong wind, decline the vane by up to 30° to change the axis and further reduce sensitivity. When there is less apparent wind, the vane should be vertical for maximum responsiveness.

ABOVE
Sarah and Will sailed the Pacific Ocean with their Hydrovane, dubbed 'Ernest'

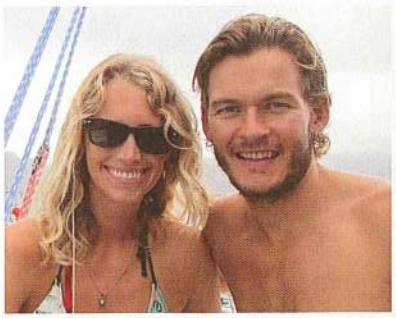
30
NEXT MONTH
High latitude skills
On sale 30 December

QUIET COMPANY

Why is it that one remembers the difficult passages, while humdrum weeks of tradewind sailing seem to blend together and fade to the background?

Whether lounging in the warmth with my nose engrossed in a book or taking time to let my mind wander, I bask in the peacefulness found at sea. A certain serenity is created by the consistent sound of wind and waves, a silent windvane on the helm, and nothing else disturbing this natural harmony.

I must admit – the other beauty of having an unassuming windvane as crew: if you don't want to chat, you don't have to.



ABOUT THE AUTHOR
Sarah Curry and her husband Will, who sailed their first boat – a Beneteau First 405 – to Australia, are passionate about cruising and their family business, Hydrovane International Marine (hydrovane.com)