OPERATION & TROUBLESHOOTING

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OPERATION & TROUBLESHOOTING GUIDE

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We are always pleased to receive photos and performance reports! If you are having any type of problem, please read this guide carefully and do not hesitate to contact us so we can work through it with you.

CONTENTS

A. OPERATION OVERVIEW 2
Sailing – Hydrovane in Use 2
Sailing – Hydrovane Not In Use 2
Motoring – Hydrovane Not In Use 3
Motoring – Hydrovane In Use with Tiller Pilot 4
Hydrovane Rudder and Maneuverability 4
B. VARIABLE CONTROLS – RATIO AND VANE AXIS 4
Ratio Control (Steerage) 5
Adjustable Vane Axis 6
Light Airs to Heavy Weather 7
C . YOUR FIRST TEST SAIL 8
D. TROUBLESHOOTING 8
Installation Issues 8
Operational Issues and Tips 9
Wear Points 11
Manufacturing Issues 12
E. IDEAS 15
F. SAFETY & MAINTENANCE 18

Bolt Tightness & Unit Alignment 18
Tethers on Everything! 19
Reduce Vibration 19
Maintenance and Cleaning 19
G. CONTACT US 20

A. OPERATION OVERVIEW

Sailing – Hydrovane in Use

1. Remove the Vane Locking Pin #60 and the Shaft Locking Pin #61. The Hydrovane rudder will be free trailing as you get set up.
2. Hold Course - Sail the yacht onto the desired course.
3. Trim the sails for good balance - feel minimal loads on the main wheel/tiller
4. Put the vane 'In Irons' - Pull one or other of the Course Setting Lines to turn the vane until it is approximately in line with the wind direction, ie. balance weight pointing into wind. (On the VXA1 model, slacken Course Clamp Knob #34, turn the vane, and tighten the knob in the position required.)
5. Lock/secure the wheel or tiller in that position that holds the best course – typically not on center line. It is important that the wheel or tiller is rigid - cannot move.
6. Engage the Hydrovane - Pull out the Ratio Knob #21 and move it to the far left position (to start, depending on conditions). Ratio settings are Neutral, 1st gear, 2nd gear, and 3rd gear from right to left. See more below about gearing.
7. That's it! Enjoy!

Sailing – Hydrovane Not In Use

1. Vane Locking Pin #60 inserted to hold Top Lever stationary. It's a good idea to take the Vane off.
2. Ratio Knob #21 in neutral (far right) position
3. Shaft Locking Pin #61 removed to leave Hydrovane rudder free trailing

VIBRATION WHEN SAILING – If a vibration develops when sailing and not using the Vane, the cause is the slightly loose rudder and a harmonic that has developed.

Tip: The solution is to add a bit of weight to the Tiller – try putting a bilge pump handle in the hole of the tiller, or use a bungee chord to add a little pressure on the Tiller.

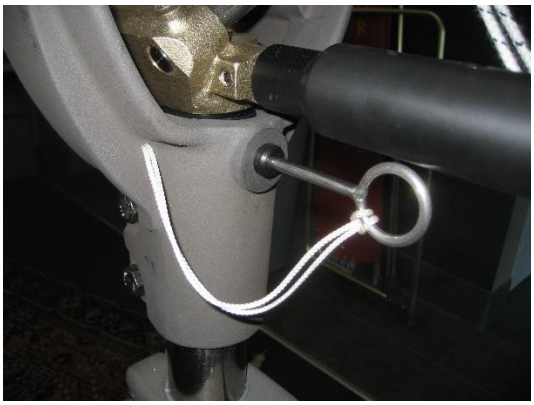
Motoring – Hydrovane Not In Use

1. Vane Locking Pin #60 inserted to hold Top Lever stationary. It's a good idea to take the Vane off.
2. Ratio Knob #21 in neutral (far right) position
3. Shaft Locking Pin #61 (below the Tiller) inserted to fix Hydrovane rudder central.

LIMIT VIBRATION WHILE MOTORING. Some engines cause considerable vibration which may transfer to produce quite a chatter of the Hydrovane rudder. Its length and weight combined with the loads created by the water and boat speed can result in hammering on the locking pin that holds the shaft in place – in these cases, fracturing of the Shaft Locking Pin becomes inevitable (it is a designed weak point). If you notice vibration, the solution is to break the harmonic chatter by cinching up the rudder with considerable force.

Tip: A heavy duty rubber snubber is the answer – same as is used on dock lines. Take the line with the snubber from the Hydrovane handle onto a cleat – heave hard before tying off.

Snubber



Shaft Locking Pin #61

EXTREME VIBRATION WHEN MOTORING –The solution is as described above to break the harmonic wave by cinching up the rudder. Other solutions could be a change in engine RPMs or altering the pitch of the propeller if you have a variable pitch prop.

Motoring – Hydrovane In Use with Tiller Pilot

1. Hook up Tiller Pilot up to Hydrovane tiller
2. Vane Locking Pin #60 inserted to hold Top Lever stationary. It's a good idea to take the Vane off.
3. Ratio Knob #21 in neutral (far right) position
4. Shaft Locking Pin #61 removed to leave rudder free trailing.
5. Engage Tiller Pilot.

Hydrovane Rudder and Maneuverability

Although it is rare that the Rudder Locking Pin will break, be sure to always keep a tether line on the Hydrovane rudder – looped through its handle.

Most choose to install the Hydrovane rudder for passages, and remove before entering a marina.

If not possible to remove, the Hydrovane rudder should locked in the fore and aft position for motoring and coming into a marina. Yes, you will probably lose some maneuverability. However… if you have an extra pair of hands who can operate the Hydrovane tiller and rudder you will find your ability to turn in tight spaces considerably enhanced as the rudder is further aft – more leverage, cleaner water.

Of course, when reversing any boat at slow speeds the rudder has so little affect, if any – as the boat is steered largely by the propeller and 'prop wash' – not by the rudder. Not until the boat gets some 'way on' does the rudder have any control.

Ideally you will the take rudder off as often as possible – when at anchor or in port. Taking the rudder off means less wear on the shaft bearings and rudder hole, and less growth on it.

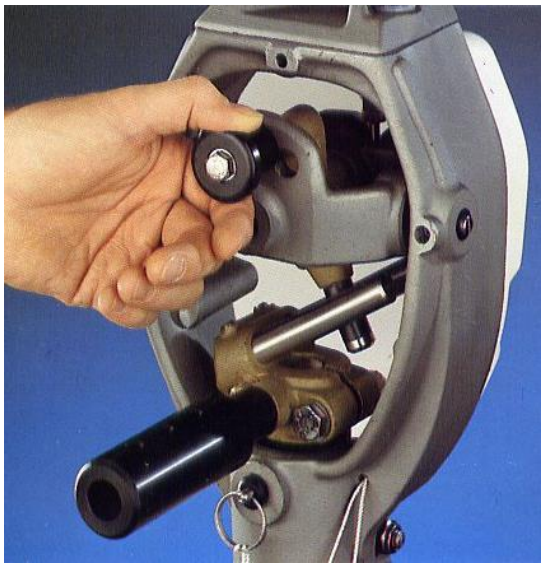
That being said, if it's more difficult to remove on your boat, antifouling it is a good idea although it will be a bit messier when you do store it aboard. Scuff the rudder up using some sandpaper and paint with a non-ablative, hard paint.

B. VARIABLE CONTROLS – RATIO AND VANE AXIS

On some yachts a single setting of both vane axis angle and ratio knob position may prove satisfactory under most conditions. On others, specific combinations of ratio and axis angle will greatly improve performance for different wind strengths and points of sail.

The end result should be an easy waving motion of the vane as it swings from side to side – rarely banging at the stop and not spending long periods without moving.

You will soon learn what positioning works for you and develop your own technique. Surprisingly, many users are happy to leave the settings alone, seeing no need.



Ratio Control

Vane Axis Adjustment

Ratio Control (Steerage)

There are three settings for different amounts of power and rudder angle:

Ratio Knob Position	Rudder Deflection	Power	Explanation
Far Left	15 degrees	3:1	Most power, least steerage, best for light airs
Middle	25 degrees	2:1	Normal conditions
Right	40 degrees	1:1	Least power, most steerage, for heavy conditions
Far Right	Up to 50 degrees	Neutral	Emergency steering

Typically the trade-off is between the far left setting and the middle one. If, at the middle setting, the boat is being over steered – evident in the wake as the boat meanders too far from the desired course – then switch to the far left setting.

The middle setting is commonly used although bigger boats at faster speeds will need the 3:1 far left setting.

In heavy weather, the ratio knob may be in the middle or right setting if the boat has reduced canvas and under control… but if 'going like the clappers', you may need the power of the left setting.

Adjustable Vane Axis

The inclination of the vane – 0 to 30 degrees for sensitivity:

Vane Position	Power	Sensitivity	Conditions
Vertical – Standing Tall	Most	Most	Light to Normal Conditions
1 – 20 degrees	Mid	Mid	Normal to Heavy Conditions
20 – 30 degrees	Least	Least	Heavy Conditions

If the Hydrovane is responding too slowly, under steering, then finally catching up by over steering, try raising the vane – make it more responsive/sensitive/powerful by putting it in the vertical position.

Conversely, if the vessel is over steering with each correction being too dramatic, then de-sensitize/de-power the vane by further inclining it.

1. Slacken the AXIS CLAMP knob, using the balance weight as a handle
2. Incline the axis
3. Tighten the AXIS CLAMP
4. Observe the performance of the unit:
    - If the yacht is moved repeatedly through the correct heading, the vane is still too sensitive and the vane axis should be inclined farther.
    - If the yacht returns too slowly to the correct heading, increase sensitivity by moving the vane axis nearer horizontal (vane vertical).
    - If necessary, combine these adjustments with alterations in the position of the RATIO KNOB to obtain optimum performance.

Light Airs to Heavy Weather

A review of the above. Please note these are approximate guides as every boat is different. You will determine what settings are best for you sail with the Hydrovane in a variety of conditions.

LIGHT WIND

- Ratio Knob in far left position
- Vane standing tall
- For Extendable Vane – extend fully
- Very light air, hook up a Tiller Pilot to the Hydrovane tiller

MODERATE WIND

- Ratio Knob in far left or middle position
- Vane standing tall or partially raked
- For Extendable Vane – may need to partially reduce extension, especially if in squally conditions

HEAVY WIND

- Ratio Knob in middle or right position
- Vane partially declined
- For Extendable Vane – extension should be reduced, almost completely

STORM TACTICS

- Ratio knob in right position
- Vane declined up to 30 degrees
- For Extendable Vane – reefed completely

Tip: It is possible to engage your Autopilot to work in tandem with the Hydrovane! If surfing conditions are encountered, this can work very well and provides much peace of mind; the autopilot will

compensate to keep the boat on course when the boat goes through dramatic speed changes while surfing down a wave.

Warning: If you are not using the Hydrovane as part of your storm tactics, do NOT lock the Hydrovane rudder – leave it free trailing

C . YOUR FIRST TEST SAIL

Follow operation instructions.

We suggest:

1. Choose a day with a comfortable breeze. Avoid waters with strong current.
2. Start with the easiest point of sail: upwind.
3. Depending on conditions, first try the Vane vertical and try the ratio knob at the left setting.
4. Let us know how it goes...!

D. TROUBLESHOOTING

"After your initial expense of purchase and installation, there will be no piece of equipment on your vessel more prized than your mechanical self-steering. I don't know of a single long distance sailor who has given a name to the roller-furling system, nor of one who has not named the windvane ... trust me, out there on the Big Blue you will have many long and meaningful conversations with it.

But like all relationships, this one requires practice and patience. First and foremost, do not ask the windvane to make up for sloppy sailing. Balance your boat, starting with waterline trim. Keep the weight out of the ends and assure that the sails are appropriately sized, set and trimmed to the conditions. Excessive heel is not only slow, but places the boat on lines that the designer never intended, resulting in poor tracking ... Experiment with different settings ... to understand and optimize performance in various conditions."

- Quoted from 'A Vane to Steer Her By' by Alvah Simon, Cruising World July 2014

Some customers find 'it just works', others find that there is a learning curve. If these instructions do not diagnose an operational or performance issue, please do not hesitate to contact us.

Installation Issues

Review our Installation Guide. An improper installation will hinder performance.

- Repeat Final Inspection Tests.
    - The tests are worth repeating before you head off on any passage… just in case the Drive Unit or Tiller have been knocked or shifted out of line.
- If required, re-position the Tiller Assembly, Drive Unit or Shaft Assembly.
- If the event that Shaft has not been installed vertically, you will need to re-position Brackets.

Operational Issues and Tips

- IMPROPER SAIL TRIM – This is the most common problem. First hand steer to see if the boat is tracking well. If it is not, a change must be made: adjust sheeting or change/reef sails. The Hydrovane is the teacher – happiest when you have done a good job of sail trim and balance.
    - The sails must be trimmed so that the boat wants to go in the same direction as the desired course. If the boat wants to go elsewhere that makes it hard for autopilot, human helmsman and Hydrovane.
    - Sheeted too hard? "When in Doubt, Let it Out!" Ease the sheet on the main (a common error is to sheet the mainsail too hard) … then do the same on the jib. Does any of that help? With autopilots many sailors have sloppy sailing methods oblivious to the strain that the autopilot must deal with. In fact many cruisers are a bit corrupted by autopilots - simply hoist the sails, cleat the sheets and leave it at that.
    - Over-canvassed? The quantity of sail is important for balance. Experiment with different amounts of reefing, and listen to your wife: reef early!
    - A big lesson can be learned from the long distance single-handed racers. They focus all their efforts on the 'trim' of the sails to the extent that their wheels are so light to the touch that their self steering has relatively little loads to deal with. Surprisingly, they are much more concerned about being over-canvassed than you think. A good test is to see if you can alter the course of the boat by only adjusting the sails. Once you have achieved that you know you have figured out how to trim your sails.
    - Unbalanced configuration? Is your headsail to big? Is it a genoa – a big jib with a long low cut foot with a clue near deck level? Those genoas are designed for racing – an upwind sail – not at all versatile for the needs of a cruiser. Slacking sheets on a genoa creates a loose bag at the top while the foot is still fairly flat – very inefficient – as it should be as it is not designed

for reaching. We recommend taking the genoa to a sailmaker and have them create a new clew that effectively makes the sail nearly an isosceles triangle (leach and foot are nearly of equal length). As its sheet is slacked off the sail evenly changes its shape. Coincidentally a '140' genoa becomes about a '110' yankee type jib – an ideal sail for cruisers. Another big bonus of this re-cut of the sail is that then you can see under it – much safer. Sheeting of this new sail is easy too – with the sail set, sight a line from the clue to the mid point on the forestay (half way up the sail) then extend that notional line straight aft to your track – voila, that is where the block should be.

  - Are you using a pole? Secure the headsail – MUST HAVE A POLE. If the headsail is collapsing and filling or dishing back and forth, the 'balance' of the boat is in constant flux – out of balance – unworkable for self steering, and challenging for a helmsman. A pole is a must for both a spinnaker and to secure the clew of a jib when 'wing on wing' or even when the jib is to leeward if the headsail is collapsing in the trough of waves.
  - How old are your sails? A baggy main means the the luff of the sail could be luffing while the roach is sheeted too hard and driving the boat hard to windward.

- MAIN RUDDER NOT LOCKED IN THE RIGHT POSITION. The positioning of the main rudder's locked spot is critical to Hydrovane's performance. Hand steer to find that 'on course' 'sweet spot' before locking it – typically never locked on the centre line.
- ARE YOU SETTING THE VANE INTO THE WIND? Instead of relying on the windex at the top of the mast, look at tell tails closer to the vane level to discover the wind direction.
- Severe weather helm? For boats with severe weather helm as the wind gains in strength so does the weather helm. Re-positioning of the Hydrovane rudder is a temporary fix. The permanent fix is probably in the positioning of the main mast or hopefully in cheaper solutions like the rake of the mast, size of sails, reduce length of boom and main sail! Take a good sailmaker for a sea trail. In changing or gusty conditions the dynamics that the Hydrovane is relying on could need constant adjusting. This is especially so for boats with bad weather helm or a headsail that folds in rolly seas. As the wind gains strength a number of things happen:
  - Typically boats gain more weather helm resulting from increased pressure on a portion of one of the sails – roach of the main could be a culprit
  - Boat speed changes which in turn changes apparent wind direction
  - Heel of the boat might change – lesser affect but contributes to the changing dynamics

  - The result is that the 'balance' of the boat has altered and the Hydrovane is fighting a boat that wants to go 'off course'. The solution is to re-set the locked position of the main rudder. The dilemma is that no sooner than the correction has been made than the wind calms – reversing the affect meaning another re-setting of the main rudder position…and on and on….

- MAJOR WINDAGE OR LACK OF AIR – We are generally not worried about dirty air – the big vane will find the wind. However, if you do notice that the vane is not going over when the boat goes off course, then this is something to consider… Very large aft enclosures could potentially create a buffer forcing the wind higher to get over it all leaving the vane in a back eddy. This can occur on certain reaching conditions with less apparent wind and good boat speed.
  - Is the vane getting clear air?
  - Is there a big cockpit enclosure? Can you open a flap?
  - Is the boat going over 8 knots in light winds – can only happen on lightweight performance boats – good boat speed but little apparent wind on the Hydrovane vane – not enough wind pressure to force the vane over

  If your unit is pre summer 2009 you could upgrade your rudder. The new version has both improved balance and more power. You may also be a good candidate for the Extendable Vane.

Wear Points

The following spare parts are the common wear points and replacements are included in the Offshore Spares Kit.

- Vane Cover (#76) – The lightweight ripstock nylon vane covers can last a surprisingly long time, but the sun takes her toll. Be sure to take the vane off when not in use, and store out of the sun.
- Locking Pins – There are 3 Locking Pins (#60, 61, 62) on the unit, all the interchangeable. As discussed above, the Shaft Locking Pin should be changed periodically as it can suffer from metal fatigue while motoring. It's a good idea to rotate the pins from time to time and follow operational instructions to reduce vibration.
- Drive Sleeve (#19) – will develop grooves and may need replacement after 25,000nm or so.
- Shaft Bottom Bearing (#25) – will show signs of wear after 25,000nm or so.

Older units and those that have covered many miles may need a bit more TLC / refurbishment. Refer to the Parts page on our website.

Manufacturing Issues

Manufacturing mistakes are rare, but do occur. We humbly apologize and will do our best to fix.

'Overbalanced' Rudder – Some Rudders between July 2009 and July 2011

Rudders produced between July 2009 and July 2011 (shaft hole is 71 mm./2.8 in. aft of the leading edge) were the best balanced ever. Unfortunately, manufacturing variances produced some that were too balanced … did not know which way is forward. Many of these rudders were impressive performers (boat dependent), but some were simply unusable and must be replaced.

If your rudder is from that period, test it:

- When sailing, without the Hydrovane engaged (Ratio Knob in the right 'neutral' position) and with the Shaft Locking Pin out (rudder is trailing freely) – how does the rudder act? It should be naturally trailing in the wake.
- Push the Tiller over to one side then let it go. Do the same to the other side. Does it always come back to the fore and aft position? This test can be done when motoring. Get the boat up to speed then put the gear shift into neutral – leaves the boat coasting without any prop wash. Then do the same test. A properly balanced rudder should always come back to the fore and aft position.

THE FIX

- Contact us for a replacement rudder
- If your location precludes a necessary quick delivery (and you have a good set of power tools and are skilled enough at carpentry …. or can find such locally), you can: saw 3/8 inch/9 mm. off the leading edge then fashion the leading edge to be similar to the old shape. It helps to first make a template of that shape. The material is nylon – much tougher than wood but can be worked in much the same way – with care to avoid getting any power tools too hot as the nylon will melt and make a mess of – eg – sandpaper or grinding face.

Current rudders have a shaft hole at a conservative 59 mm. (2 1/3 in.) aft of the leading edge. If you did the above 'FIX' the shaft hole would be at 62 mm.

Rudder Hole is not Centered – Some Rudders between August 2009 and May 2010

A few rudders shipped between August 2009 and May 2010 had defective 'shaft holes' – not centered as they should be. Most of these are out of circulation now.

This defect is obvious by looking at the shaft hole on the top of the rudder… if it looks okay, it is okay.

If it appears to be offset, use calipers to measure the minimum thickness of material on both sides. If not equal, take a picture and send it to us with the measurements. If defective, we will ask that the top 6 inches/15 cm. please be cut off and sent to us. There is no fix, other than a new rudder.

Loose Axel

The axels should never be in need of adjustment, especially not on a new unit, but we have heard of it once or twice – Loctite not put on all set screws in assembly. If resetting is required on your new unit, please email us to let us know. This information should be purely information.

There are a total of 8 Axles that allow all the movement in the mechanism. The #69 Bottom Lever casting has a total of 4 Axles: on each side and also fore and aft. The Bottom Lever should comfortably rock up and down on its Axles but should have no lateral movement sideways or fore and aft – should be firmly held by those Axles. It would be self-evident if any of those 4 Axles are loose as the end that sticks out should look the same for each.

For the upper Vane Lever casting, the Axles are more evident – 2 side by side on each side. Please note that the two axels holding the #3 Bobbin stick out more than the others and do not look even. The test is that the Bobbin cannot slide laterally – can only rock up and down.

Loosen the Axel Screw (pre-2016 units: 3/8", post-2016 unit: M10), reset the Axel in the Axel Sleeve, re-tighten Axel Screw with Loctite.

Jammed Worm Gear – 2014 era Drive Units

The tolerances of the worm bearings were a bit too tight for a period. Okay in our shop when tested but once exposed to either heat or water/humidity the plastic expands – enough to cause the Worm to be difficult to move.

THE FIX is simple: ream out the two bearings/bushings with an electric drill.

1. Remove Worm End plate #92 – using a 5/32 SAE or 4 mm hex wrench
2. Use the same hex wrench to remove Grooved Wheel #82
3. Knock out the Bushing/Bearing on the opposite side as the Grooved Wheel by tapping lightly with a hammer and. Best is to use a block of wood against the Bushing, then tap/hammer the wood. The bushing is only a compression fit – nothing but friction holding it in.

4. Wind the Worm out. Might require some muscling of the casting/wheel.
5. Once the Worm is out, both Bushing holes can be reamed with an electric drill, reamer or file or sandpaper. A drill is probably best with a bit that is smaller than the hole. The plastic/Delrin/Acetal is tough. You can see how much filings are removed and easy enough to test the looseness of the hole with the shank of the Worm. Enlarge them by a 'hair' or so – enough to allow free movement and perhaps an extra 'hair' allowance for further swelling.
6. When replacing the worm there is no particular position for it to engage with the worm wheel.

Jammed Top Bearing

The space between the #14 Top Bearing and #64 Heading Tube has become clogged with a buildup of salt and dust. For a period we made those Top Bearings a bit tighter – in some cases maybe a bit too tight, not allowing for the build up. You might need only go to the first step, if not go to the next and to be certain go to the third.

1. First try to clean it up without any dis-assembly:
    - Pour hot or boiling water on that gap while turning it
    - Or try vinegar – pouring it on that gap while turning it
2. If that doesn't work, remove Heading Collar Screw #51 which holds the black Heading Collar #16 in place. Then loosen Gear Clamp Bolt #89 – it is a 3/8 inch bolt that clamps the casting onto the big Worm Gear Wheel #85. Now you can perhaps muscle the Top Mounting #66 casting to turn the stubborn Top Collar. Maybe by turning it and the liberal use of hot water and vinegar it might become truly loose again. Otherwise to the next step.
3. This final stage is a further dis-assembly.

- Start by detaching the Bobbin #3. You can see the 2 set (grub) screws that hold the Bobbin's Axels #47 in place. You need to loosen those set screws. Loctite has been used to keep them in place. So, you must crack the seal made by Loctite. Impact tools are ideal for this task. Otherwise try inserting an Allen Key (3/16") and giving it a whack with a hammer. On a new unit the Axles easily fall out. You might need to use plyers to extract them. Once that is done removal of the Bobbin from the top of the Con Rod #63 is self-explanatory.
- Now you can muscle the entire Top Mounting assembly up so that both surfaces can be properly cleaned. Better yet is to use wet dry sandpaper or best is to take it to a machine shop to have an expert shave a bit off the inside of the black plastic TOP BEARING. Yours is probably an inside diameter of 1.995. We now make it 2.025 in. – means shaving 0.015 in.(0.4 mm.) off the inside of that bearing. It is not much – just a hair or two. Even a tiny bit more is OK.

E. IDEAS

Some of these ideas have been sent to us by Hydrovane owners! If you have a cool idea to share with others, please let us know.

IDEA! Retrofit a solar panel in place of vane when not in use

A customer at Southampton has provided a brilliant idea. He uses the vane locking screw and bracket and has fitted a solar panel to it. The panel sits at the full deflection point which is 50 degrees off the horizontal – a perfect compromise angle.

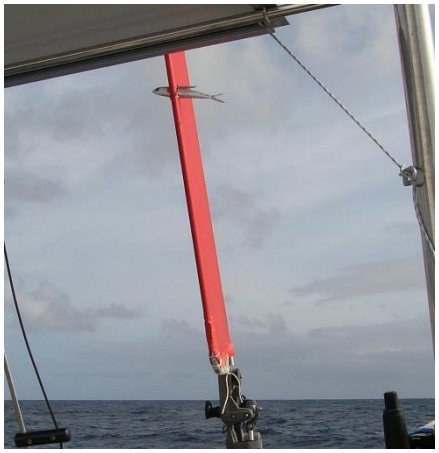
IDEA! Retrofit a base for a flag standard in place of vane when not in use

We took this idea to heart and now offer a Flagstaff holder that fits onto the vane holder. See the PARTS page if you would like one.

IDEA! Stowing the vane

- Make a pocket in the lifelines using sail cover material – eg – Sunbrella or equivalent
- On the back of a cabin door – install a bolt with dimensions that utilizes the same locking arrangement as is on the vane – use a wing-nut.

IDEA! Fix for ripped vane covers



Duct tape is the standard method of keeping a vane cover together. When there is little to work with 'Saran Wrap' or clear plastic wrap for covering food can be wound around the frame as can the clear packing material. Another interesting replacement is the fabric used in model airplanes – wrapped around and shrunk tight with the appropriate gunck/dope. We recommend carrying a spare vane cover, especially if sailing in the tropics where the material will deteriorate in the sun. Take the vane off when not in use.

IDEA! Tell-tale on the vane: cassette tapes

It is handy to have a tell-tale on the windvane – top trailing edge. We have often heard that cassette tapes make ideal tell-tales. That is probably the only use for those cassettes… if you can find one.

IDEA! Enhance light air response with a plastic bag/sack

This idea was found on an obscure sailing chatline – it is generic to any self steering with a vane. To enhance vane response sailing downwind in light airs, attach a small plastic bag (e.g. usual grocery bag/sack) to the top of the vane so it fills with wind like a balloon. It will pivot with the wind direction, and add force to deflect the vane, while having negligible intrinsic weight.

IDEA! Stern light on housing cover for pre 2010 units

The plastic cover is very strong – easy to drill holes to fit a stern light – some ingenuity needed for the wiring and angling of the light, but the the height is ideal.

In 2010 we changed the shape of the Frame Case for this purpose and offer an upgrade with LED Stern Light – rated at 3NM – burns only 1.5W or 0.1amps.

IDEA! Hydrovane vane as riding sail

At anchor, set the Hydrovane vane amidships trailing aft and lock it in place – Ratio in neutral/far right and Vane Locking Pin inserted. Helpful when windy to minimize the 'snaking' of the boat at anchor.

IDEA! For mizzens – rotate vane to horizontal, rather than taking it off

We recommend the Extendable Vane for boats with mizzens – you are able to easily rotate it to horizontal when tacking or gybing.

IDEA! Cover plates for rudder handle hole

Water flow through the handle hole could cause drag and reduces the 'balance' of the rudder. This 'drag' increases with boat speed. Faster boats could improve performance by making plates that cover that hole – see picture below. Note the space left for the tether. We had intended to make plates but now discover the new rudder is so well balanced that the plates are not needed for it.

IDEA! Locking the Main Rudder

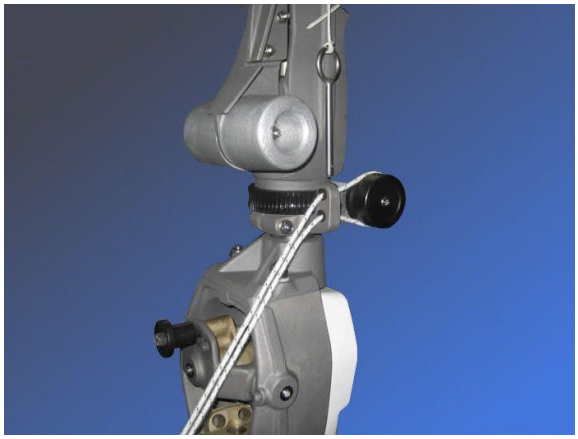
If only using a basic wheel lock, sometimes big quartering seas will push the main rudder off the locked position. Some ideas, in addition to your wheel lock:

- Devise a mini vice
- Use quick release jam cleats on either side of the wheel – should only need to jam the windward side

IDEA! Adding a red marker to the remote course setting line

Provided by Dee & Pippa (Elizabethan 31): *"I sometimes found altering course with my Hydrovane's control lines difficult. It was worse at night. Sometimes I just couldn't think which of the two lines to pull. I would resort to trial and error. It worked, but I wasn't happy with it. Then the solution dawned on me. Mark the line!*

So I tied a Turks Head knot onto one control line. I used red line, so I pull the line attached to the Turks Head to turn the boat to port. Even I didn't need a marker to say the other one turns the boat to starboard. It has made life so much easier for both Pippa and I, that I thought to share it with you and other Hydrovane owners."



IDEA! Reflective tape on the worm gear and tiller for 'night vision' FOR 'NIGHT VISION'

Provided by Gordon C. (Moody 38): *Gordon puts 2 bits of reflective tape on the flat parts of the chrome end of the Worm Gear. At night, he can see how much he adjusts the Course Setting – each reflection (half turn) equals 3 degrees change in course. He also puts reflective tape on the Tiller so he can see if the boat is 'on course' or not.*

F. SAFETY & MAINTENANCE

Bolt Tightness & Unit Alignment

- RE-CHECK BOLTS – Periodically check that all the bracket and hull bolts are tight.
- Perform FINAL INSPECTIONS TESTS before long passages – see our INSTALLATION GUIDE or videos.

Tethers on Everything!

- TETHER THE RUDDER – Use a length of line, not less than 3/8" (10 mm) diameter, tied through the rudder handle and secured loosely to some point on the stern, to ensure that the rudder is not accidentally lost.

  Warning: The Rudder does not float! A few are living at the bottom of the ocean…

- TETHER THE LOCKING PINS – All 3 Locking pins have tethers on them
- TETHER THE VANE – the Vane Knob secures the Vane in place, but a tether is prudent.

  Warning: The Vane is lightweight and may try to fly away when being taken on or off

Reduce Vibration

- ROTATE LOCKING PINS – The Locking pins are interchangeable. The pins – especially Shaft Locking Pin #61 – will suffer from metal fatigue over time. Best to periodically change it with spares or rotate it with the other locking pins.
- REDUCE RUDDER HOLE WEAR – Take the Rudder off when not in use, especially for weeks or months at a time.

Maintenance and Cleaning

- SOAP AND WATER – When washing the boat, also wash down the Hydrovane with fresh water.
- WD40 - At least once a year the whole of the unit, including castings, should be cleaned well with fresh water and soap. When dry, the unit, again including castings, should be thoroughly sprayed with a light aerosol oil such as WD40.
- SPRAY CASTINGS WITH CORROSION INHIBITOR – The gray metal aluminum casting could use periodic spraying with a corrosion inhibitor, especially the brackets as they are closer to the water
  - Lanocote – used on all bore hole during assembly
  - CorrosionX
  - T-9
  - LPS3
  - many more, use your favorite.

- DO NOT GREASE ANYTHING! EVERY JOINT SHOULD RATTLE – If any of the axels, shafts, or bearings are removed for cleaning or adjustment (although no reason to do such), the unit should be reassembled so that there is a slight but noticeable end play between the moving parts. The Hydrovane is designed to 'rattle' – so, do not re-set those joints to remove the 'rattle' or 'looseness'. The purpose of the loose joint is twofold:
    - There must be room for a delay in the transition from a course change in one direction to a course change in the opposite direction. Otherwise, the system would be 'on' all the time – another type of 'over steering'.
    - The joints need space to accommodate salt and dirt build-up. Otherwise a tight system soon becomes too tight causing unnecessary friction.

G. CONTACT US

We are always so pleased to receive photos and performance reports!

If you are struggling, please do not hesitate to contact us for further technical assistance.

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