



SURVIVE YOUR DREAM

HYDROVANE INTERNATIONAL MARINE INC.



Great Atlantic Gear Test

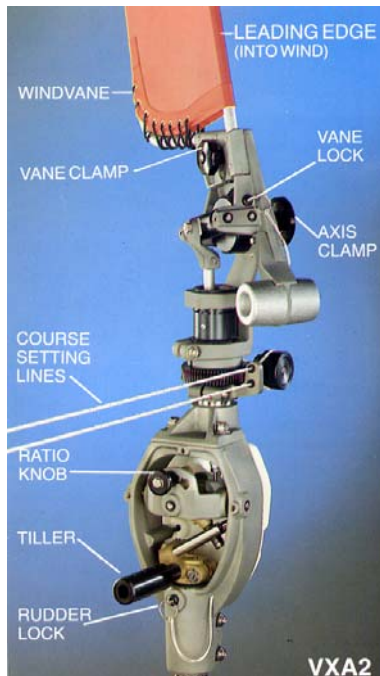
HYDROVANE Always Rated #1 or #2

ARC Participants about their HYDROVANES:

- ★ 'The hand of god'
- ★ 'Just wonderful - worth three crew'
- ★ 'Best piece of kit on the boat, used it all the way across'

TECHNICAL INFORMATION PACKAGE

(All, and much more, can be found on our website at www.hydrovane.com)



VXA2 Drive Unit



ENDURANCE 45 – 25 tons
complete assembly is 13 to 15 feet (3.9 to 5m.) high

The 'Course Setting line' can be set-up anywhere handy - It does not go to the wheel/tiller!

USER FRIENDLY WITH SOPHISTICATED CAPABILITIES

HYDROVANE is a unique 'NEXT GENERATION' self steering system which is both:

- Vane directly powering its own rudder
- A tiller steered rudder - for EMERGENCY STEERING

SIMPLICITY OF A VANE DRIVING ITS OWN RUDDER IS UNIQUE

- No lines in cockpit – independent from main steering
- No extra gear – Just a vane powering a semi-balanced rudder

ADVANTAGES OF THE AUXILIARY RUDDER SYSTEM

- **“BALANCING OUT THE BOAT”** – Main rudder becomes a big trim tab that is **locked in position to compensate for any weather or lee helm - insures that the boat wants to hold the desired course**. Although fixed, the main rudder does that certain amount of work to balance the boat - the Hydrovane rudder has that much less steering to do – as **the boat is comfortably trimmed and balanced to keep that ‘on course’ direction**. When the boat veers off course, the Hydrovane responds immediately with its rudder instantly turning to correct.
- **NATURAL STABILITY OF A FIXED MAIN RUDDER** – **The main rudder can provide the greatest yaw resistance only if it is fixed**. The Hydrovane concept utilizes the main rudder solely to balance the boat while it nimbly, in its levered position further aft, flicks this way and that to bring the boat back to the course the boat feels most comfortable on. With the main rudder locked in a position that eliminates weather helm the boat becomes naturally stable.
- **EMERGENCY STEERING IS AN UNDERSTATEMENT** – **Back-up steering system ‘in place’ and ‘ready to go’**

TWO RUDDERS

The combined effect of two rudders working together is perhaps the most significant advantage of a separate auxiliary rudder system. For downwind sailing in particular, the main rudder can provide the **greatest yaw resistance only if it is fixed**. To this natural stability the HYDROVANE rudder is tempered to the conditions resulting in yet further yaw damping - means a **more comfortable ride, a straighter course and less potential to lose control in bad seas and risk broaches, crash gibes and knock-downs**.

EASY TO OPERATE

- **Trim The Sails To The Course** – so the boat is comfortable holding that course
- **Set The Vane** with its leading edge into the wind – as if “in irons”
- **Lock Main Rudder** in the ‘on course’ position that compensates or eliminates any weather helm.
- **Click Hydrovane Into Gear**

When the boat goes off course the wind pushes the vane over - which powers its rudder to turn and bring the boat back on course. **The Hydrovane rudder is then steering the boat!**

Power for the system is derived from the large vane and its sophisticated linkage to the rudder. Because the **rudder is balanced it requires little effort to move**.

HYDROVANE IS AGNOSTIC

Unlike other systems the Hydrovane is agnostic about what type of boat it is on. **Because it is a completely independent steering system it will provide its certain amount of steering power, tempered for the conditions**. Most other systems are limited in performance by the various characteristics of each boat – due to problems caused by friction in the existing steering system. Not so for the Hydrovane.

OFF CENTRE - No Problem! PLATFORM/STEP TRANSOMS - SWIM LADDERS

We have been installing Hydrovanes off centre for 40 years

The Hydrovane will make platform/steps much more usable - as it can be offset to one side to preserve the platform/steps, passageway and swim ladder - the shaft and brackets can be configured to enhance the platform – not obstruct it.....as those 2 inch. (5 cm.) tubes double as ideal handholds – finally easy to board and de-board your dinghy.



SWEDEN YACHT 45 - finishing the ARC '06 ... during installation

For many reasons it is desirable or necessary to mount the HYDROVANE off centre. This is a major issue for other systems which have paddles that swish from side to side and risk rounding up if their paddle lifts out of the water, even if just for an instant – not so for a Hydrovane. **If the Hydrovane rudder comes entirely out of the water the boat should happily enough hold course for those few seconds – held by the fixed main rudder.**

'Our Hydrovane, mounted way off centre, has just completed its first 500 mile passage. Everything from F7 on the nose and rough seas (North Biscay) to a gentle F4 from behind.

The Hydrovane performed brilliantly, and we are delighted with it. Tell your colleagues."owner of QWYVER, a Wauquiez 40



WAUQUIEZ 40 – 30 INCHES (75 MM.) Off centre

FLEXIBILITY IN POSITIONING

The only critical position required is to have the shaft vertical. The brackets are merely holders that, when tightened, clamp the shaft in place. There is considerable flexibility in determining the location of the brackets which is most helpful when dealing with surprise obstructions on the inside and outside of the transom. Within certain maximum and minimum requirements the location of the brackets on the shaft may be moved up or down.

SIMPLE TO USE BUT SOPHISTICATED IN CAPABILITY

STRAIGHTENING THE WAKE AND REDUCING YAW – Only HYDROVANE can **adjust its sensitivity and the amount of power applied** to control the timing and amount of steerage applied to course changes. The result is that a HYDROVANE can **straighten its wake in a calm sea and greatly reduce yaw in a heavy sea**. This means **more comfortable, faster and safer passages**.

There are **two tools** for **adjusting the sensitivity and power** of the HYDROVANE:

1. ADJUSTABLE VANE AXIS - CONTROLS SENSITIVITY

Incline the vane to desensitize it. No other system can do this.

- **Vertical** or 0 degrees for light airs - most power, most sensitive.
- **Fully inclined** to 30 degrees - for heavy weather, least sensitive
- **Normal setting** – 15 to 20 degrees

Vane Axis Adjustment - To adjust power and sensitivity simply loosen the clamping knob and lift the balance weight to tilt the vane axis – then tighten the clamping knob.

Vane Angle Settings to Control Sensitivity - If the Hydrovane is responding too slowly, under steering, then you may raise the vane to make it more responsive 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. In the extremes the vane is vertical for light airs and fully inclined for heavy weather. A normal setting would be at about 15 to 20 degrees – midway in its range.

Only Hydrovane Can Change Its Axis/Sensitivity - The HYDROVANE is not finicky. Many owners leave their vane and ratio knob at the same setting for most or all conditions. The degree of tuning is personal taste – enthusiasm to trim. All the other major brands have either no such tuning capability or at best can make only minor adjustments. All other brands have fixed axis – generally 20 degrees. Only HYDROVANE can change that axis angle – from 0 degrees to 30 degrees – hence change its sensitivity/power.

Easy Waving Motion - The end result should be an easy waving motion of the vane as it swings from side to side, rarely banging at the stop nor spending long periods without moving.

2. RATIO CONTROL - CONTROLS POWER AND STEERAGE - Changes rudder angle of attack

Three settings for the ratio control knob for different amounts of rudder angle and steering power:

1. neutral – far right
2. 35 degrees rudder - 1:1 power - right (least power – slower speeds)
3. 25 degrees rudder - 1:2 power – middle
4. 15 degrees rudder - 1:3 power - left (most power – faster speeds)

Many sailors find that the normal settings with the **vane partially inclined (about 20 degrees) and ratio knob in the middle setting** are all that they need - but you may want to fine tune to see just how well the HYDROVANE can perform.

Over time you will develop your own technique for altering the settings. **Surprisingly, many users are happy to leave the settings alone - seeing no need!**



EMERGENCY STEERING IS AN UNDERSTATEMENT!

HYDROVANE IS A TRUE SECOND STEERING SYSTEM - 'IN PLACE' AND 'READY TO GO'

With a Hydrovane your boat will have two complete steering systems. The term 'Emergency Steering' implies some sort of back-up or temporary steering. **The HYDROVANE is much more than that.** It is a full time, 'in place' steering system - capable of completing a circumnavigation without any need for maintenance or repairs - as is!

It is impossible to over-estimate the value of back-up steering on a long passage. Second only to the importance of keeping the boat afloat is the importance of having steerage.

MANUAL STEERING WITH THE HYDROVANE - With the vane disengaged (ratio control in the right hand setting) the Hydrovane rudder can be steered directly with its own tiller. The Hydrovane's rudder and tiller is just like that on any dinghy sailing boat. Some single-handers connect a dinghy type of tiller to Hydrovane's small tiller to make an extension that can comfortably be used some distance away in the cockpit. This kind of set-up is practical if you want to use the Hydrovane to hand steer in close quarters or wherever. This technique is only for some. When entering a harbour or marina most owners simply lock-off the Hydrovane rudder or even remove it by popping out the locking pin with a boat hook and shipping the rudder aboard with its always attached tether.



TILLER AUTOPILOT RETROFIT

A small tiller style autopilot can easily be retro-fitted to the HYDROVANE for use when motoring or in very light winds and a sloppy sea. **The HYDROVANE tiller is designed for such adaptation.** Because the HYDROVANE rudder is balanced and relatively small it requires **very little effort to move** which means that even the **least powerful of the tiller-pilots is adequate.**



These autopilots typically operate at a radius of between 8 in. (200mm) and 18 in. (450mm) depending on the size and response of the yacht. The emergency tiller is provided with an end socket so that it can be extended for autopilot or emergency use. It is necessary only to arrange a convenient attachment point for the autopilot to one side of the HYDROVANE – often on the stern pulpit.

HYDROVANE owners have installed such tiller-pilots **report strong preference for them over their expensive below deck autopilots: no noise, not under a bunk, small electrical draw, saves the larger unit for a 'rainy day' – and a cheap way to have yet another back-up.**

THE BALANCED RUDDER

The rudder is manufactured in solid cast nylon – perhaps the largest single piece of nylon that one may see in a lifetime. With over 20 years of history these rudders have proven to be **nearly indestructible.**

Quick Release - The rudder is designed for **easy removal** with a **quick release pin that is easily 'popped out' with a boat hook.** A tether must be kept on the rudder at all times.

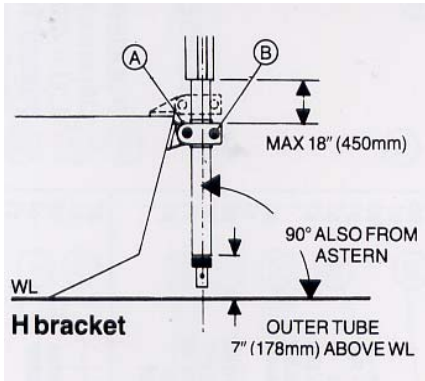


New Rudder – 43.5" (1,105 mm) Tall – Blade 1.5" (38 mm) at its thickest
True 'NACA' Profile – Negligible Drag

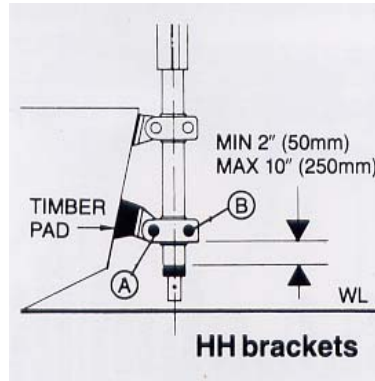
BRACKETS

MOUNTING BRACKETS 'H' (hinged) 'E' (elbow) - single strut 'A' - double strut

'H' - HINGED BRACKET – There must be at least one 'H' bracket on every installation - Every installation requires two brackets, one of which must be an H bracket. The 'H' bracket is located at about the closest point from the shaft to the stern.

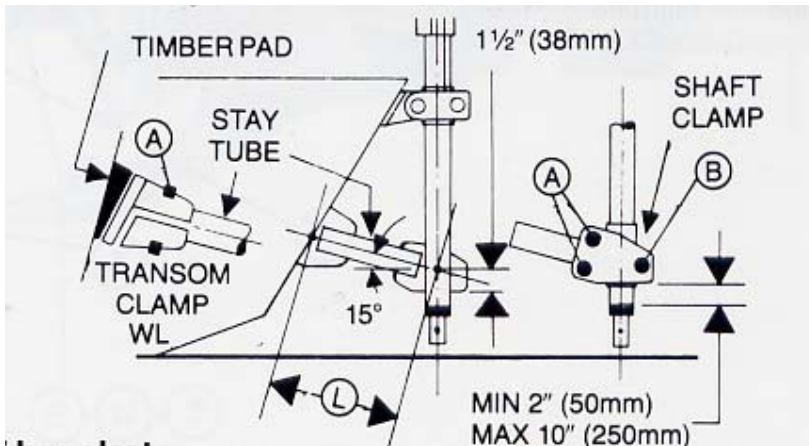


BOWMAN 42 – 'H/E'



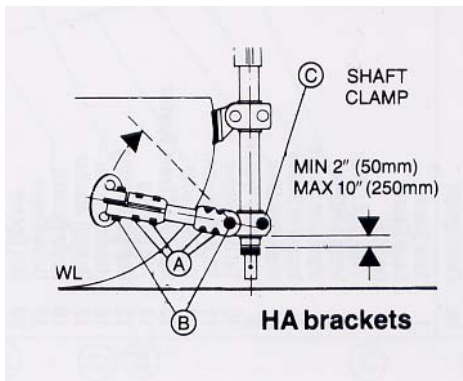
HALLBERG RASSY 352 – 'H/H'

'E' - SINGLE STRUT BRACKET - If the reach from the shaft to the transom for the lower bracket is less than 20 in. (50 cm.) the 'E' bracket can be used. It has a single strut/tube that will be cut to the appropriate length. That 20 in. max. can be exceeded when the 'E' is the upper bracket – see photo of the Island Packet 380.



CABO RICO 42 – 'H/E'

'A' - DOUBLE STRUT BRACKET - For installations where the distance required is at least 16 in. (40 cm.) the two strut/tube 'A' bracket may be used. The two struts of the 'A' bracket are V shaped at an angle of 40 degrees. The 'A' bracket is extremely versatile. The arms may be angled up or down, on the same plane or at differing heights and the flanges fully rotate to be flush with any surface.



SHEARWATER 39 – lower 'A' and upper 'H' with custom extension struts



NAJAD 373 – 'A/H'

COMPARE - REPORTS FROM THOSE THAT SWITCH FROM A SERVO PENDULUM SYSTEM TO A HYDROVANE

Those that have converted from a servo pendulum system to a Hydrovane usually do so to **regain the use of their cockpits** and to have the comfort of knowing they have an **effective back up steering system**. Once they have experienced the Hydrovane they report to us:

- **Pleasure** in getting their cockpits back – ‘danger barrier’ removed
- **Surprise** at how easy it is to engage and disengage – just ‘click’ it into gear - remembering the hassle of tensioning and fiddling with those lines – and difficulty in getting the paddle locked in the water
- **"Magical"** they say about its performance downwind in light airs.
- **No regrets** - nothing lost in performance
- **Confidence and comfort** in knowing that a back-up steering system is in place.



HANS CHRISTIAN CHRISTINA 43

WHAT ELSE WILL IT DO FOR ME?

RACERS – The Hydrovane offers the short handed racer advantages not available with any other gear:

- **ALTERNATIVE STEERING SYSTEM** - Qualifies as an ‘alternate steering system’ as required for many races.
- **STEERS STRAIGHTER COURSE** – Sophisticated ability to adjust for sensitivity and power produces a straighter course for less distance traveled.
- **HYDROVANE AND AUTOPILOT IN TANDEM** - An autopilot on the main rudder can be engaged simultaneously with the Hydrovane – a handy tool in hard to steer situations – eg – surfing, squalls or sail changes.
- **REDUNDANCY** - With a Hydrovane you are no longer vulnerable to any of the thousands of things that could go wrong: no power, no autopilot, no steering, no rudder.
- **REDUCED ELECTRICAL NEEDS** - Less time and effort spent maintaining and operating the power generation system.
- **QUIET** - A quieter boat with so much less running time for generators or engines – a green solution!
- **★ OFFSHORE INSURANCE** - Short-handed crew – improves eligibility for insurance.
- **THE SINGLE HANDER’S BEST AND ONLY CREW**

RALLY PARTICIPANTS – All of the above, plus:

- **INSURANCE** – Owners are not always able to stay with the boat for the return trip and the delivery crew is typically more prone to have mechanical difficulties. A Hydrovane is perfect insurance against much of the unforeseen.
- **IDEAL FOR CRUISING POST RACE** - All the above features are compelling for the short handed cruisers.
- **★ OFFSHORE INSURANCE** - Short-handed crew – improves eligibility for insurance.



NAJAD 440 – ARC Finish

MOTOR SAILORS – Many sailors are content to set their sails and turn on the engine, only stopping the engine in ideal sailing conditions. Because they have a strong bias towards running the iron staysail any notion of the rather finicky mechanical self steering devices seems unnecessary. The HYDROVANE is different than all other systems - although more sophisticated in design it is much easier to use and more versatile.

- EMERGENCY STEERING - A complete back-up steering system all in place ready to go. Consider it insurance.
- EASE OF USE – just click it into gear, no lines into cockpit that need constant tensioning and adjusting
- ★ OFFSHORE INSURANCE - Short-handed crew – improves eligibility for insurance.

OVERWEIGHT VESSELS – The Hydrovane is a wonderful tool for any boat. It will produce its certain amount of steerage power no matter how big the boat. But it does have its limits. Its capabilities diminish with heavier boats and at faster speeds through the water. If need be in difficult conditions, the autopilot could be clicked on to assist – two rudders being better than one – and the autopilot would not have to work nearly so hard. The trump card is always its ability as a back emergency steering system. In an emergency a Hydrovane can adequately steer any boat.

- PERFORMS – Only need to sail more conservatively
- AUTOPILOT IN TANDEM – Can always click on the autopilot in challenging conditions
- EMERGENCY STEERING – No matter how big the boat the Hydrovane is an ideal back-up steering system.

IT JUST WORKS

Typically first time users marvel that when put into gear that it ‘just works’. No tedious teething or tuning needed.



Moody 425 - en route from Trinidad to Recife, Brazil - disaster struck - saved by Hydrovane

- Early in the voyage the main steering system broke down
- Hydrovane steered 3,000 miles non-stop to Brazil
- Note - emergency tiller for the main rudder lashed to fix the rudder in place
- see related email in TRUE STORIES section of website