HYDROVANE Self Steering

Deutsche Übersetzung

HYDROVANE Self Steering…..

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www.hydrovane.com

SPECIFICATIONS & BRACKETS

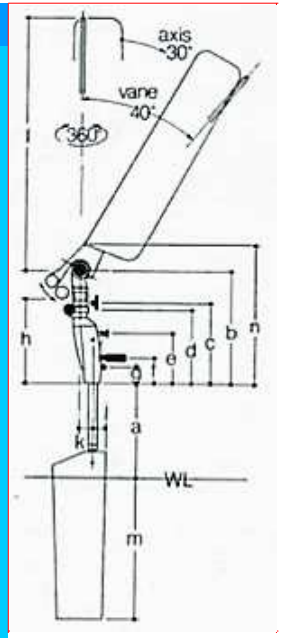
MATERIALS

Shafts, axles and fastenings	316 (EN58J) stainless steel, solid stainless rudder shaft in stainless outer tube
Castings	LM5 (AIMg5) anodized aluminum alloy and silicon bronze
Bearings	Acetal (Delrin). Nylon ball race on rudder shaft. Teflon washers
Rudder	High strength nylon casting. Tapered NACA profile
Wind Vane	Reinforced nylon cloth (ripstop) on anodized alloy tube frame
Course control	4in. (100mm) worm gear

INTRODUCTIO

DIMENSIONS

in.		mm.	
33	a	838	S shaft - see table
42	a	1067	M shaft - see table
52	a	1321	L shaft - see table
62	a	1575	X shaft - see table
25 1/2	b	650	vane axis knob
18	c	464	VXA1 course clamp
16	d	426	VXA2 worm drive
11 1/2	e	297	ratio knob
6	f	153	emergency tiller
4 1/2	g	117	rudder lock pin
19	h	480	balance weight
3	j	76	rudder front
3	k	76	vane/shaft axis
56 1/2	l	1435	vane height
31 1/2	m	800	rudder immersion
32	n	820	mizzen boom clearance

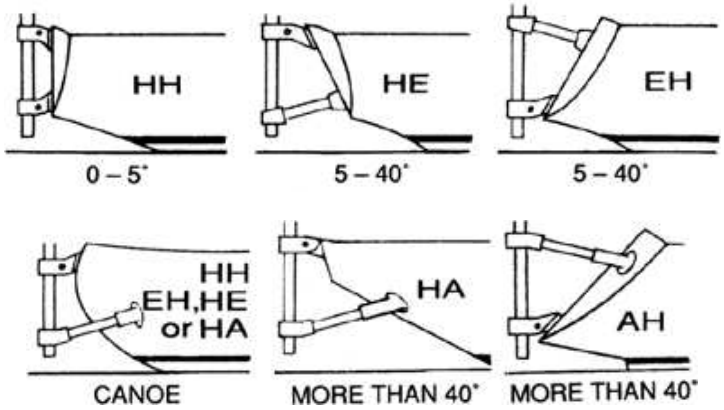


RUDDER SHAFT LENGTH

The HYDROVANE shaft length is chosen according to the height of the stern. The table below shows the required shaft length, S, M, L, X, or longer, assuming that for free vane movement, the stern rail is not more than 24 inches (610 mm) above the deck and does not project aft of the stern. Otherwise, the next longer shaft may be needed.

Shaft Length	Max. Stern Freeboard
S	34 in (860 mm)
M	43 in (1090 mm)
L	53 in (1340 mm)
X	63 in (1600 mm)
As Required	more than 63 in (1600 mm)

MOUNTING BRACKETS – H (hinge), E (elbow - single strut) and A (double strut)



HH Brackets
Conway 36

HE Brackets
Biscay 36

EH Brackets
UFO 34

HA Brackets
48ft 17 ton cutter

HH Brackets
Valiant 40

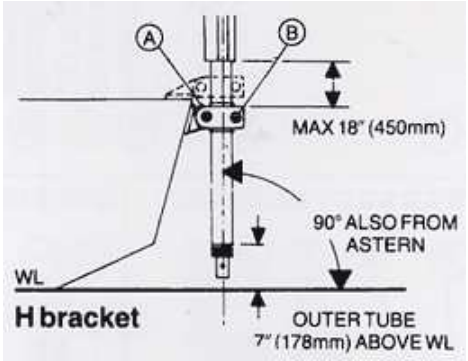
EH Brackets
Coaster 33

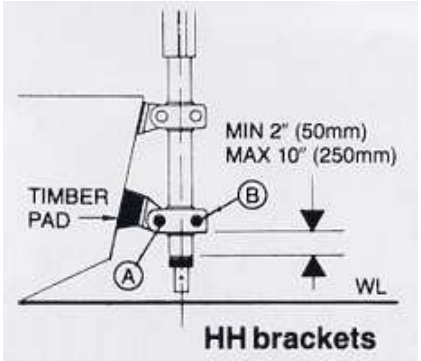
AH Brackets
Off Center
Moody 422

EH Brackets
Nicholson 45

HA Brackets
Nicholson 43

'H' (HINGED) BRACKET - MUST BE ONE 'H' BRACKET - 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.



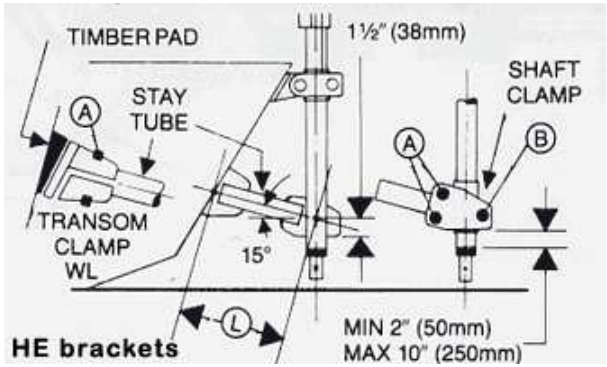


WARNING - BOLT TIGHTENING SEQUENCE: A - B

HALLBERG RASSY 352

H/H - 2 'H' Brackets

SINGLE STRUT/TUBE 'E' (ELBOW) BRACKET - If the reach from the shaft to the transom for the second bracket is less than 20 in. (50 cm.) then the 'E' bracket can be used. It has a single strut/tube that will be cut to the appropriate length.



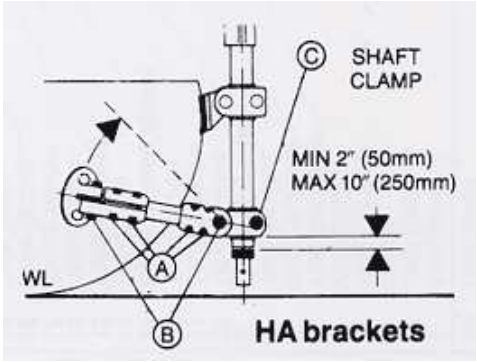
WARNING - BOLT TIGHTENING SEQUENCE: A - B

VICTORIA 34

H/E - Upper 'H' and Lower 'E'

DOUBLE STRUT/TUBE 'A' BRACKET - For installations where the distance required is at least 16 in. (40 cm.) the two strut/tube 'A' bracket may be used. Although expensive, the 'A' solves

all strength and positioning issues. The two struts of the 'A' bracket are V shaped at an angle of 40 degrees. The arms may be angled up or down, on the same plane or otherwise and the flanges fully rotate to be flush with any surface.



WARNING - BOLT TIGHTENING SEQUENCE: A - B - C

OCEANIC 46

A/H - Upper 'A' and Lower 'H'

OFF CENTRE - A good portion of Hydrovanes are now installed off centre - especially for modern style scoop or platform transoms. Performance is generally not an issue with the Hydrovane off centre. It is only when heading upwind and healing considerably that there is the potential of the rudder, when on the weather side, to be lifted too far out of the water – but upwind sailing is the easy part for steering. This quote is from the **TRUE STORIES** tab:

"……Having previously owned a Hallberg Rassy 382 which had your vane system on her I would not consider anything else. My family and I sailed the HR382 across the Atlantic and through the West Indies up to Florida and even though **the Hydrovane was off centered it didn't miss a beat! For your interest in 1972 my wife and I sailed a 28 footer with a transom hung Hasler trim tab system out to New Zealand and some time after that I had a yacht with a local ------ pendulum servo system. The Hydrovane in my opinion is the ultimate!"**

Owner of a Hallberg Rassy 42 ketch
Auckland, New Zealand

HALLBERG RASSY 40

Sweden Yacht 45 - 30 in. offset!

Note - use of PVC pipe as dummy shaft and use of tape for positioning - struts not on same plane

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 of the transom. Within certain maximum and minimum requirements the location of the brackets on the shaft may be moved up or down.

See **PARTS** tab for detailed pictures of the brackets.

See **INSTRUCTIONS** and **TIPS** tabs for complete installation and other instructions.

TIMBER PADS - A timber pad is a piece of non-ferrous material (often teak wood or a synthetic like Micararta is used) that is fitted between the HYDROVANE bracket flanges and the transom. The timber pad is fashioned or shaped to pick up any contour differences between the flat flange face and the transom.

For metal hulls it is always wise to insert a timber pad even when the two surfaces are flat or flush with each other. The purpose is to eliminate any potential for electrolysis - which can occur even between apparently like metals - eg - the HYDROVANE aluminum flange and an aluminum hull. The HYDROVANE castings are all made of a very high quality magnesium alloy - probably different metal than an aluminum hull.

TIMBER PAD FOR 'E' BRACKET

MAXs, MINs AND MEASUREMENT TIPS

- H bracket creates a distance from shaft to transom of between 1.5 in. (3.8 cm) to 4.5 in. (11 cm.)
- The minimum distance required for an E bracket is 8in. (20 cm.)
- The minimum distance required for an A bracket is 16in. (40 cm.)
- The maximum exposed shaft between the top bracket and the drive unit is 18 in. (46 cm.)
- The distance between the bottom bracket and the bottom bearing should be between 2 in. and 10 in. (5 cm. and 25 cm.)
- The minimum separation between the two rudders should be 8in. (20 cm.)
- The maximum distance off center is 12in. (30cm.)

- **Weight** - In water weight varies from:
  - Lightest - 66 lbs. (30 kg.) - 'S' shaft and two 'H' brackets
  - Heaviest - 113 lbs. (51 kg.) - 'X' shaft with the 'A' and 'H' brackets
  - Average - 83 lbs. (37 kgs.) - 'L' shaft with an 'E' and 'H' brackets

MEASUREMENTS

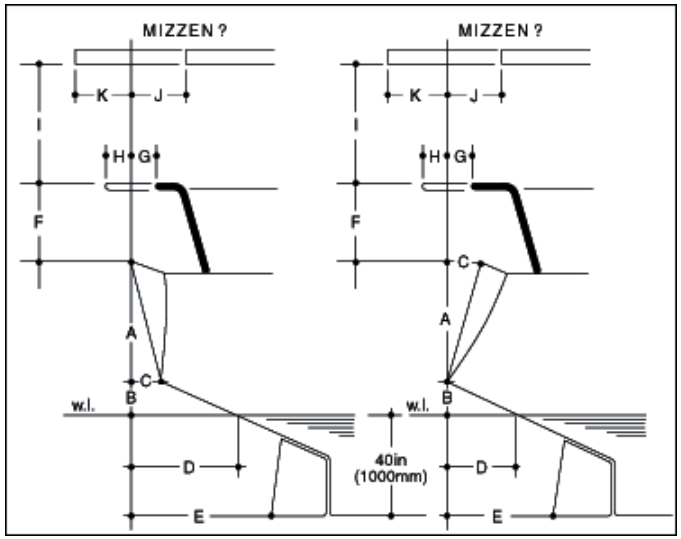
In most cases we need only the A, B, C and D measurements - see schematic below

If there are **any interfering obstacles** then we need those relevant measurements:

- **Rudder - E** - only if the rudder is near the transom - within 4 in. (10 cm.)
- **Pushpit Rail - F, H, G** - only if the pushpit rail might be in the way - but it is good to have those measurements anyways
- **Mizzen or Arch or Bimini - I, K, J** - for mizzen boom - use this same format if there is an arch or any overhead structure
- **Posts for Radar or Wind Generators** - For wind generators and radar masts - measure the lateral and forward distance from the mid point of the transom cap rail to the radar/generator mast or post

Scoops or Steps of Swim Platforms - We want to draw the side profile at that point where the Hydrovane will be fitted - From the tip of the transom measure both the vertical height and the lateral distance forward for each step.

MEASUREMENT SCHEMATIC



Click here to open the MEASUREMENT WORKSHEET.

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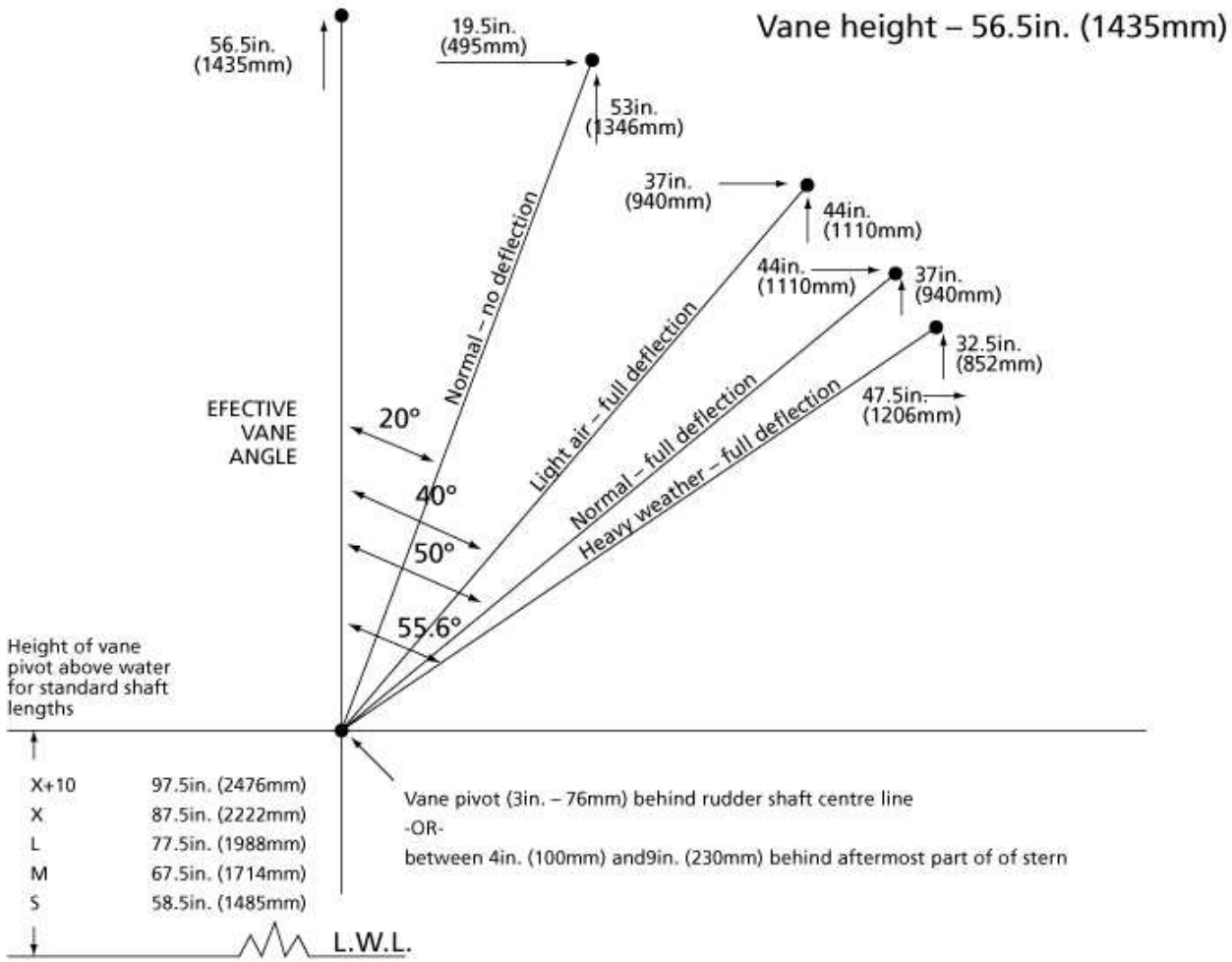
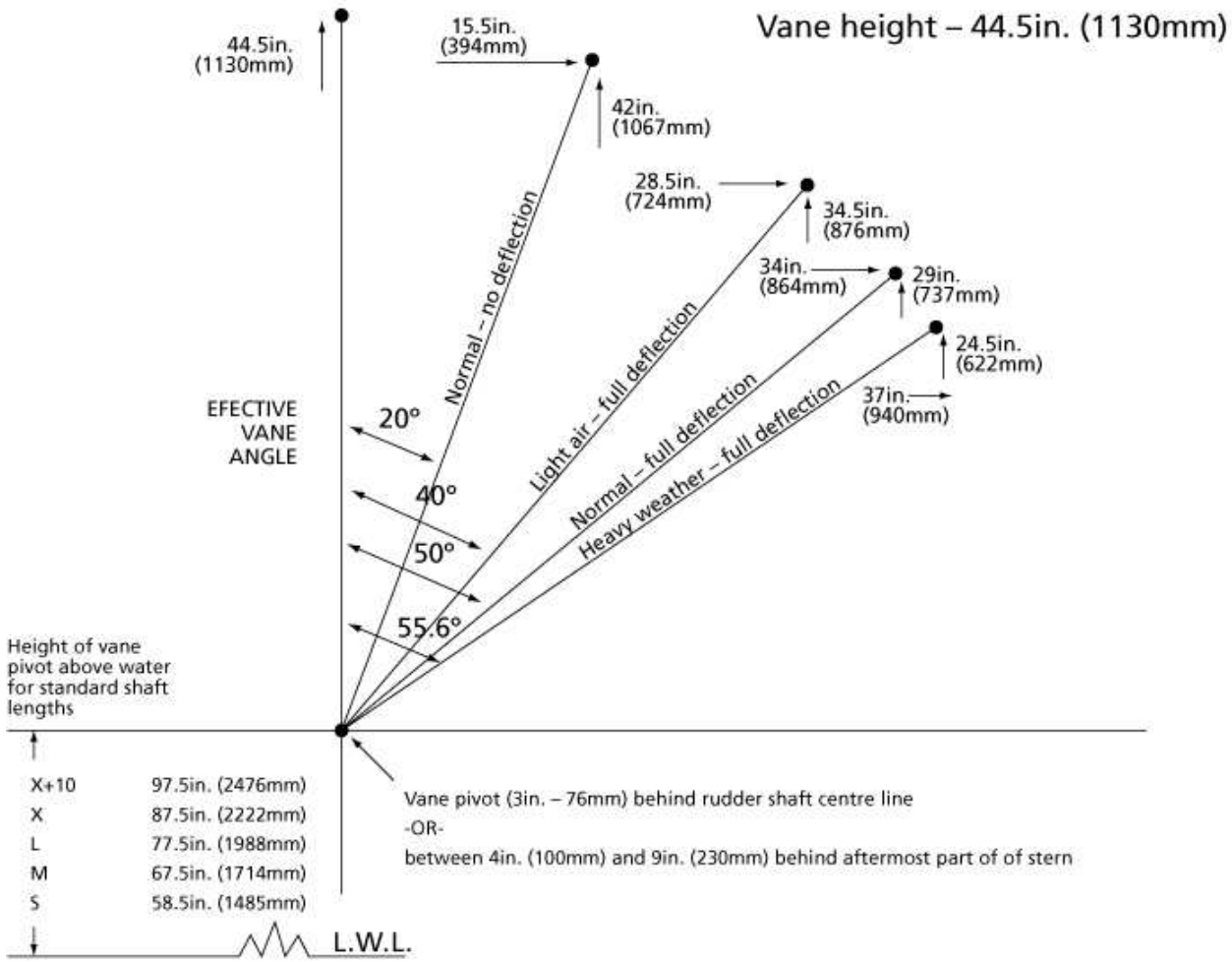
Measurements for clearance of vane from arches and aft deck masts

Standard Vane – Measurements for Clearance from Arches and Aft Deck Masts



Note: Although it is mechanically possible to incline the vane axis to 30°, it is unlikely that, in use, the vane axis will always be set at less than 20°

Stubby Vane – Measurements for Clearance from Arches and Aft Deck Masts



Note: Although it is mechanically possible to incline the vane axis to 30°, it is unlikely that, in use, the vane axis will always be set at less than 20°

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