

Miscellaneous Boat Tips for the Watkins 25

This collection of eclectic information applies to my 1986 W25 and could be helpful to other W25 owners by John Myers

Watkins 25 Information

Factory Sail info: Std. Main 109 Sq. ft. 135%Genoa=205 Sq. ft., 150% genoa = 228 Sq. Ft.
Main: Luff 23' 6" Leach 25', Foot 8' 8" Battens: 2 ea. 24"; 1ea 18-7/8;1 ea. 12-1/4 - 11/4 wide;
Main sheet blocks are Ronstan RF1376

Standing Rigging: Mast is ISOMAT made in France. Parts are available from Rig-Rite, Inc;
Phone: 401-739-1140; www.rigrite.com; Mast parts. Spreader tip kit #BF3-1k; Spreader base bushing #BF3-31xR;

Spare Parts: Yanmar 1GM10 engine

Part #	Description	Last Cost	# On Board
Y00Y00R1355	Yanmar Parts Catalog		
Y12170-42090	Water Pump Gasket	2.50	
Y128176-42071	impeller		
Y23418-060000	Bleeder Plug Washer		
Y124060-59380	Bleeder Plug		
Y27210-200200	Zinc	\$3.03	
Y123210-09310	Gasket, Zinc Mounting Flange	\$0.70	
Y128170-42071	Kit, Water Pump	\$24.01	
Y119660-35150	Yanmar 1GM10 Oil Filter	\$7.60	
Y104500-55710	Yanmar 1GM10 Fuel Filter	\$4.27	
Y24341-000440	Fuel Filter O ring	1.25	
Y128171-12540	Yanmar 1GM10 Silencer Element	\$14.95	
Y128170-11310	Valve Cover Gasket	3.33	
Y128170-13201	Mixing Elbow Gasket	3.49	
Y128170-13530	Mixing Elbow		
Y128170-42000	Cooling Sea water pump		
Y128170-49010	Water Hose, Lower		
Y128170-49040	Water Hose, Upper		
Y128170-49050	Water Hose Middle		
Y105582-49200	Thermostat	20.28	
Y104211-49160	Thermostat Gasket	1.08	
Y105582-52010	Pump, Fuel Feed	65.64	
Y121520-01850	Pump, Fuel, Gasket	1.25	
Y23414-08000	Banjo Pipe Gasket for Fuel Filter	0.5	
Y104271-67550	Engine Stop Cable		
Y728170-53100	Yanmar 1GM10 Injector Valve	\$81.06	

Hatches: Front square hatch: Bomar model 1039-10A High profile outer flange
22" square, extruded, use high profile replacement gasket.

Boat Formulas

Displacement-Length ratio = displacement in long tons / (.01 x waterline length)³

Long ton = 2,240 pounds

Speed-Length ratio = 8.26 / (D-L ratio) raised to 0.311 power

Nominal hull speed (knots) = S-L ratio X square root of waterline length

Shaft horsepower (SHP) necessary to move boat at nominal hull speed

$SHP = [\text{displacement (Lbs.)} \times (\text{S-L ratio})^3] / (10.665)^3$

Prop area should be = $100 \times \text{shaft Hp} / (\text{speed} \times (\text{speed})^2)$

Sail Area Formula: If sail side lengths are luff = a, leach = b, & foot = c then to make calculation two temporary terms R and S must be calculate where $R = \text{sqrt}((s-a)(s-b)(s-c)/s)$ and $S = .5(a+b+c)$ then $J = 2RS/a$; and Area = $R \times S$

Approximate hull speed = $\text{Sqrt (WLL)} \times 1.37$

W25 Ratios

Displacement = 4,800 Lb. Bare hull, engine, Battery, water, gear, 6200 lbs.

Or add average of 2 crew for 400 more lbs.

Displacement in long tons = $6200 / 2240 = 2.768$

D-L ratio = $2.768 / (.01 \times 21)^3 = 298.9$

S-L ratio = $8.26 / (298.9)^{.311} = 1.403$

Nominal Hull Speed = $1.403 (21)^{.5} = 6.43$ knots

Shaft HP = $6200 \times (1.403)^3 / 10.665^3 = 14.01$

Actual engine Hp = 8 thus boat can never go over ~ 5.5 knots under power

Minimum propeller area = $100 \times 9.1 / 4.5 \times 4.5^2 = 910 / 9.54 = 95$ sq. In.

Boat Dimensions: Deck house 34" above seats. Mast step 31" above seats when hinged down 34" above Mast 27' 7" tall, Forestay 30' 5" long.

Rear rail to deck 26", rail to seat 31" mast step to deck rail 2', mast hinge to bow 11' Boat rear @ deck is 6' 2" wide

Cabin sole for rug 32 x 60, Cockpit floor 22"-24" x 63", Cockpit seat opening 24"-26.25" x 65.25";

Cockpit seat well dimensions: 19.5" L x 13" D x 14" H

Bath under sink door opening = 5.75" x 20" waste tank 14.5 gal, Nauta 24" x 26" could have been 10" longer and 4" taller; Need Boat/US #193015-10, #147.95 Vetus Model V100. Seat Locker opening @ waste tank = 25.25 x 17.25 & locker is 14" tall at front and 9" at rear edge of opening.

Boat @ rear is 6' wide.

Rear Hatch: Window Frame on inside of boat 15.5 x 8.375; Glass opening 14.25 x 7.125; Outside of flange protruding into boat 15.5 x 8.5; Outside of trim ring on inside of boat 17.5 x 10.5

Forward Hatch: Glass frame 6.375 x 13.375; Glass 5.25 x 12.25; outside of flange protruding inside boat 16.5 x 13.5; Outside of trim ring on inside 8.5 x 15.5

Mast Wiring: 4 wires to mast plug, Orange and Black used, Lt Purple spare, Yellow spare ends near master switch. Also Brown & Tan spares start @ M sw.

Oil -Straight 30 Weight, Engine Oil W/Filter 44oz. Trans. 8.5oz.

Anchors: Anchor Size recommended; 11# Bruce, 7# Fortress, Old recommendations: 6' chain 1/4" and 135' rope 7/16 nylon. New thinking is length of boat in chain + 200' line.

Dealers:

Olde lyme Marine 203-434-1272 Dealer for Yanmar and other parts

Crowley's Yacht Yard, Chicago 312-225-2170- Dealer for Yanmar

CYN Chicago 708-227-7626 Dealer for Isomat

Torreson Marine - Suagatuck now sells Yanmar parts on the Web.

PH: 616-759-8596 or <http://www.torreson.com>

Indy Boat Salvage - 786-4088 3130 S. Madison

KAS Marine, 6 Lago Vista Place, Palm Coast Fl. 32164 PH: 904-829-3807 makers of

NewGlass and NewGlass Stripper/Prep.

www.arcowinches.com Parts for Barient and Barlow winches

www.rparts.com Refrigeration parts

Rig-Rite Inc. Isomat Dealer, PH: 401-734-1140, www.rigrite.com

The Rigging Loft PH:1-508-992-0434

Sail Lofts

360 Sails: used and surplus 1-800-360-sail

Atlantic Sail Trader: 941-351-6023

Bacon & Assoc.: 410-263-4880

National Sail Supply: New and Used 1-800-611-3823

MastHead Enterprises: New and Used 813-327-5361

Sailsourse brokers: 1-800-268-9510

Somerset Sail: 1-800 323-wing

472 sq. ft cruising spinnaker, 1.5 oz \$613. new + \$100 for shute scoop. 260 sqft 170

% light air new \$550.

The Sail Warehouse 408-646-5346