

December 7, 2007

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PAINE 54 – Revision D

2.0 CARBON FIBER MAST

IG=66.25', ISP=75.25', J=19.08', P=66.33', E=21.25', SPL=21.0'

2.0 Mast

Mast assembly drawing to be supplied by Offshore Spars. Layout of deck blocks at mast TBA by LM. Mast profile dimensions 11.52" x 5.69". Bare mast tube weight – 309lbs.

2.01 Mission Statement

The mast system is designed in keeping with the requests for working simplicity and single handed voyages.

2.1 Mast Construction

The mast is built using the seamless construction method for lengths of 67' using standard modulus (34Msi, 525Ksi), uni-directional pre-preg carbon fiber and autoclave cured at 280°F and 90Psi pressure. The upper and lower mast sections are joined using an internally bonded, carbon fiber sleeve. Section inertias, properties and dimensions to be supplied by Offshore Spars and approved by the builder.

2.31 Tang Attachment

Cap tangs are Navtec #K550. All other shrouds are seated in the aluminum spreader bars.

2.32 Inner Forestay Attachment

Inner forestay attachment is an aluminum fabrication with a high load sheave. Half moon on pennant and tensioning tackle for inner forestay storage. Combination staysail halyard/spinnaker pole topping lift has a Harken sheave and SS chafe protection.

2.33 Running Backstay Attachments

Gibb 740 backing plates for running backstays.

2.40 Spreader

Triple set of tapered carbon fiber, swept aft spreaders. Inboard ends are slip fit over anodized aluminum spreader bars and fixed using clevis pins. Lower spreaders are fit with flag halyard padeyes and flush fit spreader lights.

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2.50 Masthead

Carbon fiber masthead is integral with mast section. Harken sheaves are installed for one mainsail, one utility/Dutchman and two spinnaker halyards in an over/under configuration. SS halyard protection. Preparations are made for lights and electronics at masthead. Two composite folding steps are mounted for masthead service.

2.55 Hounds

A carbon fiber sheave box/lug assembly is bonded from inside the mast. One Harken genoa halyard sheave in a single sheave box. Carbon lugs for the headstay fitting.

2.60 Mainsail Track

Antal #50 track. Luff and batten cars provided by the sailmaker.

2.70 Spinnaker Pole Track

Custom Harken #3154 track is mounted with stainless steel internal backup strips. 100mm fastener spacing except in the high load areas where 50mm fastener spacing is provided. Custom spinnaker pole car with self-centering bayonet fitting for storing the spinnaker pole on the mast. Antal line driver winch for pole adjustment on the track. Mast mounted chock for securing the outboard end of the pole while stored on the mast.

2.90 Vang Fitting

Vang swivel is sized for a Navtec -30 boomvang cylinder.

2.10 Lightning Protection

One masthead mounted carbon fiber staff with lightning rod on tip is installed with ground wire leading to the mast step.

2.11 Mast Butt

Anodized aluminum rocker plate is isolated from the carbon mast butt. Mast is secured to the step as per ORC Regulations. Drain hole at the lowest point. Cable entry location to be determined. Anodized aluminum mast step plate with fore and aft adjustment is supplied.

2.12 Halyard Entries & Exits

Internal and external S.S. wear guards are installed.

2.14 Jib Halyard Adjuster

Mast mounted aluminum Antal track and car with pin stop for adjusting the jib halyard.

2.15 Lights & Antennas

Wiring is run in an internal polypropylene conduit. Lights to be installed:

- Lopo steaming light in carbon housing with 50w halogen flood.
- Tri-Color/Anchor/Strobe: Lopo #200-005 stacked with #200-012S & #400-018 windex adapter.
- Offshore Spars' custom carbon fiber lightning rod with 4g copper wire running to the bilge.
- 15" Windex.
- Two each 35W recessed halogen deck lights in lower spreaders.
- Light wire to be 14g.
- Provision for WiFi antenna on lower spreader.
- Provision for AIS antenna on lower spreader.
- 4 x antenna pads on lower spreaders for future considerations.

2.16 Messengers

Color coded messengers for halyards, control lines and electrics.

- 2.17 Mast Mounted Halyard Clutches**
Spinlock ZS jammer on mast with painted cosmetic cover for Dutchman halyard.
- 2.20 Water Stop**
A water stop is installed at the lowest halyard exit.
- 2.21 Foot Steps**
4 x composite folding climbing steps.
- 2.22 Goosenecks**
Boom and boomvang goosenecks are composite fabrications bonded to the mast. SS ferrules are installed in the gooseneck lugs for leading reef or other control lines. Three pair of inboard reef padeyes are installed for reef tack points.
- 2.23 Cunningham Padeye**
A swivel bale is installed on the vertical boomvang pin for attaching the cunningham tackle.
- 2.24 Hydraulic Hoses**
Hydraulic hoses with quick disconnects fittings are provided for the boomvang and outhaul.
- 2.25 Finish**
Awlgrip Matterhorn white.

3. BOOM

- Standard boom – carbon fiber. Assembly drawing to be supplied. Aft end is tapered.
- 3.1 Construction Method**
Boom is built using the seamless construction method over male tooling using standard modulus, uni-directional, pre-preg carbon fiber and autoclave cured.
 - 3.2 Outboard End**
Sheaves for three reefs and the outhaul. Mainsail clew strop supplied by sailmaker.
 - 3.3 Inboard End**
Three sheaves for leading reef lines to deck and aft. No reef line jammers in boom.
 - 3.4 Outhaul System**
-10 Navtec cylinder for hydraulic outhaul.
 - 3.5 Cockpit Light**
None
 - 3.6 Mainsheet Attachment**
Harken padeyes. Position to be confirmed. Client supplied mainsheet blocks.
 - 3.10 Preventer Bales**
Two soft strop type padeyes internally fixed to the outboard sheave box.
 - 3.11 Vang Lug**
Internally strengthened, aluminum boomvang lug to fit -30 Navtec cylinder.

3.12 Messenger Lines

Color coded messenger lines.

3.13 Finish

Awlgrip Matterhorn white.

4. SPINNAKER POLE

Spinnaker pole is carbon fiber. “J” length. End fittings are Hall. Double trip lines. All fittings necessary for storing the pole on the mast.

6. STANDING RIGGING

Rigging is Navtec with L500 tip cups at lower spreader tips and C550 turnbuckles at deck level.

- Headstay -30
- Upper Backstay -22
- Split Backstay -17 - one leg with SSB insulators. 3 x SSB insulators total.
- Inner Forestay – 9T Kevlar with Wichard adjuster.
- Running Backstays – 7T Kevlar.
- V1 -48
- V2 -40
- V3/D4 -22
- D1 -40
- D2 -17
- D3 -12

8. GENOA FURLER

- Harken #3 MK IV Aluminum Foils

8.5 HYDRAULICS

- 1 x A850-VC-030 Boomvang Cylinder
- 2 x A250-LE-017 Backstay Cylinders
- 2 x 5/8” Eye/Jaw Toggles
- 2 x D530 Adjustable Eye with Toggle