



**Report for Insurance Purposes**

**# 01396-18**

This is to certify that the undersigned did at the request of...

\_\_\_\_\_ of \_\_\_\_\_

**Inspect on the** 26 March 2018  
**the** Vancouver 274 Cutter Rigged Sloop  
**at** \_\_\_\_\_  
**Purpose** Inspection for Insurance Purpose  
**Report ref** # 01396-18

Attention is drawn to attached Terms & Conditions v9 Limiting Inspection

**1. Vessel Identification**

Name:	Gentle Lady	Reg No:		Reg Tonnage:	
		Broads No:	280G		
LOA:	2.83m	Beam:	2.63m	Draft:	1.3m
Displ:		Diesel:	L (NV)	Water:	L (NV)
Engines:	1x Bukh DV20	2x cyl		Naturally Aspirated	
Builder:	Pheon Yachts	Year of Build:	c 1985	Model:	Vancouver 274
Construction:	GRP				
		Build No:	216/85		
HIN No:	NV	Moulder:			
SSR No:	14902				
BSC No:	300903/16	Expiry:	January 2020	Viewed:	Yes
CE Design Cat:		NV			



## **Insurance Inspection - Scope**

The scope of an Insurance inspection covers the current structural condition(s), damage and maintenance aspects of the vessel and meets requirements for insurance purposes

This inspection for insurance purposes does NOT purport to be a full 'structural' survey.

For details of inclusive scope please refer to our website

[www.europeanmarinesurveys.com/marine-surveys/insurance-boat-surveys-inspection-for-insurance-purposes/](http://www.europeanmarinesurveys.com/marine-surveys/insurance-boat-surveys-inspection-for-insurance-purposes/)

**Important:** It is for the client to satisfy himself as to the 'fit for purpose' and operation of and quality and finish of fixtures & fittings, electrical / electronic / navigation equipment, water / waste systems, deck equipment, linings, fabrics, upholstery, gel coat appearance / varnish & paintwork and the general visual presentation and appearance of the vessel. E & OE

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**NDT \* (Non Destructive Testing)** Inspection using a capacitance type Tramex Skipper *Plus* moisture meter Range 2 for GRP. Readings % H<sub>2</sub>O – Green or Yellow scale < 18% being generally acceptable for an in-service vessel. In reality the true moisture content contained in GRP substrate is very approximately 10% of this value.

Random moisture readings are taken and in most cases it is not necessary to remove paint coatings to establish moisture levels. Paint coatings being removed to allow the surveyor to visually inspect the underlying substrate

Further hull inspection by hammer (tap) testing for voids / delamination and pricking at any doubtful features.

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EMS have not inspected or tested any equipment, items, structure or other parts of the vessel which are covered, unexposed or inaccessible. Equipment hidden behind screwed (fixed) structure or panels / linings and fitted furniture or under floors and fitted carpets is not inspected. We are therefore unable to give any opinion or report that any such equipment or item is free from defect.

Machinery installations, auxiliary and ancillary equipment and other service systems, electronic equipment, hydraulic equipment, pumping and plumbing, navigational aids and other sundry items were visually inspected only. None of these items was dismantled or specific test applied other than for the necessary inspection as safety issues, and in the case of electrical and hydraulic systems where simple switch tests were used.

## **General Description of the Vessel**

This Vancouver 274 c 1985 cutter rigged sloop is a coastal yacht with a single diesel auxiliary engine with standard shaft propulsion and fixed blade propeller. The hull design is full displacement with long encapsulated ballast keel and skeg supported transom mounted rudder.

The underwater sections have been anti-fouled red and are in reasonable paint condition. The hull topsides are white original shell gel coat with white original shell gel coat superstructure and raised non slip deck tread areas. The hull bottom and topsides are clean and well presented

► By enlarging all the photos in this report and on the complimentary CD, much more detail is apparent

Weather Conditions: Dry and Sunny



## 2. Hull

**Material: GRP**

**Glass Fibre:** Specification unknown

**Resins:** Specification unknown

This Vancouver 274 c 1985 was lifted ashore for the purposes of insurance inspection and maintenance

Anti-foul paint coatings were removed from the hull bottom (in sample / random areas only) in order to evaluate the underwater shell gel coat condition. This was done to allow the surveyor to form an overall impression of the general status of the hull structure

The underwater hull gel coat sample areas were visually examined for signs of osmotic blisters and / or wicking.

It should be noted however, that unless the underwater surfaces have been completely cleaned back to the bare gel coat prior to the inspection, we cannot confirm the detailed condition of the shell gel coat surface, fastenings etc. Our conclusion therefore is based on the visual evidence of the **sample / random areas examined only**.



## Underwater Surfaces

The hull was randomly sounded with a phenolic hammer to determine the position of the bulkheads and transverse floors. These are 'hard points' in the hull, and if any stress damage occurs due to excessive pounding or poor construction then it will show in the first instance in these areas.

In addition to this the hull wetness was measured at random points and compared to the readings of the topsides. It is not an ideal or definitive test due to the short period out of the water but it gives a reasonable indication if the underlying laminate construction of the vessel is 'wet'.

All GRP structures immersed in water will absorb water through the gel coat, to what extent this happens is dictated by numerous factors. Water temperature, thickness of gel coat, quality of construction, quality of materials, temperature during build, and salinity of the water all have some bearing on the absorbency of your hull.

The underwater surfaces are clean and have been over-painted (anti-fouled).

**In random (sample) scraping areas** (gel coat) moisture meter readings were taken and returned medium to high readings averaging 15% - 21% indicating that the underlying substrate has absorbed some moisture. This is not unusual for a vessel of this vintage.

This meter reading translates to moisture content in the GRP substrate sample scraping areas of around 1.5% - 2.1%. Additional meter readings were taken around the hull bottom with similar moisture results

Higher moisture meter readings were seen on the keel support moulding forward of the rudder blade.

For guidance purposes 'acceptable moisture levels' in a used boat are approx. < 1.8% subject to the vessel being out of the water for a period of time and allowed to 'dry'

There is evidence in the sample / random areas inspected of osmotic blistering ranging up to 12mm diameter, viewed frequently over the entire hull.

A blister was burst giving off chemical-smelling (blister juice) liquid, being acid and breaks down the polyester in a process known as hydrolysis – being normally localized. The hull moulding as a whole will still retain most of its strength unless these current blisters become very much larger and much more extensive.

The only way to confirm the true extent and degree of any osmotic / wicking condition that currently exists is to remove all antifouling and paint products and undertake a thorough examination. **This action is not currently considered either necessary or economic**

Structurally the hull condition should be monitored at least every couple of years – see notes



#1

Sample Area



# 2

Typical Meter Reading



**Recommendations:**

- Monitor hull structure

**Hull Topsides (waterline to gunwales)**

The hull topsides are clean and well presented

The hull topsides are original shell gel coat which is in reasonable condition with signs of general fair wear and tear

Hull topside moisture meter readings were taken and gave acceptable average measurements of 0.5% - 1.0%

It is generally accepted that osmotic blisters will not be found with 'low' meter readings

The gunwale hull fendering consists of a teak section which shows signs of light damage / deterioration plus general fair wear and tear

The hull / deck connections where viewed are bonded with encapsulated through section bolts

**Comments:**

Hull topsides are clean and well presented

**Recommendations:**

- General maintenance

**2.1 Anodes, Cathodic Protection**

Hull	1x
Keel	Nil
Shaft	Nil
Rudder	1x

**Comments:**

Anodes retain sufficient mass to be effective

**Recommendations:**

- General maintenance

**2.2 Centre Line Structure / Long deep encapsulated ballast keel**

Encapsulated ballast keel revealed no faults

No obvious impact damage was viewed to the keel / hull centre line

**Comments:**

The hull structure is considered to be in reasonable structural condition commensurate with age.

**Recommendations:**

- General maintenance
- Always maintain bilges in a dry and clean condition





Other than specified areas access to under floors and central bilge area was not possible due to fitted floors, carpeting covering and fastenings etc, therefore no opinion or report is given.

### 3. Superstructure

The superstructure and decks reasonably well presented but require cleaning

The superstructure is original shell gel coat and displays minimal wear and tear

The cabin roof displayed low to medium moisture meter readings around 1.3% - 2.2%

Moisture meter readings were also taken around deck fittings / fixings and gave low to medium meter readings

There was no external evidence of any significant impact or accident damage other than some light crazing / cracking around the forward hatch moulding

There was no visual evidence of osmosis in random / sample areas viewed

**Comments:** The superstructure and decks are in an acceptable structural condition

**Recommendations:**

- General maintenance

#### 3.1 Windows, Portlights & Hatches

<u>Location</u>	<u>Type</u>	<u>Condition</u>
Galley / Saloon windows	Alloy	FWT
Cabin windows	Alloy	FWT
Forward hatch	Alloy / Polycarbonate	FWT
Toughened windows	Yes	

**Comments:** There were no obvious signs of water ingress at the time of inspection. Nevertheless the absence of window leaks cannot be guaranteed and all windows should be monitored  
The forward hatch and cockpit door inserts show signs of age related damage to the polycarbonate due to UV

**Recommendations:**

- General maintenance
- Maintain all windows frames and seals in clean condition to reduce deterioration and the possibility of leaks

**Care should be taken with any windows that are not marked toughened or laminated.**



### 3.2 Pulpit, Pushpits, Guard Rails & Hand Rails

Pulpit rail	Stainless Steel	Secure
Pushpit rail	Stainless Steel	Secure
Handrails	Hardwood	Secure
Stanchion supports	Stainless Steel	Secure
Guard wires / stanchions	Stainless Steel	Secure
Boarding Ladder	Stainless Steel	Secure

#### Comments:

#### Recommendations:

- General maintenance

## 4. Internal

- **The structural condition of the build structure / scantlings / floor bearers etc hidden from view and below fixed flooring and GRP internal sub mouldings – cannot be guaranteed.**

The interior fit-out consists GRP mouldings / plywood floors / hatches with fitted vinyl coverings / faced plywood bulkheads and bunk fronts with fitted furniture and lockers with veneer faces, hard and soft side linings consequently there is very limited access to hull sides and most bilge areas

Floor bearers and supporting scantlings were seen to be in generally reasonable structural condition with minimal deterioration

Where seen most floor bearers appear secure. However it was not possible to see beyond the limited visual area. There were no repairs or added strengthening viewed in these areas

Where seen the faced bulkheads and soft linings appear generally secure and display low moisture meter readings other than below some windows but this was not thought to be significant

Where seen the berth fit-out modules and bearers appeared secure

Mould / mildew was seen on the underside of some floor / bed board

Standing water was found in the side lockers and side bilge areas

#### Comments:

The interior presentation is commensurate with a motor cruiser of this vintage, but is suffering from internal moisture and damp. Bulkheads display signs of fair wear and tear

#### Recommendations:

- Improved maintenance

**Other than specified areas access to under floors and central bilge area was not possible due to fitted floors, carpeting covering and fastenings etc, therefore no opinion or report is given.**



Visual access to gunwale through hull fastenings throughout the vessel was not possible due to overhead structure and side linings and therefore no opinion or report is given.

#### 4.1 Linings

Low moisture meter readings were found in the side linings and beneath most windows

Mould / mildew was seen on the soft linings throughout

**Comments:** Linings display signs of damp and deterioration plus fair wear and tear

**Recommendation:** ● Improved maintenance

Access to sides and deck heads throughout the vessel was limited due to overhead structure, linings etc. and therefore mounting feet / internal fastenings could not be examined and no opinion or report is given.

### 5. Engine(s) Propulsion & Stern Gear

► As surveyors (not technical engineers) we visually inspect engines during our inspections, and where arranged the engine(s) is run up to access its general running characteristics, vibration levels, etc.

No dismantling or testing of the engine or associated equipment is carried out within the scope of a Boat Buyer's PPI Inspection, so no detailed comment or opinion upon the engine parts is possible.

<b>Engine:</b>	1x Bukh DV20	<b>Diesel:</b>	2 cyl
<b>Serial number:</b>	NV	<b>Hours:</b>	NV
<b>Engine Bearers:</b>	GRP	<b>Condition:</b>	FWT
<b>Engine Mountings:</b>	Flexible	<b>Condition:</b>	FWT
<b>Engine Cooling:</b>	Raw water cooling through heat exchanger and 1x seacock valve		
<b>Intermediate Shaft:</b>	NA	<b>Condition:</b>	
<b>Propeller shaft:</b>	Stainless steel	<b>Condition:</b>	FWT
<b>Intermediate bearings:</b>	NA	<b>Condition:</b>	
<b>Shaft couplings:</b>	Rigid	<b>Condition:</b>	FWT
<b>Stern tube flexible sleeve:</b>	Flexible rubber	<b>Condition:</b>	FWT
<b>Stern tube packing gland:</b>	Studs & Nuts	<b>Condition:</b>	FWT
<b>Shaft log lubrication:</b>	Remote Greaser	<b>Operation:</b>	NV
<b>Shaft log tube:</b>	NA	<b>Condition:</b>	
<b>ER ventilation:</b>	Free Air	<b>Operation:</b>	
<b>Earth bonding:</b>	NV		





Comments:

**Recommendations:** ● General maintenance

No report or opinion is given in respect of oils, coolants, lubricants and similar – refer to oil analysis if applicable

### 5.1 Propulsion / Stern Gear - Standard Shaft Propulsion

Propeller:	1x	3 blade	Condition:	FWT
Shaft rope cutter:	1x		Condition:	FWT
P bracket:	NA		Condition:	
P bracket bearing:	NA		Condition:	
Shaft log tail:		Bronze	Condition:	FWT
Tail bearing:		Rubber Cutlass	Condition:	FWT
Anodes:		Nil	Condition:	

Comments:

**Recommendations:** ● General maintenance

### 5.2 Seacock Valves / Skin fittings

- ▶ Best practice recommends that all underwater seacock / skin fittings pipe work is secured with **two** stainless steel J clips. Plastic skin fittings are not recommended near or below waterline
- ▶ All seacocks / valves to be accessible

Qty	Location	Type	Operation	Security	Action
2x	Saloon	Ball	OK	2x J-clips	NA
1x	Galley	Ball	OK	2x J-clips	NA
1x	Engine space	Ball	OK	1x J-clip	<b>Service</b>
1x	Forward cabin	Ball	OK	2x J-clips	NA

Comments: Fit 2x J-clips to pipe work on all seacock valves

**Recommendations:** ●● Secure raw water seacock piping with 2x J-clips



### 5.3 Exhaust System

Exhaust exits aft	Hose connections appear secure
Exhaust hosing / connections	Visually OK where seen
Exhaust water lock / mufflers	Visually OK

**Comment:**

**Recommendations:**

- General maintenance

### 5.4 Fuel System Installation

### Appendix A – For information purposes only

► Fuel systems are visually inspected to the general standards as outlined under the BSS General Requirements. **Important:** This report does NOT purport to be a BSS Inspection

European Marine Services Ltd are NOT qualified marine engineers. Where there is concern a qualified marine engineer should inspect.

<b>Fuel tank:</b>	1x	Stainless Steel	<b>Capacity:</b>	NV
<b>Condition:</b>	NV		<b>Location:</b>	Below cockpit floor
<b>Fuel valves:</b>	1x		<b>Location:</b>	Engine space
<b>Fuel filters:</b>	1x	Metal bowl	<b>Condition:</b>	Ok
<b>Balance pipe</b>	NA		<b>Security:</b>	
<b>Supply:</b>	1x		<b>Bonded:</b>	Yes

**Comments:** Reasonable access to fuel system

**Recommendations:**

- See attached Appendix A for recommendations

Due to limited access I can give no opinion or report as to the fuel tank(s) structural integrity.

### 5.5 Engine Oil Sample Analysis

Sample not taken

### 5.6 Bilge & Pumping Systems

<u>Qty</u>	<u>Location</u>	<u>Type</u>	<u>Operation</u>
1x	Cockpit	Manual	NV

**Comments:** No Auto bilge pump fitted



**Recommendations:**

- Install auto bilge pump in bilge space below cockpit plus general maintenance

**5.7 Bow Thruster**

Not fitted

**6. Steering & Rudders**

**Vessel steering is through a skeg supported transom mounted rudder with tiller arm**

<b>Steering Type:</b>	Tiller	<b>Visual Condition:</b>	FWT
<b>Steering arm:</b>	Hardwood	<b>Visual Condition:</b>	FWT
<b>Connections:</b>	NA	<b>Visual Condition:</b>	
<b>Rudder stops:</b>	NA	<b>Visual Condition:</b>	
<b>Greaser:</b>	NA	<b>Visual Condition:</b>	
<b>Rudder stock:</b>	Stainless	<b>Visual Condition:</b>	FWT
<b>Rudder blade:</b>	GRP / Timber	<b>Visual Condition:</b>	FWT
<b>Upper Pintle bearing:</b>	Stainless steel	<b>Visual Condition:</b>	FWT
<b>Lower Pintle bearing:</b>	Stainless Steel	<b>Visual Condition:</b>	FWT
<b>Skeg:</b>	GRP	<b>Visual Condition:</b>	FWT
<b>Emergency Steering:</b>	No		
<b>Earth bonding:</b>	No	<b>Anodes:</b>	1x

**Comments:** Generally acceptable moisture meter readings in rudder blade

**Recommendations:**

- General maintenance

**During inspection the steering assembly (system) was not tested or operated and no opinion or report is given as to its operational state or serviceability**

**7. Batteries / Battery Boxes**

- ▶ All unsealed or open-vented batteries must be stored within an adequately ventilated space.

If escaping battery - hydrogen gas is not adequately ventilated, gases may possibly permeate into the living quarters



<b>Supply:</b>	12V	<b>Charging:</b>	Engine Alternator
<b>Batteries:</b>	NA	<b>Location:</b>	Below cockpit
<b>Battery box:</b>	1x	<b>Security:</b>	Ok
<b>Terminals:</b>	Protected	<b>Condition:</b>	Ok
<b>Isolation switches:</b>	2x	<b>Location:</b>	Cabin
<b>Label:</b>	Yes	<b>Ventilation:</b>	Free air
<b>Tested:</b>	NA		

**Comment:** Batteries removed from vessel at time of survey

**Recommendations:**

- General maintenance

**7.1 Electrics / Switches** **Appendix D**

**7.2 Navigation Systems & Instrumentation** **Appendix D**

No guarantee / opinion is given on the installed batteries, 6v / 12v / 24v DC and 110v / 240v AC electrical systems.

As surveyors, not qualified electrical or electronic engineers, we do not report or comment upon electrical, electronic or navigation equipment being fit for purpose and their installed systems.

## **8. Systems** **Appendix B**

### **8.1 LPG Installation & Systems**

- ▶ LPG systems are visually inspected to the general standards as outlined under the BSS General Requirements. Important: This report does NOT purport to be a BSS Inspection.

European Marine Services are not qualified Gas Safety Engineers. Where there is concern a qualified Gas Safety Engineer should inspect.

The LPG gas appliances as seen consisted of:

Gas locker: Side Opening GRP locker in the cockpit

Appliances: Gimballed 2 Burner Hob, Grill & Oven

**Comments:** LPG system not tested for soundness

**Recommendation:**

- See attached Appendix B for Recommendations



## 9. Fire & Safety

BSS General Requirements - Fire Extinguishers:

**Vessel Length:**

▶	7 - 11 m (23' – 36')	Qty	2	Combined (min) Rating	13A / 89B
	>11 m (>36')	Qty	3	Combined (min) Rating	21A / 144B

NB: No opinion or guarantee is given as to fit-for-purpose of the viewed fire extinguishers

**All extinguishers should be checked by a qualified engineer for conformity and current operational suitability**

Viewed:	1x	1kg	5A	34B	Powder
	1x	2kg	13A	89B	Powder
Engine space auto extinguisher	Nil				
Fire Blanket:	1x				
Carbon monoxide alarm:	Nil				

Bilge Pumps:	Nil	Operation:	NA
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**Comments:** Auto bilge pump not fitted

**Recommendation:**

- All portable extinguishers to conform to BSS general requirements
- All outdated extinguishers to be replaced / renewed. For prudence change all portable extinguishers at least every two years.
- Install auto extinguisher in engine space
- Install carbon monoxide alarm
- Install auto bilge pump

## 10. Misc



## 11. Mast & Rigging

- ▶ As surveyors (not sail-makers or riggers) we are unable to provide a written report or qualified opinion of standing / running rigging, sails, mast and spars, associated equipment, winches and fittings etc.
- ▶ Below are general comments of equipment / fittings as seen at deck level. Where concerns exists a qualified sailmaker / rigger should inspect.

<b>Main mast:</b>	Alloy	<b>Condition:</b>	FWT
<b>Boom:</b>	Alloy	<b>Condition:</b>	FWT
<b>Shrouds:</b>	Stainless	<b>Condition:</b>	OK
<b>Shrouds plates:</b>	Stainless	<b>Condition:</b>	OK
<b>Forestays:</b>	Stainless	<b>Condition:</b>	OK
<b>Forestay plates:</b>	Stainless	<b>Condition:</b>	OK
<b>Whiskers:</b>	NA	<b>Condition:</b>	
<b>Gammon iron:</b>	NA	<b>Condition:</b>	
<b>Tabernacle:</b>	NA	<b>Condition:</b>	
<b>Tabernacle fastenings:</b>	NA	<b>Condition:</b>	
<b>Mast pivot:</b>	NA	<b>Condition:</b>	
<b>Main mast deck step:</b>	NA	<b>Condition:</b>	
<b>Main mast plate:</b>	Alloy	<b>Condition:</b>	OK
<b>Main mast support:</b>	NA	<b>Condition:</b>	
<b>Mast support step:</b>	NA	<b>Condition:</b>	

**Comments:** Sails are not inspected

**Recommendation:** ● General maintenance

## Summary & Observations

This insurance inspection report is intended to report observations only. Any findings / recommendations should be used as a guideline only for obtaining cost estimates from reliable experts in the categories mentioned.





When considering the condition of this Vancouver 274 c 1985 it is important to appreciate that the vessel is approximately 33 years of age. However, the overall hull structural condition is considered reasonable for a vessel of this vintage and commensurate with its age.

I do not feel that there is any current (viewed) hull structural condition present that is prejudicial in the short term to the safe offshore navigation of this vessel.

The presentation / condition internally is commensurate with a 33 year old vessel that now requires some attention. Some of the vessels services are in need of attention

**In summary the following items are considered important and require service / attention:**

**Refer to section for more detail**

Seacock Valves / Skin Fittings	<i>Install 2x J-clips where necessary</i>
Bilge & Pumping Systems	<i>Install auto bilge pump</i>
LPG System	<i>As recommended</i>
Fire & Safety	<i>As recommended</i>

Any ●●● recommendations detailed in this report should be implemented without delay

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The vessel's structure is some 33 years of age and is therefore subject to fair wear and tear and the normal and expected overall deterioration consequent of this vintage. Such deterioration being commensurate with the vessel's age and standard of maintenance

**Important:** This Insurance Report does not attempt to detail or record all such structural / overall deterioration.

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When the propulsion engine(s) represent a significant part of the overall purchase price and without a comprehensive service record being available, we would always recommend a prudent purchaser to obtain a qualified marine engineer's report and / or an engine oil sample analysis

I have not inspected any equipment, items, structure or other parts of the vessel which are covered, unexposed or inaccessible. Equipment hidden behind screwed (fixed) structure or panels / linings and



fitted furniture or under floors and fitted carpets is not inspected. I am therefore unable to give any opinion or report that any such item is free from defect.

I am always most concerned as to the safety and security of any vessel with LPG installations - being a highly volatile substance. Therefore I must strongly recommend that any owner exercises the highest standards of care and maintenance and adheres strictly to the BSS published installation codes of practice

All recommendations made in this report concerning maintenance, monitoring, upgrades and improvements should be carried out by a prudent owner.

The ultimate responsibility for the maintenance and safe operation of this vessel rests with the owner and master.

### Statement

This insurance inspection report is intended to report observations only. Any findings / recommendations should be used as a guideline only for obtaining cost estimates from reliable experts in the categories mentioned.

The surveyor warrants that this report is a true and unbiased opinion of the vessel, based upon visual inspection on the date of the survey

The findings, opinion, and conclusions are based upon the best professional judgment of the undersigned. If this report does not discuss a specific item, equipment or machinery, it is not covered by this report.

Whilst every effort has been made to conduct a thorough inspection, there can be no guarantee or warranty, express or implied, as to the condition or suitability of the vessel or the equipment or machinery

This report makes no representation and does not purport to describe any condition which may have changed since the date of inspection and the recommendations herein are limited to those that, in the opinion of the surveyor, are reasonable necessary and appropriate, based upon the conditions and circumstances as they existed at the time of the inspection



Signed ..... *William S Kirby*.....

Dated..... 1 April 2018

William S Kirby, Aff IIMS, Dip Mar Sur

Associate Marine Surveyor

For: European Marine Services Ltd.

Tel: 07884 380134

**Important Notes**

**No guarantee or opinion is given on anchor(s), anchor winch, chain & mooring, hawse-pipe, buoyancy aids, life-rafts, pyrotechnics / flares, navigation equipment / aids, electronic equipment, guard wires & sundries and similar etc etc.**

- **Recommendation:** Improve maintenance,  
No particular significance to safety or security  
Best practice
- **Recommendation:** Implement at the next or convenient docking opportunity  
Best practice. Structural considerations.
- **Recommendation:** **Implement without delay**  
Best practice. Structural considerations.  
Significant to safety and security

**NV** Not verifiable **FWT** Fair Wear & Tear

**NA** Not applicable

**CD Rom Attachments**

**A complimentary CD Rom to include the Report & Appendix plus relevant 'Marine Links' and all digital photographs taken at time of survey, to follow at end of month.**

Some 150+ digital photographs were taken of which only a few are included in this report. All photographs are retained on file for future reference.

All the included photographs are better viewed for detail (enlarged) from the CD Rom disc.



## Notes for Information Only:

### (1) What is Osmosis

Very simply, the problem is caused by water penetrating the gelcoat and entering the laminated structure. This water takes in solution free chemicals salts and becomes denser than salt water on the outside of the hull. This creates a differential pressure and since water will not compress blisters form on the outer side of the gelcoat

Unfortunately the development of blisters is not predictable, some vessels may indicate high moisture content, suggesting the presence of blister fluid, but will not develop blisters for many seasons if at all, others may have similar readings with blisters present. It is generally accepted that osmotic blisters will not be found with 'low' meter readings. Not all blisters are caused by osmosis, some will be found to be dry blisters, these may often appear in the gel coat and usually caused by aeration when the original batch of gel coat was mixed.

These swell with water and raise localized rashes on the gel coat which disappear after a short time ashore and usually of no consequence.

Blisters caused by osmosis particularly at the outset may not be easy to find, as they may not be very numerous and will be quite small, having the appearance of small pimples, on average they may reach fingernail size (approximately 10 mm diameter), in extreme cases these may reach hand palm sized or larger when many blisters merge and combine making very large individual blisters, although this is a rare occurrence on modern craft, and probably would have been attended to long before it had reached this size. Serious delamination would be a result of this extreme circumstance.

However, early treatment of osmotic boats in early stages tends to be less successful than treatments of vessels with advanced blistering.

Experience has shown that the breakdown process in GRP laminates take some time to reach its conclusion, therefore if treatment is carried out prematurely, it is much more difficult to remove solutes from the laminate, and a reoccurrence of osmosis is much more likely to occur.

At the other extreme, a visual examination revealing extensive gel coat and deeper seated blisters may be all that is necessary to produce a diagnosis of "osmosis".

**Wicking:** Wicking is where the individual strands of the fibreglass mat behave like straws and draw water along their length, in doing so they swell in size and wicking will quite commonly be identified by a very slight raised pattern of the original matting visible on the gel coat.

Very often as the water dries out the swelling diminishes and the pattern disappears. When looking at a gel coat without pigment, wicking is easily identified because the area affected will have many individual strands of fibreglass clearly visible with a white outline.

This white outline is where the bond has broken between the resin and each individual strand. This 'wicking' is an indication that there is moisture in the resin, and is often a precursor to or accompanies blistering.

### **Treatments:**

**Do nothing.** On an old, heavily built boat, this is a genuine option. If there are no blisters I would definitely do nothing even if a moisture meter shows very high readings. If there are blisters but they are small and not too many they are not likely to have any significant effect on the structural strength

**Local treatment.** Cut or grind open individual blisters, repeatedly wash out with hot water or steam, to remove the 'blister juice' from any blisters, dry thoroughly and fill with epoxy paste (not car body filler).

Hugo du Plessis, author of what is virtually the standard reference work on GRP yachts, regards this as the best option in almost all cases, and says total gelcoat replacement (see below) should be an absolute last recourse.



Next winter you may have a few more blisters - usually in different places. The fact that they are usually in different places is a significant one - you are not getting blisters re-occurring but new ones developing.

Normal winter periods ashore definitely slow down the process of yacht hulls developing osmosis, as they do partially dry out each winter. However you cannot simply dry out a wet hull by leaving the boat ashore for a few months - water that took fifteen or twenty years to get into a laminate does not escape in months, unless the gelcoat is removed as is done in "osmosis treatments"

NB: Where epoxy repairs are recommended - epoxy is too waterproof to put on water contaminated coatings like gel coat. The affected areas should be sanded down and very well dried out before application, epoxy coats being subsequently applied wet on wet

**Go to your local 'Osmosis treatment centre'** and pay rather a lot to have the gelcoat removed, the hull washed and dried out, and the hull recoated with epoxy. The smaller and older the boat the less cost-effective this is. Treating an old river cruiser could cost almost £4 - 5,000 on a boat perhaps only worth £15,000.

On a 50-footer worth £150,000 the cost might be £8,000 - a far lower proportion of the boat's value. Yards used to offer a five year warranty with this work - many no longer do so, or charge extra if you want the warranty (they buy insurance against claims).

**Osmosis Protection Scheme** Other protective measures that can be considered for 'hull protection' are to sheath with a water barrier such as International Gelshield 200 or VC Tar2 which is applied over existing gelcoat - however such applications cannot stop osmosis once it has started. Such applications if applied following the manufacturer's instructions are usually successful and can greatly extend the useful life of the hull structure.

## (2) Anodes (Zincs)

The fitting of zinc anodes is recommended - see below

**Zinc:** Salt Water.                      **Aluminium:** Salt / brackish water                      **Magnesium:** Fresh Water

**For Information:** Very rapid zinc anode loss that results in bright, shiny metal being exposed is a clear indication of electrical activity, be it galvanic or stray current, usually the later, since galvanism rarely creates enough current to destroy zincs quickly .

Bright zinc in association with heavily corroded bottom paint means you have a problem that needs to be addressed immediately. The brightness of the zinc is telling you that there is too much current for the zincs to handle. Adding more zinc is NOT the solution.

## (3) Earthing - Bonding Systems:

The purpose of a bonding system is to equalize the electric potential of dissimilar underwater metals by tying them all together with wire or copper straps. The benefits of a bonding system are wide ranging but little perceived. One is that it serves to dissipate stray current leaks. 12 volts of current focused on a small piece of metal will result in rapid destruction.

But that same 12 volts spread over a much larger surfaces, causes less damage in proportion to the size of the water exposed surfaces of the metal. Bonding systems can reduce the corrosion potential of metals inside and on the bottom of the boat.

Vessels which have all the hardware bonded, such as the railings, will suffer much less corrosion. The general rule is that anytime a piece of metal plumbing or hardware is isolated in a system, as with a sea strainer that is joined by two hoses is electrically isolated, needs to be wired into the system.



*This can be done by daisy chaining items together, but it's a good idea not to include too many items in a chain. Obviously, at any point where a connection is broken, all those items upstream will be unprotected.*

*DC Current leaks are the most common form of a stray current problem*





## **Terms & Condition Limiting Marine & Yacht Surveys, Inspections & Services**

### **Under which terms all surveys, inspections, services are undertaken (V9)**

**The inspection is carried out on the understanding that the surveyor is legally liable to the named client only and not to any subsequent holder of the marine survey / inspection report.**

1. The purpose of survey / inspection was to carry out a structural (per clients instructions) evaluation of the vessel for pre-purchase, finance, valuation, accident investigation and / or insurance purposes
2. The vessel was ashore supported on chocks / slings, allowing access to the hull bottom, apart from the chocking / sling positions
3. Machinery installations, auxiliary and ancillary equipment, gas and other services, electronic, pumping and plumbing, navigational aids, safety equipment, fuel systems, electrical systems, steering systems, deck equipment, hydraulic systems and other sundry items were visually inspected only. None of these items were dismantled nor were specific tests carried out.
4. The LPG gas system(s), appliances, piping, tanks and components are not tested for leaks or tightness
5. The fuel system(s), cooling systems, engine(s), piping, tanks and components are not tested for leaks or tightness
6. As surveyors (not technical engineers) we visually inspect engines, gearboxes and generator installations during our inspections. By prior arrangement and with the owner's authorisation the engine may be run up to access its general running characteristics, vibration levels, etc. No dismantling of the engine or associated equipment is carried out within the scope of a condition survey so no detailed comment upon the engine parts is possible.
7. As surveyors (not sail-makers or riggers) we are unable to provide a comprehensive inspection of standing / running rigging, winches, sails, mast and spars and associated deck equipment etc
8. Water tanks and plumbing (where accessible) are externally inspected (only) where visible, and are not pressure tested. No liability is accepted for any subsequent leaks not apparent at time of inspection.
9. Windows, hatches, portlights, external and watertight doors are not tested for water tightness
10. Skin fittings and associated sea cocks / valves are not tested or dismantled
11. If this report does not discuss a specific item, equipment or machinery, it is not covered by this report.
12. We have not inspected any part of the structure or items which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the structure or item is free from defect
13. No liability whatsoever is accepted for any injury, death or damages arising from those parts of the vessel to which access could not be gained at the time of inspection.
14. The report is not undertaken with any intention to ascertain that the vessel would comply with any local or national authority, under whose jurisdiction the vessel may operate
15. Information is included within this report that is gathered from various sources, such as Brokers / Owner's Details of Sale, Ship's Papers and other third parties, and such information is neither confirmed nor guaranteed.
16. Our liability shall expire 12 months after completion of the services in respect of which liability is alleged to arise and we shall thereafter have no liability in respect of those services and/or any alleged defaults in connection with the provision thereof.
17. Under no circumstances shall our liability exceed a total of £ 500,000.00 inc costs
18. Any dispute arising hereunder shall be submitted to the exclusive jurisdiction of the courts of England and Wales.



19. Disclaimer

Whilst every effort has been made to ensure the accuracy of the information presented in our reports it must be clearly understood that it must **NOT** be construed as a guarantee or warranty as to the condition of the subject vessel if she is sold or transferred to a third party and no duty of care is allowed to any such third party. The report is issued without prejudice and in *uberrimae fidei* as a statement of facts ascertained at the time of the survey during which due diligence and reasonable skill were exercised and reasonable care was taken using common professional practice and, where available guidelines or Code of Practice such as and including those published by the International Institute of Marine Surveyors.

20. Guarantee and/or Warranty

This report does not constitute either a guarantee or warranty as to the condition of parts it was not, for any reason whatsoever, possible to see at the time of the survey nor does it follow that each and every defect was found during the inspection. No responsibility will be accepted for any faults, defects or changes subsequently arising. No guarantee against faulty design or latent defects is expressly stated or implied nor is any guarantee given that the vessel is suitable for any particular purpose.



## European Marine Services Ltd

### Ref # 01396-18 Fuel System (Diesel) Check List – Appendix A

Sect	Description	Yes	No	Comments
2.1.1	Location of filler ensure that fuel overflow does not enter vessel	Y		
2.1.2	Fuel use correctly and clearly marked on or adjacent to filling point	Y		
2.1.3	Are all disused filling points disabled	NA		
2.1.4	Internal diameter of filler at least 31.5mm (1¼)	Y		
2.2.1	Fuel connections leak free & in good condition, connections available for inspection	Y		
2.2.2	Fuel filling line self draining, so that fuel is not retained, free of kinks and restrictions	Y		
2.2.3	Fuel filling line material suitable and in good condition ISO 7840 or equivalent	Y		
2.3.1	Do fuel tanks have effective vent facility	Y		
2.3.2	Fuel tank vent pipe min ID of 9.5mm (3/8")	Y		
2.3.3	Fuel tank vent pipe connections leak free and in good condition	Y		
2.3.4	Fuel tank vent line self draining so fuel is not retained, free of kinks and other restrictions	Y		
2.3.5	Fuel tank vent pipe – suitable material & in good condition ISO 7840	Y		
2.4.1	Fuel tank vent outlet or swan neck – rise as high as the filling point	Y		
2.4.2	Fuel tank vent outlet fitted with flame arrester or flame arresting gauze	Y		
2.4.3	Fuel tank vent outlet in a position where no danger incurred from leaking fuel or vapour	Y		
2.5.1	Fuel tanks secure	Y		
2.5.2	Fuel tanks of suitable material	Y		
2.5.3	Fuel tanks seams & openings in good condition and leak free	Y		
2.5.4	Fuel tanks within engine spaces suitably fire resistant or protected against fire	Y		
2.5.5	<i>Petrol tanks installed required distance from heat sources or protected by baffle &gt; 4"</i>	NA		
2.6.1	Any glass or plastic tube type gauges fitted to diesel tanks ONLY	NA		
2.6.2	Any glass or plastic tube gauges protected against damage and by self closing valves	NA		
2.6.3	Fuel gauges and level indicators in good condition and free of leaks	NA		
2.6.4	Fuel tank openings (dipsticks etc) closed by a fuel tight cap or fitting	NA		
2.7.1	<i>Metallic components in petrol filling and tank systems electrically bonded to earth</i>	NA		

Y = Yes

N = No / Does not conform to general recommendations - **ACTION**

NA = Not Applicable

NV = Not verifiable / Recommend further investigation



<b>2.7.2 Petrol</b>	<i>Are all parts of electrical bonding system in good condition</i>	NA		
2.8.1	Is fuel tank drain fitted with plug or cap which can only be removed with tools	Y		
<b>2.8.2 Petrol</b>	<i>Is petrol feed and return line connections in lift pump systems made to top of tank</i>	NA		
<b>2.8.3 Petrol</b>	<i>Petrol feed line on gravity system fitted with cock or valve directly attached to tank</i>	NA		
2.8.4	Tank connections and valves accessible for inspection, good condition, leak free	Y		
<b>2.9.1 Petrol</b>	<i>Are multiple petrol tank systems free of balance pipes</i>	NA		
2.9.2	Balance pipes on diesel tank - suitable material good condition, leak free. ISO 7840	NA		
<b>2.10.1</b>	Rigid fuel feed & return lines made of suitable material	Y		
2.10.2	Flexible fuel feed and return hoses suitable for the fuel used and fire resistant ISO 7840	Y		
2.10.3	Fuel feed and return lines secure and in good condition	Y		
2.10.4	Flexible fuel feed and return hoses properly supported	Y		
2.10.5 Diesel	Do injector leak-off arrangements meet specified requirements	Y		
2.11.1	Are all fuel line connections of correct type and leak free	Y		
2.11.2	Are all fuel line connections, cocks, valves fittings and other components secure	Y		
2.11.3	Are all flexible fuel hose connections made with hose clips or clamps effective and in good condition	Y		
<b>2.12.1</b>	Are fuel filters in good condition	Y		
2.12.2	Are all filters inside engine compartment fire resistant ISO 10088	Y		
<b>2.13.1</b>	Is an emergency fuel shut off installed in every fuel line	Y		
2.13.2	Are all fuel shut-offs valves or cocks and readily accessible	Y		
2.13.3	Are all fuel shut-off valves in open view or their location clearly marked	Y		
<b>2.13.4 Petrol</b>	<i>Are petrol gravity fed fuel lines provided with required fuel shut-off facility &lt; 2m steering</i>	NA		
<b>2.14.1 Petrol</b>	<i>Are all non-draught carburettors fitted with a drip tray</i>	NA		
<b>2.14.3 Petrol</b>	<i>Is Carb drip tray fitted with effective flame arresting gauze attached along all edges</i>	NA		
<b>2.14.4 Petrol</b>	<i>Is a petrol, petroil or paraffin engine fitted with a flame trap or air filter</i>	NA		
2.15.1	Are all parts of engine mounting secure and in good condition	Y		
2.15.2	Are exhaust systems components effectively cooled, lagged or shielded	Y		



## European Marine Surveys

### Ref # 01396-18 LPG Gas Installation Check List – Appendix B

Sect	Description	YES	NO	
7.1.1	LPG cylinders stored where leakage is directed safely overboard	Y		
7.1.2	LPG portable appliances stored so leakage directed safely overboard	Y		
7.2.1	LPG locker tight up to the top of valves or other HP components	Y		
7.2.2	LPG pipework sealing arrangements exiting of correct type & in good condition	Y		
7.2.3	Side opening locker compliant with ISO 102397	NA		
7.2.4	Arrangements of self-draining locker prevent LPG entering vessel	NA		
7.3.1	Is drain in locker and drain outlet above waterline	Y		
7.3.2	Drain opening at or close to the bottom	Y		
7.3.3	Is locker clear of any items that could block the drain	Y		
7.3.4	Does the drain line fall continuously to outlet and are both ends clear	Y		
7.3.5	Is drain line material & connections in good condition / ISO 7840 (hire)	Y		
7.3.6	Drain line & drain opening have a min internal dia.12mm – 19mm See Table	Y		
7.4.1	Cylinders secured & upright with valve at top	Y		
7.4.2	Is the cylinder locker secure	Y		
7.4.3	Are cylinders secured against falling objects	Y		
7.4.4	Locker clear of any items that could damage LPG equipment	Y		
7.4.5	Locker material of required thickness			
7.5.1	All openings to lockers outside of engine, battery, electrical spaces	Y		
7.6.1	LPG shut-off valves in a readily accessible position	Y		
7.6.2	LPG valve locations in open view or locations marked	Y		
7.7.1	HP components either inside the locker or in an open location	Y		
7.7.2	Two or more cylinders connected each have a non-return valve fitted	NA		
7.7.3	HP hoses of pre-assembled lengths not exceeding 1m (39") & to spec	Y		

Y = Yes

**N = No / Does not conform to general recommendations - ACTION**

NA = Not Applicable

**NV = Not verifiable / Recommend further investigation**



7.7.4	HP components secure & in good order	Y		
7.7.5	Regulators mounted directly on to cylinders or located to prevent damage	Y		
7.7.6	Is the installation free of manually adjustable regulators	Y		
<b>7.8.1</b>	LPG pipework of suitable material secured & free from damage	Y		
7.8.2	LPG pipework protected where it passes through metal bulkheads or decks	Y		
7.8.3	LPG pipe joints accessible for inspection & correct type	Y		
7.8.4	LPG joints secure, in good condition and competently made	Y		
7.8.5	Unused appliance spurs properly capped or plugged	NA		
7.8.6	LPG pipes in petrol engine spaces or electrical spaces jointless & in gas proof conduit	Y		
7.8.7	LPG piping at least 75mm (3") from exhaust system & flue components	Y		
<b>7.9.1</b>	LPG hoses accessible for inspection, correct material & in good condition	Y		
7.9.2	LPG hose protected against damage passing through bulkheads, decks, walls	Y		
7.9.3	LPG hose at least 75mm (3") from exhaust & flue components	Y		
7.9.4	LPG hoses connecting appliances to supply pipework < max 1m (39")	Y		
7.9.5	LPG hose connections accessible for inspection, correct type, condition	Y		
7.9.6	Do all hoses comply with BS 3212	Y		
<b>7.10.1</b>	All portable appliance connections provided with isolation valve	Y		
7.10.2	Portable appliances connected with bayonet, plug, or screwed fittings & complete and in good condition	Y		
7.10.3	All unused screwed portable appliances properly capped / plugged	Y		
<b>7.11.1</b>	Can all appliance supply hoses be isolated through individual shut off valves	Y		
7.11.2	All appliance isolation valves of correct type	Y		
7.11.3	All appliance valves readily accessible	Y		
<b>7.12.1</b>	Is a LPG test point in the system, or bubble tester in locker	Y		
7.12.2	Is LPG system free of leaks			<b>NOT TESTED</b>

**Important:** European Marine Services Ltd. are NOT Qualified Gas Safe Engineers. Where there is concern a qualified Gas Safe Engineer should inspect

The above information / schedule is for **GUIDANCE PURPOSES ONLY**