CWS MARITIME SERVICES

REPORT OF MECHANICAL SURVEY
For

"MV XXX"

1987 Bayliner Pilothouse MY 4550

PREPARED EXCLUSIVELY FOR:

XXX

CONDUCTED BY:

Charles W. Solarek
on
Jan. 22, 2011

SCOPE OF SURVEY

Report file no: CWS-4-2011

Inspection date(s): Jan. 22, 2011 **Date of written report:** Jan. 26, 2011

Type of survey: Mechanical.

Conducted by: Charles W. Solarek

Requested by: This survey was performed at the request of the purchaser, XXX, who was present at the time of the survey.

Purpose of survey: To determine condition of engine and gear.

Vessel surveyed at: Bremerton Yacht Club.

Weather conditions: Overcast skies, clearing. Cool with little to no winds.

How survey conducted: In the water.

Sea trail: A sea trial was performed as part of this survey.

SURVEY STANDARDS

Standards followed: *This survey was completed using as reference the federal regulations and amendments issued and enforced by the United States Coast Guard under the authority of Title 33 and Title 46 of the United States Code of Federal Regulations (CFR's). In addition the American Boat and Yacht Council (ABYC) and National Fire Protection Association (NFPA-302) voluntary standards were used as reference during the survey. These ABYC and NFPA voluntary standard practices are generally followed by most vessel manufacturers today.*

SURVEY INSPECTION COMMENTS

All systems and components inspected and described herein are considered serviceable and/or functional except as indicated in the survey report and recommendations section. If a component is not identified in this report, it was not inspected.

SURVEY REQUESTED BY

Client name:

Street address:

City/State/Zip:

Phone:

VESSEL INFORMATION

Vessel Yr/Make/Model: 1987 Bayliner Pilothouse MY 4550

Vessel name: XXX

Hailing port: Bremerton, WA

Hull ID number verification: BLBA13EMJ687

Manufacturer/Builder: Bayliner Marine Corporation

U.S.C.G. Official Documentation No: 909487

PROPULSION SYSTEM

MAIN ENGINE(S)

Make / Model: TWIN HINO 250HP; 6 CYLINDER DIESEL

Serial no(s): UNKNOWN

Engine(s) hours: 1792.7 (port); 1790.5 (Stbd) by installed meter

Engine Throttle Controls: Teli-flex

Oil pressure: 70 PSI at Wide Open Throttle (WOT) for port; 60 PSI at WOT for Stbd by installed meter.

RPM: 2870 RPM WOT for port; 2880 RPM WOT for Stbd by installed meter.

Temperature: 165° F at WOT for port; 200° F at WOT for Stbd by installed meter.

Hoses and clamps: Some installed fuel supply hoses sighted have a manufacture date of 1986. See FINDINGS/RECOMMENDATIONS below.

Belts and pulleys: Good condition as visually sighted.

Cooling system(s): There were no visible signs of leakage from the coolant system while the engine was running. Temperature taken at the exhaust risers with an infra red remote temperature thermometer indicated 113° F port and 91° F Stbd while engines were under at cruising speed.

Oil level and condition: Level was good and a sample was taken for analysis. Results are attached. See FINDINGS/RECOMMENDATIONS below.

Last major overhaul: It was reported that in 2010 both engines had the exhaust risers replaced and the raw water coolers cleaned.

Engine(s) operated: The engine was operated at minimum throttle for approximately 20 minutes prior to sea trials. There was no heavy smoke from the exhaust at any time.

TRANSMISSION(S)

Manufacturer: Twin Disc

Serial no(s): Unable to read label/tag.

Fluid level and condition: Level was satisfactory. Oil sample results showed traces of water and lead. See FINDINGS/RECOMMENDATIONS below.

Propeller shaft(s): Stainless steel.

Stuffing box (es): Dripless shaft seal system that is raw water cooled. Boot and carbon collar is secure and appears functional.

ELECTRICAL SYSTEMS

D.C. ELECTRICAL SYSTEM

Primary batteries: There are six batteries located Starboard side, in the engine compartment which provides service to the main engine(s) plus house electrical. Battery terminals are not protected against accidental shorting per American Boat and Yacht Council (ABYC) standards; ABYC 11.5.4.7.5. See FINDINGS/RECOMMENDATIONS below.

Battery Set Two: There is a single 12 volt battery in the Lazarette which supplies starting power to the GenSet. Battery cables are secured with "wing nuts" which is not per ABYC standards. See FINDINGS/RECOMMENDATIONS below.

GENERATOR

Manufacturer/Model: Westerbeke diesel; 12.5 KW

Serial number: unknown

Hour meter: 768

Location(s): Aft end of engine space.

Type of installation: On tray, with sound shield.

Hoses and clamps: Properly double clamped.

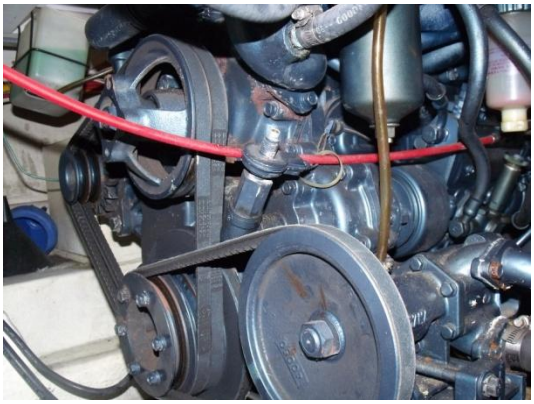
Belts and pulleys: Belts conditions are serviceable. No cracks or splits sighted. Pulleys/belts appear to be in line.

Cooling system(s): Fresh water / heat exchanger cooled, -- coolant level is good and in good condition.

Generator tested: Yes. Initially GenSet would not stay running upon release of the "pre-heat" switch. It was determined the cause was due to the unit sitting idle for an extended period of time and the insufficient oil pressure at the safety sensor. GenSet did supply vessel when selected at the electrical distribution control panel.

Findings and Recommendations:

(1) The throttle cable for the starboard engine is not secure and has been run thru the belt and pulley area of the engine (see photo). RECOMMEND: Secure throttle cable to prevent it from possibly coming in contact with engine belt and causing failure of belt and/or throttle cable.



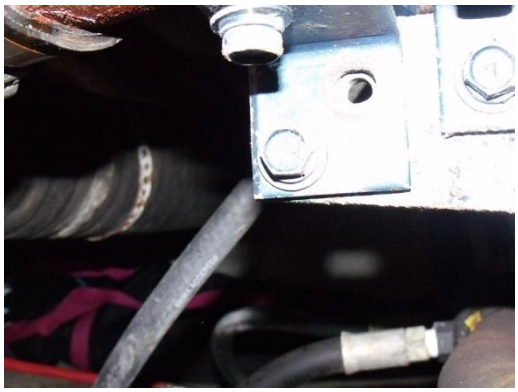
(2) Engine mounts for both engines are in need of paint and preservation. RECOMMENDATION: Clean and paint engine mounts with approved marine grade paint.

(3) Fuel oil flex hoses have a manufacture date of 1986. The accepted serviceability life span of flex hoses is 5-7 years. RECOMMENDATION: Replace hose out of serviceability as deemed necessary to ensure continued proper operability of fuel supply.

(4) Oil samples taken on both engines and sent to NC Machinery; SOS Services Laboratory. Results were normal. It was indicated by the lab that the oil may be new at the time of the sample. RECOMMENDATION: Resample oil as per lab recommendations in 250 hours or three (3) months, whichever occurs first, order to establish a baseline for engine performance. Lab results are attached.

(5) The HALON fire extinguisher for the engine compartment was not properly mounted. There in fact are two extinguishers in the compartment, one of which has its seal broken. RECOMMENDATION: Install fire extinguisher in accordance with Coast Guard regulations.

(6) The mounting bracket for the port engine exhaust riser is missing a fastener (see photo). RECOMMENDATION: Install fastener of proper size.



(7) Oil samples taken on both transmissions and sent to NC Machinery; SOS Laboratory. Results showed traces of water and lead. RECOMMENDATION: Drain transmission and renew fluid. Resample after 250 hours or three (3) months, whichever occurs first. Lab results are attached.

(8) The main battery suite does not have proper protection for accidental shorting as per ABYC standard, E-11, which states "Continuously energized parts such as positive battery terminals and both ends of all wire connected thereto shall be physically protected with boots or other form of protection, that cover all energized surfaces to prevent accidental short circuits." Additionally the battery is not in an acceptable container to contain possible battery acid leakage/spillage. RECOMMENDATION: Install rubber boots on positive battery terminals. Install batteries in an acid proof container.

(9) The battery for the GenSet has "wing nuts" to secure cables to the terminals. As per ABYC standards battery terminal cables 6AWG or larger, should be secured with hex nuts to prevent loosening.
RECOMMENDATION: Replace "wing nuts" with proper size hex nut fasteners.

(10) All sea strainers inspected had salt residue visible in the vicinity of the gaskets. RECOMMENDATION: Replace sea strainer gaskets.

Comments:

1 Further Inspections and Repairs: When further inspections and repairs are recommended, they should be made to the current Federal Regulations and/or professional marine industry standards by competent professional and qualified Craftsmen, and when applicable, to any manufacturer's recommendations. A prudent purchaser would obtain addition inspections and estimates for repairs for consideration in the course of a purchase.
2 Through Hull Valves and Hoses: It is the undersigned's opinion and recognized as prudent practice, that all the below the-waterline through hull valves, with the exception of the cockpit drains, be closed while the vessel is left unattended, dockside or at anchor. Further, any discharge hoses which discharge near or beneath the waterline should be secured in such a way that if the hose clamps fail at any point of attachment above the thru-hull, the hose would remain above the waterline so as to avoid down-flooding risk. Likewise, any freshwater shore power connectors should be secured in the OFF position when the vessel is left unattended, to reduce the opportunity for down flooding.
3 Shore-side Pressure Water Connections: Should this vessel be equipped with shore side pressure water connection, the undersigned recommends that the shore power water be TURNED OFF at the dock, prior to leaving the vessel unattended.
4 Engine Care: It is always a good idea to change all the fluids, the impeller(s), and the belts after buying a used boat. Engine and transmission fluids were drawn for sampling. It is advisable to follow lab recommendations. In addition, future samples can help in the long term care of the engine, and perhaps contribute to its successful performance and longevity.

DECLARATION:

Rating of vessel machinery condition was determined upon completion and review of all reported survey information including recommendations and comparing vessel to the same or similar age models. Possible condition ratings are as follows:

· **EXCELLENT -** Essentially as new or bristol in appearance.

· **ABOVE AVERAGE -** Has had above average care with no obvious defects or limitations.

· **AVERAGE -** Ready for sale but needs some maintenance or repairs, updates or cleaning.

· **BELOW AVERAGE** - Needs significant maintenance, repair or service.

· **RATING OF VESSEL MACHINERY CONDITION.....AVERAGE**

CLOSING STATEMENT & SIGNATURE:

This report is submitted in confidence for the exclusive use of Robert Bond without prejudice to the rights and/or interests of other concerned parties and may not be used for any other purpose or relied upon by any other person.

ATTENDING SURVEYOR: Charles W Sofarek