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Marine Surveyor



## 2000 Beneteau 411



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# Pre-Purchase Report of Marine Survey

*Of the Vessel*

" 

2000 Beneteau 411

## Conducted By

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## Prepared For



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**Report Submitted On:** November 1, 2024

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## INTRODUCTION

### EXECUTIVE SUMMARY

██████ is a well cared for Oceanis 411 that has undergone a series of major upgrades over the past two years. That work includes new rigging wires and lines, a new tender, new solar arch with integral davits, new electronics, and a completely new house battery system featuring Victron components and Battleborn LiFePO4 batteries.

All her systems are operational and the owner reports that the vessel can operate on solar including the new 12-volt air conditioner. The new Garmin electronics and Victron inverter, DC2DC charger, MPPT solar controllers, and CerboGX monitoring system are all current models and are well installed.

These upgrades and the overall strong condition of the vessel put her at the top of sisterships in very good condition. The findings are minimal and mostly regulatory or cosmetic in nature. When the items in the A and B findings are attended to she should provide a solid platform for her intended use as coastal and caribbean cruising vessel.

### PURPOSE & SCOPE

The Surveyor attended aboard the 2000 Beneteau 411 ████████ at the request of Barry Melton & Misty Melton on October 28, 2024. The Survey was requested to determine the physical condition and value of the vessel for possible purchase.

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Moisture readings taken and referenced throughout the report's body were taken with an ElectroPhysics GRP33plus.

Images supplied in this report were taken with an Olympus TG-6 digital camera, a Lumix 2500, and/or an iPhone 15Pro and represent a true and accurate representation of the subject at the time the image was taken.

Where stated, the Hull and Deck's surface was percussion sounded with a 8oz Stanley phenolic hammer approximately every 6" to 8".

No reference or information should be construed to indicate evaluation of the internal condition of engines, transmissions, drives, or generators, nor the propulsion system's or the auxiliary power system's operating capacities. It is recommended and understood that a qualified Engine Surveyor should survey all DIESEL/GAS engines to determine the condition of the engines, gears and pumps, heat exchangers, coolers, etc.

All electrical and electronic equipment was tested for power up and power off only unless otherwise stated. All Electrical testing was conducted with a Fluke 83 DMM, a Fluke 377 Clamp-on DMM, or a Prova CM-01 Clamp-On DMM. Electrical outlets, where referenced, were tested with an Extech CT70 AC Circuit Load Tester. Stray AC current readings, where referenced, were taken with a Yokogawa 30062a AC Leakage Meter.

Where stated, the batteries were tested with a Midtronics MDX-500 Battery Analyzer. The wiring was only inspected where accessible. A significant amount of the wiring could not be sighted due to the wiring looms and conduits that transit areas, which would require dismantling and removal for their inspection. If a detailed report as to the condition and capacities of the wiring and electrical components is desired, it is recommended that a detailed electrical survey be commissioned from an ABYC Certified Electrical Technician.

Vessel tankage was visually inspected where accessible. It is always best if the tanks are inspected when full, as per my pre-inspection requests. If a more thorough assessment is desired, they should be filled and checked under full tank status or pressure tested to attest to their condition.

Sailing vessel spars & rigging will be visually inspected from deck level to eye level only. The sails were inspected as found furled or bagged unless other arrangements were made. Further inspection by a qualified rigger or sail maker is always recommended.

The vessel was surveyed without the removal of any parts, including fixed partitions, fastened panels, fittings, headliners & wall-liners, bulky furniture, tacked carpeting or other fixed flooring material, appliances, electrical equipment or electronics, instruments, anchors line & chain, spare parts, personal gear, clothing, miscellaneous items in the bilges, cabinets, lockers or other storage spaces, or other fixed or semi-fixed items. Only installed items were inspected, including but not limited to enclosures, covers, and tops.

Locked compartments or otherwise inaccessible areas were not inspected. The Owner/Buyer/Survey requester is advised to ensure that all such areas are accessible for further inspection. A visual inspection was conducted only on readily available structures, and no destructive testing was performed.

The systems on the subject vessel were untested unless stated otherwise in this report.

The specifications listed within the report are believed to be correct; however, accuracy is not guaranteed. It is recommended to obtain accurate measurements and perform calculations as desired or to verify all vessel specifications and capacities with the vessel's builder.

Naval architecture and engineering analysis were not a part of this Survey. The survey was conducted following generally accepted marine standards and criteria utilized in the maritime surveying industry. Persons or entities entitled to rely upon this report are advised that this surveyor is not an engineer, nor does he possess any specialized knowledge beyond the degree of skill commonly possessed by others in the same employment. Furthermore, no determination of stability characteristics or inherent structural integrity was made, and no opinion is expressed with respect therein. Complete compliance with, identification of, and reporting on all standards, codes, and regulations is not guaranteed.

The surveyor shall have no liability for consequential damages, personal injury damages, property loss damages, or punitive damages, all of which shall be deemed to have been knowingly and voluntarily waived upon the use of this survey report.

In no event shall the legal liability of CBW LLC exceed the fee paid for this survey report, regardless of claims or suits and whether under the theory of tort, contract, product liability, admiralty, or otherwise.

This signed report represents the Survey' s findings and supersedes all conversations, statements, and representations, whether verbal or in writing.

This Survey Report represents the vessel's condition on October 28, 2024. and is the unbiased opinion of the undersigned surveyor, but it is not to be considered an inventory, warranty, or guarantee, either specified or implied.

The Survey Report is for the exclusive use of Barry Melton & Misty Melton and those lenders and underwriters that will finance and insure the vessel for the client and is not assignable to any other parties for any purpose.

## CONDUCT OF SURVEY

Conduct of Survey:

The following mandatory and voluntary standards were used as guidelines in the conduct to this survey.

- The mandatory promulgated by the United States Coast Guard (USCG), under the authority of Title 46 United States Code(USC); Title 33 and Title 46 Code of Federal Regulations (CFR).

- The National Fire Protection Association® 302 (NFPA 302).

- The voluntary standards and recommended practices developed by the American Boat and Yacht Council® (ABYC).

**DEFINITION OF TERMS**

The terms and words used in this report have the following meanings as used in this Report of Survey:

**ABYC:** The American Boat and Yacht Council is a non-profit membership organization that develops voluntary global safety standards for the design, construction, maintenance, and repair of recreational vessels

**ACCESSIBLE:** Capable of being reached for inspection without removal of permanent boat structures

**APPEARED/APPEARS:** Indicates that a very close inspection of the related item was not possible due to constraints imposed on the Surveyor (e.g. no power available, vessel's systems winterized, inability to remove panels, or requirements not to conduct destructive testing, etc)

**BUC/BUCValu:** BUCValu Professional is a subscription-based boat evaluation service providing accurate boat, engine & trailer market values to professionals in the marine industry.

**DELAMINATION:** Separation of a hull, deck, or bulkhead into its constituent layers

**DEMONSTRATED:** Successfully operated during the survey

**EXCELLENT CONDITION:** Appears new or in like-new condition with minimal signs of wear and fully functional

**FAIR CONDITION:** Operational but shows noticeable wear and tear or cosmetic damage

**FIT FOR THE INTENDED USE:** Use which is intended by Survey Purchaser (present or prospective owner)

**FRP:** Fiberglass Reinforced Plastic, commonly called "Fiberglass" or "Fiberglas(tm)"

**FUNCTIONAL:** Capable of serving the purpose for which it has been designed

**GOOD CONDITION:** Clean, operational, with only normal wear and tear associated with proper use

**HIN:** Hull Identification Number

**IN ACCORDANCE WITH (IAW):** Complies with the regulation, standard, or recommendation referenced.

**NEEDS SERVICING:** Requiring repair to restore to condition for service

**NFPA:** National Fire Protection Association is an International non-profit organization devoted to eliminating death, injury, property damage, and economic loss due to fire and electrical and related hazards

**NON-OPERATIONAL:** Not able to function or be used

**NOT TESTED:** Indicates that a comprehensive inspection of the particular system, component, or item was attempted but was not possible due to constraints imposed upon the surveyor (e.g. no power available, vessel systems winterized, inability to remove panels, requirements not to conduct destructive tests or limitations on the inspection time that were outside the Surveyor's control)

**OPERATIONAL:** Able to function or be used

**OCP:** Over Current Protection; fuses, breakers or other devices to protect circuits.

**POOR Condition:** Significant wear and tear beyond what would be expected for the age of the vessel or gear

**POWERS UP:** Power was applied only. This term does not refer to the operation of any system or component unless specifically indicated

SERVICEABLE: Fulfilling its function adequately (usable at the time of the survey)

SS: Stainless Steel. 304 or 316 unless specifically stated

VERY GOOD: Upgraded, renewed, or noticeably better maintained than good condition

The Findings & Recommendations section is only one section of the [REDACTED] Survey Report. If received on its own, this section should not be mistaken as this vessel's full Survey Report. PLEASE BE ADVISED THAT SOME DEFICIENCIES, OBSERVATIONS AND SUGGESTIONS MAY ALSO BE CONTAINED IN THE BODY OF THE REPORT.

Deficiencies noted under "FIRST PRIORITY/SAFETY FINDINGS" should be addressed before the vessel is next underway. These findings could represent an endangerment to personnel and/or the vessel's safe operating condition. Findings may also be in violation of U.S.C.G. Regulations, ABYC Voluntary Safety Standards & Recommended Practices or NFPA Codes & Standards.

Deficiencies noted under "SECONDARY PRIORITY/FINDINGS NEEDING TIMELY ATTENTION" should be corrected in the near future, so as to maintain and adhere to certain codes, regulations, standards, or recommended practices, and to help the vessel retain its value.

Deficiencies noted under "SURVEYOR'S GENERAL FINDINGS, NOTES, AND OBSERVATIONS" are lower priority or cosmetic findings, which should be addressed in keeping with good marine maintenance practices and in some cases as a desired upgrade. These items are recommended by this surveyor and are not required. It is NOT the intention of the surveyor that these items be corrected for the vessel to be considered a good risk for insurance purposes.

Deficiencies will be listed under the appropriate headings:

- A. FIRST PRIORITY/SAFETY FINDINGS
- B. SECOND PRIORITY/FINDINGS NEEDING TIMELY ATTENTION
- C. SURVEYOR'S GENERAL FINDINGS, NOTES AND OBSERVATIONS

#### HIN (HULL IDENTIFICATION NUMBER) VERIFICATION COMMENTS

The vessel's HIN (Hull Identification Number) was verified during the Survey inspection.



### VESSEL DOCUMENTATION DATA

#### HIN (HULL IDENTIFICATION NUMBER) COMPLIANCE (33 CFR 181)

The vessel's HIN (Hull Identification Number) displayed on the starboard transom matched the HIN recorded on the State Title.

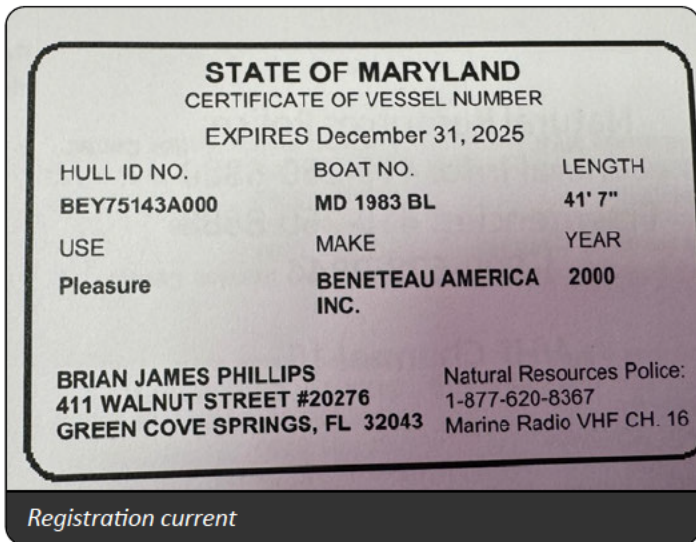


#### DOCUMENTATION COMPLIANCE (46 CFR 67)

The vessel was removed from Documentation and is currently Titled in Maryland. The Official Number is 1093346

#### STATE REGISTRATION COMPLIANCE (33 CFR 173)

State Registration Numbers were properly displayed and the registration sticker was current.



## VESSEL CONSTRUCTION

### HULL ARRANGEMENT

#### VESSEL DESCRIPTION AND LAYOUT

Ocean cruising sailboat

#### EXTERIOR FINISH

White gelcoat in good condition; there is a small (8mm) ding on the AFT PORT quarter drain.

#### HULL DESIGN TYPE

Fin and bulb keel displacement saiboat with spade rudder

#### HULL MATERIAL

The manufacturer reports a hull of solid hand laid fiberglass (FRP). Percussion testing of the hull revealed no anomalies and it is considered in serviceable condition.

#### KEEL

Cast iron keel with bulb in serviceable condition. The STB leading edge of the keel should be repaired prior to bottom paint.

#### FINDING C-1

#### BALLAST

Manufacturer reports 5,500 lbs (iron)

#### TRANSOM

The transom is reportedly constructed of fiberglass with end grain balsa wood sandwiched core and was visually in serviceable condition where sighted. Percussion testing revealed no anomalies and moisture readings were from .4 to .6 considered 'dry.'

#### STRINGERS/TRANSVERSALS

The manufacturer reports that hull stiffness was provided by an internal fiberglass grid reinforced with uni directional rovings. Where sighted the grid system was well secured to the hull.

#### BULKHEADS

Athwartships reinforcement enhanced by bulkheads, bonded/tabbed to the hull with FRP (fiber reinforced plastic). Percussion testing of the bulkheads revealed no anomalies where they could be accessed.

#### GENERAL EXTERIOR CONDITION

The exterior of the vessel appeared to be generally well kept.

#### BILGES

A gelcoated surface was used in the bilges. The bilges were clean and dry where sighted.

#### CHAIN LOCKER DRAINAGE

The drain appeared clear and serviceable where sighted.

#### BILGE LIMBER HOLES

The limber holes appeared to be appropriately sized and clear, where sighted.

#### VESSEL LIST

The vessel did not have any significant listing, during the Survey (a nearly straight waterline was observed). Her waterline showed that she had been down by the stern previously; owner reported that significant dive gear and stores had been located in the lazette. Her current resting waterline matched the painted one.

#### BOARDING SWIM LADDER

A integrated stainless steel boarding ladder was installed at the swim platform. The ladder was tested for normal use and was found in serviceable condition. The ladder could be deployed by a person in the water and is considered to meet the Reboarding Means established by and IAW ABYC H41 10.1

**MOISTURE COMMENTS**

Readings were taken with an ElectroPhysics GRPplus. A baseline of .4-.6 was established and considered dry. There did not appear to be any significantly elevated conductivity readings (possible moisture intrusion or other conductive material) around the hull, deck and superstructure penetrations, when tested.

**DECK ARRANGEMENT****DECK MATERIAL**

The foredeck, cockpit deck and the molded toe rail were reportedly constructed of end grain balsa cored fiberglass.

**BULWARKS**

Molded fiberglass bulwarks (part of the deck's layout).

**TOE-RAILS**

Teak caprail in serviceable condition. There is a small crack on the AFT corner of the STB rail at the cleat.

**FINDING C-2****HULL-TO-DECK JOINT TYPE**

Manufacturer reports an inward overlapping flange bedded with an elastomeric marine sealant between hull and deck and fastened with SS nuts and bolts. Self tapping screws may have been used between the bolts to secure the hull while the bedding compound sets.

**COMMENTS**

Readings were taken with an ElectroPhysics GRPplus. A baseline of .4 .6 was established and considered dry. There did not appear to be any significantly elevated conductivity readings (possible moisture intrusion or other conductive material) around the hull, deck and superstructure penetrations, when tested with the exception of a 10" area at the forward WATER and WASTE fill/discharge plates where readings reached 1.5. The deck was firm underfoot and this is not a matter for immediate concern.

**FINDING C-3****EXTERIOR EQUIPMENT****COCKPIT/AFT DECK EQUIPMENT**

FRP Drop Leaf table with fiddles forward of the Helm in very good condition.

**EXTERIOR SEATING**

Facing bench seating atop lockers with cushions in serviceable condition.

**EXTERIOR BRIGHT WORK**

All of the teak was naturally weathered and in serviceable condition.

**GENERAL HARDWARE CONDITION**

The hardware is in overall very good condition with no indications of corrosion or damage

**GENERAL CAULKING/SEALANT CONDITION**

No significant weathering was observed on the vessel's exterior caulking sealants.

**EXTERIOR SHOWER**

Hot/cold shower in the transom to STB

**CABIN VENTILATION**

Provided by the Lewmar hatches and ports and two (2) scoops forward of the cockpit fitted with integral 'Dorade style' drains and line protectors.

**DECK HATCHES**

Four (4) Lewmar 13" x 18" hatches forward, two (2) over the saloon, one (1) 7" x 13" over the galley, one 7" x 13" in the master stateroom. All are securely installed and no leaks were observed.



**PORTHOLES/PORTLIGHTS**

Seven (7) 5" x 12" opening ports, two (2) 5" x 23" opening ports in the saloon; all are secure, fitted with screens, and show no indications of water ingress.

**EXTERIOR DOORS**

Sliding top companionway hatch with high bridgedeck in serviceable condition.

**WINDOWS**

There are eight 5" x 12" fixed portlights throughout the vessel and two (2) 36" fixed portlights in the saloon in serviceable condition.

**DAVIT/CRANE**

Stern arch with dinghy davits supporting the solar panels and antennas; well secured and serviceable.

**DECK DRAINAGE**

Self bailing deck drains at the port & starboard aft cockpit corners.

**CLEATS**

Cleats throughout the vessel were 12" horn type aluminum securely mounted and serviceable. Where lines would cross the teak cap rail they are protected with SS half moon rub strakes.

**ANCHOR PLATFORM**

Stainless steel fairlead anchor roller chute in serviceable condition

**PULPIT**

The bow pulpit was fabricated of welded 1" stainless steel tubing; it was well secured and in very good condition.

**PUSHPIT (STERN PULPIT)**

Welded one (1) inch SS Pushpit with center boarding ladder in serviceable condition.

**LIFELINES**

Vinyl covered stainless steel lifelines well secured to pulpit, pushpit, and stanchions in serviceable condition

**EXTERIOR STORAGE**

There were four (4) exterior lockers and storage areas in the cockpit including the former LPG locker (unused as the system was removed). All appeared serviceable, where sighted. The AFT lazarette locker latch fastener had pulled through the glass and should be repaired with a new washer and bolt.

**FINDING C-4****ROD HOLDERS**

Two adjustable rod holders mounted on the pulpit.

**EXTERIOR COVERS**

Sunbrella type fabric covers for deck hatches in serviceable condition

**FENDERS**

Various fenders were observed onboard (amount included unknown).

**MOORING LINES**

Dock/mooring lines were observed onboard and at the vessel's mooring (amount included unknown).

**COCKPIT CANVAS**

There is a companionway dodger and bimini top over the cockpit with a joining piece to create a full enclosure. The Sunbrella type material is in good condition but some of the isinglass windows are clouded and should be replaced in the next two years (sooner for purely cosmetic reasons)

**FINDING C-5**

**HAND RAILS/GRAB RAILS**

Stainless steel handrails were located at convenient locations of the vessel.

**CABIN APPOINTMENTS*****INTERIOR*****SALON ARRANGEMENT**

Galley down to STB, C shaped dinette to STB, head to PORT, Nav Station FWD of Head, Settee forward of Nav Sta serving as seat.

**MAIN CABIN ARRANGEMENT**

Galley and Dinette to STB, Head Nav Station and Settee to PORT

**GALLEY ARRANGEMENT**

C shaped galley to STB at the base of the steps

**DINING ARRANGEMENT**

C shaped dinette to STB

**ACCOMMODATION ARRANGEMENT**

Double berth AFT under cockpit; Pullman FWD to STB

**HEAD ARRANGEMENT**

Jabsco manual head AFT, NaturesHead™ composting toilet FWD.

**SHOWER ARRANGEMENT**

Integral shower in the Heads.

**INTERIOR CABINETRY & TRIM**

The interior Satin finished Teak cabinetry and trim were in very good condition

**INTERIOR STORAGE**

The cabinets, lockers, drawers and shelving appeared serviceable, where sighted.

**HEADLINERS**

Headliner material was molded FRP and simulated leather panels in very good condition

**CEILINGS**

FRP liner w/teak veneers in very good condition

**WINDOW TREATMENTS**

Fabric drapes at the portholes in very good condition

**FLOORING**

Teak plywood with simulated ebony striping in serviceable condition.

**CABIN SOLE FOUNDATION**

Cored FRP sole foundation in serviceable condition with no indications of delamination.

**COUNTER TOPS**

Formica countertops on plywood in serviceable condition

**INTERIOR BULKHEADS**

Interior bulkheads were marine plywood coated with fiberglass at the edges and tabbed securely to the hull. They were covered with teak veneers in serviceable condition.

**WATER INTRUSION COMMENTS**

None sighted.

**INTERIOR ODOR COMMENTS**

No odors noticed in any cabins, engine room, or bilge areas.

***INTERIOR SYSTEMS & EQUIPMENT*****LIGHTING**

12 volt LED lighting throughout; all illuminated when tested.

**HVAC/AIR CONDITIONING SYSTEM**

Cruisair 7K All in One in Lazerette serving aft cabin and galley; Marbu 12v Marbu servicing saloon and forward cabin. 24v pump, pump relay; operational

**CABIN VENTILATION FANS**

12 volt DC Hanna and Sirocco electric ventilation fans were installed in the cabins; powered up.

**EVIDENCE OF INSECTS**

No evidence of insects was observed

**EVIDENCE OF RODENTS**

No evidence of rodents or their dung was observed

***AUDIO/VISUAL EQUIPMENT*****TELEVISION SYSTEM**

Samsung 32", reported operational.

**STEREO SYSTEM**

Fusion MS-RA70NSX stereo; powered up.

**SATELLITE INTERNET SYSTEM**

Starlink™; no current subscription; will convey.

**ONBOARD WIFI SYSTEM**

Powered up.

***GALLEY EQUIPMENT*****REFRIGERATION**

Built in Ice Box AFT of the galley sink with top and front opening; Adler Barbour Cold Machine compressor and plate; operational during trial run.

**FREEZER**

Integrated into refrigerator evaporator bin.

**STOVE**

One (1) burner Duxtop® Induction stove top with pot holder mounted in gimble w/microwave. Operational.

**MICROWAVE OVEN**

Comfee microwave; powered up.

**GALLEY SINK**

Stainless Steel sink with separate basins.

**COMMENTS**

The LPG system was removed and a microwave and induction cook top replaced the gimble oven. The system is operational with the Inverter and battery bank.

**PROPULSION & MACHINERY SPACE*****PROPULSION SYSTEM*****ENGINE OVERVIEW**

Manufacturer reports it and appears to be a Westerbeke 42B4 4-cyl; no data tags were observed.

**ENGINE HORSEPOWER**

Engine manufacturer reports 42hp @ 3600rpm

**ENGINE STARTER VOLTAGE RATING**

12 volt.

**ENGINE HOURS**

01140 hours, observed on the engine's analog hour meter. Owner reported that the meter was installed when 869 hours on the engine.

**FINDING C-6****ENGINE SERIAL NUMBERS**

None sighted (data tags were missing).

**ENGINE INSTRUMENTATION**

Main engine instrument gauges were installed at the helms.

**EMERGENCY ENGINE SHUT-DOWN**

Engine shut-down pull cable at the helm.

**ENGINE ALARM SYSTEM**

Audible/visual engine alarms at the helm.

**ENGINE EXHAUST SYSTEM**

Raw water cooled with raw water/exhaust gas mixing riser, and flexible hose to fiberglass surge pipe & muffler, exiting through AFT STB Quarter mounted discharge. Where sighted all exhaust components were well installed and serviceable.

**ENGINE COOLING SYSTEM TYPE**

Closed reservoir type cooling with raw water cooled exhaust.

**ENGINE DRIVE BELTS**

Serpentine belt condition appeared serviceable.

**THROTTLE & SHIFT CONTROLS**

Teleflex mechanical single lever/cable type. Operation was smooth and serviceable during the trial run.

**ENGINE BED MOTOR MOUNTS**

Adjustable motor mounts on cored fiberglass longitudinal engine bed stringers. Where sighted they were securely mounted and serviceable.

**ENGINE BED SUMPS**

Integrated drip sump under the engine.

**MAIN ENGINE OIL LEVEL**

Normal oil sump level was observed on the engine sump dipstick.

**MAIN ENGINE COOLANT LEVEL**

Normal coolant level was observed in the engine overflow tank.

**ENGINE NOTES**

Engine installation was accessible. A small leak was observed on the oil pan gasket on the STB side.

**FINDING C-7****COMMENTS**

The engine operated smoothly throughout its operating range.

***TRIAL RUN INFORMATION*****ENGINE STARTUP**

The engines started without excessive cranking or excessive exhaust smoke.

**VIBRATION COMMENTS**

No significant hull or running gear vibrations were observed while underway.

**ENGINE BACKDOWN TEST**

The engine motor mounts were observed while the engines were placed in forward & reverse gear several times under load without exception.

**ENGINE CONTROL STATION OPERATION**

Engine controls were operated at the helm station without exception.

**STEERING TEST**

The aft bilge steering components were observed while the steering wheel was turned hard over several times at approximately 1,200 RPM in forward gear without exception.

**ENGINE PERFORMANCE**

The engine was operated as speeds up to wide open throttle; temperatures were observed at the heat exchanger and thermostat. No anomalies were observed with a max of 185F after 10min of WOT immediately dropping to 175F when throttle was reduced to a cruise RPM of 2200.

**VESSEL LOADS**

Reportedly, approximately 50% fuel load, 50% water load, low/medium gear load and five people onboard.

***MACHINERY & BILGE SPACE EQUIPMENT*****ENGINE ROOM AIR BLOWERS**

Powered up.

**SEACOCKS/SEA-VALVES**

Raw water seacocks were Groco™ bronze alloy ball valve type. The owner reported that they had been recently replaced; All opened and closed easily when tested.

**RAW WATER STRAINERS**

Vetus strainer; clean and serviceable.

**HOSES**

Appeared serviceable, where sighted. Monitor frequently for dry cracking, degradation, damage or chafing.

**HOSE CLAMPS**

Hose clamps were in good condition where sighted and appear to provide intended service.

**MACHINERY SPACE INSULATION**

Aluminized Mylar faced foam, thermal & acoustical insulation was installed in the engine room in serviceable condition.

**SPARES**

There were significant ship's spares aboard that will convey with the sale.

**COMMENTS**

Fluid tests revealed no anomalies; findings attached.

**TRANSMISSIONS / GEARS / DRIVES****TRANSMISSION OVERVIEW**

Inversor Marino Model BW-7

**DRIVE SYSTEM TYPE**

Direct Drive.

**GEAR RATIO**

Data tag stated 2.47:1

**GEAR SERIAL NUMBERS**

70345 0890030013

**GEAR FLUID LEVEL**

Normal level was observed on the transmission dipstick.

**PROPELLER SHAFT SEALS**

Volvo dripless shaft seal in serviceable condition

**TRIAL RUN CONDITIONS**

An inshore trial run was performed in calm conditions.

**COMMENTS**

Fluid analysis showed higher than normal iron levels. Results are attached. This is considered normal given the age (over 2 years of use) of the transmission fluid. It is recommended that the transmission fluids be changed and another sample be taken and tested after 50hrs of use.

**FUEL SYSTEMS****FUEL SYSTEM**

Single diesel tank plumbed with electric lift pump; the installation was serviceable and operated well during the trial run.

**FUEL TANK MATERIAL**

One aluminum tank reported to hold 39 US Gal in serviceable condition located aft of the engine under the AFT berth.

**FUEL LEVEL MONITORING**

Fuel gauge installed at the helm station.

**FUEL TANK MANUFACTURER LABELING**

The ABYC required fuel tankage label was sighted on the fuel tank.

**FUEL TANKAGE SECURING**

Securely fastened to bulkheads and stringers.

**FUEL FILL LOCATION**

STB AFT marked DIESEL

**FUEL TANK VENTILATION**

Starboard hull side, below the fuel fill.

**FUEL TANKAGE & FUEL FILL GROUNDING**

The fuel tank was grounded to the fill plate measuring <1ohm IAW ABYC H-33.15.1

**FUEL FILL HOSE/PIPE**

Type A2 USCG Approved Fuel Hoses, where sighted.

**FUEL LINES/HOSES**

USCG Approved Type A1 fuel lines, where sighted.

**FUEL SHUT-OFF VALVES**

Ball valves at the primary fuel filter.

**MAIN ENGINE PRIMARY FUEL FILTERS**

Racor 500-MA Primary fuel filter/watrer separator in sericeable conditon.

**MAIN ENGINE SECONDARY FUEL FILTERS**

Engine mounted Secondary Fuel Filter.

**FUEL FILTER CONDITION**

No significant sediment was observed in the Primary fuel filter's sight bowl. Monitor/service often.

**FUEL ODOR COMMENTS**

No diesel odors were observed

## ELECTRICAL SYSTEMS

### DC ELECTRICAL SYSTEMS

#### DC SYSTEMS VOLTAGE

12 volt systems.

#### BATTERIES

Six (6) Battleborn® 100a/h LiFePO4 in parallel located in the STB cockpit locker for House Service, One G31 AGM by East Penn located behind the engine to STB for starting service.

#### FUSES/OCP

Overcurrent protection for the DC system was clear and IAW ABYC E 11. Some wires were not well secured or covered with fire retardant sheathes between the batteries and fuses (see Findings)

#### FINDING B-1

#### BATTERY SWITCHES

On/Off Rotary switches for each bank in serviceable condition.

#### MAIN DC BREAKERS

The main DC breaker was installed in the main DC breaker panel.

#### DC ELECTRICAL PANEL BREAKERS/FUSES

DC Branch Breakers were located at the main DC panel in the Saloon at the Nav Station

#### DC ELECTRICAL SYSTEM MONITORS

Victron 712 & Cerbo GS

#### BATTERY CHARGERS

Integrated in the Victron MultiPlus

#### MAIN ENGINE ALTERNATORS

Internally regulated 12 volt / 50 amp, engine mounted and belt driven. Operational during trial run.

#### DC2DC CHARGER

Garmin Orion 12 12 18a DC2DC Charger; operational

#### DC POWER OUTLETS

One (1) 12 volt outlet were installed at the helm and three (3) at the Nav Station. These appeared in good visual condition and were reported wired and fused to support up to 20a service.

#### DC SYSTEM WIRING TYPE

The DC wiring appeared to be in generally good condition and serviceable where visible. However, some exceptions were noted (see Findings Appendix).

#### DC ELECTRICAL/WIRING COMMENTS (ABYC E-11)

Some B+ terminals in the engine space and battery area were not covered and conductors longer than 7" to the fuses were not protected. See Findings.

### AC ELECTRICAL SYSTEMS

#### AC SHORE POWER SYSTEM

The vessel was equipped with 120 volt, single-phase AC system with one (1) 30 amp shore power input.

#### MAIN AC SHORE POWER BREAKERS

Breakers installed inboard of the inlets and at the main electrical panel under the Nav Station IAW ABYC E-11-10-2.5.3



**AC ELECTRICAL PANEL BREAKERS**

AC branch breakers in the main cabin AC electrical panel.

**AC ELECTRICAL SYSTEM MONITORS**

AC Voltage and Current are monitored by the Victron Cerbo GX System and 7" display at the Nav Stay; operational.

**AC ELECTRICAL SOURCE SELECTOR SWITCHING**

GoPower!® automatic ship-to-shore power switching with Victron Inverter.

**GALVANIC ISOLATION SYSTEM (ABYC A 28)**

No galvanic isolator was sighted on the vessel

**FINDING C-8**

**AC ELECTRICAL POWER OUTLETS**

AC outlets sighted throughout vessel. GFCI outlets are located in the galley area and head. The AC outlets were tested using a UL Listed Circuit Tester. All GFCI protected outlets tripped at their test buttons, where sighted.

**AC ELECTRICAL OUTLET POLARITY**

AC electrical outlet polarity was checked and found to be wired correctly.

**AC SYSTEM WIRING TYPE**

Appeared serviceable for intended use, where sighted.

**SECURING**

There were several triplex AC wires in the Lazerette that were not secured

**FINDING B-2**

**AC ELECTRICAL/WIRING COMMENTS (ABYC E 11)**

Some exceptions were observed (see Findings Appendix).

## **LITHIUM BATTERY INSTALLATION**

### **SYSTEM DESCRIPTION**

LiFePO4 house battery system with dedicated Inverter Charger and Solar charging; well installed and serviceable IAW ABYC E-11 and E-13.

### **BATTERY BRAND**

Battleborn®

### **BANK SIZE AND CONFIGURATION**

Six (6) 12-v 100Ah in parallel.

### **STANDARDS AND/OR RATINGS**

UN38.3, UL 62133-2, UL2054, IP65, NFPA Class 1, Division 2 (approved for indoor installation)

### **OVERCURRENT PROTECTION**

Class T Fuse installed in serviceable location

### **SWITCHES/DISCONNECTS**

High current Blue Sea Systems rotary disconnect at the fuse block in serviceable condition

### **BATTERY MANAGEMENT SYSTEM**

Internal BMS

### **MAXIMUM CHARGE & LOAD**

Manufacturer's recommended maximum charge for six (6) batteries in parallel is 300amps, safely above the maximum available from Solar, inverter charger, and DC2DC charger. Recommended maximum load for the bank is 600amps, far above the 350amp over current protection. Both charging and load management are considered IAW ABYC E-13

### **SYSTEM MONITORING**

Victron CerboGX with display at Nav Station.

### **LIFEPO4 ISOLATION FROM LA BATTERIES**

LiFePO4 bank and VRSLA (AGM) starter bank are fully isolated IAW ABYC E-13

### **ABYC E 13 COMPLIANCE**

The installation including battery isolation, monitoring, charging and load management, and component selection, is considered IAW ABYC E-10 Storage Batteries and E-13 Lithium Ion Batteries.

## **GENERATORS/AUXILIARY POWER**

### **INVERTERS & OTHER AUXILIARY POWER**

#### **INVERTER SYSTEMS (ABYC E-11, A-31)**

Victron MultiPlus 12 3000 120 I/C; operational. Phoenix 12 | 250 sine wave inverter, operational.

#### **INVERTER SYSTEM LOCATION & VENTILATION**

Phoenix STB Locker aft bulkhead, MultiPlus in the lazette AFT; securely mounted with good ventilation

#### **SOLAR POWER SYSTEM**

Two (2) LG 360 watt panels and Two (2) 100 watt panels wired to two (2) Victron 100 30 MPPT controllers providing 920 watts of solar power. The installation was professionally done and serviceable for extended cruising.

## **WATER SYSTEMS**

### **FRESHWATER SYSTEM**

#### **FRESH WATER SYSTEM**

Pressurized water system with outlets in heads, galley, and transom.

**NUMBER OF FRESHWATER TANKS**

Two (2) integral FRP tanks

**WATER TANKAGE CAPACITY**

Manufacturer reports FWD tank 79 gal, AFT tank 66 gal

**WATER TANKAGE SECURING**

Bonded/glassed to the hull.

**WATER TANKAGE LOCATION**

Under the FWD and AFT berths.

**WATER FILL LOCATION**

FWD on the bow to STB and AFT on the deck to PORT labeled WATER

**FRESHWATER TANKAGE VENTILATION**

Below the fills in the hulls in serviceable condition

**FRESHWATER PUMPS**

Jabsco 12-volt pump under the Settee to STB

**FRESHWATER PIPE/HOSE PLUMBING**

Reinforced rubber hoses in serviceable condition.

**WATER LEVEL MONITORING**

Analog gauge type monitors for both tanks are located amidships to PORT in the saloon and appeared serviceable.

**CITY WATER/DOCKSIDE INLET CONNECTION**

Transom to STB; owner reported he had never used it. Test and verify pressure reduction is operational prior to use.

***HOT WATER SYSTEM*****WATER HEATER**

6 gal 120 volt water heater under Dinette AFT; appeared serviceable and powered up.

**WATER HEATER PRESSURE RELIEF VALVE**

Relief valve at the tank.

**WATER HEATER HEAT EXCHANGER SYSTEM**

Engine mounted heat exchanger.

**FINDING C-9**

***BLACKWATER SYSTEM*****MSD (MARINE SANITATION DEVICE) SYSTEM (33 CFR 159)**

Two head systems were aboard. The AFT head was a Type III MSD. A type III MSD Waste System (utilizes a holding tank or similar device that prevents the overboard discharge of treated or untreated sewage). The FWD head is a "Natures Head" composting toilet.

**BLACKWATER TANKAGE**

Under the berth FWD and in the head compartment AFT. The FWD tank is not in service as a Natures Head™ composting toilet is fitted forward. Manufacturer's literature reports 13.5 gal AFT and 15 gal FWD

**BLACKWATER TANKAGE VENTILATION**

Overboard below the pump out fittings in the hull.

**BLACKWATER SYSTEM DISCHARGE**

FWD pump out is out of service because of the composting head FWD. AFT is on the PORT Deck. Both are labeled WASTE

**HEAD/BLACKWATER SYSTEM COMMENTS**

The owner reports that the holding tank and Y valve are in place FWD if future owners prefer a traditional Type III head configuration.

**GREYWATER SYSTEM****GREYWATER TANKAGE**

The vessels sinks discharged overboard and the shower was plumbed into an individual sump type box with overboard discharge. Pumps were located under the galley sinks; powered up.

**HEAD SINKS**

Porcelain sinks were installed in the Heads.

**STEERING SYSTEMS****STEERING SYSTEM TYPE**

Cable, chain and pulley type mechanical steering, with quadrant. Where sighted the system was serviceable and steering was smooth during the trial run.

**STEERING SYSTEM MANUFACTURER**

Lewmar/Whitlock pedestal steering in serviceable condition

**STEERING SYSTEM PULLEYS/CABLES**

Appeared serviceable, where sighted.

**UPPER RUDDER BEARINGS & RUDDER SUPPORT**

Black nylon & bronze rudder collars on cored fiberglass rudder tables with carbon fiber tube

**RUDDER STOCKS**

Carbon fiber rudder stock

**RUDDER POSITION INDICATOR**

Autopilot rudder angle function.

**EMERGENCY STEERING SYSTEM**

Direct tiller through deck plate at the helm; emergency tiller aboard but not fitted during survey.

**GROUND TACKLE****ANCHORS**

65lb Mantus

**ANCHOR RODE TYPE**

Owner reports 200 5/16" G4 chain; where sighted the chain was in serviceable condition; the bitter end was attached with line in an accessible location.

**ANCHOR WINDLASS**

Simpson Lawrence Horizon Express horizontal windlass serial #5360799121

**COMMENTS**

Highly recommend at least one additional spare anchor and rode for emergencies and added anchoring options.

**ELECTRONICS & NAVIGATION EQUIPMENT****VHF RADIOS**

Vesper Cortex wireless VHF system in serviceable condition.

**COMPASSES**

Plastimo Olympic 135 compass at the helm Serial number BV0062 in serviceable condition.

**MULTI-FUNCTIONAL NAVIGATION DISPLAYS**

Garmin GPSTMap 943 9" at the helm, serial #3361925165; operational

**AIS (AUTO IDENTIFICATION SYSTEM)**

Vesper Cortex system; operational, interfaced with the Multi-Function Navigation Display.

**AUTOPILOT**

Garmin GHC20 Autopilot serial #3381727798 with controls at the helm; operational.

**MULTI DISPLAYS**

Garmin GMI20 Multi Display (Speed, Depth, Wind) Serial #3377823724 at the helm; operational.

**WIND INSTRUMENT**

Garmin apparent wind display at the helm; operational.

**ANTENNAS**

The antennas appeared to be well mounted where sighted.

**SAFETY EQUIPMENT*****SAFETY EQUIPMENT (U.S.C.G.)*****FIRE EXTINGUISHERS (33 CFR 175.310)**

All hand held fire extinguishers aboard were over 12 years old and no longer fit for service.

**FINDING A-1****WEARABLE PERSONAL FLOTATION DEVICES (33 CFR 175)**

Four (4) USCG Type II PFD's were aboard

**THROWABLE PERSONAL FLOTATION DEVICES (33 CFR 175)**

None conveyed with the vessel.

**FINDING A-2****MAN OVERBOARD SYSTEM (MOB)**

Lifesling M.O.B. Rescue Sling on the AFT deck to PORT in serviceable condition.

**VISUAL DISTRESS SIGNALS (33 CFR 175.101)**

12 Gauge Day/Night Visual Distress Signals (expired 2017)

**FINDING A-3****SOUND PRODUCING DEVICES (33 CFR 83)**

Hand held Compressed Air Horn (demonstrated)

**NAVIGATION LIGHTS (33 CFR 83)**

All Navigation Lights illuminated when tested.

**"NO OIL DISCHARGE" PLACARD (33 CFR 151/155)**

Found properly displayed.

**"TRASH DISPOSAL" PLACARD (33 CFR 151/155)**

Old placard installed in cockpit

**FINDING A-4****"WASTE MANAGEMENT" PLAN (33 CFR 151) VESSELS OVER 39'4"**

None sighted. Required in U.S. waters. Vessels over 39'4 are required to have a written Waste Management Plan onboard.

**FINDING A-5****U.S.C.G. NAVIGATION RULE BOOK (33 CFR 83) VESSELS OVER 39'4"**

The U.S.C.G. International and Inland Navigation Rule Handbook was observed onboard.

**AUXILIARY SAFETY EQUIPMENT****BILGE HIGH WATER ALARMS**

None sighted. Highly recommended.

**FINDING C-10****E.P.I.R.B.**

ACR Globalfix V4 Model RLB-41 P/N 2831 Registration current; battery good till 2031; mounted at the nav station.

**FIRST AID SUPPLIES**

None conveyed. Highly recommend a full Medical Kit and the periodic renewal of any outdated medical supplies.

**CARBON MONOXIDE DETECTORS (ABYC A 24)**

X Sense CO detector; Test sounded.

**SMOKE DETECTORS (NFPA 302)**

Incorporated into the CO Detector. Self test passed.

**SEARCH LIGHT**

None sighted. Highly recommended.

**BILGE PUMPING SYSTEMS****ELECTRIC BILGE PUMPING SYSTEMS**

Jabsco 37202 2012 Diaphragm pump located under STB settee; float switch under saloon sole; operational on both manual and automatic mode.

**MANUAL BILGE PUMPING SYSTEMS**

A manually operated hand bilge pump was located in the cockpit; operational.

**UNDERWATER EQUIPMENT & HULL INSPECTION****PROPELLERS**

One (1) Bronze 3 bladed propeller in serviceable condition.

**PROPELLER SHAFTS**

Reportedly, Aquamet 22 Stainless Steel, 1 1/4" inch diameter.

**SHAFT STAVE BEARINGS (CUTLESS BEARINGS)**

The shaft strut's Cutless Bearings had some slight wear/play. Recommend Cutless bearings to be inspected by qualified marine mechanic and replace/repair as/if necessary at the next haul out.

**FINDING C-11****RUDDER MATERIAL**

Carbon fiber in serviceable condition

**RUDDER MOUNTING**

Spade rudder mounted in dripless rudder seal carrier bearings.

**DRAINAGE THROUGH-HULLS**

Bronze and Marlon hull discharge/drainage through hulls in serviceable condition

**HULL TRANSDUCERS**

The transducers appeared serviceable, where sighted.

**SACRIFICIAL ANODES**

The anodes were badly wasted. Recommend Anode replacement once Anode reaches 50% depletion. The use of Zinc as an Anode is only recommended for saltwater applications. If the vessel is to be kept primarily in brackish water the Anodes should be changed to Aluminum

**FINDING B-3****HULL POTENTIAL READINGS**

Hull potential (galvanic) was measured with a silver/silver-chloride half cell. The reading of -678mv is considered low not providing sufficient galvanic protection in the brackish and fresh water of the Chesapeake Bay and its tributaries. See findings under Anodes.

**ANTIFOULING PAINT**

The antifouling bottom paint appeared to be nearing the end of its serviceable life and was flaking off/failing in several areas, with slight marine growth also observed along the hull's wetted surfaces.

**FINDING B-4****OSMOTIC HULL BLISTERS**

No osmotic laminate blisters were sighted.

**HULL SURFACE COMMENTS**

No delaminated areas were identified on the hull's wetted surfaces, where accessible.

**THROUGH HULLS BELOW WATERLINE**

All thru hulls were bronze and backed by Groco ball valves in serviceable condition.

**TENDER / AUXILIARY WATERCRAFT****TENDER/WATERCRAFT**

Highfield CL310 Aluminum hull RIB reported new in 2021 securely stored on davits integrated into the solar arch.

**MODEL YEAR**

2021

**HIN (HULL IDENTIFICATION NUMBER)**

HFM16646G021

**ENGINE MODEL**

Tohatsu 20hp Model MFS20E

**ENGINE SERIAL NUMBER**

029146BX

**TENDER COMMENTS**

The tender is in very good condition

**RIGGING & SAILS*****STANDING RIGGING*****STANDING RIGGING COMMENTS**

Masthead Sloop with new rigging as of 2022

**MAST**

Anodized Aluminum Mast by Sparcraft; reported renewed in 2022

**MAST SPREADERS**

Double spreader rig (anodized aluminum); reported renewed in 2022

**MAST STEP**

Deck stepped with compression post. The post is secure in it's step

**BOOM**

Aluminum Boom in serviceable condition; reported renewed in 2022

**BOOM VANG**

Solid vang w/4:1 tackle led to the cockpit on the PORT side

**WHISKER POLE**

ForeSpar™ aluminum Whisker Pole mounted on the mast; not set but serviceable where sighted.

**RIGGING CHAIN PLATES**

Internal stainless steel chain plates. Where sighted they are secure and serviceable.

**SHROUDS/STAYS/TERMINAL ENDS**

1 X 19 Stainless Steel cable. Utilized Swage type fittings. Rig reported replaced in August of 2022; receipts inspected aboard and visual inspection are consistent with a new rig

Cap shrouds and AFT lowers 10mm

Upper shrouds and Forestay 8mm

Intermediate shrouds 7mm

FWD Lowsers and Double Backstay 6mm

**RIGGING TURNBUCKLES**

Open chrome on bronze turnbuckles in serviceable condition

**RIGGING TOGGLES**

Stainless Steel toggles in like new condition

**RIGGING CLEVIS PINS & COTTER PINS**

Cotter pins are secure in all pins

**COMMENTS**

The mast was removed and inspected and all standing rigging replaced in August of 2022 by The Rigging Co. in Annapolis, MD. The work order was aboard and all work matched the order with new standing rigging wire, fittings, and running rigging. The work was done professionally done and the rig appears new.

***RUNNING RIGGING*****MAIN SHEET TRAVELER**

Lewmar Mainsheet Traveler with control lines. Operational

**REEFING SYSTEM**

Roller reefing Jib and Main; demonstrated during trial run.

**TOPPING LIFT**

The 'hard vang' doubled as a topping lift. There was also a line lift in serviceable condition.

**ROLLER FURLING GEAR**

Pro Furl for the Jib, internal Z Spar mainsail system; both demonstrated operational during trial run.



**HALYARDS**

Halyards were braided and color coded with no wire splices. Appeared recently replaced and in good condition.

**SHEETS**

Low stretch dacron in very good condition.

**TRACKS & CARS**

Lewmar Tracks & Cars in serviceable condition.

**SAIL TRACKS**

Two (2) Anodized Aluminum sail tracks, port & starboard, with Lewmar cars in serviceable condition.

**TURNING BLOCKS**

Two (2) Turning Blocks on the coamings in serviceable condition.

**LINE CLUTCHES**

Two banks of four (4) Lewmar clutches to PORT and STB; all operational

**WINCHES**

Two (2) Lewmar 40 2-speed ST winches on the coachroom to PORT and STB to handle lines from the clutches, two (2) Lewmar 54 2-speed ST winches in the cockpit for the jib sheets.

**JIBE PREVENTER**

Boom Brake™ in serviceable condition.

**RUNNING RIGGING COMMENTS**

The running rigging was recently repalced and shows no signs of wear or chafe.

***SAILS*****MAINSAIL**

One (1) Housley triple stitched roller furling Mainsail in serviceable condition. No stains, tears, or broken stitching were visible during the trial run. The sail is at least 10 years old but set well and provides adequate shape for cruising.

**HEADSAIL**

Nearly new roller furling Precision genoa in very good condition.

**SAIL COVERS & SAIL BOOTS**

Sails are roller furling with Sunbrella type UV covers on the leeches.

**SAIL SEAMS**

Appeared serviceable, where sighted.

**SAIL BATTENS**

Both sails are roller furling with no battens

**SAILS COMMENTS**

The Jib is like new, the Main used but serviceable. No light air sails were observed aboard.

## FINDINGS LEAD IN

The Findings & Recommendations section is only one section of the [REDACTED] Survey Report. If received on its own, this section should not be mistaken as this vessel's full Survey Report. PLEASE BE ADVISED THAT SOME DEFICIENCIES, OBSERVATIONS AND SUGGESTIONS MAY ALSO BE CONTAINED IN THE BODY OF THE REPORT.

Deficiencies noted under "FIRST PRIORITY/SAFETY FINDINGS" should be addressed before the vessel is next underway. These findings could represent an endangerment to personnel and/or the vessel's safe operating condition. Findings may also be in violation of U.S.C.G. Regulations, ABYC Voluntary Safety Standards & Recommended Practices or NFPA Codes & Standards.

Deficiencies noted under "SECONDARY PRIORITY/FINDINGS NEEDING TIMELY ATTENTION" should be corrected in the near future, so as to maintain and adhere to certain codes, regulations, standards or recommended practices (and safety in some cases) and to help the vessel to retain its value.

Deficiencies noted under "SURVEYOR'S GENERAL FINDINGS, NOTES AND OBSERVATIONS" are lower priority or cosmetic findings, which should be addressed in keeping with good marine maintenance practices and in some cases as a desired upgrade.

Deficiencies will be listed under the appropriate heading:

- A. FIRST PRIORITY/SAFETY FINDINGS
- B. SECOND PRIORITY/FINDINGS NEEDING TIMELY ATTENTION
- C. SURVEYOR'S GENERAL FINDINGS, NOTES AND OBSERVATIONS

### A: FIRST PRIORITY / SAFETY AND COMPLIANCE DEFICIENCIES

#### **FINDING A-1 SAFETY EQUIPMENT :: SAFETY EQUIPMENT (U.S.C.G.) : FIRE EXTINGUISHERS (33 CFR 175.310)**

All hand-held fire extinguishers were over 12 years old.

#### **RECOMMENDATION**

Provide at least three (3) current 5-B hand-held fire extinguishers IAW 46 CFR § 175.320(a)(1)

#### **FINDING A-2 SAFETY EQUIPMENT :: SAFETY EQUIPMENT (U.S.C.G.) : THROWABLE PERSONAL FLOTATION DEVICES (33 CFR 175)**

There was no Type IV Throwable PFD observed onboard.

#### **RECOMMENDATION**

Provide at least one Type IV Throwable PFD onboard to comply with USCG Safety Regulations.

#### **FINDING A-3 SAFETY EQUIPMENT :: SAFETY EQUIPMENT (U.S.C.G.) : VISUAL DISTRESS SIGNALS (33 CFR 175.101)**

The Visual Distress Signals were expired.

#### **RECOMMENDATION**

Provide current dated Visual Distress Signals to comply with USCG Regulations.

#### **FINDING A-4 SAFETY EQUIPMENT :: SAFETY EQUIPMENT (U.S.C.G.) : "TRASH DISPOSAL" PLACARD (33 CFR 151/155)**

A current MARPOL "Garbage Disposal Rules" Placard was not observed onboard.

#### **RECOMMENDATION**

Display approved Pollution Placard to comply with USCG regulations for Trash dumping and plan (CFR 151.59). Fine for non-compliance.

#### **FINDING A-5 SAFETY EQUIPMENT :: SAFETY EQUIPMENT (U.S.C.G.) : "WASTE MANAGEMENT" PLAN (33 CFR 151) VESSELS OVER 39'4"**

A vessel Owner/Captain written "Waste Management Plan" was not observed onboard.

**RECOMMENDATION**

Provide proper written "Waste Management Plan" to comply with the Marpol Annex V and 33 CFR 151.57, as necessary. Fine for non-compliance.

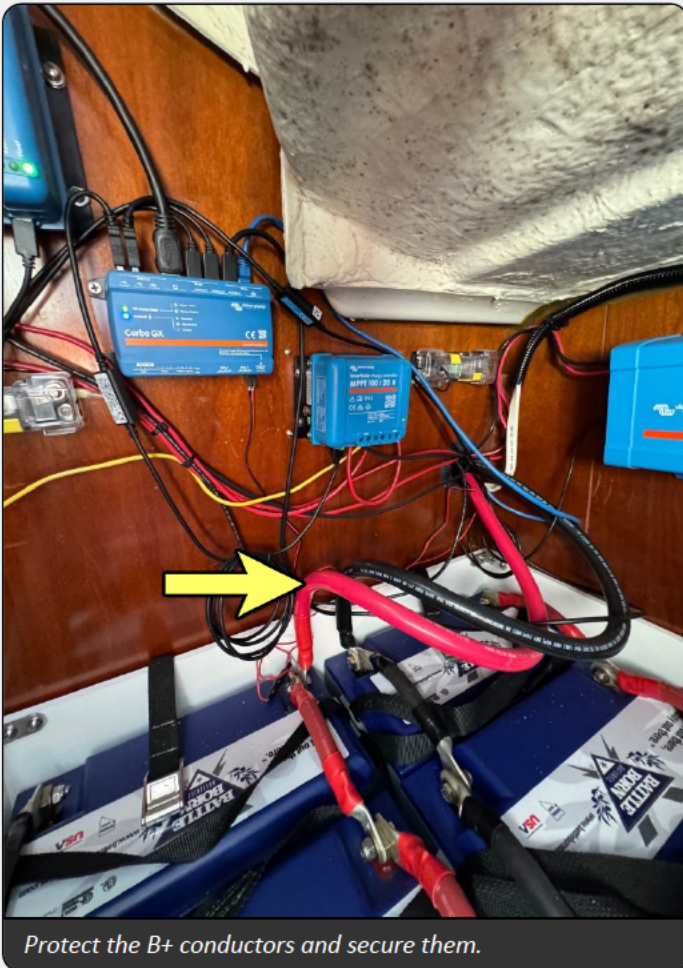
**B: SECONDARY PRIORITY / FINDINGS NEEDING TIMELY ATTENTION****FINDING B-1 ELECTRICAL SYSTEMS :: DC ELECTRICAL SYSTEMS : FUSES/OCB**

There are wires leading from the batteries to their fuses that are longer than 7" and not protected in a fire retardant sheath.

**RECOMMENDATION**

Install a fire protective sheath over the ungrounded battery cabling between the bank and the T Fuses IAW ABYC E-11.10.1.1.1 (see Exception 2 below) "Overcurrent Protection Device Location - Ungrounded conductors shall be provided with overcurrent protection device(s) within a distance of seven inches (178 mm) of the point at which the conductor is connected to the source of power measured along the conductor"

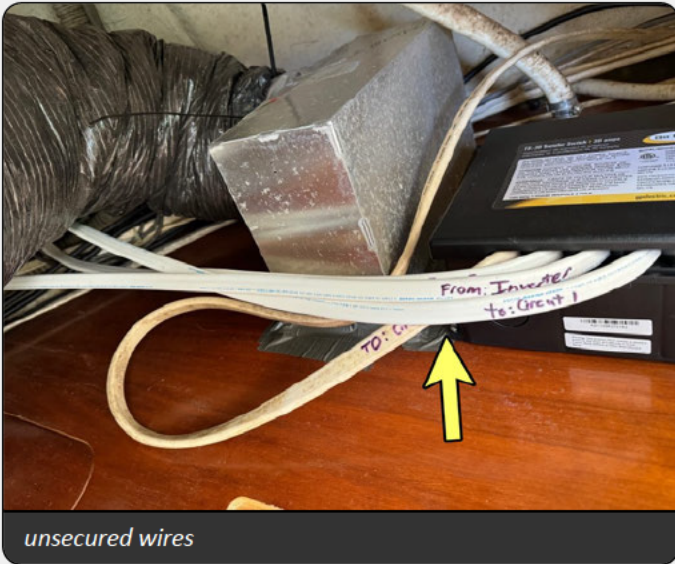
EXCEPTION 2: "If the conductor is connected directly to the battery terminal and is contained throughout its entire distance in a sheath or enclosure such as a conduit, junction box, control box, or enclosed panel, the overcurrent protection shall be placed as close as practicable to the battery, but not to exceed 72 in (183 cm)."

**FINDING B-2 ELECTRICAL SYSTEMS :: AC ELECTRICAL SYSTEMS : SECURING**

Wires in the STB locker and Lazerette were not secured to bulkheads or other acceptable locations

**RECOMMENDATION**

Secure all wiring every 18" IAW ABYC E 11.15.4.1.9







**FINDING B-3 UNDERWATER EQUIPMENT & HULL INSPECTION : SACRIFICIAL ANODES**

The underwater Zinc Anodes were wasting or wasted.

**RECOMMENDATION**

Replace the wasted Zinc Anodes with Aluminum to ensure proper electrolytic corrosion protection.

**FINDING B-4 UNDERWATER EQUIPMENT & HULL INSPECTION : ANTIFOULING PAINT**

The antifouling bottom paint appeared to be nearing the end of its serviceable life and was flaking off in several areas, with slight marine growth also observed along the hull's wetted surfaces.

**RECOMMENDATION**

Clean, prepare and repaint, as necessary.

**C: SURVEYOR'S GENERAL FINDINGS, NOTES AND OBSERVATIONS**

**FINDING C-1 VESSEL CONSTRUCTION :: HULL ARRANGEMENT : KEEL**

There is a slight void in the faring compound on the lower STB leading edge of the keel bulb

**RECOMMENDATION**

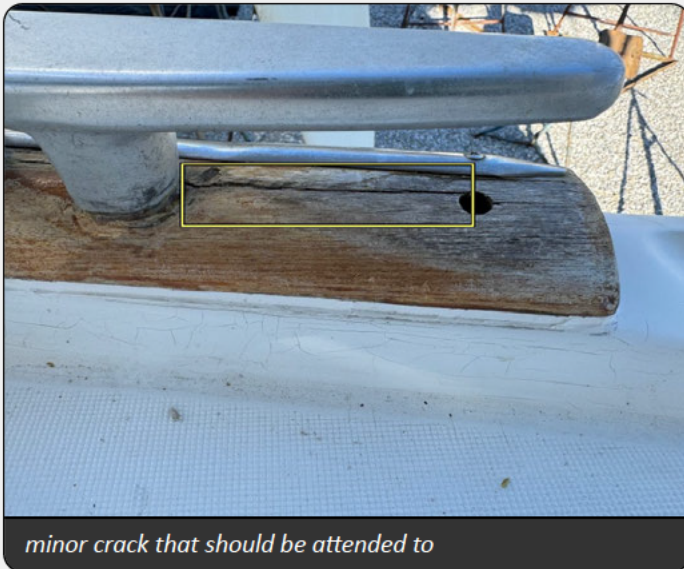
Repair the keel bulb prior to applying antifouling paint.

**FINDING C-2 VESSEL CONSTRUCTION :: DECK ARRANGEMENT : TOE-RAILS**

There is a longitudinal crack approximately 6" long on the AFT Cap Rail to STB and a bung is missing.

**RECOMMENDATION**

Repair the rail and replace the bung as necessary.

**FINDING C-3 VESSEL CONSTRUCTION :: DECK ARRANGEMENT : COMMENTS**

Some elevated conductivity readings (possible moisture intrusion or other conductive material) were electronically detected with a FM Wave type Moisture Meter around some of the vessel's laminate installation penetrations at the bow in the area of the Water fill and Waste pump out. No action is currently required.

**RECOMMENDATION**

Monitor the area for any signs of softness. In the next three years have a qualified technician pull the fittings and repair the area as necessary.

**FINDING C-4** EXTERIOR EQUIPMENT : EXTERIOR STORAGE

The aft locker door button latch requires refastening

**RECOMMENDATION**

Replace the fastening as needed.



*screw head pulled through; add washer and refasten*

**FINDING C-5** EXTERIOR EQUIPMENT : COCKPIT CANVAS

The canvas is in good condition, some isinglass windows are clouded

**RECOMMENDATION**

In the next two years replace the isinglass as needed



*Some clouding on the isinglass*

**FINDING C-6** PROPULSION & MACHINERY SPACE :: PROPULSION SYSTEM : ENGINE HOURS

The engine hour meter does not reflect the correct hours on the engine

**RECOMMENDATION**

Add a label near the read out to indicate additional (869) hours should be added to the displayed number.

**FINDING C-7 PROPULSION & MACHINERY SPACE :: PROPULSION SYSTEM : ENGINE NOTES**

A small leak was observed on the oil pan gasket connection on the STB side

**RECOMMENDATION**

Have a mechanic inspect the oil pan and secure as necessary to stop the leak.

**FINDING C-8 ELECTRICAL SYSTEMS :: AC ELECTRICAL SYSTEMS : GALVANIC ISOLATION SYSTEM (ABYC A-28)**

No galvanic isolator was sighted.

**RECOMMENDATION**

Consider installing a galvanic isolator to help prevent galvanic current corrosion when attached to dock power.

**FINDING C-9 WATER SYSTEMS :: HOT WATER SYSTEM : WATER HEATER HEAT EXCHANGER SYSTEM**

In line water heater service isolation valves were not installed for the engine heat exchanger hoses.

**RECOMMENDATION**

Highly recommend installing service isolation shut off valves, as necessary.

**FINDING C-10 SAFETY EQUIPMENT :: AUXILIARY SAFETY EQUIPMENT : BILGE HIGH WATER ALARMS**

The vessel did not appear to have bilge high water alarm(s) installed.

**RECOMMENDATION**

Install the appropriate recommended alarm(s), as necessary. On boats with an enclosed accommodation compartment, an audible alarm shall be installed indicating that bilge water is approaching the maximum bilge water level (ABYC H 22.7.3). Maximum bilge water level: the level above which electrical or mechanical systems will be adversely affected by bilge water, with the vessel in the static floating position or underway (ABYC H 22.4.7).

**FINDING C-11 UNDERWATER EQUIPMENT & HULL INSPECTION : SHAFT STAVE BEARINGS (CUTLESS BEARINGS)**

The shaft strut's Cutless Bearings had some wear/play.

**RECOMMENDATION**

At the next haul out or in the next year, check for proper running gear alignment and replace the bearings, as necessary.



## SUMMARY

### VESSEL CONDITION

It is the Surveyor's experience that develops an opinion of the OVERALL VESSEL RATING OF CONDITION, after the Survey has been completed and the findings have been organized in a logical manner.

The grading of condition developed by BUC RESEARCH and accepted in the marine industry for a vessel at the time of Survey, determines the adjustment to the range of base values in the BUC USED BOAT PRICE GUIDE for a similar vessel sold within a given time period, as a consideration to determine the Market Value.

The following is the accepted Marine Grading System of Condition:

"EXCELLENT (BRISTOL) CONDITION", is a vessel that is maintained in mint or bristol fashion (usually better than factory new, loaded with extras, a rarity).

"ABOVE AVERAGE CONDITION", has had above average care and is equipped with extra electrical and electronic gear.

"AVERAGE CONDITION", ready for sale requiring no additional work and normally equipped for her size.

"FAIR CONDITION", requires usual maintenance to prepare for sale.

"POOR CONDITION", substantial yard work required and devoid of extras.

"RESTORABLE CONDITION", enough of hull and engine exists to restore the boat to usable condition.

As a result of the Survey, as shown in the REPORT OF MARINE SURVEY & FINDINGS AND RECOMMENDATIONS sections of this report and by virtue of my experience, my opinion is:

### ABOVE AVERAGE

### STATEMENT OF VALUATION

The "FAIR MARKET VALUE" is the most probable price in terms of money that a vessel should bring in a competitive and open market under all conditions requisite to a fair sale: the buyer and seller, each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- a. Buyer and seller are typically motivated.
- b. Both parties are well informed or well advised, and each acting in what they consider their own best interest.
- c. A reasonable time is allowed for exposure in the open market.
- d. Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto, and
- e. The price represents a normal consideration for the vessel sold, unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

### APPRAISAL METHODOLOGY

The following method of valuation was used to obtain the FAIR MARKET VALUE of the vessel [REDACTED]:

Similarly equipped, same- or similar-model vessels are shown as sold on broker listing sites, including YATCO (Yacht and Boat & Sales), Soldboat (from Yachtworld listings), and IYBA (International Yacht Brokers Association) in recent years. These values were adjusted for the model year, date of sale, and location and averaged. A ratio was established between the listed and sold prices.

That ratio was applied to existing listings similarly adjusted for age, location, and, where discernible, condition. Listings of more than one (1) standard deviation (an accepted statistical measure of how far any single item in a list varies from the list's average) from the

average value were carefully evaluated for condition, days on the market, and location and discounted if not applicable to the value of the vessel being valued.

The adjusted average of sold boats and of current listings were adjusted for Boat Underwriters' Counsel(BUC) condition. That number is considered with the values listed by BUCValuPro™ for vessels in the same condition and location. When there are so few sales of similar vessels, it is important to consider the condition and location of comparable vessels to ensure that outliers do not positively or negatively reflect upon the subject vessels' market value.

#### SIMILAR VESSELS RECENTLY SOLD:

Year	Sold Date	Sold Price	Listed Price	Boat Location
1998	05/31/24	\$95,500.00	\$97,900.00	MD
2000	12/29/23	\$85,000.00	\$99,000.00	MD
2003	11/09/23	\$98,500.00	\$98,500.00	VA
2003	09/06/24	\$94,650.00	\$95,900.00	VA

The average sold price for vessels in BUC condition is \$92,716 and an average adjusted Sold Price for vessels in Above Average condition would be \$111,260. NOTE: these vessels sold for 95% of their initial listing price, which indicates that these models are still performing well in the market.

#### CURRENTLY LISTED VESSELS:

Source	Year	Price	Loc	Notes
YW	2000	\$109,900.00	TX	
YW	2000	\$83,900.00	CA	original rig and electronics, not comp
YW	2002	\$105,000.00	St M	
YW	2000	\$119,000.00	MD	This boat
B.com	2000	\$59,999.00	VA	Tired and needs work, not comp
B.com	1998	\$125,000.00	SC	Turn key (comp)
SBL	1999	\$134,900.00	NY	reported Bristol
SBL	2000	\$119,500.00	CA	New Rig 2014

No foreign listings were considered. The vessels listed for 59K, 83K, and 134K are not considered comparable based on the information in their one is a project vessel, one has original rig and electronics, and one is reported in Bristol condition following a complete refit. The remainder range from BUC to Above Average based on their listings.

The average listing price of the considered vessels was \$116,336  
An Adjusted Listing price would be \$110,240 applying the 95% listed to sold ratio.

The Boat Underwriters Counsel BUCValuPro™ Retail Price Range for in ABOVE AVERAGE condition ranges from \$103,500 to \$114,000, which closely tracks the market based on recent listings and sales.

#### ADJUSTED ESTIMATES

The surveyor has chosen to consider the average adjusted comparative sales, the adjusted listing values, and the high end of the BUCValuPro™ Fair Market Value adjusted for condition and equipment in VERY GOOD condition. Specifically, the subject vessel has just undergone a significant refit including \$14,000+ invested in new rigging and genoa sail and over \$20,000+ in electrical and electronic upgrades.

Given the overall cosmetic and mechanical condition of [REDACTED] and the constant maintenance, I consider her to have a Fair Market Value of \$117,000 and a Replacement Value of \$355,000 per BucValuPro™.

## SUMMARY

In accordance with the request for a Marine Survey of the [REDACTED] for the purpose of evaluating its present condition and estimating its Fair Market Value and Replacement Cost, I herewith submit my conclusion based on the preceding report. The subject vessel was personally inspected by the undersigned. October 28, 2024. Subject to correction of deficiencies listed in sections A and B, the vessel is considered to be reasonably suitable for its intended use. Other deficiencies listed should be attended to in keeping with good maintenance practices or as upgrades.

## SURVEYOR'S CERTIFICATION

I certify that, to the best of my knowledge and belief:

The statements of fact contained in this report are true and correct.

The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analyses, opinions and conclusions.

I have no present or prospective interest in the vessel that is the subject of this report and I have no personal interest or bias with respect to the parties involved.

My compensation is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result or the occurrence of a subsequent event.

I have made a personal inspection of the vessel that is the subject of this report.

This report is submitted without prejudice and for the benefit of whom it may concern.

Scott Richard Berg, Principal Surveyor  
SAMS® S.A.



Signed and submitted on: November 1, 2024



STB FWD



PORT FWD



STB AFT



PORT AFT





TRANSOM



PROFILE



STB QTR



Cockpit





Instruments



Arch, Solar, Davits



Dinette



Galley





AFT Cabin



Pullman Berth



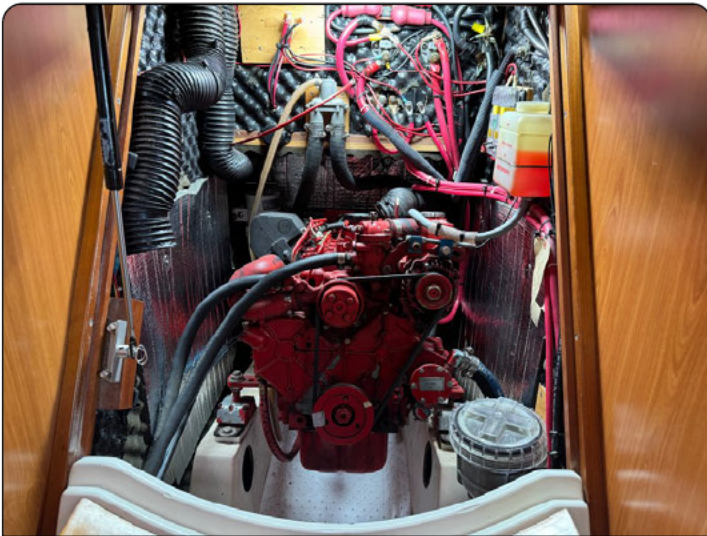
FWD Cabin



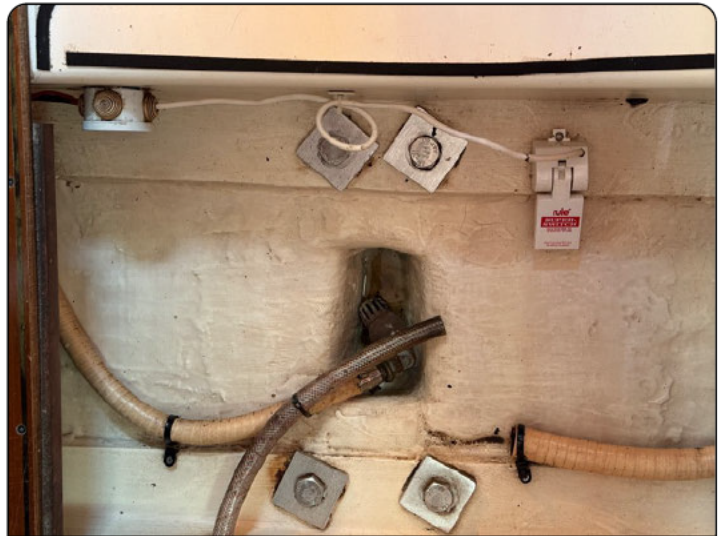
FWD Head



Aft Head



Engine space



Keel bolts





**ENGINE MARINE**

EQUIP NUM: [REDACTED]

SERIAL NUMBER: [REDACTED]

WESTERBEKE 44A

**No Action Required**

Interp By: Gregory Poole SOS

Interpreted On: 01-Nov-24

D180-54306-0531

SAMPLE SHIP TIME (days) : 4

SCOTT BERG

RECEIVED DATE: 01-Nov-24

ALL TESTS APPEAR NORMAL. MORE SAMPLES ARE NEEDED TO ESTABLISH A TREND. CONTINUE SAMPLING AT NORMAL INTERVAL.

**SAMPLE INFORMATION**

Sampled Date	28-Oct-24
Sample Id	D180-54306-0531
Lab Date	01-Nov-24
Meter [Hr]	2000
Comp Meter [Hr]	2000
Meter On Fluid	36
Fluid Brand	SHELL
Fluid Weight	15W-40
Fluid Type	
Fluid Change	N
Filter Change	N
Kidney Loop	U
Total Fluid Added	0

For additional sample history, go to:

[S.O.S WEB](#)

**CONDITION / CONTAMINATION**

28-Oct-24

**VISCOSITY (CENTISTOKES) ASTM D445**

V100	Viscosity at 100 C	14.70
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**INFRARED (UFM) ASTM E2412**

ST	Soot	5
OXI	Oxidation	19
SUL	Sulfur Products	24
NIT	Nitration	0

**WATER**

W	Water	N
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**WEAR LEVELS / ADDITIVES**

28-Oct-24

**ELEMENTAL ANALYSIS (PPM) ASTM D6185 [OIL] / ASTM D6130 [COOLANT]**

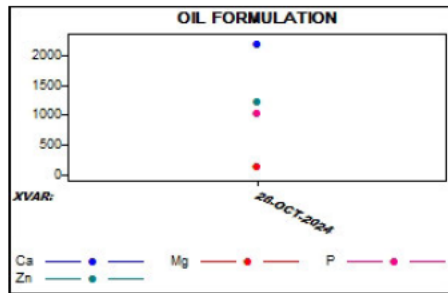
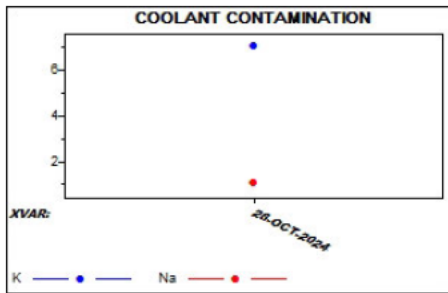
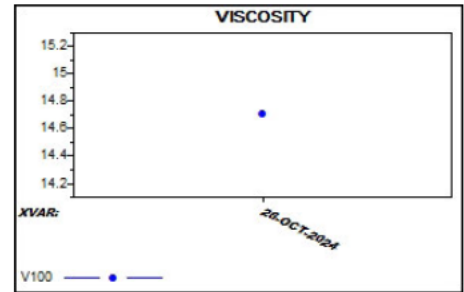
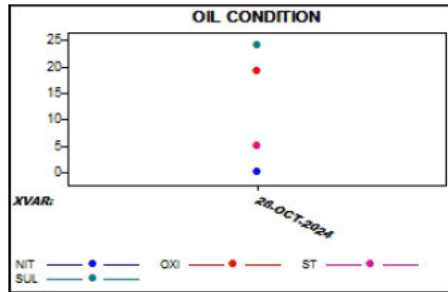
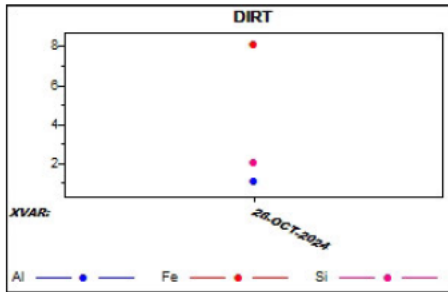
Cu	Copper	0
Fe	Iron	8
Cr	Chromium	1
Al	Aluminum	1
Pb	Lead	0
Sn	Tin	2
Si	Silicon	2
Na	Sodium	1
K	Potassium	7
Mo	Molybdenum	9
Ni	Nickel	0
Ca	Calcium	2161
P	Phosphorus	1020
Zn	Zinc	1214
Mg	Magnesium	105
Ba	Barium	0

**ANTIFREEZE**

A	Antifreeze	N
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**FUEL**

F	Fuel	N
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Report Comment

Our sample reports has been updated! For more information on the new report, go to - <https://www.youtube.com/watch?v=4h8bREJVUrs>



**MARINE GEAR**

EQUIP NUM: [REDACTED]

SERIAL NUMBER: CBW [REDACTED]

OTHER UNK\_OTHER

**Monitor Compartment**



IRON IS ELEVATED. POSSIBLE CLUTCH PLATES WEAR. CHANGE OIL AND FILTER(S) RESAMPLE AT THE NEXT ENGINE SERVICE TO MONITOR.

Interp By: Gregory Poole SOS

Interpreted On: 01-Nov-24

D180-54306-0701  
SAMPLE SHIP TIME (days) : 0  
CBW LLC  
RECEIVED DATE: 01-Nov-24

**SAMPLE INFORMATION**



Sampled Date	01-Nov-24
Sample Id	D180-54306-0701
Lab Date	01-Nov-24
Meter [Hr]	2000
Comp Meter [Hr]	2000
Meter On Fluid	2000
Fluid Brand	
Fluid Weight	30
Fluid Type	
Fluid Change	N
Filter Change	N
Kidney Loop	U
Total Fluid Added	0

For additional sample history, go to:

[S.O.S WEB](#)

**CONDITION / CONTAMINATION**

01-Nov-24

**VISCOSITY (CENTISTOKES) ASTM D445**

V100	Viscosity at 100 C	11.00
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**INFRARED (UFM) ASTM E2412**

ST	Soot	0
OXI	Oxidation	7
SUL	Sulfur Products	15
NIT	Nitration	0

**WATER**

W	Water	N
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**WEAR LEVELS / ADDITIVES**

01-Nov-24

**ELEMENTAL ANALYSIS (PPM) ASTM D6185 [OIL] / ASTM D6130 [COOLANT]**

Cu	Copper	26
Fe	Iron	80
Cr	Chromium	1
Al	Aluminum	4
Pb	Lead	130
Sn	Tin	1
Si	Silicon	1
Na	Sodium	9
K	Potassium	0
Mo	Molybdenum	116
Ni	Nickel	0
Ca	Calcium	2319
P	Phosphorus	970
Zn	Zinc	1083
Mg	Magnesium	74
Ba	Barium	0

**ANTIFREEZE**

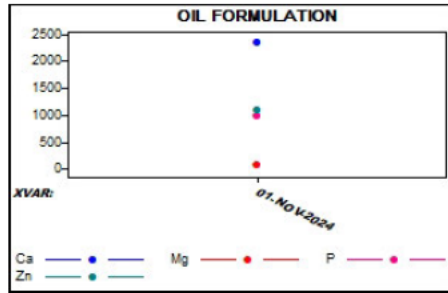
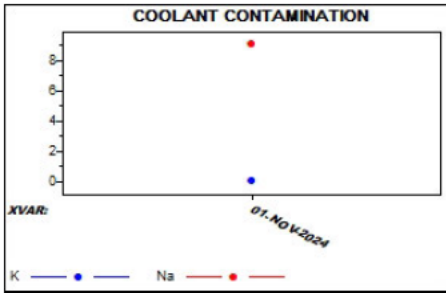
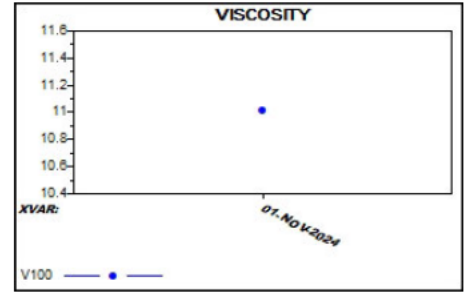
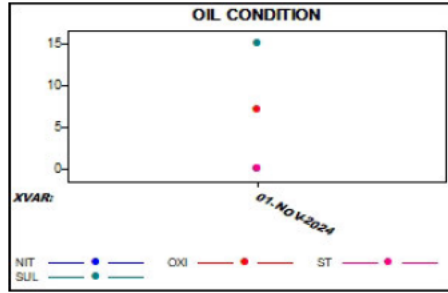
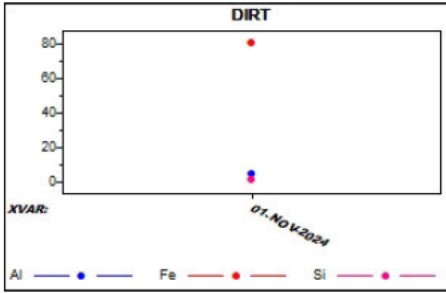
A	Antifreeze	N
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**CLEANLINESS**

01-Nov-24

**PARTICLE COUNT - ISO 11171:1999 reported per ISO 4406**

ISO	ISO Code Rating	23/22/16
4µ	4µ	60670
6µ	6µ	23910
10µ	10µ	2296
14µ	14µ	439
21µ	21µ	104
38µ	38µ	16



**Report Comment**

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