

**PATTON MARINE SURVEYORS
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Our Time and Experience
is our Stock in Trade

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**December 20, 2023
File No.: 13560-24
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**RE: "ARIADNE", 1979,
124' Breaux Bay Craft Motor Yacht**

RECOMMENDATIONS

Notes:

- A. The items marked with a star (★) should be taken care of for safe operation and/or insurability.
- B. Many of the following items describe systems that are either not operational or not functioning properly.
- C. Most of the other items are considered to be issues of general maintenance.
- D. In addition to this recommendation list, there are 37 pages of survey text which is an integral part of the report and should be read in conjunction with these recommendations.

GENERAL:

1. It is recommended that the buyer or buyers agent be provided with a written affidavit from the seller stating that the above named yacht is free and clear of any liens, fines or debts.

SAFETY EQUIPMENT:

1. ★The starboard navigation light is burnt out and needs to be replaced.
2. ★ Swing the compass and provide a deviation card.
3. ★The post flybridge seat hatch is labeled as the location of the Immersion suite and rocket line throwers, they are actually located in the seating storage further aft around the jacuzzi, Correct the marker location.
4. ★The chain locker bilge high water alarm is not operational. Rectify.
5. ★The bellows insulation for the four (4) main engines is damaged and misaligned. During the sea trial recorded temperatures of 400 °f were recorded. The insulation is to be replaced for safety of crew and the machinery space.

6. ★The outboard main engine flanged shaft couplings are exposed. This is a safety hazard to crew. Install guards or deck plating to prevent contact with rotating machinery.
7. ★The PTO (power take off) flanged connection on the front end of starboard inboard main engine #3 is exposed. This is a safety hazard to the crew. Install guards or deck plating to prevent contact with rotating machinery.
8. ★There are no isolation valves for the seawater cooling supply water to the four driveline shaft seals. Install isolation valves.
9. ★The seawater supply hoses to the shaft seals are not double clamped. Double clamp for safety.
10. ★The pneumatic gauge for the flybridge helm is leaking oil. As the compressed air supplies control signals for the main engines. This should be replaced.
11. ★The pneumatic gauge for the wheelhouse is not working. As the compressed air supplies control signals for the main engines. This should be replaced.
12. ★Windshield wiper blades are old and worn and do not make full contact on the windshields. Replace blades.
13. ★All 5 MOB Ring Bouy's have sun damaged poly grab lines. Replace lines with new.

HULL BOTTOM:

1. The bottom of the vessel was pressure washed but the yacht is still covered with barnacles such as all over the propellers and bow thruster. There are also multiple areas of missing bottom paint. Anticipate a full bottom paint job at the next haul out.
2. It appears as though the stabilizer fins are moving on the shafts. It is reported the stabilizers were recently serviced / repaired. At the next haul out have a service technician check the fin to shaft connection.
3. Due to age of the hull and the number of inserts a full audio gauge of the hull should be performed. Note: Some audio gauging was carried out with no wasted plate found but this was performed randomly due to time constraints.

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TANKS:

1. All onboard liquid contents tanks were visually examined, externally only. Unless otherwise mentioned in the "RECOMMENDATIONS" section of this report, no external signs of leaks or damage were found during these examinations. It is to be noted that the tanks are not totally accessible or visible on all sides. For a complete evaluation of tank tightness, they should be hydro-tested.

THROUGH-HULLS:

1. ★ As an annual maintenance project, it is recommended that all of the seacocks and sea strainers be disassembled, cleaned, inspected, and lubricated. It is time to do so now.

STEERING SYSTEM:

1. The port side tiller arm is in contact with the port inboard main engine exhaust silencer when the rudders are operated hard over to port. There is visible rubbing and contact. Clear the interference.
2. The starboard side tiller arm is in contact with the starboard inboard main engine exhaust silencer when the rudder is operated hard over to starboard. There is visible contact and rubbing noted. Clear the interference.
3. There is visible salt accumulation on the port side rudder stock housing. Inspect rudder stock seals.
4. The Fly bridge RAI at hard over helm, reads 32°Port and 45°Starboard. The wheelhouse RAI at hard over helm reads 30°Port and 40°Starboard. Adjust to read 35° to port and 35° to starboard.

BOW THRUSTER:

1. The Bow Thruster was tested in a relatively flat sea, with approximately 6.5 kts of wind. It did struggle to push the bow further than 110° of a 360° full turn. It was not determined at this time if there is actually more power available. The Thruster is rated at 60hp, which is considered marginal for this size of yacht.
2. The hydraulic hose connections connecting to the tunnel unit are rusted. Treat corrosion and apply a protective paint system.

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3. There is chaffing interference with the bow thruster PTO piping on the starboard inboard main engine #3 and the deck plating. The plating is chafing the pipework and will damage the pipe. Modify the deck plating for better clearance.

STABILIZERS:

1. The oil in the stabilizer filter/ tank system is very black. Perform oil analysis. Anticipate repairs and maintenance. There are also small oil leaks at the hydraulic connections at both fin actuators. Repair the oil leaks.

BILGES:

1. The bilges are in need of cleaning and detailing.

BILGE and FIRE SYSTEM:

1. The fire pump is not properly secure as the bolts for the resilient mounts are missing, and the motor terminal cover is loose. Install securing bolts to properly secure the pump and re-secure the motor terminal cover.

FRESH WATER SYSTEM:

1. The freshwater sterilizer unit has been unplugged so no sterilization of the fresh water is being done. Prove operation of the sterilization unit or repair / replace with new. Note: Due to the lack of sterilization the freshwater system should be super-chlorinated.
2. There is a temporary repair on the plastic fresh water piping directly above the fresh water sterilization unit. Replace the plastic pipe with new.
3. There is water around the bottom of the domestic water heater on the stbd side of the engine room. No leaks were found in any piping so it is possible the heater is leaking. Further investigate to locate the source of the leak and repair.
4. The water heater located in the starboard aft engine room is showing signs of water leakage at the plumbing connections and at the base of the unit. The unit appears corroded through. Anticipate replacement.

SEA WATER SYSTEM:

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1. There is a missing valve handle on one of the sea water crossover butterfly isolation valves. Additionally, the valves are not labelled. Label all the valves and re-install the missing handle.
2. There is a leak on the inboard sea water cooling pump for the stabilizer and a temporary repair has been attempted. Remove the pump and repair / replace with new.
3. The suction line hose for the outboard stabilizer sea water pump is only single clamped. Double clamp the sea water hose.
4. The seawater pump supplying cooling for the hydraulics, located at deck level, forward portside engine room has been temporarily repaired with a form of sealing epoxy. The pump housing has been epoxied over. Replace the pump housing.
5. All four (4) seawater shaft cooling flow indicator wheels are seized. Unseize and service the wheels for clear indication of shaft cooling flow. The flow indicator of the starboard outboard main engine #4 is unsecured and loose, the cooling supply hose is rubbing on the flanged connection causing chaffing to the hose.

PLUMBING and PIPING:

1. There is a dripping pipe sighted in the port side of where a steel and PVC pipe are chaffing in the guest bilge. Rectify.
2. Steel piping needs to be chemically treated, epoxy primed and top coated.
3. The plumbing and piping was inspected, however, not all of the plumbing and piping is visible or accessible. Due to the age of the yacht, it is possible that some of the plumbing and piping, especially the raw water piping, will develop leaks. Recommend that the plumbing and piping be monitored and changed out as necessary.

AIR CONDITIONING:

1. Double hose clamps are not installed on the input hose to Groco sea strainer for the raw water cooling of the condensers. Install double clamps.
2. The steel handles on isolation valves associated with the chilled water main are dripping condensate and showing signs of corrosion. Recommend the valve handles be removed and the valve bodies wrapped with neoprene insulation to

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- prevent condensation. Secure the valve handles close by.
3. There is a permanent connection between the chilled water system containing glycol and the fresh water system. Remove connection and provide quick disconnect fitting for when needed. Water is dripping from the pressure gauge on the chilled water system.
 4. Most fan coil units throughout the boat were inspected. Most intake screens were fouled, and minor mold spores noted on some of the units. Clean fan coils with diluted chlorine mixture and replace/clean air-intake screens. It is further recommended that a company such as Blue Star come in annually and clean all plenums along with galley rangehood duct work.
 5. #3 Chiller is not running due to a raw water flow problem (Flow Switch). Take corrective actions as needed.
 6. The chillers are showing signs of corrosion especially on the dryers. Thoroughly clean the chillers and trays etch, prep and paint as needed.
 7. The thru-bulkhead transit pipe for the chilled water main forward engine room is dripping condensate. Re-insulate this section of neoprene insulation.
 8. The incorrect securing brackets are being used in the engine room for the chilled water piping so the insulation is being damaged in multiple locations. Install insulated pipe support cuffs from Armafix or equal.
 9. There is a missing pipe bracket on the suction line to the chilled water pumps on the chiller plant. Re-install an insulated securing bracket to secure the piping.

REFRIGERATION:

1. There is condensation and Mold forming on the deck of the aft raised section of the bridge from the refrigeration unit installed below the deck. Investigate why the deck has condensation on it and repair as necessary.

MAIN ENGINES:

1. At 2000rpm the starboard No. 4 engine went into alarm with low oil pressure. The engine oil was blown out of the oil filler cap and dipstick. Refer to Engine Surveyors report and recommendations.

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ENGINE EXHAUST:

1. The is a pin hole leak in the port inboard main engine exhaust. Repair as necessary.
2. The port inboard exhaust tube in the lazarette hose clamp is broken and needs to be replaced.
3. The starboard inboard aft connection in the lazarette is only connected with one clamp. Add an additional clamp.
4. The main engine exhaust has been nicely done but there are multiple exposed hot flanges were the insulation blankets are not fitted / secure properly. Re-secure all insulating blankets so there are no exposed exhaust flanges.
5. The starboard inboard main engine seawater cooling hose to the exhaust spraying ring requires further support and securing.

GENERATORS:

1. The port generator hour meter is not recording. Replace with new.

ELECTRICAL:

Drawings

1. Electrical drawings were not available. Provide a full set of accurate electrical drawings.
2. Caution must be observed when associating vessel's 3 phase insulation color coding scheme. The 208 VAC color codes are black, white and red. Industry standards recognize black, red and blue as three phase above ground conductors while white is considered the neutral grounded conductor. In some instances onboard the subject yacht, red is used as a grounding conductor (this conductor in normally color coded as green) while green and blue are used as neutral and black and white are used for positive and negative. Recommend a thorough understanding of the non-standard color codes onboard prior to performing electrical tasks, and that cautionary labeling be posted throughout the vessel.

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Shore Power

3. The shore power input protection breakers are not E.L.C.I. (Equipment leakage Circuit Interrupter) or G.F.C.I. (Ground Fault Circuit Interrupter) to aid in preventing E.S.D. (Electrical Shock Drowning) it is our professional opinion safety could be improved by the following recommendation. Install ground fault protection breakers.
4. The forward shore power inlet boxes do not have a deadfront cover over the circuit breaker terminations when the covers are open. Wiring within these enclosures is too tight with excessive wire bends. Put in bigger boxes, relieve tension/radius on conductors and install deadfront panels.
5. The aft shore power inlet box has a metal backing panel which is not grounded. Ground panel.
6. The switch handles are missing from the Shore Power Selection box. Source out new Kraus Neimer / Salzer switch handles. Wards Marine might have them.
7. The shore power input selector switch enclosures amp meter connections are exposed. Provide meter connection covers.
8. At time of survey the vessel was connected to 208 VAC shore power. All shore power inlets, cords and cord-end fittings rated solely for North American use are not suitable for European voltages (380-400VAC), Australian and New Zealand voltages (400-415VAC) and higher voltages (480VAC) now available at many North American marinas. The Atlas shore power system allows a customer to access shore voltages between 190 and 500VAC, 1phase or 3phase, 50 or 60 Hz. Recommend all installed and portable components and equipment are appropriately rated for these higher voltages. Presently the vessel is using Hubbell M5100C9R plugs which are rated at 120/208.
9. Note only: Shore Power #2 was not tested.

Main Switchboard

10. The vessels VAC system is connected as a TN-S system; that is a separated protective earth (P.E.) and neutral (N) from the power sources to the consumers. A ground fault of .64 Amps was captured with hand held Fluke clamp on meter. Trace and remove all ground faults.
11. The main switch board TN-S grounding system is fitted with a ground fault Amp meter, the meter range too high. Replace meter and the associated current transformer to read millivolts.

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12. The main switchboard ground fault test switch is not working. Further review this circuit and rectify.
13. All main switchboard terminations to include mechanical fasteners should be checked for proper torque as per fastener design and construction. Recommend this procedure be performed annually within the main switchboard and all distribution boards to aid in eliminating excessive heat caused by loose connections.
14. The main switchboard door is not fitted with a hold open device. Install door hold open device.
15. The main switchboard is not fitted with a shore power frequency meter. Provide a shore power frequency meter.
16. Multiple main switchboard consumer three phase breakers are supplying single phase consumers. Replace three phase breakers to single phase.
17. Unused openings observed within Shore Power Selection box.
18. The main switchboard is fitted with a phase rotation meter. This meter is no longer required due to the installation of the Atlas frequency meter. Remove this meter and the associated cables.
19. The main switchboard mounted meters are not fitted with nominal voltage and amp hash marks. Hash mark these meters with nominal voltage and rated amps.
20. The main ground termination on the starboard side within the panelboard is made with a fastener which bears directly down on conductor stranding. Install dedicated ground buss bar.
21. Install protective covers behind volt, frequency and ampere meters. Presently white electrical tape is being used which is losing its adhesion qualities.

Generators

22. The port generator was not operational during the survey. A problem with the output voltage was reported. Tradesmen were onboard diagnosing the problem. Work in progress.
23. The starboard generator RPM gauge and lower temperature gauge are not working. Make or prove operational.

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24. The generators are not arranged with means to parallel to an alternative start bank during low voltage conditions. Provide means to be able to parallel during low voltage conditions.
25. The port and starboard starters and alternators potentially energized positive connections are exposed. Provide "boot" type protection covers or similar.
26. No data could be located regarding the generators rated KVA or KW, the data plate had no information on it. Although the main switchboard information plaque indicates the generators are 55 kw. Verify generators Kw rating.

Battery Banks & Charging

27. Wing nuts are used to secure the main engine starter cables to the batteries. Recommend washers, split washers and nuts be used to secure on any terminal larger than 6AWG.
28. Steel fuse boxes for the main engine start batteries are mounted outboard of the engine start batteries. These boxes are showing signs of rust and corrosion. Take corrective actions to minimize the corrosion.
29. The alternator post on the port inboard the main engine is heavily corroded. Inspect all starter and alternator terminations for corrosion and clean thoroughly. When done install protective insulator type boots over exposed connections.
30. The 100-amp ANL fuse holder for the Radio battery bank is adrift and not mounted. Corrosion was noted on the fuse. Permanently mount fuse holder in an enclosure and provide a battery disconnect switch as close to the battery as possible.

Distribution

31. In many instances throughout the load groups mounted throughout the vessel screw terminations/buss bars are used to secured wire terminations to the buss bars. The terminal hardware securing the conductors bears directly down on the conductor. This termination causes the wire to "flatten" and can compromise the copper conductors. Recommend installing ferrules on the conductor ends to protect the inner conductor.
32. Unused openings were observed on Engine Room Panels 1 & 2 along with the Pilot House 220/120 panel. Cover all unused openings.
33. The interior of most load groups was showing signs of dirt and contamination. Inspect all load group panels and thoroughly clean.

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34. A circuit breaker and switch are mounted on the side of the DC distribution box located in the starboard forward engine room. Label these devices.

Engine Room & Machinery Spaces

35. Plastic cable restraints have been utilized through the generator, machinery, and accommodation spaces to contain cables within cable trays. Where the cable support system or fixings are manufactured from a material other than metal, suitable supplementary metallic fixings or straps spaced at regular distances are to be provided, such that, in the event of a fire or failure the cable support system and the cables affixed to it are prevented from falling and causing an injury to personnel and/or obstruction to any escape route. Recommend installation of a more heat resistant restraint to secure cables in the trays so as to prevent the release of cables during a fire.
36. In many instances cable runs are loosely supported and are secured horizontally under cable trays. When cables are not laid on top of horizontal and vertical cable trays, suitable metal clips or straps are to be added at regular intervals not exceeding 2 meters in order to prevent the release of cables during a fire. Install metal cable clips, saddles or straps as needed. Do not secure cables to pipework.
37. Conductors pass over sharp cable tray edges without chafe gear protection. Cable should be installed to avoid abrading, crushing, twisting, kinking or pulling around sharp edges. Recommend a complete audit of the wire trays mounted onboard be performed and where conductors exit the wire trays chafe protection be installed.
38. Paint has been applied to miscellaneous cables observed in the generator and main engine machinery spaces. Where paint or any other coating is systematically and intentionally applied on the electric cables, it is to be established that the mechanical and fire performance properties of the cables are not adversely affected. Verify performance properties. Do not paint electrical cables.
39. The hot tub Acme transformer is not labeled. Label transformer. The adjacent two circuit breakers for the hot tub need a protective cover over the circuit breaker toggles. Install cover.
40. The cover over the capacitor for the fuel transfer pump is loosely fitted. Secure cover.

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41. Overall, throughout the machinery spaces the bilges are soiled, dirty and in need of good cleaning. Thoroughly clean the bilges and keep them dry. Numerous stainless steel fittings were observed in the engine room bilge.
42. Portable carpet blowers are installed in the engine room for additional cooling of the interior space and Atlas converter system. Confirm these blowers are meant for continuous operation. Since they are permanently mounted the electrical connections should be made in approved electrical boxes with properly sized circuit protection. Do not use outlet strips.
43. Numerous hydraulic steel fittings, misc. engine parts (mounts) , shaft couplings, shafts are showing signs of rust and corrosion. This whole area needs to be thoroughly cleaned and actions taken to eliminate corrosion. Denzo Tape works well on steel fittings along with chemical etch, prime and paint.
44. Spray foam has been applied to bulkhead penetrations starboard side forward engine room. This sealant does not self-extinguish when subjected to flame. Seal all bulkhead penetrations with a "Fire-Stop" sealant. Open penetrations were observed on the port side bulkhead forward engine room.
45. The bottom of the water heater starboard side aft engine room is showing signs of corrosion. Inspect and take corrective actions as needed.
46. The Capac monitor onboard the yacht is reading -200mVdc less than a portable silver/silver chloride reference cell. Confirm readings and adjust as necessary.
47. Shaft brushes and/or slipping assemblies are not mounted on the main drive shafts. A turning propeller shaft on a vessel becomes electrically insulated from the hull by the lubricating oil film in the gearbox bearings. When the shaft is insulated in this way an electrical potential can be measured between the shaft and the hull and this accelerates corrosion in the vessel. The electrical potential between the shaft and the hull can also cause a heavy current to flow in the bearings when the oil film breaks down. This current can cause deep pitting of the bearing surface. Recommend slipping assemblies be installed on the shafts.

Accommodations

48. Ground fault circuit interrupter devices are not mounted on the 120VAC receptacles mounted throughout the machinery spaces. Mount GFCI's on outlets within machinery spaces.
49. A GFCI device was not seen for the hot tub circuit. Confirm this circuit is protected with a 7-10mill GFCI.

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50. An air plenum is mounted within the dog house which does not have protective screen over the opening. Install protective screen.
51. An exposed electronic contactor assembly was observed within the hot tub locker sundeck. Install electronic assembly within an enclosure.
52. The hot tub heater is not grounded with manufactured supplied ground lug. Ground heater.
53. The DC emergency lighting was tested throughout the vessel. The port engine room light and port pilot house light are not operational. Make or prove operational.
54. The main deck hallway (starboard side) and starboard saloon forward 120V outlets indicate reversal of hot and neutral of the conductors.
55. Open grounds were observed on the port saloon forward and starboard forward guest 120V outlets. Supply ground conductors.

FOREPEAK:

1. Several of the wood planks in the chain bin are not secured and need to be re-fastened in place.

HYDRAULICS:

1. There is a large leak from the block on top of the stabilizer reservoir and several of the hoses are in a poor state of repair. It was also noted the oil is black like dirty engine oil. Repair the leak, replace any damaged hoses and replace the oil with new hydraulic oil. Note: The hydraulic system should be properly flushed to remove any particles from the dirty oil.
2. There is a small oil leak on top of the hydraulic power pack on the port side of the engine room. See on the return line fitting. Repair the oil leak.
3. Engine room steel hydraulic fittings are rusted and need to be chemically treated and wrapped with DENZO Tape.
4. There are hydraulic oil leaks on the piped connections of the hydraulic power pack. At the AC motor. Remake connections.

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ELECTRONICS, COMUNICATIONS, and NAVIGATION:

1. The flybridge VHF Screen is sun damaged and will need to be replaced.
2. No DC power found to the SEA SSB Radio. Repair or replace.
3. The Wheelhouse Richie Compass has an air bubble. Service compass.
4. The Fly bridge compass light was not sighted working. Prove operation.
5. One of the Navigation computers is not operational. Repair or replace.

ENTERTAINMENT ELECTRONICS:

1. Suggest installing the Starlink System

APPLIANCES:

1. The galley hood and duct are very dirty and need to be professionally cleaned.
2. The galley countertop is cracked in several areas and needs to be replaced.

DECKS:

1. The sundeck nonskid is worn and was found to be slippery underfoot.

TENDERS:

1. Comment Only: The Nautica RIB Tender is now 19 years old and the bottom of the tubes are stained from marine growth.

CRANES:

1. The crane has many rusted fittings and valves. The main hydraulic ram seal is weeping hydraulic oil and there are several areas of blistered paint. The crane is due for a complete overhaul.

CANVAS and COVERINGS:

1. The exterior table and seating covers are weathered and several will need to be replaced.

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2. The flybridge canopy material is heavily mildewed and in poor condition. This will need replacing.

EXTERIOR:

1. There are stress cracks in the top port and starboard main deck fashion boards that will need to be ground back and repaired.

EXTERIOR FINISH:

1. The yacht was last painted in 2018, the life of the typical yacht paint job is approximately 4 to 5 years. There are extensive blistering in the paint and it is now time to repaint the yacht.
2. The hull is painted a dark color. The dark hull color absorbs more heat than a lighter hull color. There have been occasional problems with dark colored cored hulls in the tropics blistering in areas.

If extended periods of time / cruising with this yacht in the tropics are anticipated, consideration should be given to repainting the hull topsides when next due with a lighter color.

INTERIOR:

1. Three of the glass tiles in the main deck Day head are cracked.
2. The tint film on the pilothouse windows is starting to peel along the edges of several windows. A new owner will want to install new tint film.
3. The headliner material in the main salon is loose and will need to be recovered.
4. The wood paneling in the passage from the flybridge to the pilothouse is delaminated and will need correction.
5. The master state room closet paneling is water stained. Rectify
6. The starboard forward guest bathroom, stabilizer hatch has bent up ring pulls. Replace with new.

MAINTENANCE:

1. No gear box oil was visible in the starboard windlass. Add oil to the proper level.

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SUGGESTIONS ONLY:

Note: All of the following items are considered to be improvements and upgrades that an owner and/or his captain and crew may want to consider. The yacht has run fine without any of the following.

1. Affix a proper size emergency wooden plug near each through-hull.

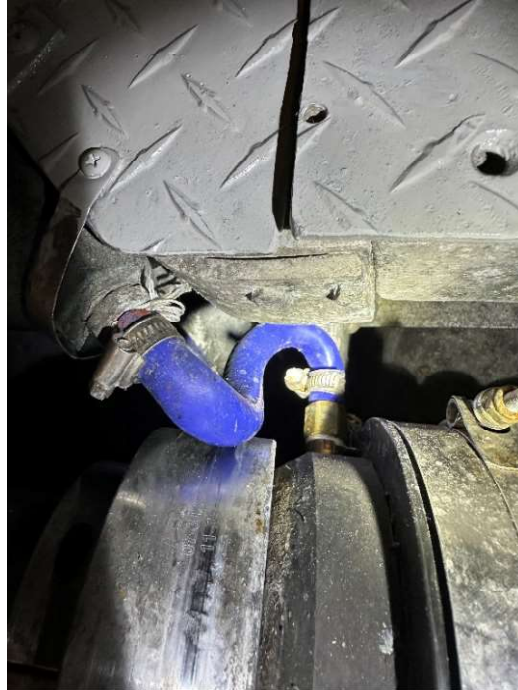
PHOTO DOCUMENTATION:



Exposed main Engine exhaust Hot spots

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Chaffing and single clamped sea water shaft supply hose.



Stabilizer hydraulic fluid was changed after the last sea trial attempt and is Discolored again.

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