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Our Time and Experience
is our Stock in Trades

10 January 2024
File No.: 13542-24

RE: "PRINCIPAL INTEREST", 2009,
59' 6" FARR Composite Sloop

RECOMMENDATIONS and COMMENTS

Notes:

A. The items marked with a star (★) should be taken care of for safe operation and/or insurability.
B. Some of the following items describe systems that are either not operational or not functioning properly.
C. Some of the other items are considered to be issues of general maintenance.
D. There are 21 pages of survey TEXT that are an integral part of this report.

GENERAL:

1. Documentation & Certification: Provide the following if available:
   -Builder Certificate
   -CE Certification
   -Radio License
   -Tonnage Certificate

2. System schematics and drawings and information for the vessel are virtually non-existent. Not what we would expect of a fairly modern vessel of this quality. Comment only.

3. Past maintenance records are non-existent. Comment only.

4. US Document indicates "year complete" as unknown. This could be changed to 2009.

SAFETY EQUIPMENT & SYSTEMS:

1. ★ The vessel is in need of a full USCG safety equipment package that is in date:

2. EPIRB – New battery & certify

3. ★Life raft – Re-pack and certify

4. ★ Jon Bouy – Recertify

5. ★ Update the flares.

6. ★ Horn and bell should be supplied.

7. ★ All hand held fire extinguishers: Send out for certification & new tags.

8. ★ Manual bilge pump cockpit: Supply handle and prove

9. Suggestion: install combination smoke/carbon-monoxide sensors in aft cabin & galley-main salon.

10. Suggestion: Consider a fixed automatic/manual fire extinguishing system for the engine room.

11. Suggestion: Complete detailed list of all safety equipment aboard with details on location of ALL. Layout drawing is often helpful.

HULL BOTTOM:

1. Trailing edge of keel has fairing damage. Grind, epoxy coat, re-fair and paint.

2. Keel hull join bleeding rust most of perimeter Not critical & considered cosmetic. Common issue with a flanged high tensile steel fin keel. Grind back where necessary, Epoxy coat and re-fair as necessary. Anticipate this to be a re-occurring issue.

   NOTE: Have experience with similar vessels with similar keel design. Re-torquing the keel bolts to designer specifications was done. No improvement noted in the cosmetic condition of the keel to hull join.

3. Many tiny paint blisters noted on the rudder. Heavy sand to remove blisters. Apply new epoxy coating & fairing as necessary prior to anti-fouling.

4. Tiny paint blisters at transom where anti-fouling paint meets the white gelcoat. Blisters are in both the black anti-fouling and the white gelcoat. Believe the vessel is sitting a little stern down which may have caused blisters in the gelcoat. Cosmetic issue only. Sanding and new epoxy coating. Gelcoat touch-up necessary. Consider re-loading the vessel so she sits on her lines.

5. Heavy marine growth up inside intakes: Clean all marine growth. Anti-foul paint up inside. Remove 2 x external strainers and clean up inside.

6. Sacrificial zinc anodes missing and due for replacement:
   -Main propeller hub
   -Collar on propeller shaft
   -Port and starboard bow thruster propeller hubs.

7. Did not determine what type of anti-fouling is on the bottom. It is cleaned each month but barnacles appearing indicating life of anti-fouling has expired. Anticipate new anti-fouling coat at next dry docking. Attempt to determine maker and type of paint on previous coating. May prevent the need for a Ty-coat for new anti-fouling.

8. Clean radio ground plates x 2 of marine growth.

BOW THRUSTER:

1. ★ The bow thruster retractable, electric with a forward hinge. The unit is in very poor condition.

   -3 blades missing form starboard propeller
   -GRP propeller cowling damaged from both propellers
   -When in the down position it does not come all the way down
   - When in down position entire lower swings from side to side and up and down
   -Up down linkage – excess play in pin – ram will not hold it in down position
   -Jury rigged teak blocking on interior cowling to keep pins in place
   IT APPEARS THAT THE HINGE ON THE UNIT IS BROKEN.

   The entire unit needs to be removed at dry docking and assessed. From the experience of the undersigned, it is more than likely beyond repair. Must take into consideration that the maker is no longer in business. It is feasible that mechanical parts can be made and sourced. The control system is original and no longer supported.

   Would advise that the unit be kept in the UP position and NOT used.

2. Bow thruster motor: DC terminals exposed. Should be fitted with protective boots. Minor corrosion on many components. Clean up and spray with corrosion inhibitor.

RUNNING GEAR – PROPELLER and DRIVE:

1. The propeller shaft is stainless steel magnetic. Alloy no determined. Could be a duplex stainless steel of some type. Suggestion. At next dry docking remove propeller shaft to examine for corrosion inside shaft tube.

2. There are 2 X cutlass bearings for the shaft. There is no sign of play of the shaft in the bearings. You can see bearing wear in the aft end of the strut bearing. Suggestion: At next dry docking examine this bearing with shaft out and anticipate replacement.

STEERING:

1. ★The emergency tiller was not located. Locate or fabricate and prove.

2. During initial testing of the system the steering wheel was very stiff. Will use of the autopilot this stiffness went away. We believe that the autopilot clutch was not fully released causing the friction. Investigate autopilot clutch if feasible.

3. Lower rudder bearing: Bearing material not determined. Corrosion evident around perimeter of rudder boot. At next dry docking recommend rudder removal to examine aluminum rudder stock for corrosion issues. Boot will have to be removed to examine stock and bearing.

4. Upper rudder bearing: Hole cut in deck slightly oversize. The bearing is bolted to the deck and washers on bots only catch the edge of the cutout. No issues to date. Suggestion. Fabricate a single stainless steel ring plate washer that captivates all bolts

TANKS:

1. Fresh water tanks: Consider rinsing, flushing and super-chlorinating.

2. Starboard forward water tank. Sender label indicates it leaks when tank pressed full. Investigate and seal.

3. Black water holding tank: Consider flushing with fresh water. Clean gauge sender and check for accuracy. It went from 100% to empty during testing of the discharge pump for 15 seconds.

4. Black water holding tank: Vent discharge is high in the starboard topsides amidship. Suggest installing a charcoal filter in the vent line.

5. Fuel tanks: Remove inspection hatches on all to examine. Anticipate the need to flush and clean fuel tanks. This may require professional tank cleaner.

   NOTE: We normally open tanks for examination however, these particular access hatches often require NEW gaskets when re-installing and therefore access hatched NOT removed.

6. Fuel tank vent discharge locations not determined. Further investigate.

7. Fresh water rank vent discharges not located. Investigate

THROUGH-HULL FITTINGS and SEA WATER SYSTEMS:

1. ★Provide a detailed schematic indicating the location of each through-hull fitting use. Ideally there should be a sea water schematic drawing indicating plumbing intake runs to the consumers, consumer location and discharge runs and locations.

2. Could not find an access to the overboard discharge for the main engine which is underwater for much of the time. This is outboard to starboard. No evidence of access from the master head of from the nav station. Further investigation necessary. This should be made easily accessible.

BILGES:

1. Bilges throughout are due to be degreased and cleaned.

FUEL SYSTEM:

1. Provide a fuel schematic drawing.

   -The single transfer pump in the NAV bilge is in a poor location and difficult to find. It is operational. We believe this transfers fuel for the aft tank to the port forward main tank. Follow plumbing and prove.

   -It appears the main engine and generator may draw off either port or starboard main tank. Follow plumbing and prove this. Provide schematic drawing.

FRESH WATER SYSTEM:

1. No accumulator was located for the fresh water system. Investigate.

2. Note in master shower that water pressure reduced when the hot water was used. Investigate

3. Forward shower hose leaks. Replace.

4. Watermaker: Unit does not appear to have had recent maintenance. No record of membranes being preserved. We but breaker on but pump did not come on. A lot of maintenance will be necessary. Anticipate new membranes and re-condition of high pressure pump. Most sub-contractors assessing this unit will immediately recommend replacement. For reliable use and reducing maintenance this is the best option.

REFRIGERATION:

1. Top loading unit. Next to sink. (center compressor). Not working at all. Cold box due for major cleaning. Anticipate compressor replacement.

2. Front loading unit aft galley not getting cold. Investigate and prove. Anticipate compressor replacement.

3. Existing cold boxes look well-constructed. Suggestion: For tropical conditions.

   -Sea water cooled systems more efficient
   -Addition of driers and moisture indication on each unit
   -High temp alarms on each unit

AIR CONDITIONING:

1. Sea water pump feeding all units in center bilge aft of mast. Poor cosmetic condition. Remove and re-condition:

2. The AC units are not easily accessible with the exception of the starboard salon unit. Suggestion: Use Velcro or Fast-loc or similar system do units can be accessed with suction cup rather than fasteners.

3. There are 4 units: The master is a 50/60 cycle unit. All others are 230-volt 50 Hz. Presently not an issue if units are run through inverter. Comment only.

VENTILATION:

1. There are bilge fans port and starboard in main salon. They move air from the outboard compartments where batteries are located to the center bilge. Fans not proven.

2. Separate ER fans for engine and generator. Assume these come on with respective units or with thermostats, investigate.

HEATING:

1. The diesel heater does not appear to have been used for some time but it does appear to be in good condition. We could not get the unit to run probably because we could not get fuel to the unit. It feeds from the port salon fuel tank which is empty at the time of examination. The tiny diesel fuel pump was NOT located. Further investigate and prove the diesel heater.

2. The diesel heater has a water header tank and circulating water system. The stainless steel tank appears that it may have a pin hole leak. Remove and repair and hydrotest. Note that this system should be run with a glycol mixture and not just water. Consult manufacturer recommendations.

3. Diesel Heater in Lazarette: There is an open duct hose low down under the water pump. Believe this is the air supply to the heater. Recommend it be plumbed to a higher location in the lazarette. There is NO ventilation in the lazarette. Ideally the diesel heater requires fresh air. Install an air inlet for the heater that can be closed on at sea and opened when the heater is in use.

PLUMBING - PUMPS:

1. There is a Marche pump (maroon color plastic body) pump aft of the mast. Not easily accessible. It appears that if may be a sea water supply pump for the watermaker Further investigate.

2. Supply deck wash hose with quick connect to fit deck wash outlet fitting at mast.

3. DC pump on ER bulkhead under oil change pump: Appears that it may be a bilge pump. There is a momentary switch under the pump. We find a power source for this pump. Reason for the pump and unknown. Investigate and prove pump.

4. Bilge aft of mast. Sea strainer in bottom of bilge: Should be properly mounted.

5. Master sink fills with water when healed. May need a sink stopper or check valve.

6. Forward head sink gurgles while underway . May need sink stopper of check valve.

7. Flexible hose plumbing throughout the vessel is rune through the bilges in the neatest fashion and is not secured and many areas just lying in the bilges. This could be improved.

HYDRAULIC SYSTEMS:

1. Hydraulic power pack for furler and windlass located aft of mast step. Minor corrosion at hydraulic valve block and pump motor. De-rust and paint.

MAIN ENGINE:

1. There are no visible number plates on the main engine indicating serial number, kW, max RPM etc. Comment only.

2. ★ Main engine was run at maximum RPM of 3200 for about 5 minutes. High temperature alarm sounded (approx.. 95 degrees C). Unit was throttled back and alarm eventually cleared. Cooling system due for complete service.

3. Engine hours 2195. Information sheet from Yatco indicates engine had full re-build at 2000 hours in 2021. This is highly unlikely from observing the state of the engine.

   -Engine overheated in 5 minutes at maximum RPM
   -Corrosion at seawater hose connections.
   -Corrosion aft end exhaust manifold

4. Python CV Joint between transmission & prop shaft: rusty and poor cosmetic condition. De-rust and paint.

5. During sailing trials, we experience exhaust fumes in the main cabin. We determined that it was not from the engine room. It is feasible that it entered via the main companionway from the port overboard discharge when the wind was on port beam and we were heeled to port. Further testing while sailing with engine and generator on necessary.

6. Heat measured on exhaust system just before the water injected elbow was 210 degrees F. Ideally this exhaust section should have an insulation blanket.

GENERATOR:

1. Back starboard corner of sound shield is adrift. Needs to be secured in place.

2. Entire unit due to be de-greased and cleaned. Corrosion noted at water pump hose connection to be cleaned. Rags in bottom of enclosure.

3. No oil pressure gauge of water temperature indication on the engine. Low oil pressure alarm and high coolant temp alarms are fitted according to spec sheet. Suggestion: Consider addition of these visual gauges.

ELECTRICAL:

1. Original electrical system appears to be well done. There is some electrical documentation aboard however it is not indexed or organized. Several changes have been made to the system over the years but no documentation made. Room for improvement in the electrical documentation so one can more easily comprehend and operate the system.

2. There is no indication of the age of any of the service batteries. This should be researched. Load testing of these batteries is not a momentary project and has to be observed/monitored over a time period. Ideally this should be done.

3. The shore power inlet has been changed from original. We believe it must have been a European 220/230-Volt inlet. At present it appears there is a US 30 amp 110-volt inlet with a 32 amp breaker. Recommend volt meter to indicate of the input voltage.

4. The present system is set up to run the shore power to the isolation transformer and then to the Mastervolt Combi Inverter-Charger. This supplies 220-volt 50 Hertz to all consumers. This works well. The other option is run the system and not rely on the inverter. This would mean in the US she would accept 240-volt AC 60 HZ to the transformer which outputs 220-volt AC 60 Hz to the consumers. All of the Mastervolt chargers can handle the 50 or 60 Hz. The air conditioning, microwave, watermaker, washing machine are all 50 Hz. The boiler should not be an issue on 60 Hz.

5. The present shore power system with the present 30 amp cord cannot handle the full load of the vessel. The system should be upgraded to an inlet accepting 50-amp 240-volt AC in the US to handle at least the air conditioning and boiler.

6. We noted that the 2 x 100 amp Mastervolt chargers did not go onto float mode and when we were using them they were putting out full power to the batteries. We then tripped the shore breaker. Investigate and rectify so units go to float mode.

7. The Yatco information sheet indicates there is Mastervolt Auto switch 110-volt to 220-volt. This is normally installed if there are 2 X Shore Inlets. (110-volt & 220-volt). This switch may be there but was not located. Investigate.

8. Shore power digital voltage gauge. Could not tell if this has an intermittent problem or just that the shore power went on and off so many times. Monitor during time when system does not have so much switching going on and off.

9. ALL lithium ion batteries have fans. None were viewed in operation. Determine if these are activated by a thermostat of the chargers.

10. ★There is an 8 kva isolation transformer with no shield under the master cabin sole. It is not fitted with a shield. Ideally it should be fitted with a shield.

11. Transformer Specs indicate that there is galvanic isolation however this is NOT the same as a galvanic Isolator with blocking diodes. Recommend installation of a galvanic isolator on the shore power ground.

12. ★There is a Mastervolt relay control box in the master head locker. On top of this is a coil of wire and an old fashion knife switch. Reason not determined. Investigate. Label and secure cabling. Replace the knife switch with an approve switch and secure the switch.

13. ★In the master head electrical locker there are DC fuses open with no protection from shorting. Fuses show signs of corrosion from salt air. Source of this not determined. Determine what fuses are fore and label. Address corrosion. Install protective covering.

14. Ground cable from mast to keel bolt. Minor corrosion: Re-do connection and apply corrosion protection to terminal fitting on cable.

15. ★Lazarette aft bulkhead: Bundled cable with taped splice. Identify cable. Splice wire should be terminated in a secure labeled junction box.

16. Temperature gauge at main switchboard not working. NO label to indicate what this is monitoring. Investigate and prove.

17. Light to shine down on transom not working. Replace and prove.

18. There is no boom light. Not re-installed when new boom installed.

19. There are not 110-volt US sockets aboard. Comment only.

20. Labels: Unlabeled breakers in ER. Unlabeled DC fuses throughout. Unlabeled junction and control boxes.

21. ★The existing Mastervolt system is a proven system. We have no idea of the age of the existing installation or the age of the batteries. The battery monitoring system (BMS) seems to be operational with no issues.

    From our past experiences Mastervolt lithium-Ion installations are safe and reliable. The ABYC E-13 Standard for lithium-Ion systems came into effect in July 2023. These recommendation are easily available and they rely heavily on the Manufacturer Recommendations. Upgrades include audio and visual alarms on each battery. Must investigate is these features are fitted and if not proceed to have them fitted. A Mastervolt Technician will be necessary.

COMMUNICATION and NAVIGATION EQUIPMENT:

1. ★ Swing compass and provide deviation card.

2. ★ Prove compass light. Did not come on with any of the navigation lights.

3. SSB: Antenna connection to back stay disconnected. Connect and prove unit.

4. Fleet ONE broadband: No contract and believe this unit is obsolete. Remove.

5. Navtex: Did not receive any messages. Investigate and prove or replace if felt necessary.

6. ★ VHF and nav station: Monitor screen is not displaying. Replace VHF.

7. Wind instrumentation is not operational. Investigate and prove.

8. Furuno sailing instruments x 3 above main companionway: Glass faces flawed on all. Units can still be read.

9. Suggestion: Consider addition of a STARLINK.

GROUND TACKLE:

1. ★Hand held plug in lead to operate windlass does not function. Investigate. Anticipate replacement.

2. Calibrate the chain counter.

3. Hydraulic hose spider cracking on exterior cover of hose. Anticipate replacement

4. Windlass hydraulic motor is steel. Recommend new epoxy coating. Then completely wrap in Denso tape.

5. Recommend some type of chain claw system with tensioner to secure anchor tight to the chocks. Do not rely on windlass clutch. Suggestion: For offshore passages. may consider anchor removal.

6. Noted hydraulic hoses to windlass have quick disconnects and there is a hydraulic valve in the upper starboard aft corner. Did not determine why? Investigate. Could be for manual operation.

SPARS – RIGGING – SAILING GEAR: SEE Nance & Underwood REPORT.

1. Inner forestay: Fabricate streamline strop correct length to fit lower end of stay. Present SS strop too short and wire strop to bulky.

2. Design method to stow inner forestay at mast so it is tensioned and not chafing.

3. Bowsprit: provide necessary rigging to the pole operates as designed. Few chips in carbon need repair as well.

4. Mast Jack: Believe that the mast jack lived permanently under the mast. Mast jack quick release fitting is at mast base in a rusty state. Anticipate need for replacement. Protect new fitting with rubber male end cap and Denso tape. Prove mast jack. Have rigging company come with an oil pump to test jack and ensure that the mast jack is operational.

5. Mast and rigging reportedly new in 2012. When mast removed for service recommend re-painting.

6. Running rigging: Age if rigging & amount of time in sun not determined. Anticipate some replacement.

7. Headstay and backstay are stainless steel rod. Anticipate possible re-heading necessary and possible replacement.

SAILS: SEE Separate report from Peter Grimm NORTH sails

1. Anticipate replacement of main and jib that we viewed on sailing trials.

DECK GEAR and EQUIPMENT:

1. Sanguinetti Retractable Capstan: Unit trips breaker. Not used in some time. Amount of corrosion on unit (aluminum housing) below deck indicated water intrusion and possible poor isolation from carbon deck. Anticipate replacement.

2. Cockpit teak lockers: Some hinge adjustment and hinge replacement necessary.

3. Main companionway sliding hatch is stiff. Investigate source of friction and repair as necessary.

4. Missing hinge cover one Rondal hatch aft deck. Replace.

5. Starboard aft Rondal hatch leaked into aft cabin and into locker port aft corner of master cabin. Investigate and repair as necessary.

6. The 2 x forward Dorade cowling are removable. Should be threaded caps for these for offshore passages. Locate and fit.

7. Rondal stainless steel hinges: Minor corrosion at aluminum hatch some hatches

8. Aft center lifeline gate. Pelican hooks need maintenance (springs).

9. Fold down Bimini: P & S access from cockpit to side decks is not convenient. Comment only.

   -Few proper fasteners needs to get rid of cotter pins.
   -Some bases of Bimini into cockpit gelcoat coaming need to be re-bedded
   -Ideally Bimini is due for re-design – replacement – new canvas

TEAK DECK:

1. Plank (damaged) replacement necessary center aft deck

2. Black seaming starting to come away from the teak planks several locations. Easy to locate as they dry last. Immediate maintenance not necessary. Monitor and re-seam as necessary. Would be good to determine manufacturer of black seaming.

3. Many planks have glued joins that ate starting to separate. Cosmetic issue only at this time. With time if repair necessary a seam can be routed into these joins.

EXTERIOR FINISH:

1. Minor delamination starting on all 4 side windows and starboard front window. Cosmetic issue only at this time. Monitor.

2. Minor delamination of glass on 2 Rondal hatches. Cosmetic issue only. Monitor.

3. Snaps for window covers pulled out several locations. Drill out larger and dry. Epoxy fill and gelcoat repair as necessary. Suggest removal and re-bedding all with 3M 5200 or similar sealant.

4. Gelcoat spider cracks

   -Inboard of genoa tracks
   -Window corner starboard forward house
   -Aft deck a damaged teak 2 locations

   Gelcoat repairs necessary few locations

5. Condition of superstructure gelcoat is fairly good considering the age. After touch up it wax or polymer coating will show good finish.

6. Hull topsides have a few location where gelcoat chips require minor repairs. Wax or polymer coating should give good finish.

7. Boot stripe and cove strip (maroon) very faded. May come back with wax or polymer coating. Other options are paint or tape/wrap.

INTERIOR:

1. Several drawer and locker push latches need adjustment of replacement.

2. Bulkhead covering wrinkled – sagging few location. See master cabin

3. Missing latch for cabin sole port forward cabin.

4. Starboard aft cabin hatch has leaked in past. Evidence water on cabin sole and outboard aft locker. Further investigate with hose testing. Make repairs as necessary.

5. Port forepeak SS rail pulled off bulkhead and re-located. Cosmetic. Comment only. Could mast damage.

6. Several minor nicks and dings in woodwork. Cosmetic Faux painter could hide these.

7. Mast toilet seat cracked. Replace.

8. Forward cabins transverse door: Rubber seal adrift. Replace/re-secure.

9. Starboard salon cabin sole is a major project to access the bilge. Recommend modifications so the table can be quickly removed. Possibly cut cabin sole transversely in half so it is easier to remove.

GALLEY and APPLIANCES:

1. Washing machine looks like it will work when you determine how to operate. Opening door latch was a production and it was only successful once. Unit started a cycle and filter fitting leaked. Attempted a second cycle with no success. Need to spend time to learn the unit. Suggestion: If a reliable combo washer/dryer is felt necessary research replacement.

2. NO dive compressor located as indicated on Yatco information sheet.

3. Galley Stove: Not proven but we believe this is due to lack of propane in the bottles. Minimal amount of gas did light element briefly. Unit shows minimal use and it appears that it will work with properly pressurized propane container.

4. ★Propane locker in lazarette: Door sill is broken and this locker no longer seals. Rebuild door frame and new seals to prove this locker is air tight and drains directly overboard.

5. ★Propane solenoid in the gas locker has been disconnected. Re-install or replace as necessary.

6. ★Propane switch in galley has no ON indication light and no associated gas detector with audible alarm. Recommend installing Xintex or similar switch with ON indication, audible alarm and test function.

TENDER:

1. Suggestion: A small tender and outboard will be necessary for cruising. Launch and retrieval should be accomplished with the halyards and winches.