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### Inspection Report

At the request of **Xxxxx XXXXXXX** ("Client") and in accordance with the terms of the Inspection and Confidentiality Agreements dated **Nov 15, 2019**, all of which are incorporated herein by reference and specifically made a part of this report, Steve D'Antonio Marine Consulting, Inc. ("SDMC") inspected a **Xxxxx 66** its systems and components (collectively "Vessel") on **January 14-15, 2020** in **Stuart, FL** and has prepared this Inspection Report ("Report"). This Report summarizes the SDMC findings resulting from this inspection and sets forth SDMC's opinions and recommendations with respect to the Vessel.

The inspection of the Vessel was conducted both dockside and underway. The Vessel was hauled for this inspection and therefore observations concerning the hull below the waterline or running gear are included.

The inspection is based solely on a careful visual and non-destructive inspection of the easily and readily accessible portions of its structure and equipment. This inspection did not include removal of soles, decking, headliners, insulation, ceiling, bulkhead fascia, hull lining, tanks and their access ports and joiner work. Disassembly of these parts is damaging in nature and prohibitively time

consuming. As such, SDMC has conducted this inspection without the benefit of such disassembly.

Complete inspection of machinery, auxiliaries, piping, tanks, systems, electrical wiring, electrical and electronic equipment can be made only by continuous operation or by disassembly which has not been done. SDMC recommends that the engines, generators, navigation, communication, water making and other similar equipment or systems be inspected by a qualified dealer for the particular make of equipment, including but not limited to power loaded tests to determine the condition of the engines, gears, pumps, controls, instrumentation, heat exchangers, exhaust system and electrical components and filtration, duration and calibration testing of other equipment or systems.

SDMC did not make a determination regarding the stability characteristics or inherent structural integrity of the Vessel.

SDMC makes no representation regarding the ownership (legal or equitable), classification or regulatory status of the Vessel, all of which can only be confirmed directly by the certifying authorities.

SDMC makes no representation regarding the presence of mold, spores, fungus, mildew, lead paint or asbestos aboard the vessel.

SDMC's opinions and conclusions contained in this Report are not and should not be considered or construed as a guarantee or warranty, express or implied, regarding the condition of the Vessel. Furthermore, this Report shall not be construed, utilized or relied upon as a "Pre-Purchase Survey," "Marine Survey," "Insurance Survey," "Condition and Valuation Survey," "Appraisal" or other similar document as those terms are commonly known in the marine surveying industry.

This Report summarizes SDMC's opinions and conclusions regarding the condition of the Vessel as of **January 15, 2020** [Last date SDMC observed/inspected Vessel].

FINDINGS, OPINIONS and RECOMMENDATIONS  
REGARDING VESSEL<sup>1</sup>

<sup>1</sup> KEY:

**A:** Critical safety item, direct risk of fire, explosion, electrocution, injury or loss of life, this item should be resolved before using the vessel.

**B:** Important, may compromise safe operation, the vessel may lose power, lose control or flood as a result of this problem. It should be corrected or addressed before using the vessel.

**C:** Not critical, this is a nuisance or merely undesirable but not *immediately* serious, however, it may lead to substantial failures and/or repair costs in the future.

**D:** Observation or not an action item.

**ABYC:** American Boat and Yacht Council ([www.abycinc.org](http://www.abycinc.org)) compliance issue and relevant chapter in the Standards and Technical Information Reports for Small Craft (STIR) publication.

**ER:** Engine room

**FB:** Flybridge

**FRP:** Fiberglass Reinforced Plastic or 'fiberglass'

**IB:** Inboard

**MSR/GSR:** Master/Guest stateroom

**OB:** Outboard

**OCP:** Over-current protection, i.e a fuse or circuit breaker.

**PH:** Pilothouse

**RW:** Raw water, seawater or any water in which the vessel floats.

**T:** Time in labor hours required to correct, where applicable. This is a rough guesstimate not a quote.

Unless otherwise noted, all temperatures are in degrees Fahrenheit.

## ABYC Guidelines and what this means

A word on the American Boat and Yacht Council and their Standards, which are referenced in this report; The Standards and Technical Information Reports for Small Craft is a guide that is comprised of over 60 chapters that cover everything from LP gas installations and AC/DC electrical systems to reboarding ladders and hydraulic steering systems. It is the strong opinion of many in the industry, including SDMC, that conscientious professionals should follow these standards for a variety of reasons, not the least of which is liability. However, from a practical point of view, following the guidelines set forth in the ABYC Standards will very likely ensure that a compliant vessel is more reliable, less costly and safer to operate. The Standards, which are continuously updated, are available to ABYC members both on line and in printed format, in the latter case the book is over two inches thick.

For the most part, unless the vessel is gasoline powered or requires a Coast Guard or other agency inspection to operate, or if the builder participates in the NMMA/ABYC vessel compliance program, the Standards are *voluntary* for diesel-powered recreational craft. Other than those mentioned above, there is no specific mandate on the part of boat builders or boat yards to follow the standards. More information about the Standards is available at [www.abycinc.org](http://www.abycinc.org)

### Example entry

123. Seacock threads are incompatible, straight thread, NPS, through hull fittings are mated to tapered thread, NPT, in-line ball valves. These components are not designed to be mated together. B (severity rating of observation, see key above for additional detail). T: 4 (Guestimated number of labor hours required to complete task) ABYC H-27 (relevant American Boat and Yacht Council Standard). 101, 103 (last three digits of the number of the relevant photos provided in accompanying Drop Box photo folder).

1. Stbd fwd hanging locker, outboard, debris. Debris of this sort is not only unsightly, it is a bilge pump clogging hazard, it, and any other spaces like it, should be thoroughly cleaned. B. T:4. 217, 219, 222, 223.
2. Recommend the escape route placard be customized for this model. A. 220.
3. Damage to gelcoat around socket under swim platform. C. T:4. 032\*

4. Magnets securing cabin doors are not strong enough to work properly in a seaway. Recommend these be upgraded. B. T:4.
5. Water is leaking from the overhead onto the top of the house battery lid. It is traveling via the BBQ enclosure, and through a hole through which bilge pump hoses pass. The locker and inside of the BBQ are also getting wet with saltwater. B. T:4. 344-347, 357-361\*
6. The galley sink lid cannot be secured, there is no obvious or prepared storage location. In a seaway it could become airborne. It should be secured or include a placard that warns users to stow it before getting underway. B. T:1. 374.
7. Port garage hinge dislodged; rust stains are visible. C. T:4. 410-412\*
8. Exposed timber core, port aft engine room. For more on this subject see <https://stevedmarineconsulting.com/cored-composite-deck-hardware/> C. T:2. 488, 489.
9. Saloon TV cover plate binding on lift. C. T:2. 631-633\*
10. Cockpit hatch teak deck damaged. C. T:2. 201\*
11. Swim ladder hinge base loose. C. T:1. 628, 629, 630\*
12. Voltage drop in various AC receptacles exceeds the industry established threshold 10%. A. ABYC E-11. T:2-12. 018, 019, 209-212, 256-258\*
13. Washer dryer cabinet door dragging on deck. C. T:2. 016, 017\*
14. Genset chassis ground is undersized. A. ABYC E-11. T:2. 343\*
15. The shore power main circuit breakers are rated at 63 amps, while the shore power itself, including the shore cords and plugs, are rated at 50 amps. A. ABYC E-11. 347\*
16. The garbage disposal lacks a strain relief connector. A. ABYC E-11. 372\*
17. Area behind helm, accessed through hatch in GSR overhead, the negative stud is overloaded, there should be no more than four ring terminals per stud. A. T:2. 377\*

18. Area behind helm, none of the components located in that area that are designed to be grounded are grounded. This could prove problematic in the event of a direct or near lightning strike. For more on this subject see <https://stevedmarineconsulting.com/photo-essay-october-2015/>  
C. T:4. 381-386.
19. Watermaker and HVAC pumps appear to be double bonded. If the AC supply circuit includes a ground, the additional ground is unnecessary, it is not specified by the pump manufacturer, and it could create issues with unwanted current flow. Unless specified by the manufacturer, these should be removed and AC safety ground continuity confirmed.  
A. 442, 472, 565.
20. High output, externally regulated alternator lacks over-current protection at alternator. If the supply wiring for the other alternators leaves the engines, it too should have over-current protection. A.  
ABYC E-11. T:4. 446, 447.
21. Start batteries (including genset) are not adequately supported, battery box lids lack ventilation. B. ABYC E-10. Videos 1-4.
22. Water maker wires have been cut. C. T:? 469\*
23. House battery bank straps are inadequate, one is broken. B. T:4. 482, 486\*
24. Swim platform motor, positive terminals loose, negative terminals installed in the incorrect order. A. ABYC E-11. T:1. 490, 491\*
25. Transom anodes are daisy chained, current is being drawn through the anodes, a scenario that is undesirable. C. T:2. ABYC E-2. 152.
26. Bonding system wiring is secured with tapping screws. This is unreliable and a violation of ABYC Standards. C. T:8. ABYC E-2. 505.
27. Bonding system terminals are corroding. C. T:6. 155, 506, 507\*
28. Ground plate is daisy chained. C. T:1. 507.
29. Non-tinned ring terminals are used on the vessels bonding system in the engine room. Tinned terminals are not mandatory; however, non-tinned terminals are for more likely to corrode. These are corroding.  
C. T:4. 156, 508.

30. Non-tinned wiring is used, visible at the genset start wiring, and potentially elsewhere. C. Not practical to retrofit. 511, 512.
31. The genset batteries are overkill for an engine of this size. At time of replacement consider using a smaller, lighter battery. C.
32. Recommend programming for charge sources, inverters, chargers and alternators, be verified, as well as the lithium ion battery system. A. T:2.
33. The genset chassis ground appears to be connected to itself. Inside the genset AC junction box there are too many ring terminals on the ground stud. A. T:2. ABYC E-11. 549, 550.
34. Genset AC wiring not secure at/inside junction box, no strain relief. A. ABYC A-27. T:2. 560\*
35. Stbd HVAC discharge bond wire loose. C. 568\*
36. Port and stbd HVAC pumps utilize open AC splices. A. ABYC E-11. T:3. 570, 571, 599, 600.
37. Raw water plumbing bonding wire attachment method, using over-size ring terminals and hose clamps, is crude and prone to corrosion, and high resistance. Most are corroded. C. T:8. 177.
38. Confirm a genset start battery disconnect switch is present. A. ABYC E-11.
39. Main engines' starter ring terminal order is incorrect. Positive post lacks insulation. A. ABYC E-11. T:2. 626, 627.
40. Transducer not bonded. C. T:2. 586.
41. The exterior of the genset enclosure is unusually hot, reaching as high as 177 deg. Recommend this be investigated to ensure proper ventilation is present. C. T:2. 310\*
42. Water is present in the port IPS drive well. The source is unclear. C. T:2. 328, 329\*
43. Fastener hardware and water retained in the gap between the stbd drive ring and the hull. The source of the water is unclear. B. T:2. 330-333\*



44. Motor mount fasteners rusting. C. T:1. 457-459\*
45. Port, dry insulated, exhaust riser comes within a fraction of an inch of the vessel's FRP structure. Recommend a non-flammable material be used to cover and insulated the FRP. A. ABYC P-1. 133, 134.
46. Port engine wet exhaust leaking on negative bus bar, causing corrosion. B. T:2. 496-499\*
47. The genset wet exhaust has a water trap immediately aft of the genset enclosure. This is a violation of the genset manufacturer's instructions, as well as those of ABYC. This is a water entry into the genset risk. C. T:2. 500\*
48. Port engine wet exhaust hose and FRP tube exceed the ABYC-established threshold of 200 deg. The FRP tube immediately downstream of the exhaust shows signs of heat-induced cracking. More on this subject <https://www.proboat.com/2010/03/risk-of-engine-drowning/> B. T:6. 146, 147, 336-341.
49. Some engine exhaust clamps are mild steel, these will eventually rust. C. T:2. 148.
50. Genset could not be operated after the sea trial, it is malfunctioning. C. 515.
51. Genset exhaust hose lacks an exhaust (or any) rating. A. ABYC P-1. T:4. 162.
52. Port exhaust clamps are over-sized, they have no adjustment left. B. T:2. 546-548\*
53. Stbd engine missing upper shroud fastener. C. 573\*
54. Port engine after cooler air bleed is taped over. C. T:1. 597\*
55. Bolt missing from stbd engine bell housing. C. T:1. 624\*
56. Fwd bilge, unlabeled valves. C. T:1. 226\*
57. Bilge pumps are equipped with check valves; however, they lack anti-siphon valves. This presents a flooding risk. Check valves cannot be relied upon to prevent flooding. For more on this see <https://www.proboat.com/2017/06/antisiphon-valves/> B. ABYC H-22. T:20. 158, 159, 232,



58. The macerator pump utilizes a reduced output plumbing design, these are less than robust or reliable, recommend it be upgraded to a higher quality design. For more on this see <https://stevedmarineconsulting.com/wp-content/uploads/2014/03/SanitationSysPBB162AugSep2016.pdf> C. T:12. 236.
59. Sharp hose clamp tails adjacent to many valves. Recommend these be capped to prevent injury, for more on this see <https://stevedmarineconsulting.com/hose-clamps-part-i-design-and-selection/> and <https://stevedmarineconsulting.com/hose-clamps-part-ii-installation-and-use/> B. T:4. 244.
60. Pipe to hose adapters used in several locations appear to be brass, rather than bronze, brass is not suited for raw water use, for more on this see <https://stevedmarineconsulting.com/know-your-underwater-alloys/> B. T:8. 246\*
61. Stbd fwd companionway bilge, sanitation hose over smooth wall PVC pipe, which has been drilled and tapped. This arrangement, used here and in other locations around the vessel, is failure prone (PVC is not designed to be drilled and tapped). The smaller hose is not sanitation-rated. B. T:6. 247, 444.
62. Recommend all vented loops be labeled, and that a chart be made to show their location, as these require annual maintenance. C. T:4. 250.
63. Holding tank vent filter should be dated. These should be replaced annually. C. T:1. 249.
64. Common overboard drain utilizes PVC and tapped holes. PVC is less than ideal for overboard discharge systems, particularly where subject to extreme heat cycling, in an engine room. Also, the pipe has been drilled and tapped, an approach for which it is not designed. B. It would be impractical to replace. 252.
65. Hull strainers are not removable for service. Recommend these be replaced with serviceable strainers. For more on this see <https://stevedmarineconsulting.com/photo-essay-easily-serviceable-hull-strainers/> C. T:8. 036, 037.
66. Hose used for water maker raw water lacks a raw water rating. B. T:4. 104, 427, 428, 441.

67. Main engines' seacocks appear to lack thread compatibility, the thru hull uses NPS threads, while valves of this sort typically utilize NPT threads, and the valve, a CW617N, is nickel plated brass, which is not designed to be used with seawater. Handles are mild steel. Valves have no provision for bonding. For more on this see <https://stevedmarineconsulting.com/seacock-selection-service-and-avoiding-the-pitfalls-2/> B. T:12. ABYC H-27. 435, 596.
68. Raw water strainer lids are plastic, these are prone to cracking, recommend they be replaced with metal. B. T:2. 436.
69. Raw water plumbing fittings in various locations (pipe to hose adapters like the one shown here for instance) appear to be brass, rather than bronze, brass is not suited for raw water use. B. T:8. 436.
70. Raw water hose used in various locations, with the faded blue stripe, is low quality and failure-prone, recommend it be replaced with Trident J2006 series (which is used elsewhere). C. T:12. 437.
71. Rust and debris under water maker pumps, clean and monitor. C. T:1. 440.
72. Potable water valves unlabeled. All valves aboard, regardless of application, should be labeled. C. T:1. 448-450.
73. Hose used for potable water fill, not rated for potable water. B. T:4. 455.
74. Hose used for oil change system is not rated for hot oil, under vacuum. C. T:8. 174, 565.
75. HVAC raw water pump, elbows are pink, and a brass fitting appears to have been used. A pinkish hue is indicative of brass dezincification. These fittings should be replaced with bronze. B. T:2. 126.
76. Considerable corrosion in various parts of the engine room, on plumbing, hose clamps and elsewhere, more than one would expect for a vessel of this age. Seawater leaking into the engine room, from the BBQ, or mist being ingested by the ventilation system, which cannot be turned off or controlled, in a seaway, may be some of all of the cause. C. T:12. 154, 464, 467, 478, 501.
77. PVC is used in the HVAC raw water plumbing system; PVC is not well-suited for raw water. B. T:2. 130, 566, 567.

78. Port exhaust pressure relief valve, handle loose, stripped. C. T:1. 487\*
79. HVAC raw water plumbing hose clamps corroding. B. T:1. 492, 493\*
80. Raw water strainers are not labeled, recommend all be labeled. C. T:2. 494.
81. Stbd engine room bilge pump seacock handle loose. B. T:1. 560\*
82. HVAC raw water hoses exceed maximum radius, they are overstressed. B. 563, 564\*
83. Water heater coolant isolation valves not labeled. C. 569.
84. Fwd mid engine room, seacock and strainer not labeled, strainer not properly bonded. C. T:1. 587-589.
85. Fwd mid engine room strainer, plumbing is turning pink, which is an indication of it being brass, which is not suited for raw water use. B. T:1. ABYC E-2. 175-176.
86. Water heaters lack tempering valves, as a result hot water could nearly equal that of the engine coolant. Hose used for water heater temp/pressure relief valve is not rated for high temp water. For more on this see <https://stevedmarineconsulting.com/water-heater-primer/> A. T:6. 169, 170, 621-623.
87. Fwd cabin, stbd locker, HVAC duct insulation crushed. C. T:2. 215\*
88. Fwd bilge, sump pump dislodged. C. T:1. 235\*
89. Fire extinguishers are stored inside lockers, however, there is no placard on the outside of the locker to indicate their presence. A. T:2. 025.
90. Access to fuel transfer pumps and valves under MSR head sink is poor/difficult. C. T:2. 268.
91. Locker fwd of MSR shower, in which fuel valves are located, is inaccessible. B. T:16. 270.
92. The engine room fixed fire extinguisher manual discharge is located within the cockpit locker, the outside of the door is not labeled to indicate its presence, a placard should be affixed to the exterior of the

door. The genset was not included in this test as it was not functional at the time, it should be included in a follow up test. A. T:1. 355.

93. While it appears to be designed to do so, the BBQ does not automatically shut down when the lid is closed. A. ABYC A-3. 359, 361\*
94. There is plastic loom over the BBQ cooking surface. A. T:1. 420\*
95. The lid for the BBQ is heavy, it lacks a handle to safely open and close, it could easily fall onto a hand or fingers. It should include a mechanical latch or lock to hold it open in the event of a gas shock failure. B. T:6. 361.
96. Many of the labels are confusing, they contain unnecessary slash marks. The deck fuel fill labels say "FROM/STBD/TANK" which is unclear. These and other labels that are similarly confusing should be replaced. C. T:4. 363.
97. No easy access to stbd fuel tank, valves, sight glass etc., without cutting caulk around screwed-in access hatch. The hatch should be easily removable, hinged with a catch for instance, without tools. B. T:2. 387.
98. Access to port and stbd fuel fills is difficult, port requires removal of an HVAC unit, stbd requires removal of a complex rotating shelf. Convenient access is required for ABYC compliance. B. Not practical to correct. 392.
99. Recommend a smoke detector be placed in the engine room, the sensor currently located in this location is for temperature. The vessel does not have CO detection capability, recommend CO detection be added in all accommodation spaces and in compliance with ABYC Standards, and smoke detection added to areas behind electrical panels. A. ABYC A-4, A-24. 394, 608, 609\*
100. Fixed fire extinguisher system failed a simulated discharge test, in that it could not be bypassed, to allow engines to be restarted after a discharge. The audible alarm was barely audible. See addendum L for additional info. A. ABYC A-4. 400.
101. Nav lights do not comply with USCG Nav Rules or ABYC A-16. The stern and steaming lights are collocated, for a vessel of 10m or longer these must be separate, and the steaming light must be as far

forward as practicable (it is not). Ensure *all* nav lights comply with USCG regulations and ABYC Standards. A. T:12. 097, 098\*

102. Primary fuel filters lack drain valves or water in fuel detection. Recommend these be added. For more on this see <https://www.proboat.com/2016/08/selecting-primary-fuel-filters/> B. T:12. 434.
103. The fixed fire extinguisher is mounted too low to be effective as early as possible in the event of a fire (this is a violation of the equipment manufacturer's installation guidelines). The manual discharge locking pin is installed, which would prevent manual discharge. A. T:6. 109-111.
104. Washer/dryer not secure. C. T:2. Video.
105. Debris outboard of port water tank. C. T:2. 470\*
106. A bag of hose clamps is wire tied to the aft end of the port engine; another bag is located nearby. These should be removed. C. 495, 503.
107. The vessel does not possess an easy means of unassisted reboarding from the water by a person who has fallen overboard. A. ABYC H-41. T:4. 629.
108. Debris in genset enclosure. Loose hardware resting on hose adjacent to genset. C. T:2. 604-607\*
109. Smoke/heat detector display panel showing a fault. A. 615\*

#### **Addendum**

(this is *not* boilerplate, each entry is important and may have serious reliability and safety consequences, please read them carefully)

- A. Smoke detectors should be installed in all accommodation spaces as well as in the engine room, lazarette and other engineering compartments (wireless units in which all sound in the event any one detects smoke are recommended). These units, available inexpensively at home improvement stores, will cause all units in the system to sound in the event smoke is detected in any one location. (ABYC Standard A-4.6 calls for the installation of a fire detection device in vessels with enclosed accommodation spaces and a separate sleeping compartment, while NFPA 302 13.3 recommends a smoke detector be installed on all vessels

over 26'). Smoke detectors should be replaced every 5 years or in accordance with manufacturer's guidelines (ideally more frequently for marine use). Smoke detector batteries should be replaced every 6 months or in accordance with the manufacturer's recommendations. Portable ABC rated fire extinguishers should be installed in every cabin and accommodation space as well as adjacent to the galley. Gaseous BC rated fire extinguishers should be installed, one each, at or near the bridge and adjacent to engine room access, to be used for fighting minor electrical fires. A fixed fire extinguishing system that includes a manual discharge and automatic equipment shut down should be installed in the engine compartment and engineering spaces if equipped with gensets, batteries or electrical components. These additions are highly recommended. For more information on smoke detectors see <http://stevedmarineconsulting.com/special-edition-smoke-detectors/> and <http://stevedmarineconsulting.com/onboard-alarms-part-ii/> For more on fire extinguishers see <http://stevedmarineconsulting.com/portable-fire-extinguishers-not-all-are-created-equal/> A

- B. Ensure that the vessel's anchor size/model meets the recommendations of the anchor manufacturer for vessel type/length/windage. Ensure as well that the anchor is equipped with a proper cut away line. For more on anchor and rode selection see <https://stevedmarineconsulting.com/anchors-away/> and <https://stevedmarineconsulting.com/choosing-chain-challenging-a-maritime-myth/> For cut-away line recommendations see <https://stevedmarineconsulting.com/april-2019-newsletter/> B.
- C. Every vessel with a cabin or enclosed space should be equipped with CO detectors in each stateroom as well as locations where occupants may sleep, even occasionally (saloon, pilothouse etc). Ideally, CO detectors should be permanently wired to the vessel's DC power supply *without* switches or circuit breakers that can be easily or inadvertently turned off. However, internal battery-powered combination smoke and CO detectors may also be used, provided batteries are replaced annually (unless they are long-life lithium ion). Extreme temperatures can short battery life. CO detectors have a finite life, typically no more than 5 years. If you are unsure of the age of a CO detector, it should be replaced. CO and smoke detectors should be dated when installed. CO detectors are required for compliance with ABYC A-24. For more information on CO detectors see <http://stevedmarineconsulting.com/carbon-monoxide-poisoning/> A
- D. If not already installed, an exhaust system temperature alarm should be installed on propulsion engines and generators. These will often alert the operator to a cooling water supply problem long before the event becomes critical. Exhaust temperature alarms are required for compliance with



ABYC P-1. For more on this and other alarms see <http://stevedmarineconsulting.com/onboard-alarms-part-i/> B.

- E. If not already installed, a bilge high water alarm should be installed in each bilge compartment. The float switch for a high water alarm should be located no more than one inch above the existing bilge pump float switch. In general, vessels should be equipped with a **minimum** of 100 gallons per foot of boat length, *effective*, per hour of bilge pump capacity. Twice that capacity is desirable. High water alarms and bilge pump installations should comply with ABYC H-22. For more information on bilge pump installations see <http://stevedmarineconsulting.com/onboard-alarms-part-ii/> and [https://stevedmarineconsulting.com/wp-content/uploads/2014/03/BilgePumps147\\_05.pdf](https://stevedmarineconsulting.com/wp-content/uploads/2014/03/BilgePumps147_05.pdf) B
- F. Every vessel should be equipped with GFCI receptacles located in the galley, heads, machinery spaces and on deck in order to comply with ABYC guideline E-11. All receptacles would benefit from this protection. Additionally, whole boat GFCI protection is also desirable and recommended in the form of an Equipment Leakage Current Interrupter or ELCI, also required for ABYC compliance. These enhance safety and reduce the likelihood of dangerous electrical faults and potential electrocution scenarios. For more information on GFCI receptacles and ELCI's see <http://stevedmarineconsulting.com/electrocution-prevention-2/> and <http://stevedmarineconsulting.com/safe-shore-power-and-electrocution-prevention-2/> and <http://stevedmarineconsulting.com/electric-shock-drowning-and-elcis-explained/> A
- G. If the vessel's water heater is plumbed to the engine, the water heater should be equipped with a tempering valve. This will reduce the temperature of the water leaving the water heater, particularly when it's being heated by the engine, conceivably to the same temperature as the engine's coolant, or nearly 200°F. In addition to the tempering valve, if the engine is used for producing hot water anti-scald faucets should be installed in the heads. For more information on tempering valves and water heater installations see <http://stevedmarineconsulting.com/water-heater-primer/> A
- H. Every vessel should be equipped with a permanently installed rigid or flexible fitting or part of the hull (this may be a ladder) which allows a person to reboard from the water without assistance. This is a requirement for compliance with ABYC H-41. For more on this see <https://stevedmarineconsulting.com/september-2018-newsletter/> A.



- I. It is recommended that the tension for *all* electrical connections, particularly those carrying high current such as batteries, chargers and alternators as well as shore power inlets and supplies, be checked upon taking ownership, as well as annually thereafter. Confirm when doing so that ring terminal hole sizes match the studs or screws to which they are secured. For more information see <http://stevedmarineconsulting.com/attention-to-detail-2/>
- J. Recommended consumables: Corrosion inhibitor: CRC Heavy Duty Corrosion Inhibitor <http://www.crcindustries.com/products/heavy-duty-corrosion-inhibitor-10-wt-oz-06026.html> ; Penetrating oil: Kroil <http://www.kanolabs.com/> ; Dielectric grease: Superlube <http://www.superlube.com/silicone-dielectric-grease-ezp-52.html> ; Conductant grease: Kopr Shield <http://www-public.tnb.com/shared/inst/ta02448-tb2.pdf> ; Thread sealant: Leak Lock <http://www.highsidechem.com/leaklock.html> ; Hose clamp finishing caps: Clamp-Aid <http://clamp-aid.com/>
- K. If the vessel is equipped with a DSC capable radio, and/or AIS, as well as EPIRB/PLB, be certain to re-register these if ownership is changing hands. For more on this subject see <https://www.boatus.com/pressroom/release.asp?id=1332> and <https://beaconregistration.noaa.gov/RGDB/index> A.
- L. Sea-Fire brand gray relay boxes: It has become apparent that powering the newer (gray-colored) Sea-Fire shutdown boxes 24/7 can result in potential failure, which in turn can result in an engine stopping or failing to start.

Sea-Fire has confirmed that the gray boxes can easily be reconfigured to a normally de-energized state, which we believe is the best option for owners. Supply power will still be present 24/7, but the gray Sea-Fire box will not actively consume any meaningful power unless the extinguisher bottle is triggered by a fire, at which point the Sea-Fire box relays will immediately energize to shutdown any equipment in operation in the respective space. There are two options for owners with the gray Sea-Fire boxes:

#### Option 1

Complete the modification yourself, or hire a technician to complete the modification. Sea-Fire has provided detailed instructions. It's a very straightforward procedure: open the box, reposition the indicated internal dip switches, reverse the logic for all the shutdown circuits, and test. Please see the Sea-Fire Technical Information Bulletin (T.I.B 2018-05-002 Rev: A) later in this document for complete details.

## Option 2

Replace existing gray box with new gray box already reconfigured as normally de-energized by Sea-Fire. Sea-Fire will replace existing gray boxes with reconfigured new boxes for \$100 (and will ask that the existing boxes be returned to Sea-Fire). Owners will still need to reverse the logic for all the shutdown circuits per instructions that will be provided with the new Sea-Fire box. Owners who wish to purchase new, reconfigured boxes should contact Sea-Fire at: ([customersupport@sea-fire.com](mailto:customersupport@sea-fire.com) ; 410-687-5500).

- M. Side Power thruster bonding: In principal Side Power recommends against bonding the thruster to the vessels Cathode Protection System. Bonding of the thruster is not required in European or US regulations when using double insulation on the thruster motor. Side-Power anodes are designed to protect the thruster gear leg only and are not designed to be a part of the vessels overall Cathode Protection System. Bonding of the thruster can cause premature anode erosion. For more on this see [https://www.imtra.com/COLLATERAL/DOCUMENTS/ENGLISH-US/PRODUCTS/SP\\_BONDING.PDF](https://www.imtra.com/COLLATERAL/DOCUMENTS/ENGLISH-US/PRODUCTS/SP_BONDING.PDF)

- N. Means of Egress: ABYC Standards call for the following means of exiting a vessel in an emergency, fire, sinking etc.

### ABYC H-3.5 GENERAL REQUIREMENTS

3.5.1 Enclosed accommodation compartments or designated sleeping compartments shall have:

3.5.1.1 a readily accessible and unobstructed means of exit, and

3.5.1.2 a second readily accessible means of exit to the open air if the main exit leads through or over an engine space or directly past a cooking appliance.

3.5.2 The means of exit shall have the following minimum clearing characteristics:

3.5.2.1 circular shape: diameter of at least 18 in (457 mm),

3.5.2.2 any other shape: a minimum dimension of 14.5 in (368 mm) and minimum area of 270 in<sup>2</sup> (0.174 m<sup>2</sup>). The exit shall be large enough for a 14.5 in (368 mm) diameter circle to be inscribed.

NOTE: The circle should be inscribed after taking in consideration any restrictions including hinges, latches, and stays, etc.

3.5.2.3. The vertical distance to the means of exit shall not exceed 47.5 in (1.2 m). If cushions or mattresses are below the means of exit, the distance is taken from the compressed material.

3.5.2.4 Any hatch that is required for a means of exit shall have a means of being operated from the inside, and from the outside when secured and unlocked.

**This report is prepared for the Client as of the date of the report. Any further disclosure or dissemination of this report is not a representation, guarantee or warranty about the vessel or this report by the author. Others to whom this report is provided under the terms of the inspection agreement are advised to conduct their own examination of the vessel that is the subject of this report.**

Follow up compliance inspections are the only way to definitively ensure that the above-noted observations have been properly addressed. For more information on compliance inspections please contact SDMC.

Reasonable care has been taken in conducting a visual inspection of the accessible areas of this vessel. All details and particulars in this report are believed to be true; however, they are not guaranteed to be accurate. All judgments, conclusions and recommendations are purely expressions of opinion, based on my skill, training and experience after a reasonable examination of the vessel's systems and after discussions with owners/brokers/crew/builder or others who could provide useful information.

#### LIMITATION OF LIABILITY

SDMC HAS ENDEAVORED TO CONDUCT AS THOROUGH AN INSPECTION OF THE VESSEL AS POSSIBLE, AND THE FINDINGS, OPINIONS AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED ON THE INFORMATION OBTAINED DURING THE COURSE OF THE INSPECTION. SDMC'S FINDINGS AND OPINIONS WITH RESPECT TO THE VESSEL ARE NOT INTENDED TO BE NOR SHOULD THEY BE CONSTRUED AS A GUARANTEE OR WARRANTY, EXPRESS OR IMPLIED, REGARDING THE CONDITION OF THE VESSEL.

SDMC ASSUMES NO RESPONSIBILITY FOR THE COST OF REPAIRING OR REPLACING ANY DEFECT IN THE CONDITION OF THE VESSEL.

SDMC SHALL HAVE NO LIABILITY FOR CONSEQUENTIAL DAMAGES, PROPERTY DAMAGES, BODILY OR PERSONAL INJURY DAMAGES, OR PUNITIVE DAMAGES SUSTAINED BY THE CLIENT ARISING FROM SDMC'S INSPECTION OF THE VESSEL AND THE FINDINGS, OPINIONS AND RECOMMENDATIONS CONTAINED IN THIS REPORT. IN THE EVENT SDMC IS FOUND LIABLE TO CLIENT FOR ANY SUCH DAMAGES, CLIENT'S DAMAGES SHALL BE LIMITED TO THE FEE SET FORTH IN THE PRE-PURCHASE INSPECTION RETAINER AGREEMENT IN PARAGRAPHS 2.1 AND 2.2 OF SAID AGREEMENT, LESS EXPENSES, PAID BY THE CLIENT.

#### DEFENSE AND INDEMNIFICATION

In the event SDMC is found liable to a third party or third parties for damages arising from SDMC's inspection of the Vessel and the findings, opinions and recommendations contained in this Report, Client agrees to defend, indemnify and hold harmless SDMC for such damages, including but not limited to reasonable attorney's fees, whether arising under theories of negligence, contract, or any other legal theories.

#### CONFIDENTIALITY

This Report is considered "Confidential Information" as that term is defined by the Confidentiality Agreement dated **November 15, 2019**, and is subject to the terms of said Agreement.

#### CLIENT'S ACCEPTANCE OF REPORT and RESPONSIBILITIES

Client's acceptance and use of this Report is subject to the terms of this Report, the Consulting Agreement and Confidentiality Agreement.

By Client's acceptance of this Report, Client acknowledges that many conditions, defects, hazards or problems may affect the safety, seaworthiness, safe operation, reliability, operability, and value of the Vessel, and Client further acknowledges that it is the sole responsibility of the Master of any vessel to determine the seaworthiness and suitability of the vessel for any intended voyage.

Client acknowledges that SDMC retains full rights to photos taken during, or provided to the client in the course of fulfilling the terms of this agreement. The client may not publish, copy or otherwise distribute photos provided by SDMC without prior written consent (the client may provide photos to the boat builder or broker with an accompanying inspection report).

It is the sole responsibility of the Client (1) to make inquiries and request full disclosure from the seller(s), broker(s) and other interested party(ies) of any such conditions, defects, hazards or problems, whether discovered during SDMC's inspection and set forth in this Report or not; (2) to obtain and review any previous surveys and repair records and to make inquiries of any individuals with firsthand knowledge of the Vessel, particularly those individuals with experience operating and/or repairing the Vessel; (3) to conduct a "walk through" inspection, inventory verification and operational testing/underway trials/full power run of the vessel and all equipment immediately prior to Client's conclusion of the purchase of the Vessel; and (4) to contact the manufacturer of the Vessel to register ownership and to obtain up to date information concerning the boat/equipment and possible recall campaigns or other service/maintenance advisories.

NO PORTION OF THIS REPORT IS OFFERED AS A WARRANTY, EXPRESS OR IMPLIED, OF THE CONDITION, LIFE EXPECTANCY, SEAWORTHINESS OR VALUE OF THE VESSEL.

\_\_\_\_\_(E Mailed) \_\_\_\_\_ January 20, 2020  
Steve D'Antonio, President, Date  
D'Antonio Marine Consulting, Inc. (SDMC)

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