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*Your impartial advocate for a safer, more reliable and less costly boating experience*

Inspection Report

At the request of **Xxxx Xxxxxxx** ("Client") and in accordance with the terms of the Inspection and Confidentiality Agreements dated **050720**, 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 **2010 Xxxxxx 60** its systems and components (collectively "Vessel") on **21-22 May 2020** in **St Augustine, 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 **May 22, 2020** [Last date SDMC observed/ inspected Vessel].

## FINDINGS, OPINIONS and RECOMMENDATIONS REGARDING VESSEL[1]

[1] 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) 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 guestimate 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

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. Windlass foot switches, exposed timber core. C. T:4. 008, 016.

2. Paint failure on PH doors. C. T:40. 476-480, 487, 488*

3. Port swim step winch hatch gas shock has lost pressure. C. T:2. 021, 022*

4. Swim ladder shock support, lower, stud to short to engage locking nut. C. T:1. 026.

5. Swim ladder fasteners have been caulked from the outside, presumably to stem a leak. The base should be removed and properly re-bedded. C. T:4. 024, 025*

6. Shore power cord locker, aft, placards not adhered. B. T:1. 029, 030.

7. Exposed timber core under FB helm dashboard. For more on this see https://stevedmarineconsulting.com/cored-composite-deck-hardware/ C. T:8. 067.

8. Windlass wiring, ring terminals installed in incorrect order. A. ABYC E-11. T:1. 007.

9. Windlass relay box, fwd terminal is loose. A. T:1. 011*.

10. Back of fwd shore power inlets are exposed. A. ABYC E-11. T:2. 013.

11. There is an insect nest built on the back of one of the fwd shore power inlets. A. T:1. 014*

12. Cockpit outlet is exposed and does not trip when tested, the ground is intermittently open. The fixture is loose. A. ABYC E-11. T:1. 019, 020, 482*

13. Main shore power cord end, evidence of overheating on one blade. A. T:2. 028, 486*

14. Port FB outboard locker outlet lacks a cover plate, polarity is reversed. This appears to be an issue with the inverter. A. T:2. 062, 063, "Reverse Polarity" video*

15. FB stbd weather deck outlet, open ground, GFCI test not possible. A. ABYC E-11. T:2. 064*

16. Garmin unit, stbd FB helm, not bonded. For more on this see https://stevedmarineconsulting.com/photo-essay-october-2015/ C. T:2. 065.

17. Galley receptacle, open ground. A. T:1. 069, 070.

18. The garbage disposal lacks a cord grip. A. ABYC E-11. 071.

19. DC cabling has been laminated into the reinforcement for the stbd stabilizer. A. T:4. 074-076.

20. 24-volt panel meter is malfunctioning. C. T:1. "24 volt meter" video*

21. The 12 VDC system meter shows 12.96 volts, this is too low for float voltage. C. T:1. 084*

22. House battery terminals have been covered with heat shrink, making inspection and torqueing impossible. These should be replaced with removable boots. B. T:2. 138-140*

23. PH helm Garmin unit not bonded. C. 149, 150.

24. PH helm outlet lacks an enclosure. A. ABYC E-11. 157, 158*

25. The Balmar battery monitors have proven to be inaccurate, recommend this be replaced with a conventional shunt type monitor. C. T:6. 164.

26. There is no separation between the backs of the AC and DC panels. Recommend this be installed and at that time the connection for all screw terminals checked. A. ABYC E-11. T:4. 165, 601.

27. The main engine exhaust temperature alarm circuit breaker should be protected to prevent it from being turned off inadvertently (in most cases, this is powered from the ignition system). B. T:1. 167.

28. Recommend bilge pump fuses be replaced with circuit breakers. B. T:4. 168, 169.

29. The vessel is not equipped with an isolation boosting transformer. Recommend one be installed on at least the house inlet. For more on this see https://stevedmarineconsulting.com/wp-content/uploads/2019/12/ShorePowerTransformers181-04.pdf C. T:16.

30. Both gens lack chassis bonding wires. A. ABYC E-11. T:8. 215.

31. Both gensets lack support or chafe protection for AC wiring entering the junction boxes. For more on this see https://stevedmarineconsulting.com/photo-essay-february-2015/ A. ABYC A-27. 196, 207, 276.

32. Both gensets, ground and neutral not bonded at genset junction box. The ground is attached to the junction box isolation mount. A. ABYC E-11. T:2. 202, 271.

33. Stbd aft engine room, loose bonding wire. This and other bonding wires are secured to the copper bonding strap using tapping screws, this is a violation of ABYC Standards. B. T:2. ABYC E-2. 224.

34. Stbd aft engine room, seacock daisy chain bonded. C. T:1. 225.

35. Genset battery box divider is inadequate, it is unlikely to support the load of the battery shifting in a seaway. B. Y:2. 281, 282.

36. Gen start battery stud too short to support three ring terminals. B. T:2. 286.

37. Engine start battery, unlabeled fuses, missing inboard strap. B. T"2. 646, 648.

38. Main engine alternator, small gauge wire connected to positive stud, no OCP. What is the purpose of this wire? For more on OCP see https://www.proboat.com/2016/12/circuit-training-improving-overcurrent-protection/ A. ABYC E-11. T:2. 289.

39. Galvanic isolator us undersized, not fail safe. A. ABYC A-27. T:1. 293.

40. AC wiring in compartment below galvanic isolator is missing an insulating cover. A. T:1. 294.

41. DC-DC converter, lacks OCP. A. ABYC E-11. T:1. 295.

42. Stbd fwd engine room, loose bonding wire. B. 297*

43. The alternator has been equipped with a switch in the output cable, this should be removed and replaced with a circuit breaker or fuse. C. T:2. 655.

44. Main engine starter ring terminal order incorrect. A. ABYC E-11. T:1. 305.

45. Main engine starter positive cable should be rerouted so that it touches no part of the engine, and the entire run inspected to ensure there is no possibility of chafe. It should be sheathed for the entire run. A. ABYC E-11. T:2.

46. Main engine panel supply wire appears to have no fuse. Confirm and add if necessary. A. ABYC E-11. T:2. 305.

47. Water maker electrical cord grip is oversized. A. ABYC E-11. T:2. 660, 661.

48. Positive wire at crane solenoid lacks OCP. A. ABYC E-11. T:1. 339.

49. Port aft lazarette, daisy chained bonding on seacock. B. 341.

50. Stbd laz, HVAC raw water pump, no cord grip, double grounded. A. ABYC E-11. 360, 361.

51. Laz outlet is not GFCI protected. A. ABYC E-11. T:1.

52. Stbd house battery bank, strap is melted. B. T:4. 375*

53. Loose hardware in the bilge, from the battery installation. C. 380*

54. Stbd aft house bank positive wire, no OCP on small gauge wire. A. ABYC E-11. T: 1. 383.

55. House battery banks lack OCP at each bank. A. ABYC E-11. T:8. 387, 406.

56. Recommend guards be added over genset faceplate circuit breakers. C. T:1. 394.

57. Recommend all charge sources', alternator, charger, inverter, setting be confirmed as correct for battery type, and confirm they are temperature compensated. C. T:4.

58. The Balmar DuoCharge appears to lack OCP. T:1. 399.

59. Inverter chassis ground undersized, and loose. A. ABYC E-11. T:2. 404.

60. OCP installed adjacent to chargers appear to be in the incorrect location, they should be at the source, i.e. the batteries, rather than near the chargers. See https://www.proboat.com/2016/12/circuit-training-improving-overcurrent-protection/ for details. A. ABYC E-11. T:8. 405, 407, 421.

61. Small gauge wires connected to house battery supply fuses, and remote battery switch, in electrical room, lack OCP. A. T:2. 411, 412, 414, 415, 421.

62. DC negative bus in electrical room, too many ring terminals on one stud (4 is the maximum). C. T:2. 420.

63. Chargers and inverters lack drip shields. A. ABYC A-31. T:4. 679.

64. Stbd aft laz, seacock bonding wires dairy chained. B. T:1. 422.

65. Transmission shift solenoid wire insulation is slit. 443.

66. Fwd cabin port side, outlet lacks junction box. A. ABYC E-11. T:2. 446, 447.

67. Line cutter bushing worn. C. T:2. Video*

68. Main engine coolant recovery bottle is empty. For more on this see https://stevedmarineconsulting.com/the-benefits-of-coolant-recovery-bottles/ C. T:1. 088.

69. The engine exhibited an intermittent starting issue. It appears this may have been caused by loose battery cable lugs. I fit persists, the problem should be investigated and the cause identified. B. 118-122.

70. #2 genset display is deteriorating. C. T:2. 152-154*

71. Both gensets, no bushings around houses where they enter the enclosure. B. T:3. 191, 192, 229-231.

72. Large gen, stbd side top, rust, C. T:2. 195*

73. Genset coolant recovery bottles are low, fill to COLD mark, mark and date. C. T:1. 216.

74. Large genset gas exhaust hose runs uphill; this is a violation of the exhaust system and genset manufacturer's' guidelines. C. T:4. 223.

75. Recommend exhaust temp alarm system be replaced, see addendum for recommendations. B. T:4. 232.

76. Exhaust riser mount rusting. Clean and paint with high temp paint. Recommend insulation be removed and riser inspected. B. T:4. 234.

77. Genset enclosures insulation is disintegrating. C. T:6. 242.

78. Guide rails for APU need to be cleaned and lubed. B. T:2. 257-261*

79. Recommend main engine ECU plugs be removed and inspected, confirm they are not corroded or damaged. B. 320, 321.

80. Main engine exhaust down angle is 14 degrees, Deere specifies a minimum of 25 degrees. For more on this subject see http://www.oceannavigator.com/May-June-2018/Exhaust-system-design/ C. 369.

81. Bow thruster, port side bevel, blister. C. T:2. 500, 501.

82. Recommend a graving plan be created that includes double strap positions. C. T:2. 505-506.

83. There is a herd epoxy-like material on the port, fwd rub rail. This should be investigated, and removed. C. T:2. 533, 534*

84. Port diesel fill O ring is broken. B. T:1. 481*

85. Hull strainers have been removed. Recommend these be replaced with serviceable strainers for catching debris and improved priming on washdown, HVAC and water maker. For more on this see https://stevedmarineconsulting.com/photo-essay-easily-serviceable-hull-strainers/ C. T:8.

86. Hose clamps (fwd bilge pump), many are rusted and are in need of replacement. B. T:8. 110-116, 130, 132*

87. Corrosion on top of gray water tank. Clean and monitor. C. T:1. 127.

88. There is an effluent odor in the mid bilge area. This may be caused by remaining, legacy PVC hoses that have permeated. C. T:6. 176, 177*

89. Mild steel fuel and hydraulic fittings are corroding, these should be cleaned and either painted or corrosion inhibited. C. T:6. 178*

90. Port fuel tank drain fitting is wet, clean and monitor. C. T:1. 603, 604*

91. Raw water valves used with intake strainers appear to be nickel plated brass, this material is not suited for raw water use. For more on this see https://stevedmarineconsulting.com/know-your-underwater-alloys/ B. T:4. 609, 610.

92. Port raw water strainer drain plug appears to be brass. This should be changed to bronze. All should be checked. For more on this subject see https://www.proboat.com/2012/07/beware-the-brass/ B. T:2. 611.

93. Hose used for potable water lacks a PW, NSF or FDA rating. B. T:8. 613.

94. Water heater lacks a tempering valve. Water heated by the engine could approach the temperature of the coolant. For more on this see https://stevedmarineconsulting.com/water-heater-primer/ A. ABYC H-23. T:2. 184.

95. Seacocks OB of water heater are difficult to access, they cannot be moved. B. T”2. 187, 188.

96. Recommend all PVC hose clamp caps be replaced with silicone, for example www.clamp-aid.com The PVC caps are prone to falling off and clogging bilge pumps. B. T:2. 189.

97. Recommend all heat exchangers be serviced, for engines, gens and hydraulics. Some are showing signs of corrosion and leakage. These should be serviced every two years. C. T:16. 208-211*

98. Recommend all vented loop remote hoses be removed. These are potential clog hazards. B. T:2. 228.

99. Fuel fill hose has been used for hydraulic supply. This hose is not designed for a vacuum installation. C. T:12. 263, 265.

100. Recommend the varnished teak slatted deck plates in the engine room be replaced, they are slippery and are annoying when dropping tools or parts through them. B. 642.

101. Some seacocks (gensets) are not labeled. All seacocks and valves should be labeled. B. T:1. 268.

102. Small genset seacock handle loose. B. T:1. 267*

103. Leak at the bottom of the hydraulic tank. Second hose clamp missing pipe to hose adapter, crushing hose. C. T:4. 299.

104. Genset primary fuel filter plumbing is cocked. C. T:1. 311.

105. Steering system lacks a cross over valve, making it impossible to steer using the manual tiller, without removing the rams. The rams act as the rudder stops. B. T:6.

106. HVAC raw water manifolds are made from unsupported schedule 40 PVC, pipe to hose adapters appear to be brass. Brass T fittings used. B. T:8. 322, 327, 328, 362*

107. Stbd aft laz, corroded raw water stainless steel manifold. Recommend this be made from bronze. B. T:4. 323*

108. Swim platform rail sockets are corroded and leaking. B. T:12. 329, 334, 340*

109. Groco sea water strainers, recommend lids be changed to metal. HVAC inlet strainer lid appears to be leaking. B. 367, 663.

110. Water maker raw water plumbing should be replaced, it is deteriorated and not suited for raw water use. B. T:6. 344-348*.

111. Stbd laz, discharge seacock handle is loose. B. 365*

112. Stern thruster vent valve corroding, equipped with brass 90. B. T:4. 371.

113. Windlass chain strippers are loose and misaligned. B. T:2. 002, 003*

114. Shackle improperly seized. For more on the subject see https://www.cruisingworld.com/how/clevis-pins-cotter-pins-and-seizing-wire/ B. T:1. 220.

115. Recommend rode shackles be replaced with those of domestic manufacture, Crosby for instance. B. T:1.

116. The front of the bollard has an open seam, it will allow water to enter and be trapped. Recommend a drain hole be drilled in the aft lower end of the bollard. B. T:2. 464, 465.

117. The refrigeration heat exchanger anodes are depleted. C. T:1. 521, 522.

118. Anchor rodes lack cut-away lines. Recommend these be added, for more on this see https://stevedmarineconsulting.com/april-2019-newsletter/ B. T:3. 542, 549.

119. Recommend a longer, stainless steel windlass clutch bar be fabricated. B. T:2. 546.

120. Anchor rollers are disintegrating. B. T:6. 556.

121. Crane paint is failing in several locations. C. T:4. 569*

122. Crane motor fastener is loose. B. T:1. 048*

123. Life raft is not secured, it is 17 years past its inspection. Recommend a new canister raft be installed, in a cradle, with hydrostatic release. A. T:6. 049-052.

124. Stbd LP gas locker not gas-tight, port and stbd tanks not secured, small tank inspection past due (manufactured 2006). A. ABYC A-1. T:6. 053-061.

125. FB rudder angle indicator inoperative. B. T:2. 572*

126. FB shift control finish is deteriorated, plating is failing. C. T:1. 576.

127. The LP gas control is located over the stove, making it difficult to access in the event of a stove top fire. For more on this subject see https://stevedmarineconsulting.com/wp-content/uploads/2014/03/LPGas169-02.pdf A. ABYC A-1. 588, 589.

128. The BBQ could not be tested, it will not light. C. 594*

129. Nav light lenses are crazed. B. T:6. 077, 078*

130. Corrosion on KVH and radar base. C. T:6. 079, 080, 081, 082*

131. Debris has accumulated on the coalescer cones in the primary fuel filters. These should eb cleaned and monitored, if it reappears in less than 1,000 gallons of fuel use, recommend tanks be opened and inspected, and cleaned if necessary. B. T:4. 091-093.

132. The rudder tiller arm attachment to the rudder stock is loose. The bolts securing the tiller arm to the rams are loose, the stbd ram base is shifting under load. B. T:2. 101, 102, 103, “steering” video.

133. Recommend oil reservoirs for thrusters be marked and dated. C. T:1. 123.

134. There is corrosion around a bow thruster fastener. Clean and monitor. The light in this compartment is inoperative. C. T:1. 124*

135. Bilge pump switches are easily turned into the OFF position, the ON position is momentary only, recommend these be replaced with positive toggle switches, with ON-OFF-ON positions. B. T:4. 128.

136. House batteries are not adequately secured, Starboard boxes are light duty, as well as bring cracked and distorted in some places. The straps are also very light, and they do not afford the batteries the required maximum 1” of allowed movement. B. T:12. 133-136*

137. The EPIRB battery is expired. A. T:1. 159-163.

138. Steering reservoir pressure is low. Correct and monitor. B. T:1. 185, 629, 630*

139. Crane ram dust seal deteriorated. C. T:6. 287*

140. HVAC condensate pans rusted, holed, leaking. C. T:16. 335-337, 372*

141. Recommend stern thruster reservoir be marked and dated. C. T:1. 343.

142. Compasses don't agree, recommend they be swung. B. T:4. 423, 424.

143. Smoke detectors have expired. The vessel lacks CO detectors. See addendum for additional details. A. ABYC A-4. 437*

144. Galley stove ignitor battery corroding. C. 449*

145. The LP gas system appears to lack a sensor for leak detection. T:8. Sensors should eb installed under the stove and in the LP lockers. A. ABYC - A1.

146. Non-approved dryer vent duct has been used, it is metalized plastic rather than metal, it violates the dryer manufacturer's installation recommendations for the use of all metal duct, it should be replaced. For more on this see https://stevedmarineconsulting.com/april-2020-newsletter/ A. T:8. 454.

147. Recommend gaseous fire extinguishers be clearly labeled or color coded, to distinguish them from ABC dry chemical units, and placed near likely electrical fires, electrical room, engine room access, helm area etc. A. 429.

148. The vessel lacks a lightning protection system. For more on this see https://www.proboat.com/2016/04/3530/ A. ABYC TE-4.

149. The vessel lacks water in fuel sensors, recommend these be added to primary fuel filters. For more on this see https://stevedmarineconsulting.com/onboard-alarms-part-ii/ B. T:12.

## 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 eb 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 seehttp://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 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℉. In addition to t he 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.super-lube.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. For pre-owned vessels that are new to you, SDMC recommends replacement of raw water impellers, belts and fuel filters before getting underway. If primary fuel filters are fouled, or require replacement before the use of 1,000 gallons of fuel, recommend tank interiors be inspected and cleaned if necessary. For more on these subjects see

https://stevedmarineconsulting.com/caulk-and-sealant-selection-and-use/ and https://stevedmarineconsulting.com/cleaning-diesel-tanks/

M. 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 ; 410-687-5500).

N. 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

O. 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 in2 (0.174 m2). 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 **050720**, 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) _____ May 26, 2020
Steve D'Antonio, President, Date
D'Antonio Marine Consulting, Inc. (SDMC)

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