Steve D'Antonio Marine Consulting, Inc. 804-776-0981
160 Carlton Road steved@stevedmarineconsulting.com
PO Box 111
Wake, Virginia 23176-0111

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

Pre-Purchase Inspection Report

At the request of **XXXXXX XXXXXX** ("Client") and in accordance with the terms of the Pre-Purchase Inspection Retainer Agreement and Confidentiality Agreement dated **October 1, 2008**, all of which are incorporated herein by reference and specifically made a part of this report, Steve D'Antonio Marine Consulting, Inc. ("SDMC") inspected **54 foot 2008 XXXXX XXXXX** and its systems and components (collectively "Vessel") on **April 14 and 16 2009** at **XXXXXX** in **XXXXX, FL** [LOCATION] and has prepared this Pre-Purchase 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. Complete inspection can be made only by removal of soles, decking, headliners, insulation, ceiling, bulkhead fascia, hull lining, tanks and their access ports and joiner work. In all likelihood, the disassembly required would be 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 has made no 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. The ownership (legal or equitable), classification or regulatory status of the Vessel can only be confirmed directly by the certifying authorities.

SDMC makes no representation regarding the presence of mold, spores or fungus aboard the vessel. SDMC makes no representation regarding the presence of 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 **April 16, 2009** [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.
CL: Centerline or center of the vessel in a fore and aft orientation.
FRP: Fiberglass reinforced plastic or fiberglass
GFCI: Ground Fault Circuit Interrupter, an electrocution prevention device.
GPH: Gallons per hour.
OCP : Over Current Protection, i.e. fuses or circuit breakers.
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.

Decks

1. The chain locker deck hatch gutter drains into the chain locker. It is imperative, therefore, that the chain locker drain be kept clear and that it is capable of keeping up with the inflow of water should the vessel encounter boarding seas or heavy, sustained rain or spray. B (see key above for explanation of "B" and other severity indications). 041409180, 181 (photo reference numbers).

2. Ensure that the anchor chain rode exits and re-enters the chain locker without developing jams or hockles in the chain pipe or locker (100 feet of chain should be deployed and retrieved ten times as a test, allowing the windlass motor to cool sufficiently between evolutions). The chain should deploy and retrieve without experiencing these problems *every time, without exception.* The bitter end of the chain is permanently affixed to the vessel via a chain locker mounted pad eye. An emergency "cut away" three strand line should be installed between the last link of chain and the pad eye, it should be long enough so that it is exposed on deck when the chain is completely deployed, a suitable sheath knife should be secured in the locker to execute the cutaway in the event it's needed. B. 041409187.

3. There does not appear to be an obvious or easy means of re-boarding the vessel for crew that have fallen overboard. Consider installing a ladder that is easily deployable by a person in the water. A.

Electrical System

4. The isolation transformer lacks manufacturer-required strain relief fittings. See pages 8-10 of the transformer manufacturer's installation instruction document at this link http://www.charlesindustries.com/marine_manual/isoboost50.pdf for additional information and instructions. ABYC E-11.14.6.2 (references relevant ABYC chapter). A. 041409010-011, 041609008-010

WOT: Wide Open Throttle, the maximum rpm the vessel's engine has obtained under load (may be less than or greater than WOT specified by the manufacturer).
Unless otherwise noted, all temperatures are in **degrees Fahrenheit.**

5. The shore power selector switch box located on the port aft lazarette bulkhead lacks strain relief connections, entry ports made on top of the box are not water resistant, the box is not labeled as to its function or the potential shock hazard for components within, unused openings are not closed (the installer, via a telephone conversation, indicated this installation was not yet complete). The energized components within this enclosure can be accessed without the need for tools, increasing the shock hazard. The box should be secured to prevent casual access. (The owner of the vessel indicated it was his understanding that the selector switch would enable the use of a 30 amp, 120 VAC shore power receptacle, however, no such receptacle was observed). ABYC E-11. A. 041409012-041409015.

6. The davit circuit breaker appears to be more than the ABYC specified maximum distance from the main battery supply or battery switch. Confirm that installation meets this requirement or make necessary corrections. ABYC E-11, Fig 15. A.

7. The shore power inlet circuit breakers located on the stbd aft bulkhead in the lazarette appear to be too far from the inlet (the requirement calls for no more than 10 feet of *wire length*) and the rear side energized connections are not enclosed. ABYC E-11. A. 041409058, 041609016.

8. The vessel is equipped with residual current devices (RCD) located at the electrical panel. These would be of greater safety value of installed closer to the isolation transformer (where the primary inlet breakers are required, within 10 feet of the shore inlet). RCDs installed after the isolation transformer, as these are, afford no fault protection for the isolation transformer itself. (While desirable and a worthwhile safety feature, these do not appear to carry UL approval for use with 60HZ; because they are European in origin, UL approval will be required to meet the latest ABYC guidelines as of July 2009). There do not appear to be any circuit breakers installed between the isolation transformer and the shore cord or inlet. This is a violation of ABYC guidelines. See ABYC E-11.11.1 and E-11.11.17.15 and ABYC E-11 diagram 7 for additional detail and requirements. A. 041409009, 144.

9. The rear portion of the shore power inlet receptacle located on the port aft bulkhead of the lazarette lacks an enclosure. ABYC E-11. A. 041609014.

10. The generator battery box and at least one of the house battery box covers do not fit the box properly and none of the battery box covers (including those under the V berth) are properly vented at their highest point. The batteries within some of the boxes are capable of moving more than one inch (measured in any direction, including upward) when subject

to a force of 90 pounds or twice the battery weight (whichever is less). Access to the lower batteries is poor. ABYC E-10.7. B. 041409039, 040, 045, 046, 047, 048, 049, 050, 151, 153, 226, 227.

11. The wiring for the house battery bank does not appear to be connected "across" the bank, i.e. the positive and negative cables connecting the bank to the vessel's electrical system should be connected at opposite ends of the bank, with the batteries paralleled in between. Connecting the bank in this manner ensures even use of battery current. Charge sources should be connected at the opposite end of the bank from the aforementioned supply cabling, enabling the bank to act as a buffer when high loads are augmented by charge sources such as the alternators and shore powered chargers. An example of the proper connection method is shown, for just two of the batteries, in image 041409048. C.

12. The inverter ground wire is too small. This wire must be capable of carrying full DC fault current. Additionally, the cables entering the inverter housing lack strain relief devices. ABYC -31.6.3.1.2. A. 041609008, 009, 011.

13. It is unclear if OCP is installed within the recommended 72, 40 or7 inches of the batteries or other battery distribution sources for battery charger output. Ensure that all positive cabling connected to all batteries, directly or indirectly, complies with ABYC guideline ABYC E-11.10.1.1.1. A. 041409051-053.

14. The battery charger chassis lacks a ground. This is required by the charger manufacturer, see http://www.newmarpower.com/pdf/Manual-PT-70A&24-40.pdf (see page 7) as well as ABYC guidelines. The ground must be as large (or one size smaller in some cases) as the largest positive DC conductor connected to the charger. Ensure that the wiring supplying DC charge current meets manufacturer and ABYC requirements (these call for #2 wire for runs of 10 feet or less, with larger cables required for longer runs). The installation of an optional temperature compensation probe, see page 13-14 of above linked owner's manual, is recommended. ABYC A-31. 041409052.

15. Ensure that the inverter OCP and cable length/sheathing complies with ABYC E-11.10.1.1.1. 041409082.

16. The cable TV and telephone connection cables located at the port aft inlet are broken/disconnected. C. 041609015.

17. The strain relief support for the water heater AC wiring is inadequate. ABYC E-11. A. 041409057.

18. The receptacles in the lazarette are not GFCI protected. While this is not an engine room, strictly speaking, it contains an engine (the generator) as well as a variety of other electrical gear and sea water and freshwater plumbing and thus the use of GFCI protected receptacles is advisable. ABYC E-11. A. 041409066.

19. The AC voltage observed throughout the vessel was consistently low when operating on shore power, approximately 103 VAC. The dock voltage, when tested at a nearby receptacle, and voltage derived from inverter and generator, was normal. Therefore, there appears to be a fault with the vessel's shore power wiring. A. 041409064, 147.

20. The majority of the receptacles used throughout the vessel are designed to be used with solid rather than stranded flexible marine cabling (the manufacturer is Panasonic). The terminals on these receptacles are of the direct bearing style, which are, once again, designed to be used with solid wire. It appears that the vessel's stranded wire has been "tinned" with solder in order to facilitate its use with these receptacles. Both solid wire and direct bearing terminals, as well as solder, are not permitted by ABYC standards. Nearly all receptacles that were inspected lack enclosures. The receptacle located on the stbd aft lazarette bulkhead failed mechanically when used, falling behind the bulkhead . ABYC E-11. A. 041409061, 065, 041509010, 011, 027, 041609017, 018.

21. An unlabeled fuse is located on the stbd aft engine room bulkhead, under a Plexiglas cover (some fasteners securing this cover are absent). **All fuses, circuit breakers and switches throughout the vessel should be clearly and permanently labeled as to their function.** For fuses, labeling should include replacement value and type. C. 041409086, 087.

22. There are unlabeled fuses located at the stbd and port fwd engine room bulkheads, possibly for engine shift controls. These should be labeled and spares affixed nearby. C.

23. Labeling of the isolators installed in the stbd aft engine room bulkhead is unclear. Confirm that labeling is correct and easily understandable. C. 041409083-085.

24. The connections for bilge pumps, float switches and bilge high water alarms are either not high enough above highest bilge possible bilge water accumulation or they are not water proof. All bilge pump electrical connections should be made above the maximum anticipated bilge water level (see ABYC H-22 for additional details and definitions) or they must be completely waterproof. Ensure all bilge pump wiring meets this standard. B. 041409090.

25. The propulsion engine alternator positive output studs lack insulation. ABYC E-11. A. 041409092, 102.

26. The cables supplying the engine's starters are making contact with the engine block. In order to reduce the possibility of chafe and a short circuit, reroute cables to avoid contact with the engine (by design, these cables are not equipped with OCP and thus the standard for their safe, chafe and damage free routing is exceptionally high). The starter positive stud is uninsulated. A. 041409103, 109, 110

27. Bonding/grounding wires are connected to the central bonding buss strap utilizing tapping screws installed into timber bulkheads. This method of electrical contact is unreliable and not permitted by ABYC guidelines. B ABYC E-11. 041609033-034.

28. Access to the main electrical panel does not require tools, although it must in order to comply with ABYC guidelines. A. 041509022.

29. Wiring located in locker above closet in port guest stateroom is poorly secured and not chafe protected. A. 041609039.

30. The 12 volt receptacles used throughout the vessel are in fact European 230 VAC female plugs. Appropriate, common 12 volt receptacles should be used in order to facilitate convenient use of these receptacles as well as avoiding possible misuse. C. 041409149.

31. 120 VAC electrical connections for the FB air conditioning air handler are not contained within an enclosure. ABYC E-11. A. 041409205, 206, 041509028.

32. Multiple in-line fuses are installed at the rear of the (soon to be enclosed) FB (fly bridge) DC electrical panel. These are for protection of various FB electronic equipment. Ideally, to aid serviceability, these should be contained within a fuse panel rather than in multiple in-line housings. Ensure they are clearly labeled for their use, value and fuse type. C. 041409209.

33. None of the metallic components in the fuel system (that are exposed to fuel) appear to be bonded. These include all primary filter bodies, copper plumbing and manifolds. Ensure all metallic fuel system components that are in contact with fuel are bonded. ABYC E-11 and H-33. A. 041409111, 116.

34. The fuses or circuit breakers for the automatic bilge pumps were not readily locatable. Provide for the owner a clear description of where these, the fuses or circuit breakers, located. A.

35. While underway it was noted the house battery bank voltage was low, typically under 13 volts (this included start batteries as well). The engine alternators appear to be connected to the house battery bank via isolators and therefore, a fault or design flaw apparently exists. The engine alternators appear to be internally regulated stock units supplied with the engines. Alternators of this variety or not designed to charge large house battery banks or AGM batteries, especially those that are continuously loaded by inverters, refrigeration equipment, electronics etc. Ideally, the alternator's combined, *synchronized, temperature compensated* output should be provided via proprietary, KKK-rated, continuous duty high output units that deliver a minimum of 25% of the bank's amp hour capacity in ampere output. Alternators of this variety are available from several sources including but not limited to Balmar, www.balmar.net. The shore power charger suffers from the same shortcoming in that it's rated for just 70 amps of combined output (the house bank appears to be made up of four 8D batteries, which comprise a total of 800 amp hours). While the inverter/charger can be used as a charger, its output is 140 amps, it's likely to be engaged as an inverter while the engines are running in order to supply power to the AC and refrigeration equipment. Its output is not temperature compensated and it's not synchronized with the stand alone shore power battery charger. Using the system in its current arrangement will likely lead to shortened battery life, chronic undercharging of the battery bank and excessively long battery re-charge times. C. 041409339, 347.

36. The receptacle located at the cockpit wet bar lacks GFCI protection. ABYC E-11. A. 041409364, 365

37. Because the isolation transformer installation was incomplete at the time of the inspection, the overall integrity and safety of the shore power system could not be verified. It is recommended that at the time of the system's completion and after the recommendations in this report are acted upon that the vessel owner retain an ABYC certified marine electrician to inspect this installation and approve its safety and compliance with ABYC guidelines detailed in chapter E-11 of the 2008/2009 edition of the Standards and Technical Information Reports for Small Craft. A.

38. OCP for alternators was not readily apparent. Confirm that OCP exists for main engine alternators output and that it is within the ABYC recommended distance from the interconnection with the vessels DC electrical system. ABYC E-11.10. A.

39. The vessel lacks the ABYC recommended placards regarding shore power connection procedures as well as the presence of an inverter aboard. A.

Engine and Peripherals

40. The exhaust system installation for the generator does not appear to comply with the manufacturer's requirements for the necessary drop and slope. Verify that the installation meets generator manufacturer requirements, correct if necessary. C. 041409357.

41. The oil pump out plumbing and valve located within the generator engine compartment is not well secured. C. 041409041.

42. The generator's coolant overflow tank is mounted too high, when the pressure cap is removed from the expansion tank the contents of the bottle will spill out. Lower the overflow tank so its fluid level is even with the pressure cap. C. 041409042.

43. Exhaust insulation located on the stbd propulsion engine is unsecured. It was reported by persons working on the vessel that this was in the process of being replaced. B. 041409088.

44. The forward outboard motor mounts are not properly torqued. Correct and check torque on all mount fasteners, check engine alignment. B. 041409094, 095, 041609020.

45. The raw water hose running under the stbd engine is chafing against the oil pan. Relocate or chafe protect. B. 0416090278-030.

46. The generator start switch located adjacent to the electrical panel in the main saloon includes no instructions for its use. C. 041409146.

47. The generator fire extinguisher emergency access panel is broken. C. 041409225.

48. The generator exhaust is "spliced" into an existing FRP tube in the lazarette port aft locker. The function of this tube is unclear, however, it leads into the vessel's engine room and possibly accommodation spaces. The splice is leaking. Generators and all engines should be designed with dedicated, separate exhaust plumbing that exits the vessel without connection to other plumbing. ABYC P-1. 041609064, 065. 041409359, 360.

49. The propeller shaft nuts are installed in reverse order, the half height nut should be installed first in accordance with SAE and ABYC guidelines. Additionally, the nuts are stainless steel and already showing signs of corrosion. This should be monitored and if it continues the nuts should be replaced with new ones made of bronze. ABYC P-6. C. 041409284-285.

50. The shaft zinc anodes were installed too far aft, possibly interrupting the flow of water to the cutless bearings. These were moved forward by boat yard personnel when the vessel was hauled for inspection. The stbd cutless bearing showed evidence of *slight* wear or under sizing. C. 041409282, 289.

51. During the sea trial the vessel exhibited an extreme vibration, most noticeable on the cockpit deck, at speeds over 1000 rpm. The cause for this vibration should be determined and corrected before the vessel is accepted from the manufacturer/dealer. B.

52. With ventilation blowers on, the temperature of the engine room during the sea trial, after operating at cruising speed for 30 minutes, was 90°, while ambient was 56°. This is slightly above the requir ements set forth by the engine manufacturer (Cummins and most marine engine manufacturers call for a delta t of no more than 25°). Engine ro om temperature should be monitored on longer passages and if it climbs above those figures stated above then additional ventilation should be considered in order to remain within engine manufacturer spec's. C. 041409361.

53. When the seatrial began, both engines exhibited surging and an inability to accelerate beyond 1500 rpm. Air was noted in the fuel filters. Eventually, the surging abated and both engines ultimately turned up to their full rated rpm, however, air was continuously observed in varying quantities in the fuel filters for the duration of the sea trial. The source of air should be identified and corrected. Initially, the engines could not be synchronized, however, this problem was resolved although it appears the Twin Disk synch feature is still not working properly. Synchronization features should be thoroughly tested to ensure they work properly. B. 041409238-242, 258, 259, 269, 270, 271, 340, -341, 347-351, 041509033-041, 041609053-055, 058, 059.

54. During the seatrial portions of both engine's dry exhaust systems exceeded 200°. Additional or improved insulation i s required. ABYC P-1. A. 041609052.

Hull

55. The rudder logs and stuffing boxes are inaccessible as a result of installation of the heating system and freezer compressor. Recommend moving/raising this gear to return rudder stuffing box access to that which was originally provided by the vessel's designer/manufacturer. C. 041409054, 055.

56. For a vessel of this size and displacement, the cleats installed on the aft hull do not appear to be installed with adequately sized backing plates. Additionally, the core substrate does not appear to have been removed adjacent to the fastener holes in accordance with industry recognized procedures, making it likely that water will leak into this area and that fastener torque will distort and possibly crush the core, which may lead to mechanical failure of the cleat installation. See this link for additional detail on installation of hardware in cored structures. http://www.cruisingworld.com/how-to/projects/core-concerns-reefing-and-backfilling-1000067395.html B. 041409075, 076.

57. One sole panel between the engines does not appear to fit properly; it's a trip/slip hazard. The steps located on either side of the engine room door are not well secured, there is a possibility that they could slip out of place when being stepped on (this happened during my inspection), causing the user to fall and possibly be injured. A. 041409106.

58. Builder's debris is located beneath the propulsion engines. This is unsightly and represents a potential bilge pump clog hazard. C. 041609021-024.

59. The backing plate located on the engine room overhead is sharp and presents a laceration risk. Consider addition of rounded trim piece. C. 041409138, 139.

60. The locker located in the swim platform accumulates water while the vessel is underway. The source of this water is unknown; however, it may be from the bilge pump discharge, which may be submerged via its common manifold in the lazarette while underway. Troubleshoot source of water entry and correct. For the aforementioned reasons, the check valve should not be relied upon to prevent water entry, it should be removed. The pump should not be relied upon to evacuate this space on a continual underway basis. C. 041409367, 368.

61. The exhaust discharge for the diesel heating system is leaking water into the vessel while underway. Water from the deck scupper, which is located directly above the exhaust, runs down the hull over the exhaust outlet whenever the deck is wet, making leaks likely. Additionally, the exhaust through hull fitting appears to be "custom made". Through hull fittings are available from the diesel heater manufacturer, ITR, are available.

Determine from the heater manufacturer if this installation would benefit from or requires a jacketed, combined intake and discharge fitting in order to reduce the temperature of the exhaust hardware through hull where it makes contact with the hull. C.

62. The vessel has a pronounced heel to stbd. If the list persists after all gear, dinghy etc has been installed the installation of ballast may be undertaken as a last resort. Every effort should be made to balance gear to preclude the need for ballast. C. 041409303-305.

63. The external hull strainers are not easily serviceable; fasteners must be removed to access the area beneath the strainer shell, this is time consuming and unreasonable for seasonal service. The hull, through hull fitting and interior of the strainer all lack anti-foulant protection and it is therefore likely this area will become encrusted with marine growth. Consider installing an easily serviceable strainer , one that requires no tools for its use, such as the one shown at the center and bottom of page 42 of this link http://www.groco.net/08-CD-BURN/GROCO%20CAT/CAT-BRWSR/sec-5-view.htm . C. 041409292, 306, 307, 309.

64. The sped and depth transducers are not adequately anti-fouled. C. 041409310, 311.

65. A pinkish hue was observed on some through hull and rudder shaft fittings. This may be natural discoloration of the alloy when metal-laden anti-fouling paint releases from these areas or it may be indicative of a past or present galvanic or stray current corrosion issue. The vessel should be checked for corrosion activity by an ABYC certified corrosion specialist using, among other tools, a silver-silver chloride reference electrode. C. 041409300.

66. Fairing imperfections are visible in several locations on the hull bottom. There cause is unknown. D. 041409297, 298, 308

Plumbing and Underwater Hardware

67. The hose used for the water maker inlet is not approved for raw water use. Replace with hose so approved, such as Trident VacXHD #148. http://www.tridentmarine.com/stage/sanitation.htm or equivalent. Hose chosen must be suitable for raw, below the water line applications as well as potable water use. Additionally, PVC pipe, used on this installation and elsewhere aboard, lacks the necessary tensile strength or modulus of elasticity for seawater/raw water applications, particularly those that are below the waterline and the failure of which could lead to flooding; its use in such locations should, therefore, be avoided when and where other

more resilient materials can be used. B. 041409002-005, 017, 018, 023, 024, 071, 074, 228. 229.

68. Some of the hose clamps used for the fuel fill plumbing utilize mild steel screws. These are prone to corrosion when used in the marine environment. Replace those equipped with mild steel screws with all stainless clamps. C. 041609019.

69. The raw water hose used for the air conditioning condensers lacks a raw water hose designation such as SAE J2006R or equivalent. Hose used for raw water and pressurized raw water applications should be specifically designed for the application. This type of hose, that which is currently installed, is reported to have failed elsewhere aboard the vessel. B. 041409096-099, 041509012, 016-018.

70. Metallic fittings used in the air conditioning condenser discharge plumbing appear to be made of brass alloy. Because of its high zinc content, brass is not approved for raw water use. Confirm that these fittings are (zinc free) bronze rather than brass or replace with fittings suitable for raw water applications. B. 041409097, 137.

71. The air conditioning raw water condenser drain manifold is mislabeled as “condensate drain”. Re-label. C. 041609125.

72. It’s unlikely that the green plastic tubing used for the water heater over pressure relief diversion is adequate for the task. This hose must safely channel hot, high pressure water to the bilge in the event of a water heater malfunction. Replace with more robust hose or pipe. A. 041409078.

73. Ensure that the hose/pipe used throughout the vessel for potable water, for pressurized water supply as well as tank fill and vent, is appropriately rated and approved by NSF (with the proper suffix number for potable water applications) and/or FDA, and so marked, for this use. Additionally, there is some indication that the polyethylene clad aluminum tubing used for the potable water system may be prone to failure if brass alloy ferrule fittings were used with the tubing. There is a legal action against the manufacturer of the pipe for a series of failures that have occurred when the pipe was used in domestic applications. Ensure that the pipe used, marked Kitec MDPE 1216 is not subject to recall or known defects. Google Kitec Pipe for more information. A. 041409154, 041609038

74. Submersible bilge pumps located throughout the vessel utilize check valves. Access for service in some cases is poor. Check valves are noted for their propensity to become lodged in both the open and closed positions. Additionally, they restrict pump flow by as much as 50%. Their

use is prohibited by ABYC when used as back flow and siphon preventers in manifolded and direct overboard installations respectively (this vessel uses the former). Check valves should be removed and, where necessary, replaced by anti-siphon loops. See this link for additional information http://www.cruisingworld.com/how-to/projects/wire-and-plumb-your-bilge-pump-properly-1000067474.html on bilge pump installations Ensure compliance with ABYC H-22. 041609026, 159.

75. Hose used for bilge pump installations appears to be 1 inch, while pump outlets are 1 1/8 inch. While the difference is small, it represents a reduction to the capacity of the pump's output. C. 041409125, 369, 370.

76. Cut off hose clamps are installed on the port engine intake, for the emergency bilge pump plumbing. These represent a laceration hazard and should be replaced or modified to prevent injury. A. 041409020-021.

77. The hose used for the raw water wash down pump does not appear to be specifically designed for raw water applications. Recommend use of PVC sanitation hose (http://www.tridentmarine.com/stage/sanitation.htm) or hose designated as J2006R marine wet exhaust/seawater (http://www.tridentmarine.com/stage/wetex_hose.htm). B. 041609035-037.

Systems

78. The insulation used for the diesel heater's exhaust is deteriorating. Replace with suitably durable insulation that ensures no part of the exposed exhaust system exceeds 180°. ABYC A-7.5.4. 11. B. 041409006-007.

79. The primary fuel filters used for the generator and the diesel heater utilize inlet and outlet plumbing fittings that are not provided or approved for use by the filter manufacturer. Racor Turbine series filters are designed to use plated steel (to prevent dissimilar metal corrosion, the filter body is aluminum and thus not compatible with brass or bronze fittings) spot face seal, O ring fittings. The installed brass fittings appear to use pipe thread sealant, which is not required for spot face O ring seals. B. 041409019, 041509004.

80. The primary fuel filters used for the generator and diesel heating system would benefit from installation of UL Marine Approved, plugged drain valves, such as Racor part number RK 19492. These filters would also benefit from recording vacuum gauges installed at their plumbing outlets (not in place of their T handles), such as Racor part number RK 11-1676E,

enabling the user to monitor the condition of the filters. C. 041409021, 022.

81. The stern thruster motor does not appear to be resting appropriately or completely on the support structure constructed for that use. Access is limited as a result of a semi-permanent cofferdam. Remove the cofferdam, inspect the mount and correct or replace if necessary. C. 041409027.

82. The fuel polishing system manifold appears to be incorrectly labeled. Instructions for its use, maximum allowable vacuum (the vacuum with a clean filter appears excessive at over 15 inches of mercury), suggested run time and activation should be posted adjacent to the control panel. All valves associated with this *and the entire fuel system* should be labeled as to their use and normal position. C. 041409029-030, 374, 375.

83. The hose clamps used for the generator exhaust utilize mild steel screws, which are prone to corrosion. Replace with all stainless steel clamps. C. 041509007, 008.

84. Fittings, plumbing and cables are resting on top of the port aft fuel tank with the potential for chafe damage. All plumbing, cables and related gear should be secured against movement here, on top of all fuel tanks and throughout the vessel. 041409035.

85. Polyurethane sealant has been used to bond diesel fuel fill hose to the stainless pipe to hose fitting and the tank fitting to the FRP tank. Polyurethane sealant is not designed to be used in diesel fuel sealing applications. No sealant *should* be required between hose and pipe to hose adapters and the interface between metallic fittings and FRP tanks should be sealed using the appropriate fuel resistant gasket material. The fuel fill hoses lack a USCG A1 or A2 rating and date of manufacture. ABYC H-33. A. 041409037, 038.

86. The engine room volume was measured at approximately 540 cu. ft. The gaseous fixed fire extinguishing system is designed for an engine room of twice this size. While extra fire extinguishing agent is desirable, the non-lethal aspect of the agent used, FM-200, may be negated by higher than recommended concentrations. D. 041409104, 128, 041509015.

87. When inspected, the shipping pin was still installed in the engine room fixed fire extinguisher's discharge nozzle. In this condition, the fire extinguisher could not be discharged manually. At the owner's request, the pin was removed in compliance with the fire extinguisher's affixed instructions to do so. A. 041409129, 130, 041509015.

88. The fuel polishing system plumbing is not segregated in that it shares the pickup connections with other fuel consumers. This arrangement is less than ideal for a variety of reasons, including but not limited to the possibility that it may compromise fuel flow to engines and generator and it may restrict fuel flow to the polishing system. Existing supply fittings typically do not extend to the lowest portion of a fuel tank, where water and other contaminants are likely to accumulate. Ideally, polishing systems should utilize dedicated plumbing that enables removal of this material. The polishing system return is plumbed to the fuel tank vents, which is also undesirable in that it aerates fuel as it returns to the tank (return fittings should include drop tubes to prevent this phenomenon). Additionally, if the polishing system is operating while tanks are being filled it's possible air will push fuel out of the vent. B. 041609006, 007.

89. The LP locker utilizes a vertical hatch and includes no direct overboard drain and as such it is not ABYC complaint. When pressure tested the LP gas system failed to hold pressure for more than one minute, an odor of LP gas was present in the locker. The wire that passes through the aft wall of the locker compromises the locker's gastight integrity. Because the wire is sheathed in split loom conduit, it's unlikely that application of sealant to the penetration will complete a gastight seal. The system lacks ABYC required precautionary placards. See this link for additional information on LP gas system installations http://www.cruisingworld.com/how-to/systems/play-it-safe-with-gas-on-board-1000067404.html ABYC A-1. A. 041409173-179.

90. The autopilot hydraulic isolation valves are rated for 600 PSI, while the system is designed to impart a maximum of 1000 PSI. The T fitting used to connect the autopilot pump to the steering system appears to be cast bronze or brass, which typically caries a pressure rating of 200-400 psi. There is evidence of leakage adjacent to the valves and at the helm pump. The return hose lacks an isolation valve. ABYC P-21. B. 041409199, 201, 202, 203, 204, 041509019, 023, 024, 025, 026, 029, 030, 031, 032.

91. Ventilation in the lazarette is provided by twin DC exhaust fans. These are connected to the same circuit that energizes four ventilation fans located in the engine room. There appears to be no natural ventilation of this space. When the generator and/or refrigeration compressor and diesel heater are operating it's likely this space will become excessively hot unless the exhaust fans are running. These fans use a considerable amount of DC power and they are noisy (their discharge is severely restricted by small cross section vent louvers) and thus it's unlikely the operator will want to run them unless the generator is running. The overall ventilation scheme for this space is, therefore, questionable. C.

92. The hose used for the diesel heater's fuel supply is not rated for fuel use (it's air brake hose). It lacks the appropriate nomenclature required by ABYC guidelines including the manufacturer's name, date of manufacture, fuel rating etc. Replace this hose with A1 rated marine fuel supply hose. A. 041409376, 377.

93. The area above the stove, which is made of timber veneer, became excessively hot during a test of the stove's three burners. This area should be protected with an insulated, metallic shield to prevent damage to the structure or possibly fire. The stove and LP gas system lack the ABYC recommended safety and operating placards. Ensure installation complies with ABYC A-3. A. 041609040-046.

94. The manual discharge for the fixed engine room fire extinguisher system is poorly located in a cockpit locker. This discharge should be prominently located (preferably at least in the saloon *and* optionally on the fly bridge as well, dual discharge kits are available). ABYC A-4. A. 041409195.

Addendum

- A smoke detector should be installed in the engine room as well as the main saloon (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. (NFPA 12.3 now 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. Portable fire extinguishers should be installed in every cabin and accommodation space as well as adjacent to the galley. A fixed fire extinguishing system that includes a manual discharge and automatic equipment shut down should be installed in the engine compartment. These additions are highly recommended. For more information on smoke detectors see http://www.passagemaker.com/MagazineandEvents/OnlineResources/Newsletter/NewsletterContent/tabid/442/ctl/Read/id/1534/mid/1158/Default.aspx A

- 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). 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. 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. For more

information on CO detectors see http://www.cruisingworld.com/how-to/gear-and-systems/plan-ahead-and-play-it-safe-1000068552.html A

- 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. B.

- If not already installed, a bilge high water alarm should be installed. The float switch for a high water alarm should be located no more than three inches 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. For more information on bilge pump installations see http://www.cruisingworld.com/how-to/projects/wire-and-plumb-your-bilge-pump-properly-1000067474.html B

- Every vessel should be equipped with GFCI receptacles located in the galley, heads, machinery spaces and on deck in order to comply with ABYC guidelines. All receptacles would benefit from this protection. Additionally, whole boat GFCI protection is also desirable and recommended in the form of a residual current device or RCD. While these do not technically offer protection for personnel, they are designated as equipment protection, they do never the less enhance safety and reduce the likelihood of dangerous electrical faults and potential electrocution scenarios. A

- If the vessel's water heater is plumbed to the engine, and if not already installed, 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 heater by the engine, conceivably to the same temperature as the engine's coolant, or nearly 200°F. Additionally, in addition to the tempering valve, if the engine is used for producing hot water anti-scald faucets should be installed in the galley and heads. For more information on tempering valves and water heater installations see http://www.passagemaker.com/MagazineandEvents/OnlineResources/Newsletter/NewsletterContent/tabid/442/ctl/Read/mid/1158/id/1436/Default.aspx A

- Every vessel should be equipped with a permanently installed rigid or flexible fitting or part of the hull which allows a person to reboard from the water without assistance. A.

Once the indicated items (entries denoted A and B or otherwise as critical or important) have been addressed, corrected or repaired, the Vessel is capable of making passages that are in keeping with the intended use of the designer and builder.

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 SDM'S INSPECTION OF THE VESSEL AND THE FINDINGS, OPINIONS AND RECOMMENDATIONS CONTAINED IN THIS REPORT. IN THE EVENT SDM 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 **062110**, 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 Pre-Purchase Inspection Retainer 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/sea trial/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) _____ April 20, 2009
Steve D'Antonio, President, Date
D'Antonio Marine Consulting, Inc. (SDMC)

Revision date: March 12, 2009