BILL MELBOSTAD, CMS

Worldwide Marine Surveys, Ltd.

Member, National Association of Marine Surveyors
Post Office Box 965 Tiburon, CA 94920
Office: 415-889-5644, mobile/text: 415-860-3495
bmelbo@comcast.net
https://worldwidemarinesurveys.com/

CONDITION & VALUE SURVEY

Of

M/V 65' Pacific Mariner

The Captioned Vessel

STANDARDS USED IN INSPECTION OF THE VESSEL INCLUDE ABYC, NFPA, USCG AND THE STATE OF CALIFORNIA

PARTICULARS

Report #:	20-191
Date:	Xxxx, XX, 2020
Owner:	Big Boat LLC,
Survey Requested By:	Steve Smith, bmelbo@comcast.net
Broker(s)	
Where Surveyed:	Sausalito Yacht Harbor & Keefe, Kaplan, Maritime, INC, in Richmond, CA
Afloat/Hauled:	Afloat & while hanging in the Travelift slings
Vessel Name:	*XXX CCCCC*
Type:	Pilothouse power cruiser
Service:	Private/pleasure
Home Port:	Tiburon, CA
Photo of Official#	
Official #:	XXXXXXX
Photo of HIN	
Hull ID#:	XXXXXXXXX
Builder:	Westport
Designer:	William Garden
Model:	65' Pacific Mariner
Model Year:	2006
Date Last Hauled:	2019
LOA:	65' 0" on deck (70' LOA)
Beam:	17' 3"
Draft:	5' 0"
Displacement:	69,000 Lbs.
Vessel Color Scheme:	White topsides & decks, black stripes

DECK HARDWARE

1 Stainless steel anchor roller
1 Lewmar stainless steel vertical capstan windlass
2 Lewmar stainless steel vertical capstan powered winches
8 Stainless steel 12" mooring cleats
1 Stainless steel dinghy chock
1 Stainless steel set of swim platform removable safety rails
1 Stainless steel set of removable boat deck safety rails
1 Aluminum painted 1500 dinghy hydraulic/ electric davit
1 Cockpit/boat deck stainless steel ladder with 8 teak rungs
1 Stainless steel 3-rung retractable reboarding ladder

RIGGING

Mast:	Fiberglass radar arch, Sea View painted radar arch & 2 painted aluminum sat-dome masts
Lifelines/Rails:	Stainless steel welded side-deck/bow with stainless steel vinyl coated 7x7x3/16' cable intermediate lifelines, stainless steel welded boat deck perimeter safety rails, assorted stainless steel hand rails.
Anchor:	75 lbs. CQR & spare Danforth, 25 Lbs. estimated

Rode:	Three-stand nylon ¾" x 125 estimated for Danforth
Chain:	Galvanized 3/8" x 250' estimated

PLUMBING

Waterclosets/Heads:	Jabsco freshwater macerating toilet in crew quarters
MSD:	Crew quarter's Type III with 11-gallon polyethylene holding tank, & Main Type III MSD with fiberglass holding tank 80 gallon estimated
House Water System:	Stainless steel storage tank, with 265-gallon reported capacity, & Aquamatic RO desalination water-maker
Hot Water Heater:	Torrid M/N MV30 VAC 240 only
Hoses:	Rubber & plastic
Sinks:	Stainless steel

PUMPS

1 Rule 500 swim platform submersible bilge pump with float switch
1 Rule 500 engine room keel sump submersible bilge pump with float switch
1 Rule 2000 forward engine room submersible bilge pump with float switch
1 Rule 500 forward bilge sump submersible bilge pump with float switch
1 Rule 2000 forward submersible bilge pump with float switch
1 Rule 500 mid submersible bilge pump with float switch
1 Rule 2000 mid submersible bilge pump with float switch
1 Rule 2000 shower sump pump
1 Jabsco M/N 37202-2024 remote crew quarters bilge pump with float switch
1 Jabsco M/N 3700-0094 anchor wash down pump
1 Sealand M/N T24VDC crew quarters holding tank macerator pump
2 Marathon VAC 240 chiller/air conditioning circulating pumps
2 Caliber 24 VDC M/N XR-124 house water pressure pumps
1 VAC 240 water maker intake pump

GALLEY EQUIPMENT

Stove:	GE 4-burenr range with oven
Fuel:	VAC 220
Installation:	Satisfactory
Refrigeration:	Galley Kitchen Aid M/N KRS22MWMS02 stainless steel side-by-side VAC 120, Flying bridge Norcold compact VDC 24, Crew quarters GE compact freezer VAC 125, main salon Uline icemaker

SEA CONNECTIONS

PURPOSE	VALVE TYPE	THROUGH-HULL TYPE	LOCATION	APPARENT CONDITION
Port engine raw-water intake	Apollo bronze flanged seacock	Bronze threaded with high speed scoop	Center engine compartment	Satisfactory
Starboard engine raw-water intake	Apollo bronze flanged seacock	Bronze threaded with high speed scoop	Center engine compartment	Satisfactory
Port generator raw-water intake	Apollo bronze flanged seacock	Bronze threaded with high speed scoop	Port engine compartment	Satisfactory
Starboard generator raw-water intake	None	Bronze threaded with high speed scoop	Starboard engine compartment	Satisfactory
Water-maker raw-water intake	Apollo bronze flanged seacock	Bronze threaded with high speed scoop	Port engine compartment	Satisfactory
Chiller/air conditioning intake	Apollo bronze flanged seacock	Bronze threaded with high speed scoop	Port engine compartment	Frozen
Crew quarters head/holding tank discharge	Apollo bronze flanged seacock	Bronze threaded	Port crew quarters	Frozen
Starboard cockpit drain	None	Plastic threaded	Under crew quarters bert	See Summary & recommendations
Port cockpit drain	None	Bronze threaded	Port crew quarters	See Summary & recommendations
Starboard manifold drain	Marine Hardware inline ball valve	Bronze threaded	Under crew quarters berth	Frozen
Port manifold drain	Marine Hardware inline ball valve	Bronze threaded	Port crew quarters	Frozen
Starboard generator exhaust discharge	None	Bronze threaded	Under crew quarters berth	Satisfactory
Anchor wash down intake	Apollo bronze flanged seacock	Bronze threaded with high-speed scoop	Under passageway sole	Satisfactory
Main holding tank macerator discharge	Apollo bronze flanged seacock	Bronze threaded	Under passageway sole	Satisfactory
Starboard fish finder transducer	Plastic plug	Bronze threaded housing	Under lower accommodations sole	Satisfactory
Port fish finder transducer	Plastic plug	Bronze threaded housing	Under lower accommodations sole	Satisfactory

AC/DC ELECTRICAL

DC Voltage:	24-Volt
Batteries:	Two West Marine 12-volt Gel M/N 8G8D 225 AH wired in in series to make engine starting bank, four West Marine 12-volt Gel 225 AH wired in series/parallel to make house bank, two West Marine 12-volt Gel M/N 8G2788 AH generator starting
Switches:	Guest & Perko on/off vapor-tight
Battery Installation:	Satisfactory
DC Overcurrent Protection:	Inline fuses & remote circuit breakers for high-current cabling & toggled circuit breakers in distribution panel board panelboards for branch circuits, ATF for charger/alternator output conductors
AC Voltage:	125/240
AC Overcurrent Protection:	Single & dual pole toggled circuit breakers in distribution panelboards
Generator:	Starboard Northern Lights 20KW M/N 8442-36348C (total engine hours = 1970), S/N M4884W2-20K, Port Northern Lights 16KW M/N 8442-36920, S/N M844W2-16KW (total engine hours = 1388)
Charger:	Charles 5000SP Series 20-Amp generator starting charger, Charles 5000SP 40-Amp house
Inverter/Charger:	Xantrex Prosine Wave 3.0
Shoreline Connection:	Two 50-amp & two 30-amp, routed through Charles Isolation transformer & Charles ISO-50 Power Boost transformer
Outlets:	GFCI protected
Wiring Condition:	Satisfactory

ELECTRONICS/NAVIGATION

Flying bridge

1 Furuno NavNet C-MAP multifunction navigation display
1 ICOM IC-M402 DSC/VHF radio
1 Simrad AP26 autopilot controller
2 Simrad IS12 wind/depth/speed displays
1 Ritchie Powerdamp compass
1 Furuno enclosed radar scanner/dome
1 Furuno exposed radar scanner
1 Flir night vision camera

Pilothouse

3 NEC Multi-Sync LCD navigation displays
1 HP Pavilion CPU computer loaded with Nav-software
1 Logitech wireless keyboard & mouse
1 Simrad AP25 autopilot controller
1 Simard IS20 wind speed/point
1 Raymarine I70 speed/depth MFD
1 Furuno GP37 WAS Navigator GPS
1 Ritchie Powerdamp compass

MACHINERY

Main Engines:	Twin inline six cylinder turbocharged intercooled diesels
Make:	Detroit MTU
Model:	560TR2
Serial:	Port: 06R0842966, starboard: 06R0B41930
HP:	825 each @ 2350 RPM maximum
Year Installed:	2005, original equipment

Cooling:	Freshwater heat exchangers
Exhaust System:	Turbo-assist, through stainless steel custom self-draining mixing elbows, fiberglass integral water-locks exits transom
Engine Controls:	MTU electric 4 stations single levers
Gauges/Alarms:	Detroit MTU factory computerized panels, with tachometer, oil pressure, water temperature, high water temperature & low oil pressure audible alarms, hour-meters (current readings: port = 1455, starboard = 1461)
Steering:	Teleflex Seastar hydraulic dual station & Simrad hydraulic autopilot
Rudder(s):	Twin bronze

DRIVE SYSTEM

Transmission:	ZF 350A S/N port: 20059428, starboard: 20059731
Ratio:	2.07:1
Shaft:	Twin stainless steel Aquamet 22 alloy, 2.5" diameter
Strut(s):	Twin bronze tee
Propeller:	Twin counter-rotating 5-bladed Nibral 31x36
Bearings:	Sleeve cutlass main & intermediate
Packing Gland:	Twin Tides Marine water injected dripless shaft seals

VENTILATION SYSTEM

Natural:	Yes
Blower:	Yes

FUEL SYSTEM

Filtration:	Four Racor 1000MA fuel/water separating filters configured in manifold for main engines & two Racor 500MA for generators
Tanks/Capacity:	Two painted aluminum 5052 alloy, self-leveling, 550-gallon capacity each
Location:	Forward engine compartment
Securing:	To stingers
Fills/Vents/Draws:	From top, vented overboard
Valves and Lines:	Valves at fuel manifolds, USCG Type A-1 flexible neoprene fuel hose
Fuel System Condition:	Satisfactory

FIRE PROTECTION

SIZE	TYPE	LOCATION	DATE SERVICED
~ 3.0 lbs.	Kidde BC Dry Chemical	Inflatable dingy	Manufactured 2015
~ 4.5 lbs.	Sentry ABC Dry Chemical	Cockpit	3/2019
~9.0 Lbs.	Ansul ABC Dry Chemical	Crew's quarters	3/2019
~4.5 Lbs.	Sentry ABC Dry Chemical	Main salon	3/2019
64.9 Lbs. gross weight	Halon FE 241 automatic, with manual release	Engine Compartment	3/2019

SEA SAFETY EQUIPMENT

1 Pair 3’ bolt cutters
1 West Marine handheld bilge pump
1 West marine 50’ Throw Rope

SPECIAL OTHER EQUIPMENT

1 Set of flying bridge isinglass enclosure
1 Set of cockpit isinglass enclosure
1 Set flying bridge bench covers
1 Flying bridge helm cover
2 Flying bridge pedestal seat covers
1 Vinyl cover for cockpit table
1 Dinghy cover
1 Avon center-console RIB (HIN: AVBR633GD505, CF 6363 TP Calif. 2021 registration sticker #C073283)
1 Yamaha 40-HP four-stroke dinghy outboard (M/N F40TLR, S/N 67CL 1020041)
1 Set of dinghy-lifting gear
1 Dinghy ratcheting tiedown strap
Assorted dock lines & fenders
2 Teak folding aft deck chairs
2 West Marine boat hooks
4 Windshield wipers
1 Rayline remote controlled spotlight
1 Force 10 VAC 120 flying bridge grill
1 Magma stainless steel rail mounted barbeque
1 Swim platform shower
1 Set of transom underwater lights
Assorted VAC 125 wall heaters
1 Panasonic intercom system
1 Bosch Axxis washer/dryer
1 Craftsman drawered tool chest with assorted hand tools
1 Aquamatic RO desalination water maker
1 Reverso oil changing pump
1 Aqua Air 6000 BTU Marine Air Conditioning System (chiller type)
Assorted air conditioning air handlers
2 Naiad M/N hydraulic anti-roll stabilizers
2 West Marine 7x50 armored binoculars
1 Kitchen Aid stainless steel dishwasher
1 Kitchen Aid trash compactor
1 Bosch Axxis compact washer/dryer
2 Marinco 50-amp shore power cords
2 Glenndinning shore power cord retrieval reels
1 Marinco 30-amp x 50’ shore power cord
Assorted Marinco shore power adapters and splitters
Assorted countertop kitchen appliances
1 Main salon sectional sofa
2 Main salon leather swivel arm chars
1 Main salon burlwood coffee table
1 Main salon wooden end table
1 Main salon table lamp
2 Master suite wall sconces
2 VIP suit wall sconces
1 Vacuflo central vacuum system with assorted attachments & hose
2 KVH Tracphone satellite domes
Assorted direct TV satellite receivers
1 Samsung main salon 43” flat screen television
1 Main salon JVC Super VHS player
1 Main salon HR S290 DVD player
1 Master suite Sharp 31” flat screen television
1 Master suite Samsung DVD player
1 Master suite JVC receiver
1 VIP suite Sharp 19” flatscreen television
1 VIP suite Blue Ray disc player
1 Guest cabin Sharp Aquos 15” flat screen television
1 Guest cabin JVC DVD/VHS player
1 Guest cabin JVC G310 stereo
1 Gost Security & Monitoring system

USCG REQUIRED EQUIPMENT

Horn/Bell:	Yes, Horseshoe buoy
Lifejackets:	Assorted USCG Type I & II
Throwable Device:	Horseshoe & ring buoy
Plaques:	Yes, affixed to engine room bulkhead
Flares:	Not sighted
Navigation Lights:	Starboard side light inoperable
Escape Hatch:	Yes, forward cabin & pilothouse doors
CO/Smoke Detectors:	Not sighted
Compliance:	See Summary & Recommendations

EDITORIAL NOTE

These terms and words have the following meanings, as used in the survey report:

- ***Serviceable***: adequate;
- ***Excellent condition***: this rating indicates the item, system, or component is in new or like new condition.
- ***Good condition***: this rating indicates the item, system, or component is nearly new, with only minor cosmetic or structural condition.
- ***Fair condition***: this rating indicates the item, system, or component is functional as is with minor repairs, and should be monitored often to see if its condition deteriorates.
- ***Poor condition***: this rating indicates the item, system, or component is unusable as-is, and need replacement or repair, to be considered functional.

SUMMARY

Scope of Survey Engagement

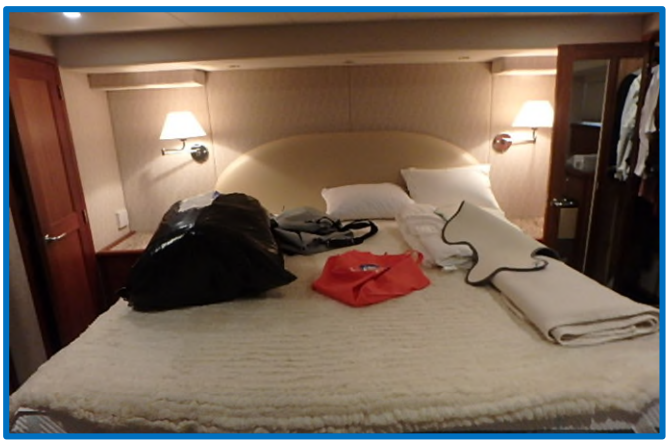
The purpose of the survey was to determine the vessel's condition and value for underwriting and pre-purchase purposes: to note the vessel's general condition, inventory of onboard equipment, documentation, and hull identification numbers. On Xxxx, x 2020 the vessel was inspected while afloat in her regularly assigned berth, at the Sausalito Yacht Harbor. Subsequently, on Xxxx, x, 2020, the vessel's underwater hull, and her equipment were inspected while hanging in the Travelift slings, at Keefe Kaplan Maritime, INC, in Richmond, CA. Additionally, on Xxxx, x a sea-trial was performed, while delivering the vessel to the yard for haul out. Attending the in-water inspection were the vessel's Captain, Xxxx Xxxx, and the undersigned certified marine surveyor, Bill Melbostad; joining them for the subsequent out of water inspection and sea-trial were the engine surveyor, Xxxx Xxxxx, and the yacht broker representing the seller, Xxxx Xxxx.

General Description & Condition

The subject vessel, *Saint Carol*, is a 65' Pacific Mariner, from a proven design by William Garden, and of tested construction from Westport Yachts, of Anacortes, WN. The vessel's intended purpose is for offshore and coastal cruising. Cosmetically, the vessel appeared in very good condition, with the exterior coatings free of noticeable thin cracking, and maintaining much of its original gloss. The molded nonskid was showing good bite.

The deck layout consists of a self-bailing aft cockpit, and a flying bridge with a centerline helm station, protected by an isinglass enclosure and a hardtop. There is a boat deck aft of the flying bridge, and flush side and fore decks, and a raised trunk cabin. The deck and cabin structures are constructed with alternating layers of molded fiberglass, with suspected end-grain Balsa core in places for reinforcements. Visual inspection showed the structures without indications of physical harm or damage, or indications of previous repairs. The cockpit sole has a solid teak plank overlay, bonded to the fiberglass substrates. The teak overlay was free of significant eroded or raised grain, shrinking caulking, or cracked planking; it was well oiled and showed a nice golden-brown color. The structures were tap-tested with a 4-oz. ball-peen hammer; there were no indications of outer-bond separations, delamination, or signs of deteriorated core materials. Tap-testing also showed no debonded teak planking on the cockpit sole's teak overlay. The structures were spot-checked with a Protimeter Aquant moisture-meter; all readings were generally low, with no indications of water migration into the composite structures, or saturated core materials.

Note: Tap-testing is used to assist in identifying possible upper laminate bond failures, or delamination, or compromised core material. Additionally, the audible sounds the tap-testing creates are vibrational differences that may provide indications of laminate debondment from the core, or deteriorated or statured core materials.



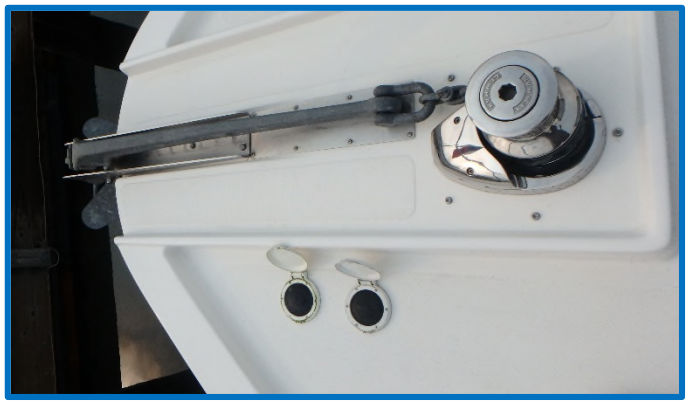
The interior accommodations are comprised within in a three-level, six-cabin layout. Forward on the lower level is the VIP stateroom, with a centerline queen island-berth, and a private head with a shower stall to starboard. Aft on the lower-level is the master stateroom, with a centerline king berth and a private head and shower stall to starboard; to port is a guest cabin with two single berths. The raised pilothouse has a centerline helm station with two Stidd pedestal chairs; aft and to port in the pilothouse are an L-shaped settee and a U-shaped galley. The main salon is aft at the cockpit level; it has an L-shaped sectional couch to port, two leather swivel armchairs to starboard, and an entertainment center and wet bar forward. Under the main salon is the engine room; it is accessed via the cockpit. Aft of and accessed through the engine room companionway is the crew quarters, with two single berths to starboard, and a head to port.

The vessel's interior reportedly has been redecorated, with new carpets and furnishing, and the pilothouse teak and holly sole has been replaced. There are custom interior shades that were installed recently, and functioned easily. Overall, the interior liners, upholstery, and cabinets were in near-new condition, and show as a newer vessel. All the pilothouse and aft sliding, and the passageway, cabin and cabinetry doors fitted properly in their jambs, and closed securely, with their latching hardware was operable. There were no indications of window, deck, or hatch leaks sighted in the interior. The lockers, cabinets, and bilges were clean, dry, and well-ventilated.

The cabin windows and pilothouse windshield are comprised of suspected marine safety glass; they were found without cracking, hazing, or frosted edges, and well adhered to the cabin sides. The various deck hatches' lenses were clear, with no cracking or crazing; their frames were without damage, and the latching hardware and gaskets were sealing well. The deck hatches are all fitted with interior sunshades, which were free of damage, and functioning normally. The molded swim platform is fitted with access hatches on its sole. The starboard hatch's hinges were loose, and the hatch could not be opened.

For internal reinforcements, the vessel relies upon marine plywood bulkheads bonded to the hull, fiberglass molded longitudinal stringers, and transverse frames. The hull-to-deck joint is a vertical overlapping flange, which is fastened and bonded. A thorough inspection of the interior and its structural sub-assemblies revealed no movement, failed secondary bonds, or soft or decayed wood. There are at least three water-tight bulkheads are aboard the vessel. The aft engine compartment bulkhead is equipped with a watertight door, which latched securely, and its gaskets appeared to be sealing well. Much of the interior is sealed in with liners, cabinetry, and tanks, making complete inspection impossible.

Spars & Rigging



The CQR plow anchor and the galvanized chain appeared adequately sized for most holding conditions. The Lewmar vertical capstan anchor windlass was tested momentarily, without a load, and it powered up as expected. The aft windlass foot pedal control cover had a broken hinge. The aft side decks are equipped with Lewmar vertical capstan winches; these winches were tested momentarily without a load, and they powered up as expected. The anchor chain was not paid out, inspected, or measured; nor was the chain sighted as being terminated in the anchor locker. Inspection of the chain locker showed some bay mud caked onto the chain. Otherwise, the anchor locker was mostly clean and appearing to drain well, and the chain was free of rusting or galvanizing failures.

The deck canvas and covers were in serviceable condition, with no noticeable wear or failed stitching, and the isinglass was without significant oxidization or hazing. The flying bridge's aft isinglass enclosure entry panel had an outboard zipper not functioning properly. Otherwise, the cockpit, and flying bridge isinglass were in good condition, clear, and without noticeable hazing, or cracking.

The stainless steel perimeter safety rails were well secured to the vessel, and without bent or distorted tubing, or cracked welds. The side deck and bow safety rail's intermediate vinyl coated lifelines were in good condition, and without chafe at the stanchion ferrules, or cracked swage fittings.

The flying bridge and the pilothouse windshield wipers are equipped with washers. Both the wipers and the washers were functioning normally, and the self-parking mode for the wipers was operable.

The vessel is equipped with an Avon center console rigid inflatable dinghy, powered via a Yamaha 40-HP four-cycle engine. The dinghy was not test-run, or operated by the surveyor; its running condition is unknown. Inspection of the dinghy showed the normally expected aging of the suspected Hypalon fabric collar, and only minor fading, but it was free of cracking or noticeable UV damage, or significant abrasions. The collar was found firm, with adequate inflation, and well vulcanized to the fiberglass hull. The dinghy's rigid underwater hull was fair, and free of indentations, physical harm, or damage. The cockpit vinyl upholstery was in good condition, and free of significant UV damage or tearing. The Yamaha outboard cowling was without damage, and its coatings were maintaining good gloss. The outboard's tilt and trim system was functioning normally, and its pump assembly was without corrosion or leaking piston seals. The battery was just replaced, and had a 2020 date stamp. The mechanical push/pull steering was smooth, positive, and friction-free. The engine's wiring harness loom is UV damaged, and should be replaced. The stern navigation light was damaged, and not operable. The dinghy's fire extinguisher was manufactured in 2015, and is not currently tagged.

The dinghy is launched via an aluminum hydraulic/electric davit. Inspection of the davit showed it without physical movement, and well secured. The davit was tested, and its hydraulic cylinder lifted the davit normally, without a load, and the DC lifting winch functioned normally. However, the davit's sheaves were slightly slow to turn, and the cable was not turning easily over them; they may need lubrication. The davit's wired remote control was without damage, or corrosion.

Plumbing:

For sea-connections, the vessel relies mostly upon Apollo bronze flanged seacocks, coupled to threaded bronze through hulls. There were a few of the seacocks that the surveyor could not close easily, and they were found frozen or partially frozen (see sea-connection table on page #3). Otherwise, inspection of the sea-connections showed them in operable and satisfactory condition.

A few of the through hulls located in the crew cabin were not fitted with shutoff valves, as recommended by the guidelines of American Boat Council's H-27 Seacocks, Thru-Hull Fittings & Drain Plugs:

H-27.5.1 All piping, tubing, or hose lines penetrating the hull below the maximum heeled waterline, shall be equipped with a seacock to stop the admission of water in the event of failure of pipes, tubing, or hose.

27.4.2 Maximum Heeled Waterline

The level of the water on the hull when the hull is inclined to

27.4.2.1 for powerboats, and angle of seven degrees, or 27.4.2.2 for sailboats, the level of sheer amidships.
The following hoses were found cracked:

1. The water maker intake hose, running between the seacock and the sea-strainer;
2. The air conditioning pumps' intake hose running between the seacock and the sea-strainer;
3. The Naiad hydraulic stabilizer pump's cooling hoses:
    a. One running from the port engine transmission cooler, to the check valve-tee assembly;
    b. The other running from the bronze manifold/check valve assembly, up to the fluid conditioning reservoir module.

There are a complex series of hoses in the port aft section of the crew quarters servicing various drains; the Captain reportedly just replaced and modified, and were difficult for the surveyor to ascertain their purposes. The drains were found clear, and functioning normally. Further, the drain components are supported by nylon strapping, which reportedly the Captain also recently installed. Perhaps, these plumbing drain systems can be simplified in the future. The fly bridge and upper deck, and possibly other drains discharge into fiberglass molded pipes, running along the hull and exiting the transom. The fiberglass pipe and their corresponding hoses were found in satisfactory condition.

Otherwise, the corresponding hoses were found in serviceable condition, with no cracking or wear, where visible and inspected. Both the watermaker and the air conditioning system sea-strainers showed minor indications of seepage, and they should be scheduled for service.

The vessel is equipped with two compliant Type III marine sanitation devices (MSD). The crew quarter's MSD, which services the electric Jabsco toilet, uses a polyethylene holding tank, which can be emptied via the deck plate pump, or overboard via the Sealand macerator pump. The crew quarter's MSD was in satisfactory condition, with no indications of sewage leaks, or sewage odors. The crew quarter's Jabsco toilet was tested, and it pumped water through its bowl normally. The head's diverter valve was found to operate freely. The crew quarters' macerator pump was not tested.

The second and primary MSD, which services the vessel's two Headhunter vacuum type toilets, which also is a Type III, using a fiberglass molded holding tank. The primary holding tank can also be emptied from the deck pump out plate, or the Sealand overboard macerator pump. Likewise, the primary holding tank was without signs of seepage, odors in the bilges. Both septic system's sanitation hoses were without indications of permeation, cracking, or other concerns. The two Headhunter toilets were tested, and they flushed normally, with no vacuum pump run on or cycling.

The freshwater system consists of a single stainless steel storage tank, with a 265 gallon reported capacity, and routed through vinyl water lines, and the dual X-Caliber 24-DC house water pressure pumps. The water pressure system provide water to all stations tested, with no noticeable pump run-on or cycling. There is a Torrid 11-gallon hot water heater aboard that warms water solely via the shore power VAC 240 system. Inspection of the hot water heater showed it without noticeable rusting or corrosion on its mild steel casings. The hot water heater warmed water as expected. There is a water maker system aboard the vessel, which was pickled, and therefore not tested. The water maker was without visible physical harm or damage.

The vessel is equipped with multiple and redundant Rule submersible bilge pumps, all wired with float switches, to make them activate automatically or manually via their helm station mounted toggle controls. The bilge pumps were tested via their float switches, and functioned all as expected. The bilge pumps were not tested from the helm toggle switch controls.

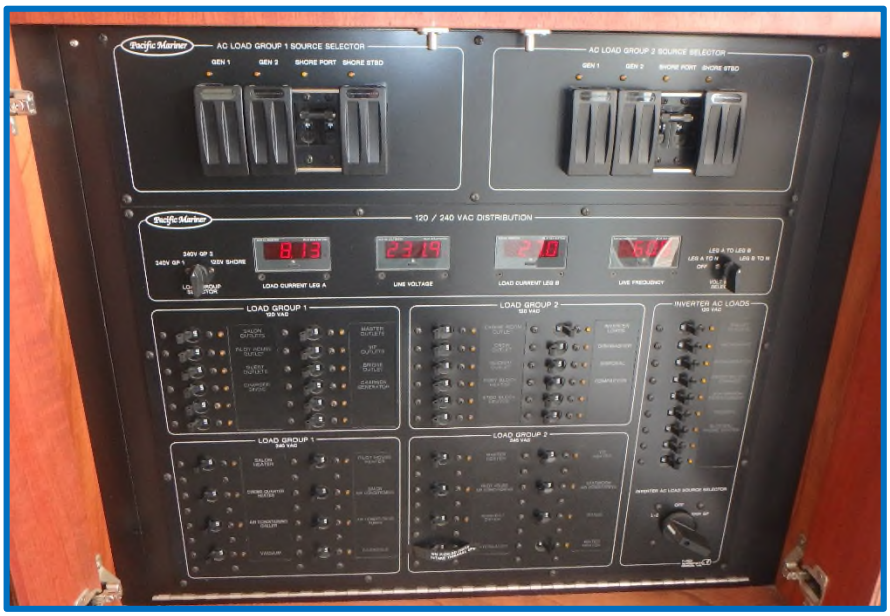
The two showers drain into a custom bult sump located under the sleeping accommodations' soles, and uses a Rule 2000 submersible bilge pump wired with a float switch. The shower sump pump was tested by activating the float switch, and it functioned normally. The shower sump would benefit from routine cleaning. There is an anchor raw-water wash down system aboard the vessel, utilizing a Jabsco diaphragm pump. The anchor wash-down system was not tested; it appeared in good operating order.

The vessel is equipped with a three-zone climate control system, using an Aqua Air marine air conditioning system, using a chiller type reverse cycle heat pump, and multiple air handlers installed in the various cabins. The air conditioning system was tested in cooling mode, and the registers all appeared to be blowing cool air. A few were checked with a digital laser temp gun, and readings in the low 60s Fahrenheit were recorded. The visible system components, including the compressor located in the port engine compartment, and the two VAC 240 cooling pumps were without indications of corrosion, and appearing well maintained. Cooling water is suspected to be discharged through the fiberglass pipe drain manifolds which exits under the swim platform, but cooling water was not viewed. Meanwhile, the cooling pumps' intake strainer did show good water flow. The air handlers were not viewed. The thermostatic controllers and their LED displays all functioned normally.

The vessel is equipped with a Bosch compact clothes washer/dryer set. They were powered momentarily through their various functions and cycles, and both appeared to operate normally. There is a Kitchen Aid dishwasher in the galley that was not tested, or operated.

Electrical

The vessel has both AC and DC electrical systems aboard. The wiring systems are well-loomed, corrosion-free, and adequately sized, where visible and inspected.



The AC electrical systems are powered alternatively via the 30-Amp or 50-amp shore power inlets, and the two Northern Lights 20 KW & 16 KW diesel generators, which are routed through the Charles Isolation transformers, the transfer of power selector switches, and the AC distribution panelboard. The AC systems were tested with the port 50-amp shore power inlet and both generator sources, and all powered up the tested appliances normally. The starboard 50-amp, nor the two 30-amp inlets were tested.

The two 50-amp shore power cords are stored on Glendinning retrieval systems. The retrieval systems were tested, and they functioned normally. The shore power cords were without damage, or corrosion on their plugs.

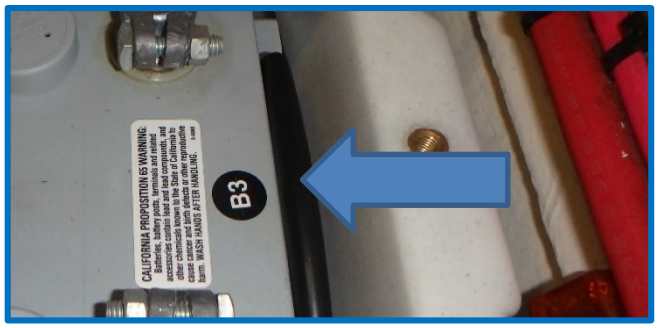
The AC receptacles were tested with an Ideal Sure test circuit/load circuit tester, and there were no indications of open circuits, ground faults, or reverse polarity conditions. The GFCI protected receptacles were tested, and all tripped normally. When the galley receptacle was load tested at 15-amps, it showed a slightly elevated voltage drop of roughly 11%, which exceeds ABYC recommended 10% maximum drop. It is suggested to check the receptacle and its connections for attributable causes of resistance.

When the AC electrical systems are disconnected from shore power or the generators are offline, a Xantrex Pro Sine 3000-watt inverter/charger automatically comes online; it powers certain appliances, such as the refrigerator, microwave oven, and selected receptacles. The inverter/charger powered the refrigerator and the galley AC receptacles normally. When the vessel is connected to shore power, the inverter goes into passthrough mode.

For AC overcurrent protection, the vessel relies upon toggled circuit breakers, which met the standards at the time of construction, but not guidelines as recommended by current ABYC Standards E-11 (see surveyor's notes regarding ELCI at the report conclusion).

There are two separate DC electrical systems aboard the vessel. The house electrical system is powered via four West Marine 12-volt 8D 225 AH Gel type batteries, which are wired in series/parallel to make a 24-volt bank, and routed through the Guest vapor-tight battery switch, and the various DC distribution panelboards. The second DC electrical system is dedicated to engine starting; likewise, it's powered by two 12-volt West Marine 8D 225 amp-hour Gel type batteries, wired in series to make a 24-volt bank, and routed through the Guest vapor-type battery switch, and the engines' wiring harnesses. The two battery banks can be paralleled with a third Guest vapor-tight battery switch. The electronic navigation equipment is 12-volts, and suspected to be powered by a 24-volt to 12-volt DC converter, and is routed through a separate distribution panelboard. The converter was not viewed.

The batteries are satisfactorily and securely installed within Blue Sea Systems acid-proof boxes. The batteries were in good condition, without case anomalies, bulging, or cracking. The DC primary cabling consists tinned marine battery cable. Inspection of the primary cabling, the terminals and connections showed them secure, and free of corrosion.



Several of the batteries had date stamps indicating they were installed in 2013. The vessel's Captain reported all the batteries were replaced roughly 3 or 4 years ago. It is typical marine industry practice to replace deep-cycle batteries upon 7- to 10-year cycles, depending on their care, charging profiles, maintenance, usage, and discharge cycles. Upon any indication of low voltage or charging anomalies, replacing the house batteries is suggested. At the time of the inspection, the batteries were charging normally and showed normal voltage levels.

The engine batteries are charged via the Charles 10-amp smart battery charger, and the engine mounted alternators. The house batteries are charged via the Charles 40-amp smart charger, the Xantrex inverter/charger, and the engine mounted alternators. The charging sources were found operable, the chargers functioned normally, and the alternator's output was within specification, and varied between ~26 and ~28 volts, according to the helm mounted volt-meters.

The DC overcurrent protection is via inline fuses, remote Blue Seas Systems circuit breakers for the high current cabling, and plunger type toggled circuit breakers for the branch circuits, in the distribution panelboards, which meets current ABYC standards.

The electronic navigation equipment was tested during the sea-trial. The heart of the pilothouse's primary electronic navigation system are the three NEC-LCD displays, reportedly interfaced with the Furuno GPS and the HP Pavilion CPU loaded with C-Map navigation software. The navigation systems were tested, and when in GPS/plotter mode, the center display provided accurate vessel position, and charting and navigation information. The starboard display provided a clear radar image. Testing the flying bridge helm Furuno multifunction navigation display showed it to power up normally, and provide a clear image in radar mode, and accurate vessel position and navigation info when in plotter/GPS mode. Both ICOM VHF radios powered normally, and received transmissions clearly. The Simrad flying bridge wind, depth, and knot meter displays did not show data. The pilothouse depth sounder powered up, but did not provide depth info.

The engine room, aft deck, main salon, and pilothouse are equipped with closed circuit digital video cameras, additionally, there is a mast-mounted Flir night vision camera atop the flying bridge hardtop. The various cameras were tested, and all provided clear images on the port NEC display.

The navigation equipment, the two KVH satellite domes, and the radio antennas on the flying bridge were well secured, and without physical harm or damage. The Satellite domes' aluminum masts had a few inconsequential areas of peeling paint. The split loom protecting the flying bridge mounted antennas and other equipment cabling was UV damaged. The wire loom should be replaced.

The GE galley range was tested, and its burners all warmed quickly and normally. The galley oven and the trash compactor were not tested. The galley GE refrigerator was cooling normally. The flying bridge Norcold minifridge was tested momentarily, and it powered up as expected. Neither the crew quarter freezer, nor the main salon Uline icemaker were tested.

There is extensive audio-visual equipment aboard the vessel. Only the main salon Samsung television was tested, and it powered up as expected, but none of the various sources were operated to provide the television a signal. The rest of the AV equipment was not powered up or tested.

The flying bridge and the cockpit exterior lights illuminated normally. The flying bridge-mounted Rayline remote controlled spotlight illuminated as expected, and rotated on command from its fly bridge helm control. All of the interior lights illuminated as expected. The underwater transom lights illuminated.

Engine & Machinery

As part of the pre-purchase inspections, Jason Felix of Sea Tech Marine performed an independent mechanical inspection of the vessel. It is suggested comply with all recommendations generated by the mechanical survey.

The vessel is powered via twin inline six-cylinder, turbocharged after-cooled Detroit MTU Tier 2 diesel engines, which are coupled to ZF marine reduction gears, and turning stainless steel inline propeller shafts. The engines are securely installed upon fiberglass engine stringers with the use of aluminum channel. The motor mounts are sound and solid, with their bushings maintaining good resiliency, and the adjusting workable, and rust-free. There were no indications of cracking, or delamination sighted on the engine stringers.

Cosmetically, the engines are in very good condition, with their factory installed anticorrosive coatings free of significant failures, or noticeable rust or corrosion on the machinery housings. The fluids were checked, and their levels and qualities were found normal, with the engine and transmission oils clean and amber brown. There was minor raw-water cooling seepage sighted in the following locations:

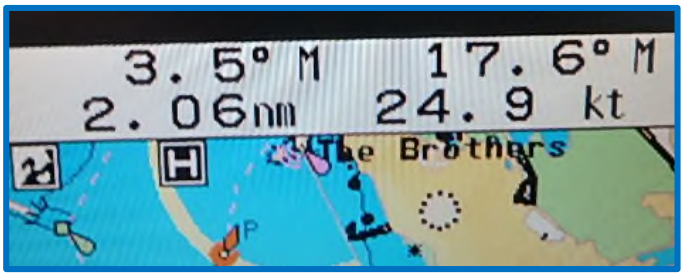
- On the port transmission cooler's soldered nipple for the Naiad hydraulic stabilizer's raw-cooling water hose;
- On the starboard engine, somewhere in the vicinity of the forward part of the aftercooler.

These minor raw-water leaks should be scheduled for repair.

The engines' oil fills consist of rubber hose cuffs clamped to the dipstick tubes. The hose cuff connections were seeping oil slightly, and the fills need to be repaired. The engine compartment sump had small amount of oil contaminated bilge water, perhaps from a previous engine service. Otherwise, there were no indications of external oil, fuel, or cooling water leaks sighted. The engine accessory belts are mostly concealed behind their protective guards. Where visible, there was a moderate amount of belt dust wear present on the pullies and the adjacent machinery. The accessory belts should be thoroughly inspected, and replaced if deemed necessary, or per manufacture's periodic maintenance recommendations.

The engines started from cold easily and pumped adequate cooling water, with little smoke in the exhaust. Once the engines warmed to operating temperature, they idled and shifted smoothly.

A sea-trial was performed while delivering the vessel from Sausalito to Richmond for the haul out at KKMI. Conditions were mostly benign, with light winds, slack current, and flat seas. During the sea-trial, the engines and their gauges were observed at varying RPM and power levels. Additionally, navigation equipment was operated and tested.



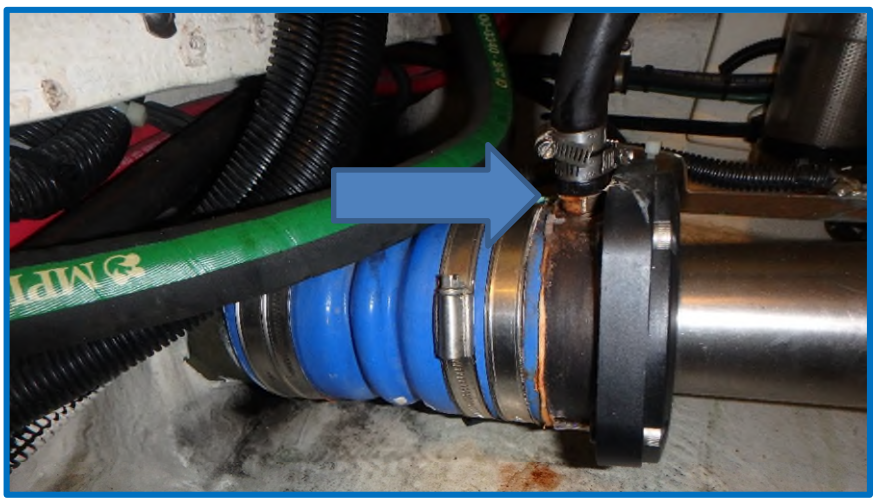
The engines ran exceptionally smoothly at all power-levels, with no unusual vibration, or run-out at the propeller shafts or their seals. The engines were run briefly at full power and wide-open throttle (WOT). At WOT, the engines each attained ~2350 RPM, which meets the manufacturer's recommended WOT RPM rating. The engine controls were operated in single lever synchronization mode, which was functioning normally. At WOT, the engines ran smoothly, with no unusual vibration, or indications of over-fueling exhaust anomalies, and the vessel reached roughly +25 knots, speed over ground, per the vessel's GPS/plotter system.

The vessel was operated from both helm stations; the electric MTU engine controls accelerated and shifted smooth; the computerized digital engine panels all worked normally, and provided engine diagnostic information. In addition to the flying bridge and the pilothouse helm stations, the vessel is equipped with cockpit and starboard wing stations, only fitted with the electric engine controls and the bow thruster control. Both auxiliary stations were tested during the sea-trial, and they functioned normally.

It was not reported when the last full engine service was performed. Therefore, to establish a maintenance baseline, it is advised to have a qualified marine mechanic replace all engine oils, transmission fluid, oil and fuel filter elements. Additionally, it is important to clean out the raw water sea-strainers and replace the seasoned zinc anodes.

The engine exhaust is turbo-assisted, and is routed through the stainless steel custom self-draining mixing elbows, the molded integral fiberglass water-locks and below waterline ports. The exhaust systems split, with a water-indicating line routed through Centek fiberglass water-locks, and hard-wall exhaust hose exiting through the fiberglass molded transom ports. The mixing elbows showed no indications of pitting, pinholes, restrictions, or leakage. Further inspection showed the exhaust system well routed, clear, and without indications of vapor or raw-cooling water leaks. However, the turbochargers' protective heat blankets have been removed, exposing hazardous and hot metal exhaust surfaces. Installing heat jackets on the turbochargers is recommended.

The fuel system consists of two epoxy/LPU coated aluminum alloy self-leveling tanks, drawing and filling from the top, and routed through USCG A-1 flexible neoprene fuel hose, and the four Racor water water/fuel separating filters configured in a manifold. The fuel tanks are fitted with sight tubes equipped with shutoff valves, and pilothouse helm gauge. The fuel gauge readings were consistent with the sight tubes. The fuel systems were in satisfactory condition, with the visible exterior of the fuel tanks' surfaces in near-new condition, and no indications of fuel leakage, or odors in the bilges. Each generator fuel system relies upon a Racor 500MA water/fuel separating filter. All of the filters' sediment bowls were clear, and free of indications of particulate, algae, or water contamination.

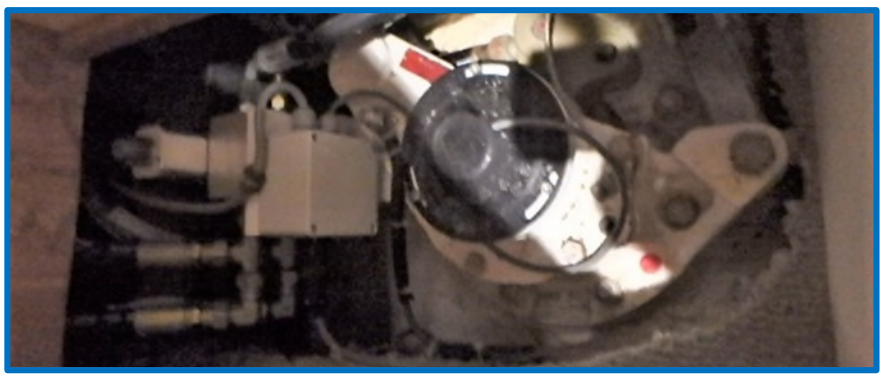


The propeller shafts rely upon Tides Marine dripless water injection shaft seals. The seals were observed during the sea-trial, and the port side was actively leaking with the propeller shaft turning. The starboard seal was slightly moist. Furthermore, there were some indications of rust staining on the seals' bodies, and their water injection nipples. Servicing or replacing the shaft seals, per the manufacturer's recommendations is recommended.

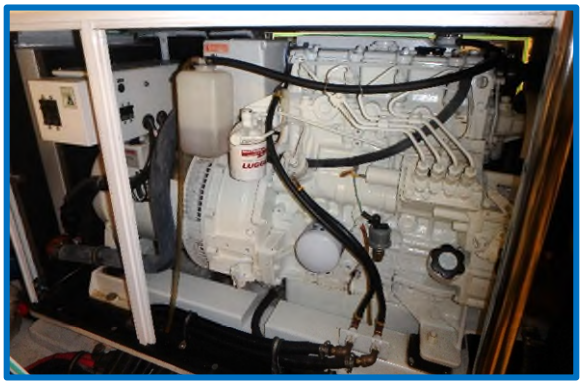
The vessel's Teleflex SeaStar dual station steering systems were smooth, positive, and friction-free. There were no indications of fluid leaks sighted from the helm pumps, the hydraulic lines, or the steering cylinder. The bronze tiller arms and the painted tie rod were in good condition, with no rust or corrosion. However, the steering cylinder's piston bellows/boot is torn. Inspection of the rudders' packing glands showed them dry on the sea-trial, with no seepage.

However, both glands' packing nuts showed unusual cosmetic surface rusting, and a few sodium deposits on their tops. Cleaning the packing nuts to bright bronze is suggested. The Simrad hydraulic autopilot was tested from both stations during the sea-trial; it steered the vessel on a true course, and responded to course changes reliably.

The vessel is equipped with a hydraulic bow thruster, powered via a PTO pump mounted on the 20 KW generator. Inspection of the bow thruster's hydraulic lines showed one of them leading from a control valve to be slightly shiny with hydraulic fluid. This hose was free of cracking or other indications of deterioration, but should be watched. Otherwise, inspection of the bow thruster, its tunnel, and all corresponding hydraulic hoses showed them to be in serviceable condition. During the sea-trial, the bow thruster was tested from all four stations; it operated normally, and the vessel responded to commands as expected. The below waterline components of the bow thruster were in good condition, with no signs of corrosion or damage.



The vessel is equipped with Naiad hydraulic fin type stabilizers, which are powered by a hydraulic pump installed on the starboard engine. Aside from the aforementioned cracked raw-water cooling hoses, the stabilizer system appeared in good working order, and well maintained, with no significant rust or corrosion sighted. The stabilizers' actuators are located in the master stateroom sole; their hydraulic cylinders were observed to be modulating on the run back to Sausalito, and is assumed they are functioning normally.

The vessel's 20 KW and 16 KW generators were found in good cosmetic condition, with their factory installed anticorrosive coatings free of failures. The generators' sound shields and their sound proofing were well secured, and free of coating failures. The generators' oil was checked, and it was found topped off and clean in both units. The 20 KW generator's coolant was at the low mark in its saddle tank when cold. The 16 KW generator was at the full mark. Monitoring the coolant levels and assuring it meets the manufacturer's recommendations is suggested. Inspection of the generators' water scrubbing exhaust showed minor cracking of the following hard wall marine exhaust hoses:

- The 16 KW generator's exhaust hose running from the mixing elbow to the water scrubbing water-lock;
- The 20 KW generator's water scrubbing lock center exhaust hose.

These hoses should be scheduled for replacement in the near future. Furthermore, areas of both generator's exhaust systems are concealed and could not be fully inspected by the surveyor. Performing a thorough examination of the generators' exhaust systems, and repairing or replacing as deemed necessary is suggested.

Both generators started on demand from cold, and they pumped adequate cooling water, with no smoke in the exhaust. Otherwise, there were no indications of external oil, fuel, or cooling water leaks sighted. Both generators ran smoothly, without hesitation, and powered the AC appliances normally when placed under a moderate AC load, running the air conditioners, and other various appliances. Both generators' panelboards and gauges were functioning normally. Both panelboards' voltmeters showed the generators' alternators charging their starting batteries normally, or at roughly 14.2 volts. Likewise, the generators' batteries are gel-type, and appeared to have been replaced at the same time as the engine starting and house batteries.

Underwater Hull

The hull is constructed of suspected alternating layers of molded fiberglass, impregnated with vinylester resins. The topsides are protected with a PVC/stainless steel rub-rail, they're are flat aft and flare forward, with a raked bow and a vertical transom. The underwater hull has a deep-vee forward, with hard chines, that flattens aft; there are twin stainless steel exposed propeller shafts, each turning bronze counter-rotating five-bladed propellers.

The topsides were fair, and free of indentations, physical harm or damage, or indications of previous repairs. The rub-rail was without impact damage, and secure. The suspected topside gelcoat was well maintained, showing very good gloss, and free of oxidization.

Most of the ablative type antifouling paint was well adhered, and smooth. However, there were areas above the starboard chine, on the port hull, and other random areas, that were showing either some thick and layered paint, or minor detachments and bubbling. This is soft ablative paint, and these anomalies should be able to be remedied with extra prep work to remove the loose paint prior to applying the next layer of antifouling.

Likewise, the underwater hull was fair, and free of indentations, with no indications of previous repairs, or grounding. The underwater hull showed no indications of osmotic blistering. The underwater hull was tap-tested with a 4-oz. ball-peen hammer. All returns were generally sharp, with no indications of delamination, outer-bond separations, or compromised core materials.

The rudders were well-aligned, tight in their logs, and free of noticeable wobble in their logs. They were without indications of pinking, or dealloying.

The running gear was true to the eye. The twin stainless steel propeller shafts were centered in their logs and cutlass bearings; they turned easily, and were free of pitting, or other forms of corrosion, or wear, where visible and inspected. The propellers and shafts are coated with Prop Speed, an antifouling coating intended for props and shafts, and other underwater metals. The Prop Speed was effective in preventing calcium carbonate growth, or other forms of hard marine growth, and the running gear was mostly clean. The propellers were in good condition, with no signs de-alloying, pinking, or folded or bent blade edges. The propellers were checked with a straight edge, held at a fixed point, and there were no signs of bent or untrue blades. Both shaft struts were tight to the hull, with no indications of movement. The starboard strut showed minor surface pinking. The cutlass bearings had tight interface to the propeller shafts, and were free of wear.

Aside from the aforementioned minor pinking sighted on the starboard strut, there were no indications of unusual electrolytic activity sighted on the underwater hull. A continuity check was made to determine if the starboard strut was bonded, and it was measured at roughly .5 ohm of resistance, which meets ABYC and industry standards. The bonding system and the underwater anodes appeared to be providing adequate cathodic protection.

Documentation, Safety & Required Equipment

The current ABYC standards call for an automatic fire suppression system for the engine compartment, or a suitable fire extinguishing port in the side of the engine box and a suitably sized clean agent fire extinguisher mounted adjacent. There is a halon FE 241 engine automatic fire suppression system with a manual pull installed in the engine compartment.

The firefighting equipment was viewed, and all appear serviceable; however, they were not currently tagged. The ABYC and the NFPA recommend all fire extinguishers be inspected, serviced, and tagged annually, by qualified service personnel.

Carbon monoxide detectors were not sighted in the living spaces. Sources of carbon monoxide (CO) on boats include gasoline engines and generators, cooking ranges, and space and water heaters. The tasteless, odorless, colorless gas is produced any time a material containing carbon, such as gasoline, wood, propane, coal or natural gas, is ignited. Exposure to prolonged or high concentrations of CO can result in death or serious injury because CO reacts with hemoglobin and reduces blood's oxygen-carrying capacity. Installing approved Marine CO detectors in the living spaces is recommended, per ABYC A-24:

24.7.1 A carbon monoxide detection system shall be installed on all boats with an enclosed accommodation compartment(s)

A UL approved smoke detector was not sighted in the living spaces, as recommended NFPA 302 12.3.

The starboard navigation side light did not illuminate.

RECOMMENDATIONS & FINDINGS

Section A: Items that may pose a safety hazard, or do not meet USCG regulations, and should be attended to as soon as possible:

1. Free up or replace the partially frozen or frozen seacocks (see sea-connection table, page #3).
2. Replace the cracked air conditioning and water maker intake hoses, running from the seacocks to the strainers.
3. Install protective heat blankets on the engines' turbochargers.
4. Service the propeller shafts' Tides Marine dripless shaft seals, per manufacturer's recommendations.
5. Have qualified service personnel service and tag the firefighting equipment, and continue to do so annually in the future.
6. Provide marine approved CO detectors throughout the living spaces, per ABYC A-24.
7. Install a UL smoke detector, per NFPA 302 12.3.
8. Make the starboard navigation light illuminate.
9. Replace the Avon dinghy's damaged stern navigation light.

Section B: Findings and observations made during the course of inspection and recommendations to persevere the vessel's structural integrity, or made to meet current standards:

1. Replace the cracked Naiad stabilizers' raw-cooling water hoses.
2. Service port engine transmission cooler, and repair the seeping raw cooling-water injection nipple.
3. Have a qualified marine electrician determine the cause of the galley receptacle's voltage drop.
4. Have a qualified marine mechanic thoroughly inspect the engine accessory belts, and replace as deemed necessary, or per manufacturer's periodic maintenance recommendations.
5. Schedule the generators' exhaust system for full inspection, and replace any cracked exhaust hoses discovered.

Section C: Findings and observations made during the course of inspection and mentioned for the owner's consideration and scheduling of future maintenance:

1. Repair the swim platforms loose access hatch hinges.
2. Replace the UV damaged split-loom protecting the flying bridge antenna and other cabling.
3. Reset or repair the engines' seeping oil fill hose cuffs.
4. Replace the damaged steering cylinder boot.

IT SHOULD BE NOTED THAT NUMEROUS FINDINGS ADDITIONALLY ARE DISCUSSED WITHIN THE REPORT'S SUMMARY. THIS REPORT SHOULD BE READ ENTIRELY.

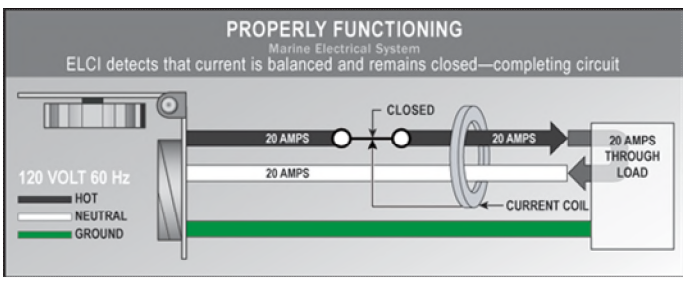
SURVEYOR'S OTHER SUGGESTIONS & COMMENTS

Some of the USCG, NFPA, and ABYC standards in effect today did not exist when the vessel was built. Therefore, while this survey observes the vessel with reference to the current standards, and reports deficiencies thought to be important to the safety of the vessel and personnel, it does not and cannot require complete compliance with all of the current voluntary standards.

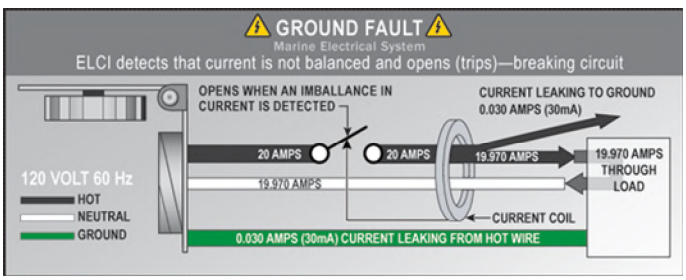
It is suggested to provide softwood tapered plugs tied to the through hulls, which could be used in cases of emergency failure of any sea-connection valves, hoses, or piping below the waterline. Furthermore, the plugs should be stored in plastic bags, to prevent them from becoming wet, and swelling before usage.

There was no ELCI sighted aboard the vessel. The American Boat and Yacht Council's electrical standard E-11.11.1 recommends that *the installation of "ELCI's" (equipment leakage circuit interrupter's) be installed with, or in addition to, the main shore power disconnect circuit breaker(s) or at the additional overcurrent protection, whichever is closer to the shore power connection.* The ELCI is similar to a GFCI outlet. The primary difference between the two is the amperage at which they trip. A typical GFCI is engineered to trip at a nominal 5 milliamps, whereas the ELCI is engineered to trip at 30 milliamps.

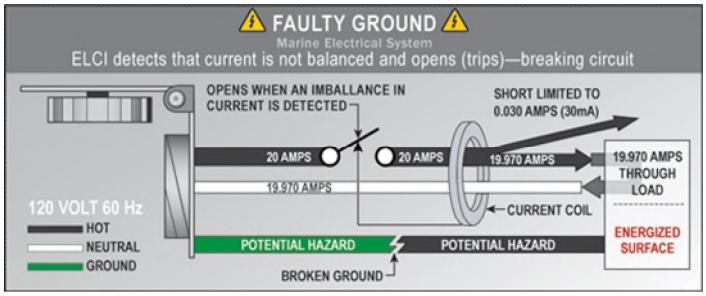
There are two potential failures in a boat′s electrical system that can put people on or around the boat at risk of lethal electric shock. In a properly functioning marine electrical system, the same amount of AC current flows in the hot and neutral wires.



However, if electricity "leaks" from this intended path in these two wires to ground, this condition is called a ground fault. A good example of this is an insulation failure in the wiring of an appliance.



In addition, a faulty ground can occur when the grounding path is broken through a loose connection or broken wire. For instance, a shore power cord ground wire may fail due to constant motion and stress.



Faulty grounds can be undetectable; a simple continuity test will not necessarily reveal a problem. When these two conditions occur at the same time, the results may be tragic. The combination of a ground fault and a faulty ground can result in metal parts in the boat and underwater hull becoming energized. In addition to the hazard to people on the vessel, there is a larger danger to swimmers near the boat. While people onboard are likely to receive a shock from touching energized metal parts, nearby swimmers could receive a paralyzing dose of electricity and drown due to involuntary loss of muscle control.

This photo shows a well-organized visual distress signal kit, and waterproof storage container. Including protective gloves and safety glasses. Note the dangerous ends of the flares are marked with reflective tape. Smoke or day signals, and handheld night signals, should be part of a complete flare kit. Additionally, white collision flares that can be displayed to bring attention to your vessel if it is not seen on radar or AIS of a large or commercial vessel, and also useful for lighting up the area in a MOB situation. It is important to treat flares with respect, store them well, and purchase SOLAS or LED flares. The USCG now approves electronic LED flares near shore. Carrying these LED flares should be considered, instead of traditional pyrotechnics. Pyrotechnic flares are extremely difficult to dispose of and have expiry dates.

RISK & VALUATION

The subject vessel has been well maintained professionally, by her knowledgeable and conscientious captain. With the exception of the minor defects listed in this report, the subject vessel, *Xxxx Xxxxx* is in very good condition. Once the recommendations are met, with continued maintenance, and when used in a seamanship like manner, the vessel should be well suited for its intended usage, and considered a reasonable underwriting risk.

Comments On Appraisal

In arriving at a suggested market value, the Surveyor attended the vessel and inspected it, in and out of the water, in its current condition. Methodology for this appraisal involved comparable market data, and included researching market data of vessels of the same or similar design, which either currently are on the market, or have recently sold. The Appraiser researched and reviewed comparable vessels of like kind or the same general usage and profile. These vessels appeared to be well maintained and available for immediate usage as designed. It was necessary to research similar vessels currently for sale. Research involved sources in the Pacific Northwest, Central, Southern, and East Coasts.

Facts, Assumptions and Conditions Governing This Report

The estimates of value contained in this report are founded upon a thorough examination and analysis of information gathered and obtained from numerous sources. Certain information has been accepted at face value. Other empirical data required interpretive analysis pursuant to the objective of this appraisal. For these reasons, the following Contingent and Limiting Conditions have been prepared, to summarize the basic factors and circumstances, which govern, in part, the analyses, opinions, and conclusions contained in this report.

1. This appraisal is valid only for the purpose stated herein. Any other use or reliance by a third party is invalid.
2. This firm assumes no responsibility for matters legal in character, nor is any opinion given as to the title of the vessel.
3. All existing liens and encumbrances have been disregarded. Vessel has been appraised as though free and clear.
4. The estimate of market value expressed herein, is to be considered valid at the time of inspection.
5. Information, estimates, and opinions furnished to the Appraiser, and contained in this report, were obtained from sources considered reliable and believed to be true and correct; however, no responsibility for accuracy of such items furnished to the Appraiser can be assumed by the Appraiser.
6. Disclosure of the contents of this appraisal is governed by the Bylaws and Regulations of the National Association of Marine Surveyors, a professional organization with which the appraiser is affiliated.

7. This appraisal is based on the condition of the vessel as found and does not address future repairs, alterations, additions or personal property.
8. This appraisal does not accommodate predicted earnings the vessel may generate as a business for hire, nor does it address expenditures involving berthage fees, insurance, and brokerage fees.
9. This appraisal does not allow for the transfer of berth rights.
10. This appraisal assumes that the engine is in operable condition.

Certification and Limiting Conditions

This Appraiser certifies and agrees that:

1. The statement of facts and information contained in this appraisal report are true and correct, and the Appraiser has not knowingly withheld any significant information.
2. The Appraiser has no present or contemplative future interest in the subject vessel, or any other interest, which might prevent making a fair and unbiased appraisal. The fee for performing this appraisal is in no way contingent upon the reported value, nor is it based on a percentage of the appraised value.
3. The Appraiser has no personal interest or bias with respect to the subject matter of this appraisal report or the parties involved.
5. The Appraiser has made a personal inspection of the vessel that is the subject of this report.
6. All conclusions and opinions concerning the subject vessel that are set forth in this appraisal report were prepared by the appraiser whose signature appears on the appraisal report.

Conclusion

Based on our research and the examination of this vessel a reasonable market value of the vessel in its current condition would be approximately: **$XXX,000.00**

Estimated reconstruction value (Amount given represents purchasing similar new in 2020. The vessel is no longer in production): **$X,000,000.00**

SURVEY LIMITATIONS

Large parts of every vessel cannot be examined due to inaccessibility. Some procedures add greatly to the time involved and consequently the cost of the survey. Therefore, such procedures are not performed unless specifically requested. Engines, machinery, anchors and warps, complicated electrical systems and components, sails, spars and rigging aloft are not usually examined. The surveyor DOES NOT test the vessel or tanks for tightness, open up and expose parts ordinarily concealed, make removals, unload lockers or holds, clean bottoms or operate the vessel. It is pointed out that when wood decay or deterioration of many types is involved, it is not unusual for repairs to uncover previously hidden additional deterioration.

SURVEY SCOPE

The scope of this report is confined to this surveyor's opinion as to the general physical condition and value of the subject vessel. It does not include a determination as to the limitation of seaworthiness of the vessel, nor does it include stability tests necessary to determine such limitations, nor does it attempt to itemize waters unsuitable for the vessel's use.

SURVEY STATEMENT

This report is made without prejudice and reflects the judgment of the undersigned. It is not a warranty, implied, expressed or otherwise, of the condition of the vessel, its hull, rigging, or machinery, as far as can be ascertained from a general examination of the accessible parts of the vessel, dry-docked/afloat. It is the opinion of the undersigned that when noted deficiencies and or recommendations have been corrected, this vessel will be in satisfactory condition. The report is for underwriting and appraisal purposes only and solely intended to be used by the person or persons ordering the survey. Any usage by any individual other than the original intended recipient makes this report null and void. This report is offered with the understanding that its acceptance constitutes an agreement to hold the undersigned free of any liability.

Bill Melbostad

Bill Melbostad-NAMS-CMS