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20-XXXXX

Report of Survey
1984 Burger 86
21 February 2020



SURVEY INFORMATION:

Name of Vessel: xxxxx

Date of Survey Inspection: 21 February 2020

Vessel: 1984 Burger

Buyer: xxxxxxxxxxx

Address: xxxxxxxx

Purpose of survey: pre-purchase **By Request of:** buyer

In Attendance: surveyor, broker Bruce Killebrew and seller xxxxx

Scope of Survey Inspection:

This survey was conducted by means of visual and aural inspection and non-destructive testing, such as “tapping” a laminate and listening for acoustic anomalies. (a.k.a. “percussion testing.”) (It should be noted that given the nature of materials, the vessel may have undergone minor or significant repair which is hidden at time of survey.) Electronic, electrical, mechanical and other equipment was energized and tested for power-up only. Through-hull valves were exercised and some through-hulls were “scratch-tested.” (Note that scratch-testing does not *always* reveal deteriorated bronze.) Several through-hull valves were not tested due to inaccessibility. Any damage, malfunctions or deficiencies are described in the “**RECOMMENDATIONS**” and “**NOTES**” sections of this report.

All areas accessible without the opening or removal of locked compartments and breaker panels, paneling, screwed or nailed boards, bulkheads, tacked carpet, clothing, spare parts, miscellaneous materials in the bilges, lazarette and lockers or other portions of her structure, anchors and anchor chain and without the testing of or opening up of propulsion or auxiliary machinery, or disassembly of valves, were tested and/or inspected. The undersigned does not attest to the absolute condition of wood concealed by paint fiberglass or other materials. Wiring is not fully accessible for inspection over its entire length; surveyor cannot speak as to its condition in inaccessible areas. Tanks are not fully accessible for inspection, and surveyor cannot speak as to the condition of hidden surfaces. Liquid leakage above the tank level cannot be detected in slack tanks. Propeller shafts and rudder stocks were not sighted where they pass through the glands, Pedro hoses, logs, rudder ports and cutlass bearings; surveyor cannot speak as to their condition.

This report is not an engine survey; a brief cursory inspection of the machinery was conducted and no opinion of its overall condition has been formed. The engines and generator were operated during survey. Engine zincs were not removed, fluid samples were not taken, and compression testing was not conducted. An engine survey was being conducted concurrently by Steve of Coast to Coast Marine.

No determination of stability characteristics has been made and no opinion is expressed with respect thereto.

CITATIONS: The following publications have been used as guidelines in conducting this survey:

- USCG Minimum Equipment Requirements for Recreational Vessels
- The mandatory standards of the Code of Federal Regulations (CFR) Title 33 and Title 46. and Title 49 Sec.180.209 (Propane tank) 49 CFR 173.34 (CNG tank)
- The voluntary standards and recommended practices developed by the American Boat and Yacht Council (ABYC) and the National Fire Protection Association (NFPA). Note that new

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NFPA or ABYC standards may have gone into effect since this vessel was built. Some of these standards have significant impact on personal or vessel safety, and are cited herein.

SURVEY CONDITIONS:

Weather: partly cloudy 65°F

Afloat: on 21 February 2020 at Chula Vista Marina, Chula Vista, CA

Hauled: on 21 February 2020 at Shelter Island Boatyard, San Diego, CA

The vessel was seatrialed on San Diego Bay for a period of approximately 2.5 hours. At that time a maximum of 2000 rpm and 15 mph was maintained for approximately 3 minutes, after which the vessel was operated at various rpms and performed as general usage would demand. Estimated cruising speed is approx. 9 knots at 1100 RPM.

VESSEL INFORMATION:

This vessel is a 1984, twin screw diesel inboard pilothouse motor yacht with flybridge, of vee bottom, full keel, transom-ended design and welded aluminum construction, with pilothouse and flybridge helm steering and engine controls.

This vessel is considered of suitable type for California coastal and similar waters with respect to seasonal weather, conditions and fuel range.

Builder: Burger Boat Co. Inc.	At: Manitowoc, WI	Year: 1984
Type/Model: Burger 86'	Accommodations: sleeps 10	
Hull No: xxxxxxxxxxxxxx (sighted)	Color: white	Trim: teak
Off. No.: xxxxxxxx (sighted)	Hailing Port: xxxxxxxx xx	

*The hull was not properly labeled. The hailing port named on the transom does not correspond with the hailing port listed on USCG documentation online database.
(see recs)*

DIMENSIONS:

Doc. Length: 86' Breadth: 18' Depth: 11' Tonnage: 116 gross, 93 net
LOA: 86' Beam: 19'4" Draft: 5'4"
Displacement: 143,000 lbs. (Shelter Island Boatyard lift)

CONSTRUCTION:

Material: Aluminum Fastenings: welded

Structure: the vessel has aluminum longitudinal stringers, transverse ribs, and wooden bulkheads located throughout, Bulkheads were found to be sound, with no sign of rot or water damage.

Decking: teak overlay Condition: good

INTERIOR:

Sole: vinyl parquet Condition: good
Overhead: textile headliner Condition: good
Bulkheads: vinyl covered Condition: good
Windows/Ports: plexi-glass Condition: serviceable

THROUGH HULL FITTINGS:

Valve type: cast bronze ¼ -turn ball type, some were gate valves
Condition: Operated and found most in working order. Some are corroded and/or frozen (**see recs**)
*Most hoses appear to be in serviceable condition and adequately clamped where they were attached to the through hull fittings unless otherwise described in **recommendations** or **notes** towards the end of this report.*

NAVIGATION EQUIPMENT:

Compass: (1) spherical 9" Saura (pilothouse) and 5" Danforth (bridge)
Colregs Nav. Lights: yes (**see recs**)
VHF radio: (2) Standard Horizon Eclipse+ - both inoperative (**see recs**)
Garmin GPSMap 7212 Condition: good, powers up. No chip
Furuno GaAs FET radar Condition: serviceable, powers up
Garmin AIS 600 Condition: good, operable
(2)-North star 800 Loran- inoperative
Magnavox MX 4102 satellite navigator- inoperative
Stevens engineering Sea 112 SSB/radio phone- inoperative
Ray 400 loud hailer- inoperative
Analog anemometer - inoperative
Wagner tracker LT 1805- inoperative
Dymek DA100-p antennae – operation not determined
Furuno RD 33 Condition: serviceable, powers up
Chartlink Datamarine- powers up - operation not determined
Wagner MK4 autopilot Condition: serviceable, operational

MACHINERY:

*The engines were operated during survey. From external examination, the engines and the equipment in the engine room appear to be in serviceable condition but in need of service. (**see notes and recs**)*
Analog engine hour meters show 2258.10 hours port, 2263.26 hours stbd.

*Pumps, ventilation, and other auxiliary machinery were in operable condition, unless otherwise reported in the **recommendations** or **notes** towards the end of this report.*

Engines: (2) Detroit Diesel, 12 V-71 fresh water cooled
Displacement: 852 CID 14.4 Liter
Type: diesel, 12-cylinder, 2-cycle HP: 553 each
Serial Numbers: Port: 12V8xxxxx Stbd: 12V8xxxxx
Foundation & mounts: apparently satisfactory Hoses: serviceable

Drive: inboard, (2) Allison Transmission direct drive marine gear
Ratio: not determined
Serial Numbers: both port and starboard spec tags were missing from transmissions
PTO: (1) on port engine- Twin Disc SL 111PM3 model Condition: serviceable

Engine Controls: dual-lever cable Locations: Flybridge and pilothouse
Engine synchronizer: yes, pilothouse & bridge

Panel Instrumentation:

Pilothouse: (2) tachometer, (4) water temp, (4) engine oil psi,
(4) drive oil psi (2) ampere (2) Danforth chargecators (1) 12V & (1) 32 volt (2) AC
amps (1) volts (2) trim plane (1) rudder angle (2) Naiad stabilizer status

Flybridge: (2) tachometer, (2) engine oil psi, (2) drive oil psi, (2) water, (2) voltage,
(2) trim plane, (2) generator oil psi, (2) generator water temp. (1) rudder angle
indicator

Pumps: Electric: (2 sighted) bilge, (1) fresh water, (3) air conditioning, (1) water maker
(1) black water, (1) grey water

Engine Room Ventilation: natural & blower
Bilge cleanliness: adequate where sighted

Bronze sea strainers: **(see recs)** Racor fuel filters: 6
Propeller shaft glands: dripless Condition: (see recs)
Rudder glands: Condition: Good

Steering: Hynautic hydraulic Condition: serviceable
Stabilizers: Naiad Hydraulic Condition: operational **(see recs)**
Bow thruster: yes, make not determined (see notes)

HULL BOTTOM:

Trim tabs: (2) Bennett hydraulic: operative

Anodes: in place, fair condition: **(see recs)**

Propellers: (2) bronze, 4-blade Condition: fair

(2) spares, bronze 4 blade Condition: good

(spares appear in better condition than the in-service props)

Tailshafts: 3" stainless steel Condition: serviceable

Rudders: (2) painted, spade

Rudder ports: Condition: good

Struts: bronze, heavily painted, condition of bronze not determined

Cutlass bearings: Condition: very good

Bottom paint condition: reported to have been done 2 weeks prior to survey. Prep work questionable- paint was flaking off rudders after only 2 weeks- Trim tab shocks- heavily painted

ELECTRICAL SYSTEM:

-110/V AC -100 amp service/- port and starboard, 50 amp service w/ splitter

-32 & V/DC systems

-Circuits appear to have proper circuit protection with most circuit breakers labeled.

-The engine room main AC panels have 100 amp main power breakers, analog amperage and voltage meters but no power indicator lights or polarity indicators were sighted.

-The branch AC panels do not have main power breakers, amperage, voltage meters, power indicator lights or polarity indicators.

-8D Batteries under aft deck in steering compartment are secured for sea conditions, ventilated, contained, with terminals covered. Battery connections are corroded and some of the battery cables appear aged and in need of replacement. (see recs)

-Port & stbd. 6 Volt generator starting batteries are not secured for sea conditions and terminals are not protected as required. **(see recs)**

-There are (4) 32V/DC Guest and (1) 12V/DC Perko rotary Battery switches located on main engine room panel and under aft deck in steering compartment.

Condition: serviceable

-Batteries were not load-tested during survey; however, at the time of the survey 12VDC systems were operational as general usage would demand, unless noted in the recommendations.

-Batteries do not have circuit protection within a distance of seven inches of the battery as recommended by the American Boat & Yacht Council (ABYC rule 11.10.1.1.1)

-Bonding wires and connections not sighted.

-The port generator was load tested for approx. 60 minutes and ran well.

- The starboard generator was not load tested: service needed
- Wiring is non-metallic sheathed copper.
- Several 110/V outlets were tested and proven to be wired incorrectly. (see recs)
- GFCI outlets are installed in most required places and have been tested, some of these outlets were proven inoperative. (**see recs**).

Breaker distribution panels: (1) 12V/DC, (1) 32V/DC in engine room

1-110V/AC main panel (shore/generator) in engine room

4- 110/V AC branch panels sighted- 1- in bar/salon closet (port),1- under pilothouse helm (stbd.),1- in room fwd of pilothouse (stbd.), 1- in guest bathroom (port) (**see recs**).

Batteries: (8) 8D Deka Marine batteries wired in parallel for 2, 4 battery, 32Volt banks
(4) 6 volt batteries wired in series for 2, 2 battery 12V generator starting banks.
(**internal condition of batteries unknown, not able to determine dates**)
(**see recs**)

Battery chargers: (2)- (1) 30amp, LaMarche Constavolt

(1) 40 amp, Phase Three PT 40-U

Condition: 30 amp appears serviceable 40 amp: appears very good
(charging effectiveness not tested)

Shore power connection: (2) 100 amp connections located on the port & stbd side midships.

Condition: appear serviceable shore power plugged into port side outlet and was operational, starboard outlet not tested (Shore power cord not long enough)

(2) Acme isolation transformers are installed. Condition: appear serviceable
(2) Stabiline Voltage regulators are installed. Condition: appear serviceable

Generator: (2) Westerbeke 32KW/120V (see recs)

Model: WTF-34-614 (port) (stbd. spec tag not sighted)

Serial No.: port: engine: xxxxxxxx (difficult to decipher maybe incorrect)
generator: xxxxxxxx

Stbd: No spec tag sighted serial numbers not determined

Engine: diesel , 6-cylinder, 4-stroke

Analog hour meters show **3878.1 port** & **3233.2 hours stbd.**

Auxiliary generation: (2) main engine mounted alternators

(2) generator engine mounted alternators

TANKS AND HEADS:

Tank deck fill fittings are labeled. Fuel, water and waste tanks reported to be integral to the hull. Tankage not sighted due to restricted access. Therefore, mountings, precise locations and tank integrity could not be determined. Tankage not believed to leak at this time. Information listed in this section was reported by seller.

Fuel tanks: (2) aluminum Capacity: 7000 gallons total
Located: port / starboard
Vented: to atmosphere Filling Lines: to deck
Fuel tank monitoring: (3) analog Hersey pneumatic gages in engine room above panel

Water tanks: (1) aluminum Capacity: 1700 gallons total tank)
Located: aft of masters quarters on centerline

Holding tanks: (1) aluminum Capacity: 160 gallons (black) (grey-?)
Black and grey water tanks located: under engine room floor, between engines on centerline

Heads: (4) LF-210 Vitrious China 2 quart marine sanitation devices with holding tank
Other Tanks: (1) 19.9-gallon Rheem electric water heater Condition: good
Located: engine room stbd aft.
(2) engines/thruster oil tanks Condition: **(see recs)**
Located: engine room port and starboard forward.

GROUND TACKLE:

Anchor: Danforth style stowed on port bow Condition: serviceable
Rode: 3/8" chain and 1" nylon rode stowed in anchor locker Condition: good
-length of chain and line in rode unknown, anchor undersized. **(see recs)**
-Bitter end: observed- (shackle not moused) **(see recs)**

Ideal electric vertical anchor capstan winch with gypsy and deck foot control
Condition: good, operational

RIGGING AND SPARS:

Spar: aluminum radar platform on bridge- Condition: serviceable

GALLEY EQUIPMENT:

Cooktop: Jenn-Air 5 burner ceramic electric, Condition: good (warming burner inoperative)

Ovens: (2) Jenn-Air (1) traditional convection and (1) microwave convection
Condition: very good

Refrigeration: Jenn-Air AC/DC freestanding refrigerator / freezer
Condition: good, secured for sea conditions.
Kenmore refrigerator (captains quarters) not tested Condition: appears serviceable
Sub Zero refrigerator (salon bar) not tested Condition: good
Kitchen Aid Icemaker (salon bar) Condition: good
Magic Chef refrigerator on bridge Condition: serviceable
Dishwasher: Jenn-Air Quiet series Condition: good
Coffee maker: Keurig 2.0 Condition: good
Stainless steel Double sink with faucet and steaming water faucet in galley.
Condition: good
Stainless steel single sink with faucet at salon bar Condition: good

SAFETY & POLLUTION:

Fixed fire extinguishing systems must be inspected monthly per ABYC A-4 Ap.6.2
and serviced and tagged annually, per ABYC A-4 Ap.6.3.

The following pertains to the **handheld dry chemical fire extinguishers**
onboard.

They must be conspicuously installed, and located as described in ABYC 4.6.3

They must be inspected monthly per ABYC A-4 Ap.5.4.1.

They must be serviced annually per ABYC A-4 Ap.5.4.2.

*Rechargeable extinguishers must be recharged or replaced after discharge, or each 6
years*

per NFPA 10/7.3.3.1.

Portable Fire Extinguishers: (10) BI Test Date: current, gauges in
Properly mounted: yes

Fixed System: Halon 1301 Test Date: expired (**see recs**) Covering: engine space
Release: automatic

Safety railings: stainless steel and teak with (1) coated stainless steel wire course
Condition: good

Personal Flotation Devices:

Throwable: (3) life rings Condition: poor, discard and replace

Wearable: (12) adult I Condition: good Stowed: in bridge deck box

(7) adult II Condition: poor, discard and replace

EPIRBs: none sighted (not required)

*Recommended prior to commencing any voyage exceeding 20NM from a port of
refuge.*

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Life Rafts:

SurviTec-Zodiac, 30-person, Serial No.: 5249110100200

Service: Sticker expiration 9-2019

There are no service interval requirements for liferafts on pleasure vessels. Most manufacturers recommend service at one-year intervals. Most servicers recommend an interval of not greater than three years.

Distress Signal Kit: yes Expiration: December 2021

Horn / Sound Signal: yes (**see recs**)

First Aid Kit: none sighted (first aid kit is suggested, but not required)

Oil placard present: yes

Garbage (MARPOL Annex V) placard present: yes

Escape hatches: (1) aluminum, fwd. overV-berth Condition: serviceable

Smoke/CO detectors: None sighted (**see recs**)

TENDERS:

Boston Whaler approx. 16', Hull ID no: xxxxxxxxxxxx Condition: fair

State reg#: xxxxxxxx

no outboard engine sighted

Davit: yes, electric Condition: serviceable

Dinghy cradle: yes wooded Condition: serviceable chocks

ENTERTAINMENT ELECTRONICS:

Pioneer DEHX 3910 BT stereo (bridge)

Flatscreen TV's: 48" LG, 32" Samsung, 19" LG, 19" Samsung, Panasonic 17"

Sony DVD player

In addition to the above listed equipment, the vessel is also fitted with:

Remote control spotlight

KMH Trac Vision dome

Acrylic venturi

Teak gunwale and hand rail cap

Stainless steel and canvas bimini

Covers on flybridge bench seating and dinghy

Bow deck and flybridge bench seat cushions

Shade cloth window screens

Cruisair air cond. Unit (1)

Aqua Air Marine Water Chiller (1)

Whirlpool washer & dryer

Central vacuum system

Washdowns, port, starboard and flybridge
Engine room air compressors

OPERATIONAL TESTS:

No indicates that the item was not tested. Yes indicates the item was tested and operational, unless there is an associated recommendation or note. “Yes” items listed in this report were tested for proper operation at time of survey ONLY. Surveyor’s report of the operability of machinery, auxiliaries and subsystems is not a warranty of the continued operation or durability of the equipment tested. Operability testing does NOT include calibration, adjustment or repair of equipment. Only the items listed in this section of the report were tested for operation.

VHF – yes (see recs)	Davit – yes
Bilge pumps – yes	Entertainment electronics– no
Horn – yes	Oven/Cooktop – yes
Machinery space blower – yes	Microwave oven – yes
Anchor winch – yes	Refrigerators – yes
Navigation lights – yes	Icemaker – yes
Cabin lights – yes	Water heater – yes
Remote operated spotlight – yes	Watermaker – no
Air conditioning – no	Central vacuum – yes
Garmin chart – yes	Washer/dryer – yes
Radar – yes	Head flush – yes
Depth sounder – yes	Accessible through-hull valves – yes
Autopilot – yes	Grey water sump pump – no
Trim tabs – yes	Electric fresh water pump – yes
Bow thruster – yes	

CONCLUSIONS, NOTES, SUGGESTIONS AND RECOMMENDATIONS:

The vessel’s overall condition is **good**, as described below:

Excellent (Bristol) – As new or new condition. Repairs not required. Additional and/or custom equipment. Minimal or no wear.

Very Good –Exceeds average condition, with extra equipment and well maintained. Slight repairs may be required.

Good (average) – May require normal scheduled maintenance. Average condition and/or equipment. No major repairs are required.

Fair–One step below good or average and requires additional maintenance and repairs to bring into average condition.

Poor–System requires maintenance and significant repair in all areas in order to be put back into usable or serviceable condition

Housekeeping and general appearance are **good**. The vessel is normally equipped for her size and type.

The hull topsides has small areas of scratching scuffing and small nicks and chips. The exterior brightwork would benefit from refinishing.

The topsides and deck appear to be in good structural condition. No deteriorated decking was noted.

The hull bottom was visually inspected as appropriate; no notable anomalies were detected at that time (*Note that the hull bottom cannot be sighted in the way of the lifting slings.*)

The hull below the waterline was newly painted with bottom paint.

From examination afloat and hauled of accessible areas, This survey has found the vessel to be in sound structural condition insofar as sufficient structural strength remains. However, it should be appreciated that given the nature of materials, dismantling may reveal deterioration. With recommendations complied with this vessel is **suitable** for its' intended purpose of local costal recreational cruising.

VALUES:

MARKET: \$450,000.00 to \$500,000.00

VALUATIONS ARE THE OPINION OF THE SURVEYOR, AND ARE INTENDED TO BE USED FOR INSURANCE OR FINANCING PURPOSES ONLY; THEY ARE NOT INTENDED TO INFLUENCE THE PURCHASE OR PURCHASE PRICE OF THE SUBJECT VESSEL. The surveyor has no interest in the vessel, financial or otherwise. Valuation is primarily determined by comparison to comparable vessels listed in the SoldBoats.com database, but may also be derived from consultation with manufacturers or knowledgeable boat brokers, personal experience, current listings of boats available for sale, and commercial boat value guides such as the BUC ValuPro and NADA online price guides. Current local market values may vary widely from such valuation resources due to current local market conditions. The term "Market Value" is defined by Uniform Standards for Professional Appraisal Practice (USPAP) standards.

NOTES and DEFICIENCIES:

1. Engine surveyor reports that both engines are in need of service (heat exchangers in particular) Starboard generator is in need of service as well. Refer to engine surveyors report for findings regarding main engines and generators.
2. Fluid and filter change is recommended on main engines, drives and generators.
3. The condition of the dockside water pressure internal regulator/housing is not known; it could not be tested. In the event that shore water pressure is utilized on the vessel, it is suggested that the fresh water at the dock be turned off and the hose removed from the vessel when the vessel is not attended.
4. Hoses on all systems were of the required type and in good condition where visible, unless noted in the recommendations.
5. The holding tank discharge pump and through-hull valve were not tested, due to the vessel's position in MARPOL-restricted waters.

SUGGESTED UPGRADES (at the owner's discretion, not required):

1. A set of soft wood plugs should be maintained on board to plug any damaged through hull fittings in an emergency.
2. Several gate valves were sighted on vessel. (These valves are operational and do not appear to be leaking.) Consider changing these over to ball valves.
3. Batteries should have circuit protection within a distance of seven inches of the battery per ABYC 11.10.1.1.1.

RECOMMENDATIONS:

1. **The 110V/AC electric panel located in the guest bathroom has some corrosion that was sighted around some of the breakers (upper right side) and on the breaker box itself. Investigate and remedy.**
2. **110V receptacles in the pilothouse (hot & neutral reversed), flybridge (inoperative), and captains quarters (hot & ground reversed) are wired incorrectly and need to be repaired. Check all outlets for proper configuration.**
3. **110-volt GFCI exterior and engine room receptacles are not operating properly and must be repaired or replaced per NFPA 302 section 8-11.1 recommendations. Check all GFCI outlets for proper operation.**
4. **110V receptacles must be upgraded to GFCI (ground fault circuit interrupter) outlets in the salon bar and on flybridge (bridge outlet where fridge is plugged in is considered an exterior outlet and should be a GFCI) per NFPA 302 section 8-11.1 recommendations.**

- 5. The air conditioning raw valve (fwd. of stbd. engine under floor plate) is heavily corroded and in need of attention. Repair or replace. The air conditioning raw water strainer connected to this thru-hull valve is corroded and in need of cleaning and inspection. Renew or replace strainer as necessary.**
- 6. The port prop shaft dripless packing gland leaks while underway. Diagnose and repair.**
- 7. Port and starboard shaft packing glands are green/corroded and in need of cleaning. Clean, maintain and frequently monitor.**
- 8. The port raw water intake thru hull valve is wet and appears to be weeping at its base. Investigate and repair as necessary. Starboard raw water intake thru-hull should also be closely inspected due to age.**
- 9. All raw water sea strainers are in need of cleaning and maintenance service. (generator strainers appear to be in better condition than others)**
- 10. Some through-hull valves throughout the vessel are immobile and must be exercised or repaired if necessary. Test and exercise all thru hull valves on a regular basis. (Port engine raw water intake thru-hull valve was immobile. The handle is not attached, the retaining Kottter pin is missing.**
- 11. The air condition chiller unit has areas of deterioration sighted on outboard side. Fully inspection was difficult due to access. (valve handles completely rusted away). Inspect and renew components as necessary.**
- 12. The vessels air conditioning systems were not tested. The owner reported air conditioning controls and start up procedures were changed from their original configuration. Owner could not remember how to start and run the air conditioning/chiller systems. Determine start-up procedure and test air conditioning units for operation.**
- 13. Cruise Air air conditioning raw water strainer is not secure and hose servicing strainer appears aged and in need of replacement. Secure strainer and inspect hoses and replace as necessary.**
- 14. Both air conditioning water pumps (under floor plate fwd. of starboard engine) appear aged and corroded. Inspect, renew or replace as deemed necessary.**
- 15. The port Naiad stabilizer components (under engine room floor plate) are rusted and in need of inspection and cleaning. (stabilizers were operational when tested).**
- 16. Generator 6v starting battery terminals must be covered per NFPA 302 7-3.6 recommendations to prevent accidental shorting. (both port and starboard banks)**

- 17. Generator 6V starting batteries must be secured for sea conditions covered per NFPA 302 7-3.4 and 7-3.5 recommendations. (both port and starboard banks)**
- 18. Some of the battery cables and connections on both 32V, 8D battery banks appear aged and corroded. Clean connections and replace cables as necessary. In addition, battery cables size 6 and larger shall not be connected to the battery with wing nuts. Remove wing nuts and replace with stainless steel hex-nuts.**
- 19. There is some diesel/oil in sighted the engine room bilge. (Note: The Federal Water Pollution Act provides for stiff fines and/or imprisonment for ANY discharge of oil that causes a sheen, emulsion or sludge on or below the surface of the water, and the USCG is VERY actively enforcing these regulations.) The source of any leakage should be determined and repaired. The bilge must be cleaned of any oil before operating the bilge pumps.**
- 20. Both VHF radios were inoperative. Repair or replace.**
- 21. The navigation lights (red/green) lenses are faded and frosted. Replace.**
- 22. Smoke detectors were not sighted on vessel. Smoke detectors are required in spaces intended for sleeping per NFPA 302 Section 12.3 recommendations. Surveyor recommends the installation of combination CO/smoke alarms.**
- 23. The air horn (Kanenberg Brothers brand located above helm stbd.side) sound signaling device was inoperative. There is another horn at the pilothouse helm that is operable.**
- 24. The throwable flotation device (type IV PFD) sighted on vessel is in need of replacement.**
- 25. The Danforth anchor sighted on vessel appears to be too small. Add properly sized anchors to vessel.**
- 26. There must be a means of re-boarding a man overboard (such as a swim ladder) aboard per ABYC H-41 sec. 41.9.**
- 27. The spare propellers appear to be in better condition than current propellers. Inspect spare propellers for condition. Remove the propellers currently in service and replace with spares if deemed beneficial.**
- 28. Windshield wipers were inoperative. Repair**
- 29. A copy of the Navigation rules (COLREGS) is required on vessels 12 meters (40 feet) and over.**

- 30. The hailing port displayed on vessel says Wilmington, DE. The hailing port on the NOAA/USCG documented vessel database has the hailing port as San Diego, CA . Investigate further and change hailing port name on vessel deemed if necessary.
- 31. The anchor rode bitter end shackle must be moused.
- 32. Title 33 CFR 151.57 requires all oceangoing vessels 40 feet or more in length equipped with a galley and berthing to have a written waste management plan.

This survey report is issued without prejudice subject to the conditions that I, the individual surveyor, am under no circumstances to be held responsible for error, omission, negligence or misstatement. It constitutes a statement of my opinion based upon the conditions as I found them. It is **not a warranty** of the condition of the vessel or its hull or machinery.

tws 2/22/2020

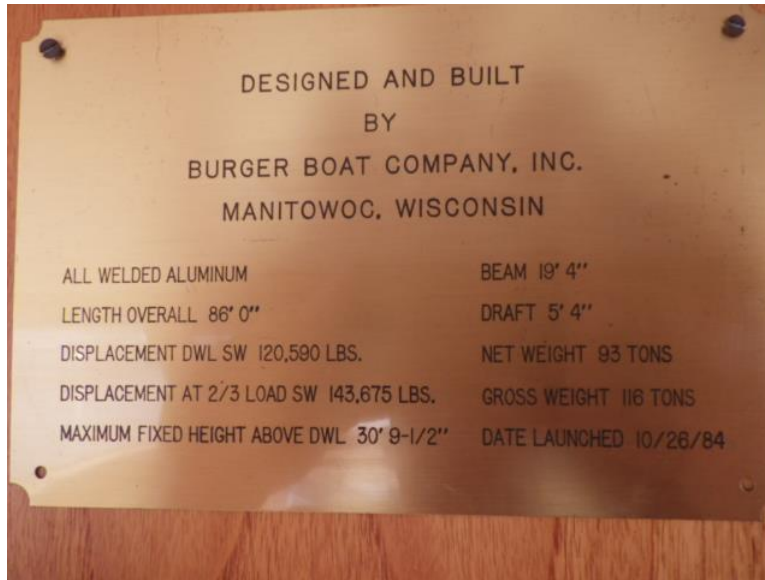
A handwritten signature in black ink is written over a circular seal. The seal contains the text "MARINE SURVEYOR" at the top, "S.A.M.S." in the center, and "FEBRUARY 2020" at the bottom. The signature is stylized and appears to read "Timothy W. Simms".

Capt. Timothy W. Simms
USCG 100 Ton Master
SAMS Accredited Marine Surveyor #1288

THE FOLLOWING PAGES ARE PHOTOGRAPHS ONLY

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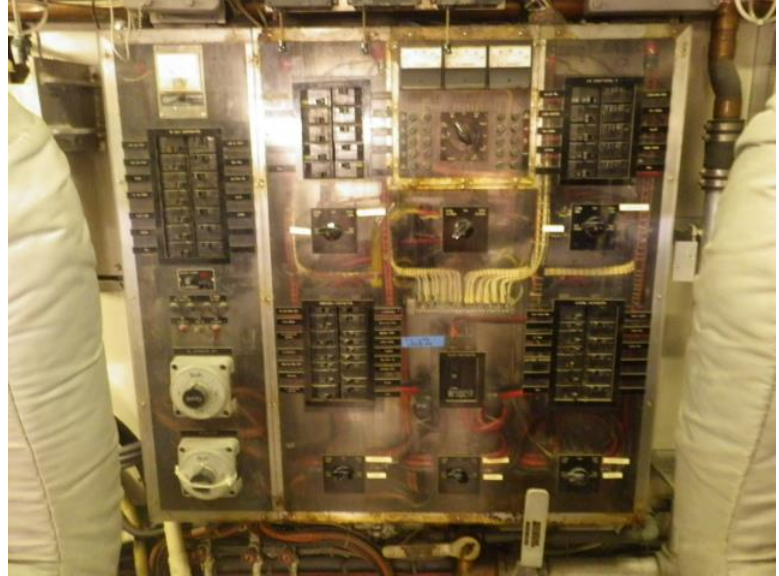
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