

# GLADDING MARINE SURVEYING AND CONSULTING, LLC

1738 PICKWICK PLACE-FLEMING ISLAND-FLORIDA-32003

PHONE: 904-945-0511 FAX: 904-215-9243 EMAIL: [gladdings@msn.com](mailto:gladdings@msn.com)

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**SURVEY REPORT VESSEL NAME: xxxxxxxxxxx**

**Prepared by: Bill Gladding AMS® #810**

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3. Stern running light is inoperative; service as necessary to restore its normal function.
4. Tricolor and anchoring light function was not verifiable in bright midday sunlight; prove function of both.
5. AC generator exhaust hose is missing tie-down causing it to strain overboard discharge fitting in sail locker; replace missing tie-down to relieve strain on discharge fitting.
6. LPG water heater installed inside stbd head enclosure is non-compliant with ABYC A-1 safety standard that provides guidance for installation of marine LPG systems; remove from service.
7. Install a pressure gauge on the propane system as required by ABYC A-1: 1.5.2 Each system shall be fitted with a pressure gauge. The gauge shall read the cylinder pressure side of the pressure regulator. *NOTE: The purpose of the gauge is to provide a quick and easy way to test the system for leakage*
8. Perform leakage test on LPG system after installation of pressure gauge and service if necessary (excerpt from ABYC A-1: With the appliance valves off, open the cylinder supply valve. Close the cylinder supply valve. Observe the pressure gauge reading. The pressure indicated should remain constant for not less than three minutes. If any leakage is indicated by a drop in pressure, check the entire system with a leak detection fluid or detergent solution to locate the leak. Test solutions shall be non-corrosive and non-toxic. Repairs shall be made before retesting and operating the system.)
9. 120 volt shore power inlet fitting shows evidence it has been overheated; replace inlet fitting, inspect attached cabling for damage and repair or replace if necessary.
10. Install at least one CO/smoke alarm in main cabin area.

(Also see Summary Remarks and Notes section at end of survey)

This vessel was manufactured prior to enactment of some of the USCG 33CFR requirements and NFPA and ABYC standards and recommendations in effect today. This survey addresses those items thought to be necessary for safety but does not suggest complete compliance with current regulations or standards and recommendations.

INTENDED USE: recreational

SUITABLE FOR INTENDED USE: yes (upon completion of recommendations cited above)

NAVIGATIONAL LIMITS: warm coastal waters of the USA & Caribbean Islands

\*\*\*For regular use in excess of 12 miles offshore suggest carrying Epirb and offshore type lifejackets\*\*\*

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## VALUATION

Admiral Yachts is no longer in business but the model lives on under the name Celtic. Examination of Celtic listings indicates they are virtually identical to their predecessor.

Subject vessel was found to be in overall above average condition. Recent sales history and current listings found on July 22, 2017 to use as comparison make a market approach a reliable means for establishing its value. Based upon analysis of the data below it is the opinion of the undersigned the following values should apply:

**Current value: \$xxxxxxx Replacement cost: \$475,000 (estimated)**

### Pricing guides

Model not found in pricing guides

### Current listings

Yachtworld.com.....\$360,000 to \$390,000

(3 results – searched Admiral and Celtic models in the USA)

### Reported sales

Soldboats.com.....\$290,000 to \$329,000

(3 results – searched all sales contain results from October 2013 to present)

### Valuation based upon depreciated replacement cost

\$475,000 depreciated at 5% annually.....\$315,125

(Depreciation schedule derived from comparison to reported sales soldboats.com)

## APPROVAL

This survey may be used for valuation, insurance or mortgage requirements. This survey checks for compliance with U.S. Coast Guard regulations and American Boat and Yacht Council, Inc.

Recommended Standards and Practices. In addition, the general structural condition of the vessel and suitability for its intended service will be examined. This survey cannot check for latent defects which could not readily be discovered by inspection without removal of machinery, tanks, sheathing, joiner work, upholstery, bulkheads, ceiling, fascia or other fixed material, or disassembly of machinery, plumbing, wiring or other parts components or systems.

The undersigned has conducted this survey and issued this report for the sole use of the specified requesting party for an agreed fee based upon the intended use of the report; accordingly, others are not to use this report and not rely upon the contents of this report without payment to the Company of an additional agreed fee based upon the reevaluation of the same factors. The Company shall have no liability for property loss damages, and no liability for punitive damages all of which shall be deemed to have knowingly and voluntarily waived upon use of this report. In the event of dissatisfaction with the conduct of the survey, with errors contained in the report, or by omission of information, the sole and maximum remedy shall be limited to the amount of fee actually received for this report which shall be refunded regardless of the number of claims or suits, regardless of whether under theory of tort, contract, warranty, products, outrage or otherwise.

This survey contains opinions and observations based on my skill, experience and training as a marine surveyor and consultant. Under no circumstances shall the report be understood to constitute a representation, guarantee, or warranty expressed or implied of any kind as the condition or soundness

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for the subject vessel, its hull, engines, machinery, equipment or system or any appurtenances thereof, or the cost of effecting any repairs or modifications. The report of survey is not valid until the fee for the survey is paid in full.

Attorney fees; costs: In any litigation arising out of the contract, the prevailing party shall be entitled to recover reasonable attorney's fees and costs.



William K. Gladding, AMS® #810

Society of Accredited Marine Surveyors

Gladding Marine Surveying and Consulting, LLC

## SCOPE OF SURVEY

The vessel was inspected in and out of the water without making removals or opening parts normally concealed and without making borings to ascertain thickness or condition of structural members. As a result, some areas behind cabinetry and under decks were not reached. Fixtures and appliances were powered up and exercised where indicated. Locker doors and drawers were worked and examined for proper function. Potential leak sources such as portlights and deck hatches were examined for evidence of water stains or other indications of leakage. The hull exterior was inspected visually and sounded with a mallet to locate any voids, delaminating or cracking. The underwater gear and other fittings were inspected and checked for indications of damage, abuse or excessive wear. The vessel was attended during a trial run during which various readings regarding the vessel performance were monitored and systems aboard were observed while functioning.

Test equipment that may be referenced in the report:

- Tramex Skipper or GE Aquant moisture meter
- Flir® One Android infrared camera
- Ideal Suretest AC electrical test meter
- AC electric three light plug in tester
- Check-Line non-contact digital tachometer
- Multi-meter electrical tester
- Assorted hammers and measuring devices

## VESSEL GENERAL DESCRIPTIONS

**Exterior arrangement** – catamaran sailing vessel noted the following:

- Hulls – twin hulls with fin keels, fin rudders and round bilges; stems are nearly plumb and hull sides straight up and down; sheer is straight and slopes downward from bow to stern with reverse rake at stern; sugar scoop transoms contain integral hollow swim platforms
- Decks and superstructure – flush main deck from bow to stern set back from bows and sterns; space at bow is filled with trampoline webbing aft space is open providing space to deploy and recover tender from stern davits; superstructure consists of main cabin that is part of deck molding with ample space around all of its sides; cockpit is recessed aft of main cabin and has composite shade resting on stainless supports

**Sailing rigging** – basic elements as follows:

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- Rig type – fractional sloop B&R type
- Keel – integral to each hull
- Spars – all components are aluminum:
  - Cross beam
  - Deck stepped mast
  - Boom
  - Rigid vang
- Chain plates (baby stay & shrouds) – polished stainless plates bolted to hull
- Standing rigging – 1 x 19 Dyform stainless wire with swaged terminals
- Running rigging – double braided synthetic
- Sails:
  - Rigged – screecher, jib, storm jib & main
  - Bagged - spinnaker
  - Laid out – n/a

**Interior arrangement** – single level cabins in each hull, raised deck between in main cabin noted the following:

- Staterooms – one at each end of port hull and one aft in stbd hull
- Heads – one in each hull
- Galley – main cabin port side
- Dinette – main cabin stbd side
- Saloon – main cabin
- Helm – stbd side of cockpit

## Structural elements

- Hull skin material and type cosmetic finish – end grain balsa cored molded fiberglass gelcoat cosmetic finish
- Hull grid system layout and materials – molded fiberglass liners and plywood ring bulkheads
- Hull deck joint – hull top and bottom appears to be butted then solidly fiberglassed
- Continuous transverse bulkheads locations and materials – fiberglassed plywood at forward end of each hull, ring and coffer dam types at various intervals in remainder of hull
- Decks and superstructure materials and type cosmetic finish – solid and end grain balsa cored molded fiberglass gelcoat cosmetic finish

## SURVEY FINDINGS

### UPGRADES/REBUILDS

Including but not limited to the following:

- Keels extended providing better support from interior structural supports
- Rudder profiles modified for better performance
- Hulls extended
- Baby stay added to mast
- Lifepo4 battery bank installed (about two years ago)

### TRIAL RUN

- Location – St. Johns River between Mayport Naval Station and ICW
- Conditions – relatively calm other than wakes from other traffic, winds relatively light
- Duration – approximately two hours
- Number of passengers – four



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- Tanks levels:
  - Fuel – partially filled
  - Water – nearly empty
  - Waste – partially filled
  - Gray water – n/a
- Hull performance – vessel performed well without vibration, leakage or other signs of distress. Vessel makes about 5 to 6 knots with one engine as high as 9 to 10 with both at wide open throttle. Confined space, fast current and other vessel traffic did not permit analysis of sailing performance
- Engine performance:
  - Wide open throttle rpms – port (2,900), stbd (2,870)
  - Temperatures and pressures – remained normal at all operating speeds
- AC generator performance:
  - Voltage and frequency – normal (based upon onboard instrumentation)
  - Loads applied – all air-conditioners
- Comments – no unusual conditions noted

## HULL ABOVE WATERLINE AND RELATED

### **Structural elements**

Condition: above average

Condition of structural elements such as stringers, transverse framing, bulkheads, partitions and other similar type hull supports based upon visual inspection to insure they are maintaining their proper shape and remain securely attached, tap tested to insure they are not delaminated or deteriorated and in some cases examined using a moisture meter

### **Topsides**

Structural condition: above average

Structural assessment based upon visual examination of hull's shape for damage, distortions, sagging, hogging or other signs structure is failing or is not adequately supported; moisture testing to locate areas where abnormal readings may indicate deterioration of laminates or cores; and tap testing areas that are suspect as a result of abnormal indications from visual inspection and readings from moisture meter

Cosmetic condition: above average

Cosmetic condition of paint, gelcoat and varnish based upon surveyor's opinion of appearance compared to similar type vessels considering factors such as gloss, extent of oxidation, flaking, discoloration, wear and tear or other factors

Condition other features: above average

- Guards - none
- Swim platform – integral hollow
- Permanently installed means for reboarding – folding stainless ladder port hull

### **Deck drain systems**

Primary drainage system: direct overboard

Other drainage systems: scuppers Condition: above average

Weather decks with in-hull drain systems: cockpit

*The undersigned has witnessed several sinking and flooding events due to clogged deck drains backing up rain water on deck then flooding to hull interior. In order to prevent this type of event from occurring deck drain fittings and piping should be maintained leak free, kept clean and free of debris and hatch seals maintained to prevent water from leaking to hull interior or accumulating on weather decks and spilling to hull interior.*



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## Decks & superstructure

Structural condition: above average

Structural assessment based upon visual examination of hull's shape for damage, distortions, sagging or other signs structure is failing or is not adequately supported; moisture testing to locate areas where abnormal readings may indicate deterioration of laminates or cores; and tap testing areas that are suspect as a result of abnormal indications from visual inspection and readings from moisture meter

Cosmetic condition: above average

Cosmetic condition of paint, gelcoat and varnish based upon surveyor's opinion of appearance compared to similar type vessels considering factors such as gloss, extent of oxidation, flaking, discoloration, wear and tear or other factors

## Exterior soft goods

Condition/appearance: average or above average Wear & tear: light to moderate Serviceable: yes  
(except as noted in summary remarks & notes)

Location & type (installed at time of survey):

- Bow trampolines (vinyl)
- Deck hatch covers (canvass)
- Sail UV-strips (canvass)
- Main cabin window shades (vinyl screen)
- Cockpit enclosure & cover (canvass & Eisenglass)
- Equipment covers (canvass)
- Cabin boom shade (canvass)
- Cockpit cushions (canvass)

## Exterior hardware

Condition/appearance: above average Anchoring & bedding: appeared adequate

Location & type:

- Bow, amidships & aft safety rails (welded stainless)
- Main deck safety rail (tapered stainless stanchions & wire lifelines)
- Hand rails (welded stainless)
- Pilothouse roof ladder/seat (welded stainless & plastic tread)
- Helm seat (welded stainless)
- Pilothouse support legs (stainless)

## Tie-up gear

Condition/appearance: above average Anchoring & bedding: appeared adequate

Location & type:

- Deck edge (6 x stainless fixed mooring cleats)
- Aft deck centerline (single bollard/fair lead)
- Swim platforms (2 x stainless fixed mooring cleats)

## Rigging sailing

Inspection type – deck level unless noted otherwise

Overall condition – above average

Rigging brand – unknown

Age of rigging as reported by vessel owner – eight years

Descriptions and/or comments:

- Keel – secure without stress cracks at interior or exterior

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- Mast and spars – standing in column without dents, gouges or other signs of abuse
- Mast support:
  - Step – solid
  - Deck – solid
  - Chain plates – securely attached without significant corrosion
- Hardware & fittings – jammers, fair leads & other serviceable
- Standing rigging – clean without significant corrosion, cracks, broken strands or other evidence of damage or abuse
- Running rigging – serviceable without significant wear and tear
- Furling systems:
  - Jib – Harken® MKIV 2
  - Main – Harken® Cruising 2
- Winches – all Harken® self-tailing two speed sizes as follows:
  - Mast (2 x 32)
  - Cockpit aft each side (44)
  - Helm console (44 DC electric)
- Sail condition – all appeared serviceable without significant wear

## Anchoring gear

Condition/appearance: above average Function: appeared serviceable

Locations/descriptions:

- Anchor pulpit – cross beam supports chutes across front and aft near bridge deck
- Chute(s) – 2 x aluminum with plastic rollers

## Glazing materials

Condition/appearance: above average Gaskets and seals: appeared serviceable

Location & type:

- Main cabin fixed windows (frameless plastic)

## Exterior hatches, portlights and doors

Condition/appearance: above average Function: normal Gaskets and seals: appeared serviceable

Location & type:

- **Secondary egress (escape) – main deck**
- Companionway/main entrance – sliding door (aluminum & glass)
- Hull & main cabin sides portlights (aluminum & plastic)
- Main deck & main cabin top deck hatches (aluminum & plastic)
- Foredeck & cockpit locker lids (molded fiberglass)
- Cockpit shade top deadlight (frameless plastic)

## HULL BELOW WATERLINE AND RELATED

### Hull below the waterline

Structural condition: above average

Structural assessment based upon visual examination of hull's shape for damage, distortions, sagging, hogging or other signs structure is failing or is not adequately supported; tap testing for purposes of comparing variations in tap sound indicative of previous repairs, delaminating, moisture intrusion or blistering; and moisture testing if hull is sufficiently dried and does not have coatings that interfere with moisture meter function to locate areas where abnormal readings may indicate deterioration of laminates or cores

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Cosmetic condition: above average

Cosmetic condition based upon surveyor's opinion of hull appearance compared to similar type vessels considering factors such as paint build-up, smoothness of hull, blistering and other features that affect its appearance

## Rudders & linkages

Condition/appearance: above average Function: normal Damage, abuse or excessive wear: none noted

- Rudder description – composite fin type hollow stainless stock
- Thru-hull seal – n/a (above waterline)
- Supports – rudder port is heavily reinforced in hull and platform above
- Linkages – stainless tillers & tie-bar
- Steering components – stainless wire & pulleys
- Emergency tiller – stbd lazarette

## Thru-hulls, seacocks, transducers

Condition/appearance: average or better Function: normal Damage, abuse or excessive wear: none noted

- Underwater – Threaded bronze and Marelon® fitted with ¼ turn valves with stainless clamps on hoses connections at the following bilge locations:
  - Port hull forward stateroom – **AC generator inlet & toilet overboard discharge**
  - Port hull companionway aft end – **toilet inlet, deck wash inlet, watermaker inlet & air-conditioner inlet**
  - Port hull engine compartment – **2 x unused (capped)**
  - Stbd hull head vanity – **stbd toilet overboard discharge**
  - Stbd hull companionway aft end – **unused (capped)**
  - Aft stateroom – **toilet inlet & 2 x air-conditioner inlets**
- Topsides – threaded plastic
- Transducers – forward end of each hull

## ACCOMMODATIONS, HOUSEHOLD SYSTEMS AND COMFORT SYSTEMS

### Interior spaces

Bulkheads, partitions and cabinetry found to be solid and in good condition, locker and cabinet doors and drawers found to be in above average condition and working order. Interior décor was found to be in overall above average condition with less than average wear and tear descriptions as follows:

- Doors – hinged natural wood
- Decks – molded fiberglass natural wood inserts, main cabin fully natural wood
- Cabinetry – molded fiberglass
- Bulkheads and partitions – molded & textured fiberglass
- Ceilings – molded & textured fiberglass
- Counters – molded composite
- Cushions – cloth skins
- Natural ventilation – opening appliances
- Powered ventilation – DC circulating fans
- Fixtures and appliances – appeared serviceable

### Entertainment equipment

Condition/appearance: average or better Function: appeared serviceable

Locations/descriptions:

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- Aft stateroom – TV (Boss drop down ceiling mounted)
- Main cabin:
  - TV (2 x Majestic)
  - Stereo (Kenwood KMR-M315BT)

## Galley equipment

Condition/appearance: above average Function: normal

Locations/descriptions – Located in galley except as noted:

- Range (Eno three burner lpg)
- Oven (Eno)
- Sink basin (double stainless)
- Refrigerator (Isotherm)
- Freezer (Isotherm)
- Blender (generic)
- Stern rail (lpg BBQ grill)

## Sanitary system

Condition/appearance: above average Function: normal

Locations/descriptions:

- Quantity - two
- Manufacturer – not labeled (similar to Jabsco)
- Type – 12 volt macerating marine toilet
- Vented loops (if required) – yes
- Y-valves (direct overboard discharge) – stbd only

Comments:

- Port toilet features only direct overboard discharge

## Air-conditioning

Condition/appearance: above average Function: normal (except as noted in summary remarks & notes)

Locations/descriptions:

- Quantity - three
- Manufacturer – Cruisair
- Type – self-contained heat pump
- Controls – digital
- Equipment – aft staterooms & main cabin
- Cooling pump – port hull bilge (1) & stbd hull bilge (2) 230 volt centrifugal
- Test performed – all units operated on cool program (ambient temperature too high to test heat program)

## TANKS, PUMPS, PIPING AND RELATED

(Capacities listed in this section are based upon published specifications for this model unless stated otherwise)

### Fuel

Found the following to be in above average condition without significant corrosion or evidence of leakage to level filled where accessible for inspection:

- Tanks – 100 gallons capacity contained in one aluminum tank secured in forward bridge deck locker stbd side
- Fills – main cabin forward end stbd side
- Vents – hull side
- Plumbing materials – flexible fuel hose

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- Shut-off valves – tank outlets
- Filters – each engine & AC generator compartment (Racor R12S)
- Level gauges – main electrical panel

## Potable water

Found the following to be in above average condition without significant corrosion or evidence of leakage to level filled where accessible for inspection:

- Tanks – 100 gallons capacity contained in one aluminum tank secured in forward bridge deck locker port side
- Fills – main cabin forward end port side
- Vents – hull side
- Plumbing materials – plastic tubing
- Shut-off valves – not found
- Filters – port hull forward inboard locker
- Pressure pump – port hull forward inboard locker (Shurflo 4008-101-E65)
- Accumulator tank – port hull forward inboard locker (Cleghorn)
- Water heater – port hull engine room (Isotemp Basic 230 volt & engine heated)
- Dock water inlet – transom port hull
- Level gauges – main electrical panel

## Waste

Found the following to be in above average condition without evidence of leakage to level filled where accessible for inspection:

- Tanks – 35 gallons capacity contained in one fiberglass tank secured in stbd hull forepeak
- Deck fitting – foredeck stbd hull
- Vents – hull side
- Plumbing materials – PVC hose
- Y-valves – stbd hull head vanity
- Overboard valve – n/a
- Discharge pump – n/a
- Vented loop (if required) – n/a
- Treatment device – none
- Level gauges – none

## LPG/CNG system

Condition/appearance: above average Function: normal Damage or abuse: none noted

- Storage locker – cockpit aft seat stbd side
- Tank quantity, material & capacity – 2 x 16 lbs lpg capacity fiberglass
- Solenoid valve, regulator, pressure gauge and control – no pressure gauge
- Leakage test (should hold steady pressure for three minutes) – unable to test

## ENGINES, AND ENGINE AND VESSEL CONTROLS

### Engines

Condition/appearance: above average Function: normal Damage or abuse: none noted

- Location – aft end of each hull
- Description – three cylinders naturally aspirated diesels
- Power transmission – Yanmar Saildrive system
- Cooling system – closed loop freshwater with raw water cooled heat exchanger

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- Mounting:
  - Foundations & beds – molded fiberglass liner
  - Mounts – adjustable vibration isolator type
- Cleanliness – above average
- Fluid levels and condition – based upon visual inspection:
  - Engine oil – full (normal)
  - Engine coolant – full (normal)
  - Transmission oil – full (normal)
- Accessibility – good all sides
- Propeller – three bladed bronze feathering type (16” diameter Flexofold)

## Exhaust systems

Condition/appearance: above average Function: normal Damage or abuse: none noted

- Exhaust manifolds – freshwater cooled cast iron
- Risers – raw water cooled stainless
- Exhaust fittings – n/a
- Muffler – inline plastic (Vetus® or similar)
- Exhaust outlet – hull sides aft (composite thru-hull)
- Straight runs – black rubber hose
- Connecting hoses – black rubber hose
- Hose connection clamps – single extra heavy duty stainless

## Engine ventilation

Condition/appearance: average or better Function: normal

Location & type:

- Natural – each transom x 2
- Powered – not found

## Engine controls

Condition/appearance: above average Function/ease of operation: normal

- Manufacturer/model - Yanmar
- Description – single lever type sleeved cable manual system
- Locations – helm console
- Neutral safety interlock (prevents starting in gear) – n/a

## Engine instrumentation

Condition/appearance: above average Function: normal (except as noted in summary remarks & notes)

- Manufacturer - Yanmar
- Type – analog electric rpms & digital engine hours
- Locations – helm console
- Alarms - audible

## Steering

Condition/appearance: above average Function/ease of operation: normal

- Manufacturer/model - Lewmar
- Description – wheel type cable over pulley manual system
- Locations – helm console
- Reservoir – n/a

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## EQUIPMENT

### **Hydraulics**

Condition/appearance: above average Function: as noted in summary remarks & notes

- Location – port hull lazarette
- Manufacturer/model – Garmin autopilot actuator model B1
- Controls – Garmin autopilot
- Power source – 12 volt DC
- Reservoir – adjacent to pump

### **Pumps dewatering and utility**

Condition/appearance: above average Function: normal

Bilge location, type & description:

- Engine rooms – dewatering (Rule-Mate 750 gph)
- Each hull amidships – dewatering (Rule-Mate 500 gph)
- Each hull amidships – shower sump (Whale Gulper 220)
- AC generator compartment – dewatering (Rule-Mate 500 gph)
- Sail locker forward end port hull – dewatering (pad mounted manual diaphragm type)

### **Rigging utility**

Condition/appearance: above average Anchoring & bedding: appeared serviceable

Type, location & description:

- Tender davits – transom mounted (molded fiberglass rigged with manual tackles)

### **Windlass**

Condition/appearance: above average Function: normal

Descriptions (windlass located at foredeck unless noted otherwise):

- Manufacturer/model – Lofrans Tigres
- Type – 12 volt 1200 watts horizontal with wildcat & warping head
- Control locations – foredeck & helm
- Service disconnect – battery compartment
- Overcurrent protection – breaker disconnect
- Test performed – windlass operated from helm & foredeck controls

### **Accessories**

Condition/appearance: above average Function: appeared serviceable

Description & location:

- Two underwater lights & one camera (hull bottoms at stern)
- Two overhead cameras (mast beneath spreaders)
- Spectra Watermaker (port hull forward inboard locker)
- Haier clothes washer/dryer (port hull inboard side)
- Portable dive compressor (foredeck centerline locker)



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## ELECTRICAL SYSTEMS

### **Galvanic corrosion protection**

Condition/appearance: above average Serviceable: yes

Descriptions & locations:

- Anodes (zinc unless noted otherwise) – Saildrives & propellers
- Bonding system – n/a
- Galvanic isolators/Isolation transformers – main panel electrical cabinet

### **AC electrical system**

Condition/appearance: above average Function: normal

Locations & descriptions of significant components and features:

- Voltage – 230 volt
- Inlet types & locations – 230 volt 50 Hz & 120 volt 60 Hz
- Inlet circuit protection – main panel electrical cabinet (breakers)
- Main panel:
  - Location – aft end of main cabin port side
  - Instrumentation – volt & amp meters
  - Source selector switches – toggle with sliding interlock
  - Reverse polarity indicator – n/a
- Tests and examinations:
  - Shoreline output – not tested
  - Generator output – normal (according to onboard instruments)
  - Inverter output – not tested
  - Condition of shore cord – above average
  - Condition of shore cord inlet – 230 volt (above average) 120 volt (as noted in summary remarks & notes)

Comments:

- **Additional safety features - Vessel AC electrical diagram indicates ELCI type breaker installed between inverter AC output and main panel buss providing whole boat ground fault protection and electrical AC green ground is connected to DC negative buss**

### **DC electrical system**

Condition/appearance: above average Function: normal

Locations & descriptions of significant components:

- Voltage - 12
- Panel locations – main cabin aft end stbd side
- Panel instrumentation – volt & amp meters
- Branch circuit protection - breakers
- Primary circuit protection – breakers & fuses

### **Alternating current generators**

Condition/appearance: above average Function: normal Damage or abuse: none noted

Description:

- Engine type – single cylinder naturally aspirated diesel
- AC generator mounting – close coupled
- Location – port hull forward berth

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- Circuit protection:
  - Generator – yes
  - Main panel – yes
- Accessories – drip pan
- Fuel, exhaust, cooling water and electrical connections – serviceable
- Vented loop (may be necessary for deep draft installation) - yes

## Battery charging devices

Condition/appearance: above average Function: normal Damage or abuse: none noted

Locations/descriptions:

- AC electric – see inverter section that follows
- Alternators – main engines
- Renewable – 8 x solar panels, 2 x Air Breeze wind generators & Ferris water generator
- Charger controllers – main electrical panel face & cabinet interior

## Inverters

Condition/appearance: above average Function: normal

Locations/descriptions:

- Location, make & model – Victron Energy 12V 3000VA 120 amp
- Output – AC/3000 watts @ 230 volts; DC/120 amps @ 12 volts
- Disconnect location – main battery switch
- Overcurrent protection location & type – battery compartment (fuse)
- Installation indicated at man panel? – **not found**

## Storage batteries

Condition/appearance: above average Function: normal Damage or abuse: none noted

- Batteries – all batteries are maintenance free types noted the following:
  - Port engine (670 cranking amps flooded lead acid)
  - Stbd engine (630 cranking amps flooded lead acid)
  - AC generator (600 cranking amps flooded lead acid)
  - House (800 amp hours Lifepo4)
- Disconnects – adjacent to each

*Battery disconnects or primary circuit protection for high amperage DC systems such as engine & AC generator cranking, windlasses, capstans, bow & stern thrusters and davits should be toggled off when not in use to prevent them from energizing unexpectedly due to failed components or short circuits that can lead to equipment damage or fire while vessel is not in use or unattended*

Comments:

- Owner installed Lifepo4 house battery system appears well engineered and competently installed. Suggest documenting details of installation (diagrams) and materials (equipment suppliers) for future reference to aid in service and maintenance of system when needed.

## ELECTRONICS AND NAVIGATION EQUIPMENT

Condition/appearance: above average Function: normal

- Cockpit:

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- Magnetic compass (Plastimo Offshore 105)
- Chart plotter, sounder & radar (Raymarine Hybrid Touch 12" display)
- Multi data displays (Raymarine)
- Navigation station:
  - SSB (Icom IC-M802)
  - VHF (Icom IC-M504)
  - Sonar control (Interphase)
- Garmin autopilot actuator (port lazarette)
- Raymarine autopilot actuator (stbd lazarette)
- Autopilot (Raymarine)
- Autopilot (Garmin GHC10)
- Sonar (Interphase Forward Looking)
- VHF (Icom Command MICII)
- AIS receiver (Icom)
- Pactor modem

## SAFETY EQUIPMENT

(Items in this section should be considered compliant with applicable sections of Code of Federal Regulations and serviceable unless noted otherwise)

### **Fire safety equipment**

- Fixed – none installed
- Fixed fire system manual activator – n/a
- Portable handheld USCG Approved Sizes located as follows – none USCG Approved

Comments:

- **ABYC recommends compliance with this standard (A-4) for all boats, associated equipment, and systems manufactured after July 31, 2009:**
  - 4.5.1 Fire extinguishing equipment (portable or fixed) shall be U.S. Coast Guard approved, and listed or approved by a recognized independent testing laboratory. The installation and use of such fire extinguishing equipment shall be in accordance with the manufacturer's instructions.
  - 4.5.2 Inboard and stern-drive boats with engine compartments shall have either:
    - 4.5.2.1 a fixed fire extinguishing system installed to protect the engine compartment ([see A-4.7](#)), or
    - 4.5.2.2 a single suitably sized clean agent portable fire extinguisher provided and installed in proximity to a port to permit discharge directly into the engine compartment without opening the primary access. ([See Table IV](#) for determination of the minimum portable clean agent fire extinguisher size for this usage).

### **Gas detection systems**

- CO – not found
- Smoke – yes
- LPG – yes

### **Emergency bilge pumps and high water alarms**

- Dewatering pumps – vessel is equipped with multiple pumps
- Audible alarms – yes

### **Signaling devices**

- Flares – none USCG Approved
- Hull mounted sound - yes
- Handheld sound – not found
- Epirb – McMurdo SmartFind (battery expired 02/2015)

Comments:

- Epirb UIN: CB29D41930D34D1 South Africa

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## Navigation lights

- Side – cross beam support
- Steaming – front of mast
- Stern – tender davit
- Anchoring – top of mast
- Tricolor – top of mast

## Flotation devices

- Personal & throwable USCG Approved devices located as follows:
  - Lifejackets (6 x Solas adult & 2 x inflatable)
  - Throwables (2 x horseshoe type)
- Liferafts – aft deck (Arimar 6 Persons [due for service])

## Ground tackle

Condition/appearance: average or better Function: appeared adequate for intended use

Locations/descriptions:

- Primary anchor – Rocna 33 kg all chain rode (at ready)
- Back-up anchor – Fortress, chain lead & laid nylon rode (stowed in anchor locker)

Comments:

- Primary anchor chain has significant corrosion but appeared serviceable

## Additional required (non-safety)

- Pollution placards (Vessels 26 feet and over with a machinery compartment) – not found
- Marpol Trash Placard (Vessels 26 feet and over) – not found
- Written trash disposal plan (Vessels 40 feet and over) – not found
- Navigation rules (Vessels 39.4 feet and over) – not found
- Vessel identification locations:
  - HIN – bridge deck aft end stbd side & crossmember backing plates
  - Documentation # - transom
  - Registration # - transom
  - Name – hull sides at bow

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## SUMMARY REMARKS AND NOTES

Items on the following lists are grouped in several categories according to the source of their advice. Items in bold face are also listed in the Recommendations section at the beginning of this report and should be addressed on a priority basis. The remaining items on the lists that follow will likely not interfere with the safe and reliable function of the vessel but may improve its utility and/or convenience.

### REGULATORY AND/OR STATUTORY DEFICIENCIES

*Items on this list may not affect vessel safety but if ignored may result in fines and/or penalties:*

1. **Install USCG Approved portable handheld fire extinguishers in each hull amidships (Size AIIBCI) and main cabin (Size AIIBCII).**
2. **Put aboard at least three unexpired USCG approved day/night visual distress signals or other type USCG Approved system that satisfies the requirement (certain battery powered beacons are now approved).**
3. **Stern running light is inoperative; service as necessary to restore its normal function.**
4. **Tricolor and anchoring light function was not verifiable in bright midday sunlight; prove function of both.**
5. Put aboard the following as required by Code of Federal Regulations:
  - a. Oil Discharge Placard
  - b. Marpol Trash Placard
  - c. Written Trash Disposal Plan (<http://www.gladdingmarinesurvey.com/pdf/uscgwaste.pdf>)
  - d. Copy of Navigation Rules

### STANDARDS DEFICIENCIES

*ABYC Standards and Technical Information Reports are advisory only; their use is entirely voluntary. They are guides to achieving a specific level of design or performance, and are not intended to preclude attainment of desired results by other means:*

6. **AC generator exhaust hose is missing tie-down causing it to strain overboard discharge fitting in sail locker; replace missing tie-down to relieve strain on discharge fitting.**
7. **LPG water heater installed inside stbd head enclosure is non-compliant with ABYC A-1 safety standard that provides guidance for installation of marine LPG systems; remove from service.**
8. **Install a pressure gauge on the propane system as required by ABYC A-1: 1.5.2 Each system shall be fitted with a pressure gauge. The gauge shall read the cylinder pressure side of the pressure regulator. NOTE: The purpose of the gauge is to provide a quick and easy way to test the system for leakage**
9. **Perform leakage test on LPG system after installation of pressure gauge and service if necessary (excerpt from ABYC A-1: With the appliance valves off, open the cylinder supply valve. Close the cylinder supply valve. Observe the pressure gauge reading. The pressure indicated should remain constant for not less than three minutes. If any leakage is indicated by a drop in pressure, check the entire system with a leak detection fluid or detergent solution to locate the leak. Test solutions shall be non-corrosive and non-toxic. Repairs shall be made before retesting and operating the system.)**
10. **120 volt shore power inlet fitting shows evidence it has been overheated; replace inlet fitting, inspect attached cabling for damage and repair or replace if necessary.**
11. **Install at least one CO/smoke alarm in main cabin area.**

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## SUGGESTED REPAIRS AND/OR CHANGES

*Items based upon surveyor's observations or experience that may improve the vessel's reliability, utility or longevity:*

12. Cutwater is missing from stem on stbd hull; replace with new.
13. Visibility is poor through cockpit enclosure clear panels; clean or replace with new to insure clear visibility while underway.
14. Screecher halyard cover is frayed at upper end where it attaches to mast; cut away frayed section and reattach to mast if halyard has sufficient length.
15. Foredeck centerline locker hatch lid latches are missing parts; replace latches with new to insure hatches remain securely closed when shut.
16. Battery and knob is missing from range igniter; replace with new.
17. Air-conditioners in main cabin and stbd hull would not cool likely caused by poor raw water cooling flow; service both as necessary to restore their normal function.
18. Fuel tank level gauge is inoperative; service as necessary to restore its normal function.
19. Main engine dashboard RPM meters are not functioning properly; service as necessary to restore their normal function.
20. Anchor windlass chain counter functions intermittently; service or replace as necessary to insure its reliable function.
21. Main engines turned 600 to 700 rpms less than their rated maximum 3,600 rpms at wide open throttle; consult Yanmar specialist to determine optimum rpms at wide open throttle and adjust propeller pitch if necessary to achieve that engine operating speed.

**(End of report photo pages to follow)**



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## PHOTOS





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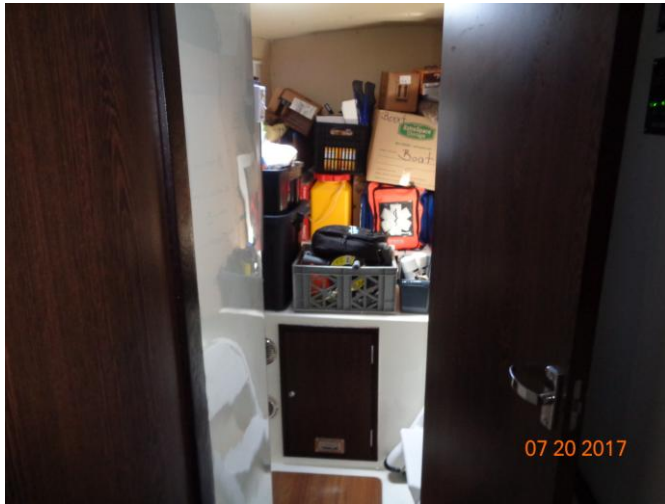


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