

GLADDING MARINE SURVEYING AND CONSULTING, LLC

1738 PICKWICK PLACE-FLEMING ISLAND-FLORIDA-32003

PHONE: 904-945-0511 EMAIL: gladdings@msn.com



SURVEY REPORT VESSEL: xxxxxx

Prepared by: Bill Gladding SAMS-AMS® #810
Society of Accredited Marine Surveyors

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SURVEY BASIC DETAILS

SURVEY PURPOSE: prepurchase
FILE #: 2023-10-16 Catalina Morgan 440 2006

REQUESTED BY: xxxxxxxxx
REPORT DATE: October 19, 2023

CLIENT INFORMATION: xxxxxxxxx
OWNER INFORMATION: xxxxxxxxx

SURVEY DATE: October 16 & 17, 2023
SURVEY LOCATION: Brunswick Landing Marina
ATTENDING: xxxxxxxxx
ENGINE SURVEYOR: basic external checks by hull surveyor
RIGGING SURVEYOR: deck level, aloft & while underway by hull surveyor

VESSEL & MACHINERY DATA

Vessel identification numbers (source: stbd hull side at stern & main cabin below sole)

Hull ID #: CTYMxxxxxxxx Documentation #: xxxxxxxxx



Vessel type and dimensions (source: Bucvalupro.com & sailboatdata.com except as noted below)

Manufacturer: Catalina Yachts Model: Catalina Morgan 440 Deck Salon Model year: 2006
Length: 45'11" Beam: 14'0" Draft: top of paint (5'8"), waterline (5'5") Weight lbs.: 25,528
Ballast lbs.: 8,600 Hull composition: fiberglass

Engine (source: data plate & helm hour meter)

Type and #: single inboard Horsepower: 75@3,800 rpms Fuel type: diesel Manufacturer: Yanmar
Model: 4JH3-TE Serial #: E15771 Hours: 2,000.2

Transmission (source: cast & stamped on case)

Manufacturer: Kanzaki Model: KM4A Ratio: 3.30 Serial #: 21841

Alternating current generator (source: decal)

Manufacturer: Next Generation Industrial Power Model: Next-Gen UCM2-5.5 KW: 5.5
Fuel type: diesel Serial #: not found Hours: 1,684.3

TENDER DATA

Tender (source: data plates & online sources)

Hull ID #: HFMxxxxxxxxx Registration #: xxxxxxxxx Manufacturer: Highfield Model: CL190
Model year: 2021 Length: 9'6" Beam: 5'7"

Engine (source: decal on engine)

Type and #: single outboard Horsepower: 20 Fuel type: gas Manufacturer: Tohatsu
Model: MFS20E Serial #: 031575BX

RECOMMENDATIONS

(Items on this list should be addressed on a priority basis)

- Vessel is not equipped with a CO/smoke alarm; install at least one in main cabin area near galley.**

(In addition, see Summary Remarks and Notes section at end of survey where the above are also cited)

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This vessel was surveyed using the USCG 33CFR requirements and NFPA and ABYC standards and recommendations in effect today for guidance. 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 (as equipped): warm coastal waters

For regular use more than 12 miles offshore suggest carrying Epirb and offshore type lifejackets

Warm water means water where the monthly mean low water temperature is normally more than 59 degrees Fahrenheit

VALUATION

Subject vessel was found to be in overall above average condition. It has less than expected wear and tear in nearly every respect. It is well equipped for extended cruising with upgraded electrical systems, tender & outboard, watermaker & navigation equipment. In addition, it has notable rebuilds and upgrades. In the valuation determination, cost and market comparison approaches to value were considered on October 19, 2023. In the sales comparison approach Yachtworld.com and the subscription website Soldboats.com was reviewed. Current listings and actual reported sales figures were taken into consideration. Price Guide “Book” values were also taken into consideration. In cases where limited relevant comparables are available for comparison a depreciated replacement cost may be used to develop a value. In the opinion of the undersigned the following values should apply:

Estimated current fair market value: \$xxxxxxx

Market value assumes correction of significant survey findings

Replacement cost: \$611,000 (Bucvalupro.com)

Values are dependent on the limiting conditions and assumptions noted in the report.

These values are statements of opinion. No guarantee can be given that these opinions of value will be sustained or that they will be realized in an actual transaction.

Specific references

Pricing guides

Abos.com.....\$101,111 to \$129,111 (\$155,556 retail)

Bucvalupro.....\$223,500 to \$245,500 (above average)

Jdpower.com.....prices not given

(Options not added to guide values unless noted otherwise)

Current listings

Yachtworld.com..... \$215,000 & \$239,000

(2 results)

Reported sales

Soldboats.com.....\$125,000 to \$239,000

(19 results – searched January 2020 to present)

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.

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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 survey contains opinions and observations based on my skill, experience and training as a marine surveyor and consultant. Acceptance and use of this report by the client acknowledges the client's understanding that the report has been composed of information that is believed to be true after reasonable investigation and inquiry but is not warranted to be so. The information was obtained without drilling, diving, ultrasonic testing, cleaning, or opening up to expose parts or conditions ordinarily concealed. There were no tests for tightness or soundness conducted other than the conditions noted visually.

Acceptance and use of this report acknowledges the client's understanding that no determination of stability or structural strength has been made and no opinion is expressed. Acceptance and use of this report acknowledges the client's understanding that Gladding Marine Surveying and Consulting, LLC does not accept any responsibility for damage or deterioration not found or discovered during the course of survey, nor for consequential damage, deterioration, or loss due to any error or omission.

The Client hereby undertakes to keep the Surveyor/Consultant and its employees, agents and subcontractors indemnified and to hold them harmless against all actions, proceedings, claims, demands or liabilities whatsoever or howsoever arising which may be brought against them or incurred or suffered by them, and against and in respect of all costs, loss, damages and expenses (including legal costs and expenses on a full indemnity basis) which the Surveyor/Consultant may suffer or incur (either directly or indirectly) in the course of the services under these Conditions.

Notwithstanding the above clause, in the event that the Client proves that the loss, damage, delay or expense was caused by the negligence, gross negligence or willful default of the surveyor/Consultant aforesaid, then, save where loss, damage, delay or expense has resulted from the Surveyor's/Consultant's personal act or omission committed with the intent to cause same or recklessly and with knowledge that such loss, damage, delay or expense would probably result, the Surveyor's/Consultant's liability for each incident or series of incidents giving rise to a claim or claims shall never exceed a sum calculated on the basis of ten times the Surveyor's/Consultant's charges.



William K. Gladding, AMS® #810
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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. Because of this, some areas were not reached behind cabinetry, under decks and other areas not readily accessible. 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 for defects. In addition, other non-destructive methods may have been used such as tap testing or employing moisture detection equipment. 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.

Key to highlighted comments as follows:

- Positive comment related to safety or functionality
- Informational comment no finding generated
- High priority finding related to safety, utility, or reliability
- Moderate to low priority finding related to utility or reliability

Test equipment that may be referenced in the report:

- Tramex Skipper or GE Aquant moisture meter
- Flir® C3 infrared camera
- AC electrical circuit analyzer
- AC electric three light plug in tester
- Non-contact digital tachometer
- Multi-meter electrical tester
- Assorted hammers and measuring devices
- Loos gauges to check rigging tension

VESSEL GENERAL DESCRIPTIONS

Exterior arrangement – mono-hull sailboat noted the following:

- Hull – displacement type with wing keel and skeg hung rudder; stem is raked, straight sheer is nearly level from bow to stern; sugar scoop style transom has integral swim platform
- Decks and superstructure – flush main deck with ample walkways around trunk and main cabins, and recessed stern cockpit
- Helm(s) – cockpit aft centerline

Sailing rigging - basic elements as follows:

- Rig type – mast head sloop
- Keel – lead wing type bolted to keel stub
- Spars – deck stepped aluminum with two spreaders, boom furling, telescoping aluminum vang
- Chain plates – stainless-steel:
 - Forestay (bolted on stem head and anchored into hull)
 - Shrouds (ball and socket bolted to deck anchored into hull)
 - Backstay (inserted through hull interior)
- Standing rigging – 1 x 19 stainless-steel wire with Sta-lok® swaged type terminals
- Running rigging – braided synthetic

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- Furlers:
 - Genoa (Schaefer System 3100)
 - Mainsail (Forespar Leisure Furl)
- Winches:
 - Mast (furling winch)
 - Main cabin aft end port side (Harken 44.2 self-tailing)
 - Cockpit coamings (2 x Harken 60.2 self-tailing Power Ratio)
- Sails:
 - Spinnaker (Asymmetrical)
 - Genoa 115%
 - Mainsail (fully battened)

Interior arrangement – lower cabins forward and aft, raised deck between over machinery space noted the following:

- Staterooms – one in each lower cabin
- Heads – one in forward lower cabin and one main cabin aft end port side
- Galley – main cabin aft end stbd side
- Dinette – main cabin stbd side
- Saloon – main cabin
- Helm(s) – n/a
- Other:
 - Navigation station main cabin port side
 - Spacious equipment locker below cockpit stbd side
 - Large lazarette accessible from equipment locker

Structural elements

- Hull skin material and type cosmetic finish – molded fiberglass balsa cored above the waterline, gelcoat cosmetic finish
- Hull grid system layout and materials – molded fiberglass liner fiberglassed to hull
- Hull deck joint – matching flanges bonded and mechanically fastened
- Continuous transverse bulkheads locations and materials – fiberglassed plywood at anchor locker, each end of main cabin and lazarette
- Decks and superstructure materials and type cosmetic finish – solid and balsa cored molded fiberglass, gelcoat cosmetic finish

SURVEY FINDINGS

UPGRADES/REBUILDS

Including but not limited to as reported by vessel owner and consistent with findings noted during survey:

- SeaWater Pro 40 gal/hr. watermaker installed in 2021.
- 1120Ah 12V LiFePO4 battery, Victron Multiplus 3000 Inverter/Charger, and Balmar 250A alternator with Wakespeed regulator.
- 1100-watts of solar panels.

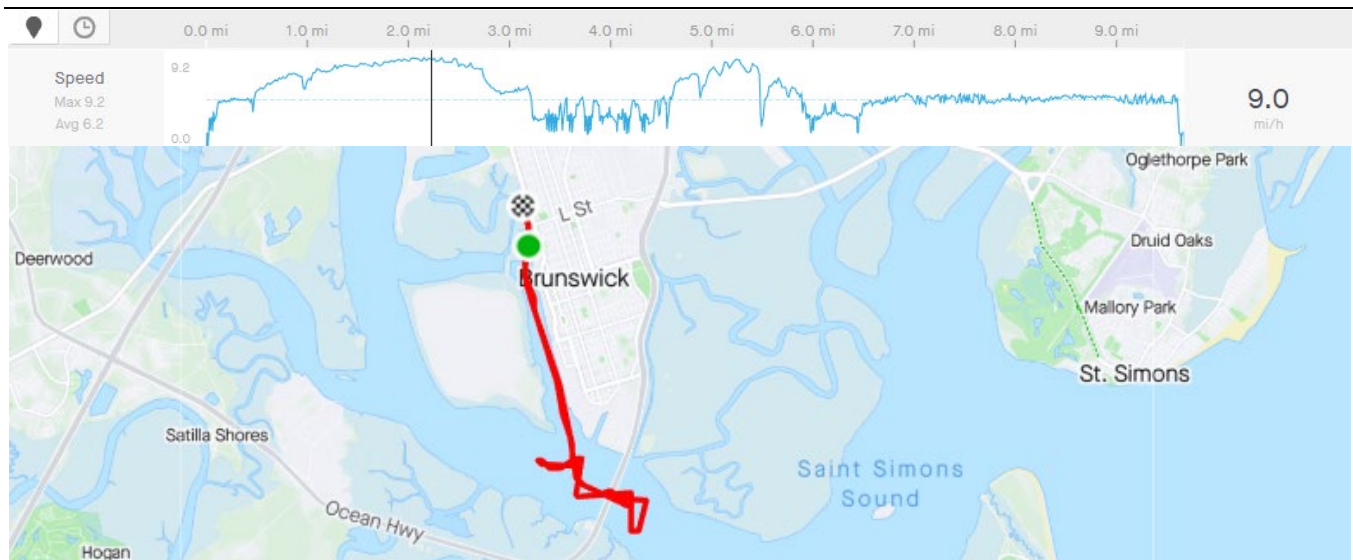
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- 115% headsail and main sail new in December 2022.
- Asymmetrical Spinnaker with sock and turtle bag.
- Standing rigging replaced in November 2020.
- Emtrak B924 AIS transponder.
- Dodger and Bimini replaced in 2020.
- Full cockpit enclosure installed in November 2022.
- 85# Mantis with 200 feet of galvanized 3/8" G4 and 120 feet of 5/8" 8-strand nylon rope.
- 25# fluke type anchor with 60' of chain and 200' of nylon 8-strand rope.
- Raymarine Axiom 12" chart plotter and mast-mounted radar installed in 2020, integrated with original instruments, including autopilot.
- Highfield 2021 290 Hypalon dinghy with 20HP Tohatsu EFI electric start outboard and custom chaps
- New Revere Offshore Liferaft.

TRIAL RUN



- Date – October 17, 2023
- Location – Brunswick River
- Conditions:
 - Temperature °F (49)
 - Wind direction & velocity (nw@5.2 [12+ apparent])
 - Wave height estimated (small chop)
- Duration – approximately two hours
- Number of passengers - five
- Tanks levels:
 - Fuel – 50%
 - Water – 50%
 - Waste - <25%

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- Hull performance – vessel performed well in all respects. Under sail vessel reached 7-knots with 12.2 apparent wind. Vessel was jibed and several tacks were performed returning to marina. Motoring against the tide the following RPMs – speeds in knots were noted:
 - 2,000 – 5.1
 - 2,200 – 5.7
 - 2,400 – 6.4
 - 2,600 – 6.5
 - 2,800 – 6.7
 - 3,600 – 7.9
- Engine performance:
 - Cold start - normal
 - Wide open throttle rpms (3,800 desired) – 3,600 (3,480 actual)
 - Temperatures and pressures – no alarms occurred at any time including full power for several minutes
- AC generator performance:
 - Voltage and frequency - normal
 - Loads applied – normal house loads and air-conditioners
- Comments -

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 because of abnormal indications from visual inspection and readings from moisture meter

Cosmetic condition: average or better

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: average or better

- Chaffing gear – sheer (stainless-steel on varnished teak)
- Swim platform – integral to hull
- Permanently installed means for reboarding – fold down stainless-steel

Comments - Reboarding ladders should be secured in a way they can be deployed by passengers who may find themselves in the water unexpectedly, so they may reboard unassisted.

Deck drainage

Primary drainage system: direct overboard

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Other drainage systems: scuppers Condition: average or better

Weather decks with in-hull drain systems: side decks & cockpit (prevents puddling)

Comments - Surveyor has witnessed several sinking and flooding events due to clogged deck drains backing up rainwater 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.

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 because 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: above average Wear & tear: not significant Serviceable: yes

Location & type (installed at time of survey) – canvas except as noted below:

- Genoa UV strip
- Main cabin windshield shades (vinyl screen)
- Cockpit Bimini & dodger (Eisenglass panels)
- Companionway door cover
- Stern gate (vinyl screen)
- Tender chaps

Exterior hardware

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

Location & type – welded stainless-steel except as noted below:

- Bow pulpit
- Side deck stanchions
- Handrails
- Stern rails
- Stern arch
- Lifelines (bare stainless-steel wire)

Tie-up gear

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

Location & type – stainless-steel:

- Foredeck (3 x horn cleats & 2 x fair leads)
- Side decks (2 x genoa track mounted horn cleats)

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- Aft deck (2 x horn cleats & fair leads)

Anchoring gear

Condition/appearance: above average Function: normal

Descriptions:

- Anchor pulpit – n/a
- Chute(s) – double stainless-steel (plastic rollers)

Glazing materials

Condition/appearance: average or better Gaskets and seals: appeared serviceable

Location & type:

- Main cabin – fixed windows (aluminum frame, plastic lens)

Exterior hatches, portlights and doors

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

Location & type:

- **Secondary egress (escape) – main cabin top & cockpit**
- Foredeck & cockpit – hinged locker lids (molded fiberglass)
- Trunk cabin sides – portlights (aluminum frame, plastic lens)
- Cabin top & cockpit – hinged hatches (aluminum frame, plastic lens)
- Companionway – hinged & sliding with turtle (natural teak & molded fiberglass)

Comments - Hatches, portlights, doors, etc. used for primary and emergency ingress/egress, and access to gear and equipment were thoroughly checked for condition and function. Others were examined for general condition and evidence of leakage but not operated.

Rigging sailing

Inspection type - deck level unless noted otherwise

Overall condition – above average

Rigging brand – US Spars or similar

Age of rigging as reported by vessel owner - see rebuilds/upgrades section of report

Examinations and comments regarding the following:

- Keel integral (inspected for spider cracking or other hull defects indicative of structural infirmity) - normal
- Mast and spars (examined for cracks, gouges, dents, bends and if standing in column) - normal
- Mast support:
 - Step (examined for deformation or other evidence of failure) - normal
 - Compression post (examined for condition & anchoring) - normal
 - Deck (examined for deformation or other evidence of failure) – normal
 - Chain plates (examined for corrosion, cracks & deformation) - normal
- Hardware & fittings (condition & function) - normal
- Standing rigging (examined for corrosion, cracks, fishhooks & deformation) – normal
- Standing rigging tension (checked for tension and uniformity) – normal
- Running rigging (examined for condition & function) - normal

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- Furling systems (examined & function tested) - normal
- Winches (examined & function tested) - normal
- Sails (material & stitching examined for wear; rigged sails shape observed) – above average

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

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

Bow thruster

Condition/appearance: above average Exceptions noted: none

- Manufacturer/model – Side-Power SP75T
- Type – 12-volt 7 ¼” tunnel type twin propellers
- Location – inside forward berth
- Battery service-disconnect – inside forward berth (manual switch)
- Overcurrent protection – inside forward berth (fuse)
- Reservoir – inside forward berth
- Test performed – examined for damage, excessive wear, leakage, and observed in use during trial-run

Underwater gear

Condition/appearance: average or better Exceptions noted: none

- Propellers – 20RH17 3-blade bronze alloy
- Shafting – 1 ¼” stainless-steel
- Shaft support – hull skeg
- Bearings – rubber Cutless® type
- Shaft log – integral fiberglass
- Shaft seal – PSS® self-aligning dripless type
- Spare shaft seals installed – n/a
- Fasteners – appeared secure
- Test performed – examined for damage, excessive wear, and leakage

Rudders & linkages

Condition/appearance: average or better Exceptions noted: none

- Rudder description – composite blade, stainless-steel stock
- Thru-hull seal – fixed bronze packing gland

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- Supports – skeg on hull exterior, rudder port heavily reinforced and staid in hull, stainless-steel rollers on aluminum support bracket
- Linkages – aluminum radial for steering, bronze tiller for autopilot
- Steering components – cable and sheaves appeared serviceable
- Emergency tiller – tied to ladder in equipment room (installed to prove fit)
- Test performed – examined for damage, excessive wear, and leakage

Thru-hulls, seacocks, transducers

Condition/appearance: above average Exceptions noted: none

- Underwater – Marelon® plastic fitted with ¼ turn valves with stainless-steel clamps on hoses connections at the following bilge locations:
 - Forward stateroom below sole – **sink drain, toilet inlet & blackwater tank overboard discharge**
 - Main cabin below sole – **inlets for air-conditioners (2), inlets for engines (2), inlet for aft toilet & drains for galley sink & sump box (watermaker shares air-conditioner inlet**
- Topsides – Marelon® plastic & integral fiberglass
- Transducers – appeared serviceable

ACCOMMODATIONS, HOUSEHOLD SYSTEMS & COMFORT SYSTEMS

Interior spaces

Bulkheads, partitions, and cabinetry were 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 expected wear and tear descriptions as follows:

- Doors - hinged
- Decks – teak & holly pattern Formica
- Cabinetry – varnished teak
- Bulkheads and partitions – varnished teak
- Ceilings – molded fiberglass with padded vinyl inserts
- Counters – cut composite in galley and heads, varnished teak elsewhere
- Cushion covers – vinyl skins
- Natural ventilation – opening appliances
- Powered ventilation – circulating fans
- Fixtures – serviceable
- Test performed – operated doors, drawers and fixtures as required to perform inspections

Entertainment equipment

Condition/appearance: above average Exceptions noted: none

Locations/descriptions:

- Navigation station – stereo (Fusion MS-UD650)
- Binnacle – stereo remote (Fusion MS-NRX300)
- Test performed – FM station played and controlled from both locations

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Galley & household equipment

Condition/appearance: average or better Exceptions noted: **yes** (see summary remarks & notes)

Locations/descriptions - Located in galley except as noted:

- Refrigerator (Coolmatic RSD-115 12/24-volt)
- Double sink (stainless-steel)
- 3-burner range & oven (Force 10 LPG)
- Built-in freezer (Isotherm 12-volt)
- Microwave (Tappan)
- Test performed – attempted to operate all

Sanitary system

Condition/appearance: above average Exceptions noted: none

Locations/descriptions:

- Quantity - two
- Manufacturer – Raritan Engineering Sea Era or similar
- Type – 12-volt marine toilet, raw-water rinse
- Y-valves (direct overboard discharge) - none
- Vented loops (if required) - yes
- Test performed – operated both toilets several times

Air-conditioning

Condition/appearance: average or better Exceptions noted: **yes** (see summary remarks & notes)

Locations/descriptions:

- Quantity - two
- Manufacturer - Dometic
- Type – self-contained heat pump
- Controls – man cabin & forward stateroom (SMXir touchpad)
- Equipment – main cabin outboard sides
- Cooling pumps – main cabin below sole:
 - Dometic PML500
 - Seaflo SFCPA1-G500-01)
- Test performed – operated both systems on heat and cool programs and measured Delta-T

TANKS, PIPING AND RELATED

(Capacities listed in this section are based upon published specifications for this model unless stated otherwise. Accuracy of tank level monitors should be verified prior to relying upon their readings.)

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 – 96-gallon capacity contained in one aluminum tank secured main cabin below sole port side
- Fills – port side deck amidships (1)
- Vents – hull side

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- Plumbing materials – flexible fuel hose
- Shut-off valves – tank outlets
- Filters – main cabin below sole:
 - Main engine (Racor 500)
 - AC generator (Racor 500)
- Pumps – none
- Level gauges – helm binnacle
- Test performed – examined for leaks, operated during trial-run

Potable water

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

- Tanks – 156-gallon capacity contained in two plastic tanks secured in forward berth (50) and main cabin below sole stbd side 106)
- Fills – foredeck port side and stbd side deck amidships
- Vents – hull sides
- Plumbing materials – plastic tubing
- Shut-off valves – main cabin below sole (supply manifolds for tanks & appliances)
- Filters – main cabin stbd side settee base
- Pressure pump – main cabin below sole stbd side (Jabsco Sensor-Max 17 31755-0000 variable speed)
- Accumulator tank – n/a
- Water heater – main cabin inside stbd settee base (Seaward HF-2000 [20-gallon, 120-volt & engine heated])
- Dock water inlet – not found
- Level gauges – navigation station
- Test performed – examine for leaks, verified water flow and hot water from AC electric

Black water

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

- Tanks – 55-gallon capacity contained in one plastic tank secured main cabin below sole port side
- Deck fitting – port side deck amidships
- Vents – hull side
- Plumbing materials – PVC hose
- Y-valves – n/a
- Overboard valve – forward stateroom below sole
- Discharge pump – forward stateroom below sole (Whale Gulper 320)
- Vented loop (if required) – n/a
- Treatment device - none
- Level gauges – navigation station
- Test performed – examined for leaks, verified discharge pump runs

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LPG/CNG system

Condition/appearance: above average Exceptions noted: none

- Storage locker – cockpit aft end port side
- Tank quantity, material & capacity – 2 x aluminum WC-23.8
- Solenoid valve, regulator, pressure gauge and control - yes
- Leakage test (should hold steady pressure for three minutes) - **Passed**

Comments - Periodic leak testing of LPG system is recommended: (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).

ENGINES, AND ENGINE AND VESSEL CONTROLS

Engines

Condition/appearance: above average Exceptions noted: none

- Location – main cabin aft end below sole
- Type/description – diesel 4-cycle 4-cylinder turbocharged aftercooled
- Cooling system – closed loop freshwater, raw-water cooled heat exchanger
- Power transmission – close coupled straight-drive
- Mounting:
 - Foundations & beds (molded fiberglass liner)
 - Mounts (adjustable vibration isolator type)
- Cleanliness – above average
- Fluid levels and condition – visual inspection of the following (full/low/add):
 - Engine oil – full/normal
 - Engine coolant – full/normal
 - Transmission oil – full/normal
- Accessibility – poor
- Test performed – examined the following:
 - Cold start
 - Exhaust smoke
 - Raw-water flow
 - Noise/vibration
 - Leaks
 - Charging

Exhaust systems

Condition/appearance: above average Exceptions noted: none

- Exhaust manifolds – freshwater cooled cast iron
- Riser/mixing elbow – raw-water cooled bronze
- Exhaust fittings – n/a
- Muffler – aft of main engine (fiberglass cube)
- Exhaust outlet – stbd hull side at stern (integral fiberglass)
- Straight runs – black rubber hose

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- Connection of fittings – black rubber hose
- Hose connection clamps – double stainless-steel
- Test performed – examined for evidence of leakage

Engine ventilation

Condition/appearance: average or better Exceptions noted: **yes** (see summary remarks & notes)

Location & type:

- Thru-hull vents – transom area
- Powered – DC blower
- Test performed – attempted to operate blower

Engine controls

Condition/appearance: above average Exceptions noted: none

- Locations – helm binnacle
- Manufacturer/model - Lewmar
- Description – single lever type sleeved cable manual system
- Neutral safety interlock (prevents starting in gear) – n/a
- Test performed – operated during trial-run, verified neutral throttle function

Engine instrumentation

Condition/appearance: average or better Exceptions noted: none

- Manufacturer – Faria or similar
- Type – analog electric
- Locations – helm binnacle:
 - RPMS & hours
 - Temperature
 - Volts
 - Fuel level
- Alarms – yes
- Test performed – operated during trial-run

Steering

Condition/appearance: above average Exceptions noted: **yes** (see summary remarks & notes)

- Locations – helm binnacle
- Manufacturer/model - Edson
- Description – wheel type cable over pulley
- Test performed – operated lock to lock several times

EQUIPMENT

Pumps dewatering and utility

Condition/appearance: average or better Exceptions noted: none

Type & location – DC electric unless noted otherwise:

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- Main cabin below sole:
 - Dewatering (Rule 2000 gph)
 - Sump box (Rule 800 gph in fiberglass box)
- Cockpit aft end stbd side – dewatering (manual diaphragm type)
- Test performed – operated all pumps

Rigging utility

Condition/appearance: above average Exceptions noted: none

Type & location:

- Tender davits – stern arch (manual tackles)
- Test performed – tender was launched and recovered

Windlass

Condition/appearance: average or better Exceptions noted: none

Descriptions (windlass located at foredeck unless noted otherwise):

- Manufacturer/model - Maxwell
- Type – 12-volt vertical with wildcat & warping head
- Control locations - foredeck
- Battery service-disconnect – below navigation station table
- Overcurrent protection – disconnect is breaker
- Clutch lever location – cockpit forward end line bag
- Test performed – anchor lowered to water and back and verified wildcat freewheels

Accessories

Condition/appearance: above average Exceptions noted: none

Description:

- Tender & outboard engine – hanging on davits (see page-3 for details)
- 2 x underwater lights – hull bottom at stern (Lumitec Seablaze Quattro)
- Outboard storage mount – stern rail (Better Bracket)
- Clock & barometer – main cabin aft end (Howard Miller)
- Dive tank compressor – storage locker (Bauer Junior II JR11-E1-2HP)
- Watermaker – storage locker (SeaWater Pro F40-1000S)
- Prop shaft line cutter – forward of propeller (serrated stainless-steel collar type)
- Test performed – tender engine was started

ELECTRICAL SYSTEMS

Galvanic corrosion protection

Condition/appearance: above average Exceptions noted: none

Descriptions:

- Anodes (zinc unless noted otherwise) – quantities each location:
 - Propeller nut (1)
- Bonding system – n/a

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- Galvanic isolators – inside electrical cabinet (30 & 50 amp)
- Test performed – n/a

AC electrical system

Condition/appearance: above average Exceptions noted: none

Locations & descriptions of significant components:

- Voltage - 120
- Inlet types & locations – transom port side (240-volt/50-amp [30-amp not in service])
- Inlet circuit protection location (within ten feet unless noted otherwise) – lazarette port side (accessible from aft stateroom)
- Main panel:
 - Location – navigation station
 - Instrumentation – voltmeter & LED power indicator
 - Source selector switches – rotary type
 - Reverse polarity indicator - yes
- Condition of shore cord – average or better
- Condition of shore cord inlet – average or better
- GFCI protection – all outlets
- Tests and examinations:
 - Shoreline output - normal
 - Generator output - normal
 - Inverter output - normal
 - AC/DC grounding connection – yes
 - AC current leakage <30ma - yes

DC electrical system

Condition/appearance: above average Exceptions noted: none

Locations & descriptions of significant components:

- Voltage - 12
- Panel locations – navigation station
- Panel instrumentation – voltmeter, ammeter, battery condition monitor & charging system monitor
- Branch circuit protection – breakers
- Main disconnect switch – local and remotely-controlled battery switches
- Primary circuit protection – adjacent to batteries (fuses)
- Test performed – examined layout of system for appropriate safety features and various DC equipment operated

Alternating current generators

Condition/appearance: average or better Exceptions noted: none

Description:

- Engine type – diesel 4-cycle 2-cylinder naturally aspirated
- AC generator mounting – belt driven

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- Location – main cabin below sole forward end
- Circuit protection:
 - Generator – yes
 - Main panel – yes
- Accessories – drip pan, sound shield & remote control/hour meter
- Fuel, exhaust, cooling water and electrical connections – serviceable
- Vented loop (may be necessary for deep draft installation) – yes
- Test performed – operated to verify correct AC output with air-conditioners running

Battery charging devices

Condition/appearance: above average Exceptions noted: none

Locations/descriptions:

- AC electric – see inverter section that follows
- DC to DC:
 - Engine battery – galley below sole (Victron Energy Orion-Tr Smart 12/12-30)
 - Bow thruster battery – inside forward berth (Victron Energy Orion-Tr Smart 12/12-30)
- Alternators – engine (Balmar 250-amp)
- Renewable – 1,080-watt capacity (4 x panels)
- Controllers – galley below sole:
 - 2 x Victron Energy SmartSolar MPPT 100/50
 - 1 x Victron Energy SmartSolar MPPT 100/30
- Test performed – all equipment observed operating

Inverters

Condition/appearance: above average Exceptions noted: none

Locations/descriptions:

- Location – main cabin stbd settee back rest
- Make/model – Victron Energy Multiplus 12-volt/3000-va/120-amp inverter/charger
- Output:
 - AC power (3,000-watt)
 - DC current (120-amp)
- Battery disconnect location – main battery switch
- Battery overcurrent protection location & type – fuse
- AC output bypass (returns inverter supplied circuits power source to main buss) – not found
- Inverter cautionary label – inverter control adjacent to panel
- Test performed – observed working as inverter and charger

Storage batteries

Condition/appearance: above average Exceptions noted: none

• Batteries:

- Bow thruster – inside forward berth (8D AGM)
- Engine starting – galley below sole (Group-24 FLA)
- House – galley below sole (16 x EVE LF280K Lifepo4)

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- Disconnects:
 - Bow thruster – inside forward berth
 - Engine starting – navigation station
 - House – navigation station & remotely-controlled
- Test performed – bow thruster battery tested using Midtronics conductance type tester

Comments:

- 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

ELECTRONICS AND NAVIGATION EQUIPMENT

Condition/appearance: above average Exceptions noted: none

- Binnacle:
 - Magnetic compass (Ritchie Powerdamp)
 - Multifunction display (Raymarine Axiom Plus 12RV)
 - Tridata (Raymarine ST60)
 - Wind (Raymarine ST60)
 - Autopilot control (Raymarine ST6001)
 - VHF mic (Standard Horizon Ram3+ CMP 31)
- Navigation station:
 - VHF radio (Standard Horizon Matrix GX2000)
 - Graphic data display (Raymarine ST60)
 - Vessel systems data display (Maretron DSM150)
 - Autopilot wireless remote control (Raymarine Smart Controller)
- Radar (Raymarine Quantum 2 Doppler)
- AIS (Emtrak B924 Class-B)
- Autopilot actuator – lazarette (Raymarine Type 2 linear actuator)
- Autopilot compass – aft stateroom port side locker
- Test performed – all equipment operated

SAFETY EQUIPMENT

(Items in this section checked for compliance with Code of Federal Regulations & ABYC Standards)

Fire safety equipment

Equipment types and quantities USCG compliant **yes**:

- Fixed - none
- Fixed fire system indicator – n/a
- Fixed fire system manual activator – n/a
- Portable handheld USCG Approved Sizes located as follows – (**indicated fully charged**):
 - Forward stateroom hanging locker (BCI 2020)
 - Aft stateroom port side locker (BCI 2019)
 - Equipment locker (BCI 2020)

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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

Equipment types and quantities compliant **no**:

- CO – not found
- Smoke – not found
- LPG – not found
- Test performed – n/a

Emergency bilge pumps and high-water alarms

Configuration compliant **no**:

- Dewatering pumps – vessel is equipped with three pumps
- Audible alarms – not found
- Test performed – all pumps operated

Signaling devices

Equipment types and quantities compliant **yes**:

- Distress signals – one of the following required:
 - Pyrotechnics – yes
 - Electronic & flag - yes
- Sound signaling devices – one of the following required:
 - Hull mounted sound – not found
 - Handheld sound - yes
- Epirb – not found
- Test performed – n/a

Navigation lights

Configuration defects: **none** Function: **normal**

- Side – bow pulpit
- Steaming – front of mast
- Stern – stern arch
- Anchoring – top of mast
- Test performed – operated all

Flotation devices

Condition/appearance: **above average** Equipment types and quantities compliant **yes**:

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- Lifejackets:
 - Lazarette (1 x Type I, 4 x Type II)
 - Aft stateroom port side locker (2 x Spinlock inflatable)
- Throwables – stern rail stbd side (Lifesling2)
- Liferafts – transom locker (Revere Coastal Commander 3.0 inspection due: 12/2024)
- Immersion suits – not found

Ground tackle

Condition/appearance: **above average** Equipment types and quantities compliant **yes**:

Locations/descriptions:

- Ready anchors & rodes in chute:
 - Mantus, all chain rode
- Back-up anchors & rodes – inside anchor locker:
 - Danforth, chain lead & laid nylon rode

Additional required (non-safety)

Equipment types and quantities compliant **no**:

- Pollution placards (Vessels 26 feet and over with a machinery compartment) – main cabin aft end
- Marpol Trash Placard (Vessels 26 feet and over) – main cabin aft end
- 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 – stbd hull side at stern below rub rail
 - Documentation # - main cabin below sole
 - Name – hull sides at stern & transom

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SUMMARY REMARKS AND NOTES

Items on the following lists are grouped into 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. Underlined items should be considered for timely action at your convenience. 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. Code of Federal Regulations requires the following placards and documents be carried aboard, placards in one or more readily accessible locations:
 - a. Written Trash Disposal Plan (<http://www.gladdingmarinesurvey.com/pdf/uscgwaste.pdf>)
 - b. 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:

2. **Vessel is not equipped with a CO/smoke alarm; install at least one in main cabin area near galley.**
3. Vessel is not equipped with an audible bilge high-water alarm; install level switch in keel sump that sounds audible alarm when excess water is present.

SUGGESTED REPAIRS AND/OR CHANGES

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

4. Hull above waterline & related:
 - a. Cockpit equipment room lid is delaminated; repair and refinish to match if its condition interferes with its convenient use.
 - b. Scupper drain lines are black rubber and are distressed where they bend sharply to the overboard discharge thru-hulls; monitor hose conditions and repair/replace if they show signs of leakage.
2. Rigging & related:
 - a. Backstay tension is lighter than expected; apply additional tension if current setup interferes with sailing performance.
5. Hull below waterline & related:
 - a. Antifouling paint on hull wetted surface is worn thin and has bare spots; reapply additional coats of antifouling paint.
 - b. Propeller shaft seal is type that is prone to emitting fine mist that can corrode surrounding metal components, deteriorate wood in vicinity and cause unsightly stains; suggest installation of plastic shield over seal rotating collar to contain mist and direct it downward to bilge.
 - c. Above waterline thru-hull port hull side at stern rim is split; replace with new.
6. Accommodations, household systems & comfort systems:
 - a. Galley freezer does not cool; service as necessary.

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- b. Main cabin air-conditioner Delta-T was 12 degrees versus normal 15 degrees or more from properly functioning system; service system as necessary to restore its normal function (possibly low on gas).
7. Tanks, piping & related:
 - a. AC generator bowl is dirty; clean and service filter.
8. Engines, controls & related:
 - a. Engine vibrated excessively while underway; service as necessary to eliminate excessive vibration (propeller shaft scheduled to be replaced).
 - b. Water heater is plumbed to main engine cooling system to make hot water while underway; install isolation valves on or near main engine where water heater hoses attach so they can be turned off when the engine heat is not needed to make hot water to avoid possible leakage and loss of main engine coolant that may result in overheating damage of the main engine.
 - c. Steering cables have excess slack that allows them to rub on adjacent hardware; apply additional tension to cables to hold them clear from chaff points.
 - d. Bow thruster battery disconnect is inside forward berth; suggest relocating it to a more readily accessible location.
 - e. Engine compartment exhaust blower is inoperative; service as necessary.
9. Electrical systems & related:
 - a. House battery terminals and jumpers are exposed below galley hatch; install cover over terminals to protect them from inadvertent contact when the hatch is opened.

(End of report photo pages to follow)

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PHOTOS



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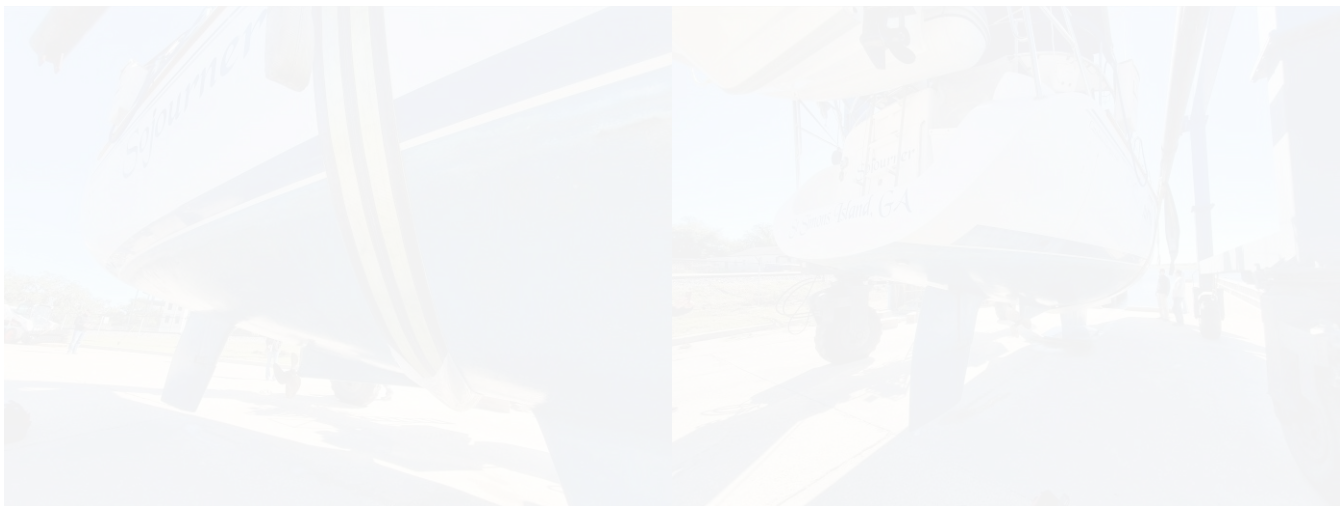
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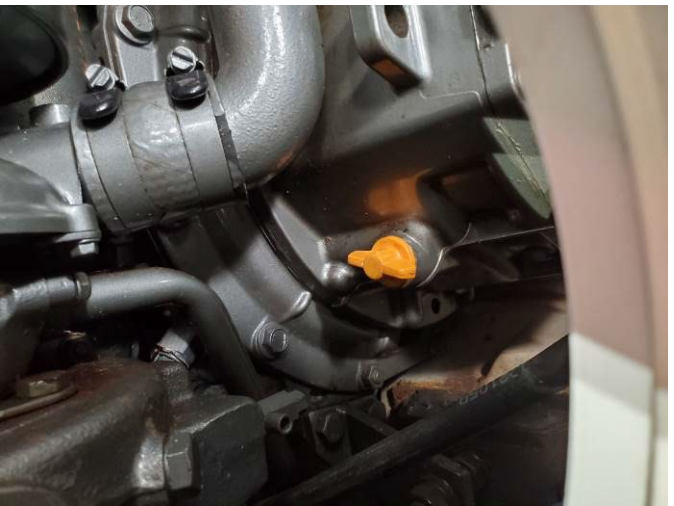
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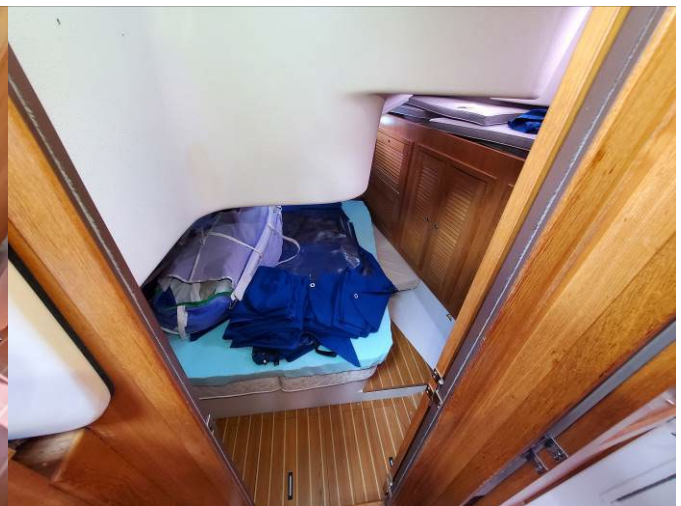
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