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SOCIETY OF ACCREDITED MARINE SURVEYORS

Marine Survey Report

1999 Maxum 4100 SCA Aft Cabin
named

xxxxxx

Survey performed for
Mr. XXXXXXXX
xxxxxxxxxxxx
xxxxxxxxxxxx

by
Jan W. Muntz, SAMS
Accredited Marine Surveyor
Date of Report: May 8, 2003

Purpose of the Survey

At the request of Mr. XXXXXXX, the undersigned marine surveyor did attend the vessel named " XXXXXXX", a Maxum 4100 SCA, of fiberglass construction when afloat and hauled out at the Haverstraw Marina, Haverstraw, New York.
The survey was requested in order to establish the vessel's general condition for Pre-Purchase Evaluation and Insurance Underwriting purposes. This report is not to be used for other purposes.

Where in this survey report recommendations have been made, it should be noted that recommendations related to the United States Code (USC) and Code of Federal Regulations (CFR) are mandatory, while recommendations made to ABYC and NFPA standards are voluntary.

Recommendations marked *** relate to USC and CFR's.
Recommendations marked ** relate to ABYC and/or NFPA standards and other safety issues.
Recommendations marked * relate to maintenance issues and upgrades.

General Information

Name of vessel: " XXXXXXX"
Hailing port: XXXXXXX, NY
Owner: Mr. XXXXXXXXXXXX
Listing broker: XXXXXXXXXX NY
Hull ID number: XXXXXXXXXXXX
(molded in starboard side of swim platform; see Appendix A for rubbing)
Documentation number: XXXXX
(carved into a wooden board in a compartment under sole of galley.
See Appendix B- USCG Vessel DocumentationQuery)
State registration number: n/a
Last hauled: fall 2002
Intended use: recreational coastal cruising
Navigation limits: Underwriter determined
Date of Survey: May 2, 2003
Weather during survey: 60 degr.F, clear, dry, light breeze
Survey attended by: XXXXXXXXXX

Vessel Particulars

Type: twin screw cruiser
Builder: Maxum Marine , Salisbury, MD
Model: Maxum 4100 SCA Aft Cabin **Model Year:** 1999
Year of manufacture: 1998
LOA: 41' 8" **Beam:** 13' 10" **Draft:** about 3' 4"
Gross Tonnage; 20 **Net Tonnage:** 19
Displacement: 30,000 lbs
Engine: twin Cummins 330 hp diesels, Diamond Edition
Fuel capacity: 290 gallons
Potable water capacity: 90 gallons
Holding tank(s) capacity: 76 gallons

Colors: white hull and decks; beige cove stripe, black boot stripe and black anti fouling.

Measurements, capacities and weights were taken from available published information.
No actual measurements were made by the surveyor.

Hull, Decks, Superstructures and Cockpit

Design: production twin screw cruiser in a modified deep-V configuration with chine, strakes and skeg, raked stem, and a transom with an integral swim platform with molded steps to the aft deck. Deadrise aft was about 10 degrees.
Hull: typical solid polyester laminate with fiberglass matt and woven roving (FRP).
Internal structure: cored FRP stringers, floors and partitions bonded to hull, and deck molding.
Decks: non-skid FRP with core material; gelcoat finish.
Superstructure: FRP deckhouse featuring wrap- around windows and a flybridge. The aft deck featured a hard top.
Hull-to-deck joint: the hull/ deck joint could not be viewed as it was covered by vinyl lining and hidden by joinery in the accommodation, and inaccessible in the engine compartment.
Rubrail: vinyl with stainless striker all around the deck

Comments:
The vessel generally appeared to have been built to accepted recreational marine industry production standards and practices at the time of its construction, using commonly accepted materials.
The moldings appeared as manufactured and showed no evidence of having been materially or substantially modified to make them different from the vessels production sister ships.
The hull was fair and symmetrical overall without indications of hard edges, stress or noteworthy damage.
There was no readily visible evidence of collision or grounding damage.

Transom and integrated swim platform

The finish of topsides and decks was the original gelcoat, and was in excellent cosmetic condition.
The topsides, decks and bottom were sounded, at random, with a light phenolic hammer for evidence of hollow or dull areas in the lay up and none were observed.
Moisture meter readings of hull and decks, randomly taken with a portable moisture meter, were unremarkable. Moisture meter readings of the bottom were not taken as the surface did not dry sufficiently during the haul out.
A careful visual examination of the bottom showed no evidence of osmotic blisters.

The anti-fouling paint, (reportedly Micron CSC), directly applied to the bottom without a barrier coat, was found to be in fair condition.

Recommendation: *Consider to remove the anti-fouling and coat the bottom with a two-part epoxy sealer, such as the InterProtect Barrier Coat System as a barrier against blister-causing moisture and re-apply antifouling**

Most of the inside hull and structure was hidden by lining and cabinetry and could not be inspected. Where visible, the bonding and stringers were secure.
Drainage between compartments in the bilge was through limber holes with glassed-in conduits.
Moisture readings of the stringers and hammer sounding did not show abnormalities.

Rudders and Steering Gear

Rudder type: twin cast bronze, semi-balanced spade rudders.
Bearings/stuffing boxes: bronze
Rudder posts: stainless steel
Steering station: at flybridge
Steering gear: Morse hydraulic.
Auto pilot: none

Comments:
The rudders were free of corrosion and pitting. Little of the stainless steel stocks was visible, but where viewed, they were free of pitting or corrosion.
There was no excessive play the rudder stocks.

Steering was by a single hydraulic cylinder actuating a tiller fitted to the starboard rudderpost. No leakage of hydraulic oil was observed.
The port and starboard tillers were connected by a stainless steel rod. The stainless link bolts showed some rust, but were serviceable.
The bronze stuffing boxes/bearings showed some verdi gris, but were serviceable and no excessive leaking was observed

Propellers, Shafts, Appurtenances and Thru- Hull Fittings

Propellers: twin fixed 4-blade, diameter 24"
Shafts: stainless steel 2"
Struts: single arm cast bronze
Rope cutters: none
Thru-hull fittings: bronze
Trim tabs: stainless steel
Sacrificial zincs: one on each propeller shaft and one on each trim tab. One on transom

Comments:
The propellers showed no signs of corrosion and were free of nicks or other damage

Portside rudder and propeller

They were snug to their shafts and properly secured by locking nuts and cotterpins. When rotating the propellers by hand, they rotated easily without binding.

The propeller shafts were free of pitting or corrosion.

The struts had substantial backing plates and were secure. There was no excessive play in the rubber cutless bearings.

The sacrificial zincs on the propeller shafts were wasted more than 50%.
The owner stated that these zincs were renewed when the vessel was hauled in the fall of 2002. The wastage of the zincs on the trim tabs and transom was minimal.
Recommendation: *Renew zincs on both propeller shafts. Consider adding an additional zinc on each shaft**

The trim tabs were in good repair. No leaks of hydraulic oil were observed. Their operation was not tested during the sea trial.
Recommendation: *Verify the operation of the trim tabs.**

The following thru-hulls with bronze valves were fitted below the waterline:

- discharge of macerator: about 1 foot from stern, to starboard just off centerline
- intake raw cooling water of engines: about 12' from stern, to starboard and port, with external strainers
- direct discharge head: about 13' from stern, to port (disconnected and plugged-off)
- intake raw cooling water of generator: about 14' from stern, to starboard with external strainer
- intake raw cooling water air conditioning; about 20' from stern, to starboard with external strainer
- intake wash down pump, about 23' from stern, to starboard, with external strainer

All below waterline thru-hulls were bonded. All sea cocks were functional.

Thru- hulls for discharges in the topsides were about 11-12" above the static waterline, which meets the ABYC requirements for thru-hulls without valves.
One exception was a thru-hull for the combined discharges of the airco and sump of the forward head compartment, which was located to port, about 7" above the static waterline, about 2/3 of the vessel's length from the stern.
ABYC H-27.5.1 requires seacocks for hose lines penetrating the hull below the heeled waterline (7 degrees heel). This thru-hull was located behind cabinetry and could not be accessed.
Recommendation: *Make an access panel to the thru-hull of the discharge of the forward airco and sump pump. Install a seacock, or attach a wooden tapered plug to the thru-hull for emergency use.***

Some anti-fouling paint was removed from small sample areas and the bronze was found to be in good repair. The fittings were tight to the hull. All valves were functional.

Hoses were retained with double clamps, and were in good repair.

Recommendation: *It is the surveyor's opinion and a recognized prudent practice, that all thru- hull valves located below the waterline be closed while the vessel is left unattended, whether along side a dock, at anchor or at a mooring.**

Hatches and Ports

Hatches: 21" Bomar round hatch with aluminum frame and opaque plexiglass on fore deck
Portholes: stainless steel and glass oval in the forward cabin, galley, forward head, aft head and shower stall, and in the aft stateroom.
Windows: three large window in front of deckhouse and two each tom port and starboard with a sliding panel.
Access doors: sliding door giving access to the main saloon from aft deck. Glass wing doors gave access to the side decks from the aft deck.

Comments:
The hatch on the fore deck was of adequate dimensions to serve as an escape hatch.
All hatches, portholes and windows and their rubber gaskets were in good repair. No evidence of leakage was observed. All doors were in good condition.

Operating Station at the Flybridge

On the flybridge were installed an operating console, a vinyl upholstered operator's seat and a forward facing seat in front of the console. The upholstery was in excellent condition. A glass splash shield was installed in an aluminum frame which was in good condition.

The flybridge was enclosed by a bimini and canvas with acrylic windows, supported by stainless steel tubing.

The operating station comprised:

- engine controls: ignition switches, twin-lever, single function shift and throttle
- engine instrumentation: tachometers, cooling water temperature, oil pressure, engine hour- meters, fuel flow meters, Volt meters
- electric switches: instrumentation, lights, horn, navigation lights, bilge blower
- navigation instruments: radar, GPS, fishfinder, water depth indicator, VHF
- AM/FM radio with CD
- magnetic compass
- trim tab operation
- spot light operation
- bilge blowers

Comments: None

Operating station at flybridge

Rails, Stanchions, Ladders and Lifelines

Pulpit, stanchions and rails: stainless steel, height 22"
Lifelines: n/a
Ladders: n/a
Swim ladder: retractable, under swim platform. Grabrails at swim platform

Comments:
The pulpit was fitted around the bow with railings extending to the aft deck. Their backing below decks could not be accessed, but they appeared to be secure.

Just ahead of the steps to the aft deck was a gap in the railing. Although grab rails were installed on the superstructure, the opening in the railing could present a hazard to someone going forward when the vessel is rolling at sea.
Recommendation: *Install a short stainless steel lifeline with pelican hook in the gap of the railing to port and starboard**

Gap in railing

The aft deck was provided with a bulwark with handrails.
The swim ladder meets the ABYC standard H-14 with regard to enabling a person in the water re-board the vessel unassisted.

Accommodation

Lay-out:

Forward cabin
There was a large cabin forward with a double berth with storage under and shelves with storage space. To port and starboard were lockers. A hatch and two portholes provided ample ventilation and light.
There was a separate door to the forward head compartment.

Forward head compartment
Behind the forward cabin was the forward head compartment with a, a molded fiberglass shower stall with acrylic enclosure, cabinets and vanity with Corian sink and storage below.

Galley
The galley was located across from the forward head.

Galley equipment
Sink: double stainless steel set in Corian counter top

Stove: electric Origo 3-burner
Refrigeration: refrigerator with separate freezer
Microwave: Goldstar convection
Other equipment: built-in Nutone blender, Black and Decker coffee maker, toaster

Comments:
The stove did not meet the requirements of ABYC A-3, which require that a stove shall be provided with means to prevent cookware from sliding off when the vessel is inclined to 30 degrees in any direction.
Recommendation: *Provide stove with means to prevent cookware from sliding off when vessel is inclined to 30 degrees, or use stove only when vessel is securely docked.**


Main saloon looking forward and dinette

Dinette
Behind the aft head compartment to port was a dinette with Corian table, which seats four
There were storage cabinets above the dinette.
Under the seats were compartments for storage and a central vacuum system.

Main saloon
Two steps led from the lower level to the main salon, with a convertible L-shaped sofa, coffee table, and cabinets to starboard.
To port was an entertainment center and a door leading to the aft cabin


Main saloon convertible sofa

Aft cabin
In the aft cabin was a double berth.
Lockers were installed at the head of the berth.
A washer/dryer, type Splendide Comb-o-matic 2000, was installed in one of the lockers.

Aft head and shower compartments.
Molded fiberglass shower and head compartments, separated by a vanity, were accessible from the aft cabin.

Comments:
The interior was found to be in excellent cosmetic condition. Joiner work was cherry wood.
The upholstery, bulkheads, lining and joiner work showed good care and maintenance.
The floors were carpeted throughout the accommodation. In the galley was a parquet floor.
The undersides of decks were vinyl lined. Sides were fabric lined.
Drawers and locker doors were functional. Cabinet doors were provided with positive catches.

Fresh Water System

Tanks: polyethylene, capacity 90 gallons
Pumps: one
Accumulator: yes
Hot water tank: 120 V, 1400W, electric, with heat exchanger served by engine fresh cooling water Capacity 10.5 gallons. Relief valve set at 150 psi/ 210 degr.F
Dockside water connection: yes, no pressure regulator was observed.
Water maker: none
Piping: flexible hoses

Comments:
The tank was installed under the berth in the aft cabin. It could only be viewed partially, but appeared to be secure. There was no evidence of leaks. A remote water level indicator was installed in the cabinet of the electric distribution panel.
Hoses were in good condition.

Heads/Sanitation System (MSD's)

Heads: Sealand VacuFlush in forward and aft head compartment.
Holding tanks: one, capacity 76 gallons
Macerator pumps: yes
Discharge: into holding tank, over board or by pump out through deck plate

Comments:
The showers drained into a sump pump system with direct overboard discharge. This system was not tested.
The polyethylene tank could only be viewed partially and appeared to be free of leaks. No odors were observed. It was equipped with a high level alarm in the main saloon.

Heating and Cooling Systems

Air conditioning: two 16,000 BTU Marine Air reverse cycle air conditioners.

Comments:
One unit was installed under the galley counter serving the forward cabin and the main saloon and one under the berth in the aft cabin serving the aft cabin and main salon. Remote digital control panels were installed in the main salon and aft cabin. The system was functional.

Machinery and Ancillary Systems

Propulsion engines:
Make: Twin Cummins, Diamond Edition, series: 403
Model: 6BTA59-M3 **no. cyls:** 6 **cid**: 359
Serial numbers: port 45648722**;** starboard 45663872
Year: 1998
Power: abt 330 hp @ 2800 rpm
Type: diesel
Last overhauled: unknown
Hours of operation: port 300 hrs; starboard 303 hrs
Cooling: closed fresh water
Raw cooling water strainers: bronze inboard
Aspiration: turbo charged
Transmission: serial number: port P/M 3313108001 starboard: n/a
Controls: hydraulic

Generator set::
Make: Westerbeke
Model: 8BTD **no. cyls:** 3 **cid**: 80
Serial number: 1098950.804
Year: unknown
Power: 8.0/6.0 kW @ 60/50 Hz **rpm:** 1800/1500
Type: diesel
Last overhauled: unknown
Hours of operation: unknown
Cooling: closed fresh water

Generator set

Comments:
The engines and their installation were visually inspected only; no diagnostic analyses were made. The engines and engine compartment were found clean.
Steel and rubber mounts were supported by steel brackets bolted to longitudinal cored FRP stringers. They were free of signs of stress or significant corrosion. The connecting bolts were secure.
The stringers were securely attached to the hull were visible. Their moisture content was generally unremarkable. There were some isolated spots with somewhat higher moisture contents.

Hoses and clamps were in good condition.

The engine compartment was ventilated naturally and via blowers. Intake and exhaust vents were located in the topsides of the vessel.

Recommendation: *Have the engines serviced by a qualified mechanic familiar with the type of engines, prior to undertaking an extended cruise.**

Diesel Fuel System
Tanks: Two aluminum, each with a capacity of 145 gals, in engine compartment
Filters: Racor
Piping: USCG fuel rated hoses

Comments:

Tanks were secure and were provided with proper tank labels
No leaks were observed
All connections were made at the top of the tank.
Fill, vent, supply and return hoses were in good condition. Fill hoses were double clamped.

Electrically operated shut off valves were installed in the fuel pick up lines.
Fuel filters were free from signs of leaks at the connections; the collection bowls were clear.
A magnetic fuel conditioner type Algae-X was installed.

Fuel shut off valve, Racor filter and Algae-X system

Exhaust System
Lines: propulsion engines: composite. Generator set: wet exhaust rated hoses.
Mufflers: FRP water lift muffler for generator set

Comments:
The exhaust risers of the propulsion engines were elevated to deck level directly after the turbo chargers.
Exhausts lines were in good condition were visible. No staining or leaks were observed.
All connections were double clamped.

The exhaust mixer elbow appeared to remain clean and was free from signs of leaks or corrosion. A loop was installed in the raw water discharge.
Exhaust ports at the hull were in good condition.

Stuffing Boxes, Propeller Shafts and Couplings

Stuffing boxes: traditional
Shaft log: bronze
Propeller shafts: stainless steel
Couplings: six-bolt

Comments:
The stuffing boxes were secure.


Intake strainer, coupling and stuffing box

The propeller shafts were free of corrosion.
The shaft couplings were free of corrosion. The coupling nuts were secure. Set screws and keys retained the propeller shafts and were secured with seizing wire. No excessive dripping was observed.

Checking the propeller shaft/engine alignment was not part of the survey and was not done.
Recommendation: *Have the propeller shaft/engine alignment checked by a qualified marine mechanic prior to extended use of the engine. This should be done when the vessel is in the water and water and fuel tanks are filled to their normal level.**

Bilges and Bilge Pumping

Electric bilge pumps: three with float switches
Manual bilge pumps: none
High bilge water alarm: not observed
Sump pumps: two for shower sumps

Comments:
The bilges were inspected were accessible under the sole of the galley, in the engine room and under the sole of the aft cabin. They were clean and dry were visible.
The bilge pumps were functional. All discharges were above the static waterline.
Hoses and clamps were in good condition.

Electrical System

12 Volt DC System
Batteries: Two 8D starting batteries.
One 8D house bank
Location: engine compartment
Secured: boxed, covered and secured
Battery switches: two
Battery isolator:
Battery combiner:
Cross-over relay: not observed
Battery cables:
Power distribution: combination DC/AC panel

Comments:
Battery terminals were clean and the cables had swaged lead lugs.

AC/DC power distribution panel

The power distribution panel was installed in the main saloon and was equipped with breakers, Volt meter, reverse polarity indicators and transfer switches between shore power and generator.
All circuits were functional.

The Volt meters and tachometers on the operating station on the flybridge were functioning erratically during the sea trial.

BoatUS's Technical Exchange provided the comments quoted below:

quote:

MAXUM MARINE, 46', 4600 SCB, 1998 - 2000. On models with Cummins 450C installations, the Delco 21-SI alternator is mis-wired on many boats. The voltage output of the alternator does not account for the voltage drop of the isolator, resulting in an output of .7 to .9 volts less than necessary to charge the batteries. This equates to hard starting, excessive current draw to the starter motor, and shortened battery life.

Bill Joseph, customer service representative of Maxum Marine, made inquiries at Maxum headquarters and faxed the Exchange a description of some of the peculiarities the Maxum charging system as reported on the Maxum members web site. In summary, the 21-SI alternator is made in either a one-wire or three-wire harness configuration. Only the three-wire alternator will have the desired voltage output to accommodate the voltage drop of the isolator. A quick test is to see if the battery is getting 13.2 volts or better when charging; if the alternator is producing only 12.6 volts, it probably has the one-wire system and the alternator needs to be modified. (Note: the 21-SI is a "speed sensitive" alternator, and must be brought up to approximately 1200 rpm before it begins to operate, after which the rpm may be reduced and the alternator will continue to charge.) Apparently this problem is only an issue on boats with the Cummins 450C engine installation. For further instructions on how to modify the alternator and other information relevant to the charging system, visit the Maxum members web site at http://members.aol.com/_ht_a/maxumyachts/Charge.html.

unquote

Recommendation: *Check the alternator and wiring of charging system as per BoatUS's comments.**

120 Volt AC System
Power sources: shore power and generator
Shore power inlet: 50 Amp with circuit breaker in transom. Good condition
Circuits: one
Shore cable: one in good condition
Polarity indicator: yes
Isolation transformer: none
Galvanic isolator: not observed
Battery charger: Pro Marine 60
Battery isolator: yes
Inverter: none
Power distribution:
Receptacles: GFCI protected

Comments:
All receptacles were tested for reverse polarity and found to be correct.
Recommendation: *Install a galvanic isolator in series with the ground of the shore cable to block stray currents.**

The generator set was tested by simultaneously powering up both air conditioning units, three stove tops and microwave and no undue voltage dip was observed.

Wiring
Type: PVC insulated marine grade stranded copper. Color coded.
Routing: adequately supported and mostly unobtrusively routed
Bonding: thru-hulls, propeller shaft struts and rudder bearings
Lightning protection: No lightning protection system fully complying with ABYC E-4 and NFPA 780 was installed

Comments:
The wiring was in good condition as seen.

Navigation Instruments/Electronics

Compass: Danforth Highspeed Constellation 4"
Radar: JRC 3000
GPS: Horizon GPS chart 400
Depth/Fish Finder: Raytheon 1365
Log/ Speed: Uniden QT-206
VHF: Standard Horizon Eclipse Plus
SSB: none
Auto pilot: none
Stereo: JVC CD player with AM/FM
TV: JVC 20" in main salon
Panasonic 13" in aft cabin
Aerials: VHF whip antenna
Radar dome on hard top over aft deck
Entertainment centre: JVC RX 318 FM/AM receiver
JVC TDW 254 double cassette deck
JVC XL-F154 automatic compact disc changer (5 discs)
JVC Pro-Cision 19 micron head VHS type HR-A54U

Comments:
The instruments were powered up and were functional.
The audio system was not tested.

Anchoring and Mooring Equipment

Anchor roller: single stainless steel
Chain stopper: cleat
Windlass: electric, make Lewmar, with gypsy, foot switches. It was tested and was found functional
Anchors and rode: one 40 lbs Danforth type with about 20 ft chain lead and three-strand nylon line
Spare anchor: none
Anchor/chain locker: well with hatch in foredeck. Separate well for wash down connection and hose.
Mooring equipment: four stainless steel cleats on each side

Comments:
Although the anchor chain and line were not removed from the well for a complete inspection, they appeared serviceable. The length of the anchor rode was not measured, but was estimated at 150-200 ft.
Recommendation: *Pull up anchor rode from anchor locker and check its condition prior to sailing**

The shackle connecting the chain to the anchor was not seized.
Recommendation: *Secure the shackle connecting the anchor chain to the rode with a monel seizing wire.**
Recommendation: *Equip vessel with spare anchor and rode.**

The anchoring and mooring equipment appeared adequate for this vessel.

Canvas

Biminis: at flybridge
Curtains: around flybridge and aft deck with acrylic windows
Other canvas: covers for front windows

Comments:
The condition of the bimini, canvas and windows was excellent.
The broker's listing mentioned a second set of canvas and rugs. These were not observed by the surveyor.

Fire Fighting Equipment

Portable fire extinguishers: one USCG B-I dry chemical under the ice maker on the aft deck.
Fixed fire extinguishers: none

Comments:
CFR 25.30-20 requires for this vessel a minimum of 3 USCG approved B-I hand portable fire extinguishers, or alternatively 1 B-II and 1 B-I extinguisher. If a fixed fire extinguisher is installed in the engine compartment, only 2 B-I extinguishers are required.
ABYC A-4 requires one additional B-1 extinguisher and also that portable extinguishers are rated for Class A fires.
Recommendation: *Upgrade the fire extinguishers to meet the standards of CFR 25.30-20 or ABYC A-4. One extinguisher should be located near the galley, one near the helmsman and one near the engine compartment .The extinguishers must be mounted in approve brackets.****

Safety Equipment

Personal Flotation Devices (PFD): 4-USCG type II
Life ring/horse shoe: one life ring USCG approved.
Inflatable life raft: make Eastern Aero Marine, marked "for training only"
Flares: 1 Orion alert/locate kit with flare launcher, hand held flares and distress flag
EPIRB: none
Carbon Monoxide detector: none

Comments:
The PFD's were in good condition. The flares were current.
Recommendation: *Equip vessel with 1 USCG approved PFD for each person aboard, plus an approved throwable PFD type IV (cushion)****

Vessels over 40' in length are required by the USCG to have onboard a copy of the Navigation Rules
Recommendation: *Equip vessel with a copy of the Navigation Rules****

Recommendation: *Carbon Monoxide (CO) detectors are recommended for all vessels with enclosed accommodation spaces. Although diesel exhaust does not normally have CO concentrations as high as gasoline exhaust, diesel exhaust does produce dangerous levels of CO. Nearby vessels running engines or generators could also be a source of dangerous levels of CO.**

Navigation Equipment

Navigation lights: side lights, steaming light, stern light, anchor light.
Radar reflector: not observed
Navigation shapes: not observed
Sound producing devices: electric horn
Bell: yes, on aft deck
Navigation rules: not observed

Comments:
Recommendation: *Equip vessel with radar reflector, navigation shape (anchor ball) and navigation rules.**

Miscellaneous Equipment

Oil Discharge Placard: not observed
Waste Discharge Placard: yes
Waste Management Plan: not observed
Barometer: not observed
Clock: not observed
Searchlight: mounted on bulwark flybridge w/remote control
Various:
7 adequately sized fenders, dock lines, boat hook, table aft deck

Comments:
Recommendation: *Install a "Discharge of Oil Prohibited" placard in a conspicuous place in the engine compartment* (CFR 155.450)***

Recreational boats 40 feet or more in length and equipped with a galley and berthing are required to carry a Waste Management Plan, describing the procedures for collecting, processing, storing and discharging garbage, and designate the person who is in charge of carrying out the plan .if the vessel operates, or is certified to operate, beyond 3 nautical miles from shore.

Recommendation: *Make a Waste Management Plan and carry it on board, if the vessel will operate beyond 3 nautical miles from shore. ****

The broker's listing mentioned a Quicksilver 270 Dinghy with 8hp Mercury outboard motor, which was not sighted by the surveyor.

Sea Trial

Departure time: about 13.15
Returning time: about 14.15
Where held: Hudson River
Wind: Southerly about 10 knots
Captain: XXXXXXX

Comments:
The diesel engines started without excessive cranking and no excessive vibrations were felt over the whole speed range. The exhaust was perfectly clear.
Cooling water temperatures and lubrication oil pressures were normal and remained constant within the speed range.
The vessel tracked well without excessive adjustments of the helm. The vessel maneuvered easily and the steering gear functioned well.
The starboard engine was run to full throttle and achieved about 2800 rpm, which is the maximum specified by the engine manufacturer.
The throttle handle of the port engine was slipping over its shaft and as a result the engine could only run up to about 2600 rpm.
Recommendation: *Investigate the cause of the slippage of the throttle control of the port engine and repair or replace as found necessary prior to undertaking an extended cruise.***

The Volt meters on the operating console functioned erratically. (See recommendation in section "Electrical System").

Sea Trial Data

	rpm		speed	temperature		oilpressure		Volt		Fuel cons.
	Port	Starb.	(stat miles)	cooling water (F) Port	Starb.	psi Port	Starb.	Port	Starb.	Gals/hr
slow	850	850		150	150	35	38			
	1000	1000		170	175	50	50			
half	1400	1400	8.5	170	175	58	58			
	1750	1750	9.5	170	175	58	58			4.5
cruising	2300	2300	17	175	180	58	58	12.5	13.0	11.0
full	2600	2600	20.9	180	180	58	58	12.5	13.0	13.0
max	2600	2800								

Scope of Survey

The following commentary is provided to give readers of this report an understanding of the survey process and its limitations.

Certain parts of the vessel's structure, systems and equipment could only have been inspected after removing bulkheads, joinery, liners, tanks, etc. This would have been prohibitively time consuming, potentially destructive and costly to restore. Unless noted otherwise, components requiring access with tools or by disassembly have not been inspected.
Dirt, marine growth, coatings buildup or corrosion may also have restricted the surveyor's ability to examine the hull off the vessel.

Hull and deck moldings were subjected to close visual inspection, random percussion sounding with a light phenolic mallet and moisture meter readings with an Electrophysics Moisture Meter Model GRP33, unless stated otherwise in the report.

Complete inspection of machinery, plumbing, electrical systems and equipment could only be made by disassembly or by continuous operation. This has not been done. No mechanical tests were performed on propulsion or auxiliary generating equipment. No compression tests were performed. No fluid samples were drawn. Only the installation and external condition of machinery and ancillary equipment were inspected.
Propulsion and rudder shafts were not drawn for inspection, and no engine/propeller shaft alignment was checked. The inspection of flexible piping was limited to the condition of its external casing and only where readily accessible for visual inspection.

Electronic and electrical equipment was tested by powering up and observing basic function. No measurements were taken; no calibrations or adjustments were made. Batteries were not load tested. Only the external condition of electrical wiring, connections, and system installation was inspected. A complete analysis of the vessel's electrical systems was beyond the scope of the survey.

If no sea trial was requested, and if the vessel was afloat, operation of propulsion and auxiliary machinery provided that the owner or his representative was available to start the engines. If the vessel was blocked ashore, no machinery was operated. If the vessel was in a state of winter lay-up preclude operation of winterized systems was precluded.

Sails, bimini tops, awnings, winter covers, etc, that were not rigged or laid out for inspection, have not been evaluated.
If this survey did not discuss a specific item, equipment or machinery, it was not covered by this survey.

An assessment whether the vessel was in full compliance with all of the rules regulations and standards mentioned in the section "Purpose of the Survey" of this report, was beyond the scope of the survey. The surveyor does not warrant expressly or implied, or guarantee compliance of the vessel with all of these rules, regulations and standards

Summary

The vessel, appeared to be a standard production version of a Maxum 4100 SCA Aft Cabin; no unusual modifications or changes were observed and it was in excellent condition overall.
There was no evidence of previous damage or submersion.
The level of maintenance was above average.

A search of the "USCG Recall Notice database" revealed no recalls on this vessel. A search of the BoatUS "On Watch" database revealed no warnings on this model

With the Recommendations related to regulatory issues (marked ***) and industry standards and other recommended safety issues implemented (marked **), the vessel should be considered suitable for recreational coastal cruising, if operated in a seamanlike manner by a knowledgeable master and crew.The ultimate responsibility for the maintenance and safe operation of this vessel lies with the owner and master.

Recommendations concerning maintenance and upgrades (marked *) should be considered normal maintenance or improvements to be done by a prudent owner and are not intended to detract from the vessel's overall condition or value.

When further inspections and repairs have been recommended, they should be made to the current Codes of Federal Regulations and/or professional industry standards by competent professional and qualified craftsmen, and when applicable, to any manufacturer's recommendations. A prudent purchaser of a vessel would obtain additional inspections and estimates for repairs for consideration in the course of a purchase.

Summary of Recommendations

Recommendations related to USC and CFR's***

1. *Upgrade the fire extinguishers to meet the standards of CFR 25.30-20 or ABYC A-4.One extinguisher should be located near the galley, one near the helmsman and one near the engine compartment .The extinguishers must be mounted in approve brackets.*
2. *Equip vessel with 1 USCG approved PFD for each person aboard, plus an approved throwable PFD type IV (cushion)*
3. *Equip vessel with a copy of the Navigation Rules*
4. *Install a "Discharge of Oil Prohibited" placard in a conspicuous place in the engine compartment (CFR 155.450)*
5. *Make a Waste Management Plan and carry it on board, if the vessel will operate beyond 3 nautical miles from shore.*

Recommendations related to ABYC and/or NFPA standards and other safety issues**

6. *Make an access panel to the thru-hull of the discharge of the forward airco and sump pump. Install a seacock, or attach a wooden tapered plug to the thru-hull for emergency use.*
7. *Carbon Monoxide (CO) detectors are recommended for all vessels with enclosed accommodation spaces. Although diesel exhaust does not normally have CO concentrations as high as gasoline exhaust, diesel exhaust does produce dangerous levels of CO. Nearby vessels running engines or generators could also be a*

source of dangerous levels of CO. This is especially true of vessels running air conditioning. Marine CO monitor/alarms meeting the requirements of ABYC A-24, are relatively inexpensive and easy to install.

Recommendations concerning regular maintenance and upgrades*

8. *Consider to remove the anti-fouling and coat the bottom with a two-part epoxy sealer, such as the InterProtect Barrier Coat System as a barrier against blister-causing moisture and re-apply antifouling.*
9. *Renew zincs on both propeller shafts. Adding a second zinc on each shaft could be considered.*
10. *Verify the operation of the trim tabs.*
11. *It is the surveyor's opinion and a recognized prudent practice, that all thru- hull valves located below the waterline be closed while the vessel is left unattended, whether along side a dock, at anchor or at a mooring.*
12. *Install a short stainless steel lifeline with pelican hook in the gap of the railing to port and starboard*
13. *Provide stove with means to prevent cookware from sliding off when vessel is inclined to 30 degrees, or use stove only when vessel is securely docked.*
14. *Have the engines serviced by a qualified mechanic familiar with the type of engines, prior to undertaking an extended cruise*
15. *Have the propeller shaft/engine alignment checked by a qualified marine mechanic prior to extended use of the engine. This should be done when the vessel is in the water and water and fuel tanks are filled to their normal level.*
16. *Check the alternator and wiring of charging system as per BoatUS's advice.*
17. *Install a galvanic isolator in series with the ground of the shore cable to block stray currents.*
18. *Pull up anchor rode from anchor locker and check its condition prior to sailing*
19. *Secure the shackle connecting the anchor chain to the rode with a monel seizing wire.*
20. *Equip vessel with spare anchor and rode.*
21. *Equip vessel with radar reflector, navigation shape (anchor ball) and navigation rules.*
22. *Investigate the cause of the slippage of the throttle control of the port engine and repair or replace as found necessary prior to undertaking an extended cruise.*

Valuation

The Fair Market Value given herein is defined as the highest price that can be obtained by a willing seller from a willing buyer, with neither being compelled to sell or buy, and the vessel having been offered on the open market for a reasonable time.
The assigned valuation assumes that components, systems or equipment not accessible or proven during the inspection were serviceable and/or operational. Discoveries made as a consequence of recommended additional testing or inspection procedures may significantly lower this valuation.

Replacement Value is the cost of replacing the subject vessel, as equipped, with an identical or equivalent new vessel. This figure does not necessarily reflect available discounts or other sales practices, fluctuation in international currency exchange rates, sales taxes, etc.

The guidelines used for the valuation are as provided by industry pricing guides, such as the current edition of the "BUC" book adjusted for the vessel's equipment and overall condition ,"BUC ValuProfessional", and the N.A.D.A. Appraisal Guide and actual selling prices reported by SoldBoats.com.
Estimates based on currently listed asking prices, along with market conditions, were also considered.

Valuations are provided for use by underwriters and lenders only and do not constitute any guarantee that these figures are attainable in actual current or future markets. Valuation opinions are subject to prevailing economic conditions, both general and those specifically relating to local patterns of competition, consumer intensity, payment terms, etc. Parties having a secured interest in the valuation of the vessel should periodically review the currency of the valuation basis in order to protect their financial interests.

Current Fair Market Value (in US dollars):	$ 240,000.00
Replacement Cost New (in US dollars):	$ 400,000.00

Survey Practice Statement

This survey report is prepared for the exclusive use of the client whose name and address appear on page 1, and this report is not transferable to any other person or entity. The intended users of this report and appraisal are the named client and those lenders and underwriters considering financing or insuring this vessel for this named client only.

The surveyor warrants that this report is a true and unbiased opinion of the vessel, based upon a visual inspection on the date of the survey.
The findings, opinions and conclusions are based upon the best professional judgment of the undersigned surveyor.
If this survey does not discuss a specific item, equipment or machinery, it is not covered by this survey.

While every effort has been made to conduct a thorough survey, there can be no guarantee or warranty, express or implied, as to the condition or suitability of the vessel and her equipment or machinery.

This survey makes no representation and does not purport to describe any condition which may have changed since the date of the survey and the recommendations herein are limited to those that, in the opinion of this surveyor, are reasonably necessary and appropriate, based upon the conditions and circumstances as they existed at the time of the survey.
The surveyor assumes no responsibility for any defects and is to be held harmless for conditions subsequently arising.

This survey has no force and effect whatsoever after June 10, 2003 and may not relied upon for any purpose after that date.

The undersigned has no present or prospective interest in the subject vessel. There is no bias or interest toward the parties involved. Compensation for this service is not contingent on any action or event resulting from the findings, opinions or conclusion in this report.

Respectfully submitted,

Jan W. Muntz, SAMS
Accredited Marine Surveyor

Appendix A
Rubbing of Hull Identification Number

Deleted in this sample survey

Appendix B
Coast Guard Vessel Documentation

Coast Guard Vessel Documentation

Data found in current database.

Vessel Name:	**XXXXXXXX**		USCG Doc. No.:	**XXXXXXX**
Vessel Service:	RECREATIONAL		IMO Number:	*
Trade Indicator:	Recreational		Call Sign:	*
Hull Material:	FRP		Hull Number:	XXXXXXXXXXXX
Shipyard and Address:	MAXUM MARINE *		Year Built:	1998
Hullyard and Address:	* XXXXXXXXXXX		Length (ft.):	39.2
Hailing Port:	HAVERSTRAW NY		Hull Depth (ft.):	7
Owner:	XXXXXXXXX		Hull Breadth (ft.):	13.8
			Gross Tonnage:	24
			Net Tonnage:	19
Documentation Issuance Date:	March 18, 2003		Documentation Expiration Date:	April 30, 2004
Previous Vessel Names:	No Vessel Name Changes		**Previous Vessel Owners:**	No Vessel Owner Changes