KEISER MARINE
SURVEYING AND CONSULTING

2000 Hallberg-Rassy 46

"Un-Identified Sailing Vessel"

Keiser Marine - SA Member of Society of Accredited Marine Surveyors

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Report of Marine Survey

Of The Vessel

"Un-Identified Sailing Vessel"

2000 Hallberg-Rassy 46

Conducted by
Jeff Keiser, SAMS SA

Prepared exclusively for "Private Owner"

June 20th, 2011

Keiser Marine - SA Member of Society of Accredited Marine Surveyors

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I. INTRODUCTION

SCOPE OF SURVEY

Acting at the request of "Private Owner", an insurance survey was performed on the sailing vessel "Un-Identified Sailing Vessel," a 2000 Hallberg-Rassy 46 on June 20th, 2011 from 1:00pm to 4:45pm at the Elliot Bay Marina in Seattle, Wa. An inspection of the vessel's wetted surface and rigging was performed at the Canal Boat Yard in Ballad, Wa. on May 24th, 2011. The vessel's owner and papers were on board at the time of the in-water survey. The Hull Identification Number (HIN) appears in a photograph on page five. A sea trial was not performed. The reason for the survey was to ascertain the physical condition and value of the vessel. AC and DC power were used to check operation of the electrical systems specified in this report. No reference or information should be construed to indicate evaluation of the internal condition of the engine or propulsion system's operating capacity. Electronic equipment was checked for power up functionality only.

This vessel was surveyed without removal of any parts, such as fittings, screwed or nailed boards, anchors, chain, fixed partitions, instruments, clothing, spare parts or miscellaneous materials in bilges and lockers and or any other fixed or semi-fixed items. Inaccessible areas also precluded inspection. Further, no determination of stability characteristics or inherent structural integrity has been made and no opinion is expressed with respect thereto. This survey report represents the condition of the vessel on the above date and is the unbiased opinion of Jeff Keiser, but it is not to be considered an inventory or a warranty either specified or implied.

NOTE: During the course of this survey, the engine was started but not loaded and it is recommended and understood that the vessel's Yanmar diesel engine be surveyed by a qualified marine engine mechanic to determine the comprehensive condition of the engine, gears, pumps, heat exchanger, etc.

In addition, the rigging was visually inspected but the mast was not ascended and it is recommended and understood that the vessel's rigging be surveyed by a qualified rigging surveyor to determine the complete condition of the standing and running rigging.

CONDUCT OF SURVEY:

THE MANDATORY STANDARDS PROMULGATED BY THE UNITED STATES COAST GUARD (USCG), UNDER THE AUTHORITY OF TITLE 46 UNITED STATES CODE (USC); TITLE 33 AND TITLE 46, CODE OF FEDERAL REGULATIONS (CFR), AND THE VOLUNTARY STANDARDS AND RECOMMENDED PRACTICES DEVELOPED BY THE AMERICAN BOAT AND YACHT COUNCIL (ABYC) AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAVE BEEN USED AS GUIDELINES IN THE CONDUCT OF THIS SURVEY

I. INTRODUCTION

DEFINITION OF TERMS

The following terms and words have the following meanings as used in this report Survey:

APPEARS: Indicates that a very close inspection of the particular system, component or item was not possible due to constraints imposed upon the surveyor (e.g. no power available, inability to remove panels, or requirements for nondestructive testing). The deficiencies reported herein reflect the conditions observed at the time the survey was conducted.

FIT FOR INTENDED SERVICE: Service for which it was designed and manufactured by the naval architect and or builder.

FIT FOR INTENDED USE: Use which is intended by survey purchaser (present or prospective owner).

SERVICEABLE: ADEQUATE: Sufficient for a specific requirement.

POWERS UP: Power was applied only. This does not refer to the operation of any system or component unless specifically noted.

EXCELLENT CONDITION: New or like new.

GOOD CONDITION: Nearly new, with only minor cosmetic or structural discrepancies noted.

FAIR CONDITION: Denotes that system, component or item is functional as is with minor repairs and maintenance needed.

POOR CONDITION: Unusable as is. Requires significant repairs or replacement of system, component or item to be considered functional.

USE OF ASTERISKS *: in the body of the report will indicate that a finding will be listed in the Findings and Recommendations section pertaining to the asterisked item, following the body of the report.

I. INTRODUCTION

VESSEL DESCRIPTION

This 2000 Hallberg-Rassy 46 is a Germán Frers design built by Hallberg-Rassy Group in Ellös Sweden. The vessel is a center cockpit, double spreader sloop rig with hydraulic roller jib and main furling. As reported by the manufacturer, the hull construction is solid FRP (fiber reinforced plastic) with FRP decks below teak decking. The hull is a heavy built, fin/bulb keel, skeg hung blade rudder design with a single piece lead bolt on ballast. The cabin sleeps eight between the two fore cabins, the salon settee/berths and the aft cabin. The vessel is equipped with two private head/showers, galley, large dinette settee, navigation station and an extensive electronic navigation package. The "Un-Identified Sailing Vessel" is powered with a Yanmar diesel engine with a 831.1 reported hrs.

Prepared exclusively for "Private Owner"

II. GENERAL INFORMATION

GENERAL INFORMATION

FILE NUMBER:		**Sample Insurance Survey**
NAME OF VESSEL:		**Un-Identified Sailing Vessel**
TYPE OF SURVEY:		**Re-Insurance**
OVERALL VESSEL RATING:	********	**ABOVE AVERAGE**
ESTIMATED MARKET VALUE:		**$490,000.00**
ESTIMATED REPLACEMENT COST:		**$890,000.00**
YEAR/MAKE/MODEL OF VESSEL:		**2000 Hallberg-Rassy 46**
DESIGNER/BUILDER:		**Germán Frers design built by Hallberg-Rassy Group in Ellös Sweden**
HULL IDENTIFICATION NUMBER (HIN):		**XXXXXXXXXXXXX**
HAILING PORT:		**Somewhere, Wa.**
USCG DOCUMENTATION NUMBER:		**XXXXXXX**
STATE VALIDATION STICKER NUMBER:		**None Sighted.**
STATE REGISTRATION NUMBER:		**Washington State XXXXXX Exp June 2012**
OWNER:		**"Private Owner"**
OWNER'S ADDRESS:		**Private Address**
PLACE OF SURVEY:		**Canal Boat Yard, Ballard, Wa. Elliot Bay Marina, Seattle, Wa.**
DATE/TIME OF SURVEY:		**May 24, 2011 from 11:00am to 12:00pm for wetted hull's surface. June 20th, 2011 from 1:00pm to 4:45pm for systems inspection.**
HULL MATERIAL:		**Reported to be solid FRP (Fiber Reinforced Plastic).**
HULL TYPE:	*	**Full displacement hull, fin keel with skeg hung rudder**
LENGTH OVER ALL (L.O.A).:	*	**48' 6"**
(LOAD) LENGTH WATERLINE (L.W.L).:	*	**39' 6"**
BEAM:	*	**14' 3"**
DRAFT:	*	**6' 2"**
DISPLACEMENT:	*	**36,300 lbs**
PROPULSION SYSTEM:		**Sail and auxiliary diesel.**

II. GENERAL INFORMATION

SURVEY PREPARED FOR: . . . . . **"Private Owner"**

INTENDED USE: . . . . . ** **Recreational, coastal and offshore cruising.**

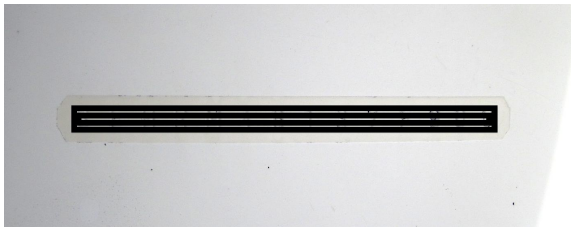
INTENDED CRUISING AREA: . . . . . ** **Washington State coastal and Pacific Ocean offshore cruising.**

(Asterisks denote source of information):
*** Per Manufactures Specifications**
**** Per Owner of Vessel**
***** Per BUC Book**

HULL DECK AND SUPERSTRUCTURE

HULL COMPOSTION AND STRUCTURE:

HIN (HULL IDENTIFICATION NUMBER):
XXXXXXXXXXXXX



Hull Identification number

HULL DESIGN/CONDITION:

According to the manufacturer, this 2000 Hallberg-Rassy 46 is hull number 137 and was laid up with a solid FRP (fiber reinforced plastic) hull. She has a fin/bulb keel with a skeg hung rudder and ballasted with 14,550 lbs of lead. A teak decked swim platform is incorporated in the transom. The keel bolts where sited showed no sign of damage or corrosion. The hull has Isophtalic gelcoat over Isopolyester resin/FRP and is insulated above the water line. The underwater portion of the hull is treated with two coats of two component primer. Reportedly the rubbing strake has a brass-strip under the blue stripe.

The topsides are white gelcoat with a blue boot stripe at the waterline and the sheer. The hull gelcoat shows no oxidization or damage and appears to be in good condition.

Starboard hull

Hull port bow

BULKHEADS/STRINGERS:

The bulkheads are marine plywood covered in teak laminate. FRP (fiber reinforced plastic) longitudinal and transverse stringers are built into the hull. Where accessible, no signs of damage or tabbing failure was sited for the bulkheads or stringers.

HULL DECK AND SUPERSTRUCTURE

HULL COMPOSTION AND STRUCTURE:*(continued)*

BILGE:

The bilge forward is dry with dirty residue surrounding the forward keel bolt. The bilges below the engine room are dry and clean with oil absorbent cloth beneath the engine.

DECK/COCKPIT CONSTRUCTION

DECK/COCKPIT CONDITION:

***C1**

As reported by the manufacturer, the 2000 Hallberg-Rassy 46 has insulated FRP-sandwich (fiber reinforced plastic) construction on the decks, cabin top and cockpit. The bulwark formed in the deck and hull mouldings are fitted with a solid teak cap. The handrails, companionway, hatch guides and sole are all solid Bangkok teak. **The teak hand rails to both port and starboard exhibit slight movement in their connection to the cabin top.** Teak decking is laid on top of the FRP deck, coach roof, cockpit seats and swim platform. The decks, cabin top, cockpit and swim platform were percussion tested with a phenolic hammer at 6"- 8" intervals and found to be free from delamination. The teak decking and hand rails are unprotected and slightly weathered but in good condition with no damage or separation evident. All gelcoat on the coach cabin top is in good condition.

Foredeck

Deck to starboard

Deck to port

Cockpit

HULL DECK AND SUPERSTRUCTURE

HULL-TO-DECK JOINT

TYPE:

The hull-to-deck joint is completely fiber glassed over where visible in the anchor locker, forward shower locker and aft deck lazarettes. No mechanical fasteners can be seen. No signs of damage or water intrusion was sighted.

DECK FITTINGS

BOW/STERN PULPIT/LIFE LINES:

The bow and stern pulpits and stanchions are made from 1" stainless steel tubing and support dual stainless steel lifelines. The pulpits and stanchions are in good condition and are all firmly through bolted to the deck.

WINDLASS/ANCHOR/RODE:

The vessel is equipped with a Lofrans Progress 2 electric anchor windlass, 75lb galvanized CQR anchor with a reported 180 ft of chain and 200ft of nylon rode. The back up anchor is an aluminum Fortress Gardian with a reported 40' of chain and 200ft of nylon rode. The electric windlass functioned and all ground tackle where visible appears to be in serviceable condition.

ADDITIONAL EQUIPMENT AND ACCESSORIES

DINGHY/TENDERS:

The vessel is equipped with a 10ft 2010 NB Inflatables aluminum bottom RIB, serial #: XM084016C010. The tender is powered by a 2006 6 hp four stroke Mercury outboard motor, serial #: OR152041 . The tender is mounted on davits aft of the transom. The davits are firmly bolted to the aft deck and appear serviceable. The RIB is fully inflated and appears new. The tender outboard is mounted to the pushpit to port and exhibits not corrosion or visible wear or damage. The tender's outboard motor was not tested.

Tender

Tender outboard motor

CABIN APPOINTMENTS

INTERIOR DESCRIPTION:

SALON/CABIN LAYOUT:

The interior of "Un-Identified Sailing Vessel" is accessed down a four step teak ladder. The aft cabin is accessed to port and has a double berth with private head/shower and teak cabinetry. Immediately forward is the navigation station and electrical panel. To starboard is the galley with gimbled Force10 propane stove, two compartment stainless steel sink, microwave, 24 volt refrigerator and teak cabinetry. A top loaded 24 volt freezer is found aft of the navigation station to port and both the refrigerator and freezer are assisted by Frigiboat keel coolers. The salon features a settee/berth to starboard and an L-shaped dinette settee to port. Teak cabinetry is found above each settee with storage below. Forward, a hallway gives access to the crews cabin to port with single stacked bunk berths and shared head/shower to starboard. All the way forward is the V-berth with double berth and teak cabinetry.

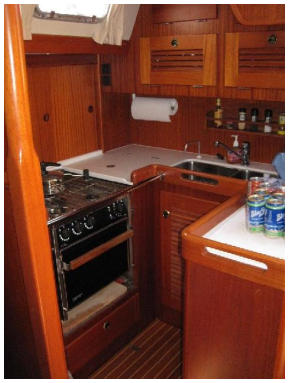
The interior is ventilated by seven dorades, four ventilation/escape hatches and 12 opening port holes. No sign of leakage was detected by any of the dorades, hatches or port holes. The hatches have plexiglass crazing that does not appear to compromise their integrity. The cabin has teak and holly laminate sole and dark blue upholstery.

All appliances in the galley functioned, all joinery, cabinetry, upholstery, lighting and headliners are in excellent condition. The teak and holly sole is in excellent condition and protected by beige carpeting. The interior of the vessel exhibits excellent maintenance and good house keeping.

Aft salon

Aft head/shower

Aft Salon



Galley

CABIN APPOINTMENTS

INTERIOR DESCRIPTION:*(continued)*

SALON/CABIN LAYOUT:***(continued)***

Salon to starboard

V-berth

PROPULSION

MAIN ENGINES

TYPE AND CONDITION:

The 2000 Hallberg-Rassy 46 is powered by a four cylinder Yanmar diesel engine model 4LH-TE, serial #:11170. The hour gauge indicates 831.1 hrs run on the engine. The engine is cooled by a raw water heat exchanger and is equipped with a wet exhaust system and muffler. The raw water strainer is visibly clean through the site glass and double clamped. The engine oil reads full on the dipstick and the coolant is at a proper level. The belts hoses and clamps, linkage and wiring harness are all in serviceable condition.

The shaft is stainless steel with no corrosion detected. The shaft to engine coupler is slightly corroded but serviceable. No leakage is detected from the stuffing box when the shaft is not rotating. The engine started easily and ran smoothly at idle. No unusually colored exhaust was emitted and cooling water ran freely from the wet exhaust system. No leaks were detected and no unusual noise was produced while the engine idled. All engine monitoring gauges functioned.

Engine room is insulated with acoustic material. The general cleanliness of the engine and engine room is excellent.

Yanmar diesel engine

Engine gauges

PROPULSION

MAIN ENGINES*(continued)*

TRANSMISSION GEAR:

The transmission is a Kanzaki model KM5A 3-7 ratio, serial #:5279. The fluid is at the proper level and no leaks were detected. The transmission was not shifted in and out of gear or loaded.

FUEL SYSTEM

MAIN ENGINE(S) FUEL SYSTEM

FUEL TANKS:

The 2000 Hallberg-Rassy 46 has one 175 gallon diesel fuel tank located under the cabin sole. The tank was not accessible. The fuel lines, hoses and clamps where sited, are in serviceable condition. No leaks or smells were detected within the cabin or bilge. The fuel is filtered by a 500 series Racor fuel filter with a clean sight bowl.

ELECTRICAL SYSTEMS

ELECTRICAL SYSTEM (D.C. SYSTEM)

BANKS:

There are three battery banks on "Un-Identified Sailing Vessel." All three banks are located under the aft berth and consists of:
-24 volt house bank: (6) Meridian 130 batteries forming a 390Ah bank
-12 volt house bank: (2) 130 batteries forming a 260Ah bank
-Starting battery bank: (1) Meridian 130 12 volt battery dedicated to starting the engine and generator

All battery banks read fully charged from the Link 10 battery monitoring gauges.

ELECTRICAL SYSTEMS

ELECTRICAL SYSTEM (D.C. SYSTEM)*(continued)*

PANEL/CHARGER:

The electrical panel is located at the navigation station to port and displays volt meters for both 24 volt and 12 volt systems. Master DC fuses for the 24 and 12 volt system are found under the navigation station. The shore power 120 volt panel is found opposite the DC electrical panel, above the engine compartment access. Over current protection is provided by circuit breakers. All breakers powered up the correct labeled loads. Unlabeled breakers are reported to be unused auxiliary breakers. The DC panel also displays fuel and water tank level gauges as well as heater controls.

Two alternators are powered by the engine: A 12 volt 60 amp Yanmar alternator and a 24 volt Balmar 150 amp alternator. A Prosine 3.0 inverter/charger charges the 24 volt system and a Statpower 10 amp smart charger charges the 12 volt system. All alternators and chargers functioned.

Electrical panel

ROUTING/SUPPORT:

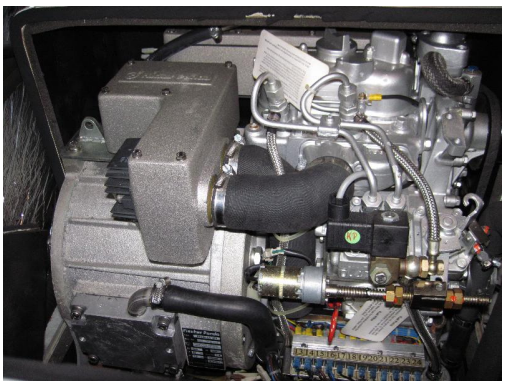
Conductors where sighted, were bundled and well routed and supported. Both 12 volt DC, 24 volt DC as well as 110 volt AC outlets are found in the cabins and salon. The vessel is equipped with a 30 amp shore power cord with a Marinco fitting in good condition.

ELECTRICAL SYSTEMS

GENERATOR:

TYPE:

The "Un-Identified Sailing Vessel" is equipped with a 6Kw Fisher Panda generator with 197 hours located in the engine compartment to starboard. Serial #: P06-990906. The generator started easily from the remote starter circuit. The generator produced 122 volt AC to the ships electrical system when running. No unusually colored smoke was noted from the exhaust. A HMI water separator/silencer is installed in the generator's wet exhaust system excluding water from the generator exhaust port. All generator engine fluids are at manufacturers recommended levels. All hoses, clamps and belts for the generator where observable, are in serviceable condition.



Generator

FRESH WATER SYSTEM:

POTABLE WATER TANKS/PLUMBING:

STORAGE TANKS/PLUMBING:

As reported by the manufacturer, the "Un-Identified Sailing Vessel" has a 243 gallon fresh water tank. The water tank is inaccessible. Pressurized potable water was produced to the galley, head sinks and showers. Hot water is provided by a Isotherm 45 liter hot water tank. The hot water tank is also plumbed to the engine's cooling system. No leaks were detected in the freshwater system. All hoses and clamps where visible are in serviceable condition.

A saltwater wash down outlet was found in the aft deck lazarette. The saltwater pump was not tested.

FRESH WATER SYSTEM (WATER MAKING SYSTEM)

TYPE:

A MT Freshwater AB 130 liter/hr, 120 volt water maker was installed by the factory in the engine compartment. The water maker was not tested.

SANITATION

SANITATION (BLACK WATER)

MSD TYPE/DESCRIPTION::

As stated by the owner, the marine sanitation devices (MSD) on the "Un-Identified Sailing Vessel" are U.S.C.G. Type III (holding tanks). The two holding tanks are plastic and were installed to replace the factory installed tanks. The capacity of these tanks is undetermined. Each tank services a Jabsco electric toilet with independent tank monitors and syphon turn off valves. Each head is plumbed to discharge overboard or to the holding tanks by electric macerator pumps. Both toilets functioned and all plumbing is in serviceable condition where sited with no visible leaks or smell.

STEERING SYSTEM

STEERING SYSTEM

TYPE/CONFIGURATION:

The vessel is steered by a Whitlock rod/geared steering system. All steering components including the U-joints, reduction gear, rudder post and packing gland are in serviceable condition. An access port for the emergency tiller is located within the aft deck. The steering wheel is large but does not restrict movement within the cockpit.

OTHER:

The vessel is also equipped with a Sidepower 24 volt bow thruster with controls found at the helm. The bow thruster was not tested.

ELECTRONICS AND NAVIGATION EQUIPMENT

ELECTRONICS AND NAVIGATION EQUIPMENT

SHIP'S ELECTRONICS/NAVIGATION EQUIPMENT:

Type:	Make:	Model:	Functional:
GPS/Chartplotter/Radar (2) units	Simrad	DS44/CX44	Powered up
GPS Display	Furuno	RD33	Powered up
Depth/Speed/Temp (3) units	Furuno	FI-50	Powered up
Auto Pilot display	Simrad	AP22	Powered up
Auto Pilot	Robertson	AP20	Powered up
NMEA 0183 RS232	NEMA	Nav Station	Powered up
NMEA /2000 USB	NEMA	Nav/Helm	Powered up
Wind Speed/Direction Gauge	Furuno	FI-50	Powered up
Compass	Suunto	Undetermined	Functional
Signal horn	Aqua	Undetermined	Functional
Filtered/Amplified antenna	DSC	Undetermined	Untested
Radar	Arritsu	4KW open array	Untested
VHF	Shipmate	RS8300	Powered up

ELECTRONICS AND NAVIGATION EQUIPMENT

ELECTRONICS (ENTERTAINMENT)

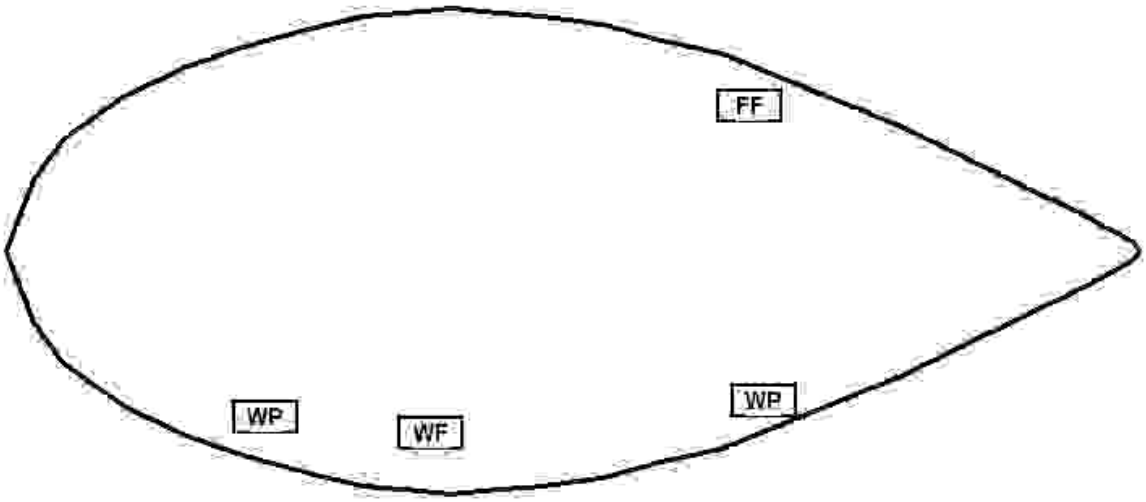
ELECTRONICS:

Equipment:	Make:	Model:	Functional:
Stereo/CD player	Alpine	Undetermined	Powered up
DVD/CD player	Alpine	5200	Powered up
Speakers	Bang & Olufsen	BEO VOX CX50	Powered up
	Bose	Undetermined	Powered up
TV	Panasonic	TC-22LTI	Powered up

THROUGH-HULLS

THROUGH-HULLS:

DECK PORTS:



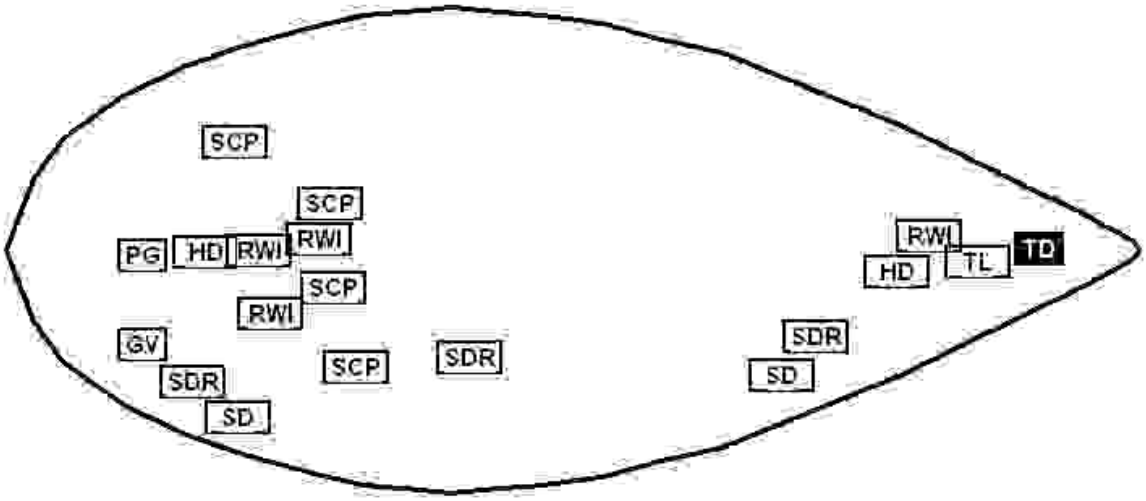
Abbreviation	Description
FF	Fuel Fill
WF	Water Fill
WP	Deck Waste Port

****Black Icon(s) with white text indicates inoperable item.**

THROUGH-HULLS

THROUGH-HULLS:*(continued)*

THROUGH-HULLS:



Abbreviation	Description
GV	Gate Valve
HD	Head Discharge
PG	Pkng Gland
RWI	Raw Water Intake
SCP	Scuppers
SD	Sump Discharge
SDR	Sink Drain
TD	Transducer
TL	Tri-Log

****Black Icon(s) with white text indicates inoperable item.**

COMMENTS:

All seacocks are operable and no leaks or damage were detected in the through-hulls. The forward most transducer found in the bow has been disconnected.

BONDING SYSTEM

BONDING SYSTEM

BONDING CONDUCTORS:

It appears that there is not a proper and complete main bonding conductor on the vessel. Bonding and lighting protection are a matter of individual interpretation of the principals involved. The ABYC suggests bonding all metallic below waterline through-hull fittings and to construct a Cone of Protection for lighting protection. See Bonding section in the ABYC section E-1& E-4-6d.

SAFETY EQUIPMENT

SAFETY EQUIPMENT (UNITED STATES COAST GUARD)

PERSONAL FLOTATION DEVICES::

U.S.C.G. approved PFD's (personal floatation devices)
- (4) type II adult
- (2) type II adult harness/CO2 style
- (3) type III adult
- (5) type II child
- (4) un-approved harness/CO2 style
  All found under the forward dinette settee
- (2) type IV (throwable)
  Found in the starboard cockpit lazarette
- (1) Lifesling mounted to the pushpit to port

FIRE EXTINGUISHERS:

***B1**

There are (3) type BI ABC portable fire extinguishers found mounted aboard the vessel. They are found in the aft cabin, salon and forward hall way. (4) type BI B:C portable fire extinguishers are found under the dinette/settee to port. A manual fixed CO2 engine room fire extinguisher was found in the starboard lazarette in the cockpit. **None of fire extinguishers are tagged with current inspection dates.**

VISUAL DISTRESS SIGNALS:

Six VDS (visual distress signals) were found aboard the vessel with un-expired dates. (3) were found in the starboard cockpit lazarette and (3) were found in the salon cabinets to port. (7) expired VDS were found under the dinette/settee to port.

NAVIGATION LIGHTS:

All appropriate navigational lights are present on this vessel and powered up.

COAST GUARD REQUIRED PLACARDS:

An approved Coast Guard "Trash Disposal" placard was found in the galley and a Coast Guard approved "Oil discharge Prohibited" placard was found in the engine compartment.

SOUND DEVICES:

An Aqua signal horn was found aboard the vessel.

SAFETY EQUIPMENT

SAFETY EQUIPMENT (UNITED STATES COAST GUARD)*(continued)*

INLAND NAVIGATION RULE BOOK (12M-39'4" OR LONGER):
An Inland Navigation Rule book was found aboard the vessel at the navigation station.

WASTE MANAGEMENT PLAN (OVER 40'):
The waste management plan was found in the ship's documents binder beneath the dinette settee to port.

SAFETY ALARMS:
The vessel is equipped with a smoke and CO2 detector in the hallway giving access to the aft cabin. The LPG system has a Xantrex LPG monitor located in the galley that operates the shut off solenoid for the propane system and a LPG gas alarm with a sensor in the bilge.

BILGE PUMPS/LIFE RAFT:

BILGE PUMPS:
There are two bilge pumps aboard the vessel, one standard and one emergency. The standard bilge pump is inaccessible and reported to have an automatic float switch with no high water alarm. The second, high capacity (emergency) bilge pump has a manual switch at the helm and is located beneath the cabin sole forward of the companion way ladder. The emergency bilge pump also has no alarm. The bilge was dry so their operation was not be checked.

LIFE RAFT:
A new Viking six person life raft is mounted to the cabin top. The expiration date reads 3/2014. An additional four person Winslow ORC valise-packed life raft was found in the cockpit lazarette to starboard, expiration date reads 2013.

OUT OF WATER INSPECTION

BELOW WATERLINE HULL/MACHINERY

HULL CONDITION:
The "Un-Identified Sailing Vessel" was hauled out of the water by a hydraulic travel lift at the Canal Boat Yard in Ballard, Wa. The hull's wetted surface is fair with no blisters or damage detected. The bottom paint in good condition and reported to be new as of October 2010. The hull's wetted surface was percussion tested with a phenolic hammer at 6"- 8" intervals and found to be free from delamination. The keel is reported to be 14,550 lbs of lead bolted to the hull. No seam cracks could be detected between the ballast and the hull. The rudder shaft is 80 mm stainless steel, no play was detected in the rudder shaft bearings, no damage was detected in the rudder shoe and no water could be detected within the FRP (fiber reinforced plastic) rudder.

The engine shaft is 1-3/8" stainless steel with a three blade bronze Max-Prop propeller. The shaft and propeller exhibit no corrosion or damage. An anode is attached to the propeller nut and is 20% wasted. No play was found in the cutlass bearing or its bronze mount.

The below the waterline through hulls are bronze and protrude beyond the surface of the hull. No corrosion or damage were detected on the exterior surface of these through hulls. The bronze grounding plates and refrigerator keel coolers were found firmly through bolted to the hull midships on the starboard size.

In general the below waterline hull and machinery are in good condition.

AIR CONDITIONING AND HEAT (AIR CONDITIONING)

HEATING SYSTEM:

TYPE:

The "Un-Identified Sailing Vessel" has two heating systems. Both are Webasto diesel-fired, forced air heating units with crossover ducting that powered up.

LIQUIFIED PETROLEUM GAS SYSTEM (LPG)

LIQUIFIED PETROLEUM GAS SYSTEM (LPG)

TYPE:

***B2**

A liquified petroleum gas (LPG) system provides fuel for the Force 10 stove/oven. There are two aluminum 10lb LPG tanks found in a dedicated propane locker to starboard. **The locker is missing its seal and has exposed the tanks, plumbing and electric solenoid to water. The electric propane shut off solenoid is corroded. The propane locker is adjacent the engine room ventilation ducts and could possibly allow leaking propane into the engine room.** A Xantrex model S-2A propane/CNGfume detector found in the galley controls the LPG system. No leaks were detected and the system produced LPG to the stove.

Un-sealed propane locker

Corroded propane solenoid

RIGGING

STANDING/RUNNING RIGGING

TYPE AND CONDITION:

The mast and boom are Selden anodized aluminum extrusions. The mast is a double spreader design and stepped on the deck. The mast, spreaders, partners and step all appear in serviceable condition. The boom has an in-mast furling system. The head stay and mast are furled by Furlex hydraulic systems in serviceable condition. The gooseneck is of heavy construction and found in functional condition. The backstays and boomvang are adjusted hydraulically with a manual pump found in the cockpit. The manual hydraulic system was not tested. The A Selden spinnaker pole is stored on the mast. The rigging is 1x19 stainless steel wire with 1/2" rearstay and lower shrouds, the upper shrouds are 9/16". All wire rigging and turnbuckles appear to be in good condition.

The mainsheet is controlled by a Lewmar 4:1 traveler system. Lewmar jib cars with line pullers led to the cockpit are firmly mounted to the deck.

All standing and running rigging where sited, appear to be in serviceable condition.

Roller jib furling

Rolling main sail furling

Mainsail furling hydraulic hoses

Jib track ajustment locking cam

CHAIN PLATES:

The chain plates were only visible from the forward shower locker to starboard. This starboard shroud bulkhead and its chainplate fasteners exhibited no damage or water intrusion.

RUNNING RIGGING

RUNNING RIGGING

WINCHES:

Winch	Model	Condition
Primary	Lewmar 64CEST	Serviceable
Main sheet starboard	Lewmar 44CEST	Serviceable
Main sheet port	Lewmar CST	Serviceable
Halyards (2) on mast	Lewmar CST	Serviceable
Pole lift on mast	Lewmar 8	Serviceable

SAILS

SAILS

NOTE:

The sails were not raised or inspected. The sail covers for the mainsail and roller furling are in good condition. A Gennaker sail was found in a bag atop the V-berth. The Gennaker was not inspected.

Deficiencies noted under **"SAFETY"** should be addressed before vessel is next underway. These findings represent an endangerment to personnel and/or the vessel's safe and proper operating condition. ***Findings may also be in violation of U.S.C.G. regulations.***

Deficiencies noted under **"OTHER DEFICIENCIES"** should be corrected in the near future so as to maintain standards and to help the vessel to retain its value.

Deficiencies will be listed under the appropriate heading:

A. SAFETY DEFICIENCIES

B. OTHER DEFICIENCIES NEEDING ATTENTION

C. SURVEYORS NOTES AND OBSERVATIONS

B. OTHER DEFICIENCIES NEEDING ATTENTION:

B.1 (PAGE 17) FIRE EXTINGUISHERS:

FINDINGS	*RECOMMENDATIONS*
Eight fire extinguishers were found aboard the vessel, none of them are tagged with current inspection date tags.	*Vessels 40 ft and over, but not over 65 ft in length are required to carry at least three USCG approved type B-I hand portable fire extinguishers. In addition, at least two USCG approved fixed machinery space fire extinguisher of adequate size must be provided. USCG 46 CFR 25.30-20* *At least once a year, a full maintenance check should be made by a qualified fire extinguisher service facility in accordance with the maintenance instructions to the name plate of the extinguisher. A tag should be attached showing the date of such maintenance check. ABYC A-4 Ap.5.4.2, NFPA 10*

B.2 (PAGE 19) TYPE:

FINDINGS	*RECOMMENDATIONS*
The propane locker is missing its seal and has exposed the tanks, plumbing and electric solenoid to water. The electric propane shut off solenoid is corroded. The propane locker is adjacent the engine room ventilation ducts and could possibly allow leaking propane into the engine room.	*To prevent corrosion of the propane system a proper seal should be made in the deck hatch of the propane locker. The dedicated propane locker must have a seal to prevent leakage of propane gas into a cabin space. ABYC A-1.8.1*

C. SURVEYOR'S NOTES AND OBSERVATIONS:

C.1 (PAGE 7) DECK/COCKPIT CONDITION:

FINDINGS	*RECOMMENDATIONS*
The teak hand rails to both port and starboard exhibit slight movement in their connection to the cabin top.	*Tighten the fasteners securing both port and starboard hand rails.*

V. SUMMARY AND VALUATION

STATEMENT OF OVERALL VESSEL RATING OF CONDITION:

It is the surveyor's experience that develops an opinion of the **OVERALL VESSEL RATING OF CONDITION** After a the survey has been completed and the findings have been organized in a logical manner.

The grading of condition, developed by **BUC RESEARCH**, and accepted in the marine industry, for a vessel at the time of survey, determines the adjustment to the range of base values in the **BUC USED BOAT PRICE GUIDE**, for a similar vessel sold within a given time period, as a consideration to determine the Market Value.

The following is the accepted marine grading system of condition:

''EXCELLENT (BRISTOL) CONDITION'', is a vessel that is maintained in mint or bristol fashion - usually better than factory new - loaded with extras - a rarity.

''ABOVE AVERAGE CONDITION'', has had above average care and is equipped with extra electrical and electronic gear.

''AVERAGE CONDITION'', ready for sale requiring no additional work and normally equipped for her size.

''FAIR CONDITION'', requires usual maintenance to prepare for sale.

''POOR CONDITION'', substantial yard work required and devoid of extras.

''RESTORABLE CONDITION'', enough of hull and engine exists to restore the boat to usable condition.

As a result of my investigation, as shown in the **SYSTEMS AND FINDINGS AND RECOMMENDATIONS** section of this **REPORT OF SURVEY,** and by virtue of my experience, my opinion is

OVERALL VESSEL RATING:

Above Average

STATEMENT OF VALUATION:

1. The **''FAIR MARKET VALUE''** is the most probable price in terms of money which a vessel should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller, each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus.

My analyses, opinions and conclusions were developed, and this report has been prepared in consideration of the Uniform Standards of Professional Appraisal Practice.

Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

a. Buyer and seller are typically motivated.

b. Both parties are well informed or well advised, and each acting in what they consider their own best interest.

c. A reasonable time is allowed for exposure in the open market.

d. Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and

e. The price represents a normal consideration for the vessel sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

Sources for valuation

a. BUC 2011
b. NADA 2011
c. Yachtworld.com
d. Sold boats in the Northwest region

Comparable vessels that contributed to this valuation include:
1.) **May, 2011** a 2001 Hallberg-Rassy 46 with similar condition/equipment and twice the engine hours sold for: $440,000 in Seattle, Wa
2.) **February, 2011** a 2001 Hallberg-Rassy 46 with similar condition/equipment and twice the engine hours sold for: $470,000 in San Diego, Ca.
3.) NADA Suggested list price $498,000

Therefore, after consideration of the reliability of the data, the extent of the necessary adjustments and condition of the vessel, it is your surveyor's opinion that the **''FAIR MARKET VALUE''** of the "Un-Identified Sailing Vessel" is:

$490,000.00
Four Hundred Ninety Thousand Dollars and Zero cents

2. The **''ESTIMATED REPLACEMENT COST''** indicates the retail cost of a new vessel of the same make/model with similar equipment offered by the same manufacturer. **''ESTIMATED REPLACEMENT COST''** of the subject vessel is:

$890,000.00
Eight Hundred Ninety Thousand Dollars and Zero cents

V. SUMMARY AND VALUATION

SUMMARY:

In accordance with the request for a marine survey of the "Un-Identified Sailing Vessel," for the purpose of evaluating its present condition and estimating its fair market value and replacement cost, I herewith submit my conclusion based on the preceding report. The subject vessel was personally inspected by the undersigned on **May 24, 2011 for the wetted surface and rigging and June 20th, 2011 for the systems inspection.** The vessel was found to be a well constructed, appointed and upgraded vessel. The owners of "Un-Identified Sailing Vessel" have been conscientious in their maintenance of the vessel, this can clearly be seen throughout the boat. Except for the clearly defined repairs listed in this report, the subject to correction of deficiencies listed in section IV, A and B (Safety), the vessel is considered to be suitable for its intended use of recreational near and offshore cruising. **It is the opinion of this surveyor that the vessel, "Un-Identified Sailing Vessel" should attend to deficiencies B1 and B2 as soon as possible.**

SURVEYOR'S CERTIFICATION:

I certify that, to the best of my knowledge and belief:

The statements of fact contained in this report are true and correct.

The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analyses, opinions, and conclusions.

I have no present or prospective interest in the vessel that is the subject of this report, and I have no personal interest or bias with respect to the parties involved.

My compensation is not contingent upon the reporting of a predetermined value or direction in value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulate result, or the occurrence of a subsequent event.

I have made a personal inspection of the vessel that is the subject of this report.

This report is submitted without prejudice and for the benefit of whom it may concern.

Attending Surveyor: Jeff Keiser, SAMS, SA

SIGNATURE: