E. F. BARNES, INC.

Yacht Surveyors and Consultants
Post Office Box 718 Gloucester, MA 01931-0718
978-281-6040 Fax: 978-283-5709

MARINE SURVEY REPORT

Prepared exclusively for:

Mr. Frans Kok
5610 Wisconsin Avenue, Suite 1602
Chevy Chase, MD 20815
301-529-2670, fkok@hekelaar.com

GENERAL INFORMATION

Date of Survey:	April 22 & 23, 2015
Date of Report:	April 27, 2015
Location of Survey:	Great Island Boat Yard, Harpswell, ME
Type of Survey:	General condition
Vessel Name:	'Remedios'
Hailing Port:	Newport, RI
Year built:	1985
Hinckley production no:	1557
Hull ID number:	HRH59005B585
US Documentation Number:	682194, plaque attached to hull, portside of chain locker, certificate not found
In attendance:	None
Weather during survey:	Temperature in the fifties, vessel stored indoors
Owner:	Frans J. Kok and Mary M. Shirley Chevy Chase, MD

PRINCIPAL SPECIFICATIONS

The following specifications were obtained from printed material or the manufacturer's brochures that were believed to be accurate. The vessel was not actually measured.

Builder:	Henry R. Hinckley & Company, Southwest Harbor, ME
Type:	Sou'wester 59, center cockpit sloop
LOA:	59' 3"
LWL:	44' 2"
Beam:	15' 6"
Draft:	6' 6" cb up, 12' 6" cb down
Displacement:	69,000-lbs.
Ballast:	23,250-lbs.

Specifications Continued:

Sail area:	1,438 sq. ft.
Designer:	McCurdy & Rhodes, Inc.
Engine:	Perkins 6-354, six-cylinder FWC diesel, 135 hp. @ 3,000-rpm
Engine serial no:	TN70087U 712605
Engine hours	1282.0 on meter, actual hours not known
Gear:	Borg-Warner, 10-18-008, reduction ratio 2.1 to 1.0
Gear serial no:	6245
Generator:	Northern lights, M643-5N, 5.0-kW three-cylinder FWC diesel
Generator serial no:	6432-6983
Generator hours:	53.0 hours on meter
Hull color:	Dark blue topsides with double white boot and gold cove stripes, red anti-fouling paint, white deck with gray non-skid areas
Construction:	FRP, (fiberglass reinforced plastic) hull with full core, reported to be 0.75" PVC foam installed from the sump to just below the deck clamp, laminated with woven, bi-axial and uni-directional roving; FRP deck, with PVC foam core; unbalanced spade rudder with full-length skeg; double spreader carbon fiber mast with rod wire rigging stepped in bilge on solid FRP support, roller-furling boom

SCOPE OF SURVEY

At the request of Mr. Frans Kok of Chevy Chase MD, the undersigned surveyor did attend the vessel 'Remedios' as it lay hauled out and stored indoors at Harpswell, ME. The mast was visually examined while un-stepped and stored on the boat yard spar rack.

The purpose of the survey was to ascertain the general condition, by means of visual inspection, of the hull and deck, bulkheads, machinery, electrical system, spars and rigging. To determine levels of compliance of currently applicable mandatory and voluntary standards as well as commonly accepted marine practices. The survey was conducted as a service to the current owner and is NOT intended to be used as a purchase survey in any manner whatsoever.

Some sections of the hull and deck, machinery and equipment, plumbing and electrical systems could only be inspected by removal of interior liners, tanks, joinery, cabin soles, headliners or bulkheads. Such removal would have been destructive and prohibitively time consuming and therefore; was not done. When the physical condition of a given component impaired examination it will be so noted.

Percussion tests of the hull and deck laminates were performed. Moisture meter readings were made on clean and dry surfaces. They are generally not reliable on bottom laminates when the vessel was 'short hauled' and had not been allowed to dry sufficiently or on rain soaked or salt covered decks and topsides.

Machinery was not operated the vessel was out of the water and out of commission. The examination was limited to a visual inspection of the external condition and installation. Fluid samples were not made unless specifically requested and charged for. Compression tests were not performed on diesel engines, as they require specialized tools and manufacturer's specifications for compression at given engine speed and ambient

temperature. A qualified, brand specific, marine mechanic should be employed to survey the propulsion engine(s) or generator.

When a power source was provided, the plumbing, electrical and navigational systems were turned on to verify power supply and basic operation. They were not operated continuously or in all possible configurations. No calibrations or adjustments were made as part of the survey.

If stepped, sailboat masts and rigging were inspected from deck level only, unless otherwise noted. The upper sections of the mast may have been checked from a boson's chair if sufficient qualified individuals were present to hoist the surveyor aloft. If the vessel was not afloat and the rig remained stepped; it was inspected from deck only. If the rig was un-stepped and inspected in storage, portions might have been inaccessible. If that was the case it will be so noted. If not inspected as part of this survey, it is recommended the upper sections of the mast and rigging be inspected by a qualified marine rigger prior to sailing.

STANDARDS

When appropriate, recommendations contained in the following Report are made to Standards set by the American Boat and Yacht Council, (ABYC), as contained in Standards and Recommended Practices for Small Craft, the National Fire Protection Association, (NFPA), Fire Protection Code, Section 302 and United States Coast Guard Regulations, CFR Title 33 and 46 as taken from Rules and Regulations for Recreational Boats published by ABYC.

Recommendations made to ABYC and NFPA 302 Standards are voluntary but strongly recommended. USCG regulations used are required for recreational and un-inspected vessels operating with Coastal or Inland waters of the United States.

SURVEY REPORT: HULL AND DECK

Hull: Topsides

Found the vessel to be a standard version of a Hinckley Sou'wester 59, center cockpit sloop. No significant changes or modifications were noted on the hull or deck. Visually sighted the topsides fore and aft and athwart-ships, as much as space would allow. They appeared to remain fair and smooth, no indication of hard edges or significant stress was noted, although some 'print through' of the underlying woven roving was visible, which is a common condition for older vessels that have been painted a dark color.

Found the topside finish serviceable but the boat yard reported the vessel was due to be painted within a few weeks of the survey.

Sounded the topsides at random locations about every two feet with a light plastic hammer for evidence of hollow or dull areas in the laminates that would be audibly noticeable. None were and noted; the soundings were sharp and clear at the time of the survey.

Readings were made at random locations about every two square feet with a Tramex portable electronic moisture meter. They ranged between 10 and 25 on Scale 2, suggesting the laminate remained dry at the time of the survey.

The numbers are not percentages but simple scales that range between 1 and 100. Readings above 40 on Scale 1: 'FRP in Saltwater' or above 80 on Scale 2: 'Low Moisture' might indicate the presence of moisture in the outer laminate or adjacent core material if; core material was used in the construction.

Hull: Bottom

Visually examined the bottom fore and aft and athwart-ship. The bottom appeared to remain fair and free from distortion. Found the anti-fouling smooth and fair over the entire bottom. The boat yard reported that they recently stripped and epoxy coated the bottom, which appeared accurate.

Sounded the bottom at random locations about every two square feet with a light plastic hammer for indications of dull or hollow areas in the laminates. None were noted; the soundings remained sharp and clear.

Readings were made at random locations on the bottom with the Tramex meter and an Aquant 2 moisture meter. Readings made with both meters were made without removing the anti-fouling paint. The Aquant 2 meter uses a scale that ranged between 100 and 115. Readings above 104 might indicate the possible presence of moisture in the outer laminates or adjacent core material.

The readings on the underwater portions of the hull ranged between 15 and 25 on Scale 1 on the Tramex meter and between 100 and 104 on the Aquant 2 meter.

Moisture meter readings are only a guide they not a guarantee against present or future moisture intrusion into the laminates or core material or against the existence of, or future development of osmotic blisters. A careful visual examination of the bottom showed no evidence of osmotic blisters or moisture intrusion on the bottom at the time of the survey.

Keel, Ballast and Centerboard

External lead ballast was attached to the hull with stainless steel bolts. The ballast to hull joint was free from evidence of cracking, or past weeping. The ballast and keel appeared to have stripped and faired with the balance of the bottom. Two small areas on the bottom of the keel had been faired but not sanded smooth or covered with anti-fouling. Visually inspected the ballast for indication of past grounding and none was observed.

The molded aft section of the keel was free from indication of stress or damage. Hammer soundings made on the aft section of the keel were sharp and clear.

Moisture meter readings made at random on the molded portions of the keel remained low, between 15and 25 on Scale 1.

The FRP centerboard was fully housed within the ballast and molded portion of the keel. It was not possible to lower the board with on blocks. It was possible to visually examine the leading edge of the centerboard, however. The FRP was free of evidence of stress or damage was noted. Recommend the board be lowered with the vessel in the lift. Examine the lift pennant, turning block and the pivot pin. Service the centerboard and replace the pennant as needed.

Rudder and Skeg

A 2.50-inch diameter stainless steel rudderstock and bronze gudgeon supported the unbalanced rudder. The rudder rotated freely and came up firmly against the stops. No play or lateral movement was present between the rudderstock and the bronze gudgeon. The accessible sections of the rudderstock showed no evidence of pitting or rust stains at the time of the survey. The gudgeon was tight to the lower section of the skeg.

Hammer sounded the rudder with a light plastic hammer for indication hollow or dull areas and the upper one third of the rudder on the starboard side had hollow soundings. The middle third had somewhat hollow soundings with sharp clear soundings on the lower third. The port side sounded sharp and clear. No evidence of swelling was present at the time of the survey but there were weeping stains at a single point on the middle section of the starboard side.

Moisture meter readings made at random on the exterior of the rudder ranged between 104 and 110 on the Aquant 2 moisture meter or between 50 and 80 on the starboard side. Readings on the port side of rudder were somewhat lower.

Have the rudder examined by a qualified technician, cut open, dried out and re-laminated to professional standards as found necessary.

Propeller, Shaft and Through Hull Fittings

The vessel was fitted with a 22.5-inch diameter three-blade MAX feathering bronze propeller. No evidence of play or movement was present between the blades and the hub. The hub was tight to the shaft and the propeller was free from signs of pitting or corrosion. The blades feathered easily when the shaft was rotated by hand.

A water lubricated cutlass bearings was installed in the external bronze P-strut. The bearing appeared to remain snug to the shaft. The 1.50-inch diameter stainless steel shaft remained serviceable. The bronze P-strut was tight to the hull and free from evidence of corrosion. The cutlass bearing installed in the strut remained snug to the shaft.

Through hulls were installed flush with bottom of the vessel and bolted through the hull with four counter set fasteners. No indications of stress, damage or corrosion were present on the fittings and all appeared tight to the hull. One bronze mushroom head through hull fitting was installed on the port side of the bottom and it appeared to remain serviceable. The reinforced polycarbonate sailing instrument sending units for the knot meter and depth sounder were also secure. External bronze strainers had been installed over the through hull fittings for the engine and generator, the deck wash pump and the seawater intake manifold. The strainers were stored adjacent keel and will need to be reinstalled prior to launching.

Through hulls located at the waterline were FRP or bronze and they remained serviceable. Stainless steel tubes were used for the engine and generator exhaust discharges and both appeared functional.

Deck and Superstructure

Found the gelcoat on the deck and cabin trunk generally in good repair. The non-skid surface appeared original with the vessel and in serviceable condition. Several of the smooth areas on deck had been refinished but overall, the color match and finish was in reasonably good condition. Eventually, the smooth areas on deck might benefit from being painted if cosmetics are important. The teak trim was varnished and made a nice impression.

Hammer sounded the deck at random locations for indication hollow or dull areas and none were noted. The hammer soundings remained sharp and clear.

Moisture meter readings made at random locations on the cabin top, cabin sides and side decks remained low, between 15 and 25 on Scale 2 of the Tramex meter. The only exceptions were noted on the foredeck from the windlass forward to the stem. There the readings ranged between 45 and 65 on Scale 1 on the Tramex meter. Suggest the hardware and fasteners on the foredeck be removed and resealed as found necessary.

Cockpit

An FRP steering pedestal was securely installed on the cockpit floor. The wheel and steering gear appeared to function normally. The six-inch Ritchie compass was installed on the pedestal and it appeared serviceable. The throttle and shift levers appeared to be functional without running the engine. The manual wheel brake was functional.

Hammer sounded the seats and bridge deck and soundings remained sharp and clear. The cockpit sole was covered with a teak inlay that remained serviceable. Several of the bungs appeared to have been recently replaced. Soundings on the teak were sharp and clear. It appeared to be securely attached to the underlying fiberglass.

A shallow cockpit locker was located to port and the bonding between the hull, bulkheads and underside of the deck was secure and free from signs of stress or damage. The locker lid was fitted with a secure latching device that was functional.

Lazerette and Aft Deck Hatches

Two teak LP locker hatches were installed on the aft deck and a single teak locker lid was located forward of it. Visually examined the exposed interior of the hull and it remained in good repair. Found the hull to deck joint to consist of a wide inward hull flange with the deck set on it, fiberglassed and bolted through the teak toe-rail on six-inch centers. No indication of stress or damage was noted along the visible sections of the joint. Visually inspected and hammer sounded the bonding between the bulkheads, hull and deck. Found the bonds to be secure and without signs of damage or repair. Secondary bonding appeared to consist of several layers of fiberglass cloth, chopped strand mat and/ or woven roving but the exact laminate schedule was not known.

LPG Storage

The molded fiberglass LP locker was located installed immediately forward of the transom. The locker was sealed from the balance of the vessel and drained directly overboard, just above the static waterline. Noted the latches for the locker lid were functional and the drain hose appeared to be a recent replacement.

Two, twenty-pound aluminum tanks were installed in the locker and they appeared to remain serviceable but were there was as moderate amount of debris and corrosion on the surface of the tanks. Clean them with a Scotch-Brite or similar abrasive pad as needed to remove the surface corrosion. OPD, (Over Pressure Device) valves were installed on both tanks. The tanks fit snuggly in the locker and were chocked and mechanically retained in place.

A pressure gauge, solenoid shutoff valve, crossover valve and regulator were present and functional. The flex hose between the crossover valve and the tanks was UL rated for LP gas. A 'Warning Label' describing the proper handling of LP fuel was attached to the side of the locker. Pressure test the system for leaks as a routine precaution before using the LP system or appliance.

Mast Collar and Chain Plates

Visually inspected the area adjacent to the stainless mast collar and found it bolted through a reinforced section of the cabin top. No indication of stress or compression was visible in the deck around the collar. Moisture meter readings remained below 15 on Scale 2.

Shrouds were attached to strap type stainless chain plates that were installed through a reinforced section of the deck and hull flange and fastened to aluminum brackets that were bonded to the interior of the hull and deck. No indication of stress or damage was observed on the deck around the fittings. The sealant between the cover plates and the chain plates appeared to be fairly new but it should be renewed at least every other year, as part of routine maintenance. The chain plate for the backstay was installed in similar manner with the anchor bracket bonded to the transom. It appeared to remain serviceable.

A Hinckley fabricated stem head casting with integral mooring chocks was bolted to the stem and deck. It appeared to remain tight to the hull and deck and was free form signs of stress or movement. A little evidence of elongation was present in the stem around the hole for the clevis pin. Monitor the wear around the clevis pin and add a bushing or reinforce the area as found necessary.

Lifelines, Stanchions and Rails

Twenty-seven inch high tubular stainless stanchions were fitted with integral welded stainless bases that were bolted through reinforced sections of the hull deck joint. They were secure to the deck and remained in good repair. Found the welded stern rail and bow pulpit securely fastened to the deck and/ or stem head.

Uncoated 7 x 7 stainless wire was attached with swaged terminals and turnbuckles at the bow and stern rail. The terminals and turnbuckles were clean and free from signs of rust or corrosion.

Hatches and Ports

The original teak hatches on the deck and cabin top had been recently replaced with Manship stainless steel frame Plexiglas hatches. The deck around each of the hatches had been refinished where the original hardware had been removed. The work had been completed to professional standards.

The folding teak companionway hatch to the salon was serviceable. The aft companionway hatch, if ever fitted had been removed; the owner reported that the vessel was built without an aft companionway, allowing the installation of an island berth in the aft cabin. Seven chrome or stainless Dorade vents and teak boxes were installed on the cabin top and foredeck they appeared serviceable. Two additional vents were installed on the aft deck but were not fitted with water trap boxes and the vents should be covered when sailing offshore, (the owner reported they were not used).

Four large glass fixed ports were installed in the middle sections of the main cabin with four smaller fixed ports, forward and four aft. All of the fixed ports were secure and reasonably free from signs of leaks or corrosion around the frames. There was a small amount of corrosion between the fasteners and the frames around the large ports in the salon. The opening ports installed in the galley and aft head were functional. Noted that the plywood veneer around the port in the aft head had been sanded through the outer layer. Suggest painting the ash plywood cabin trunk liner in the head, if cosmetics are important.

Sailing Hardware

Sailing gear was of good quality and securely installed. An assortment of Schaefer blocks was present for the halyards, genoa, jib and mainsheet. A Harken traveler was located aft of the cockpit and it appeared serviceable without load.

Four Antel W70SST, (stainless self-tailing) winches were installed in the cockpit with one Antal W53SST winch on the aft end of the cabin top and a Harken 53SST just forward of the mast collar. The Antal winches were hydraulicly driven and the Harken winch was electric. All were recent replacements. The winches on deck appeared to be in good repair.

INTERIOR

General Condition

Found the interior to be in good cosmetic condition. White ash veneer plywood bulkheads and solid ash trim were nicely finished. The wood had darkened somewhat with age but the color was even. The solid teak and holly sole remained free from signs of significant damage. The medium blue fabric upholstery and covers were nice condition.

Chain Locker and V-berth

Visually inspected the hull to deck joint in the chain locker and found it secure and free from indications of stress or damage. No indications of leaks or staining were noted on the fasteners for the deck hardware. A partial transverse bulkhead divided the locker. Found the bonding between the partitions, the aft bulkhead and the hull to be secure.

The primary anchor chain storage had been relocated aft to the middle section of the V-berth. Where the chain was accessible for visual examination, it appeared serviceable.

Visually examined the structural bonding below the aft sections of the V-berth and it appeared to remain secure and free from signs of stress or damage.

Forward Head and Guest Head

The forward head was installed to starboard with a stall shower and passage to the V-berth forward through the shower. The head was fitted with a Sea Land vacuum flush head that appeared functional but was out of commission and not operated. Where structural bonding was accessible, beneath the sink or outboard cabinetry, it appeared to be secure. Hammer soundings made at random on the tabbing were sharp and clear.

A stall shower was located to port of the head compartment. Found the doors and lockers secure and serviceable. All closed and latched easily. Outboard of the shower, the structural bonding between hull, deck and bulkheads remained secure. Hammer soundings made at random on the underside of the deck remained sharp and clear.

Guest Cabin

A double bunk was installed to port in the guest cabin with a single settee bunk to starboard. Tabbing appeared to be several laminations of woven roving and chopped strand mat but the exact laminate schedule was not known. The fiberglass bonds appeared to be clean and free from signs of damage.

No indication of stress, damage or significant leaks was present on woodwork or interior trim. The chain plates for the forward and upper shrouds on the port side were covered with cabinetry and it was free from signs of water damage or movement.

Main Salon

A semi-circular dinette and pedestal table were located to port with single settee to starboard. An entertainment center was located outboard to starboard.

Visually examined and hammer sounded the structural tabbing where it was accessible and was intact. The only exception was noted at the base of the main transverse bulkhead, port side below the inboard end of the dinette. The tabbing there appeared to have been repaired but the repairs had failed. Re-repair it as found necessary. Mechanically fastening the tabbing to the bulkhead might be warranted to prevent the repairs from failing again in the future.

A stainless steel water tank was located below the settee bunk in the salon. A second water tank was located below the forward section of the cabin sole on the starboard side. The visible sections of the tanks were free from evidence of rust or corrosion.

A carbon monoxide was found in the cabin spaces and they appeared serviceable but were not specifically tested. Suggest they be checked in keeping with the manufacturer's recommendations.

Galley

The U-shaped galley was located aft of the dinette, to port. The systems were neat and generally serviceable. The original Formica countertops had been replaced with Corian counters and sinks, which made a nice addition.

A Force 10 four-burner LP stove had been added to replace the original Shipmate unit. The stove was smaller than the original unit and a heavy stainless steel partition had been added to support the forward end of the new stove. It was secure. The stove burners were fitted with flame failure devices as called for by current ABYC standards. The LP supply appeared to have been updated with the stove and it appeared serviceable.

The original manual LP shutoff remained below the stove and having the connections within the cabin space does not comply with current standards. Suggest it be removed to eliminate at least one connection.

No LP leak detector was noted in the galley or below the stove. Recommend an LP dedicated LP leak detector be installed with sensors located below the stove and in the lower in the bilge be added as a routine safety precaution.

An icebox/ freezer was fitted with 12-volt DC Gurnert cold plate refrigeration and freezer. The installation appeared serviceable. The refrigeration system was not operated.

Where it was possible to visually inspect the tabbing under the stove, in the pot locker and aft of the icebox; it appeared to remain serviceable. The hull to deck joint was secure and free from signs of stress or evidence of past leaks.

Navigation Station and Passageway Aft

The forward facing navigation area was located to starboard at the aft of the settee. Navigational electronics were installed on shelves located forward and above the chart table. The items not operated but appeared serviceable.

Aft of the chart table, in the passageway to the aft cabin was a large hanging locker and workbench with and FRP fuel tank below. Cabinetry remained serviceable and free from signs of stress or damage.

Aft Cabin and Aft Head

The vessel was fitted with an island type bunk in the aft cabin in lieu of the standard settee bunks. No aft companionway hatch was installed and emergency egress might be difficult.

Below the berth, the secondary bonding was secure, where it was accessible to be visually examined and hammer sounded.

The enclosed head compartment was located to port. It was fitted with a Sea Land vacuum flush marine toilet and handheld shower. The systems appeared serviceable and the hose connections were free from signs of leaks.

Bilge

Removed most of the center floorboards to visually inspect and hammer sound the accessible sections of the bilge and structural supports bonded to the hull in the bilge.

Most of the bilge areas were serviceable but would benefit from cleaning. Hammer sounded and visually examined the structure beneath the forward section in the forward cabins and passageway and found it to remain intact. Hammer soundings were made at the area of hollow soundings found on the exterior forward starboard portion of the hull and they were sharp and clear on the interior.

Further aft and below the cabin sole in the guest cabin no indication of stress or damage was noted. Hammer soundings made on the accessible sections of the hull and the foam core transverse frames were sharp and clear.

The keel bolts were completely encapsulated in fiberglass and were not accessible. Most were located below the generator but the FRP mounds that were visible over a few of the bolts were clean and free from signs of weeping, stress or damage.

An Edson diaphragm type manual bilge pump was installed below the aft end salon sole starboard side with a second manual pump installed in the port cockpit locker. They appeared functional but there was not enough water in the starboard side of the sump to test it. Additionally, a PAR electric bilge pump was installed.

Mast Step and Chain Plates

Found the welded aluminum mainmast step and stainless base plate bolted to a six-foot long, twelve-inch wide and one-inch thick solid FRP support that was bonded to the hull and four transverse keel floors. Hammer soundings made on the bonding between step support and hull remained sharp and clear. No indication of compression or damage was observed on the step or transverse support members. There was no indication of excessive corrosion or debris on the stainless step. Noted that there was a method to fasten the mast butt to the step.

Visually inspected the underside of the deck where it was accessible, around the mast partners and collar. No signs of stress or damage were observed. No evidence of lifting was present but consult Hinckley Service and add a tie rod as advised.

Chain plates for the forward lower and upper shrouds were concealed behind tight fitting cabinetry that was not removed as part of the survey. It was possible to remove the carpet and FRP cover that was installed chain plate for the port aft lower shroud, however. The stainless steel flat stock chain plate was bolted to aluminum knee that were bonded to the hull and underside of the deck. The chain plate and fasteners remained clean and free from signs of leaks or damage, although there was some minor surface corrosion of the aluminum from contact with stainless fasteners. What could be visually examined on the backstay chain plate appeared to be in similar condition. Keep the cover plates on deck sealed to reduce leaking and possible corrosion between the dissimilar metals.

A lightning grounding system was connected between the area of the chain plates, the back and head-stay and the keel. Solid copper grounding material was used throughout the vessel. Little of the connections or bonding material could be viewed but what could be seen appeared to remain serviceable.

MACHINERY

Engine Installation

A six-cylinder, freshwater-cooled, normally aspirated Perkins diesel provided auxiliary power. The engine was located below the cockpit sole. Access was possible by lifting the companionway steps or through and dedicated door located in the passageway to the aft cabin. The general condition of the engine and machinery space was neat and clean.

Visually inspected and hammer sounded the solid fiberglass beds and found them to be free of signs of stress or damage. Four standard steel and rubber isolation mounts were installed; they appeared to remain serviceable and free from signs of excessive rust or corrosion.

The hoses, the belts for both of the alternators, the cooling pumps and heat exchanger appeared serviceable. Noted that protective covers were not installed on the positive terminals for the alternators or the starter motor and they should be added to comply with current ABYC standards.

Sea Trial

The engine was not operated, the vessel was out of commission and stored indoors. Recommend the engine be examined by a qualified Perkins mechanic while under load and at normal operating temperature.

Shaft Coupling and Aqua Drive

The Borg-Warner gearbox was fitted with a standard coupling and output shaft that was attached to an Aqua Drive constant velocity joint. The steel support brackets for the Drive were fastened directly to longitudinal FRP stringers that were bonded to the hull. The attachments to the hull appeared secure and free from signs of movement.

Stuffing Box

Found the stuffing box to be a bronze double bolt and flange packing gland. Found the multi-wall reinforced rubber shaft log hose retained by two stainless steel clamps at each end, they appeared secure and free from significant rust. The exterior of the stuffing box was lightly corroded. Check, repack and adjust as needed during re-commissioning.

Engine Exhaust System

Exhaust was run form the manifold into a recently updated stainless elbow and mixer. It was clean and free from signs of leaks or rust. The raw water injection hose was fitted with an anti-siphon device and elevated to the level of the cockpit sole. A horizontal FRP water lock muffler was installed aft and to port of the engine. It appeared to be free from signs of leaks. Noted the wet type exhaust hose between the muffler and the transom was free from signs of leaks or damage. An elevated FRP gooseneck was installed in the exhaust hose and elevated close to deck level at the transom. The connections were free form signs of significant leaks but a few rust stains were noted at the hose connections and clamps.

Generator

The vessel was fitted with a Northern Lights three-cylinder diesel generator. It was installed in a fabric acoustically insulated enclosure located below the middle section of the cabin sole in the salon. The exterior of the generator was neat and clean. It was nearly new. A double pole master breaker was installed on the side of the generator for the AC output as called for by current ABYC standards.

The generator engine exhaust was run through a cast steel mixer elbow and then aft through an FRP muffler that was connected to a water drop muffler installed in the engine. The neoprene exhaust hose from the mixer to the transom appeared to remain serviceable. It was elevated close to deck level before connecting to the discharge located below the transom. The discharge hose for the water drop muffler was fitted with a bronze ball valve that was functional.

Fuel System

Two FRP fuel tanks were located outboard the engine compartment on the port side and below the chart locker in the passage aft on the starboard side.

Supply connections for all of the tanks were made at the top. The fiberglass tanks appeared to be securely glassed to the hull. Fuel stains and traces of an old fuel leak were noted at the base of the cabinet and on the hull inboard of the starboard fiberglass tank. Check the gaskets for the fuel tank sender and the inspection plate and the hose connections for signs of leaks and eliminate any leaks noted.

USCG Type A1 fuel hose and copper tubing were used for both supply and return. A manual shutoff/ tank selection valve was installed at the aft end of the engine compartment, starboard side, adjacent to the Racor filters for the engine. Minor evidence of leaking was noted at the connections on the valve. Check and tighten the fuel line connections as needed to eliminate the leak.

The deck fill pipes were bonded to the tank and engine ground. The fill hose for the fuel tanks was USCG Type A2. Double clamps were installed at the tank connections.

Racor 900FG and 500FG water separator filters were installed for the main engine and the generator. Found the fuel that was visible in filters, clean and free from signs of contamination. The connections were free

from signs of leaks or damage. A series of tank selection and crossover valves were located adjacent to the fuel filters and they appeared to function. An aluminum box located to port of the engine housed a 'fuel management/ polishing system. The valves installed on the inboard face of the 'box' were functional and the hose connections were free from signs of past leaks. Noted that the fuel hoses passed through holes in the sides of the aluminum 'box' and the openings or hoses were not fitted with chafe protection of a sheath, which should be added.

Steering Gear

The steering gear was accessible from the engine compartment and below the aft cabin bunk. The cables and chain from the steering pedestal rotated a horizontal shaft that was installed on the underside of the cockpit sole. A similar sprocket and cable arrangement was connected to the aft end of the horizontal shaft and they were connected to the idler blocks and steering quadrant. Visually inspected the bronze quadrant and 2.5-inch diameter stainless rudderstock and found both to be clean and free from signs of corrosion. The quadrant appeared to be securely clamped and keyed in place. The tension for the cables between the rudder quadrant and drive shaft in the machinery space was adequate. The cables between the drive shaft and the steering pedestal were also adequately snug. Cable condition appeared to remain serviceable and free from indications of damage or corrosion. Six-inch diameter bronze idler blocks were bolted to a welded stainless steel brackets that were bolted longitudinal stringers located outboard of the rudderstock. The idlers and support brackets appeared to remain serviceable. Rudder stops consisted of aluminum angle brackets bonded to the hull, aft of each side of the rudderstock. The stops were free from signs of flexing or damage when the quadrant was forced against them.

A traditional bronze stuffing box and bronze rudderstock tube were bolted and glassed to the hull below the quadrant. The fittings were free from signs of excessive corrosion but check the stuffing box after launching and clean, repack and adjust the rudderstock stuffing box as found necessary.

The vessel was fitted with an original Simrad autopilot. The hydraulic linear drive was connected to the rudderstock by a bronze tiller arm that was keyed and clamped to the rudderstock. A hydraulic linear drive was installed to starboard of the rudderstock and it appeared secure but a few traces of hydraulic oil leaks were noted on the 'diaper' that was located under the drive cylinder. Check the seals for leaks and service if needed.

The fluid in the Hy-Nautic reservoir was above the minimum mark and the pressure appeared to be adequate but was a little below the minimum recommendations marked on the reservoir.

Head Waste Systems

The heads discharged into separate aluminum waste tanks that were located below cabin sole. Both tanks were free from signs of leaks but there was some residue around the vent hose connection for the forward tank. Reseal the vent hose connection or tighten the hose clamps as needed to eliminate the leak. The vacuum pump and tank for each head appeared serviceable and free from signs of past leaks.

The tanks were connected to Sea-Land waste macerator pumps and deck pump out connections. Jabsco Y-valves were installed to allow the tanks overboard when operating more than three-miles from the coast. They were functional.

Through Hull Fittings

The underwater through hulls were closed off with mixture of Perko and Apollo ball valves. Several of the valves were stuck in the open position or stiff and difficult to operate. All of the ball valves should be cleaned, lubricated and made functional before the vessel is launched.

Perko bronze seawater strainers were installed on the engine, air conditioners, generator and saltwater intake. They appeared secure and few traces of leaks were noted

Hoses appeared serviceable and free from signs of cracks or damage on the outer casings. The waste discharge hoses for both heads were reinforced vinyl sanitation hose and appeared to be recent replacements. Double clamps were fitted where space on the fittings allowed. Tapered wooden plugs were attached to the ball valves for emergency use. A through hull location diagram was found aboard.

Domestic Water System

Stainless water tanks were installed below the outboard sections of the salon, port and starboard. Portions of the tanks were accessible from the bilge and they appeared to remain serviceable. Little of the tanks was accessible for visual examination but was could be viewed appeared free from signs of past leaks.

A manifold and selection valves for each tank and pump supply was located below the cabin sole, forward of the port tank. Found the valves stiff but functional and the hose connections free from indications of leaks. A Paragon pressure pump and accumulator tank were located adjacent to the manifold, outboard of the generator, port side.

Molded PVC tubing was used for pressure lines, reinforced neoprene vinyl hose for supply. Where it was accessible to be visually examined, the tubing appeared to remain serviceable. Noted the neoprene hose between the aft port side water tank and the manifold had cracked on the outer casing and should be slated for replacement.

Found a twelve-gallon Iso-Threm stainless hot water heater installed below the cabin sole in the salon and it appeared to be a recent replacement. Heating was provided by 120-volts AC or a heat exchanger with the engine cooling system. Hoses and connections appeared serviceable. No evidence of leaks was present around the hot water heater.

ELECTRICAL SYSTEMS

12-Volt DC System

The vessel was fitted with two battery banks that appeared to supply the house systems. Two FRP battery boxes were located below the middle section of the cabin sole in the salon. The boxes appeared sized to accommodate 8-D batteries but the boxes were not opened to confirm the battery size. Both boxes were fitted mechanically retained covers that were secure.

A single battery box was installed in the engine compartment, just inside the door from the passageway aft. The battery appeared to be dedicated to engine and generator starting. The terminals were clean and free from corrosion. Over-current protection was located within a few inches of the house batteries, in compliance with ABYC standards. Battery cables were a mixture of 2/0 gauge welding cable and Marine Grade cable. They appeared to remain serviceable where they were accessible for visual examination.

Four, 600-amp battery switches manufactured by Cole-Hersey, Inc. were installed adjacent to the door to the engine compartment, aft. They supplied the power for the inverter, generator winches and the windlass. Two Guest Heavy Duty on/ off battery switches were installed below the AC electrical panel installed in the engine compartment bulkhead. They supplied the engine and house circuits. Connections at the back of the switches were securely covered and the panels could not be easily removed.

A Hinckley built circuit breaker panel was located outboard of the chart table. It was fitted analog voltmeters and ammeters for the 12-volt circuits. Connections at the back of the panel were neat and secure. The terminals were free from signs of corrosion. Tools were not required to access the connections and the panel was simple to open. No evidence of corrosion was noted on exposed connections that were made with captive fittings as called for by current ABYC standards.

Where the wiring could be viewed throughout the vessel, it appeared to be in good repair. Most appeared to be double insulated, stranded copper cable. New wiring was labeled "boat cable". What could be visually examined remained in serviceable condition.

120-Volt AC Systems

The 120-volt 50-amp AC system was connected a 50-amp weatherproof inlet installed in the starboard cockpit coaming. The AC distribution panel was separate from the DC systems and was located in engine compartment bulkhead in the passageway to the aft cabin. Two, double pole master breakers were installed at the distribution panel that appeared to be within three-meters of the inlet. Rotary 'break before make' selection switch was installed to select the source of AC power. It appeared functional but was not operated.

Two analog voltmeters, an ammeter and reverse polarity indicator were installed at the distribution panel. The meters were functional when the vessel was connected to an AC power source during the survey. Tools were required for access to the connections at the back of the panel and it was not removed as part of the survey.

The outlets in the galley were GFCI type. The outlets in the heads, lazerette and the machinery room were not GFCI type and should be upgraded before being used.

Where wiring could be viewed, throughout the vessel, it appeared to be double insulated 'boat cable' and rated to 600-volts. Wiring runs were secure and carried above and away from the bilge.

The Victron Energy inverter/ battery charger was installed at the aft inboard corner of the engine compartment. It appeared to be a recent replacement and the charger was operated during the survey and appeared to function normally. The exterior of the case did not appeared to be connected to the AC grounding buss or to the DC negative, which should it be to comply with current ABYC standards.

RIGGING AND SAILS

Masts and Rigging

The carbon fiber double spreader mast fabricated by GMT spars was briefly examined wheel stored on the boat yard spar rack. It was not completely accessible but was could be visually examined appeared serviceable. The mast did not appear to be original with the vessel but the age of the spar was not known, the owner reported that the spar was new in 2008. The butt of the mast was free from signs of compression and the spreader bars appeared tight to the spar. The stainless rod was installed for standing rigging and it appeared secure and serviceable.

Running rigging found on the spar was low stretch braided Dacron or similar material. It appeared to remain in good repair and was free from obvious.

A Reckmann hydraulically operated roller-furling system was installed an on the headstay. It was not operated but appeared serviceable. A Reckmann manual roller-furling unit was installed on the inner-forestay and it also appeared serviceable.

A GMT roller-furling boom was stored separately from the mast and it appeared serviceable but was not carefully examined.

Sails and Dodger

Sails were not aboard and not examined as part of the survey. Have the sails checked annually by a qualified sailmaker and serviced as found necessary.

SYSTEMS

The following systems were not operated or powered up but were simply listed to illustrate the level of equipment found aboard at the time of the survey.

12-volt DC-Systems

Lights

1. Cabin lights
2. Running lights
3. Steaming, deck and anchor light
4. Compass light
5. Navigator's lights
6. Engine instrument lights
7. Engine room lights

Pumps, Galley and Misc.

1. PAR sump tank pumps, forward and aft heads
2. Edson manual bilge pump in cabin and Whale Gusher 10 pump in cockpit
3. Jabsco electric bilge pump
4. Water pressure pump
5. Deck wash pump
6. Fore and aft Sea Land vacuum flush marine heads
7. Four-burner Force 10 LP stove and oven
8. LPG Solenoid shutoff valve
9. Mast mounted horn
10. Stereo and TV
11. Cabin fan
12. Hydraulic windlass
13. Oil change pump
14. Grunert refrigeration
15. Engine compartment blower
16. Exhaust fans in forward and aft heads
17. Sea Land waste discharge pumps
18. Espar diesel fire cabin heater, no longer aboard
19. Antal hydraulic cockpit winches
20. Harken electric winch at mast partners

Navigational Electronics

1. Five Raytheon ST-60 displays in cockpit
2. Raymarine E-90w multi-function display at chart table
3. Raymarine E-120w multi-function display with bracket located to starboard of companionway
4. I-Com M-802 SSB HF radio
5. Std. Horizon VHF with DSC
6. Iridium phone
7. Vetus Metro-Line display at chart table

120-volt AC Systems

1. Cabin outlets
2. Victron Energy 12/2000/80 battery charger/ inverter
3. Hot water heater
4. Microwave oven

120-volt AC systems, continued:

5. Refrigeration/ freezer

RECOMMENDATIONS

The following recommendations are made from body of the text, in approximate order of presentation and listed under the following three headings:

1) Compliance: Recommended for upgrade or repair to bring the item or the vessel into compliance with current regulations or Standards when the existing installation appeared inadequate or not to present requirements. As Standards are regularly modified, systems that appeared to comply with the standard at the time of construction and remained in good working order were not listed for repair or upgrade under this heading but might be listed under 'Other Items' that follows.

2) Priority Repairs: Recommended when significant structural defects or deficiencies existed that might endanger the safe passage of the vessel or crew. Items were also listed under this heading when they could not be fully tested or checked during the survey and their proper function affects safe passage of the vessel or crew.

3) Other Items: Recommended or suggested as normal maintenance or as an upgrade that might improve the function of the item or overall performance of the vessel. When maintenance items might worsen with time or repair cost might increase significantly they were noted as: * Strongly recommended.

When any of the recommendations significantly affect the value of the vessel it will be so noted in the Summary section that follows.

Compliance:

1. Obtain and carry a copy of the Rules of the Road, if not currently aboard
2. Develop and post a Garbage Disposal plan as called for by the MARPOL treaty as required, if not currently aboard
3. Verify proper function of the mast and deck mounted running lights before operating at night
4. Obtain and carry at least three current USCG approved flares and a distress flag
5. Obtain and install protective covers over the positive terminals for both alternators and the engine starter motors and the relays solenoids installed in the engine compartment outboard to port of the engine
6. Confirm that the exterior of the inverter case is connected to the DC negative buss with a battery cable

Priority Repairs:

1. Clean, lubricate and make functional all ball valves connected to through hull fittings installed at or below the waterline
2. Verify proper function of manual bilge pumps before getting underway, service if needed
3. As a normal part or re-commissioning have the engine examined by a qualified Perkins mechanic while operating under load at normal temperature and service the engine as recommended by the mechanic

Other Items:

Hull and Deck

1. Refinish the topsides as desired
2. Have the upper section of the starboard side of the rudder examined by a qualified technician, cut open, dry out and re-laminate as found necessary
3. Sand smooth the small areas of rough fairing found along the base of the keel, port side
4. Hoist the vessel and check the centerboard lift pennant and the sheave installed in the trailing edge of the centerboard, service if needed
5. Remove and reseal the hardware and the anchor chain chafe plate installed on the foredeck to reduce the possibility of additional moisture intrusion into the core material on the foredeck
6. Replace the missing retaining nut for the stanchion base fastener for the third lifeline stanchion aft from the bow on the starboard side
7. Remove the surface corrosion from the LP tanks and pressure test the system for leaks before using
8. Remove and reseal chain plate covers on deck at least every two seasons

Interior

1. Clean the deep section of the bilges and sump areas and re-paint as needed
2. Check the CO alarms for proper function in keeping with the manufacturer's recommendations
3. Obtain and install an LP leak alarm in the galley and eliminate the old manual shutoff valve
4. Grind off, re-laminate and mechanically fasten the tabbing at the base of the main transverse bulkhead below the dinette, (adjacent to the mast step)
5. Clean the mast step before re-stepping the mast, add a method to secure the butt of the the mast to the step before sailing offshore or on extended passages

Machinery

1. Perform routine engine maintenance as suggested by the mechanic
2. Check the prop shaft stuffing box after launching and adjust if needed
3. Have the generator examined by a qualified mechanic and service as needed
4. Check, adjust or re-pack the rudderstock stuffing box as needed after launching
5. Determine source of fuel stains found at the base of the bulkheads and bilge inboard of the starboard fuel tank and eliminate any leaks found
6. Check the fuel line connections at the tank selection valve installed on the aft bulkhead, inboard in the engine compartment, tighten or repair as needed to eliminate any leaks found
7. Add chafe protection to the fuel hoses as the pass through the openings in the aluminum 'box' located to port of the engine
8. Check the seals for the autopilot drive cylinder and renew as needed if found to leak

Electrical

1. Confirm proper function of the GFCI outlets before using the AC system

Mast and Sails

1. Have the sail inventory examined and serviced by a qualified sailmaker as needed
2. Fasten mast butt to the mast step before sailing offshore

Safety Gear and Systems

1. Have the fire extinguishers, engine and generator compartment fire suppression systems checked and tagged by a qualified fire equipment service company or update due to age
2. Have the life re-inspected, replace or service as needed
3. Confirm proper function of the systems and service if needed during normal re-commissioning

SUMMARY

The vessel 'Remedios' was in reasonably good cosmetic condition and appeared sound at the time of the survey.

With the Compliance issues met and Priority items corrected, the vessel should be considered an acceptable marine risk for insurance underwriters.

The list, 'Other Items' is offered as a service to aid the named client. The items should be considered as part of normal routine maintenance or upgrades that would be preformed by any prudent owner. They are not intended to detract from the vessel's overall condition.

The vessel should be suitable for coastal cruising and day sailing when operated in a prudent manner by a knowledgeable operator and crew. The vessel should be acceptable for offshore cruising in the middle to lower latitudes when properly prepared, equipped and operated in a seaman like manner by a competent crew during the intended passage.

The Surveyor warrants that this report is a true and unbiased opinion of the vessel at the time of the survey. It is only an opinion, however, no warranties are expressed or implied with it. It is clearly understood by all parties concerned that, although the undersigned used professional care and judgment during the course of the survey, hidden defects or conditions may exist that were not discovered as part of that process. . The condition of the vessel as described in this report applies only at the time and date the survey was preformed. The surveyor has no control whatsoever over the operation or maintenance of the vessel or any changes or events happening after the survey.

Acceptance of this report recognizes that agreement between all parties concerned. The provisions and recommendations contained in this report are not transferable.

Respectfully submitted,

Gene Barnes, AMS

For: E. F. Barnes, Inc.
Members: SAMS, ABYC and NFPA

End of Report