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**INSURANCE SURVEY REPORT**

**“POLARIS”**

**1937 47’ wooden Pacific Pilot trawler**

**19 December 2012**

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19 December 2012

Larry Keefe

Re: "POLARIS" 1937 47' wooden Pacific Pilot trawler  
Federal documentation number 909430  
Hailing port is Bristol RI  
Built by Star Shipyards, New Westminster, British Columbia, Canada

Dear Mr. Keefe,

At the request of Bill Ramos of Shannon Yachts I inspected the above boat on 14 December 2012 at Brewer's Sakonnet Marina in Portsmouth, Rhode Island. The boat was inspected while afloat at its slip. This letter is my written report describing my observations and recommendations.

This inspection and report are intended for insurance purposes only. The process did not involve all the components of a pre-purchase survey. This letter is my written report describing my observations and recommendations.

Scope of Survey:

The survey of this boat is based solely on a careful visual and non-destructive inspection of all accessible portions of its structure and available equipment. Complete inspection can be made only by the removal of flats, soles, headliners, hull liners, tanks, joinerwork and coatings. This would be destructive in nature and prohibitively time consuming, therefore was not done.

Complete inspection of machinery, piping, tanks, systems, electrical wiring, electrical and electronic equipment can only be made by continuous operation or by disassembly. This has not been done.

As the boat was afloat underwater portions were not inspected.

Work items marked with an asterisk \* are those I feel should be accomplished/corrected to meet underwriter's requirements. Most of these recommendations are based on applicable C.F.R. regulations and A.B.Y.C. voluntary standards in effect at the time of the boat's construction, or in this case at the time of renovation.

0.0 General:

This boat is a double-ended wooden commercial boat. The boat has a classic appearance. Propulsion is by a single diesel engine. The boat has a full keel and a rudder that is supported and protected by the keel and the stainless steel skeg. The propeller is well protected.

I inspected this boat for Walter Schulz in July 2011. The inspection was made when the boat was hauled. Some of the information from that inspection is incorporated in this report.

The boat predates the H.I.N. system.  
This boat has significant antique value.

The boat was purchased in 2007 by Walter Schulz, President of Shannon Yachts. It is his 17<sup>th</sup> wooden boat restoration project. The boat won the “Best restoration with respect to original design intent” prize at the 2010 Mystic Seaport antique and classic boat rendezvous.

From 2007 to 2010 the boat had extensive work done to the hull and deck. In addition, the boat’s systems have been replaced with new equipment. The restoration work is documented in a photo album that was aboard the boat. The restoration work included:

- Making a laminated repair to the horn timber.
- Replacing some planking starboard aft.
- Installation of new Dynel sheathing using epoxy resin on the decks, pilothouse top and forward housetop.
- Installation of new shear planks.
- Installation of a new bulwark.
- Replacement of deck covering boards.

### 1.0 Hull and Structural:

The hull is built of 2” Alaska cedar carvel planking on sawn oak frames. The stem, floors and keel are white oak. The clamp and shelf are fir. There are many sistered frames aft. Some of the original structural members are showing their age but this is expected after so many years. This hull is very heavily built.

The hull has generally retained its shape. There was only slight hogging. There are no proud planks. Underwater portions of the hull were sounded with a steel hammer. There were no negative indications.

The original plank fasteners are hot-dipped galvanized steel clenched cut nails. I understand that a few of these nails were removed and found to be in very good condition. I understand that the planks have been refastened with 316 type stainless steel wood screws. Because these stainless steel screws had been installed for only one year I did not extract any for inspection.

In addition to galvanized steel and stainless steel fasteners there are also some bronze fasteners installed. There were no negative indications from this situation.

The topsides are sheathed with plywood. I understand the plywood was bonded to the original topside planking using epoxy. Ironwood sheathing is installed along the waterline and at the forward ends of the topsides.

A copper keel cooler is installed. I understand it was rebuilt about nine years ago. No deficiencies were observed.

There is no fixed boarding ladder. It would be impossible to board the boat from the water without assistance. Suggest installing an emergency boarding ladder at a rail. This device would allow a person in the water to pull on a lanyard to deploy the ladder.

Sling markers are installed port and starboard.

Loose lead pigs are located to starboard of the cabin stairs, under the forward cabin sole and under the forward cabin berth. It is impractical to secure the loose ballast.

A replacement canvas/rope rubrail is installed.

### 2.0 Deck, Deckhouse, Cockpit and Deck Fittings:

The deck and deckhouse are built using traditional construction. Applied non-skid on the deck provides good traction.

The pilothouse has been extended aft in order to provide a galley space. I understand that the extension was built so that it can be easily removed if a future owner wants to return the pilothouse to its original configuration.

The deck is surrounded by a life rail that is built of galvanized steel pipe and pipe fittings. The rail is a replacement and I understand that it matches the original installation. Gates are provided port and starboard.

The aft deck hatch is supported in the open position by a spring support arm. Suggest replacing it with a more dependable pneumatic arm. The hatch frame drain hoses are fitted with securing clips but the clips are not fastened in position.

The exterior handholds are adequate and secure.

The new aft deck canopy is supported by a new stainless steel post/beam assembly.

Two new stainless steel anchor roller assemblies are installed at the new mahogany bowsprit.

The three wood frame hatches installed on the forward deckhouse top are new.

### 3.0 Paints and Coatings:

The topside finish is green paint. Condition is good except for several spots that are beginning to flake.

The deck and deckhouse are finished with gray and white paint. The finishes are in good condition.

The exterior mahogany has a varnish finish that is generally in very good condition. There are a few spots that are darkening.

The interior finishes are in very good condition. Most of the finishes are new.

### 4.0 Interior:

The cabin is clean. Appearance is very good.

The pilothouse has three new hinged doors.

The pilothouse double-hung windows have been rebuilt. The aft windows are new.

The interior cushions are new.

The forward emergency escape hatch functioned fully.

There were no indications of leaking at the bronze opening ports.

The interior grabrails are adequate and secure.

The loose cabin sole carpets are new.

U.S.C.G. required plastics disposal warning notice is posted.

### 5.0 Spars and Rigging:

The fairly short steel mast is installed on a tabernacle step installed on the pilothouse top. The load of the mast is transferred to the deck structure by a wood compression post.

- The aluminum boom was not installed.
- The mast is supported by five wire rope shrouds/stays. The lower end fittings appear to be in good condition.

### 6.0 Propulsion, Control and Steering:

Propulsion is by a single Detroit Diesel 6-71 six-cylinder fresh water cooled diesel engine. The engine is fairly clean. The paint is in very good condition. There is only slight rust. The engine is supported by four rigid mounts on steel brackets installed on substantial wood beds. No deficiencies were observed.

The engine hour meters read 4311.53 hours and 2770.0 hours. The higher number is from the tachometer hour meter that is no longer working.

I understand that this is a rebuilt engine that was installed in 1997.

Two new engine alternators are installed.

The alternator vee belts are in very good condition.

The engine room insulation is new.

The engine room is spacious, clean and well lighted.

I understand that the transmission was rebuilt about nine years ago.

The cable kill switch is new. It operated.

U.S.C.G. required oil discharge warning notice is posted.

The helm engine panel provides a tachometer, oil pressure gauge, gear oil pressure gauge, voltmeter and cooling water temperature gauge. The ignition is secured by a key.

New single lever cable throttle and shift controls with shifter lockout are installed at the helm. The controls are labeled. The cables are new.

The engine wet exhaust discharges through exhaust hoses and a fiberglass muffler. The exhaust hose connections are secured by doubled hose clamps. The exhaust system is new. A Vetus exhaust alarm is installed at the helm.

\* Provide better access to the keel cooler valve located to port in the cabin forward of the engine room.

The engine and transmission turn a Monel shaft and a bronze three blade right hand propeller. The shaft packing gland is bronze cooling water injection type. No deficiencies were observed.

Steering is from a deck level helm in the pilothouse. The hydraulic steering system is new. The steering worked.

- The rudder and rudderstock are stainless steel.
- The rudderstock is reinforced by a painted iron brace assembly.
- There was no play in the rudder bearings.
- The stub tiller is painted iron.
- New mahogany rudder stops are installed.
- The rudderstock packing gland is bronze.
- Suggest carrying an emergency tiller.

A new Side Power 12 volt bow thruster is installed. The thruster tube is fiberglass. The bow thruster greatly aids low speed maneuvering.

#### 7.0 Piping, Tanks and Systems:

The underwater through hull fittings are bronze seacocks. The hoses attached to the seacocks are in good condition. The seacock hose connections are secured by doubled hose clamps except at the engine intake seacock. It is conventional to install doubled hose clamps. Suggest installing a second hose clamp if the seacock barb is long enough to accept a second hose clamp.

- Suggest labeling the seacocks aft in the engine room so there is no confusion as to what seacock does what.
- The head intake/head sink discharge seacock is new.
- The generator and air conditioner intakes are fitted with new bronze interior seawater strainers.

A Whale remote 12 volt bilge pump is installed aft in the engine room. A float switch is installed in the bilge. The pump worked automatically and by its manual switch at the helm.

A Rule Heavy Duty 12 volt submersible bilge pump and a float switch are installed aft in the engine room bilge. The pump worked automatically and by its manual switch at the helm.

A large Rule 12 volt submersible automatic bilge pump and a float switch are installed in the bilge in the cabin forward of the engine room. The pump worked automatically and by its manual switch at the helm.

A Rule 110 volt submersible bilge pump is installed in the bilge in the cabin forward of the engine room. Suggest installing a discharge hose. This pump would be plugged into a 110 volt outlet if it were needed.

The three bilge pump indicator lights at the helm worked.

The engine intake is fitted with a valve that converts it into an emergency bilge pump. The valve worked. A pick-up strainer is installed in the bilge.

During my time on the boat a bilge pump cycled only once indicating that there is only slight leaking.

A float switch installed aft in the engine compartment also operates a high bilge water alarm. The alarm worked.

A sealed sump is installed under the cabin sole forward. It contains an automatic 12 volt submersible pump.

Two new epoxy-coated aluminum fuel tanks are installed port and starboard in the engine room. The fuel tanks are secured in plywood boxes by top cleats.

- Two fuel tank gauges are installed at the helm.
- The fuel lines/hoses are new.
- The fuel fill hose lower ends are secured by doubled hose clamps.
- The fuel lines/hoses are rated.
- New Racor fuel filter/water separators are installed for the engine and the generator.
- The four fuel line selection/shut-off valves located next to the engine Racor worked.
- The new deck fuel fill fittings are properly labeled “DIESEL”.
- The fuel tanks vent port and starboard at the pilothouse sides. The vent discharge fittings are equipped with flame arresting mesh.

Two new plastic fresh water tanks are installed under the port and starboard settees in the cabin forward of the engine room. The tanks are secured by their enclosures. Two fresh water tank gauges are installed at the helm. Pressure hot and cold water is supplied to the galley sink, head sink and to the separate shower stall. The faucets, pressure pump and plumbing are new.

The new Isotemp stainless steel 110 volt water heater/heat exchanger is installed starboard forward in the engine room. The water heater is secured. The pressure relief valve was free.

Pressure saltwater is supplied to a fitting at the foredeck.

The new plastic waste holding tank is installed under the forward cabin berth. The tank is secured by gasketed stainless steel straps. A Tank Watch 4 holding tank level monitor is installed. The toilet discharges to the holding tank. The holding tank can be emptied through a deck fitting at a pump-out station or it can be discharged overboard by a 12 volt pump or a manual diaphragm pump. The discharge hose is fitted with a vented loop.

- A holding tank vent filter is installed.
- The toilet has a 12 volt pump.

A fixed two-burner LPG cooktop is installed at the galley located aft in the pilothouse. The LPG locker is a deck box installed forward on the aft deck. The locker drains to the atmosphere. Two new horizontal LPG cylinders with OPDs are installed in the LPG locker. The cylinders are secured by brackets. A regulator, cylinder selection valve and remotely controlled solenoid shut-off valve are installed.

- The solenoid shut-off valve worked.
- LPG warning labels are posted on the cylinders and at the galley.
- A Xintex S-2A LPG fume detector/control system is installed at the galley. The fume detector self-tested properly.

\* Caulk the gaps where the fuel line and solenoid wiring pass through the LPG locker wall.

Suggest installing a pressure gauge so there will be a simple means of testing for LPG system leaks. A pressure gauge test is done by opening the solenoid valve and opening and then closing the cylinder valve. If the pressure gauge reading does not drop after fifteen minutes there are no system leaks.

The engine and fuel tank compartment is ventilated naturally by side deck intake and discharge vents. The compartment is ventilated mechanically by four 12 volt blowers. The blowers worked.

When the boat is closed up the cabin is ventilated by a “Charlie Noble” vent fitting installed above the shower stall and by cowls/dorades installed on the pilothouse top, on the deckhouse top and aft on the foredeck.

An Espar thermostatically operated diesel cabin heater is installed port aft in the engine room. The vent duct is in very good condition.

A new Marine Air Systems 110 volt reverse cycle air conditioning system is installed under the cabin steps.

Suggest installing a battery-powered CO monitor. This boat is unlikely to produce any CO but the monitor would provide protection from other sources of CO.

An older Halon fixed automatic fire extinguisher is mounted at the overhead of the engine room. Suggest replacing it with a new fixed automatic fire extinguisher.

An overboard zinc was in place aft.

#### 8.0 Electrical, Electronics and Navigation:

The new 12 VDC electrical distribution panel provides:

- DC volts and amperes meters.
- Battery test switch.
- DC main breaker.
- 11 labeled breaker protected 12 volt circuits.

Four new AGM deep-cycle house batteries are installed aft of the port fuel tank. The secured plywood lid secures the batteries and provides positive terminal protection.

Two new gel cell deep-cycle engine start batteries are installed below the port fuel tank. The batteries are secured by hold-down bars. \* Provide positive terminal caps.

Two new gel cell deep-cycle bow thruster batteries are installed at the bow thruster. The secured plywood lids secure the batteries and provide positive terminal protection.

Other 12 volt circuits are breaker protected.

I understand that the boat's wiring is entirely new.

The helm switches are labeled.

The navigation lights worked except for the port forward red light. \* Fix this light.

The anchor light worked.

The four deck illumination lights worked.

The fixed horns worked but they were weak. The boat carries a power horn.

A mechanical remotely controlled searchlight is installed above the helm.

Six new 2-position battery switches are installed.

New 12 volt outlets are installed at the helm and in the forward cabin.

Two windshield wipers are installed.

The new interior, exterior and engine room lights are protected.

The 12 volt cabin fans are new.

A rebuilt Ideal 12 volt windlass is installed at the foredeck. Two control switches are installed at the windlass.

The new 110 VAC electrical distribution panel provides:

- AC volts and amperes meters.
- Interlocking shore/generator main breakers.
- Interlocking shore/inverter main breakers.
- Reversed polarity indicator light.
- 6 labeled breaker protected 110 volt circuits.

The new 110 VAC air conditioning electrical distribution panel provides:

- Interlocking shore 1/shore 2 main breakers.
- Reversed polarity indicator light.

Two new weatherproof 30 amp/125 volt shore power inlet fittings are installed.

A new Xantrex 50 amp automatic marine battery charger is installed to port in the engine room. It was working.

A new Xantrex Pro XM1800 inverter is installed to port in the engine room. It was working.

A charger/inverter monitor is installed at the electrical distribution panel.

The 110 volt wiring is labeled "boat cable" indicating it is marine grade.

The 110 volt outlets have GFCI protection.

A new built-in microwave oven is installed.

A new Norcold dual voltage refrigerator/freezer is installed.

A 3-cylinder diesel generator is installed port aft in the engine compartment. The generator is clean. The paint is in very good condition. There is only slight rust. There is moderate rust at the oil drip pan.

The generator hour meter at the generator controls read 1.4 hours. The meter at the generator read 3617.4 hours.

The generator wet exhaust discharges through exhaust hosing and a fiberglass muffler. The exhaust hoses are in good condition. The exhaust hose connections are secured by doubled hose clamps.

Electronics:

Furuno model 1623 marine radar, worked.

New Garmin GPSmap 421S chartplotter/video sounder, worked.

New ICOM IC-M422 VHF radio, worked.

Robertson AP300X, hydraulic autopilot, powered up.

New Jensen stereo, worked.

Insignia TV.

TV antenna.  
Walkie-talkies.

The VHF radio is DSC capable but there were no indications that it is wired to the GPS to take advantage of this emergency mayday system.

A Ritchie compass is installed at the helm. Suggest checking the compass against a known heading.

#### 9.0 Miscellaneous Loose Equipment:

Chartkits  
Cruising guides  
Navigation rules book  
Equipment manuals  
2 first aid kits  
Power horn  
Spare power horn canister  
Bell  
Current flare and flare gun kit  
6 Type I lifejackets  
2 life rings  
Portable boarding ladder  
Flashlight  
Battery lantern  
Bucket  
Very good docklines  
Spare docklines  
Several dock fenders  
Shore power cord  
Extension cords  
Two 110 volt oil radiators  
110 volt fan  
Small 110 volt shop vac  
Spare filters  
Spare fluids  
Misc. fasteners  
Misc. spares  
Spare vee belts  
Impellor blank plug  
Funnels  
Misc. tools  
Helm stool  
Misc. deck furniture  
Loose barometer and clock  
Hose  
New coil hose  
2 binoculars  
Burgees  
Signal flags  
Bedding  
Misc. line

New canvas hatch covers  
Cleaning tools and supplies  
Galley equipment  
TV remote

Gasoline container containing diesel fuel

1-gallon gasoline container (properly stored in the LPG deck locker)

Two 1-gallon gasoline containers (stored starboard aft in the engine room) \* Remove them from the engine room if they contain gasoline.

This boat carries all U.S.C.G. required safety equipment.

Ground tackle: A Bruce 20 kg plow anchor is secured and ready to use in a bowsprit anchor roller. An all chain rode is attached. Suggest seizing the shackle. Suggest carrying a second anchor with chain and rode.

A.B.Y.C. requires four mounted portable fire extinguishers on a boat this length and the cabin fire extinguishers must have type ABC capacity. A large fire extinguisher with a 1998 inspection tag is mounted at the foot of the cabin stairs. Three 2010 ABC fire extinguishers were aboard. \* Mount the ABC fire extinguishers forward, midships and aft in the cabin and mount a new or inspected BC (or ABC) fire extinguisher outside the engine compartment.

#### 10.0 Conclusions:

Provided the items marked with an asterisk are corrected, I feel the boat would be a suitable insurance risk for bays and sounds, provided a qualified crew is aboard, and giving due regard to weather and sea conditions.

This is a difficult boat to place a value on because there are no comparable boats. Based on its general very good condition, and giving consideration to extensive restoration work the has been accomplished, I feel the recent agreed purchase price of \$195,000 represents a reasonable current fair market value for this boat. Determining a replacement value is not possible because boats of this type are no longer built.

Sincerely,

William Coble AMS  
Independent Marine Surveyor

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19 December 2012

Bill Ramos  
Shannon Yachts

Re: "POLARIS" 1937 47' wooden Pacific Pilot trawler  
Federal documentation number 909430  
Hailing port is Bristol RI  
Built by Star Shipyards, New Westminster, British Columbia, Canada

Statement: For services rendered. Insurance inspection and report for the above boat.

As quoted: \$17.50 x 47' \$822.50

Thank you,

William Coble AMS  
Independent Marine Surveyor