EAST ANGLIA YACHT SURVEYS LTD

21 Heath Way, Blofield Heath,
Norfolk, NR13 4RS
Tel: (01603) 717823
eastangliayachtsurveys@btinternet.com
www.eastangliayachtsurveys.co.uk

SURVEY REPORT

Yacht PELICAN

14 January 2016

INSPECTION & SURVEY OF SAILING VESSEL

REPORT REFERENCE: EAYS-16-02

NAME OF CRAFT: PELICAN.

DATE OF INSPECTION: 14 January 2016.

PLACE OF INSPECTION: Ashore at Blackwater Marina, Maylandsea, Essex.

REPORT COMMISSIONED BY: Mr C Bradley of 56 Trinity Square, Margate, Kent.

INSPECTION CARRIED OUT BY: D D Buckley Assoc IIMS.

WEATHER DURING INSPECTION:

Wind:	SW 3-4.
Weather:	Overcast, occ showers.
Max temp:	9.6 deg C.
Humidity:	78%.

This report has been commissioned with the purpose of establishing the structural and general condition of the vessel for insurance purposes. Where items of equipment have been tested, this will be stated in the text. Note that where reference is made to condition, this must be considered in relation to the vessel's age: for example "very good condition" should not be taken to mean "as new condition". This report does not address stability or performance and no warranty is given to such matters. All dimensions and diameters stated in the report are nominal, and should be re-measured before ordering or fitting replacements. The survey of this vessel was carried out on behalf of the above named client and to no other party. Any liability is to the above client only or their insurers and not to any subsequent holder of this report. East Anglia Yacht Surveys Ltd accepts no responsibility for any information contained herein if used by other parties.

INSPECTION & SURVEY OF SAILING VESSEL

REPORT REFERENCE: EAYS-16-02

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A. THE VESSEL

NAME:	PELICAN (ex- *R Junk*, ex- *Pelican*).
FLAG / PORT OF REGISTRY:	UK / - .
REGISTERED NUMBER:	SSR 02202.
DESIGNER:	Unknown.
DESIGN:	One-off.
BUILDER:	Believed home built by ex-professional boatbuilder.
YEAR OF BUILD:	Approx 1990.
LENGTH OVERALL:	8.52m (26'0").
BEAM:	5.40m (9'9").
DRAUGHT:	0.72m (2'4").
DISPLACEMENT:	approx 2,250kg (5,000 lb).
HULL CONSTRUCTION:	Marine grade plywood on utile, epoxy sheathed.
HULL COLOUR:	White.
DECK COLOUR:	Pale blue.
SUPERSTRUCTURE:	White.
MAST AND SPARS/RIG:	Alloy and timber / junk-rigged schooner.
ENGINE INSTALLATION:	Outboard, petrol, single screw.
ENGINE:	Yamaha FT9.9DE
ENGINE SERIAL NUMBER:	66RKX1000172K.

This craft was a cruising catamaran design of relatively narrow beam. She had reputedly been built by an ex-professional boatbuilder: this was borne out by the good quality of materials selected and the excellent standard of workmanship readily apparent in her construction. The hulls were of raked-bow, transom-stern form, with a hard-chine mid-section, each with a low-aspect keel.

Three deck-stepped masts facilitated a junk schooner rig.

B. THE SURVEY

1. Inspection. The surveyor attended the vessel on 14 January 2016, commencing the survey at 1045. The vessel was found ashore and out of commission, resting on her own keels on hardstanding at Blackwater Marina.

The survey was conducted in full accordance with published Guidelines[1], including a full underwater and internal inspection. The masts were stepped throughout the survey, so was inspected from deck level using a pair of binoculars (10x magnification). The engine was visually inspected, but not run.

The surveyor departed at 1340, when all relevant visible and accessible items had been inspected. The vessel was left in the hands of the boatyard with all floorboards, doors, switches and taps in the positions as found at the beginning of the survey.

2. Report. In this report, items in need of attention or comment were noted. To assist in their evaluation, they are divided into the following categories:

a. Cat A. These are significant defects immediately affecting the structural integrity of the vessel or the safety of those embarked. Structural defects are such that the vessel should not be re-launched until they are completed, and safety defects should be rectified before the vessel is commissioned.

b. Cat B. These are safety and structural/mechanical shortcomings. They should be completed as soon as practicable, or within a specified timescale as indicated. They do not require the vessel to be ashore until their completion, and the vessel may be safely used in sheltered waters.

c. Cat C. These may be fitted into a structured programme of refit and maintenance, and should be completed within the next year or so, unless a different timescale is suggested in the report.

Additional suggestions or advice concerning items of routine maintenance may appear in the main section of the report, but are not intended to be comprehensive or exhaustive in this respect.

[1] International Institute of Marine Surveyors, *Guidelines for Surveyors Conducting Pre-purchase Vessel Condition Surveys*, Witherby Publishers, 2001, ISBN 1 85609 193 7

1. The Hulls (External)

1.1 General. The lines were fair, with no signs of distortion due to hogging, sagging or wracking, as may be seen in ***Fig 2*** (below).

Fig 2*. General view of vessel ashore.*

1.2 Topsides. The painted top-sides planking was fully examined by close visual inspection, by hammer-sounding using a small ballpein hammer and by spike-testing at regular intervals of approx 15cm (6”). All panels were lying fair, with no distortions or failure of joints. No softness or deterioration was found in any part.

Fig 3. *Inboard face of port hull.*

The horizontal joints were protected and reinforced by a substantial timber strake in way of the chines on both inboard and outboard faces of each hull, and the midheight rubbing strake and quarter badge on the outboard sides only. These were laminated hardwood (probably iroko): all parts were in good condition, with no signs of movement or moisture penetration.

Chainplates for bowsprit bobstays were mounted at the waterline on each bow, as seen in ***Fig 4*** (below, left): there was no sign of strain or looseness, and they could be re-used in the future if necessary.

Fig 4 (below). *Inboard face of starboard hull.*

Fig 5 (right). *Port bow.*

1.3 Underwater inspection. The underwater planking was thoroughly inspected, using the same methods as for the topsides. A general view of the transom and gap between the hulls is at ***Fig 6*** (below).

Fig 6. *Transom and gap between hulls.*

Close visual inspection revealed all planking to be lying fair, with no distortions of line or form. There were no signs of damage due to grounding or stranding, while hammer-sounding and spike-testing found no evidence of softness or decay in any part. There were no visible signs of attack by marine borers showing through the protective coatings on the hull planking, except towards the aft ends of both keels, as discussed in para 1.4 below. No significant softness was found in any of these areas, and they are not of

significant concern at this time.

1.4 Underwater fittings. Each hull was fitted with an unballasted shoal draft keel amidships and a rudder skeg aft, with the latter extending up each transom to form a substantial stern post on the exterior of the vessel.

The skegs / sternposts were both in good condition, with no sign of deterioration or decay in any part. It was noted that each sternpost was reinforced on the outboard side by a timber quadrant, to spread the rudder strains across the transom, as seen in ***Fig 7*** (right): there were no signs of strain or movement.

Fig 7. *Detail of root of skeg / sternpost, showing reinforcing quadrant.*

The keels were securely bolted to the bottom of the hog, and were in generally good condition. They were each protected on the underside by a steel strap: surface corrosion was in evidence, but there was no sign of movement or undue wear and tear. However, some gribble damage was noted on the inboard faces towards the aft end, as seen in ***Fig 8*** (right). Some slight localised softness was noted in some of the indentations, but these only extended a few millimetres into the timber, and are not of structural concern at this time. The joints between the hulls and the keels were closely examined, and there was no evidence of movement. There was no sign of rust to indicate corrosion of the keelbolts, and no evidence of leakage to the interior.

Fig 8. *Detail of bottom of keel, showing evidence of minor worm / gribble damage.*

It was noted that there was a slot in the starboard side of the cockpit, with a corresponding retaining rail just above the inboard chine on the starboard hull. These allowed a dagger-board to be fitted. It should be noted that this may be too far aft to improve performance when beating to windward, and may just be there to reduce yawing when at anchor. However, experimentation under different conditions will suggest when this may or may not be of use.

1.5 Summary. The external planking of the hulls was in very good condition for a vessel of this age and type. Given normal routine maintenance, she should be capable of safe coastal cruising for many years to come.

Recommendation

*1.4 Given the expected wear and tear from grounding / drying out, the keels should be fully re-preserved using several coats of hard wearing antifouling or tar varnish: this would prevent any bare wood showing through, which may result in further gribble attack (**Cat C – Structural**).*

2. The Hulls (Internal)

2.1 General. The hulls were of timber construction, with marine plywood planking over sawn frames and laminated stringers: these timbers were of a mahogany-type wood, probably utile. The scantlings were:

Stem:	145mm (5¾") laminated utile
Hog:	160mm x 20mm (6½" x ¾") utile.
Frames:	35mm and 45mm (1⅜" and 1¾") utile at 90cm (3') centres.
Planking:	12mm (½") marine grade plywood.
Stringers:	Chines: 75mm x 75mm (3" x 3") laminated utile.
	Topsides: 75mm x 25mm (3" x 1") laminated utile.
Beam shelfs:	50mm x 25mm (2" x 1") laminated utile.
Bulkheads:	12mm (½") marine grade plywood.

Examples of construction are at ***Figs 9-10*** (below), which show views of the interior of the transom and bow respectively.

Figs 9-10. *Construction inside starboard transom (left) and port bow (right).*

2.2 Inspection and limitations. Internally, all visible and accessible parts of the hull were checked, including frames, stringers, bulkheads and internal faces of planking. This inspection was visual, with hammer sounding and spike-testing at regular intervals. Most of the internal structure of the vessel was accessible, but the following places could not be fully reached:

a. Under the battery stowage (starboard hull)
b. Behind the heater (inboard side of port hull).

The interiors of all lockers were clean and dry, and permitted a thorough assessment of all accessible areas.

There was no standing water in any part. A minor waterline was noted in the

starboard hull amidships, probably due to ingress along the anchor cable, as the cable locker was in this area. At the time of inspection, the timber was dry, with no evidence of raised moisture in any part: any dampness due to leakage from the exterior would have persisted much longer and would have been readily discernable.

2.3 Centreline structures. The stems and aprons were of laminated hardwood, probably utile. They found to be hard and sound internally, with no areas of rot or decay, or any movement in the glue lines. All accessible parts were sound, with no evidence of moisture ingress, past or present, to indicate any compromise to the hoodends (see ***Fig 10***, previous page).

The broad utile hogs were in good condition, with no evidence of strain or decay, as were the aft deadwoods and sternposts. There was no sign of leaks past the keelbolts.

Figs 11-12. *Hog and lower bilge in port hull (left), and starboard hull (right).*

2.4 Stringers. The stringers were laminated utile strakes running the full length of the vessel. They were well fastened, with no sign of looseness. All parts were in good condition, with no evidence of glue failure or detachment. Where a new fitting had been let in, the laminations could clearly be observed, as may be seen in ***Fig 13*** (right), but were otherwise in very good condition throughout.

Fig 13. *Detail of fitting inside beam shelf.*

2.5 Frames. The frames in the

topsides were sawn futtocks of utile, shaped to support the midheight stringer, while those across the bottom were shaped to support the keel. At the chines, each frame was jointed and reinforced using a pair of 12mm (½") marine plywood gussets, as may be seen in ***Fig 15*** (below, right). All parts were in good condition, with no sign of softness or movement.

Fig 14 (left). *Example of frame in port hull.*

Fig 15 (below). *Detail of reinforcement over chine.*

2.6 Planking. As with the exterior inspection, the hull planking was assessed by close visual inspection, by extensive sounding and hardness-testing. All parts were found to be lying tight and fair with the stringers; no evidence of soft spots was found in any part. All joints had been made in accordance with good boat-building practice: where butt joints had been employed, they were supported internally by substantial butt blocks of the correct thickness.

2.7 Bulkheads. The main bulkheads were constructed of 12mm (½") marine grade plywood, with lighter partitions of 6mm (¼") ply. All were bonded to the structure using screws to adjacent frames, and broad fillets of epoxy resin. They were in good condition, with no softness or looseness in any part.

2.8 Breasthooks and quarterknees. No breasthooks were fitted forward: instead, the forward ends of the beam shelves and stringers were rebated into the apron (see ***Fig 10*** on p.10). There was no sign of movement in this area. The quarter-knees at the transom were solid utile and securely fastened through the transom and beam shelf. No softness was found in the accessible surfaces.

2.9 Summary. Though of unconventional design, the structure of the vessel is very rugged for a vessel of this type and size. Good quality timbers and good workmanship have ensured the vessel's longevity.

Recommendations

Nil.

3. Skin fittings

3.1 General. There were no sea connections fitted below the waterline, and seven skin fittings in the topsides. These were under the bridgedeck, fitted from forward to aft as follows:

Table 1. *Sea connections*

No	Use	Skin Fitting Diam/Material	Valve type	Location	
				External	Internal
1	**Head inlet**	19mm (¾"), vinyl hose	Nil	Port side of bridge-deck, amidships	Galley, under sink
2-5	**Gas locker drains**	20mm (¾"), blank	Nil	Pair on each side of bridgedeck, aft	Gas locker
6	**Cockpit drain**	20mm (¾") blank	Nil	Stbd side of bridgedeck, aft	Stbd forward corner of cockpit
7	**Cockpit drain**	75mm (3"), blank	Nil	Port quarter	Port aft corner of cockpit

Dimensions given are the internal diameter of the exterior fitting.

3.2 Exterior inspection. From the exterior of the hull, all fittings were checked. There were no signs of looseness, movement, or deterioration in any part.

3.3 Interior inspection. From the interior of the hull, all openings were inspected visually for signs of looseness or past leakage, and none was found. The skin fitting for the galley sink was secure, with no signs of leakage, and posed no risk of downflooding.

3.4 Hoses and clips. The galley sink hose was checked for leaks or deterioration and none was found. It was secured using a single stainless steel worm-drive clip at each end, and all parts were in good condition.

Recommendations

Nil.

4. Deck and Coachroof

4.1 General. The deck and coachroof were of timber construction, with scantlings as follows:

Deck planking: 12mm (½") marine grade plywood, epoxy sheathed.
Deck beams: 51mm x 25mm (2" x 1") utile.
Beam shelves: 51mm x 25mm (2" x 1") utile.
Coachroof sides / top: 12mm (½") marine grade plywood, epoxy sheathed.

A draining cockpit was at the stern of the vessel, and a raised bridgedeck was fitted between the cockpit and the companionways: this would reduce water coming into the accommodation if a wave entered the cockpit.

Fig 16. *General view of foredeck and coachroof.*

4.2 Crossbeams. In contrast to many other catamaran designs of this size, the cross-beams and bridgedeck were integral parts of the hull structure, sited at mid-height rather than atop the hulls.

The forward crossbeam was a substantial construction of epoxy-sheathed timber, fastened and bonded between the two bows. The profile of the forward face matched that of the upper parts of the stem. There was no evidence of strain or leakage in any part, either from interior or exterior. It was noted that two large mushroom vents had been fitted in the aft face, below the foremast tabernacle: the size of these would suggest a good flow of air throughout the vessel from stem to stern, reducing the likelihood of decay developing.

The coachroof and cockpit were constructed on a structural bridgedeck linking the hulls: this was in good condition, with no sign of movement or strain in any part.

4.3 Foredecks. The deck planking on the hulls was of epoxy-resin sheathed marine grade plywood. The decks were fully inspected and extensively sounded using a small ballpein hammer to locate areas of softness or delamination. All parts were found to be in good condition, with no evidence of the delamination or lifting sheathing, and no evidence of leakage to the interior, as seen in ***Fig 17*** (overleaf).

The foredeck was of close-spaced slats of 20mm (¾") teak, as may be seen in ***Fig 16*** (above). These were in good condition for their age, though well weathered: there

was no checking in the timber, and they were well fastened, with no signs of looseness.

Fig 17 (below). *Interior of foredeck structure, with beams and shelves inside starboard hull.*

Fig 18 (right). *Detail of forward crossbeam, with base of tabernacle and vents.*

4.4 Coachroof. As with the deck, the central coachroof and its internal structure was thoroughly hammer-sounded and hardness-tested, to detect areas of softness.

All parts were in good condition, with no sign of decay or deterioration. Cornerposts and the forward end of the doghouse can be common points of leakage. The steeply-sloping profile of this example, while lending the vessel an unconventional air, gave very good drainage, and there was no evidence of standing water in almost any part.

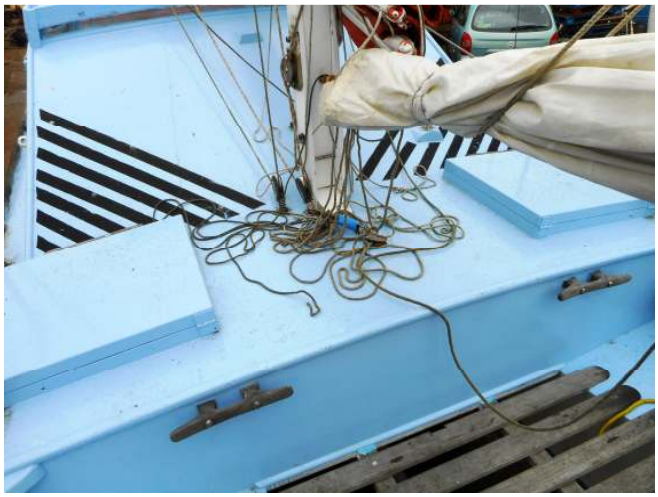

Fig 19. *Forward end of coachroof.*

The exception was that the vessel had been chocked in a slightly bows-down attitude: as a result, rainwater was not reaching the small deck drains through the aft main chainplates, but was pooling around the forward base of the midships grab bars, as may be seen in ***Fig 25*** on p.19.

4.5 Cockpit. The cockpit was of plywood construction, with a painted finish and teak slats to give a non-slip surface. There was little evidence of deterioration, and drains had been fitted under locker lids, so that any rainwater would drain into the cockpit well, thus preventing any moisture ingress or pooling. Small drains were fitted through the cockpit sole, in addition to the large hatch for the engine mount. Freeing ports were fitted on either side, outboard of the cockpit seating, to prevent standing water, as seen in ***Fig 21*** (overleaf).

All parts were in good condition, with no evidence of undue wear and tear.

Fig 20 (below). *General view of cockpit.*

Fig 21 (right). *Freeing port above cockpit seat.*

4.6 Capping rail. A teak capping rail was fitted to the upper part of the topsides. It was in good condition and well-fastened, but weathered. A copper chafing plate had been fitted over the capping rails at the aft end of the foredeck: this prevented chafing from fender lines, which would be attached to the cleats on the forward end of the coachroof. Teak finials were fitted at the forward and aft ends of the plate, to prevent fender ropes wandering forward or aft.

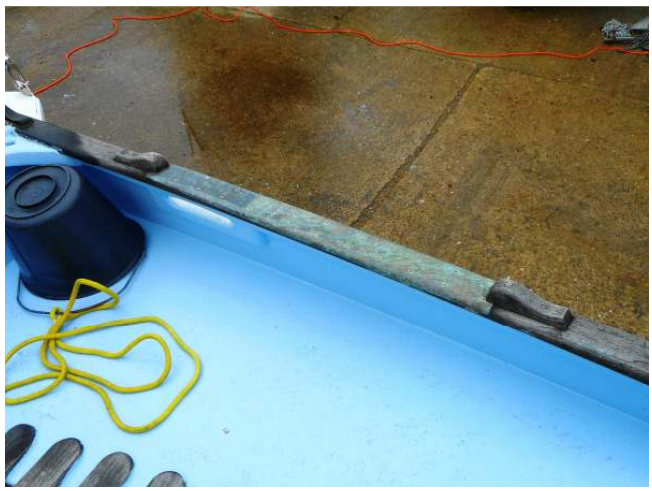

Fig 22. *Chafing plate on capping rail.*

Advisory Note

4.4 Whenever the vessel is brought ashore for refit, she should be carefully chocked up so that the aft chainplates are at the lowest point, to allow full drainage of the deck areas.

5. Doors, Hatches, Windows and Locker Lids

5.1 Companionways. Access to the interior of the vessel was via a pair of main companionways, one into each hull, inside the doghouse. These could each be sealed using a pair of timber washboards: these were in good condition and easily operable, with no undue stiffness or signs of distortion in the tracks.

5.2 Hatches. Each hull was fitted with a timber hatch in the forward end of the coachroof, with another in each quarterberth, opening into the cockpit.

The forehatches hinged at their forward edge: they were mounted on substantial raised lips on the coachroof and secured using over-centre catches. Both were in good condition, with no signs of leakage below.

The aft hatches hinged on their outboard sides, recessing flush with the cockpit seating when closed, and secured from inside using a retaining rope and cleat. A waterway was fitted under the lip, but dampness had caused softness and deterioration in the timberwork of the starboard hatch, as seen in ***Fig 23*** (right).

Fig 23. *Deterioration in starboard aft hatch.*

All hatches were of sufficient size to form secondary means of escape from the accommodation in an emergency.

5.3 Windows. There were six non-opening windows in each of the vessel: three in the outboard side of each hull and one in the transom, one in the coachroof side and one in the doghouse.

Most were of clear acrylic glazing, set in alloy frames and sealed with black rubber. The exceptions were the doghouse windows, which were of tinted acrylic set in timber frames. All were in good condition, with no cracks, chips or undue crazing in the glazing, and no evidence of corrosion under the painted surfaces of the frames. There was no sign of leakage to the interior in any part. A hairline crack was noted in the paintwork around the starboard coachroof window, as seen in ***Fig 24*** (right): this indicated slight movement in this area, but close inspection found no evidence of ingress to the interior at this time.

Fig 24. *Slight movement at coachroof window.*

The timber frames around the doghouse side windows were in good condition. In addition, there was a wide, narrow window in the forward face of the doghouse: this was glazed with clear acrylic and was in good condition, with no sign s of leakage.

Recommendations

*5.2 Repair starboard aft hatch (**Cat B – Structural**).*

*5.3 The crack in the paint around the periphery of the starboard coachroof window should be thoroughly cleaned. Once fully dried, a penetrating resin (such as the proprietary "Creeping Crack Cure") may be administered. This spreads by capillary action, and will penetrate before setting. Several doses may be needed before full water-tightness is achieved: it is best to wait approx 30 mins between doses, and continue until no more resin can enter the joint (**Cat C – Structural**).*

6. Deck Fittings

6.1 Grab rails. No pulpit or stanchions were fitted around the forward end of the vessel, but a safety bar of 25mm (1") stainless steel tube was fitted on each side deck, by the coachroof hatch. They were in good order, and securely bolted through the deck and the beam shelf: when tested with the surveyor's full weight, there were no signs of movement or working in either area.

A teak taffrail was mounted on turned stanchions fitted around the cockpit. This was sound, but in weathered condition. There were no signs of deterioration around the stanchion bases, but the structure would generally benefit from oiling, to prevent further weathering.

A grab rail was fitted on either side of the doghouse roof: this was of timber construction and securely bolted to the structure. There were no signs of movement of looseness when tested with the surveyor's weight. In addition, a stainless steel rail was fitted to stanchion bases mounted on the aft end of the doghouse: this acted not only as a grab-rail, but also as a boom gallows for the mainsail.

Fig 25 (left). *Grab bar, starboard side.*

Fig 26 (below). *Taffrail.*

6.2 Mast steps. The fore and main masts were mounted in tabernacles: one on the forward crossbeam between the bows, the other on the coachroof, forward of the doghouse. These were of timber construction, securely bolted to the structure. All parts were in good condition, with no evidence of movement or undue strain in the surrounding area, as may be seen in ***Figs 27-28*** (overleaf). Internal inspection revealed no indications of leakage in either area

It was noted that the forward tabernacle was fitted with stays to either hull, to prevent overstressing and wracking strains between the tabernacle and the crossbeam. These had been successful, and there was no evidence of strain in any part of the structure.

6.3 Chainplates. The chainplates were of 3mm (⅛") stainless steel plate, bolted to the outboard faces of the hulls. The main chainplates were extended outboard using channels at deck level, and then extended down the topsides, as may be seen in ***Fig 29***

(bottom, right). Chainplates were also fitted forward, for use with the foremast, but these were not used at this time. All were in good condition, with no evidence of movement or undue strain in the surrounding structure.

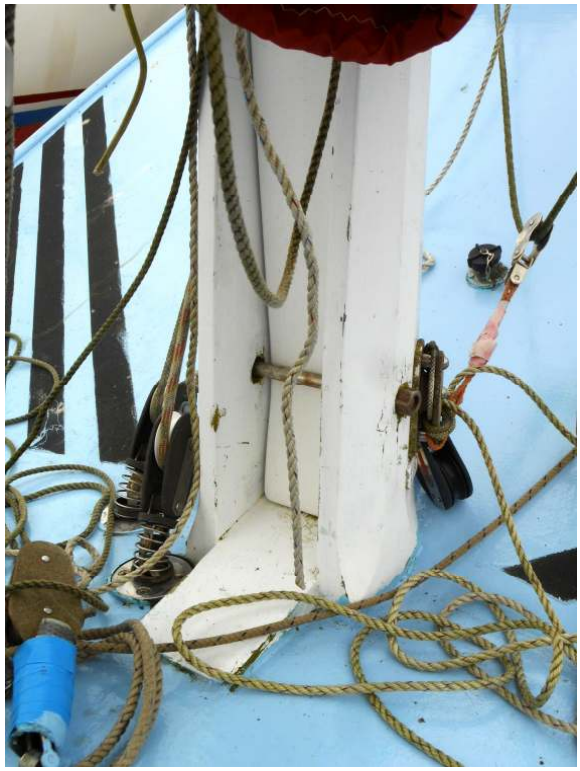

Fig 27 (above). *Foremast tabernacle.*

Fig 28 (above, right). *Mainmast tabernacle.*

Fig 29 (right). *Port chainplates for mainmast.*

6.4 Sail handing. Halyards and downhauls were led aft via cheek blocks mounted on the foremast and mainmast tabernacles. These were all in good condition and fully functional. The ropes all led back via fairleads to cleats on the doghouse roof: all were in good condition and firmly secured to the structure.

6.5 Deck equipment. The following equipment was inspected.

a. Fenders. Six large cylindrical fenders were stowed in the port forepeak, in fair to good condition.

b. Boathook. Timber shaft, in good condition.

c. Dinghy. GRP rigid type, in serviceable condition.

Recommendation

*6.1 Oil timber taffrail, to prevent deterioration (**Cat C – Structural**).*

7. Ground Tackle and Mooring Arrangements

7.1 Bower anchor. A 10kg (22lb) galvanised Bruce type anchor was carried in the anchor roller fitting on the forward end of the starboard hull. This was in good condition, with only light surface corrosion in evidence.

Fig 30. *Bower anchor.*

7.2 Bower cable. The bower cable was of 6mm (¼") stainless chain. The cable was ranged and found to be approx 30m (98') in length. There were no rusted links or connectors, and the cable was secured to a strongpoint in the cable locker using a lanyard, in accordance with best practice.

7.3 Kedge anchor and warp. No kedge anchor was on board at the time of inspection.

7.4 Mooring arrangements.

a. Forward. The vessel was fitted with a 75cm (3") teak samson post on the forward end of each hull. These were in good condition, with the end-grain on the upper surface protected against ingress using copper sheeting: there was no evidence of deterioration or movement, or any leakage to the interior.

No fairleads were fitted, as the posts were towards the outboard side of each hull, and docklines would run directly ashore.

b. Aft. Timber bar-type cleats were fitted to the frames on the interior of the transom. These were in good condition, with no sign of looseness or movement.

The freeing ports above the cockpit seating had been reinforced, so that they could act as fairleads: there was no evidence of undue chafing or strain in the surrounding structure.

Fig 31. *Cleat and fairlead, port quarter.*

c. Anchor fittings. A roller fairlead was mounted on a teak strake at the forward end of each hull. Only the starboard fitting, however, had a locking pin to retain the anchor or cable in a seaway.

A third roller fitting was mounted on the transom, to starboard of the tiller. This was of stainless steel construction, and incorporated two black nylon rollers in tandem: all parts were in good condition, with no sign of looseness or corrosion.

The bower cable was led aft within a teak channel along the starboard side of the foredeck, to prevent wear and tear to the structure. It was then led below via a forward-facing navel pipe: this was in good condition, with a functioning cover, as seen in ***Fig 33*** (bottom, left).

Fig 32 (left). *Anchor fairlead and samson post.*

Fig 33 (below, left). *Cable channel and navel pipe.*

Fig 34 (below). *Aft anchor fairlead.*

Advisory Note

7.3 Consideration should be given to carrying a second anchor, which may be tied to any long warp to form a useful kedge.

8. Steering

8.1 General. The vessel was steered with a pair of transom-hung rudders, activated by a centreline tiller in the cockpit.

Fig 35. *General view of rudders.*

Fig 36. *Detail of open seam on port rudder blade.*

8.2 Blades and stocks. The rudder blades were each formed of three layers of timber, tapered to shape. They were tested by hammer-sounding and spike testing, and found to be hard and sound, with no areas of softness or decay on the accessible surfaces. There were no cracks or shakes visible through the protective coatings, except that a joint was clearly visible at the bottom of the outboard face of the port rudder, as seen in ***Fig 36*** (above, right). No softness or deterioration was found in the vicinity but if left untreated, it may allow borers to penetrate the timber.

8.3 Bearings. Each rudder swung on two bearings, each with bronze gudgeon fittings on both sternpost and blade, all linked by a single stainless steel bar.

All parts were in good condition, with no sign of strain in the fastenings or the surrounding structure. No undue looseness was observed in the lower bearings, but approx 3mm (⅛") play was found on both upper bearings. This was

Fig 37. *Upper bearing on port rudder.*

not of structural concern, but they would benefit from re-bushing.

The stainless steel bars were retained using washers and split pins, all in good condition.

8.4 Rudder linkage. The rudders were moved by a laminated crossbar securely fastened to bearings in the top of the rudder blades. The crossbar was fitted with a hood bracket on the centreline, to which was fitted a laminated tiller. All securing bolts and washers were in good condition, with no sign of looseness or undue play, but there were signs of moisture penetration of the timber around the hood bracket, as seen in ***Fig 38*** (below, left)

As the crossbar was at the aft edge of the rudders, the tiller was fitted with a separate bearing, in the same plane as the rudder bearings. As a result, it was under much less strain than would be found in a conventional rudder arrangement. The tiller was in fairly good condition, though some moisture ingress and slight softness was noted adjacent to the hood bracket, as seen in ***Fig 39*** (below, right).

The rudders moved smoothly, with no stiffness or "hard spots" in the system.

Fig 38 (left). *Centre of crossbar, showing damp timber by hood bracket.*

Fig 39 (below). *Dampness in tiller by hood bracket.*

Recommendations

*8.2 Before the vessel is re-launched, the opening joint in the port rudder blade should be filled, using a penetrating resin, and then painted to prevent action by marine borers (**Cat B – Structural**).*

*8.3 In due course, both upper rudder bearings should be re-bushed, to prevent looseness (**Cat C – Structural**).*

*8.4 The water penetration to the cross bar and tiller should be addressed by fully drying the areas out and treating with an anti-rot agent and wood hardener, before fully re-painting, to prevent further ingress. The condition of these areas should be regularly monitored, so that any recurrence is caught early (**Cat B – Structural**).*

9. Sailing rig

9.1 General. The rig was a junk-rigged schooner. Two masts (fore and main) were rigged at the time of inspection, but a third (mizzen) could also be rigged in a socket aft.

9.2 Masts. The foremast was a circular-section, deck-stepped, silver-anodised alloy spar, while the mainmast was a similar timber spar. Both were good condition, with no visible signs of crushing or deformation in way of the tabernacle. It was noted that a layer of blue whipping had been fitted to the bottom of the foremast, to prevent chafing, as seen in ***Fig 27*** on p.20.

In addition, the mizzen mast was not rigged at this inspection, but was stowed in the starboard forepeak: it was in good condition, with no cracks or signs of undue deterioration.

9.3 Standing rigging. The standing rigging consisted of four stays to the truck of the mainmast. There were three stays to the forward tabernacle, as seen in ***Fig 27*** on p.20, but the foremast itself was free-standing, despite chainplates being noted on the outboard face of the bows.

The standing rigging all consisted of 5mm 7x7 stainless steel wires, of unknown age. All were in good condition, with no sign of corrosion, kinking or broken strands. The wires were all terminated using Talurit splices with copper ferrules and stainless thimbles. There were no signs of any discolouration or corrosion around the terminals, which were observed as being tight and well-made, with no sign of misalignment.

9.4 Deck connections. The main shrouds were tensioned using closed-body stainless steel bottlescrews. These were in good condition, with no evidence of bends, cracks or corrosion in the body. The screw threads were locked using split pins: these had not been taped over. Pairs of shackles were fitted below each bottlescrew, as seen in ***Fig 40*** (right): these acted as toggles, so that they could properly align with the angle of rigging strain. They were in good condition, but had not been moused with wire, so that they could loosen with vibration.

The light rig and wide shroud base make for a very low rigging tension: there was no sign of undue strain, and all visible parts are capable of further service.

Fig 40. *Detail of bottlescrew attachment.*

9.5 Sails. The following sails were on board at time of inspection. It should be noted that, due to the wind, the rolled sails could not be fully hoisted for inspection, but were unrolled as far as safely practicable:

a. Mainsail. Tan terylene. This was in good condition, with no rips, tears or

undue chafing. All battens were in good condition, and there was no undue chafing between the parrels and the mast.

b. Foresail. White terylene. This was also in good condition, with no undue chafing, but was somewhat older than the mainsail.

c. Mizzen. White terylene. In good condition, but not rigged at this time: there were no visible unrepaired rips or tears.

None of the sails was fitted with a protective cover.

9. 6 Running rigging. Halliards and sheets were of 8mm braided polyester: all were in weathered condition, but suitable for further use.

Recommendations

9.4 The split pins in the bottlescrews should be taped over, to prevent injury on the sharp ends.

*The shackles securing the shrouds should either have their pins secured by mousing wire, or be replaced by toggles / clevis pins (**Cat C – Structural**).*

Advisory Note

9.3 Older photographs show this vessel with a timber foremast, supported by stays to the forward chainplates. Consideration may be give to re-installing these, to prevent undue strain to the forward tabernacle.

9.5 Covers should be fitted to the sails when not in use, to prevent weathering of the material.

10. Mechanical propulsion

10.1 General. The main engine was a single outboard motor, fitted to the aft end of the bridgedeck between the hulls. No dismantling of the engine or associated equipment is carried out within the scope of a condition survey, so no detailed comment upon the internal parts is possible, nor can an estimate of life expectancy be given.

10.2 Motor. The outboard motor was a Yamaha 9.9 4–stroke long shaft unit, serial number 66RKX1000172K. This was a twin-cylinder, naturally aspirated and raw-water cooled, rated to 7.3kW (9.9hp) at 5500rpm. It was in all respects in good condition visually. With the cowling removed, it was found to be very clean, with no evidence of cracks or corrosion, as may be seen in ***Fig 41*** (right). There was no evidence of cross contamination of the oil and water systems, and the electrical system was in good order.

Fig 41. *Motor, with cowling removed.*

The motor turned over easily, and compression could be felt when rotated by hand. The gears were easily engaged using the single lever control at the helm position.

The outboard leg was of the long shaft type: the alloy casing was in good condition, with no sign of impact damage to the bottom, or of any corrosion or galvanic action in any underwater part.

The propeller was a three-bladed, 250mm (10”) diameter, fixed-pitch, right-hander, cast in aluminium alloy. It was visually inspected and sound-tested with a light hammer. It was in good condition, with no evidence of cracks or corrosion in any part.

The motor was controlled by Morse cables from a single lever control by the helm position. Though functional, they were noted to be corroded, with splits in the sheathing, as seen in ***Fig 42*** (right), and may seize at any time.

Fig 42. *Corrosion in throttle and gear control cables.*

10.3 Installation. The motor was securely clamped to a substantial timber beam across the forward end of the outboard well. This opening allowed sufficient space for the motor to be tilted upwards, so that the propeller could be lifted clear of the water when the vessel was under sail. The gap was sealed using

timber lids, as may be seen in ***Fig 20*** on p.16. All parts were in good condition, with no signs of deterioration, and there was no evidence of strain in the surrounding structure.

10.4 Fuel tank. The main fuel tank was of roto-moulded polyethylene, of approx 12 litres (2.6 gal) capacity. It was in good condition, with no sign of leakage. When in use, it would be fitted in the port aft corner of the cockpit; otherwise, it was stowed in the gas locker under the bridgedeck (see ***Fig 45*** on p.32).

There was no deck filling attachment, as the tank was portable, and would be removed from the vessel for filling.

The fuel supply line was of co-extruded marine safety hose, incorporating a pressure bulb and a fuel filter. All parts were in good condition, with no visible indication of leakage, kinks, perishing or deterioration.

Recommendations

*10.3 The cables for the throttle and gear controls should be replaced (**Cat B – Mechanical**).*

11. Accommodation and On Board Systems

11.1 General. The vessel was well laid-out, providing basic accommodation for two. The fit-out was basic, with only structural woodwork; the only furnishings were the berth cushions in the aft cabins.

11.2 Electrical system.

a. 12V. The 12V electrical system was powered by two batteries: a 65Ah unit for domestic systems, and a 44Ah battery for engine cranking. Both were located under the starboard companionway; they were found to be in good condition, holding sufficient charge to test all systems. The batteries could be charged either by the engine driven alternator (10A) or by a Sterling 1220 battery charger on the 240V system.

The batteries were isolated using a 4-way rotator type switch located adjacent to the stowage. Two main fuse panels were fitted: one in the doghouse to control the instruments, and one by the chart table for lighting. It was noted that, where visible, electrical cables were in good condition and were well clipped-up.

b. 240V. A basic 240V system was fitted, supply via a waterproof socket in the starboard forward corner of the cockpit. An RCD was fitted, and the system supplied a battery charger and sockets within the accommodation.

11.3 Electrical testing. The following systems were supported:

a. Navigation lights. The following lights were carried:

i. Side lights. The port and starboard lights were separate lanterns, of standard proprietary design (Hellamarine 5A), fitted to the outboard side of the each hull, below the mainmast chainplate channel. Both were observed lit.

ii. Stern light. Similar sectored white light mounted on the centre of the transom. Observed lit.

iii. Steaming light. Similar sectored white light, mounted on the forward face of the foremast tabernacle. Not lit.

iv. Tricolour light. Wired to mainmast head, but fitting missing.

Arcs of visibility were not calculated, nor were ranges of visibility, but this type of light is rated to a nominal range of 2nm for white, 1nm for coloured, and is therefore sufficient for a vessel of this size. The sectors of the lights overlapped slightly, and there were no directions from which no light would be visible. It was noted that the chainplates did not obstruct the side lights.

b. Electrical navigation instruments. The following were fitted and tested at this inspection:

i. VHF. A Standard Horizon Eclipse DSC+ was in good condition and functional.

ii. Depth. A Nasa Clipper echosounder system was fitted. It was functional, but was not calibrated during this inspection.

iii. Wind. A Navman wind indicator was fitted, with an anemometer at the mast head. This direction was fully functional.

iv. GPS. A handheld GPS unit had been removed for the duration of

the refit.

c. Domestic systems. The internal lighting was in working order.

11.4 Non electric navigation instruments.

a. Compass. The principal navigation aid was a Ritchie Powerdamp magnetic compass. This was in good order, and swung easily.

b. Foghorn. Compressed-air type, in good condition, with spare canister.

11.5 Water system. The fresh water system was supplied by a 20 litre (4.5 gal) jerry can mounted under the galley sink. From the tank, the water was pumped through a food-quality vinyl hose, directly to the Whale handpump / tap at the galley sink. The system was checked for leaks or abrasions to pipes, but none was found.

11.6 Cooker. The cooker was a gas-fired Plastimo hob with twin burners. This was in good condition, and was observed working this inspection. It was not gimballed.

Fig 43 (below). *Galley, with cooker.*

Fig 44 (right). *Heater.*

11.7 Heater. A small solid-fuel heating stove was fitted in the port hull, just forward of the galley. It was in good condition and well installed, with a stainless steel plate underneath, to prevent head damage. The chimney was well-insulated (preventing inadvertent scorching), and there were no signs of leakage where it passed through the cabin top.

Recommendations

*11.3.a Rectify defects on navigation lights (**Cat C – Safety**).*

12. Safety Equipment

12.1 Bilge/salvage pumps. Nil fitted.

12.2 Electrical system.

a. Battery stowage.
i. Security. The batteries were fully restrained by a tight-fitting box, and could not fall over in the event of heavy weather. However, they were not strapped down.
ii. Terminal protection. The battery terminals were protected against the chances of accidental shorts by the under-berth hatch cover.

b. Switches, fuses and wiring.
i. Isolation switches. A single 4-way rotator type switch isolated both battery circuits.
ii. Switchboard / fuse panel. Two switchboards were fitted: one in the forward end of the doghouse, the other by the chart table. These included fuses to protect the main circuits from overload.
iii. Routing. No electrical cables were run below the level of the cabin sole.

c. 240V system. The shore supply was fitted with an RCD (consumer unit) to prevent overloading of the system.

12.3 LPG installation.

a. Gas stowage. The stowage was a GRP-lined plywood box with a lid, forming a bridgedeck between the cockpit and the companionways, as seen in ***Fig 45*** (right). It was in good condition, with no signs of strain, and was fitted with a drain 0on the underside, so that any escaping gas would vent to the exterior between the hulls.

b. Piping. The piping between the stowage and the galley was of copper and in good condition, with nom sign of corrosion. The bottle was linked to the system using orange high-pressure hose manufactured to BS3212:1991: it was in good condition, with no perishing of the rubber or corrosion in the clips.

Fig 45. *Gas stowage.*

12.4 Fire prevention and extinguishing. A single extinguisher was carried in the galley. This was a 1kg capacity dry powder type, rated to 34B. It was in good condition

visually, but there was no evidence of servicing since manufacture in 2002.

No fire blanket was on board at time of inspection.

12.5 Outboard and portable engines.

a. Fuel tank.

i. Material. The fuel tank was of an approved material (fire-resistant roto-moulded polyethylene).

ii. Filling arrangements. It would be removed from the vessel for filling, and there was no risk of fuel spillage finding its way to the bilge.

b. Fuel line.

i. Material. The fuel line was of co-extruded marine safety hose, incorporating a pressure bulb and a fuel filter.

ii. Routing. The fuel line was not led through the bilge or close to any hot components.

12.6 Pollution and sanitation. The toilet was a Portapotti 365 chemical type. It was in good condition, with no signs of leakage or spillage.

12.7 Life saving equipment. The following life-saving equipment was on board at time of inspection:

a. Lifebuoy. Yellow horseshoe type, carried on the cockpit taffrail.

b. Throwing line. A Plastimo throwing line was in a purpose-made bag, and was in serviceable condition.

c. First Aid kit. Well stocked, located in galley.

d. Flares. Coastal pack, expired in 2014.

Recommendations

*12.5 As this craft is fitted with a cooker and an internal\combustion engine, at least two in-date fire extinguishers should be carried and be readily accessible/visible. They must conform to BS5423 or EN3, have a minimum rating of 5A/34B each, and a minimum combined rating of 13A/89B. The present extinguisher should be serviced or replaced, and supplemented by an additional larger extinguisher, rated at least 8A/55B. In addition, a fire-blanket should be mounted within reach of the cooker (**Cat B – Safety**).*

Advisory Notes

12.1. The fully subdivided construction of the hulls, the lack of ballast and the reserve of buoyancy should be sufficient to keep the vessel afloat in the event of a leak occurring. That said, it would be advisable to carry a portable bilge pump or a pair of stout buckets, to control any leakage that occurs, or to evacuate the bilge of any spray or water that may come on board in a seaway.

12.7 A full review of safety equipment should be undertaken, using Royal Yachting

Association booklet C8/02 "Boat Safety Handbook" as a guide when outfitting the vessel with life saving equipment suitable for the type of cruising and size of crew intended.

Automatic floating lights should have new batteries at the start of each season, and be tested frequently to ensure their performance in an emergency.

C. SUMMARY OF RECOMMENDATIONS

This is a précis only. For full details of recommendations, please refer to details under individual paragraph headings in the main report of survey.

Cat A Safety Items requiring immediate attention.

Nil

Cat A Structural Items requiring immediate attention.

Nil.

Cat B Safety items requiring priority attention.

12.5 Service / replace fire extinguishers.

Cat B Structural/mechanical items requiring priority attention.

1.3 Treat / re-preserve keels.

5.2 Repair starboard aft hatch.

8.2 Seal open joint in port rudder blade.

8.4 Treat / repaint deterioration in rudder crossbar and tiller.

10.3 Replace engine control cables.

Cat C Safety items requiring attention in normal course of maintenance.

11.3.a Rectify defects on navigation lights.

Cat C Structural / mechanical items requiring attention in normal course of maintenance.

5.3 Seal edge of starboard coachroof window frame.

6.1 Oil taffrail.

8.3 Re-bush upper rudder bearings.

9.4 Tape over bottlescrew split pins and secure shackle pins with mousing wire.

All other items mentioned within the text may be considered for prioritisation within an on-going maintenance plan.

D. CONCLUSION

This is to certify that the undersigned attended the junk-rigged catamaran

PELICAN

on 14 January 2016, to ascertain the General Condition of the vessel's hull, machinery and equipment.

The vessel was an unorthodox design of unknown provenance, but with an accent on stability and shoal draft rather than speed. She had been very well constructed, using good-quality materials.

1. Hull, deck and fittings. The hulls, basic structure and fittings were in very good condition with no visible signs of unrepaired damage, rot or deterioration that would prejudice their strength or integrity, except for the starboard cockpit hatch lid.

2. Steering gear. In good condition, except for slight softness in tiller and crossbar.

3. Mechanical propulsion. Good condition, visually but not run. Corroding control cables should be replaced.

4. Rig. In good order.

5. Gas system. Good condition.

6. Equipment. The vessel was quite basically fitted-out, but had adequate safety and navigation equipment for safe coastal sailing.

7. Valuation. The vessel is recommended to Underwriters as an Insurable Risk at an Estimated Market Value of approx £8,000.

There has been no inspection of woodwork or other parts of the vessel that are covered, unexposed or inaccessible. It cannot, therefore, be reported that any such part of the vessel is free from defect. This survey is a factual report based on the inspection carried out, and the opinions expressed are given in good faith as to the condition of the vessel as seen at the time of inspection. East Anglia Yacht Surveys Ltd cannot safeguard against, and imply no guarantee, and will not be liable for latent defects, subsequent defects and/or defects undiscovered due to inaccessibility by reason of panels, internal structures or other items, or agreement and permissions not being given to the surveyor to gain access to closed off areas during the above inspection.

The Fair Market Value given herein is defined as the highest price that can be obtained by a willing seller from a willing buyer, with neither being compelled to sell or buy, and the subject vessel having been offered on the open market for a reasonable time. The valuation is based upon industry pricing guides, currently listed asking prices, and current market conditions. Valuations are provided for use by underwriters and lenders only and do not constitute any guarantee that these figures are attainable in future markets. They are subject to prevailing economic conditions, both general and local patterns of competition and consumer intensity. Parties having a secured interest in the vessel should periodically review the valuation basis, in order to protect their financial interests.

Signed without prejudice
For, and on behalf of, East Anglia Yacht Surveys Ltd

D D G BUCKLEY AssocIIMS
DipMarSur (Y&SC)