Heron Buying Guide

The Heron dinghy has been sailed in Australia since the late 1950s. Boats of varying ages and condition are offered for sale through the state associations, Gumtree, Facebook Market Place and eBay. The following guide is designed to give the buyer some information on the variations that can be found in Herons that come onto the market.

Hull:

First of all, the NUMBER.

- Most, but not all, Heron hulls were registered with the National Heron Sailing Association of Australia (NHSAA) when built, and allocated a number. The number is carved or drilled into either the front deck beam, the transom beam or the king post (upright beam below the mast step).
- The number can give a good indication of the age of an older boat. The following table shows the last number issued in each season up until 1991-92:

Year	Number	Year	Number	Year	Number
1955-62	3254	1970-71	8274	1980-81	9742
		1971-72	8532	1981-82	9761
1962-63	3817	1972-73	8763	1982-83	9781
1963-64	4485	1973-74	8973	1983-84	9909
1964-65	5178	1974-75	9162	1984-85	9933
1965-66	5890	1975-76	9263	1985-86	9946
1966-67	6545	1976-77	9483	1986-87	9964
1967-68	7100	1977-78	9559	1987-88	9980
1968-69	7648	1978-79	9634	1988-89	9994
1969-70	7991	1979-80	9689	1989-90	10108
				1990-91	10113
				1991-92	10125

- Hulls that are not numbered can be registered and issued with a number if they meet measurement criteria. These hulls will be issued a new number that does not reflect their true age. Multiple nationals winner 10251 A Power is an example of this. Her construction was started sometime in the 1960s but she was not measured, registered and allocated a number until around 2008.
- The number on sails that are sold with older boats are often different from the boat number, due to the sale and purchase of second hand sails. A numbered sail sold with a boat that is not numbered does not mean that the boat has been registered.
- Boats that are not numbered carry a greater risk of not complying with measurement criteria and not being built down to weight. Both of these factors can be difficult to modify.

Next, CLASSIFICATION.

- Herons classified A meet all measurement criteria for the class. These boats can race in any Association competition event.

- B class Herons do not meet all measurement criteria and cannot enter Association Championship events. Some B class boats can require extensive work to meet measurement criteria and gain A classification.
- Evidence that a wooden hull meets A class requirements is valuable (e.g. copy of a completed measurement form signed by a measurer). If the owner cannot produce evidence and the hull is numbered, check with the Association Registrar (registrar@heronsailing.com.au) to see if a file entry for the hull exists. If no history can be traced or the hull is not numbered, check the hull measurements against the tolerances shown in the form at http://heronsailing.com.au/Measurement_Form_0414_2.pdf
- Fibreglass hulls will almost always meet A class measurement criteria. There are, however, several rogue fibreglass hulls in Australia that are offered for sale from time to time, apparently built at a Sydney Technical College in the early 80s. One has sail number 9709 and is named Horizontal. These hulls can be distinguished by a rear buoyancy tank and side tanks that extend only as far forward as the front thwart. These boats will not meet A class measurement criteria.
- Hulls that have met A class criteria and have not, in the opinion of a measurer, been modified, can be granted A classification without a full re-measure.

And Then – Desirable Characteristics For Racing: Light, Stiff and Smooth.

- To be competitive, a Heron hull should be close to the 66kg minimum weight. A hull can be weighed by turning it upside down and placing bathroom scales under the transom and then the bow. The two readings are added together to give the total weight. Alternatively, the boat can be balanced on its side on bathroom scales (the scales must be on a hard surface).
- Heron hulls are weighed with the centreboard, floorboards and any fittings secured to the hull by screws, bolts or rivets in place. Everything else (paddles, bailing buckets, jib sticks, ropes etc) is removed before weighing. Hulls under the minimum weight must carry lead correctors under the front thwart to bring them up to 66 kg.
- It is possible to remove weight from an all-timber Heron. However, extensive rebuilding may be required. Often, weight has been built in through the use of heavy framing timber (e.g. meranti) instead of lighter western red cedar, and heavy ply. It is very difficult to reduce the weight of these hulls.
- Removal of weight from an all fibreglass hull can be carried out by removing the gel coat using aggressive sanding discs (e.g. Mirka Abranet) and then refinishing the hull using lighter material.
- The bottom of a Heron hull should be reasonably stiff and not deflect when reasonable force is applied. Timber hulls are normally well braced through framing and (sometimes) extra longitudinal stringers but can become soft due to water entry into the wood structure and loss of glue integrity. Some fibreglass hulls (especially early full layup fibreglass boats) can become soft due to wave pounding between the bow and the forward buoyancy tank bulkhead. Repairs can be made (see fibreglass hull section) but the original stiffness may be difficult to regain.
- The bottom of the hull should be fair and smooth. Hulls with major bumps should be avoided. Sanding and fairing of wooden hulls can be carried out as long as the ply is in good condition. The bottoms of fibreglass hulls may be chipped and scratched through rough handling. Repairs to the gel coat can be carried out.

Does Shape Matter?

- Despite the tight hull measurement tolerances there are subtle differences in shape between hulls.
- Certain hull shapes appear to have advantages in some conditions on some points of sailing. However, these advantages are usually small compared with the differences generated by the ability of the skipper.

And Now On To The Major Hull Categories – Timber And Fibreglass:

Timber:

- Until the commencement of jig building (stitch and glue) in around 2003, timber hulls were all built using traditional ply on timber frame construction.
- Up until the mid 1970s, timber hulls were made with resorcinol glues and ring shank nails or brass screws. The glue can fail in older boats, leading to loss of structural integrity (especially if boats are lifted or handled on or near shore when full of water). Water can enter ply and timber through poorly sealed nail or screw heads, causing rot and damage.

Buoyancy bag in bow

- Later wooden hulls were made with epoxy glues. These hulls are more likely to maintain structural integrity.
- Very early hulls relied on blow up buoyancy bags for flotation rather than built in buoyancy tanks. Often, these bags have deteriorated or are not sold with the boat.

Rubbing strips on bottom

- Boats must not be sailed without some form of internal flotation (intact, well attached bags or built in buoyancy). Hulls without buoyancy are very dangerous and will sink when capsized.
- New buoyancy bags are difficult to find and may need to be custom made at some expense. Building buoyancy tanks into an older hull is possible but requires carpentry expertise.
- Bag buoyancy must be well attached to the hull structure. If not, the bags will simply lift out of the boat when it is capsized.
- Some early hulls carry rubbing strips on the bottom. These are still required on UK Herons but were dropped from Australian Herons at a very early stage. The strips create considerable drag and must be removed from any hull under consideration for competition.

Slat seats and floorboards, rear buoyancy tank

- Early hulls have slat seats and floorboards. The slats are functional but can be uncomfortable and trap feet, hands and ropes. Later boats have plywood seats and floorboards. Replacement of slats with plywood seats and floorboards can save weight and increase comfort but requires some carpentry expertise.
- Built in buoyancy tanks were fairly generally adopted in the 1960s. These were usually in the form of a full height tank forward of the front deck beam and a half height tank at the rear. This was an improvement on bag buoyancy but still allows the hull to retain a considerable amount of water after a capsize.

Ply seats and floorboards. Note extra bag buoyancy under side seats

- Later wooden hulls (after 1980) have half or full height built in tanks in the bow and half height side tanks (usually built in timber but occasionally built from moulded fibreglass, mainly in SA). This configuration takes up a minimum of water in a capsize. In addition, the side tanks add considerable strength and rigidity to the hull structure.
- A number of earlier wooden hulls have been converted to side tank buoyancy. This can be done to any wooden hull but requires a degree of carpentry skill.
- Jig building of wooden hulls was introduced in around 2003. Jig built boats have a longitudinal and transverse plywood frame in the front tank. Jig built hulls have proven to be both strong and light. This hull construction method is often referred to as "stitch and glue", but a chine stringer is often used so it is not true stitch and glue construction.
- There may be some wooden hulls in WA with fibreglass decks.
- Some wooden hulls are sheathed with a light fibreglass cloth and epoxy resin. This protective covering assists with hull stiffness, durability and smoothness. Combined with two pack paint, fibreglass sheathing minimises maintenance of the hull bottom.

Side tanks in a wooden boat extend from the front buoyancy tank to the transom

Bow of a jig built boat showing the longitudinal and transverse plywood frames in the front tank.

Fibreglass (or Glass Reinforced Plastic/GRP) Hulls:

- There are two main groups of fibreglass hulls:
  - Mk I – from number 9171 (1975) to 10107 (1990).
  - Mk II – from number 10114 (1991) to present.
- Both these hull types can be found with either wooden or fibreglass decks. GRP hulls with timber decks are referred to as composite boats.

- Both the Mk I and Mk II hulls are made from female moulds taken from Association owned plugs. A prototype GRP hull (10238) was constructed on a male mould in WA in 2006. The construction method was not approved. However, this hull was given grandfathered A class status.
- All GRP hulls carry a State identifier, mould number and hull number on the transom underneath the top rudder pintle fitting. For example S 2 44 indicates South Australia, second mould and hull number 44 from this mould. Sometimes, this identification is difficult to make out due to transom repairs.

Mk I:

- The Mk I GRP boat was designed to be in the middle of measurement tolerances. The result is a hull that has significant rocker (the hulls are sometimes called "banana boats"). It is considered to perform well in lighter weather, especially to windward, but can require more breeze to plane off the wind than boats with less rocker.
- Early boats were made with full layup (i.e. not foam sandwich) and were found not be strong enough to withstand pounding in rough sea conditions. The bottoms of these boats can be soft between the bow and the front buoyancy tank wall as internal stiffening structures have failed. Repairs to rails and stringers with resin and fibreglass cloth can be carried out through the front buoyancy tank hatches (it may be necessary to install another hatch if there is a hatch only on one side of the tank).
- Later Mk 1 boats were made using foam sandwich construction. However, the outer GRP skin can be very thin and easily pierced. Once water enters the sandwich structure, it is almost impossible to remove. Repairs trap the water in the hull, and the boat is heavy.
- The skegs on Mk I boats are hollow. Wear of the skeg over time can allow water entry into the internal void, adding to weight. Some boats have a drain plug for the skeg that empties into the boat. The boat needs to be inverted and lifted at the bow for this drain plug to work.
- Composite hulls can be found with the GRP in good condition but significant deterioration of the wooden deck structure. Replacement of the deck is possible but requires carpentry skill.
- All Mk I GRP hulls were originally made with a half height front buoyancy tank. This allowed storage of gunter rig spars (mast, gaff and boom) within the hull. Several MK I hulls have now been converted to full height front buoyancy, with or without removal of the top of the old half height front buoyancy tank.
- The Mk I plug was destroyed by fire in 1989. Instead of replacing it with a new plug of the same shape, NHSAA decided to make a new plug – the Mk II.

Mk II:

- The Mk II hull shape was taken from 9969 Hornet, a well performed wooden boat. Hornet was known to be at the flatter end of the measurement tolerances (less rocker).
- The plug was taken without any correction of the asymmetry inherent in Hornet's hull. Therefore, the chine to centreline measurements on either side of Mk II hulls (up until the plug was corrected in 2009) are not identical. This does not appear to affect performance.

- Mk II GRP boats have won a number of National Championships and are known as good all round hulls. The flatter shape allows them to plane earlier than boats with more rocker.
- In 2009 the Mk II plug was trued by Andrew Baker in Adelaide. Mk II boats built from moulds taken from the new plug (e.g. hulls made by Dinghy Sports) are essentially the same shape as older Mk II hulls but are symmetrical.
- Around seven GRP hulls with integral floorboards were built around 2002 by Don Rantanen in South Australia (sail numbers in the range 10220-10230). This floorboard design was initially allowed. However, permission to build in this way was later withdrawn. The hulls that had already been built were given grandfathered A class status.
- Mk II hulls have been built with both half height and full height front buoyancy tanks. Half height tanks can be converted to full height if desired, with or without removal of the tank top.

Carlin Measurements (Fibreglass and Timber Boats):

- The distance between the carlins (inner edge of the side decks) towards the front deck beam can be critical. Carlins that are closer to the centreline of the boat will allow the headsail (jib or genoa) to be sheeted at a finer angle. Boats with a finer sheeting angle may be able to sail closer to the wind when sailing to windward.
- The minimum distance between the carlins at the front deck beam (frame 2) is 550mm. The carlin to carlin distance can be considerably greater than 550mm in both GRP and timber boats. If this is the case, the carlins may need to be modified to obtain the minimum distance between sheeting points (735mm for a jib, 800mm for a genoa), which gives the finest possible sheeting angle.

Fittings:

- Compared with other classes, the Heron is not an expensive boat to fit out. Renewal of all fittings in a purchased boat can be carried out relatively easily.
- It may be possible to continue using most of the fittings found on older hulls. It is, however, best to have the following:
    - Reliable jib sheet cleats
    - A good ratchet block for the mainsheet
    - At least one effective, relatively large, modern venturi style bailer. Older self bailers often will not work when sailing at lower speeds and will not empty water from the boat after a capsize when sailing to windward.
    - A powerful boom vang cleated on either side of the front thwart for easy adjustment.
- Older boats may have the track, fairlead and cleats for the jib located aft of the chainplates (the attachment points on the hull for the stays). This track position was required for the old style high cut jib (see picture under sails). Low cut deck sweeper jibs now in general use require the track to be placed forward of the chainplates either along the carlin (inner edge of the side deck) or running outwards at an angle from the carlin towards the gunwhale.

Old style jib fairlead track position shown in circle.

Foils:

- The foils (rudder and centreboard) found in Herons vary from home made painted plywood units to professionally made foam or timber and fibreglass construction (e.g. Freddy Foils, YMS, Botterill).
- It may not be possible to swivel older rudder blades to a vertical position in the rudder stock. These blades were made to comply with an old rule, since changed. It is possible to obtain full rotation (so that the forward edge of the rudder blade is parallel with the front to the rudder stock) by removing a small piece out of the rudder blade head. This makes the boat much easier to steer.
- Heron rudder blades are susceptible to breakage in heavy winds when sailing on a reach. Blades should be inspected for horizontal cracks in the head just below the rudder stock.
- Some device to hold the rudder blade in the down position is desirable. The best system uses a cord attached to the front of the rudder head that passes through the rudder stock and is cleated under the tiller.
- Early boats will have rudder stocks made from ply. Later boats may be fitted with cast alloy stocks.
- Heron centreboards are generally not prone to failure, unless excessive leverage has been applied to the centreboard to right a boat when capsized. A smooth, stiff centreboard with a good aerofoil shape is a good asset.
- Systems to hold centreboards in position using ropes, pulleys and cleats are often used. Alternatively, devices that generate friction between the centreboard and the inner sides of the centreboard case (compressed hose in the top of the board or pads around the pivot point) will hold the board in place.
- The centreboard pivot bolt can often be a source of water leakage in Herons. Check the area around the pivot point for rot. It is best to use a large stainless steel washer coated on the inner surface with silicon on each side of the case to make a good seal.

Spars:

- Herons are sailed with two mast types.
    - Gunter – this is the traditional Heron rig. It uses a short mast and a separate gaff, which is raised on the mast with a halyard.
    - Bermudan – introduced in 2008. This rig uses a conventional single mast structure.
- Both types of rig are used in racing. There is no advantage associated with either rig.
- Earlier boats will have traditional gunter rig spars comprising a wooden mast, gaff and boom. Boats with a newer gunter rig will have an aluminium tube mast and boom, with a wooden gaff.
- Bermudan rig boats will have a mast with a base made from aluminium tube. The top may be tapered or untapered aluminium tube, tapered fibreglass tube or tapered wood.
- Nearly all newer boats have a boom made from aluminium tube.
- There is no distinct speed advantage or penalty associated with any of these rigs. Sailors make choices based on ease of rigging, durability, maintenance requirements and match of spars to sails.
- A jib stick or pole is used to hold out the headsail when sailing down wind. This pole can be stored on the boom and operated using a launching system or can be stored in the boat and raised manually.

Sails:

- Heron rules require sails to be made of woven cloth.

- One size of mainsail is allowed. Two headsails may be used – a jib for crews under 125 kg combined weight and a genoa for crews over 135 kg combined weight (or over 125 kg plus lead weights to give 135 kg).
- Genoas are larger than jibs and have two small battens in the leech (trailing edge of the sail).
- Jibs and genoas often have a clear window built into them to improve vision. This is very desirable in larger fleets.
- All sails used on boats sailing in Association events must be measured. Sails that have been found to comply with class measurements carry a measurer's signature and date. Re-measurement of a complying set of sails is generally not required.
- Some boats may be offered for sale with old style high cut jibs. These are less efficient than deck sweeper jibs. Changing to a deck sweeper jib will require relocation of the jib fairleads as discussed under fittings.
- Sails in good condition showing minimal creasing and stretching will assist performance.

High cut jib showing sheeting point behind chainplates. Gunter rig

Deck sweeper jib sheets in front of chainplates. Gunter rig

10232 and 10241 are sailing with genoas and Bermudan rigs, while 7814 carries a jib on a gunter rig. Note the clear windows in genoas and jib.