

# ***WILD DUCK (BLUE TEAL)***

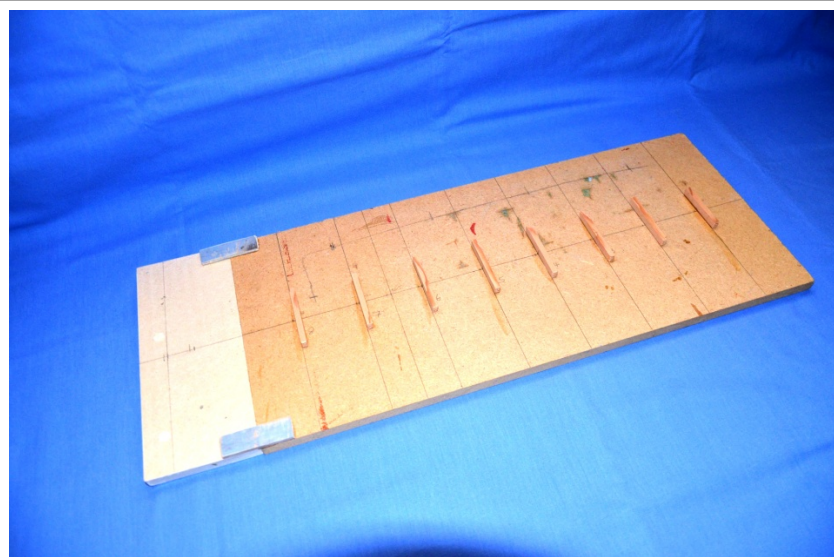
Late in 2021 I was approached by Chris Jackson with a request to build a model yacht. He had come across an article in an old Model Boat Magazine (July 2017) for a small sloop which had been designed and built by Ray Woods, it was called 'Wild Duck'.

After a short discussion and having read the article in Model Boats, I agreed to build it on the bases that Chris would purchase the laser cut wood pack and plans kit from Sarik Hobbies. In the mean time I located the article from my store of Model Boat digital issues and copied it for reference purposes.

Being the Christmas period there was a slight delay of a few weeks before I received the kit (January 2022) shown in **Photo 01**. This allowed me to inspect the wood pack, study the plans and take another look at the article.

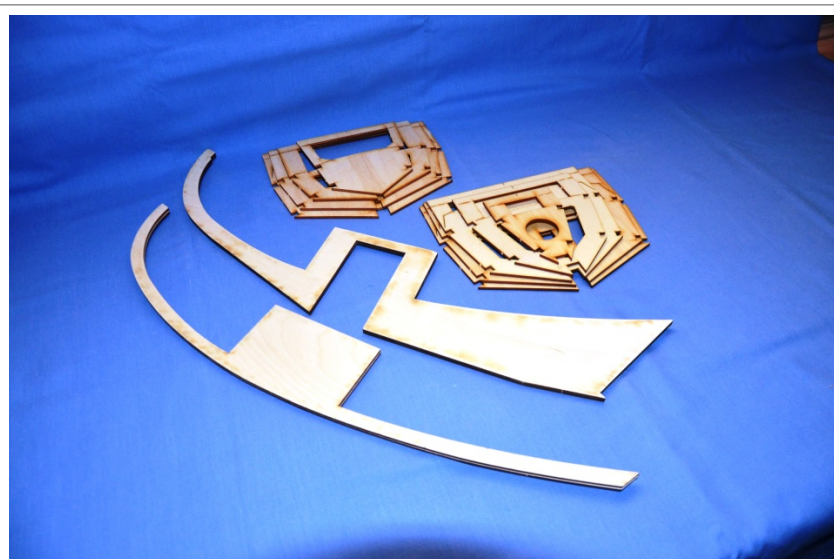


**Photo 01.** The Kit of Parts



**Photo 02.** Assembly Jig

My first job was to construct an assembly jig to support the bulkheads during the hulls construction in accordance with the Ray Woods article (**Photo 02**) this is to ensure that each bulkhead is positioned correctly along the hulls centre line. With the jig assembled it allowed me to proceed with the removal of the bulkheads and the keel from their frames using a Stanley knife to cut the tiny joins left in the laser cut plywood. The removed parts can be seen in **Photo 03**.



**Photo 03.** Laser Cut Parts Removed

With all the main bulkheads removed I was now ready to begin assembly. Each bulkhead was positioned up against a guide attached to the jig and spot bonded into position (**Photo 04**).



**Photo 04.** Bulkheads Spot Bonded to Assembly Jig

The three layers of the keel were bonded together and trial fitted into position between the slots in the bulkheads. Unfortunately the slots in the two aft bulkheads B6 and B8 had not been laser cut wide enough to accept the keel width, requiring them to be modified (increase the width of the keel slots B6 and B8). With the modifications carried out it allowed the keel to be fitted into its required position after some minor trimming of the bulkhead slots. With this completed the aft bulkhead Transom was fitted and glued into position **Photo 05**.



**Photo 05.** Bulkheads and Keel Bonded into Position





**Photo 06.** First Layer of Stringers Fitted

The Chine and Gunwale stringers were next to be fitted, being made up of two layers of 6x3mm thick obechi strips. This required some trimming of the slots in the bulkheads in order for the stringers to sit neatly in position **Photo 06** shows the first layer of stringers fitted and glued into place.

**Photo 07** shows the second layer of stringers formed and glued into position over the first layer, this provides added strength. When all the glue joints had dried the frame work was sanded down to ensure the stringers were level with the edges of the bulkheads and ready to receive the outer skins.

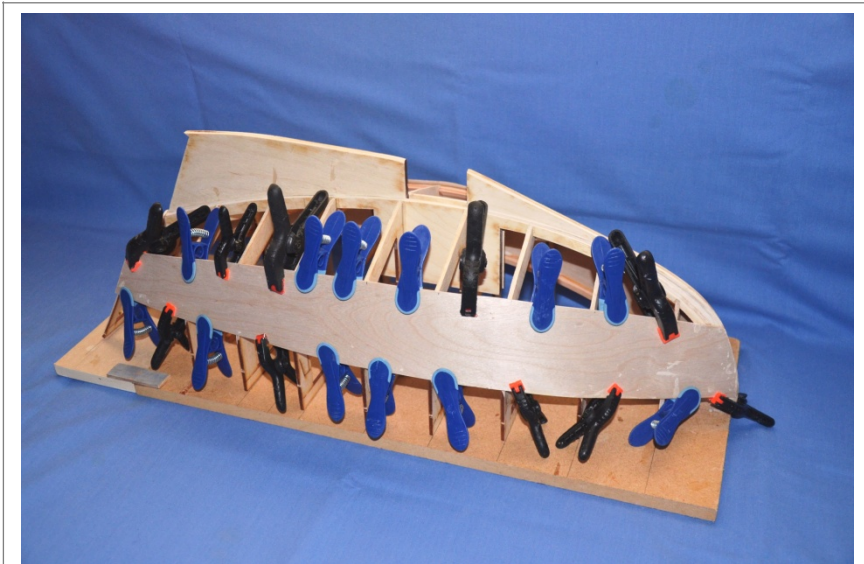


**Photo 07.** Second Layer of Stringers Fitted

I made templates for the hull's outer skins using cardboard obtained from cereal packets. Initially cutting the cardboard to the approximate required shape and then placing the

card over the hull and marking the card against the shape of the frame using a sharp pencil.

Using the card template for the side of the hull, I marked a sheet of 1mm plywood to the required shape and cut it to size using a Stanley knife. The cut sheet was offered up to the hull to verify its correct size and then glued to the hull frame, clamping and pinning it into position. The same procedure was adopted for the other side of the hull **Photo 08**.



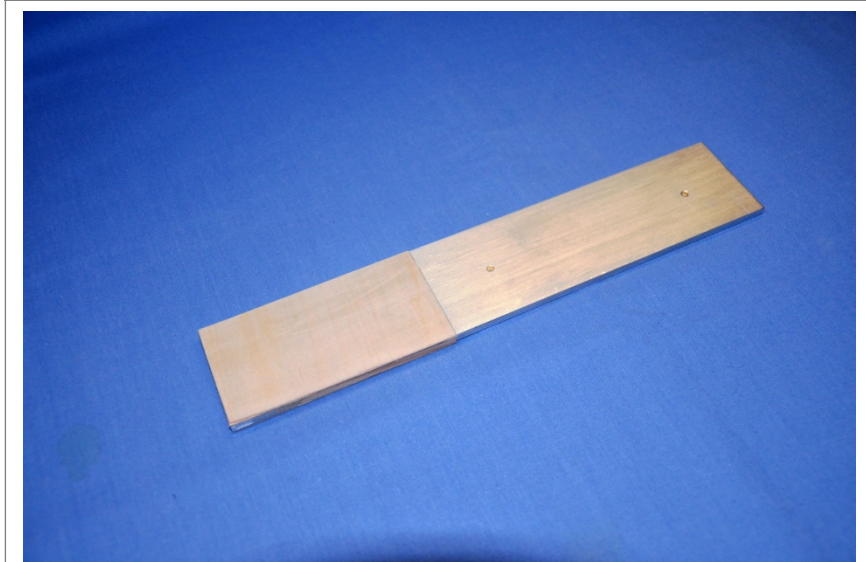
**Photo 08.** Side Skins Clamped and Glued

The template for the bottom of the hull was also made from cardboard and again the same procedure was adopted for that of the sides of the hull. The hull with all the sides covered is shown in **Photo 09**. The hull was then sanded down to its required profile.



**Photo 09.** Hull Bottom Pinned and Glued into position

The Fin keel arrangement in the original design is removable; however Chris had stipulated that with his model it should be fixed. I constructed the keel from two pieces of aluminium plate bonded and screwed together plus two layers of 1mm thick plywood to increase its thickness to match that of the slot in the bottom of the hull. **Photo 10** shows the completed keel less its ballast weight; this will be cast and fitted later.



**Photo 10.** Basic Fin Keel - Less Ballast

With the basic hull construction completed it was time to remove the hull from the construction board. All the supplied bulkheads are partly laser cut to the required shape for the deck and cabin profile thus I was only required to carefully cut along the laser cut lines in order to remove the hull from the build frame.

Three more bulkheads were then fitted to complete the cabin structure. Two formed the front (B2.5) and rear (B6.5) of the cabin structure, these were laminated in teak which gave the model a more luxurious appearance (at the request of Chris), the rear bulkhead (6.5) also had the edges of the doorway rebated prior to adding the lamination which formed a groove to enable a sliding partition to be fitted. I also added a roof bulkhead at position B4 to support the cabin roof. My modified design would not require the cabin roof to open over its entire length but stop at position B4. The fixed roof would then be able to support the mast which would not be removable. The modified bulkhead arrangement is shown in **Photo 11**.



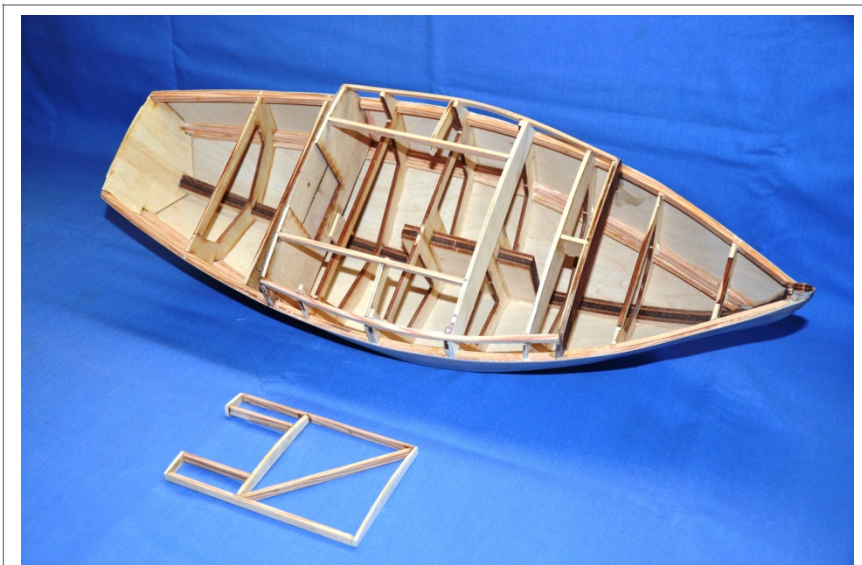


**Photo 11.** Hull Removed from Base Board and additional Bulkheads Fitted

The next task was to complete the cabin structure. Two strips of obechi were cut to length to form the edges of the cabin roof these were pre-formed by soaking in warm water and then bending them in a jig to form a curve after which they were left to dry. Once the correct amount of curvature had been obtained the wood strips were cut to the required length and bonded along the corners of the roof bulkhead structure. When the glue was set the stringers were sanded down to match the cabin bulkhead profile.

I decided to create a large hatch in the roof to allow access to the radio and sail servo with a smaller sliding hatch for the power switch. Two  $\frac{1}{4} \times \frac{1}{4}$  stringers were used and inserted in parallel between two of the main cabin bulkheads which required cutting away to give clear access to the inside of the hull. A frame was then made for the main hatch whose cross members were curved to match the cabin's roof profile as shown in **Photo 12**.

In order to cover the large access hatch a card template was created and from this the 1mm plywood roof cover produced this was then bonded to the hatch frame and trimmed to the hatch profile. The Hand Rails for the cabin roof were removed from the laser cut sheet and a 1.5mm slot machined along its length 3mm up from the bottom edge of the handrails to accommodate a small sliding hatch. Each of the two hand rails were then bonded onto the hatch roof and a small hatch cover made to fit between the grooves of the two handrails.



**Photo 12** Cabin Roof Hatch Construction

For the foredeck covering I made yet another card template to fit between the front cabin bulkhead and the keel stem piece. From this a 1mm thick plywood deck was cut and trimmed to fit in position. It was then marked using a 2H pencil to depict deck planking and painted with resin varnish. The foredeck was then fitted and bonded into position on the Hull. A small Hatch and a bollard was made and fitted to the fore deck as shown in **Photo 13**.



**Photo 13.** Cabin Hatch and Fore Deck Completed

As the time was approaching when I would be covering the entire vessel I decide to fit a footing for the mast which was to be placed on the keel. I cut a block of wood and drilled a 6mm diameter hole through its centre to accept the fibreglass mast. To this I bonded a piece of 3mm thick plywood fitted with M2.5 screw in its centre to match the tapped bush



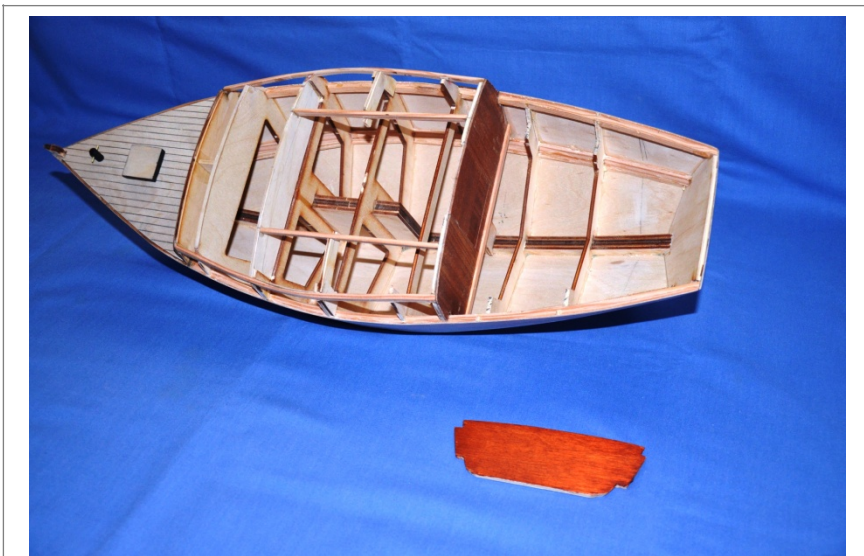
at the bottom of the mast. This assembly was then fitted and bonded to the base of the keel **Photo 14**.



**Photo 14.** Mast Footing Bonded into Position

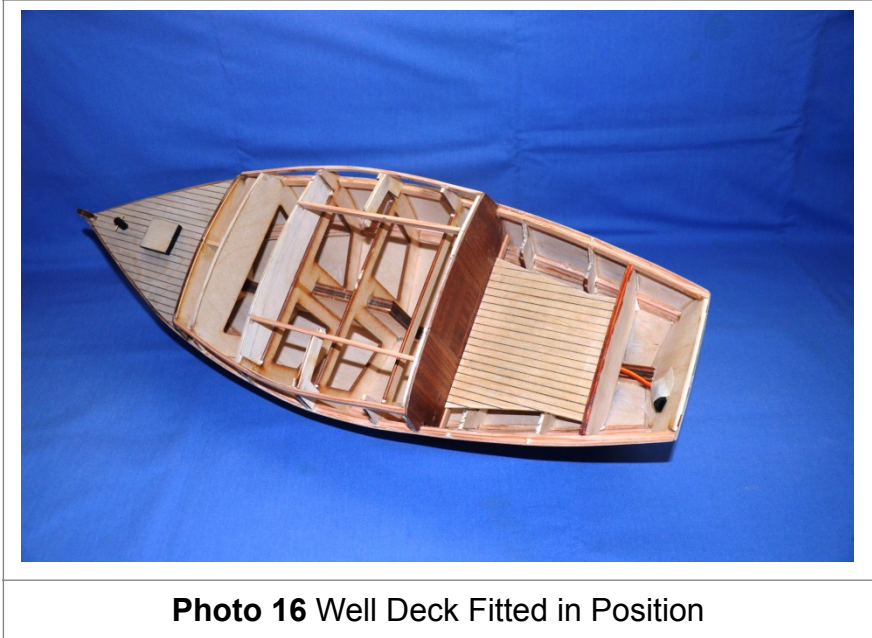
Next my attention was directed to the Well Deck. On inspecting the plan I discovered that I required an additional bulkhead, this is required to form the back of the well deck and is not supplied as part of the kit, it is also not shown as a separate item on the drawing just a dotted outline. So using the drawing as a guide I made the additional bulkhead from a small sheet of 3mm plywood.

It should be noted that no parts are supplied to build the well deck detail. Making the required parts appears to be left to the individual. It is also necessary to cut away the top and sides of the Well deck bulkheads to allow the seats to be designed and fitted. **Photo 15** shows the bulkheads roughly cut away prior to the seat construction



**Photo 15.** Bulkheads Cut Away for Seating

Continuing with the well deck construction I designed and made the well deck from 3mm plywood, this was pencil marked the same as the foredeck to create the planking look. It was and then varnished before fitting together with the aft bulkhead, into the well deck area **Photo 16**.



Parts for the seating were created from 3mm and 1.5mm plywood, trimmed to fit and varnished prior to bonding into place within the well deck **Photo 17**.



Before installing the rudder servo it was necessary to increase the thickness of the bulkhead and Transom to allow for screw inserts to be fitted to retain the stern cover in

position. To achieve this, two strips of 3mm plywood were inserted across the width of the rear well deck bulkhead and the Transom. When the glue was cured the strips were sanded down to match the curved profile of both bulkhead and transom. The cover was made from 1mm thick plywood being cut and trimmed to fit the servo rudder compartment. Five pilot holes were then drilled through the cover into the bulkheads then the holes in the bulkheads opened up to accept the brass 10BA inserts.

A mounting plate for the rudder servo was made from 3mm plywood and trimmed to fit in the servo compartment. The servo was screwed to the mounting and then inserted and glued into the compartment ensuring that the actuator spindle was on the centre line of the hull and that the servo lead had been connected to the extension lead previously installed under the well deck floor.



**Photo 18.** Servo's, Radio and Batteries Fitted

The remaining electronic controls are housed in the cabin, a mounting plate was made for the sail servo, a box was created for the batteries as well as the receiver and a mounting plate was provided for the ON/OFF power switch. **Photo 18** shows all these items fitted and wired.

A brass extension shaft was added to the rudder servo drive to which was added a cross piece in order to actuate the rudder, when it is eventually installed **Photo 19**.





**Photo 19.** Servo Extension Shaft and Cross Piece

The keel of the hull had not been fully completed in that it required a final sheet of 1mm plywood to cover part of the keel opening and final sand down with small amounts of filler to eliminate any small dinks etc see **Photo 20**.



**Photo 20.** Hull Final Covering & Sanded

The kit provided two pre-cut sheets of 1mm plywood for the cabin sides; however these had pre-cut elongated portholes for which both Chris and I could not find any such fittings. It was decided to replace the pre-cut sides with new ones having three round portholes. In practice I made two additional blanks and bonded them to the supplied

cabin sides to increase the thickness before punching three holes in the sides to suit the round portholes I had obtained see **Photo 21**. These were duly mounted onto the sides of the cabin and bonded into position **Photo 22**.

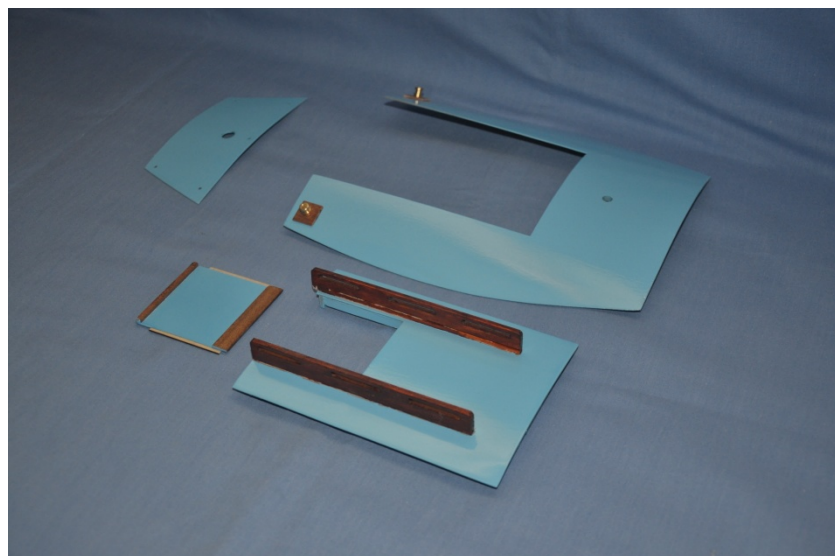


**Photo 21.** New Cabin Sides



**Photo 22.** Cabin Sides Fitted

I decide to paint the cabin roofs next as I have been given a rattle can of turquoise/light blue paint. All the necessary parts were masked and then painted. I made a pair of sail winches for the main cabin roof which were mounted into position on small square pieces of teak laminate **Photo 23**. All these parts were then mounted onto the yacht on a temporary bases **Photo 24**.

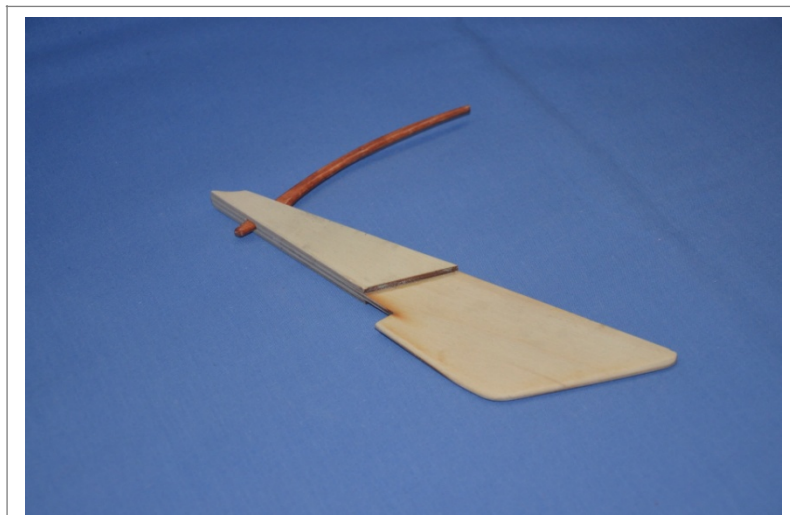


**Photo 23.** Cabin Roofs Painted



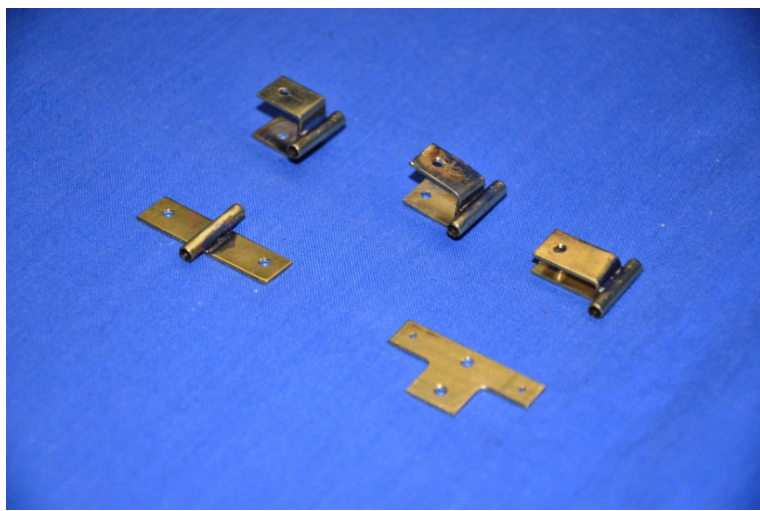
**Photo 24.** Cabin Roofs Temporary Fitting

The rudder was assembled from three pieces of laser cut 3mm plywood which were bonded together and a tiller arm inserted into the slot in the rudder assembly **Photo 25.**



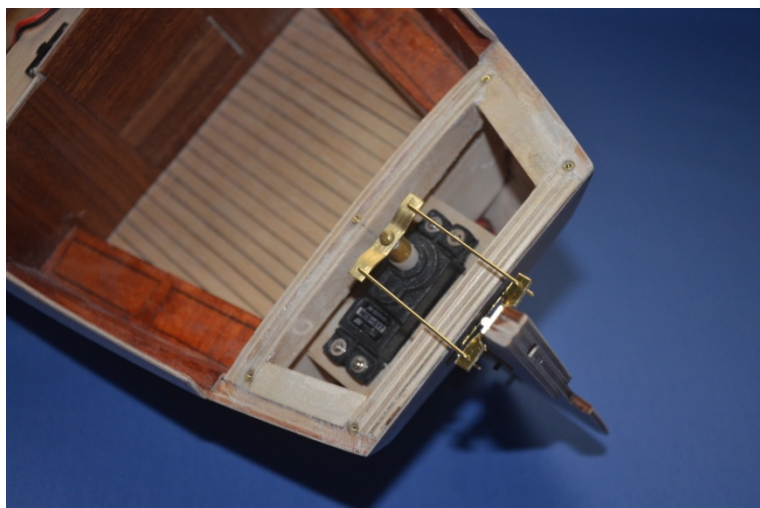
**Photo 25.** Rudder Assembly



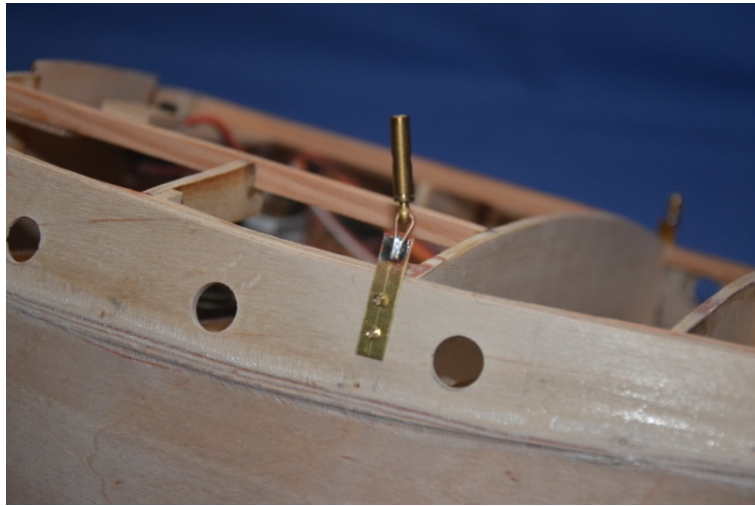


**Photo 26** Rudder Hardware

The rudder hardware comprising various hinges and a pivot rod were made and cleaned **Photo 26**. With all the necessary parts created they were assembled which allowed the rudder system to be tested **Photo 27**.



**Photo 27** Rudder Assembled



**Photo 28.** Turnbuckles Mounted to Cabin Sides

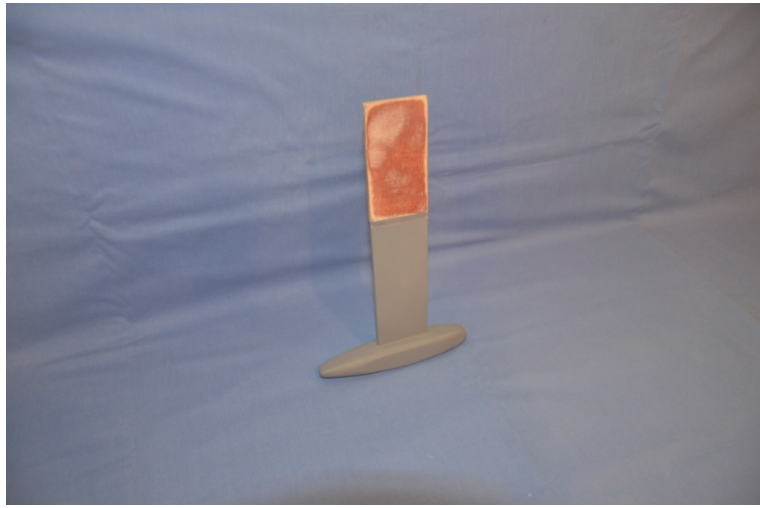
Two turnbuckles were soldered to mounting plates, allowing them to be bolted to the sides of the cabin for supporting the mast **Photo 28**

To cast the ballast weight I initially made a plug out of wood in accordance with the instructions on the drawing. I then made a female mould out of concrete using the plug. Then I melted a quantity of lead and gently poured it into the concrete mould which was allowed to cool. This process was repeated for the other half of the ballast weight. The two half weights were then machined to fit around the bottom of the fin keel **Photo 29**.



**Photo 29** Male Plug, Female Mould and Cast Ballast Weights

The ballast weights were fitted to the bottom of the keel and screwed/bonded into place. The assembly was then given a coat of Halfords grey primer **Photo 30**.



**Photo 30** Painted Keel with Ballast Weight Attached

The weighted keel was then inserted into the slot in the bottom of the yacht's hull and bonded into position, any gaps between the keel and the hull being filled with epoxy filler; finally the keel was painted black all over **Photo 31**.



**Photo 31** Painted and Fitted Keel

It was now time to paint the hull starting with the inside upper walls of the well deck which were brush painted white **Photo 32**.

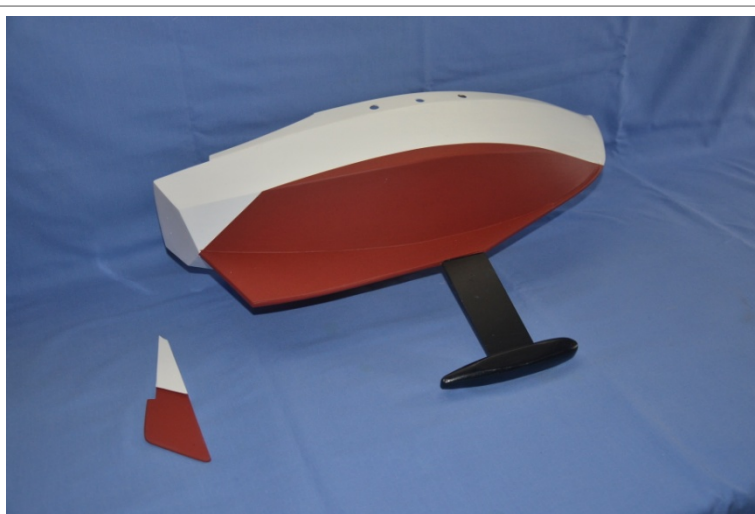




**Photo 32** Well Deck Walls Painted White

To paint the main hull, the rudder including its fittings, the painted roof and hatches were removed and the hull given a final sanding with fine sandpaper. The insides of the portholes were masked to prevent paint entering into cabin. The hull and cabin sides were brush painted with white primer, allowed to dry and sanded down, filling any blemishes and repeating the painting of the undercoat until all blemishes have been eliminated. The upper hull and cabin sides were then painted with white gloss paint.

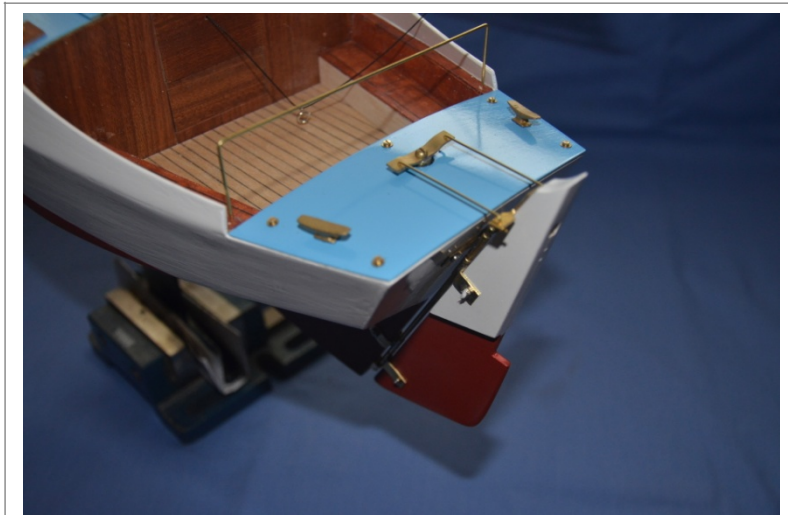
When the gloss paint was thoroughly dry I masked the top of the hull above the water line and also the black painted keel. The lower half of the hull was then spray painted with Halfords red oxide. When this was dry I sprayed over it with Humbrol clear satin acrylic varnish and when this was dry all of the masking was removed. Next I painted the rudder the same as for the hull ensuring that the waterline matched that of the hull. The complete painted hull can be seen in **Photo 33**.



**Photo 33** Painted Hull

With the painting completed the previously removed parts could be refitted starting with the main cabin roof. This time it was bonded into place on the cabin structure and held in position until the glue was set. The hatch assembly was then fitted into place and checked to verify that it would slide open and close and the glazed white plastic portholes were fitted and bonded into the holes in the cabin sides.

All the brass fittings were then cleaned which then allowed the rudder to be assembled to the hull together with the Port/Starboard mast securing turnbuckles being bolted to the cabin sides and a main sail horse made from 1.5mm brass rod fitted across the width of the aft servo cover **Photo 34**.



**Photo 34** Main Sail Horse and Rudder Fitted

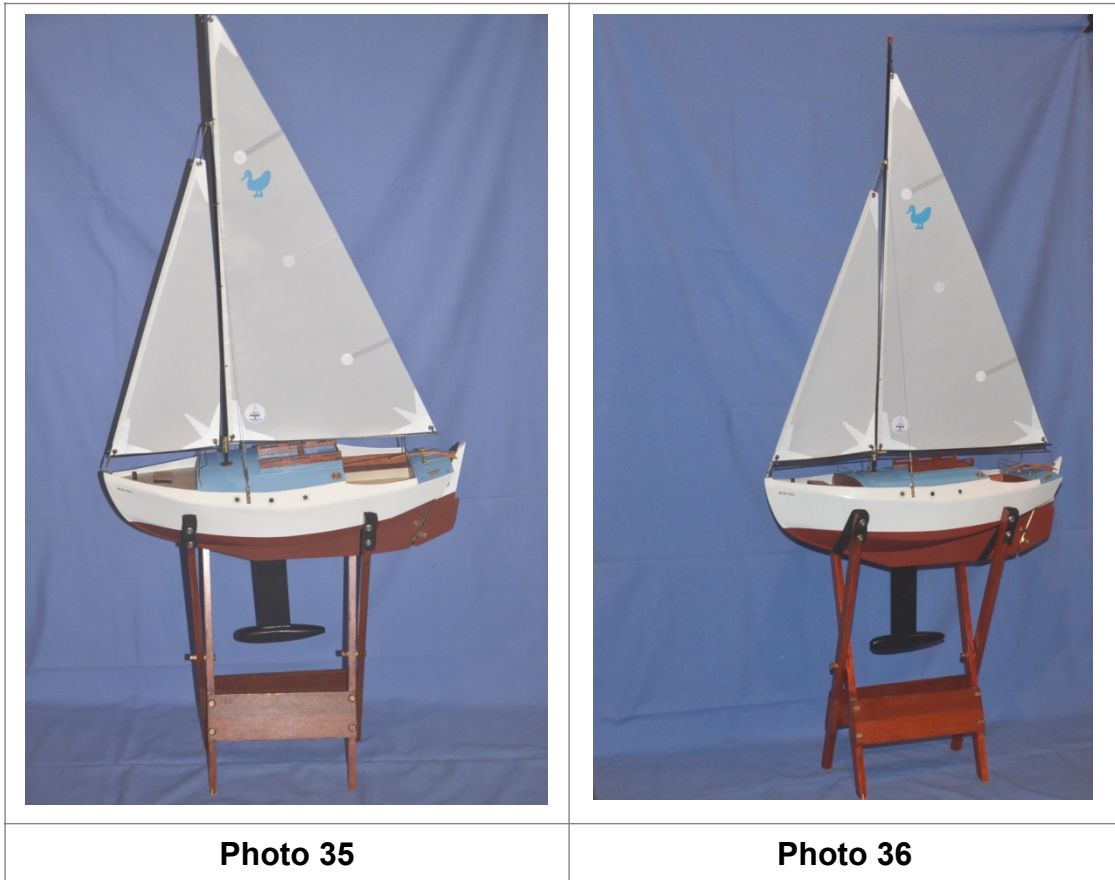
The final actions - add all the rigging, to this end Chris had purchased a set of sails from 'NYLET' (made from Dacron) which made life easier. Using the sails as a guide I was able to decide on the height of the carbon fibre tube mast and cut it to length, plugging the open end with a short length of dowel and to this a three way navigation light was glued into position (Red/Green/White).

With the main mast in position I could proceed and hoist the sails. For the foresail I needed to make a turnbuckle to secure the sail to the stem piece. A small brass plate of which one end of the turnbuckle was soldered using a wire loop. The plate was then screwed to the stem piece. Another item required was a foresail Horse; this was made from a length of 1.5mm brass rod bent to the required shape and fitted to the front end of the cabin roof.

To hoist the main sail I needed to make a goose neck in order to secure the boom to the main mast, this was accomplished by soldering two pieces of brass tubing together, one to fit securely over the boom and the other to slide freely over the main mast.

Using some strong yarn and a few eye screws, the sails were hoisted into place and the main sail boom attached to the sail winch servo. The final action was to make some name plate labels to be attached to the port and starboard bow and one across the stern.

This was done by printing the new name, chosen by Chris '**BLUE TEAL**' onto some transfer paper, sealing the print with acrylic varnish, cut the label to size and water sliding the completed item onto the hull. **Photos 35 and 36** show the completed Yacht on its display stand.



I handed the completed yacht to Chris which he happily took away. Eventually we arrange to meet at the Stevenage Lake for an inaugural sail. During this lapse in time Chris had bonded some hard wood trim to the side of the hull and of course added a Helmsman. Finally **Photos 37 and 38** is of the Yacht, Blue Teal sailing on the water on the Stevenage Lake.





**Photo 37** Blue Teal on the Water



**Photo 38** Blue Teal on the Water

Do hope you have found this article about the building of Wild Duck/Blue Teal of interest. There was a lot of interest shown at the 2022 St. Albans Big Model Show about how I went about the build of the vessel, well now you know, happy modelling

**Tony Dalton.**

**END**