CALYPSO BUILD

Dr. Ron

2011-2012

Last spring an unopened Billings kit for Calypso became available at an estate sale. Since I had just finished a semi kit of the Lindsey Foss tractor tug the timing was right to start building this model of such a famous ship. Most everyone of our generation knows the history and importance to marine biology and oceanography in which this vessel was involved. Briefly, however, this vessel was originally built in 1942 in the USA for the British Navy as a mine sweeper. After world war two she was named Calypso (sea nymph) and served as a coastal ferry between Malta and the island of Gozo.

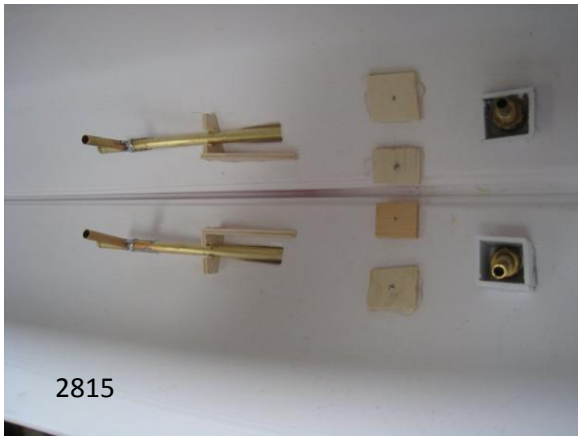
Jaccques Cousteau leased her in 1950 with the help of Noel Guiness, an Englishman, who shared the captain's passion for the seas. She was taken to a shipyard in Antibes where her conversion from a ferry boat to a oceanographic research vessel was begun. Interior accommodations were remodeled, navigational aids were added, and special facilities for diving equipment were installed. An underwater observation chamber,known as Calypso's "false nose" was also installed.

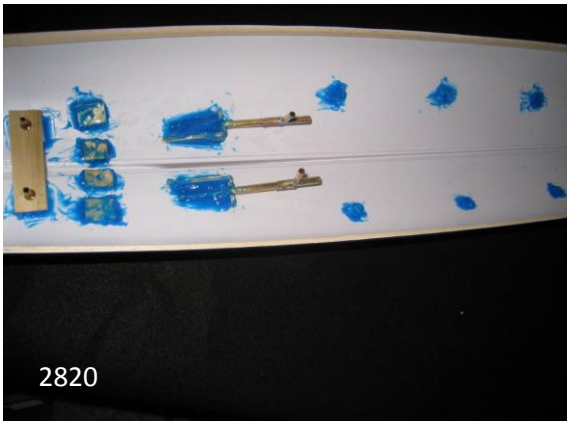
The 140 foot long and 24 foot wide wooden double planked vessel thus became a floating base for marine research and exploration such as the world had never seen before. Almost one year after acquiring Calypso, Cousteau set sail in her for the first time and under a French flag. Over the course of several years numerous modification and additions were undertaken, such as the two man diving saucer and decompression chamber, not to mention updates to her radar and navigational equipment.

After numerous excursions and research activities around the world Calypso was accidently rammed by a barge in Singapore harbor in 1996. She was raised, pumped dry and rehabilitated in a shipyard. Cousteau died in 1997 at the age of 86 and Calypso was towed to Marseille, France where she lay neglected for two years. She was towed to the basin of the Maritime Museum of La Rochelle in 1998 after funds were being raised for her restoration as a self powered mobile ambassador for the seas. Despite numerous battles over ownership and attempts to refurbish her, she remains in pieces at the Piriou Shipyards in Brittany and it is doubtful she will ever be restored to a serviceable condition or as a museum piece.

In making the Billings kit, I must say they have done a remarkable job in creating a detailed relatively easy kit to build with many quality brass fittings. I only wish they would have made all the vacu-formed parts out of thicker plastic. The funnel had imperfections, noted in picture 2830. The funnel defects were filled with auto body glazing and spot putty by Bondo as seen in picture 2857.

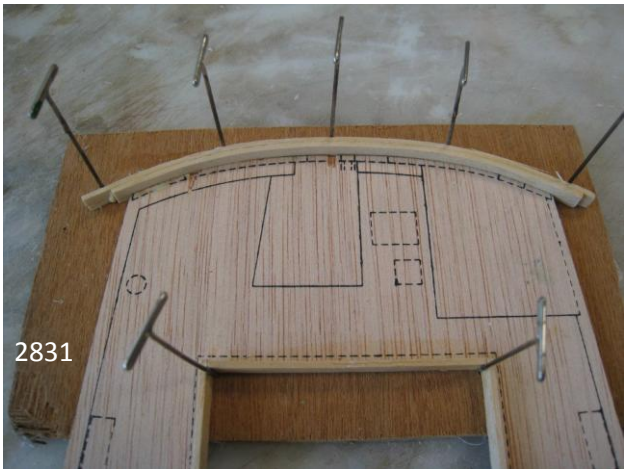
After trimming the excess plastic from the hull, the first step was to insert the shaft logs and rudder sleeves, securing them with epoxy after making forms to contain the epoxy as seen in picture 2815. Blue modeler's clay was used to contain the epoxy outside the forms. When the epoxy was cured automotive blue silicone gasket sealer was placed around the perimeters. The stabilizers were secured to the hull with automotive Amazing Goop and small screws. See picture 2821. The screws were covered with the silicone gasket sealer to limit any water intrusion as seen in picture 2820.



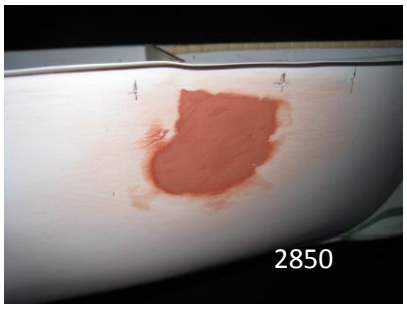


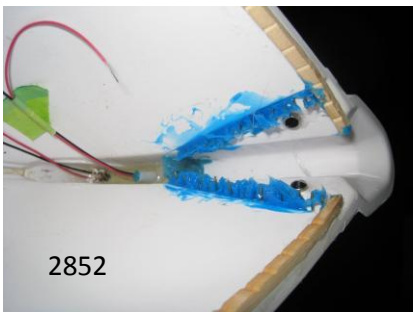
The bow bulb was secured and seams filled with green Squadron Putty and sanded. An LED was placed inside the bulb and the cavity filled with clear epoxy. Another LED was placed above and more clear epoxy poured in. Portholes were glued to a piece of cardboard with a glue stick and painted. These portholes were then removed and placed on hard smooth plastic (Lucite, Lexan, etc.) and clear epoxy carefully dripped in the holes to create a clear glass-like filler. See picture 2824.

The rear bulwark of the main deck was formed around the curved section and the two parts held in place with T pins. See picture 2831. When gluing the bilge floor and forward bulkhead with Goop, a large deformity resulted probably because the Goop has solvents in it that soften styrene.



The deformity was patched with the Bondo Glazing Putty and sanded. See picture 2850. The anchor hawsers and rivet nails were placed in the bow and backed with blue sealant. See Pictures 2851 and 2852.

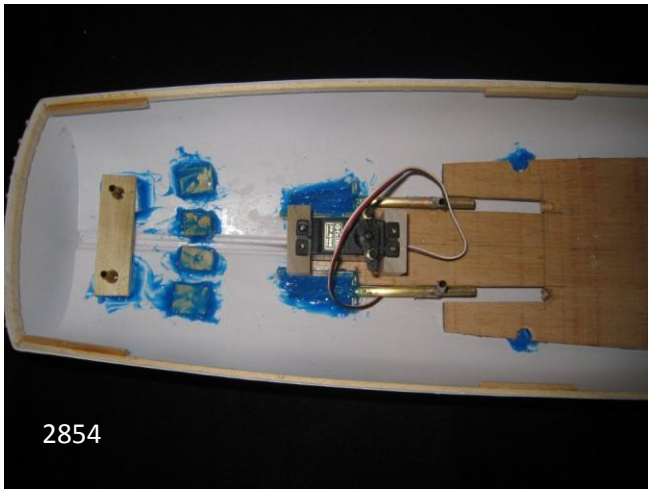




Pictures 2853 and 2854 show the bilge deck in place with removable hatches in case more ballast is needed. The struts were secured with screws with inside reinforcement and silicone sealer. See pictures 2816 and 2854.


2853


2816

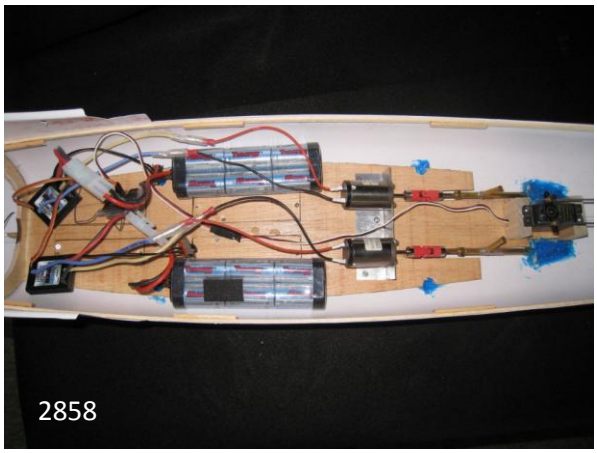

2854

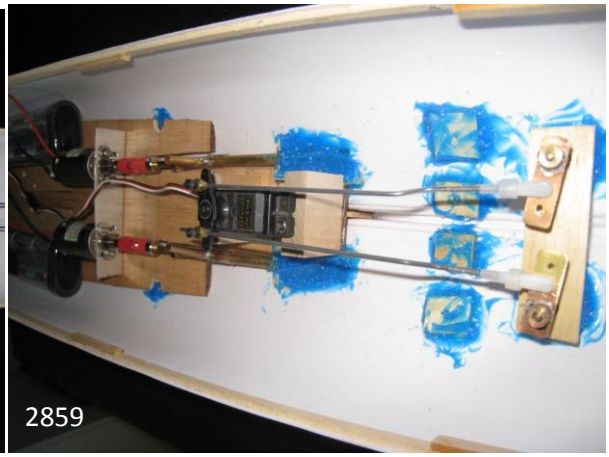
Planking was accomplished by using Titebond 3 glue and edges of the planks were darkened with a regular black crayon to simulate the caulking. See pictures 2855 and 2856.


2855


2856

The layout of the rudder linkage, shafts, couplers, batteries, motors and ESC's can be seen in pictures 2858 and 2859.


2858


2859

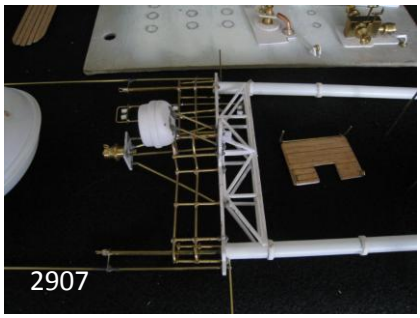
Notice the additional pieces of wood added at intervals where the deck will join the hull. This was done to provide additional surface to glue the deck to the stringers on the inside of the hull. See pictures 2852, 2853, 2854, and 2858. Goop and Titetbond 3 were used to secure the deck to the hull. The bulwarks were attached to the hull by gluing piano wire at intervals to stanchions projecting through the deck, thus obtaining a sturdy attachment.

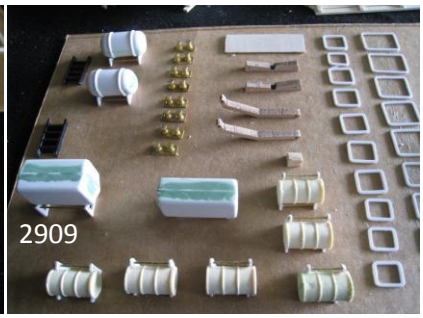
All the small parts were assembled as per the plans and secured to a piece of cardboard with a glue stick ready for painting. See pictures 2903, 2904, 2906, 2907, 2908, 2809, 2910, 2928, and 2829.


2903

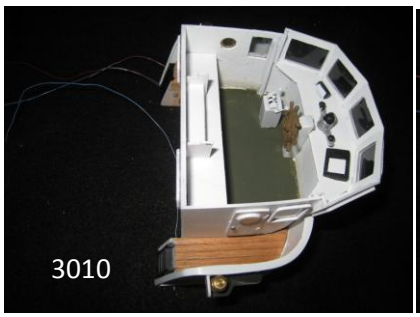

2904

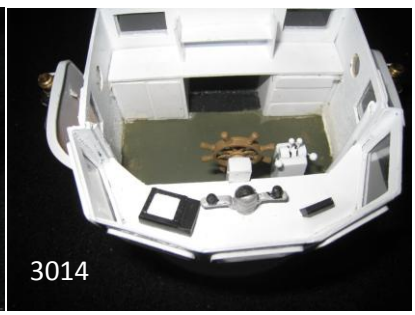

2906





Pictures 2926 and 2927 show all the pieces to be painted – those glued down and those held by hemostats. The plywood for the curved side pieces to the pilot house were replaced by styrene in order to achieve an accurate bend without splintering deformities, even after soaking the wood pieces in an ammonia solution and applying heat. Styrene bends a whole lot easier and was glued to the wooden frames with Goop. The pilot house interior was assembled as seen in pictures 3010, 3012, and 3014 and painted.

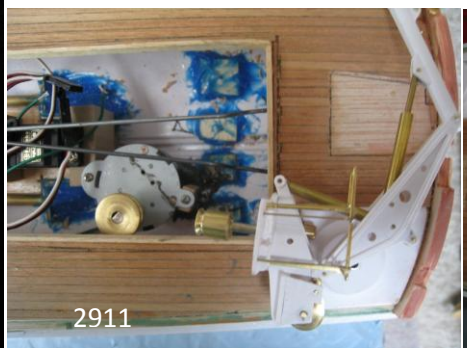




To cut down on topside weight the life raft canisters were made from two part urethane resin after molds were created with RTV mold material from Micro Mark using the supplied brass pieces as plugs.

Making a functional crane became quite a challenge, but securing low rpm 12 volt gear motors from E-Bay solved the problem. The drums were turned on my lathe and secured to the shafts by drilling (#43) and tapping (4-40) the hubs and securing them to the motor and crane shafts with 4-40 grub screws. The up and down function of the crane was quite a problem as the string I originally used broke under load and the plastic covered jewelry stranded wire was too stiff with too much resistance. I finally re-machined the crane shaft and drum and lined it with a plastic small diameter tube to cut down on chaffing. Finally, a very strong sail making thread was employed as a cable. The mechanisms can be seen in pictures 2902, 2911, and 2913.


2902


2911

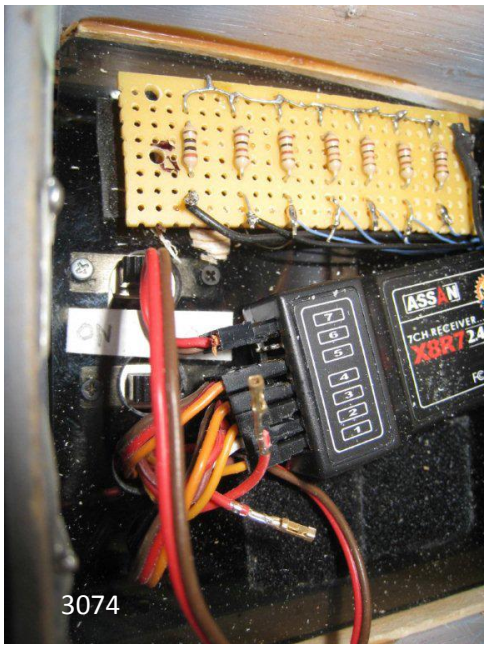

2913

To provide power to the lights in the pilot house and upper deck house connectors were produced from brass rods secured to the removable upperdeck which then fit into hollow brass tubing below the pilot house.

The opposite ends were soldered to wires going to the power source and the lights themselves. See pictures 3071 and 3034. All lights are LEDs with red LEDs in the pilot house. Resistors were calculated for the seven circuits as seen in pictures 3071 and 3074.

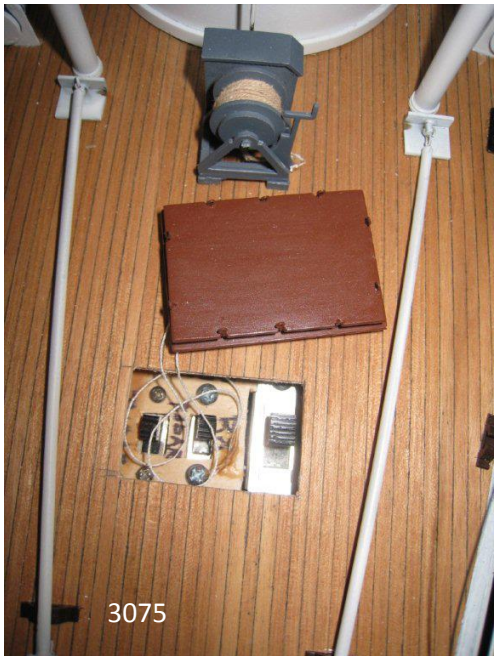

3071


3034



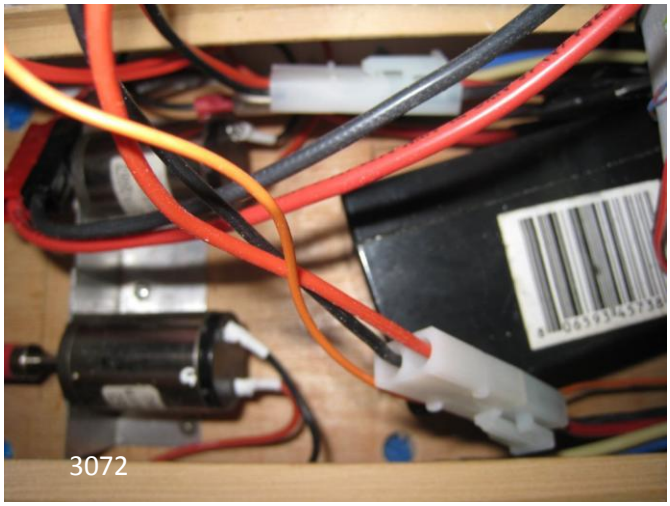
3074

The main power switch is located under the foredeck hatch along with a switch for the radar and lights. See picture 3075.


3075

The radar motor was purchased from All Electronics and runs perfectly on 3 volts supplied by two c-cells under the forward panel containing the receiver and resistor board. See picture 3074,

Main power is supplied by a small 12 volt gel cell under the aft panel. See pictures 3072 and 3073. Power to the receiver is supplied by a 5 volt regulator (Radio Shack #7805 and heat sink #TO-220) next to the fuse holder.


3072


3073

Pictures of the completed model can be seen in pictures 3029, 3030, 3031, 3032, 3033, 3076, 3077, 3079, 3080, and 3081.


3029

3030

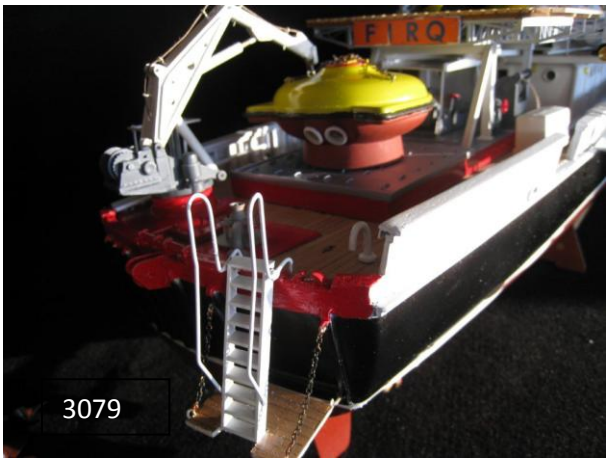

3031

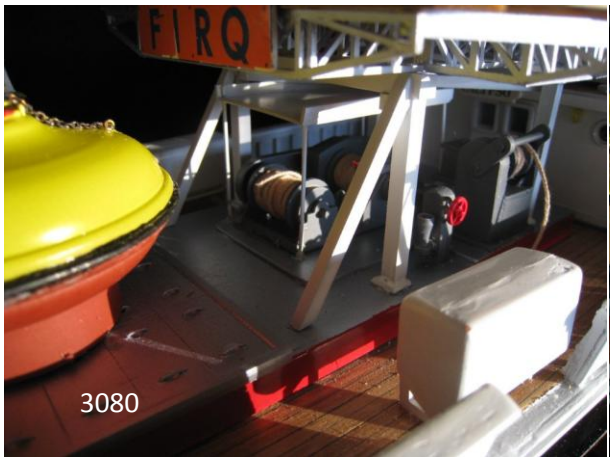

3032


3033

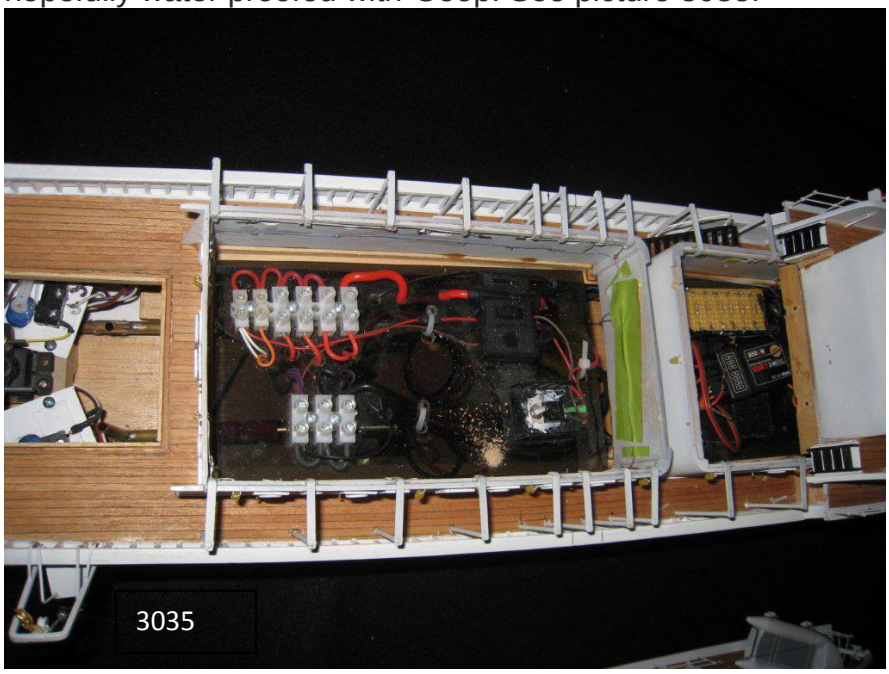

3079


3077


3079



Other than the problems with the funnel and hull the only other glitch was that the columns supporting the upper deck were too long. To compensate for this discrepancy holes were drilled in the deck to accommodate the larger shoe part which was then secured and hopefully water proofed with Goop. See picture 3035.



When testing the Calypso in the domestic test tank (bath tub) it was very tippy and hard to stabilize. However, balance was established by moving the battery, attached by Velcro, incrementally. She floated at the water line so further ballast seemed unnecessary. The props supplied were poorly designed, as are most of the plastic Billings props, not enabling much reverse propulsion. So, Raboesch 40mm m4 4blade props were ordered, hopefully providing the proper thrust. In conclusion, the model was fun to build with many challenges but the project seems to have turned out OK.