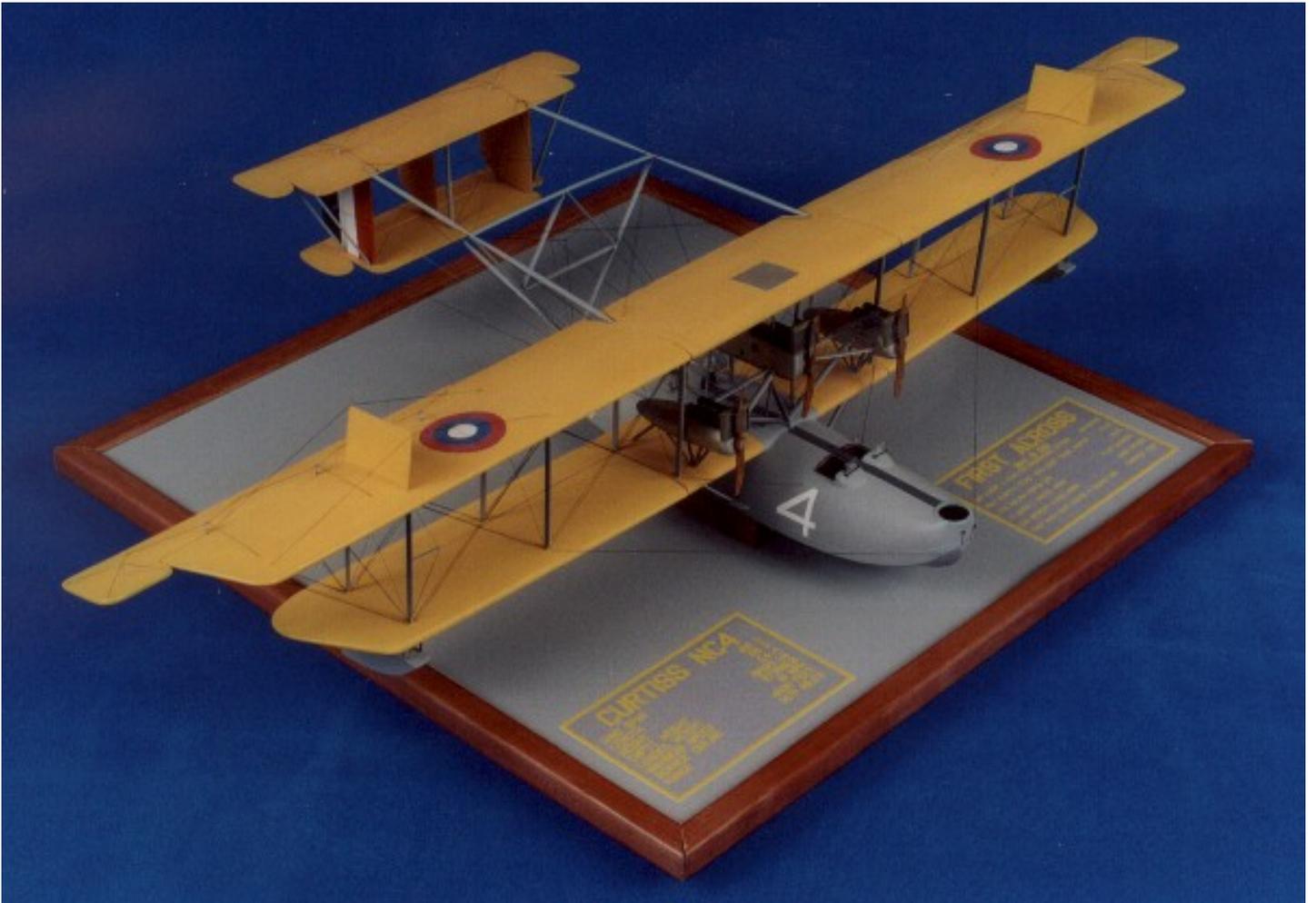
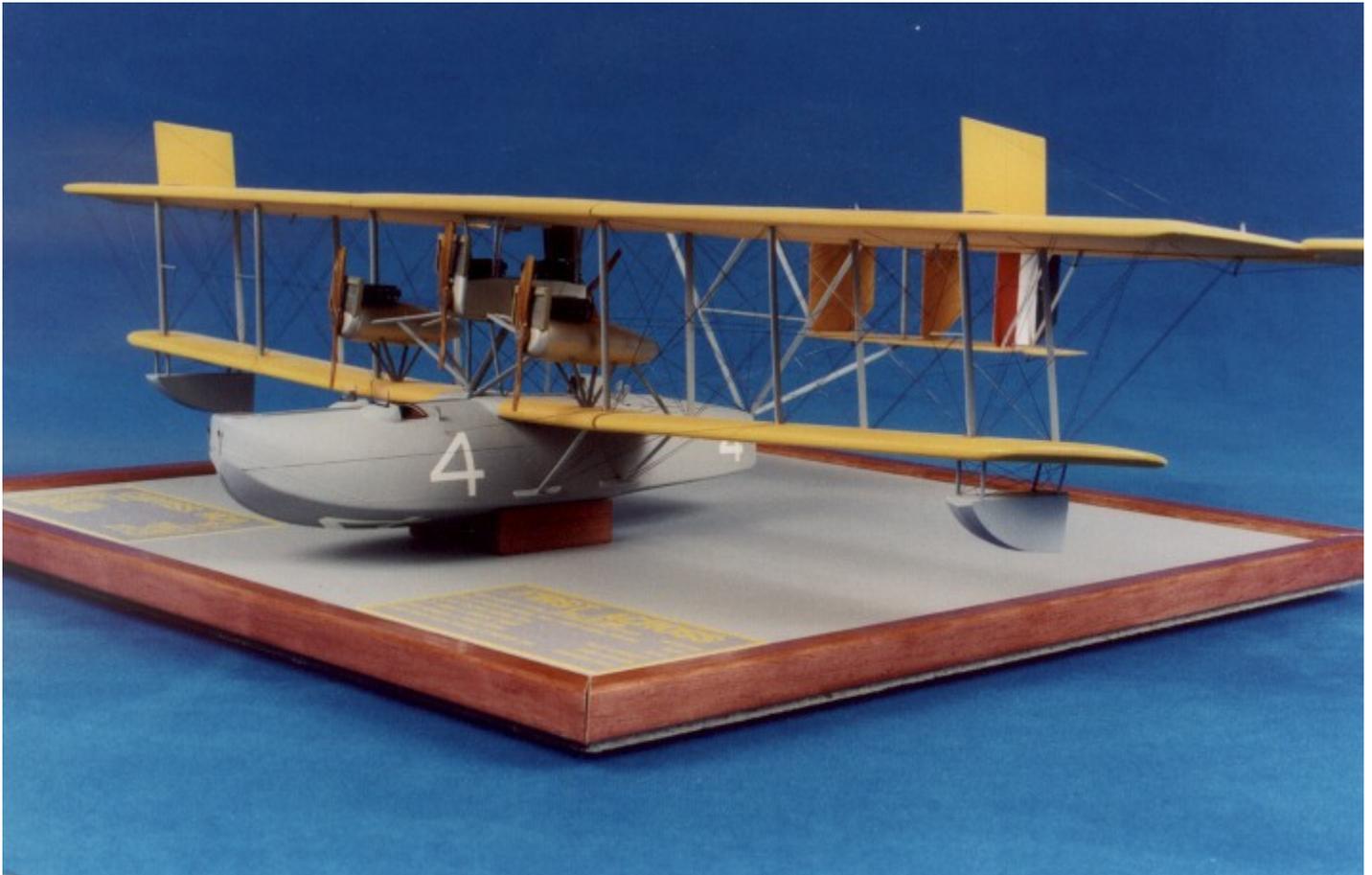


Curtiss NC4 Flying Boat Part 1

Scratchbuilt in 1/48 scale by Mike Robinson





To say that I am a fan of flying boats is like saying an ant likes picnics. They have a grace, character and a utility that no other type of aircraft has, the ability to make 2/3's of the world's surface their runway. My appreciation for them was fostered in part by my Dad, a licensed pilot from the "old school" of pilots, back when stick and rudder and seat of the pants were many times the only "instruments" a pilot had to go by. He enjoyed flying seaplanes more than landplanes, and had many stories to tell of flying hunters and hikers into remote areas of the Adirondack mountains in Upstate New York, using any one of the hundreds of lakes that dot the region.

When I first saw the story of the Curtiss NC series trip across the Atlantic in 1919, the airplanes caught my attention. Immediately I knew I wanted to build a model of one, and I knew it was going to be a scratchbuilt model, as no kit exists of Nancy in any scale. I have scratchbuilt a few models before this, but I knew this was going to be a challenge in both size and complexity. Gathering the reference data proved to be fairly easy, as a quick email to John Bayer, Director of the First Across Organization, (<http://www.geocities.com/firstacross/>) resulted in several sources of plans and reference materials. Another website that gave invaluable information was The Naval Aviation History Office (<http://www.history.navy.mil/branches/nc-4mono.htm>). I figured a trip to Pensacola Naval Air Museum to photograph Nancy was in order, so a quick email to the fine folks there to explain what I wanted to do resulted in a very quick response. It said in a nutshell, "Sure come on down, we'll be glad to help." A trip in April of 2003 resulted in over 130 digital photos and 72 35mm Color Slides. The people there were very accommodating. Not only did they allow me full access to Nancy, but they also rolled out a small electric scaffold to lift me up and over Nancy, allowing me to photograph the airplane from the top, as well as the bottom. I was also able to poke my head inside and get some very helpful interior pictures. I can't recommend the Naval Air Museum enough, very nice people to deal with and a fantastic array of displays there.

With references ready, and raw materials purchased, it was time to begin construction. I decided to begin with some of the smaller subassemblies first to get a feel if I was actually going to be able to finish this beast. The more I looked at the plans, examined the forest of struts, the maze of rigging, the more I started to think... "Yeah right, I'm really going to build this... sure I am, and pigs are going to fly too".

Compounding the difficulty, the drawings that I obtained from Model Airplane News had some features that did not agree with the photos I had taken in a lot of areas. The Nacelles weren't drawn quite right, some of the rigging was inaccurate, and many details were left off the plans all together. Items like the wind driven fuel pumps on the rear deck, and the "tunnel" underneath the rear pusher engine to keep crewmembers from getting whacked by a spinning prop. Another bugaboo that would bite me good later on in construction was the fact the drawings were drawn in two scales, 1/32nd and 1/48th. I was building the model in 1/48th scale, so it wasn't a major issue, but there were a few times I had to get out the calculator to refigure a certain dimension. Rather than go into a full-blown step by step construction article, I decided to give a brief outline of each subassembly, and the materials and techniques used to construct the model.

Fuselage/Hull

- Hull master was carved from a block of basswood.
- Hull halves vacuum-formed from .040 plastic sheet
- Internal Hull stringers made from .010 and .005 strip.
- Ribs and formers made from .030 sheet.
- Cockpit floor and slat seats made from .040 plastic for frames and .010 strips for slats.
- Instrument Panel from .010 with Reheat Gages and Foto-Cut bezels
- Control Wheels, Rudder Bars, Throttles and Engine Controls made from brass wire and solder as needed, and spare photo etch.
- All control cables present.
- Interior finished to represent varnished mahogany.
- Cockpit fairings vacuum-formed and faired in, with Compass and Windscreens made from Rod and clear sheet.
- Hull fittings made from brass or steel wire, solder, strips of plastic as needed.
- 4 wind driven Fuel Pumps made from Evergreen Channel and rod.



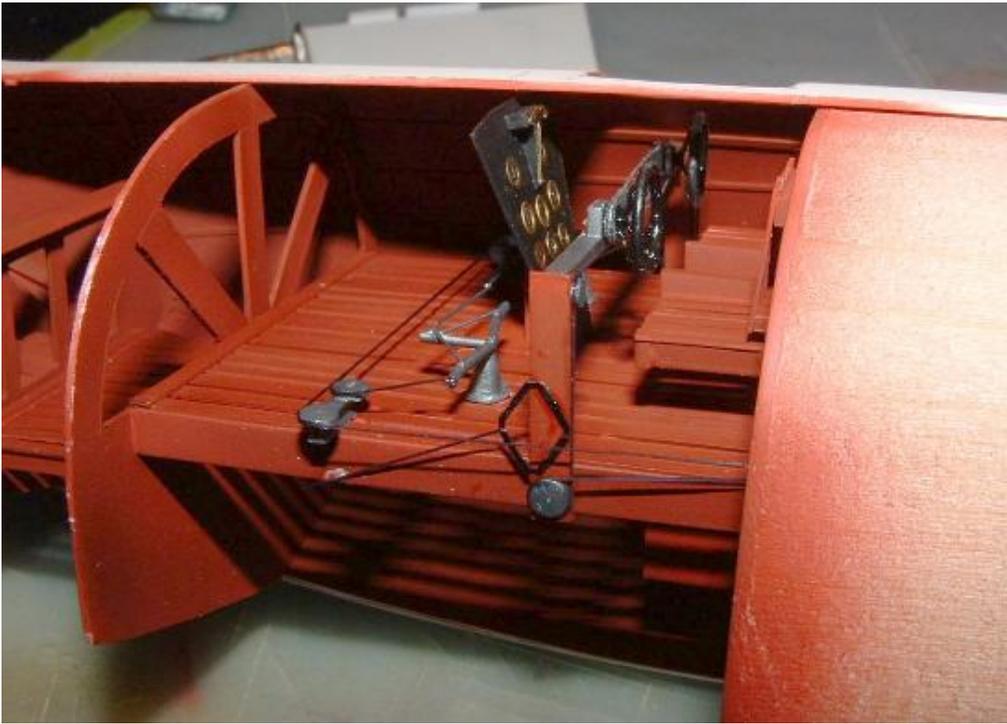
Hull begins life as paper templates pinned to the wood block and band sawed to shape, then a small block plane was used to rough carve the hull to close to final shape.



Hull after final sanding and wing center section glued in place, and cockpit cutouts chiseled out.



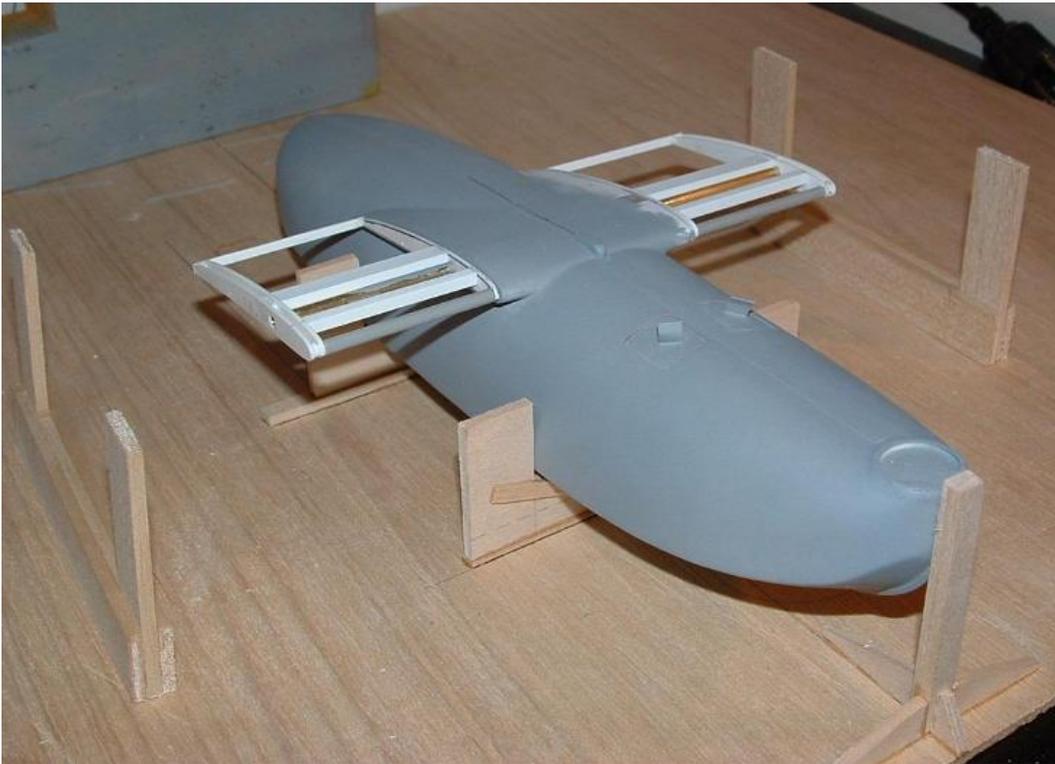
Hull after vacu-forming. The basswood master was cut in half at the Cockpit Bulkhead and left in the rear portion of the hull for strength. This allowed for brass tube sockets for the lower wings to plug into. (And to prevent me from being loony enough to build a second one)



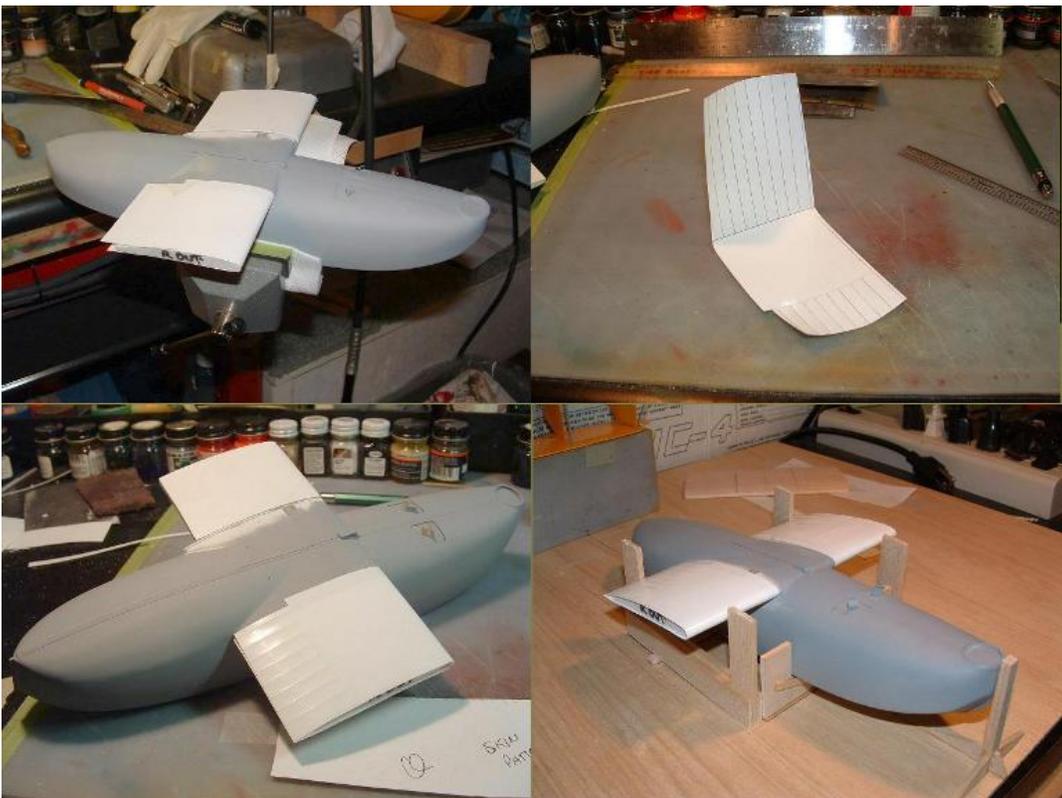
Hull interior showing slat floors, Control Bar, Rudder Pedals and Slat Seats and all control cable runs.

Wings

- Lower Wing Center made from .040 ribs and brass tube spar, sheeted with .010 plastic with ribs embossed from underneath. Upper Wing Center Section constructed of a 3/16 balsa core sanded to airfoil shape and sheeted with .005 plastic, ribs embossed from below.
- Outer wing panels, both top and bottom made from 3/16 Balsa core sanded to shape, with 1/8 Rod embedded in wood at strut locations. Wings then sheeted with embossed .005 plastic, Strut locating holes and rigging holes predrilled.
- Ailerons cut from Top Wing panels, Aerodynamic mass balances added, and then sheeted with embossed .005 plastic.
- Struts made from Contrail Strut material, each strut cut and fitted as model sat in jig. Ends pinned with brass wire, and each strut is embedded into the plastic sockets installed in the wings. Epoxy was used to secure them.



Lower Wing structure sans skins, assembled and fitted. The assembly Jig is started.



Clockwise from top left. Wing skins being test fitted. Ribs embossed from underneath. Skins are being glued in place along lead edges. Skins being cemented along outer ribs and trail edge and completed.