

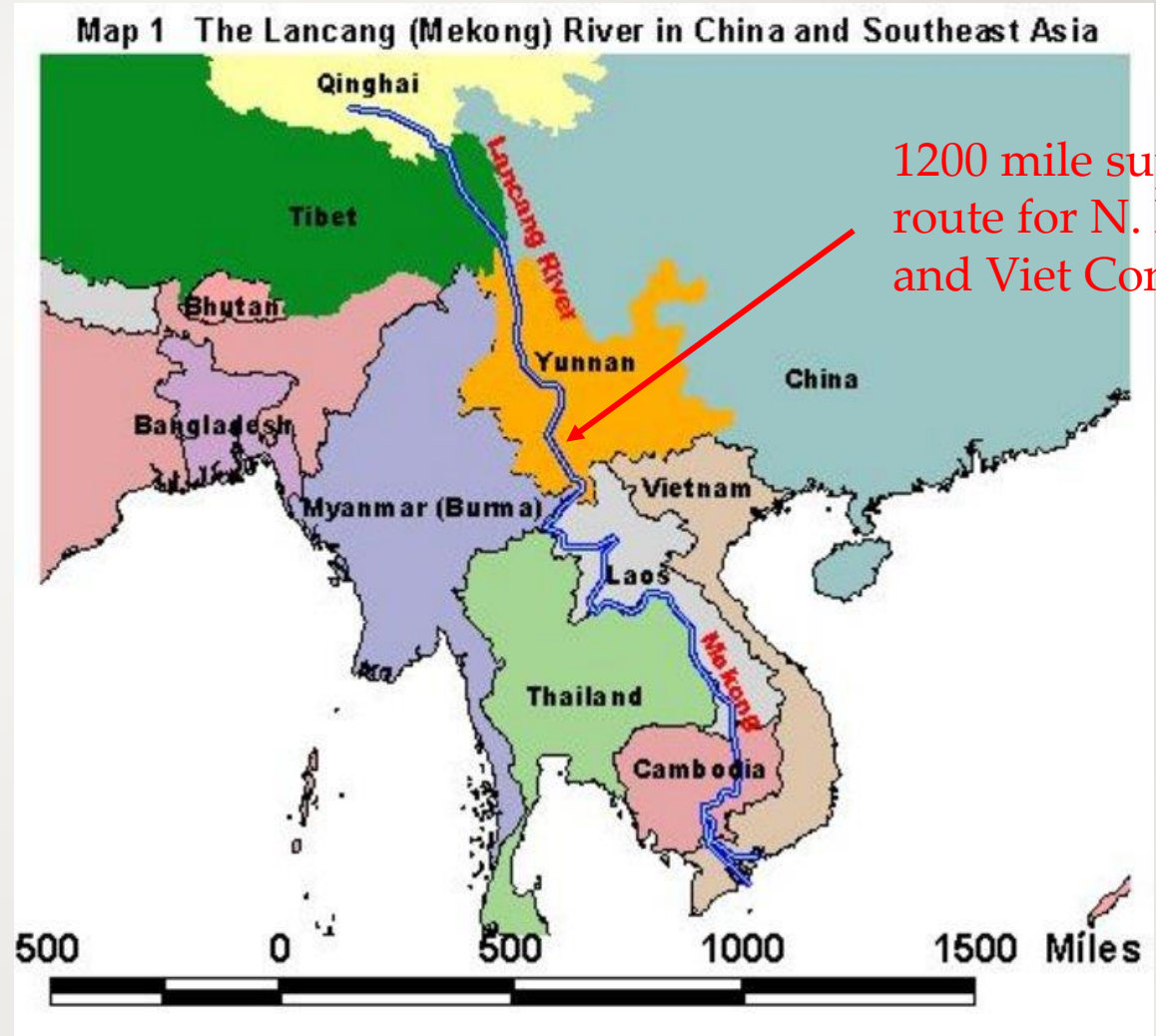


Mark I: Viet Nam River Patrol Boat PBR

BUILDING THE WATERLINE MODEL FOR MILITARY HISTORY SOCIETY OF ROCHESTER MUSEUM

Brown Water Navy Roots

- The US “Brown Water Navy” can be traced back to the Civil War and Union’s naval actions on Mississippi River
- Became a formalized entity of Navy and Army in 1970 to curtail Viet Cong and North Korean infiltration along Mekong River and coastal waters
- Multiple craft types borrowed, inherited and built for operations in Viet Nam
- Campaigns; Operation Market Time and **Game Warden** largely successful in curtailing the supply lines of the enemy



The PBR Mark II

- One of the Viet Nam era “Brown Water Navy” Creations
- Restored/Maintained Mark II PBR by NW **Game Wardens**
- Photo Courtesy of NW **Game Warden** Veterans; Brown Water Navy Task Force 116
- Most decorated Riverine task force of the Viet Nam campaign



The PBR Mark I Basics

- Length 30', width 10' 7"
- Twin 318-cubic-inch Detroit Allison 6v-53 diesel engines
- Jacuzzi Jet Drive propulsion
- Capable of speeds up to 32 knots
- Twin 50 cal forward, single 50 cal aft
- Single 7.2mm light machine guns port/starboard



Photo courtesy Patriots Point Naval Museum

The PBR Mark I Origins

- *Prototype **Aluminum** Units* (11)
built by Hatteras Yachts of NC
- *Production **Fiberglass** Hulls* built
by United Boat Works (Uniflite) of
Bellingham WA
- Reconfigured 31' pleasure/work
craft hull
- Built 140 Mark I's & 160 Mark II's
(latter approx. 1ft L & W larger)

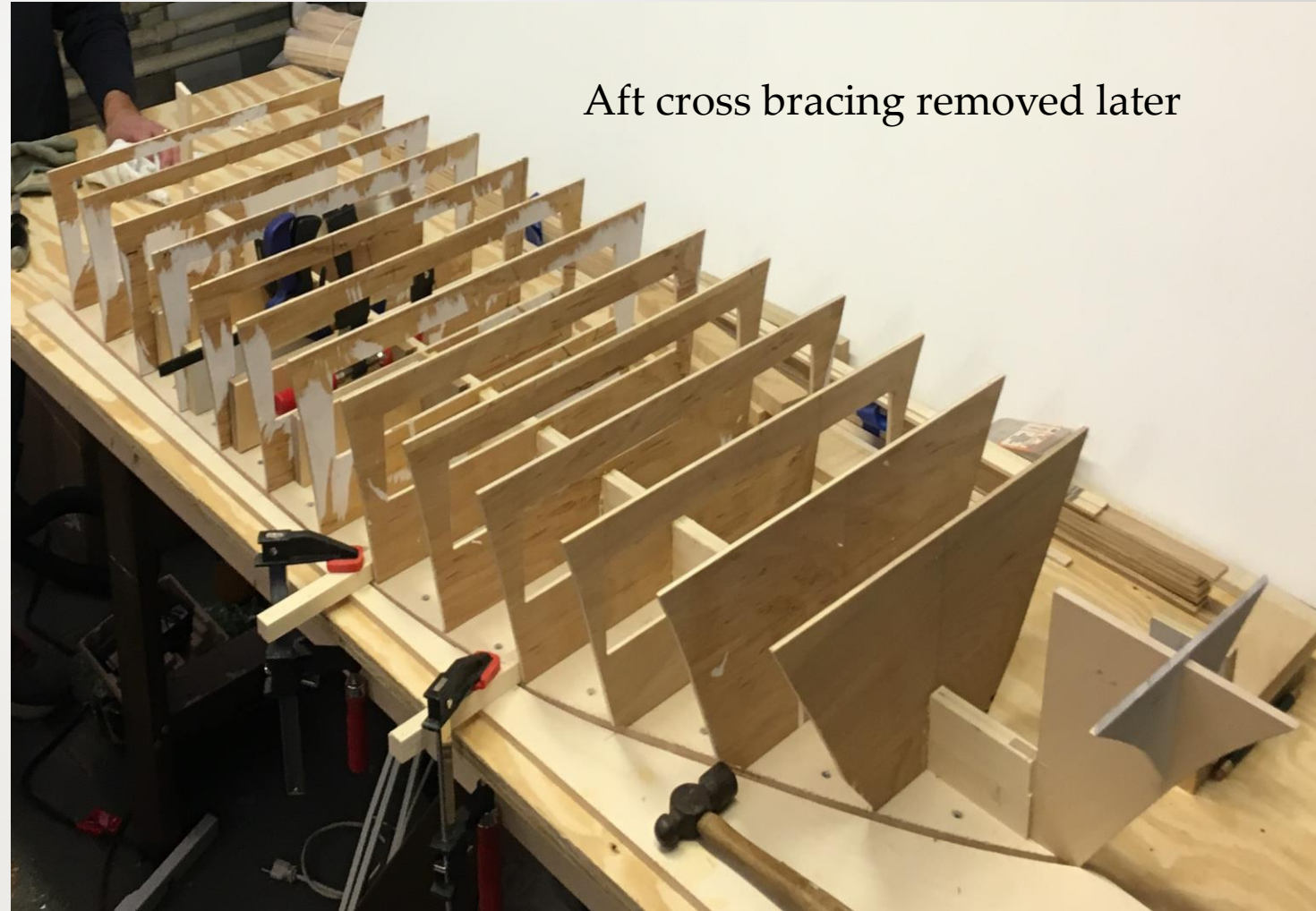


Mark I Model Baseline

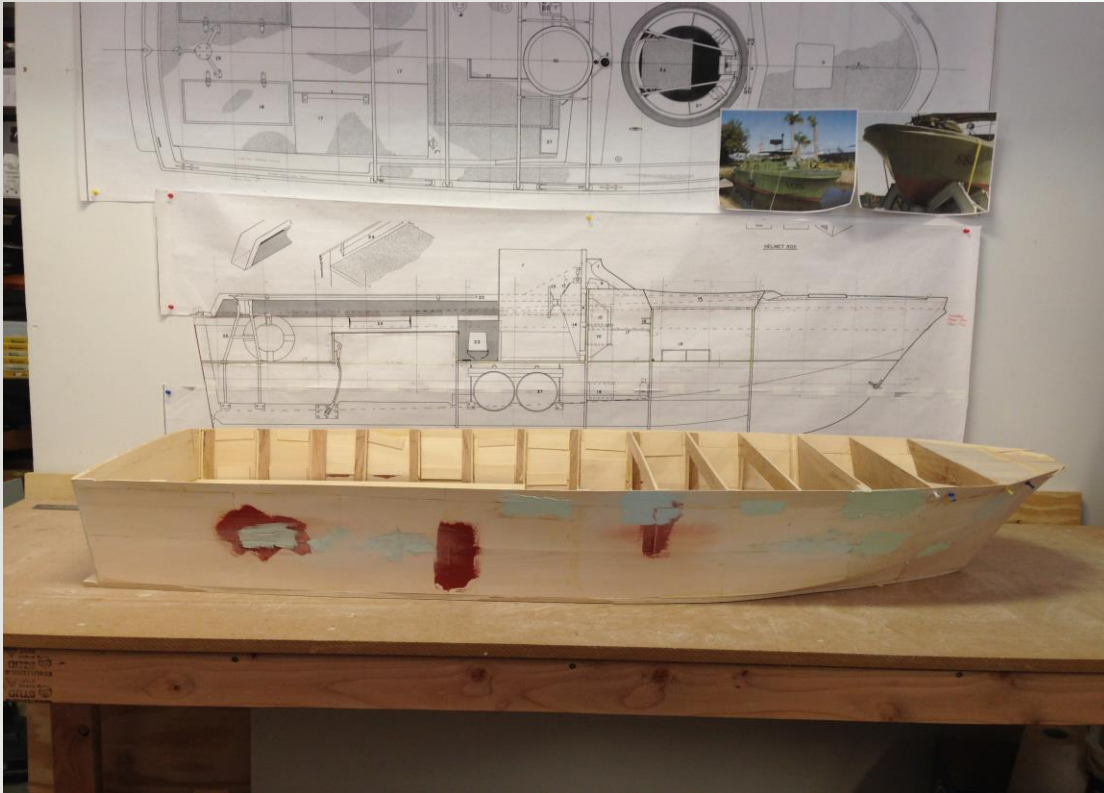
- Scale = 1:6; 31 foot LOA translated to 60+” model
- Abundance of available accessories drove the scale choice
- Drawings:
 - US Navy (NAVSEA 05D) archives (partially dimensioned drawings)
 - Maryland Silver (non dimensioned illustrations, scaled to 1:6)
 - NAV ORD 3741 (Armament) Description, Operation and Maintenance drawings of gun tub
 - *A key and critical late arrival!*
- Photos:
 - Courtesy of Patriots Point and on line sources
- *Waterline model* for museum diorama

Construction of the Waterline Hull

- Internal framework: 3/16" plywood
- Framing stations followed Maryland Silver drawing demarcations
 - Balsa fillers added to the bow
 - Aft frames shown w/temporary cross braces
- Assembled on slotted (1" X 2 1/4") "strong back" fastened to 3/8" plywood waterline base
- Skinned in 1/16" (2 & 3 inch) basswood sheet after fairing



Construction: Completed Waterline Hull



Hard to imagine this ugly “cygnet” will grow up to be a swan (well maybe not a swan)!



Construction of the Hull Topsides

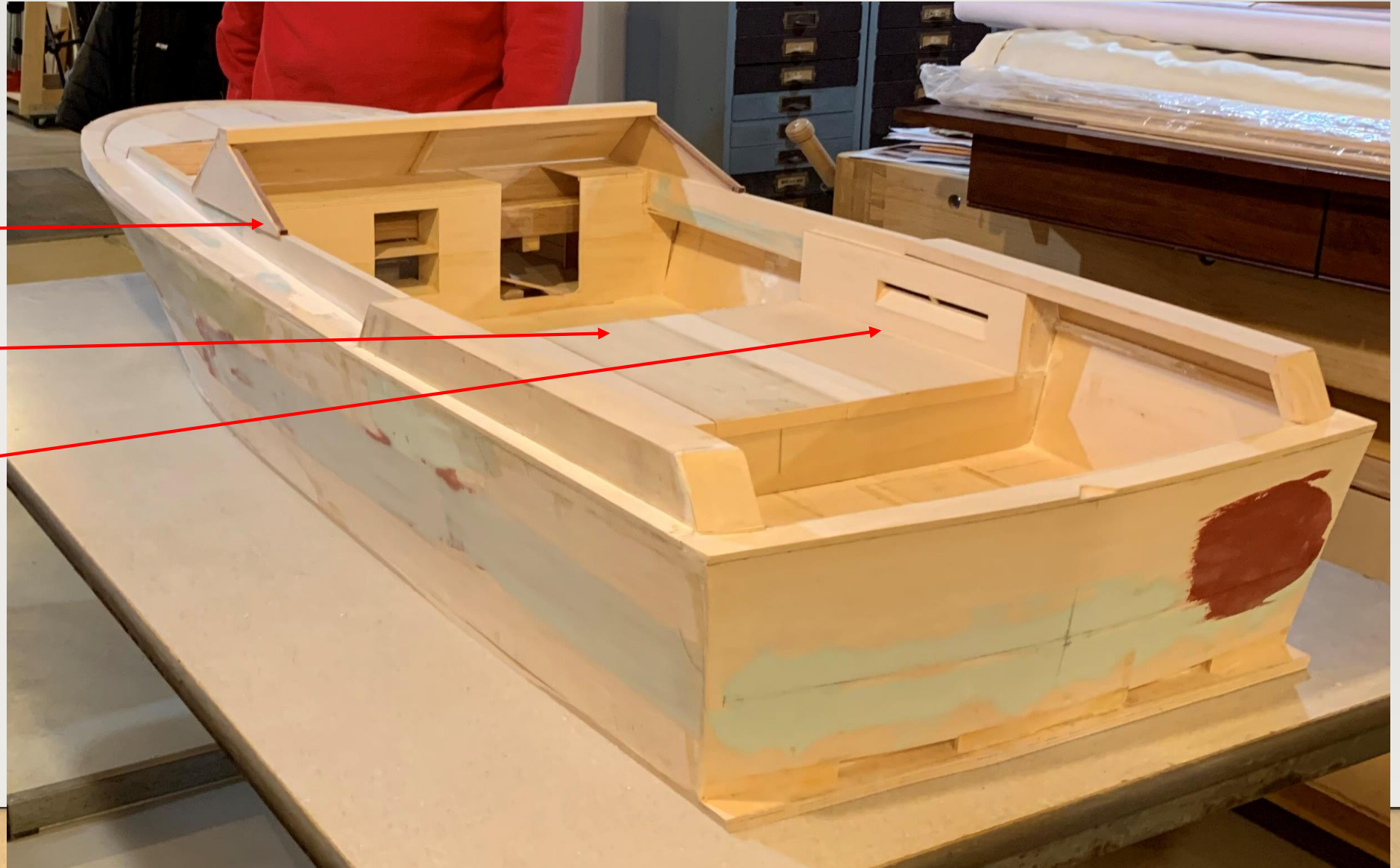
- Fitting out the topsides structure
 - The twin diesel engine compartment
 - The engine air intakes
 - Helm compartmentalized area
 - Sub deck/deck basics
 - Perimeter wrap
 - Hatches

Progression of Construction: Hull Topsides

Helm area w/venturi

Twin diesel
compartment

Engine Air Intakes



Progression of Construction: Hull Topsides

- The bow wrap around prior to planing
- Built up much like a ship frame



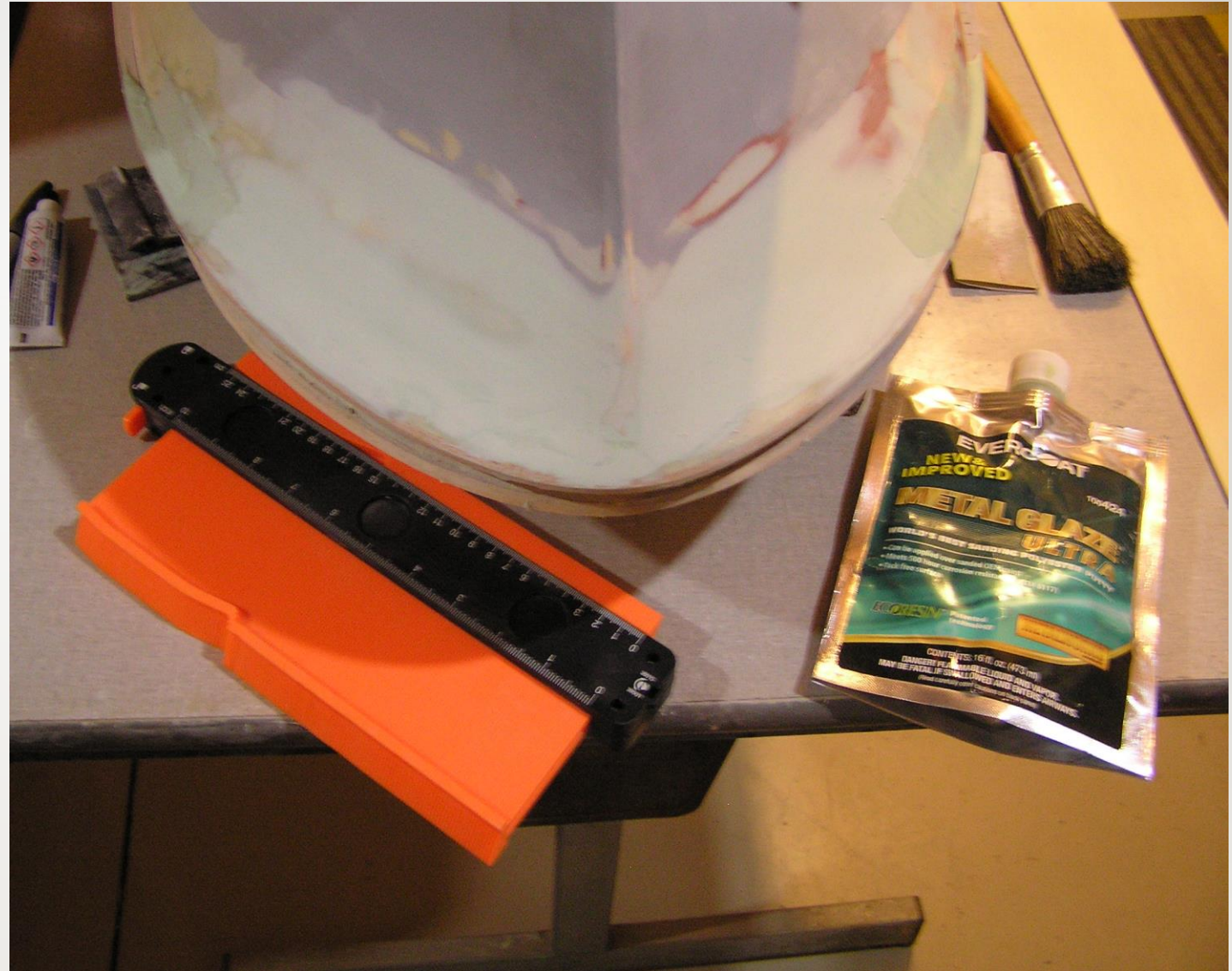
Progression of Construction: Hull Topsides

- Hull topsides nearing completion: fore deck framing added, bow wrap integrated, engine air intakes in, aft risers in
- Next up forward gun tub and bow decks
- Then helm area



The Last Hull Fix

- Bow top sides flair didn't work!
- Realized when building out the rub rail that it disappears into bow contour
- Lots of body filler: *Rage Easy Sand*, and final coat of *Evercoat Metal Glaze*
- Dremel multi tool w/sander attachment made short work of the contouring
- Contour gauge ensured P/S symmetry



Painting the Hull

- Paint spray cans of enamel didn't work!
- Could not keep a wet coat edge ; model too large
- Reverted to acrylic latex perfectly matched color
- Airless spraying with wide pattern nozzle did the trick



Saga of the Gun Tub Construction!

Several forward gun configurations revealed

- Single 50 cal
- Twin 50 cal mounted side by side
- Twin 50 cal separated adopted after research
- *At this point unaware of Ordnance drawings*



Photo courtesy of Patriots Point

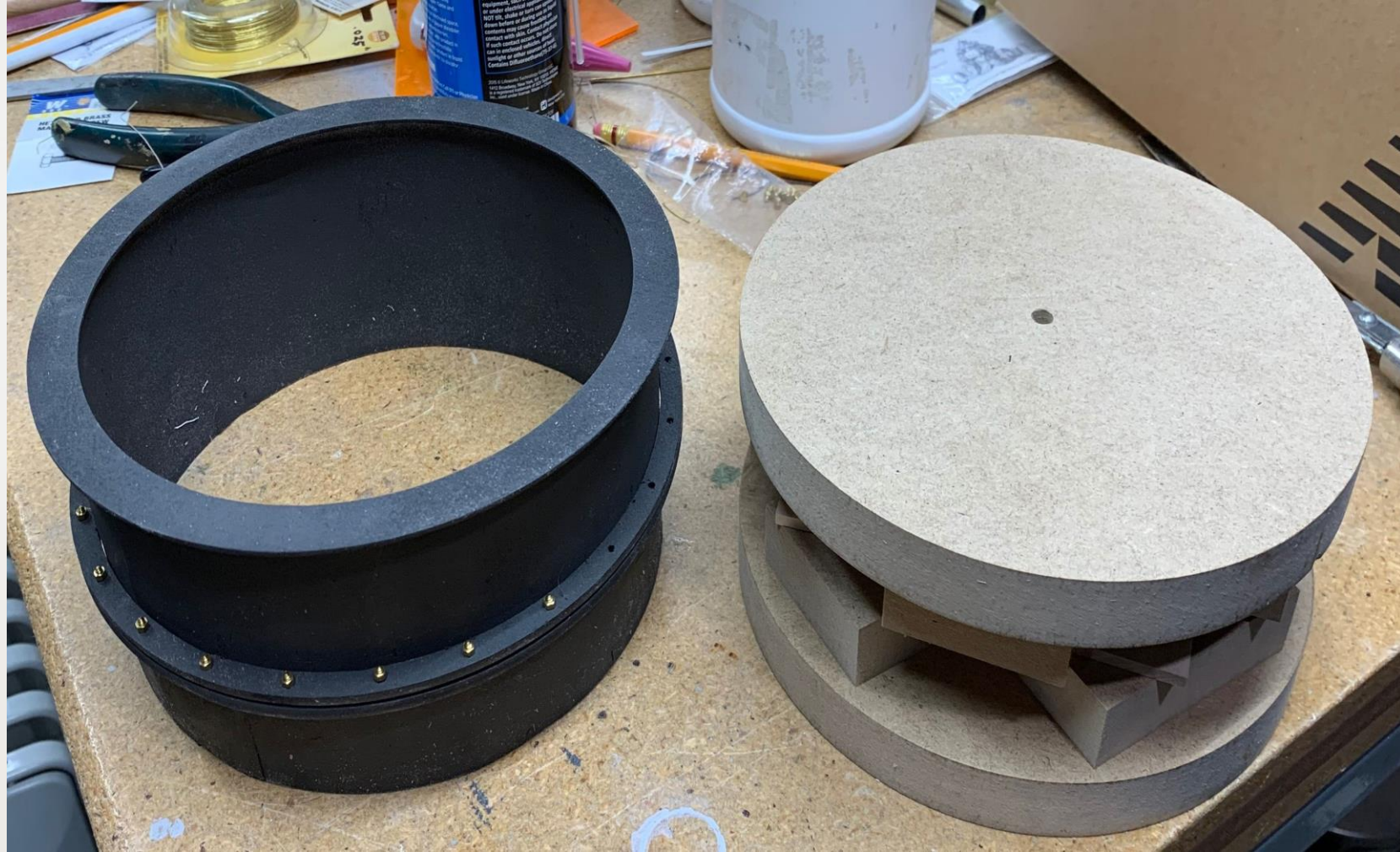
Saga of Construction of the Gun Tub

- First gun tub fabrication
 - Maryland Silver drawing depicted single gun configuration
 - A smaller gun tub
 - Built and scrapped Gun Tub #1 after further research determined the correct diameter was 8" for separated guns
 - Both renditions started with MDF forms; fabricated / shaped on a disc sander

Saga of Construction of the Gun Tub (#1)

Gun Tub #1 Build

- MDF form built
- Laser cut tub rings added
- R/C model fittings modified to simulate bolt ring hardware



Getting It right!: Gun Tub (#2)

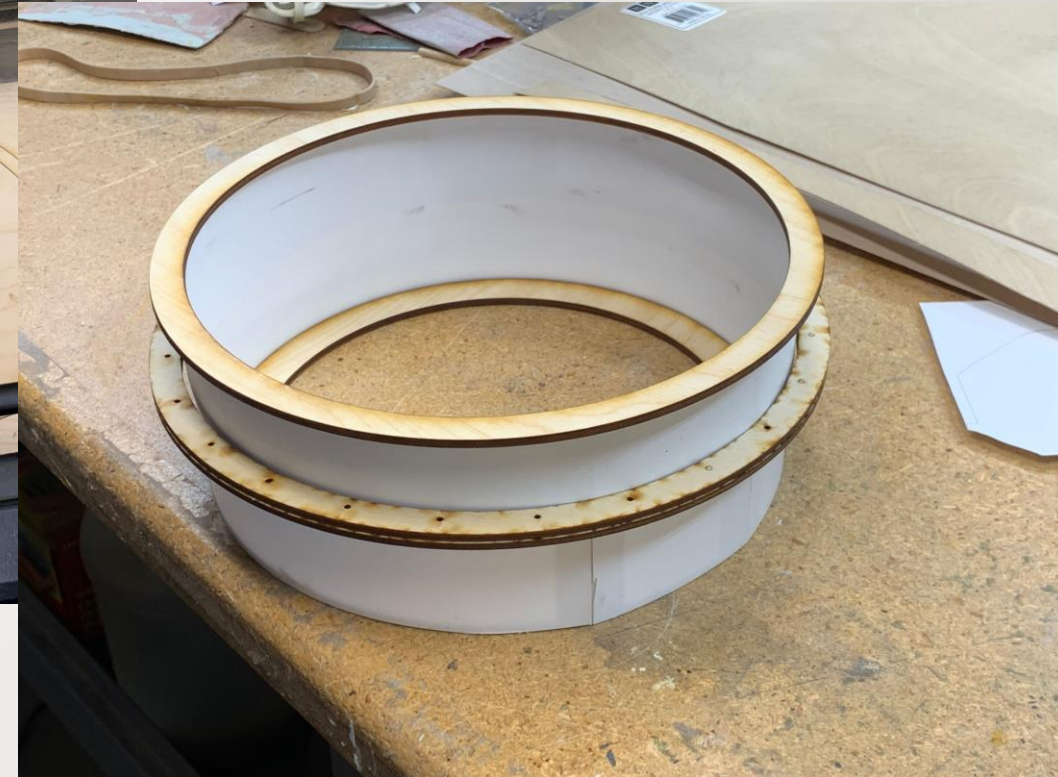
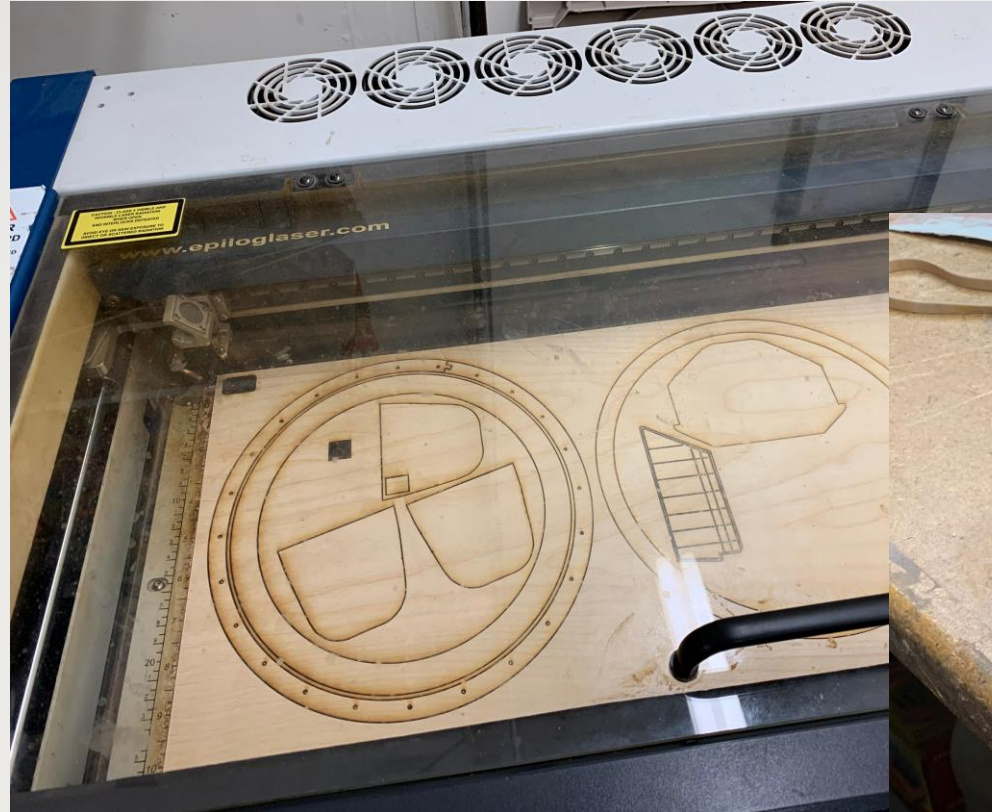
Second attempt for *twin separated 50's*

- Fortuitous that gun deck construction delayed!
- Note size difference for twin separated 50 cal. guns



Construction of Gun Tub (#2) Recovery

- Second Attempt for *twin separated 50's*
- Laser cut tub rings, seat armor
- Styrene sheet (0.020) doubled wrapped tub



Saga of Construction of the Gun Tub

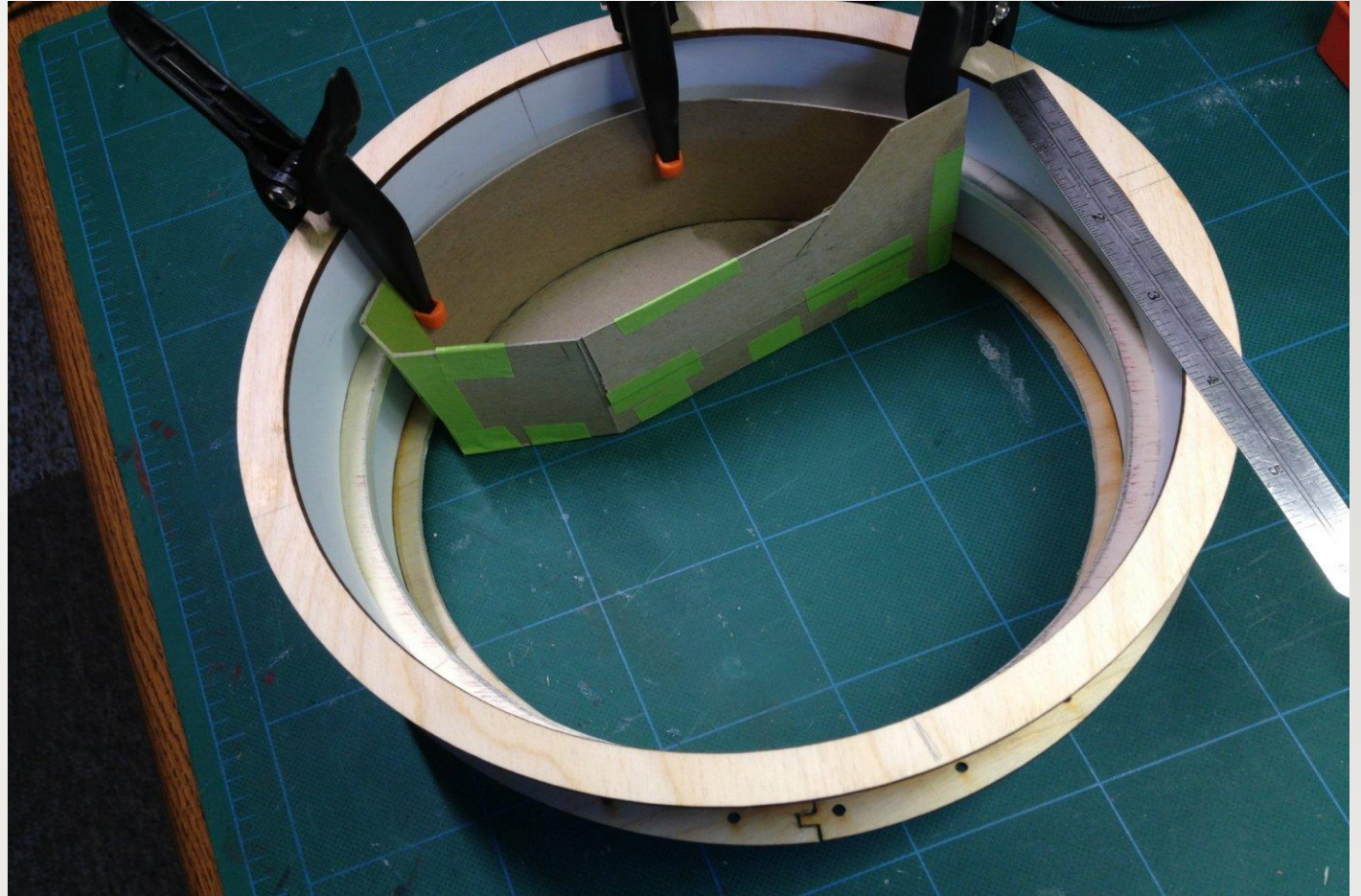
- Complex innards to replicate
 - spent shell catch tubs
 - gun carriages
 - tub steering
 - firing controls
 - 50 cal bandolier feed bins

(Patriots Point photo)



Saga of Construction of the Gun Tub

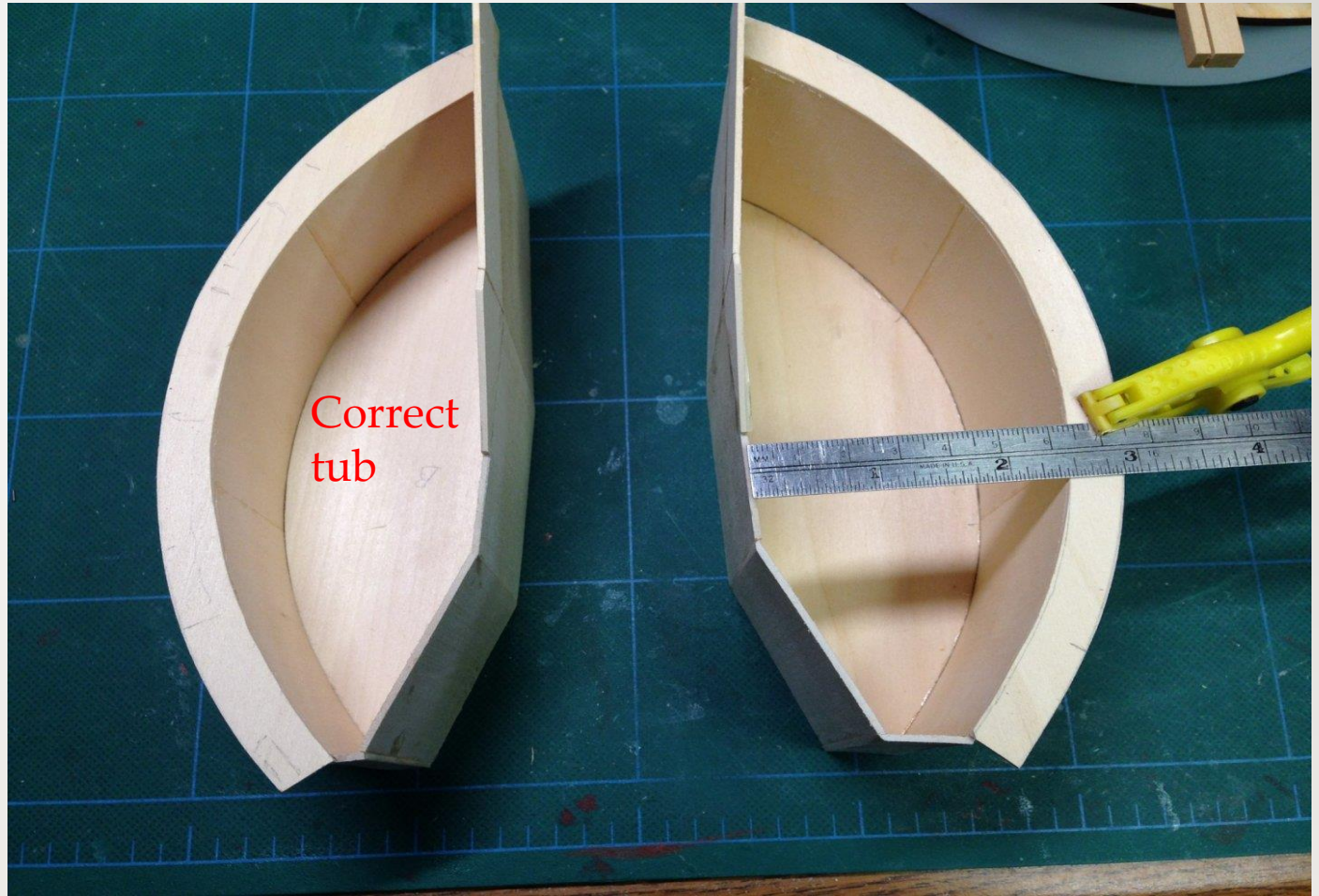
- *Still no dimensioned drawings!*
- Mocked up of shell catch tubs
- Laser cut cap rings and internal mounting rings installed
- *Mockup catch tub width proved incorrect!!!!*



Saga of Construction of the Gun Tub

More Rework!!!!

- Tubs too wide, insufficient room for cartridge compartments
- Reworked to fit correctly
- Handed off to another member for detailing



Saga of Construction of the Gun Tub

In this timeframe much needed information arrives!!!!!!!

MSW member provided document; NAV ORD 3741 Description, Operation and Maintenance of this system

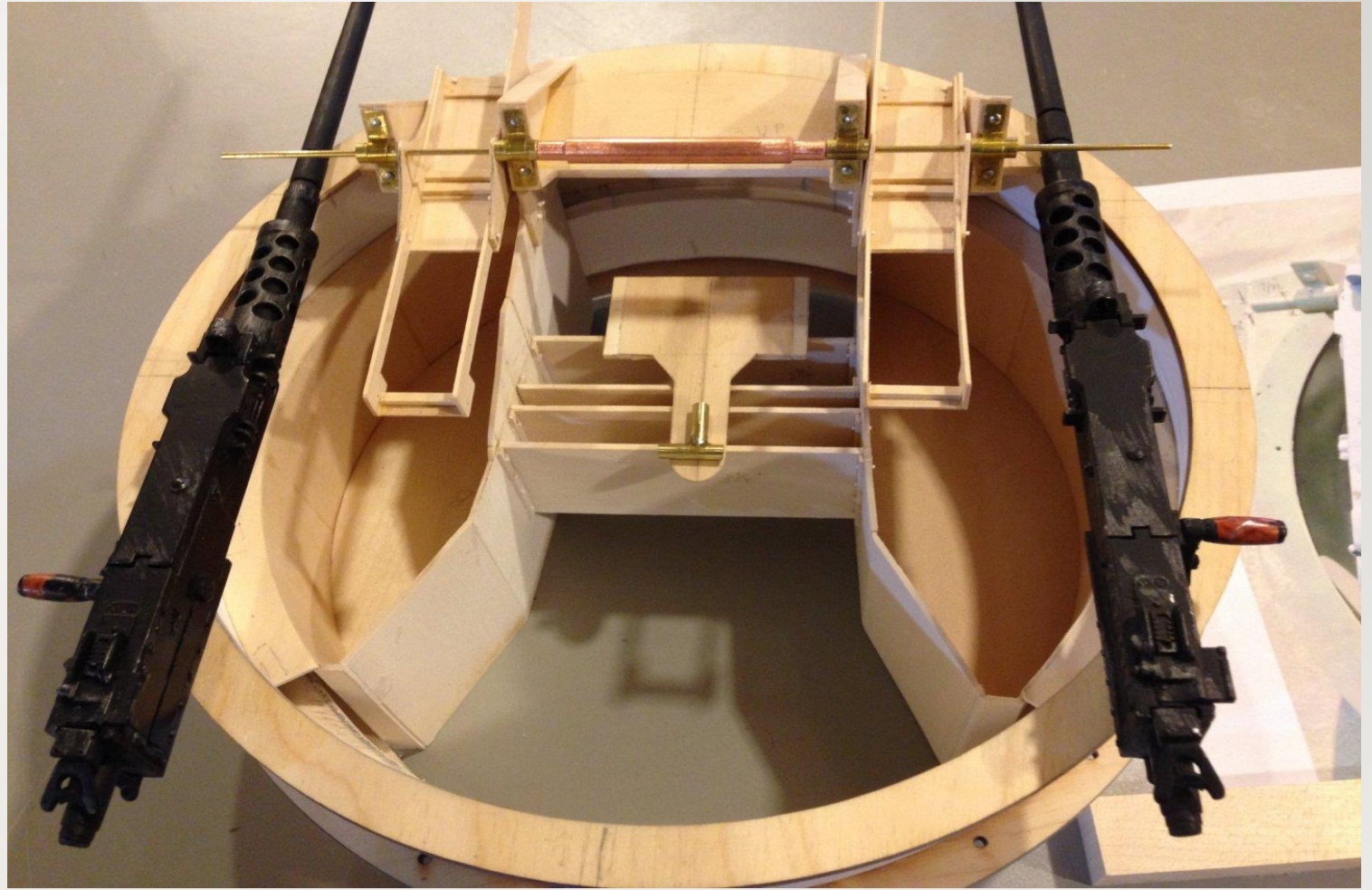
Correct paint identified: Marine Corp #23 Green



Construction of the Gun Tub can finally be completed

A Dry Fit Snapshot

- Spent shell tubs
- Gun carriages: guns aside
- Brass trunnions waiting for carriage supports to be fastened
- Tub (Train) drive
- Ammo bins/chutes
- Sans forward/rear shields
- Fine detail yet to be added



Wait For It: The Completed Gun Tub!!!!

Truly a model in itself!

Faithfully detailed!!!!!!!

- fire control
- steering
- carriage detail
- gun rework
- control panel
- shielding

Without help from MSW member
this project element would have
been much more difficult!



The Completed Gun Tub

For anyone interested there is further detail and information on our web site regarding some early history of the vessel and sub assemblies of an actual gun tub

Modelshipwrightguildwny.org

Found under **Topics of Interest**



Detailing The Interior - Helm

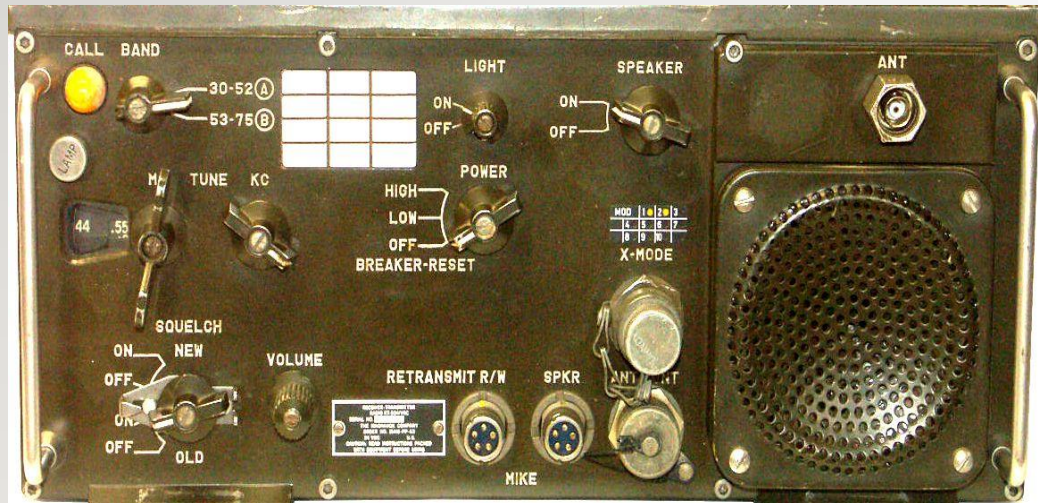


Actual



Model

Detailing The Interior – Radios/Radar



Internet image scaled



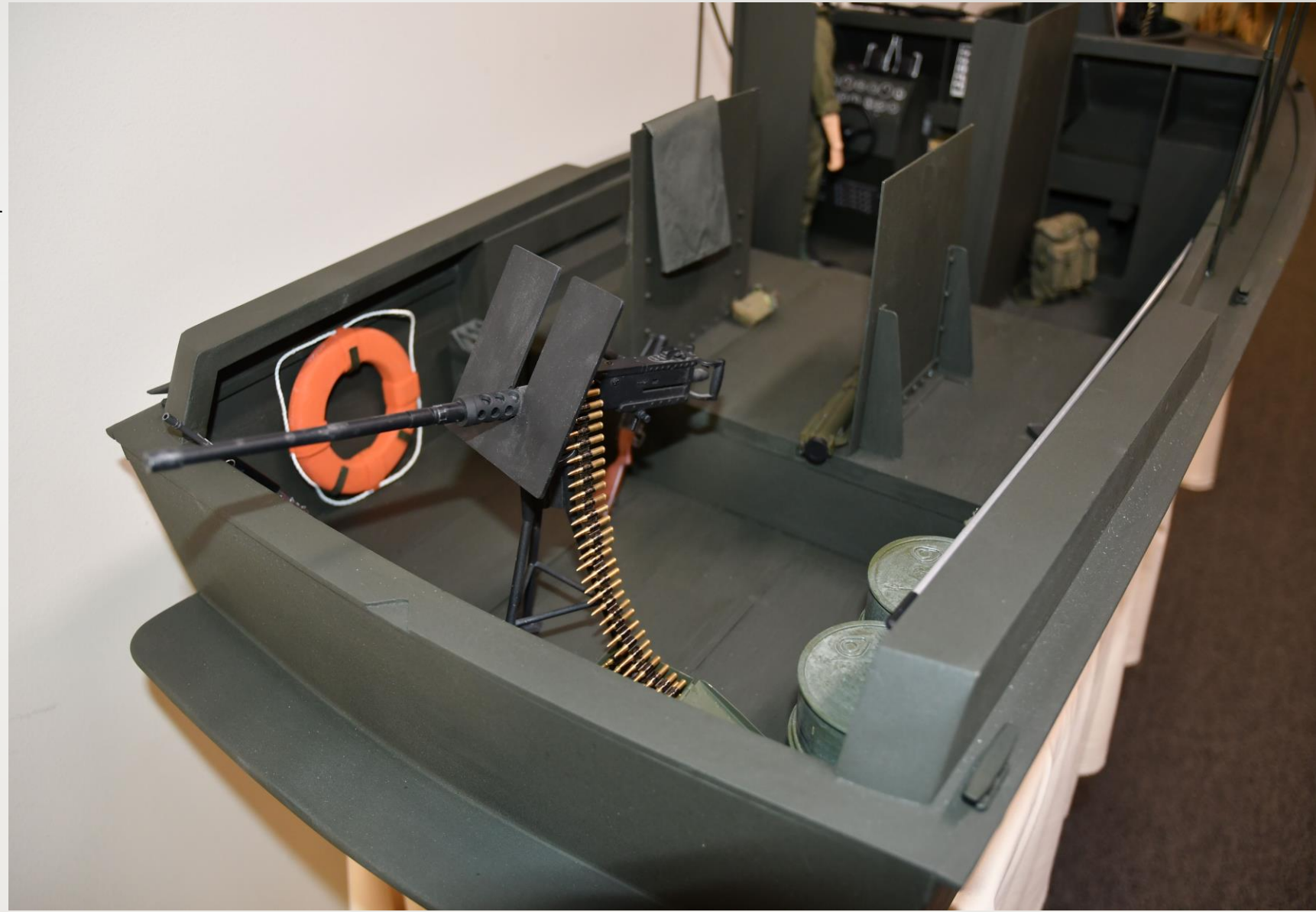
Final Detailing

- Completed gun tub
- Helm and P/S armor plate
- Antenna
- Rear 50 caliber
- Cleats, lifting eyes etc.
- Canopy frame
- Radar Dome



Some Diorama Personalization

- Bandolier and shell case
- Oil drums
- Grenade launcher
- Boat hook
- Field pack
- Life preserver
- Helm pilot



The Journey and Group Contributors

Started
6/2017

Completed
1/2023

- Chuck Baylis
- Bill Emerson
- Matt Felo
- Rusty Jones
- Jim O'Connell
- Lacy Smith
- Joe Lorenzo

Recognizing A Critical Contributor

- As I see it there were three fundamental problems in this project
 - Timely and sufficient information availability
 - An ordered and systematized build process
 - A “driver” to make it happen
- Jim OConnell was the perfect person to take the reins
 - His background and training were essential to the project
 - His build bible, drawings, sequencing and scheduling drove our splintered efforts
 - And not withstanding his ability to build out some of the model’s critical components was essential