Tactical Notes

February 2025

So many kits... So little time...

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Editor's Notes

MMCL Members,

So the winter is still going on. Has this cold weather made you buy some new kits? It has me. I am currently working on a 1/35th Meng Leopard 2 A7 I purchased at our show in September from club member Pete Gay.
I would like to give a big thank you to Myles Marcovitch and Julia Evelsizer for their articles this month.
If you have any content, pictures, kit reviews, tips etc you would like to share in the Tactical Notes send them my way sizemj@gmail.com

Stay warm and build on.

Jason

Membership Renewal: It is a new year, so please renew your club membership as soon as you can. You can renew online (PayPal), in person at the Saturday Workshop or at a Monthly Meeting, or at Scale Reproductions (Please, NO debit or credit cards).

President's Page

"So many kits…So little time…"

Hello MMCL Members,

We will be having our regularly scheduled meeting this Thursday, February 20, 2025. If the weather keeps us from meeting this week, I will try to reschedule for next Thursday, February 27, 2025. We have several items to go over, but I promise it will not take too long. We will be deciding on the 2025 May Smackdown Theme, so be thinking about a possible genre. Also, our Invitational is right around the corner and we need to have a discussion about the show theme. We will also be sharing our Show-N-Tell items, and having our monthly raffle. Be sure to bring a kit or two for the raffle.

Don't forget to RENEW your 2025 MMCL membership!

I have a question for everyone. What do you get out of modeling/being in a model club? For me, it started out as a stress reliever and something I could do with my son. That changed quickly when he discovered girls. I stayed with it and found that I could escape reality and go back to a time that peaked my enthusiasm and creativity. I was a kid again! As I continued to see new items at SRI, I started researching WWII battles for certain projects. I soon realized that I was reading more historical information than I had ever done before. And of course, my model collection began to grow. After talking with Brian at SRI, he told me about the MMCL. I soon began to go meetings and the Saturday Morning Workshops. As time went on, I learned new techniques and found like-minded individuals. I have made a ton of friends over the years and absolutely enjoy attending our meetings, Saturday Morning Workshop Session, Friday Night Fights, and our model shows. I am so glad that I got back into the hobby in 2001 and found a modeling family! The friendships I have made are priceless. I hope you have a similar story and enjoy the MMCL as much as I do.

As I have said many times – "There is nothing like this hobby!"

Thanks to all the members for their support!

Rich

Building an Engine Room: Part 1

Creating a 1:48 scale model of Engine Room #3 of the Battleship New Jersey BB62

By: Myles Marcovitch

Starting in 2019, I began a “Holy Grail-like” quest to create museum quality models for display in the Battleship New Jersey. While I had a fleeting chance to get my 2012 Missouri model on the real ship in Pearl I couldn’t get it there. When I built and had displayed both the 16” turret and the 5”38 gun system in the Ward Room Lounge in the “Big J”, I had reached my goal through a different, but equal path.
(Image 1:)
(Image 2:)

Ryan Syzmanski (the Battleship Museum curator) and I discussed what to do for an encore. I suggested one of its four engine rooms. His response was “Wow!”

The Engine Room

I believe if I can imagine it, I can probably draw it. If I can draw it, I should be able print it. And if the above were true, build it. The engine rooms are massive, but congested. There’s no way to view them in their entirety. But I could imagine them.
(Image 3):

Ryan spilled the beans by opening up a discussion with his 255,000 subscribers to the New Jersey YouTube series, polling them on what my next project should be. The consensus was an engine room. Unlike the previous projects, without dimensioned drawings, this would be impossible. There were too many pieces of equipment in a confined space.

My strategy for custom projects is to attack the most challenging parts first. If I can’t create them, the rest is moot. For this project it was the main reduction gear. (MRG)

The engine room was going to have cutaways of the high and low pressure turbines, main condenser and the main reduction gear. The latter required the ability to draw a large double-helical gear visible in the cutaway. That’s where I started..

The Iowa Class’ main propulsion systems were created by two American manufacturers. The Iowa and Missouri’s by General Electric and New Jersey and Wisconsin’s by Westinghouse Electric. Today, neither division exists. I sent a request to a possible GE unit, but got no response. I also contacted the Philadelphia Gear Corporation. I did get a response from a retired naval captain, Francis Spencer III. He explained that while they didn’t build these parts for the Iowas, they did create the massive ring gears controlling the 16” gun rotation. Still, he gave me a couple of leads. One was the Naval Historical Command and the other the National Archives. I contacted the Archives with an encouraging answer from a fellow named Jared. They had an original set of engineering drawings for the Battleship New Jersey including an index of the drawings. To view original drawings meant getting certified, which I did. They are housed at the Archive’s College Park, MD facility..

While reviewing the index. I see mention of 6” and 12” guns. These guns ARE NOT on the New Jersey. Then I notice 1905 and BB16 on a card’s bottom! There was another New Jersey built in 1905 before the Great War! I’m doing BB62, the New Jersey built in 1943. The whole deal suddenly went South! No drawings = no project! While there were more modern drawings on

microfilm, they are not free.

At the 5" model delivery in August, Ryan gave me a book by John Miano, “A Visual Tour of the Battleship New Jersey”.suggesting that with John’s work, he might help me get some documentation. During that visit I got my first tour of Engine Room #3 taking about 100 pictures. I eMailed John Miano asking for help. He responded that he had drawings of the engine rooms, if he could locate them. Ultimately, we used DropBox to transfer some very big files. 35 of them!

The project was now on!

The drawings were fabulous even if some were hard to read. They had ACTUAL MEASUREMENTS to accurately scale all of the necessary equipment. The drawings detailed the very-hard-to-view equipment foundations. John subsequently sent even more drawings. The number is over 40 now.

Important drawings were sections looking fore and aft and athwart ships showing every piece of equipment, their foundations and dimensions. First task was scaling all of them and then arranging them as the room really is. John also sent specific details of every ladder and catwalk grating. As the project is progressing decisions include how much non-equipment to include. While interesting, all the pipes and catwalks block viewing other important stuff. These sectional drawings were a two-edged sword. It was very difficult to tell what was in front of or behind what, and I made several early drawing AND printing errors from misreading them.
(Image 4)

The Iowas were the first battleships to have its propulsion arrangement. There are eight, watertight compartments: four fire rooms alternating with four engine rooms. The propulsion system is massive, taking up almost all the space from Turret 2’s back to Turret 3’s front; (300+ feet). They extend from the 3rd bottom (hold) to the 2nd Deck. While the boilers rooms use the full height, the Engine Rooms only reach the 3rd deck. All of these spaces are accessible via broadway, the longest straight passage in the ship. Previous BB classes combined fire and engine rooms. The Iowas’ being 200 ft longer, had the space to segregate them for better damage control.
(Image 5)

I had learn how to draw those helical gears. I already had a SketchUp plug-in to make spur gears. Simple helical gears aren’t difficult either, but making one that was a foot thick required another plug-in, Fredo6Scale. With the added tools, the end result is a perfectly proportioned helical gear.
(Image 6)

With good gears, I turned my attention to another very large piece of equipment; the main condenser. This vessel condenses spent steam exhausted from the low pressure turbine to feed-water to be used again. I wanted to show the coolant tubes and added a little cutaway to view inside. The 27,000hp low pressure turbine sits on top of the condenser and discharges directly into the condenser. Its foundation wraps around the condenser directing its mass down to the base tied to the 3rd bottom (top of the triple bottom hull).

Designing the condenser itself wasn’t difficult. The massive seawater conduits that bring water to and from the condenser was challenging. Seawater enters via two paths through 3’ diameter pipes. Moving under 8 knots, a steam turbine-driven centrifugal pump forces water into the condenser. At over 8 knots an angled ram pipe, facing in the ship’s forward direction, forces seawater into the condenser. The discharge side also leaves at angle facing away from ship’s forward travel acting in reverse to help pull the water through the system.
(Image 7):

Sitting atop the condensate pump is a small steam turbine. There were seven steam-turbine driven machines in the engine room. The noise level from them, coupled with many electric motor-driven machines, must have be horrific. In recognition of this fact, the sound-

powered phone was contained in a noise cancelling cubicle.
(image 8)

The Low Pressure Turbine is printed. Besides drawing the gears, this was another significant SketchUp challenge. I drew airfoil-shaped blades based on the section drawing I had of every part. It was an accurate representation. I chose to section the turbine into three parts: bottom frame/bearings, back upper section with inlet channels, and the rotor in its entirety. Turbine housing geometry is complex stressing my drawing skills to their limit. While getting the housing parts to print well took a couple of attempts, getting a good rotor print took five. The Elegoo Saturn 4 Ultra printer reproduced all of blades correctly shaped, but were too frail to exist in our dimension. They were as fine as hairs and flopped over accordingly. It took four more iterations to draw a respectable blade system that both looked okay AND held up during cleanup and post-curing.
(Image 9:)
(Image 10:)

With experience producing the LP Rotor, designing the HP rotor went much faster. However, the HP turbine has a complex throttle system sitting on an intake manifold. The 600 psi main steam enters via two 8’ pipes and distributed to into the rotor through seven, spring-loaded throttles opened sequentially as the ship requires more speed. Drawing coil springs was helped by a tool called “Curve Maker”. The throttles are connected to the master control board via a gear box and cam shaft opening the valves in order.

The manifold also had compound curves. not easy to draw with native SketchUp. Making this task easier is a plugin, Fredo6Curviloft. You draw compound curves just like building a balsa model airplane with a series of contoured frames and Curviloft applies the skin connecting them.
(Image 11)

Complicating the drawing is the asymmetrical HP exhaust collector. Steam enters the HP turbine at 600psi and 800ºF and leaves at 46psi via a very large crossover pipe to the LP turbine. The collector is not a simple cone. Again, Curviloft helped skinning a series of profiles approximating the various cross-sections. Took a little fiddling, but the results worked. The end result was pleasing. It’s not printed yet and the collector wall thickness may be too thin. If it fails, I’ll edit the drawing to add more material.
(Image 12:)

The gear illustration shown earlier was the final product of much design work. While I had explicit drawings of the entire MRG housing, I had no information about the gears other than the total gear ratio of the assembly. With the RPMs in from both turbines and RPMs out for the propeller shaft, plus housing clearances, I calculated approximate sizes of the two-stage reduction sets. The bull gear comes out to 13’ in diameter. In the 1:1 MRG, the first reduction stages of the turbine inputs are different due to their different operating speeds. But the 2nd stage has to engage a single gear and therefore, their ratios are equal. With the viewing audience unable to see any difference. both sides are the same size. Drawing for 3D printing is more complex than just making nice SketchUp drawings requiring changes to wall thickness so they would work as printed parts.
(Image 13:)
(Image 14:)

I got a successful print of the bull gear. It’s in 2 halves to improve printing success. The new printer does an exceptional job in replicating very fine details will no layer lines. I had some ⅝” water pipe left over from the 16” project that will serve nicely as the prop shafts for this project.
(Image 15:)
(Image 16:)

Time was spent interpreting and drawing the foundations for the HP turbine, and the massive structural steel system surrounding the MRG. While the propeller shafts have massive thrust bearings located much further aft, there is residual thrust on the MRG and this structure keeps that thrust off the turbines. The drawings are ambiguous and required a lot of estimation.

After viewing one of Ryan's New Jersey videos I discovered that the prop shafts are 32" in diameter, not 24" as I drew. This required changes to all of the affected interactions. I had already prepared some of those parts for printing, which had to be redone. I can fake things as long as I don't know the true sizes. Once I have that information, I have no choice but to make the corrections.

(Image 17:)

(Image 18:)

In part 2, design work and 3D printing will continue with all of the many auxiliary systems and describe printing progress.

IMAGES

IMAGE 1: "1:72 Scale Model of Entire 16"50 Cal Turret System."

IMAGE 2: "1:48 Scale Model of Entire 5"/38Cal Secondary Battery System."

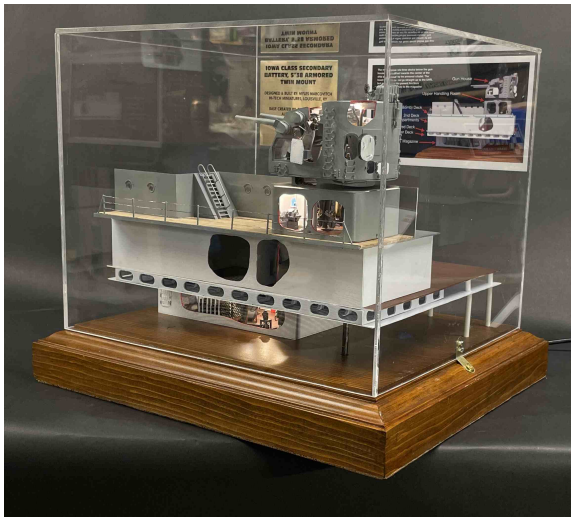


IMAGE 3: “Cross-Sectional Drawings of Engine Room #3 Provided by John Miano.”

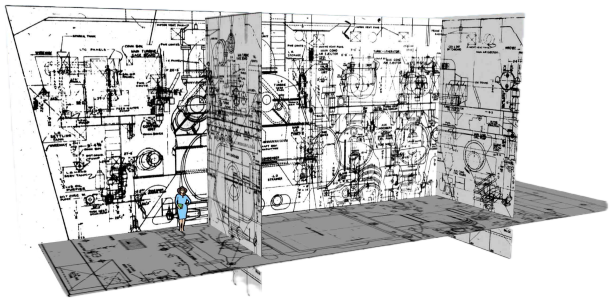


Image 4: “Arrangement of the Iowa Class Segregated Propulsion System.”

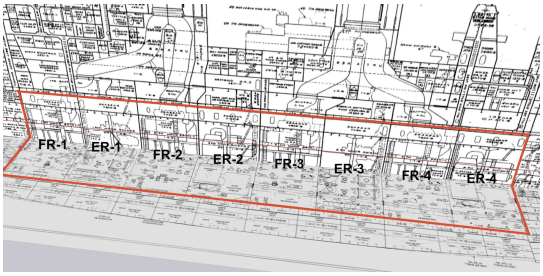


Image 5: “The Entire Main Reduction Gear Set. The character is to scale.”

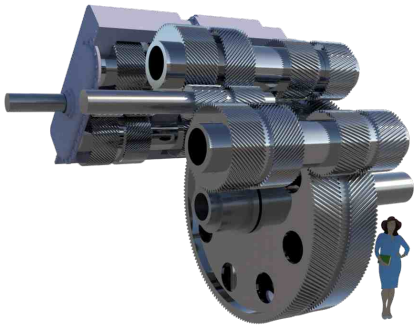


Image 6: “First Parts Completed on Project; The Main Condenser Assembly. Man standing next to structure is to 1:48 scale.”

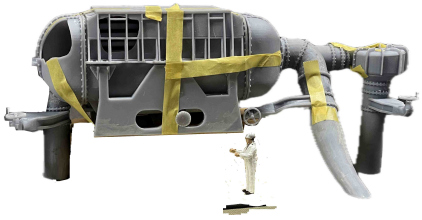


Image 7: “Steam Turbine Driven Main Condensate Pump.”

Image 8: “Low Pressure Cutaway Design in SketchUp.”

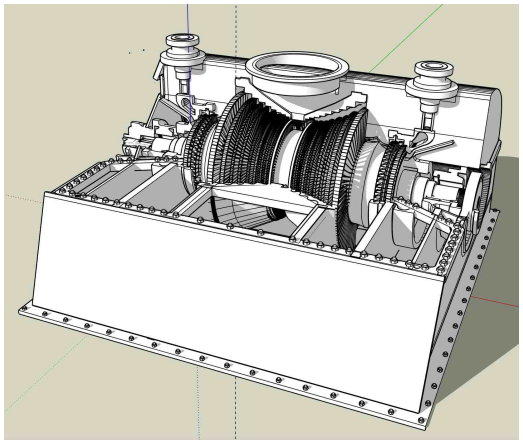


Image 9:“Assembled/unpainted Final 3D Print of Low Pressure Turbine.”

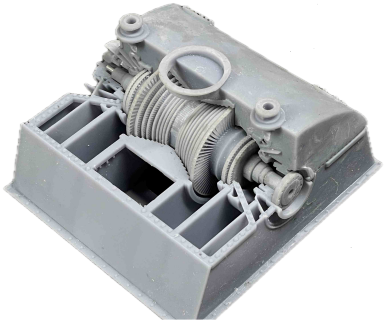


Image 10: “HP Turbine Throttle Body Separated as Alternative Method to Print Turbine.”

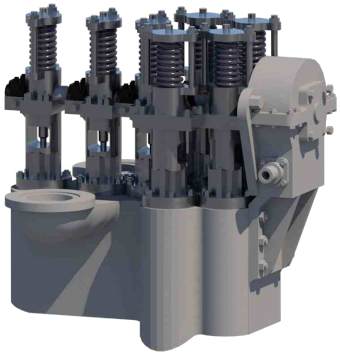


Image 11: “Complete HP Turbine with the Three.” Major Components: Bottom, Upper back w/ Throttles and Rotor.”

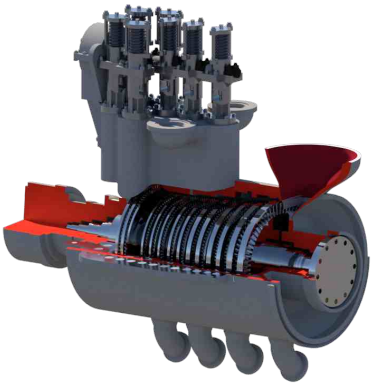


Image 12:“Exploded Rendering of Complete Main Reduction Gear Showing the Part Print Scheme.”

Image 13: “X-ray View of Main Reduction Gear (as modeled) Showing Size and Location of the Massive Bull Gear.”

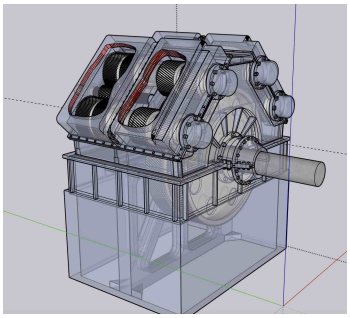


Image 14: “Assembled Main Reduction Gear as it Will be Seen in Model.”

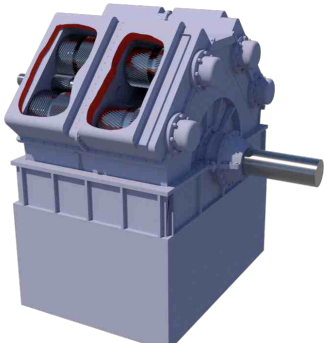


Image 15: “Successful Assembled Bull Gear Test Fit on PCVC ⅝” Pipe Serving as the Propeller Shafts.”

Image 16: “Bull Gear Print Showing Both Halves and Internal Ribbing That Prevented Warping.”

Image 17: “WIP of Entire Main Propulsion Unit. All of What’s Seen Here is Either Printer or Ready-to-Print.”

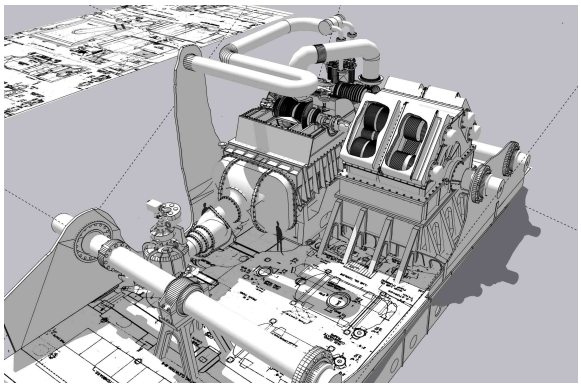
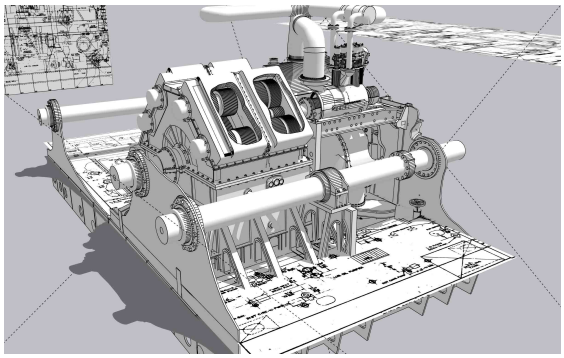


Image 18 “Reverse View of Main Propulsion Plant. Still a Lot of Design and Printing Before Assembly is Complete.”



The Death of The Hobby?

By: Julia Evelsizer

I love this hobby of ours, scale model building. Most of that time has been spent alone at my bench without input from anyone else interested in the hobby. However, as I have expanded my circle out to find friends, clubs, and events someone within that circle will inevitably say that scale model building is dying. This does not appear to be true from my perspective, so I did some research.

The first plastic models were manufactured at the end of 1936 by Frog in the UK, with range of 1/72ndscale model kits called “Penguin” In the United States.During World War II, Hawk helped to supply plastic identification models for use in military training. In 1946, Hawk produced one of the first all-plastic model kits, the Curtiss R3C-1 racer. Four additional kits (all classic 1930s racers) were added in 1948; and it appears the hobby started growing here,and never stopped growing, and will continue to grow.

Even in the digital age scale models are used as tools in engineering, design,testing, promotion and sales, filmmaking special effects, military strategy, and of course in many hobbies such as rail transport modeling, wargaming and racing; and as toys. Model building is also pursued as a hobby for the sake of artisanship itself.

According to various market reports, the model kit market is experiencing positive growth, with a projected CAGR (compound annual growth rate) indicating a steady increase. This is a clear contradiction to what most people in the hobby believe to be happening.

According to my research, this market trend currently transpiring is also accompanied by a shift in the focus of the hobby, in terms of genres. For years the most popular genre was World War II. Many of us are World War II enthusiasts because our fathers or grandfathers were a World War II veteran. Currently with the end of World War II being almost 80 years ago, younger modelers are not interested in that war like we are. Unfortunately, most WWII veterans have passed on and are a shrinking number every day. If someone started modeling when they were around 8 or 10 years old like a lot of us did their Father might of been a veteran of The Globe

War On Terror in Iraq or Afghanistan, while their grandfathers may have served in Vietnam. These wars are not revered in the same way World War II is.

Therefore, model builders are moving towards intellectual properties they are familiar with from television, movies and videogames. They are interested in Star Wars, Anime, Gun PLA, and the ever-popular Pokémon. This younger group of modelers are actuallythe driving force pushing the upward trend in sales; there is new blood coming into the hobby. However, they are a hidden force in the modeling world as many of these younger modelers do not have allegiance to a local hobby store nor do they join clubs. Instead, they find what they want from online marketplaces like Amazon, Hobby Town, and Hobby Lobby. They are also using social media to communicate with likeminded people on websites like Reddit and Discord.

Between 2023 and 2028, the Model Kits for Hobbyists Market size is forecast to increase by $219 million - a CAGR of 3.65%. The market is experiencing significant growth due to several key trends, such as increasing disposable income of the middle-class population. This is driving demand for hobby activities, including model building. Additionally, the application of 3D printing technology in creating model kits is gaining popularity, offering consumers more intricate and customizable options. The rise of e-commerce platforms is further fueling growth by providing easier access to a wider variety of model kits and accessories. Seasonal demand and the short life of merchandise and collectibles are also contributing factors, as hobbyists seek the latest releases and limited editions. These trends are fueling market growth via opportunities for manufacturers and retailers to innovate and cater to the evolving modern hobbyist.

North America is estimated to contribute 36% to the growth of the global market during the forecast period. Technavio's analysts have elaborately explained the regional trends and drivers that shape the market during the forecast period. North America contributed the highest revenue share to the global model kit market. The US and Canada are major revenue contributors in this region. Beginner modelers are also shifting their focus toward scientific and educational model kits, as playing with these model kits will result in the enhancement of knowledge among kids. Therefore, vendors are introducing new model kits every year, including new aircraft and vintage classic car model kits. The developments in the market are expected to propel the growth of the hobby.

My conclusion is that the hobby is clearly thriving, flourishing and growing. However, like anything that grows the hobby is also changing with the people, times and technology. The digital

world has forever changed how things are done, both now and continuing onwards. If current trends progress steadily, I foresee a future where we reverse the process of model building. Technology is moving towardseither designing our own kits digitally on our home computers or buying someone else's designs and utilizing3D printer technology to make our models kits within the comfort of our own homes. Furthermore, where we were once model builders we are now subdividing into more and more niche and isolated subgroups (i.e., Automobiles, Aircraft, Armor, Ships, etc.) This results in the hobby appearing smaller than it actuallyis.

Sources

Market-wide Research Report, Plastic Model Kits Out Look 2024-2032
Advance Market Analytics, An Analysis Looking Forward to 2031
Model Kits For Hobbyists Market Analysis North America, Europe- US, UK, Germany, China, Japan - Size and Forecast 2024-2028
Data from Zippia was also used.

I would like to start putting in some pictures of members completed kits in the newsletter. So this week I have a few pics from Bill Schulz. Bill Thanks for sending them to me.
Please if you have finished a model and would like to share it in the Tactical Notes, please send it to me at sizemj@gmail.com

Bill finished this Tamiya 1/48 P-51 Mustang gear up hanging from the ceiling like a 73-year-old kid he says. The other kit is an ancient (1980 ?) Esci Tiger II.

Don't Forget to join us on our Saturday Morning Workshops. The Workshop is open most Saturdays from 6 AM to Noon.