USS Tunny, SSG-282

Conversion kit for AFV Club's 1/30 scale Gato class Submarine 1942, kit # SE73510

This conversion kit will require some measure of modeling skills.

This model is created using the SLA (Stereolithography) rapid prototype (RP) process. This is a process where a CNC-controlled laser is used to harden a light sensitive liquid resin, creating the parts described in the CAD file. So the material is a flavor of resin and you should take normal precautions when sanding and filing it.

Some general guidelines:

Handling: At the end of the day the parts are made out of non-structural resin. It is a toughened resin, so they are by no means brittle. But just a heads; it isn't plastic, and given some of the structures are thin-walled, just be aware.

Surface preparation: After some additional experimentation I've revised my recommendations regarding surface prep, so take note. The first point of order is that you will want to clean you parts before you do anything with them; the RP process always leaves a residue of the wax support structure. And as you might be able to imagine, wax on the surface won't make for good paint adherence. I would first recommend a bath in very hot tap water and soap (mild liquid dish washing soap). This will effectively melt off any lingering wax residue. What I did was to crank my tap as hot as I could physically handle as I held the part in the water stream and then lightly brushed any nooks and crannies with a short bristled brush, doing this for each individual part. After addressing each part individually, the current wisdom is to soak the parts in a fresh batch of soapy water for a few hours. You *should* see a dramatic difference in the part's surface texture as the wax residue melts/washes away.

Before moving forward with anything ensure you have cleaned off the wax residue completely using one of the above methods, I can't stress this enough. Do multiple washings, don't assume one and done. In the process of starting this build I rushed this part of the process and proceeded thinking I had all the wax off. Now its mostly assembled and primed and I have wax leeching out, wax that I must have missed, so learn from my mistakes!

Once you have cleaned your parts set them outside in the sun for a couple of hours (or, if you have it, a UV light will suffice). Why? UV laser light is used to harden the resin during the SLA process but it doesn't always completely cure the resin, thus a post-cure stint outside in the sun, for a couple of hours, should do the trick.

Gluing: I typically use Cyanoacrylate glues (superglue) to adhere the RP parts to the plastic kit, or RP parts to RP parts. However, using superglue leaves you very little margin of error, especially with parts that slip fit together; once it's stuck, it's stuck. An alternative is to use 5 minute epoxy as it gives you a window of time to position the part. But epoxy needs a surface with "teeth", especially when bonding plastic to plastic. So make sure you well prepare both surfaces with aggressive sandpaper prior to bonding.

Painting: The Fine Detail Plastic rapid prototyping process produces some of the finer surface

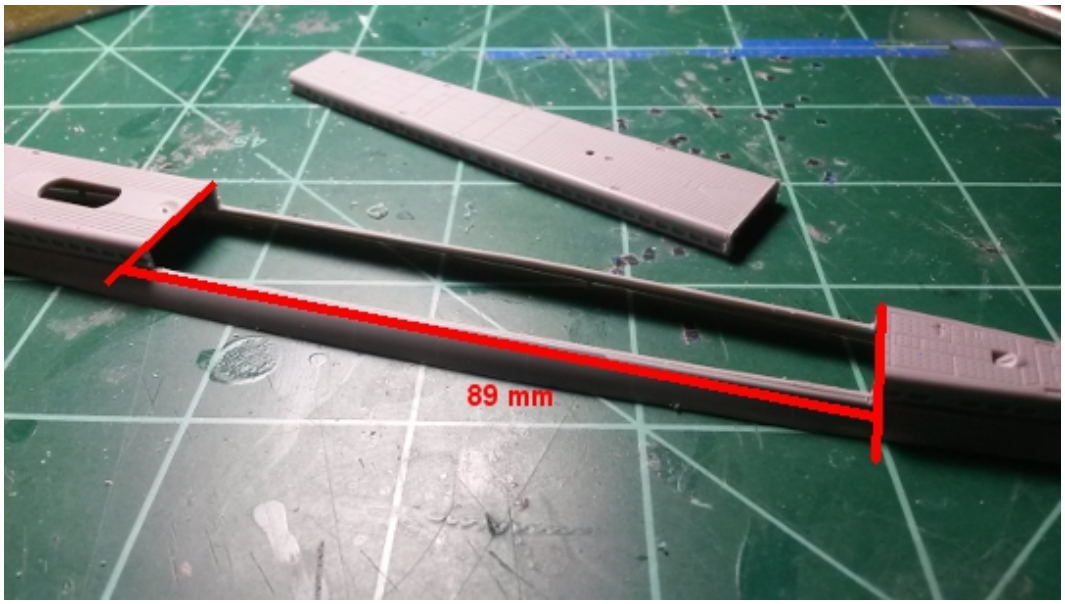
finishes. However, that doesn't mean it's completely smooth; there will be steps/striations. As for how to deal with these striations, give the parts an initial sand to give the surface some teeth (400 grit), and then get yourself a good spot-filling spray primer. I'm a fan of Dupli-Color's Filler Primer; it can be found in the paint section of most auto part stores. Multiple coats of that, sanding between each, should eliminate the striations in the model surface.

You'll note my prodigious use of metric measurements. I draw and measure in metric. I feel it's simply easier to deal with, in my opinion. I mean try to find 2.3228” (59 mm) on a measuring stick!

Construction:

So you have to remove a large section of the AFV Club kit's upper deck, starting from 59 mm rearwards of the point indicated in the picture below:

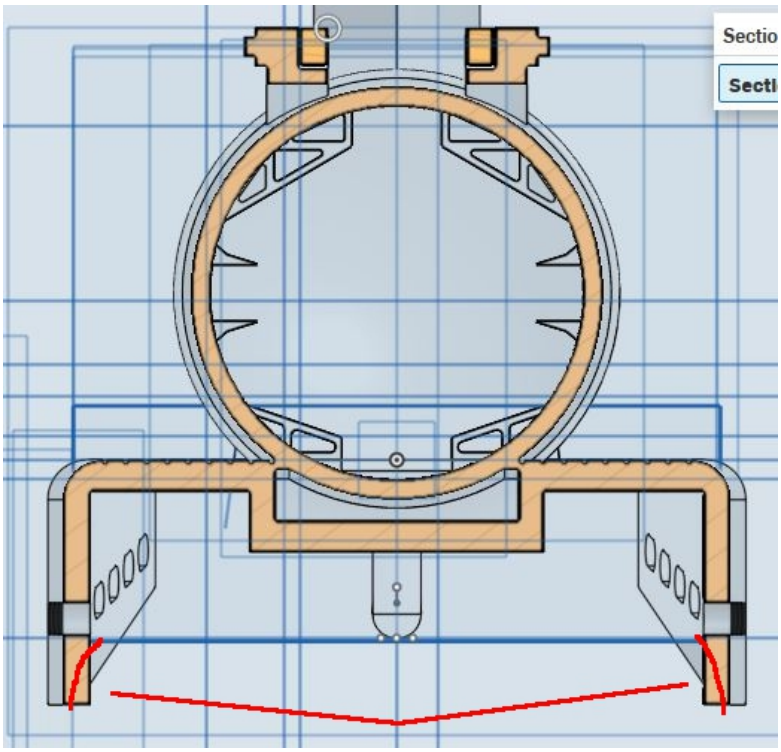
The section to remove is 89 mm long:



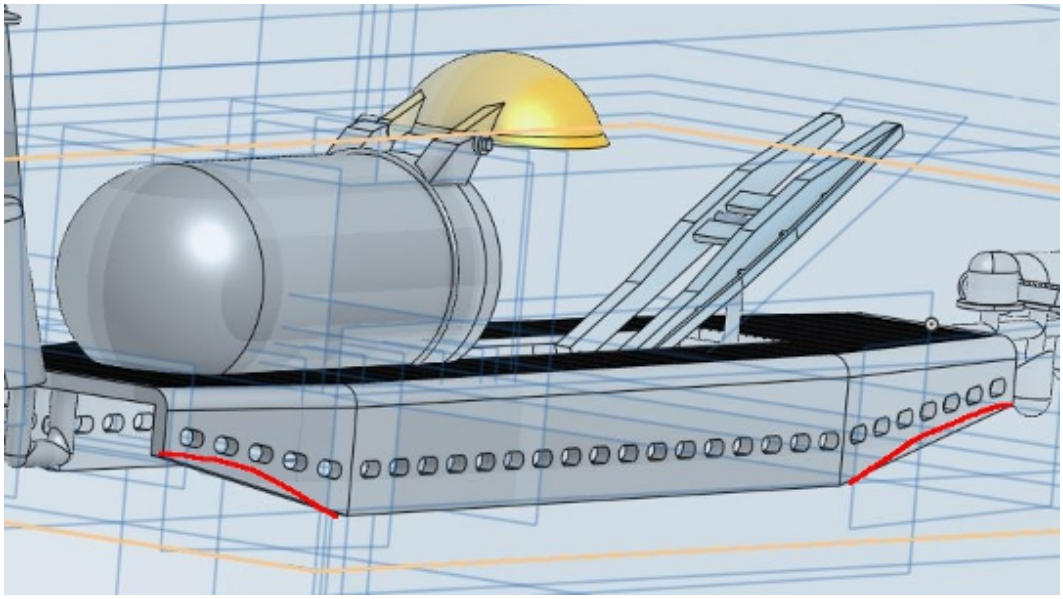
Ensure your cuts are perpendicular to centerline. The removal process is pretty straight forward.

I added a small flange out of sheet styrene for the replacement deck to sit on:

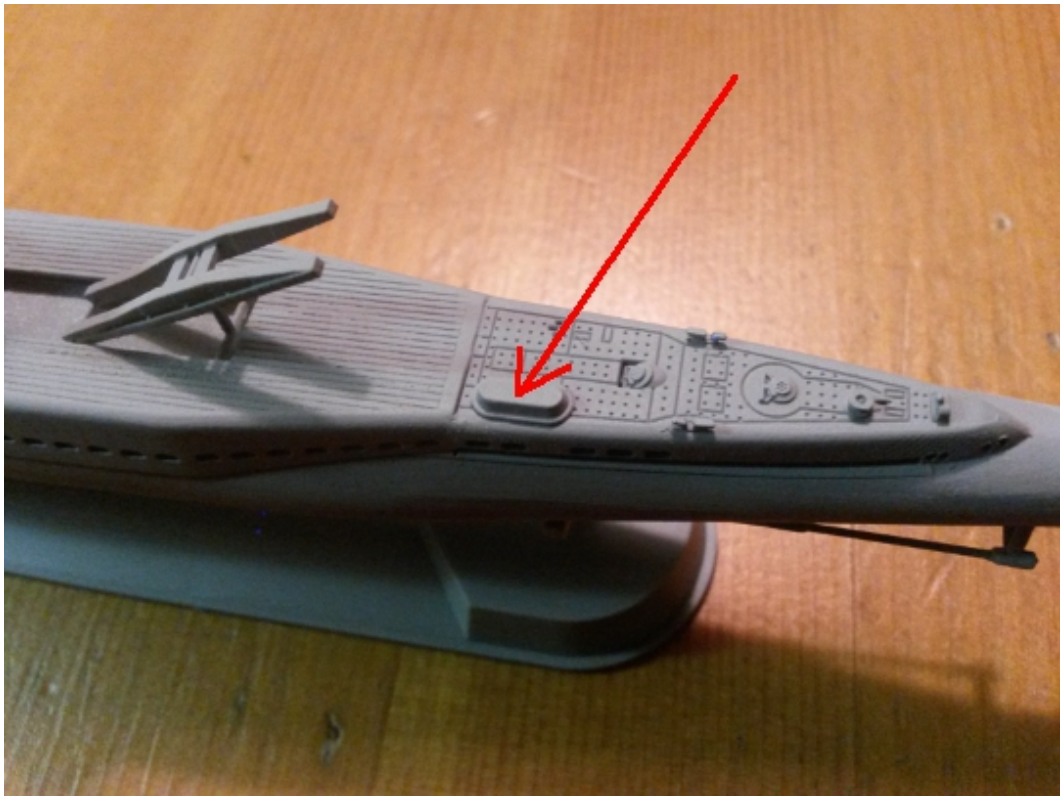
The replacement upper deck should drop right on after some sanding and test fitting. However, note that material will need to be removed where the square cross section of the upper deck intersects with the round hull of the donor kit:

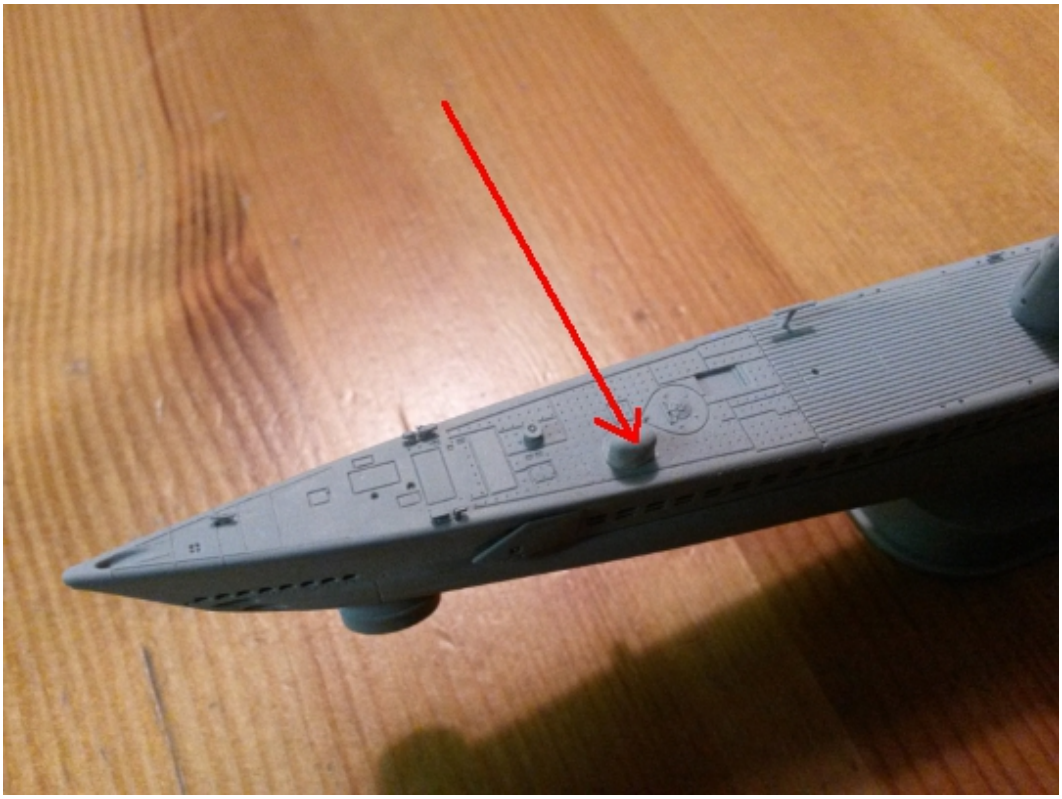


Also note, the lower leading and trailing edge will need some rounding, again in order to accommodate the donor kit's round hull:

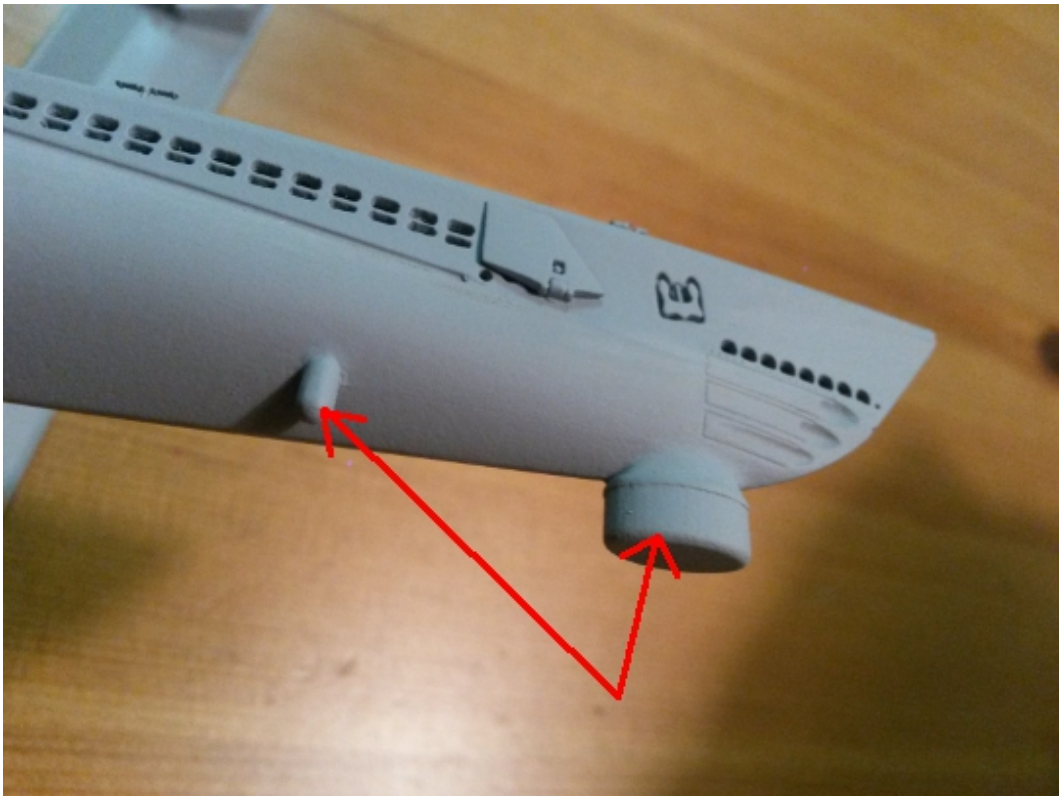


Note the placement of the various sonar blisters. As for the specific dimensional placement, I compared photos and made approximations; you might be better at this than I am, so at the end of the instructions I've linked my primary source website. You can see where I stuck them:

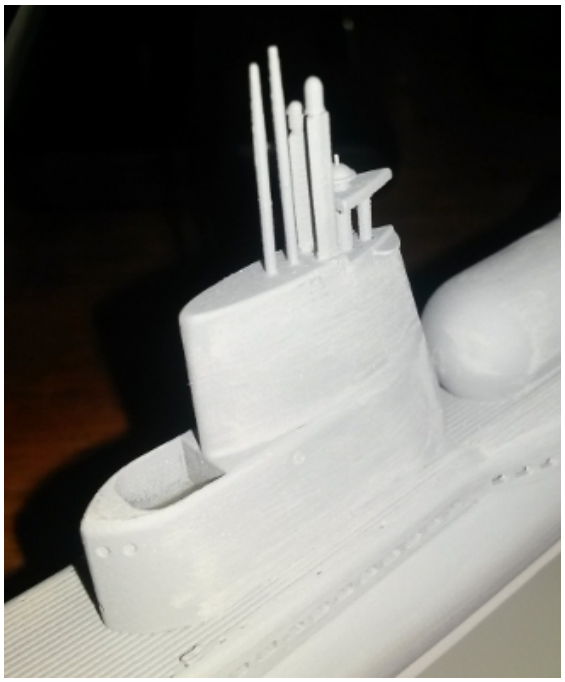




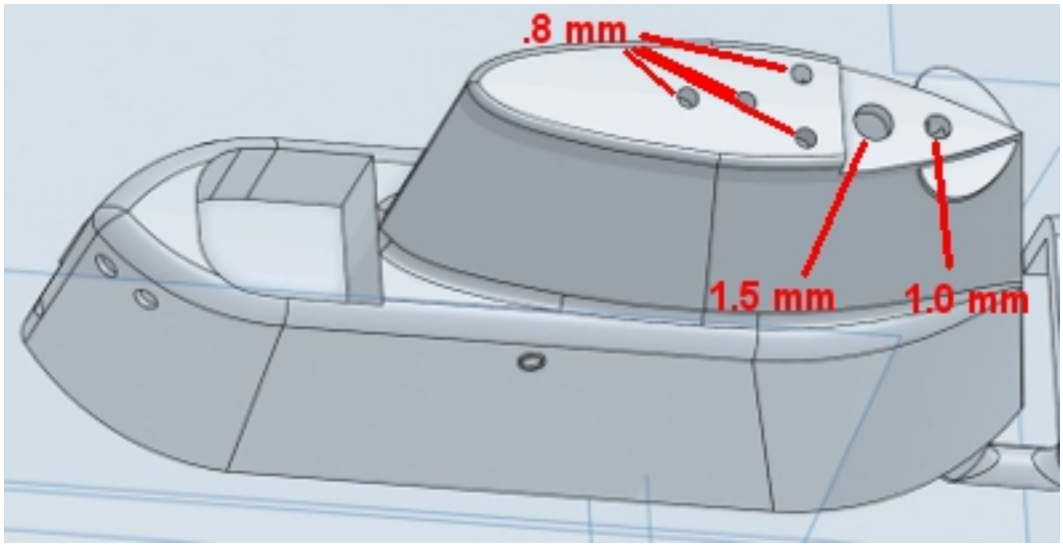
The main bow sonar dome (the large one below the torpedo tubes) again required some filing to get it to match the shape of the hull. Once attached, some putty filler (I'm a fan of Tamiya's) was needed in order to smooth out the transition:



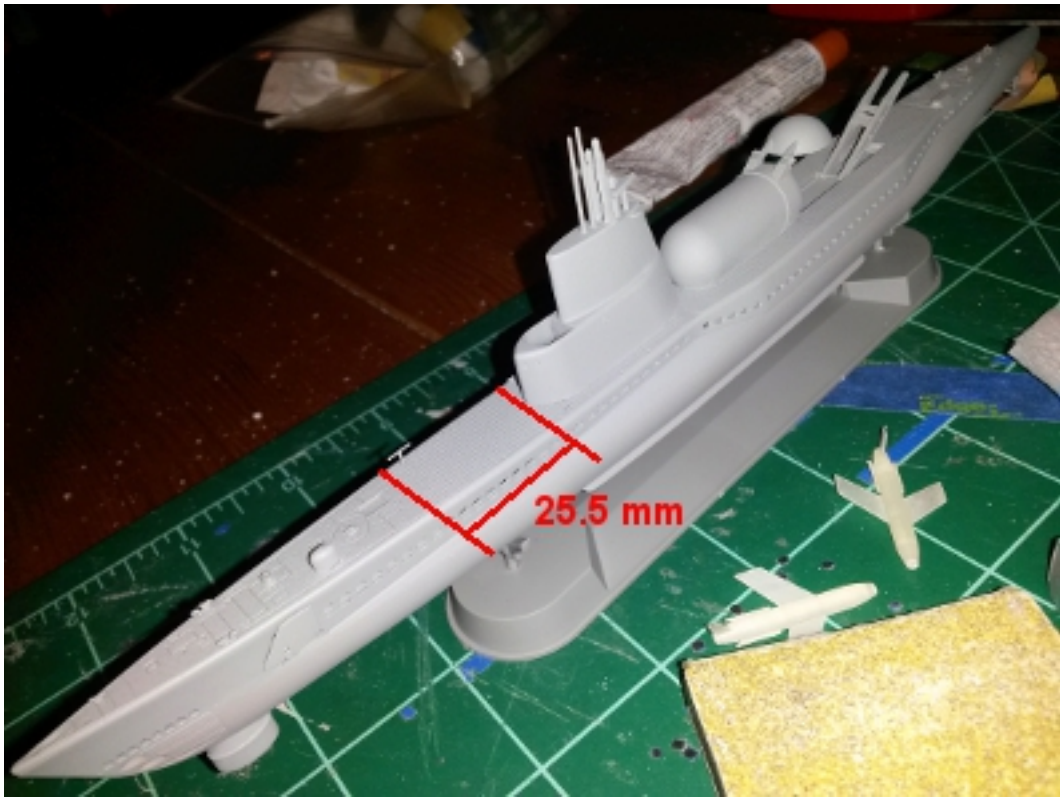
Periscope placement:



The periscope holes might need opening up, here's what they are designed to be:



Conning tower placement, centered and 25.5 mm rearwards of the previously used point.



At the end of the day this is a visual approximation of the USS Tunny and the kit is only as good as my CAD skills and image research. One site I found particularly useful for photos of the Tunny was NavSource:

USS Tunny, SSG-282. The post-war conversion to SSG photos are towards the bottom of the page:

http://www.navsource.org/archives/08/08282.htm

Prodigious use of Google can also yield additional results.

Something I've missed? Contact me:

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