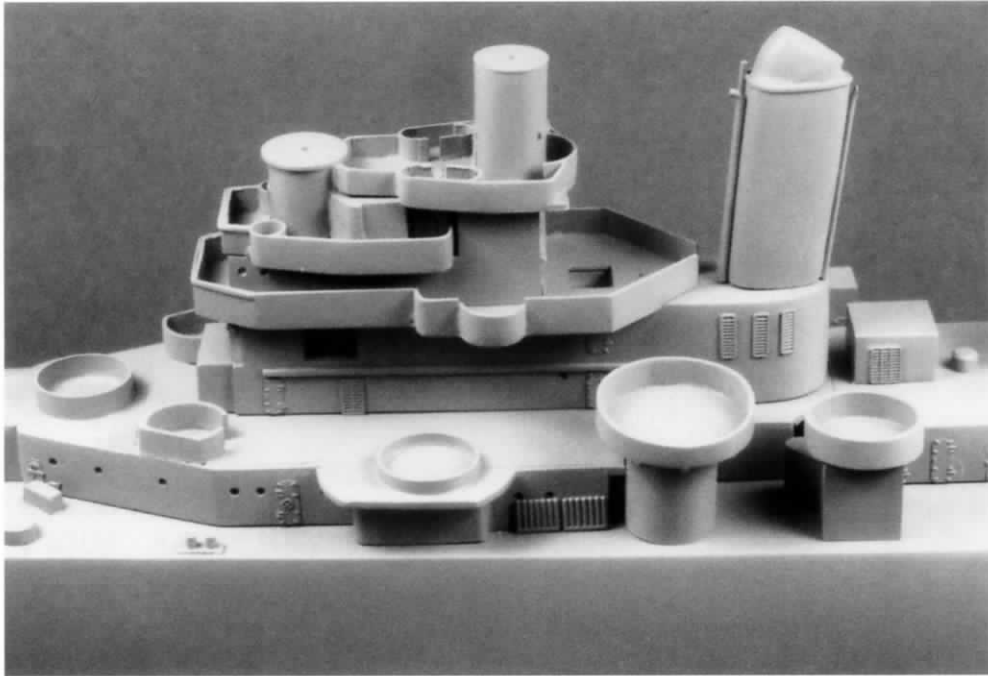


Chapter Three

Scratchbuild & Detail Superstructure Shapes



1/350 scale *USS Miami*

In my first shipbuilding book (*Building and Detailing Scale Model Ships*, Kalmbach Publishing Co.), I showed you how to scratchbuild masts and guns, add gun and splinter shields, and modify kit superstructures. The next step in scratchbuilding is fabricating superstructure shapes from plastic sheet and then detailing them. To build up superstructure shapes with edges that are straight and true, or to incorporate angles, you'll need a very important piece of equipment—a variable-speed disk sander with an adjustable working surface. If you use a normal disk sander, you will melt the plastic as you try to shape it because the disk turns at such a high speed. Both Micro Mark Inc. and Model Expo Inc. sell variable-speed disk sanders ranging in sizes from 3 to 10 inches. They also sell sanders that are not variable speed but have attachments that provide variable-speed voltage to the sander.

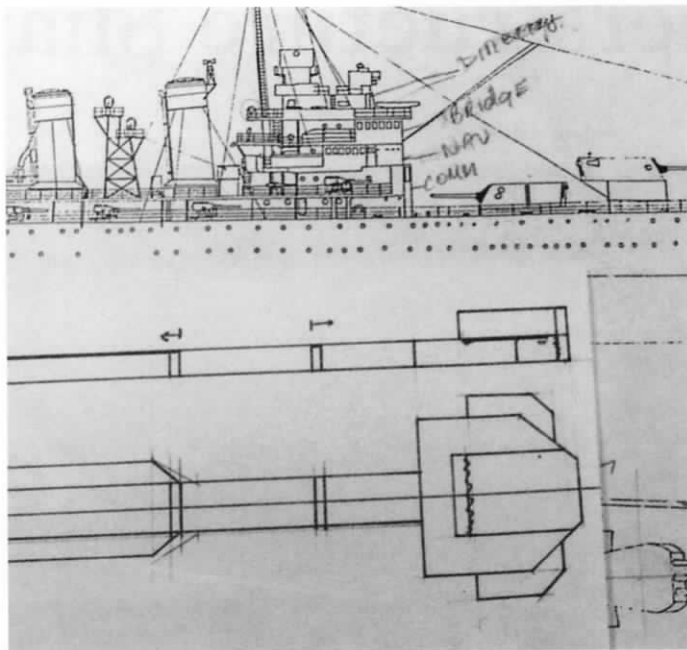
You will need to work from reference materials such as drawings and pictures. The Floating Drydock has an excellent selection of drawings to choose from, and they also have a great library of black-and-white pictures of ships, including close-ups of superstructures. Another source of reference material is illustrated books on a particular ship. The Naval Institute Press has published several books on various classes of ships with side- and top-view drawings; with these books and a set of pictures, you can build pretty much whatever you want.

The subject I'll use as an example here is the superstructure of the cruiser *USS Brooklyn* CL-40 as she appeared in 1938 when launched. There are no drawings of this ship for this time period except the top- and side-view drawings done by Alan Raven and Arthur D. Baker III for the Naval Institute Press book *U.S. Cruisers*, by Norman Friedman. While the drawings in the book are small, if you know the actual length of the ship and measure the length of the drawings, you can easily calculate the approximate scale of the drawing.

There are several ways to determine size and scale. I calculated what the hull length should be in 1/350 scale and then used the length of the drawing to determine the percentage the drawing would need to be enlarged by to make it 1/350 scale, which was 278 percent. The one drawback to this process is that the lines on the blown-up drawings tend to become slightly distorted. I used the enlarged drawings as a basis to create another set

of simple top- and side-view superstructure shape drawings.

These blown-up drawings will not always tell you everything about the shape of a particular superstructure level; that is why pictures are also important. I studied the pictures and carefully created the drawings. It took three tries until I was finally satisfied with the general appearance, size, proportion, and shape of the superstructure parts. If you are just starting out, do not try to create a set of



The first step in scratchbuilding superstructure parts is to acquire a set of drawings to work from. I enlarged these drawings for the *USS Brooklyn* by 278 percent and then drew a working set of drawings using photographs as a guide.

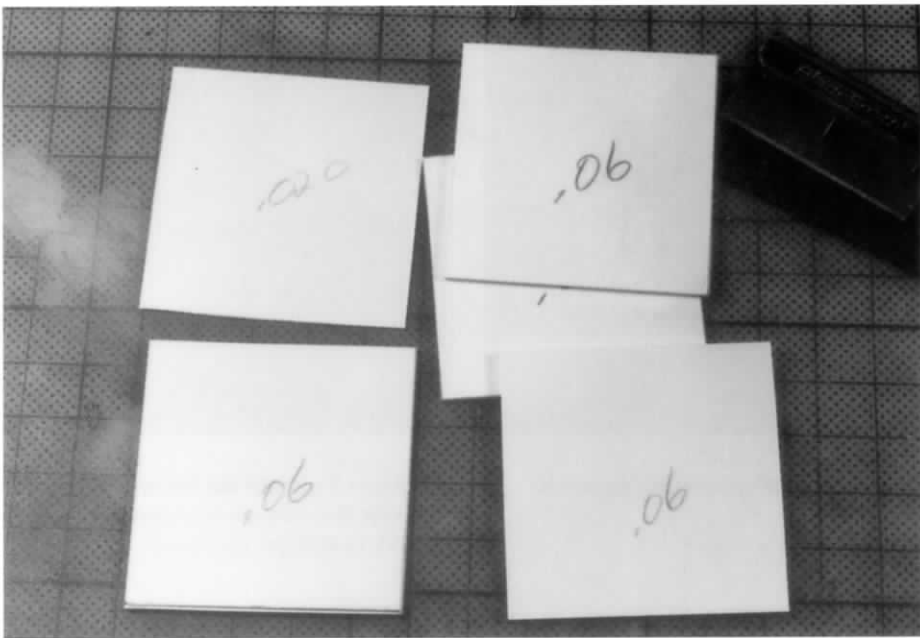
drawings on your own; instead, order a good set from the Floating Drydock, copy them so you don't ruin the originals, and then cut out the drawings of what you want to scratchbuild.

Superstructure shapes are usually a combination of squares and rectangles,

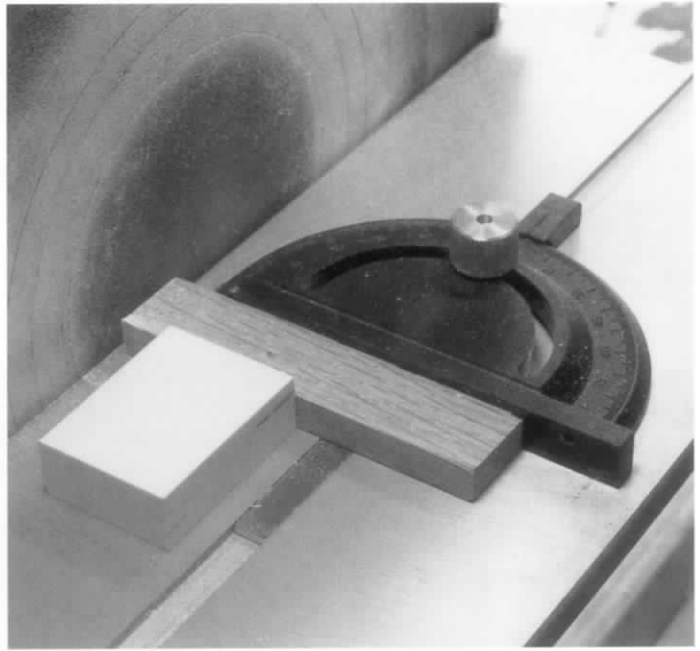
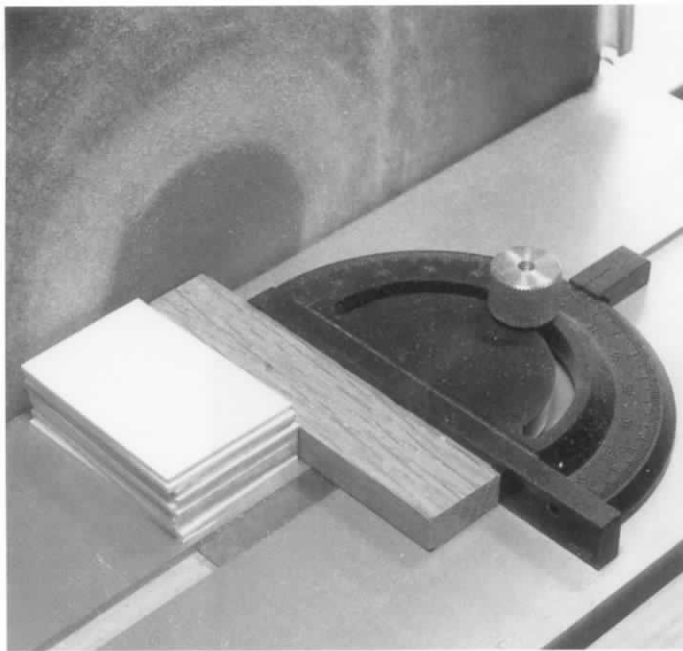
and that is exactly what you need to make. Break down each part into subparts so you can easily make the different shapes and then just glue them together. The trick here is start from the same block of plastic so the shapes will all be exactly the same height, because there can be a slight difference in thickness of plastic sheets of a thousandth (.001) of an inch or so. Cut out a set of sheets larger than the superstructure part, glue them together, and square the block on the disk sander. Squaring the block is very important because if it isn't square your finished part won't look right. Next, cut the block into the subparts you need, cut out the top-view shapes from the drawings, glue them to the blocks with white glue, and sand them to shape. Then glue them together.

Once you get the first part glued, move on to the next part until you have completed all the superstructure parts. The next step is to add detail. I usually add the portholes first by marking the locations and then drilling them out. I then locate the hatches and fire hoses and use Gold Medal Models photoetched detail sheets to add these items. I use thick-gel super glue for adding photoetching as well as all other surface details. It gives me a few seconds of working time to ensure that the part is straight and level.

Once you get the hang of it, you'll discover that scratchbuilding and detailing is easy and fun. You will also find that as you get better at it, you'll be making all kinds of neat stuff, including vents, storage boxes, gun boxes, and just about anything else you may need.

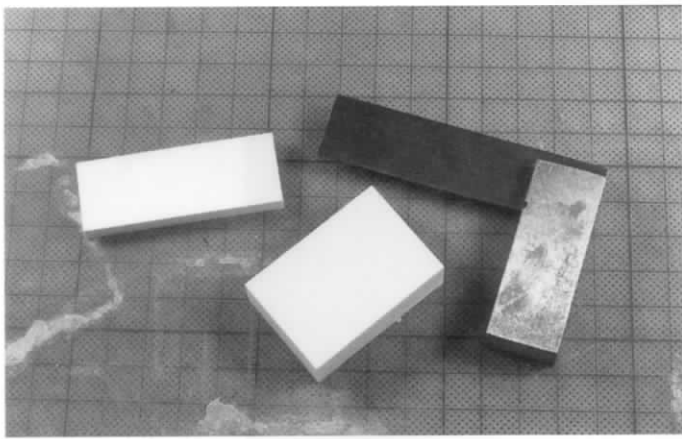


Decide how high the superstructure parts will be, and then pick plastic sheet sizes that when stacked will equal the height you want. Once you know the height and the shape, you are ready to glue the sheets together and go to work. Glue the plastic sheets together with thick-gel super glue. Smear the glue on each sheet so that it covers the entire surface. Then press the sheets firmly together, so the layers will be even and flat. Glue will pour out from between the layers of plastic, but that is to be expected. Once the glue has dried, add the next layer until the stack is complete.



It is important to get one vertical side perfectly flat and true. The easy way to do this is to set the stack against the miter and run one side against the disk sander until the face of the stack is perfectly flat. Then this first side becomes the working edge. Next, rotate the part so that the working edge sits firmly against the miter gauge and again feed the stack into the disk sander. When all four sides are finished, it should be perfect. Always check the base of the disk sander and the miter to ensure that they are set at 90 degrees.

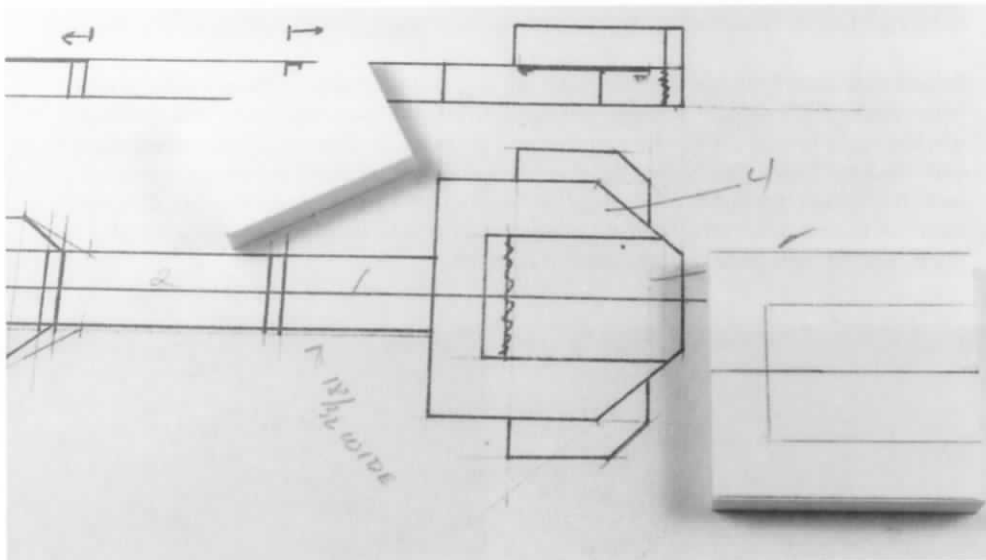
Slowly work around the stack until all the edges are perfect and even. You are now ready to shape the superstructure, except for one last check.



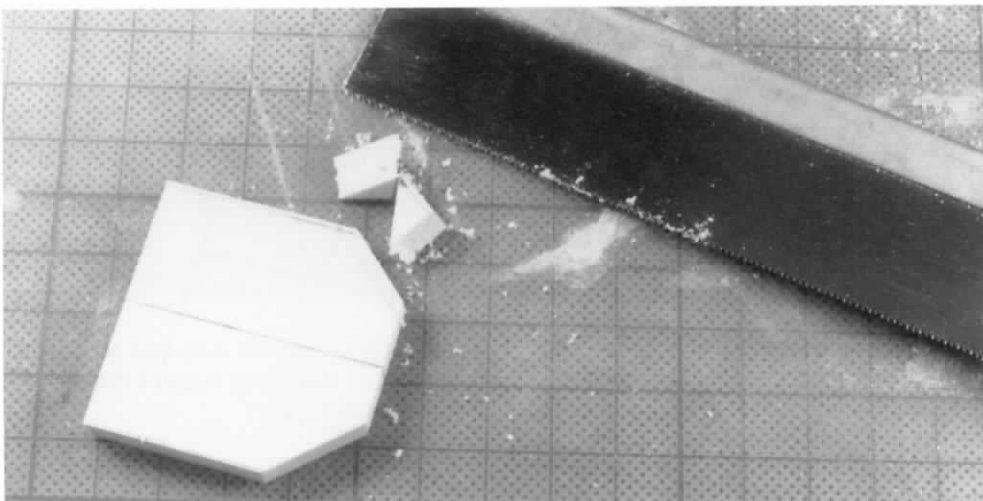
I like to check my work, so I use a small machinist's square to double-check the sides.



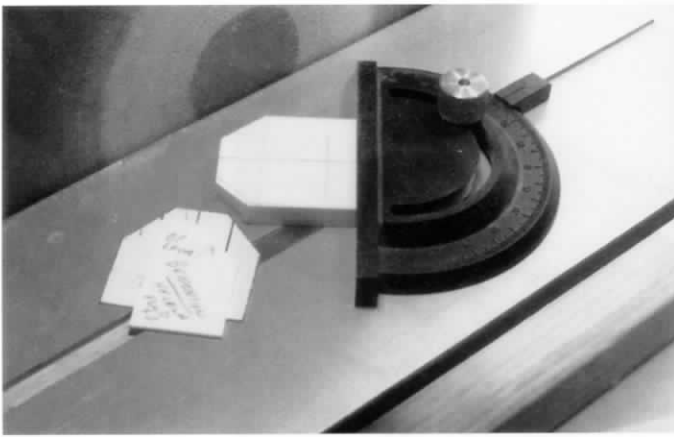
To ensure that both the top and bottom surfaces are very smooth and that there are no scratches, run both surfaces across a piece of 400- to 600-grit sandpaper.



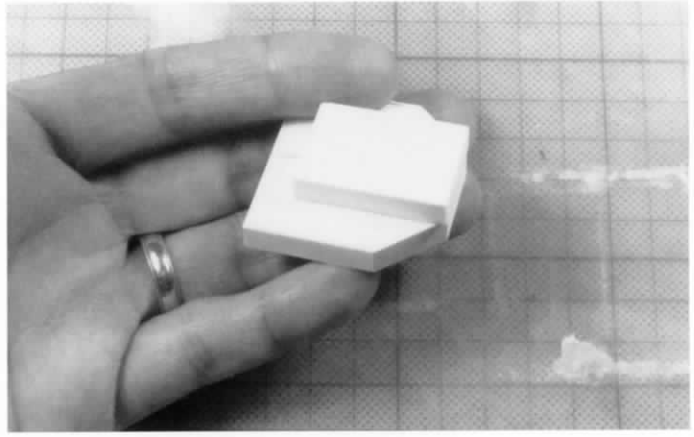
Next, start sizing the part to the drawings.



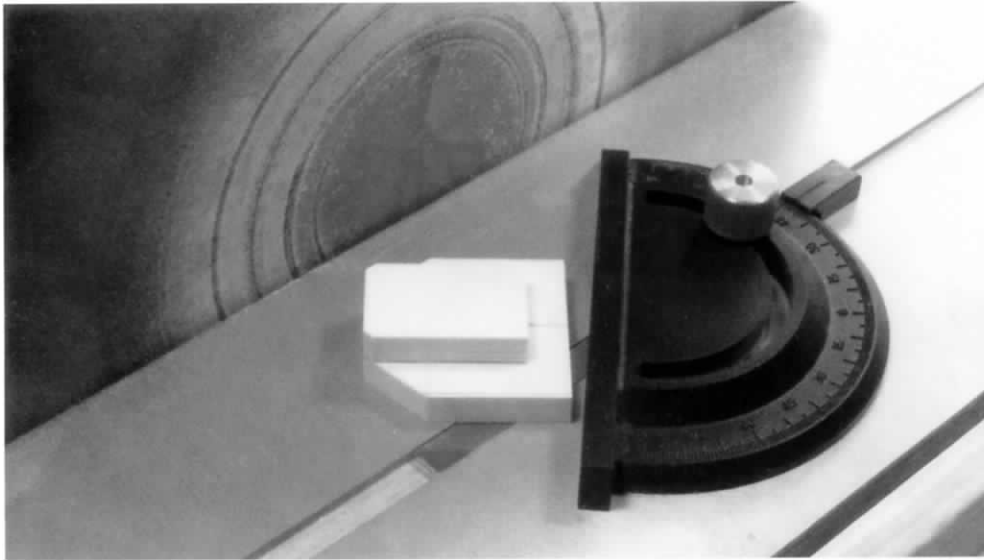
Use a razor saw to rough-cut the plastic; this will reduce the time it takes to sand the part to shape on the disk sander.



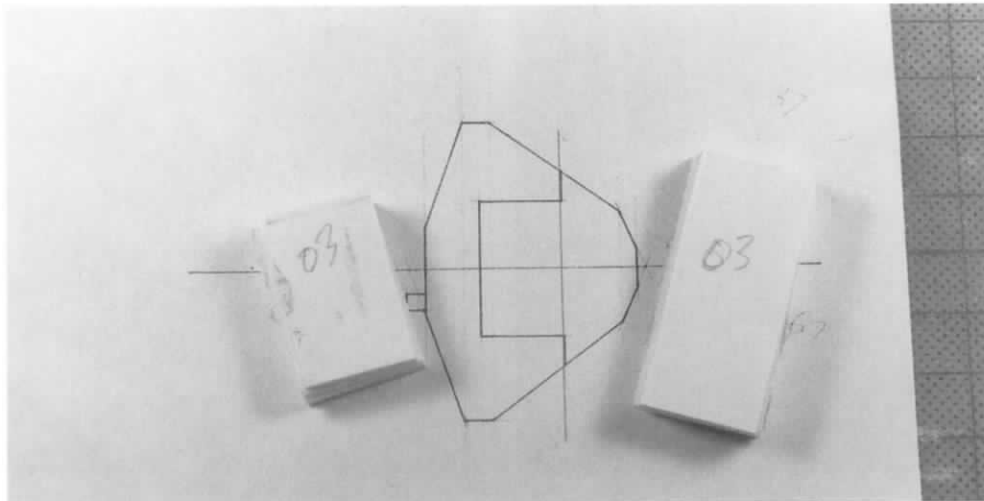
Set the miter to the angle you need with a gauge and then sand away. The gauge is simply the drawing glued to a plastic sheet that has been carefully cut to shape.



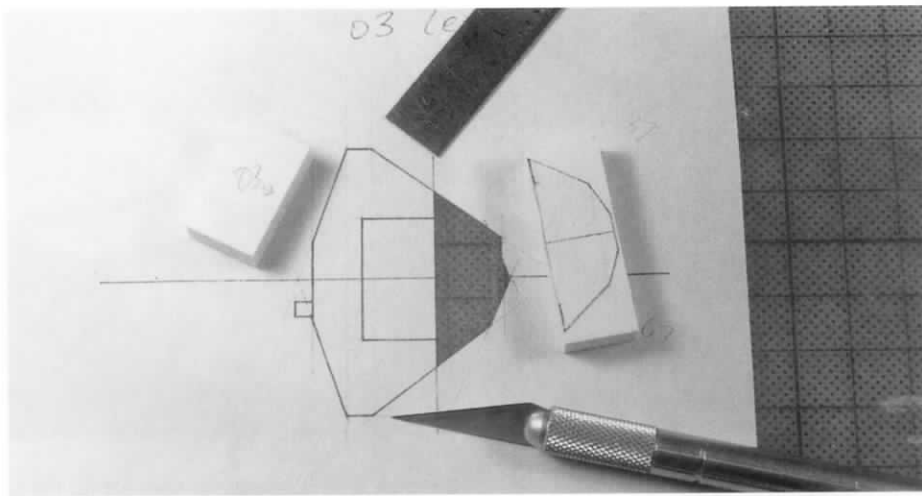
The first level is complete. Now set up the second level. Shape it on the disk sander, but since the edges of the second level are the same as the first, you can glue the piece into place before sanding.



Here you can see that the edges of both parts are perfect and the angles are the same. Once this part is painted it will be impossible to tell that it is made up of two separate pieces.



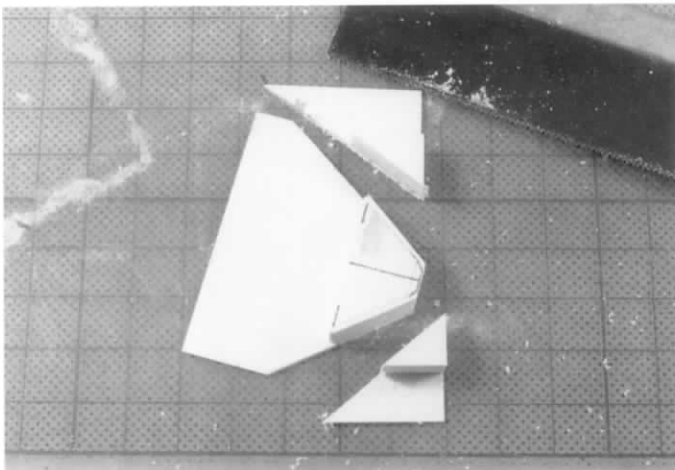
Break down complex shapes into small, simple shapes. This superstructure layer will be made up of a large base and two separate boxes, which you will glue together after shaping.



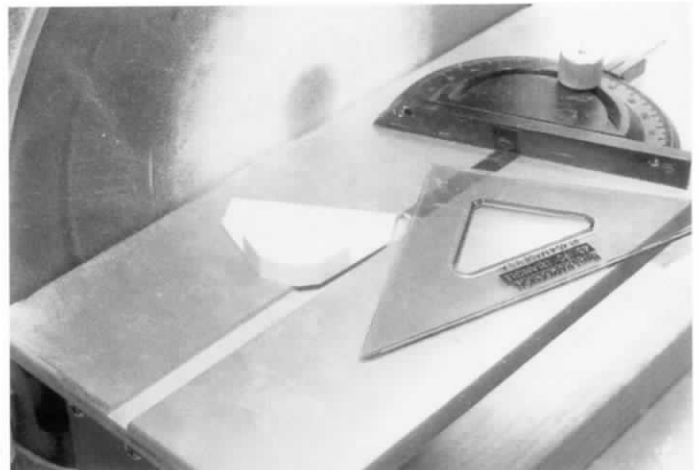
Cut out the pictures and then glue them to the blocks of plastic, being careful to ensure that the one edge of the drawing is perfectly aligned with one side of the block.



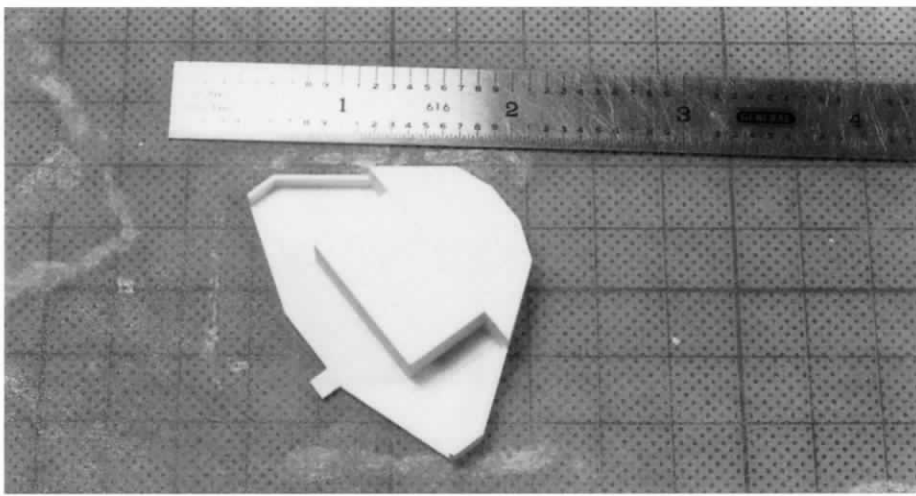
After completing the part, add splinter shields to the sides. Use a chopper to carefully cut the necessary lengths and angles. Here again, trial and error rules the day, so do not expect to get it right the first time.



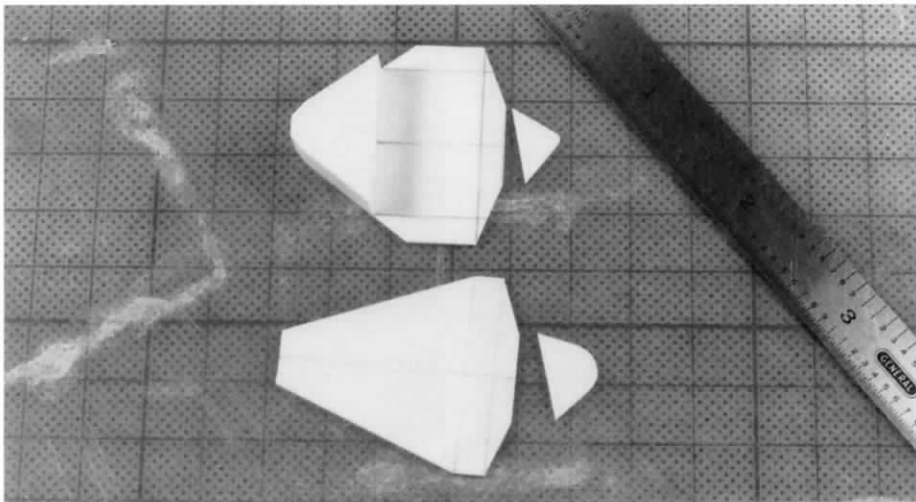
Use a razor saw to rough-cut the plastic before shaping it with the disk sander. Glue the block to the larger base prior to cutting, since both should be the same shape.



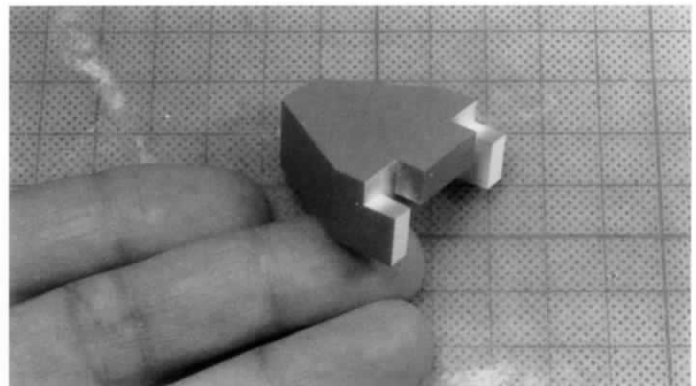
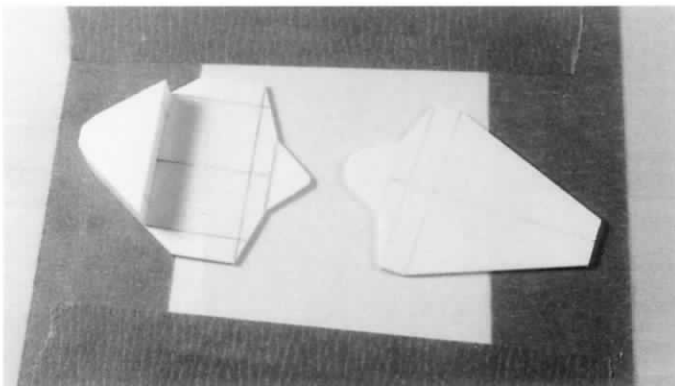
Shape the fine angles on the face of this superstructure part very carefully. It took two tries before I was satisfied with the shape of the part and the angles.



This superstructure part is now complete, except for the window framing that you will glue to the front face.

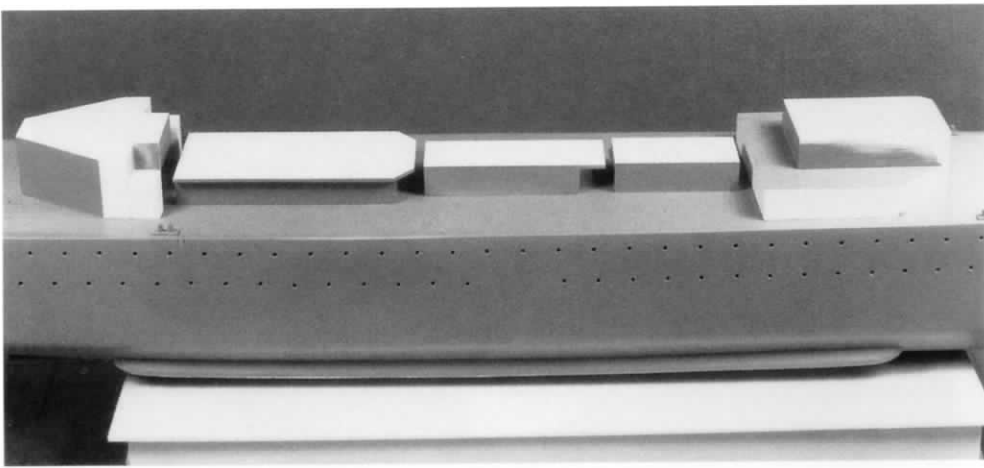


The trick of breaking down complex superstructure shapes into simpler ones also works for deck surfaces.

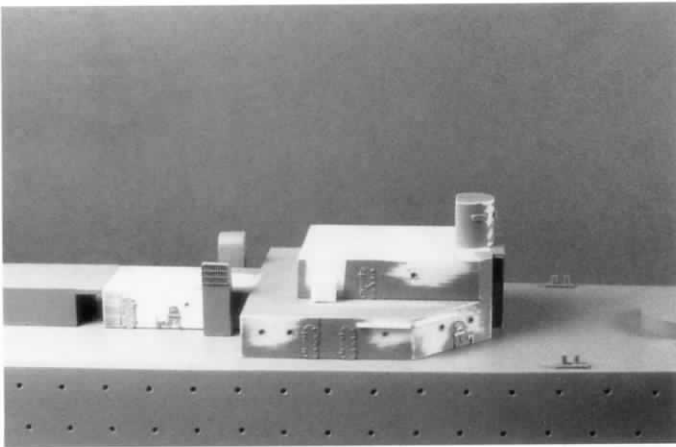


The easy way to glue these parts together is to run a tiny bead of super glue along the entire face of the gluing surface and mate the parts on top of a piece of wax paper. Super glue will not stick to wax. Once the glue is dry, carefully sand smooth. You'll have to replace the wax paper after a few gluing sessions.

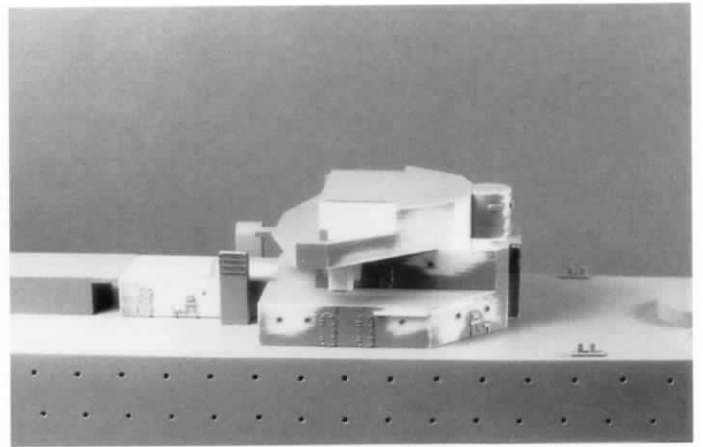
Here is a superstructure part ready for detailing. Prime the surfaces to check for flaws.



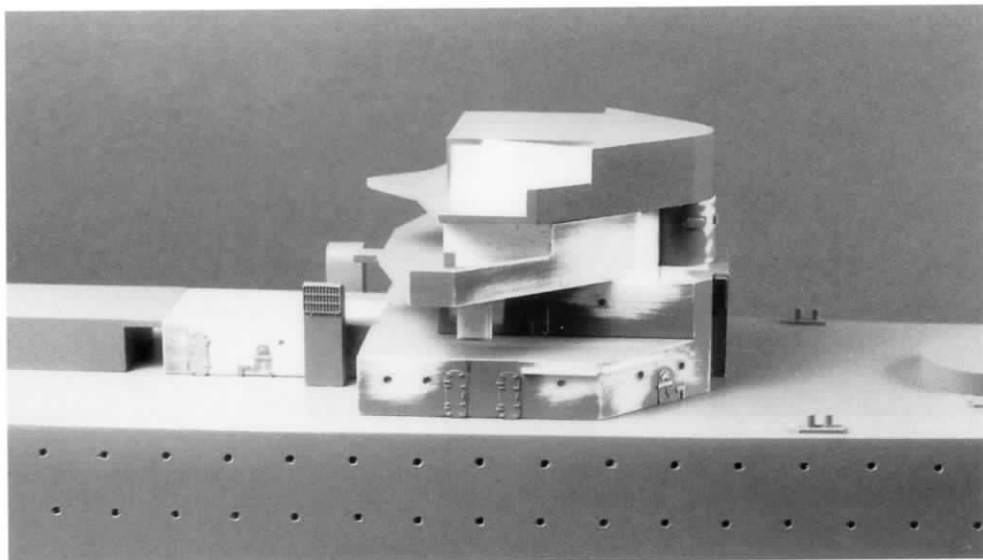
The main components of the superstructure of the *USS Brooklyn* in 1/350 scale are now beginning to take shape. I like to check and re-check parts once they are completed to ensure that they all fit together and that the general shapes of the parts work with one another.



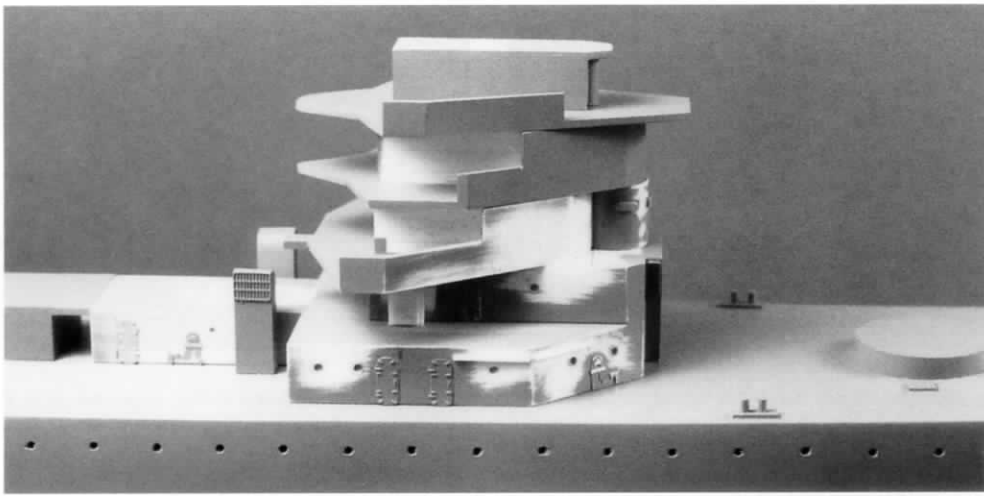
The forward section of the superstructure is starting to look like something other than blocks of plastic. Add portholes, Gold Medal Models hatches, and other small details.



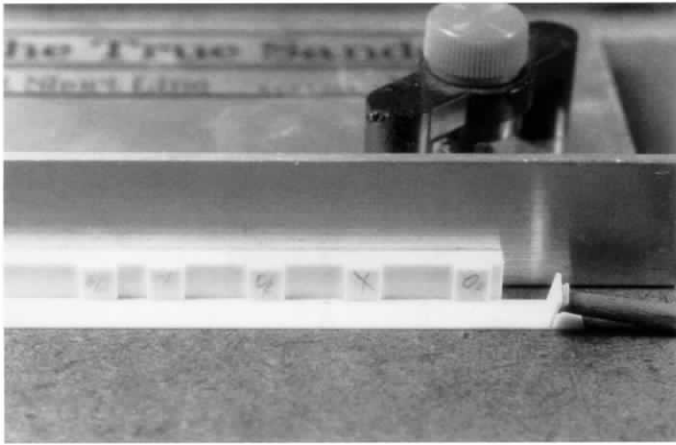
The third level of the superstructure is now complete.



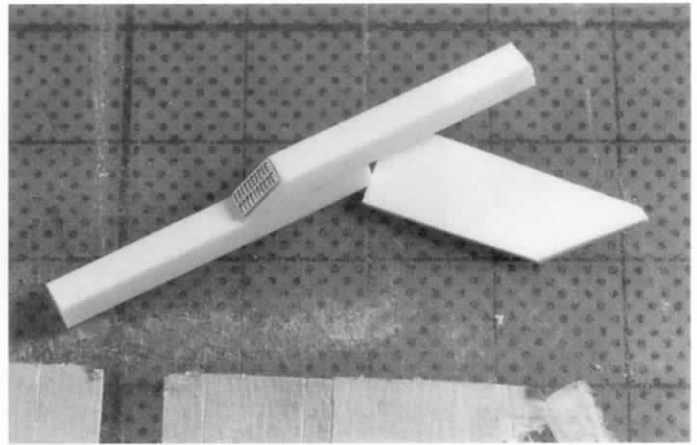
After completing the fourth level of the forward bridge superstructure, give it a fit check.



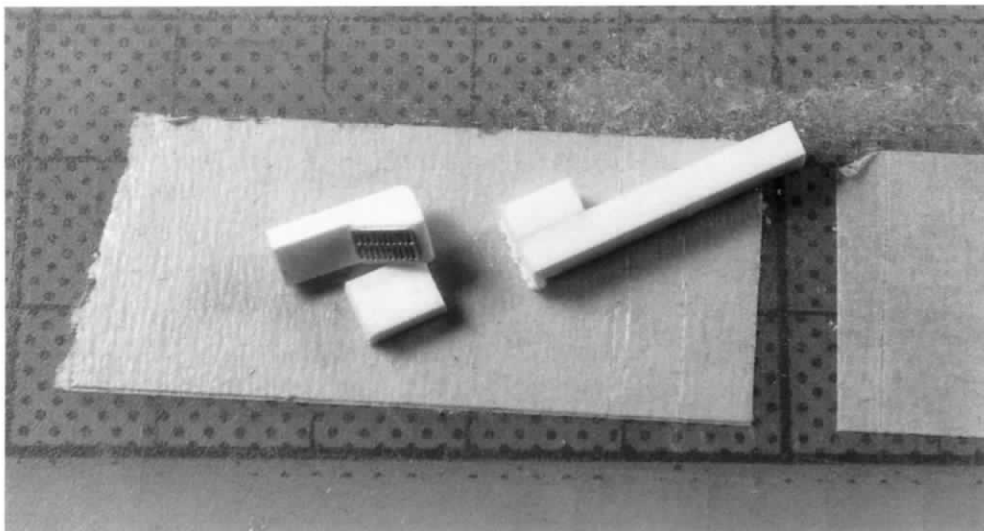
The last forward superstructure layer is now complete, and it has passed the fit check. Now it's time to do some detailing.



Make gun boxes using different sizes of Evergreen strip stock. The sheet that is lying flat is being used as a spacer for the gun box hatches. Use a chopper to cut the hatches.



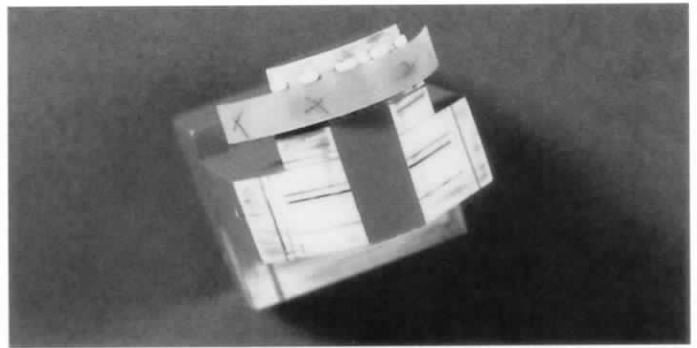
You can make vents of any shape and size using various sizes of plastic stock.



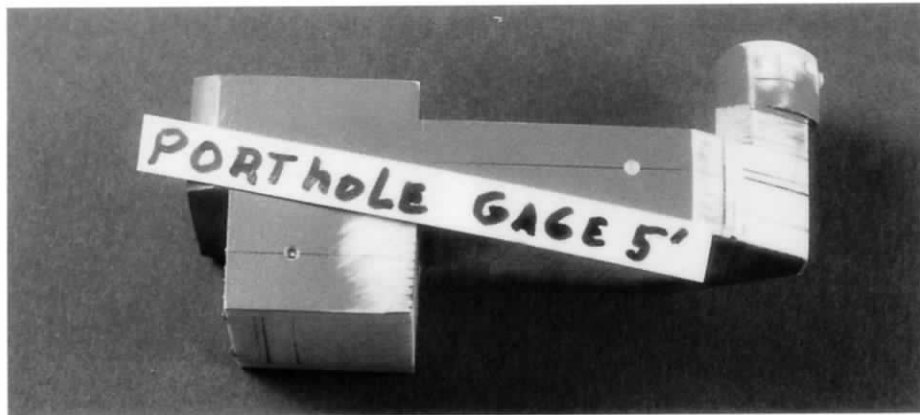
Cut the vent to size and shape it. I custom-made the small photoetched vent face from a sheet of photoetching.



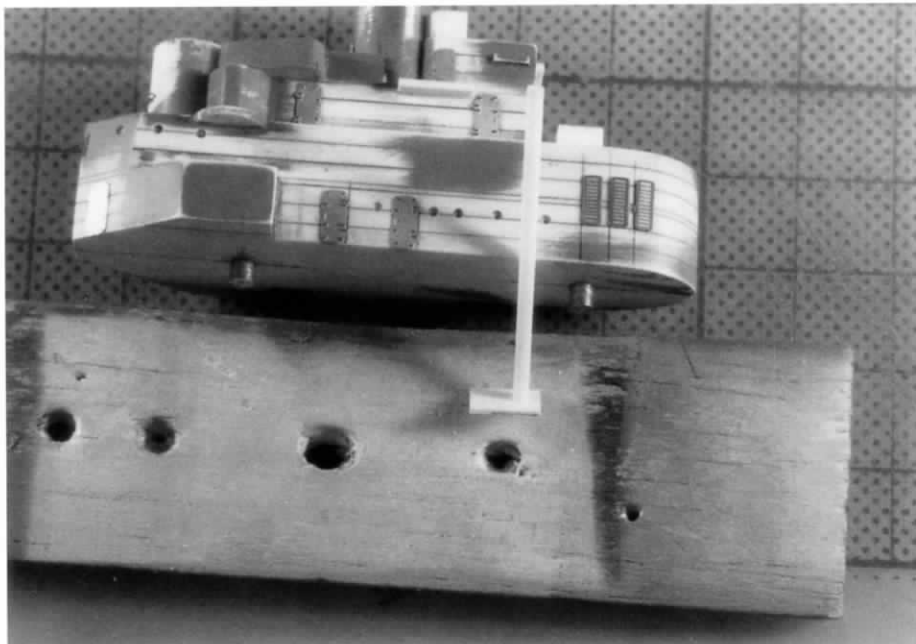
Small lengths of strip with the edges curved serve as lookout ports. Hold each length with tweezers while you touch the edges lightly with a sanding stick.



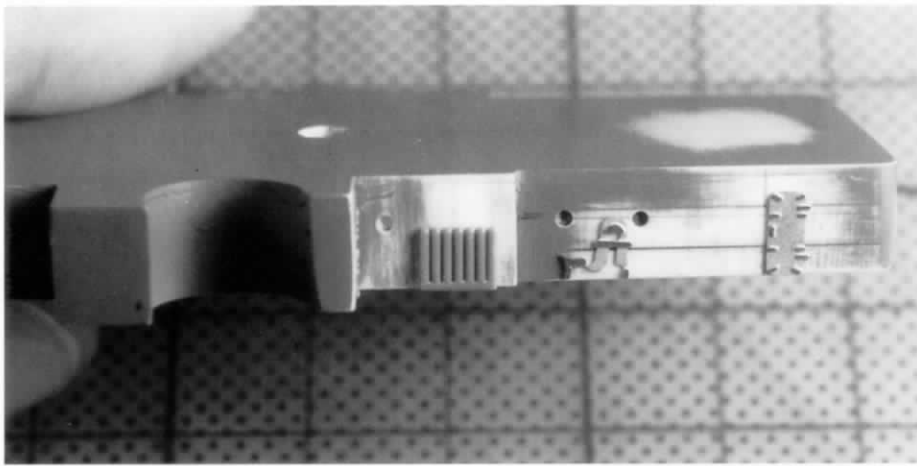
Glue the lookout ports to the superstructure surface. To help position these small parts, use a length of labeling tape.



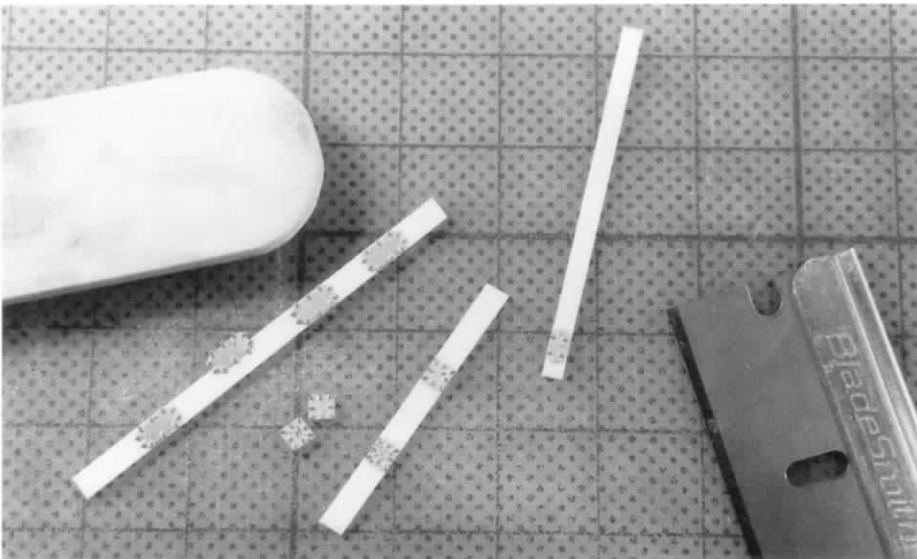
To ensure that all portholes are at the same height, make a gauge using a length of sheet stock. All you have to do is position the superstructure level on a flat surface and then run the gauge along the sides, using a pencil to draw the porthole line.



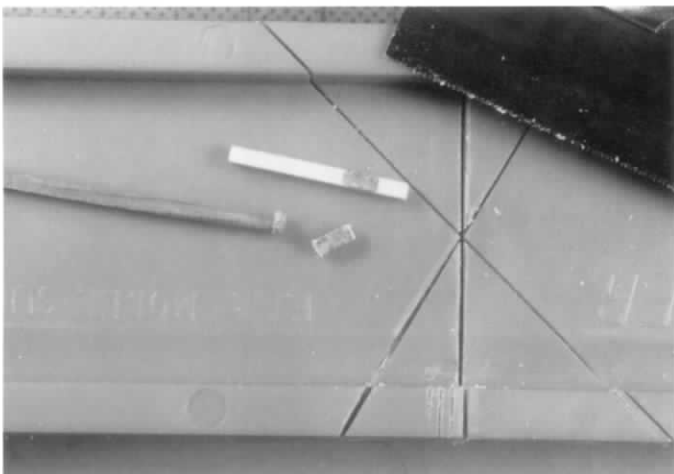
A small anvil that I made serves as a vertical gauge for setting hatches and other details. Here again, you need to set the superstructure part on a flat surface, set the gauge on the same surface, and then run a pencil along the vertical edges.



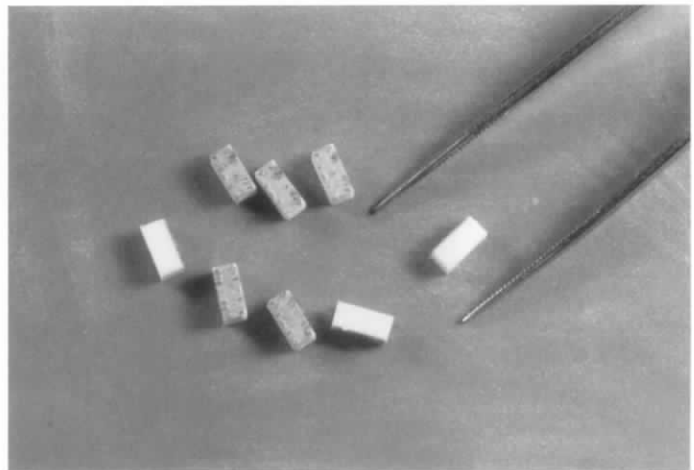
Add details to the side of the aft lower superstructure of the master pattern for a 1/350 scale *Cleveland*-class cruiser. The gas bottles came from Tamiya's *USS Missouri*, while the photoetched details are from Gold Medal Models.



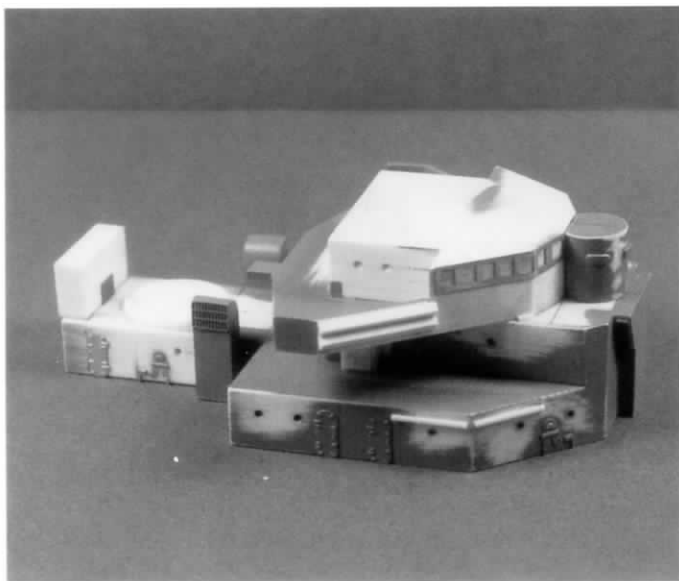
It's easy to make deck hatches by gluing photoetched hatches to small lengths of strip stock and then cutting them to shape.



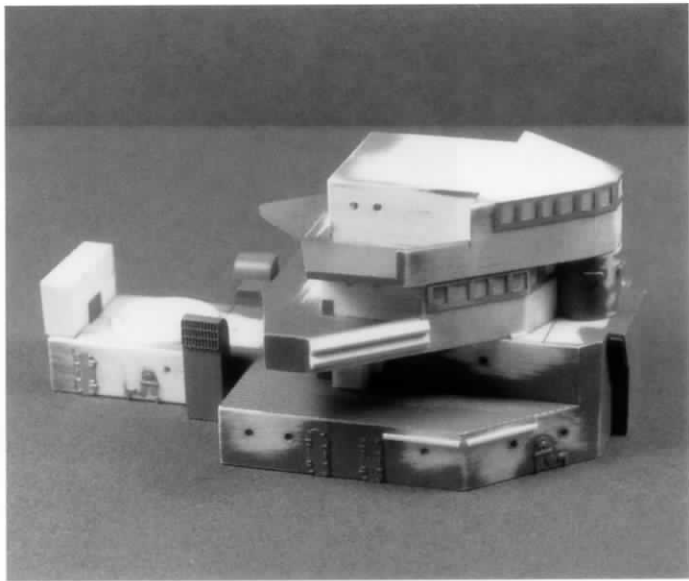
Make gun boxes in the same way, except that you'll have to cut them with a miter saw and then smooth the edges.



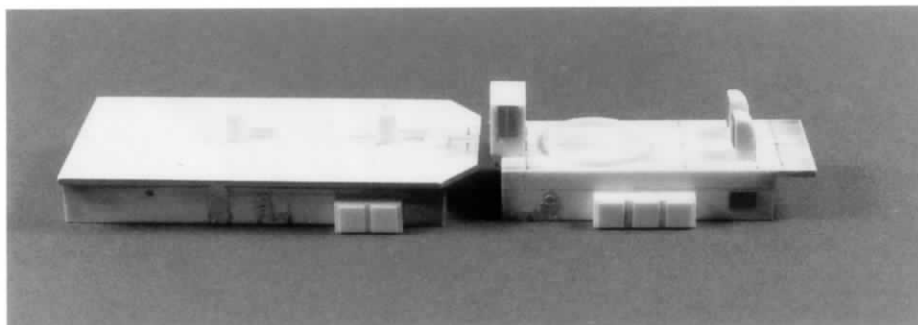
Shape the gun boxes, making them pretty much the same size. These gun boxes are ready for installation.



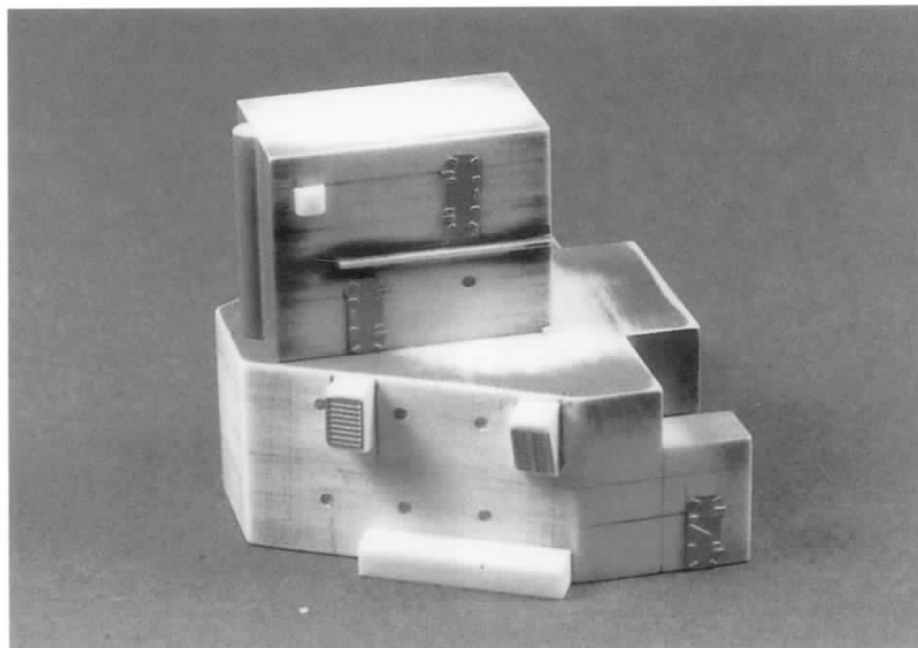
Apply the photoetched window framing and other details to the forward superstructure of the *USS Brooklyn*.



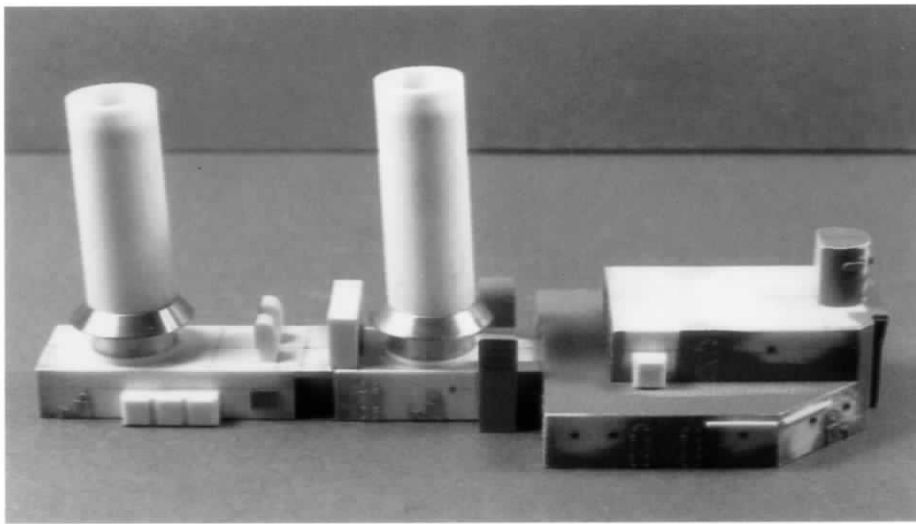
Add the photoetched window to the next superstructure layer; the assembly is now complete.



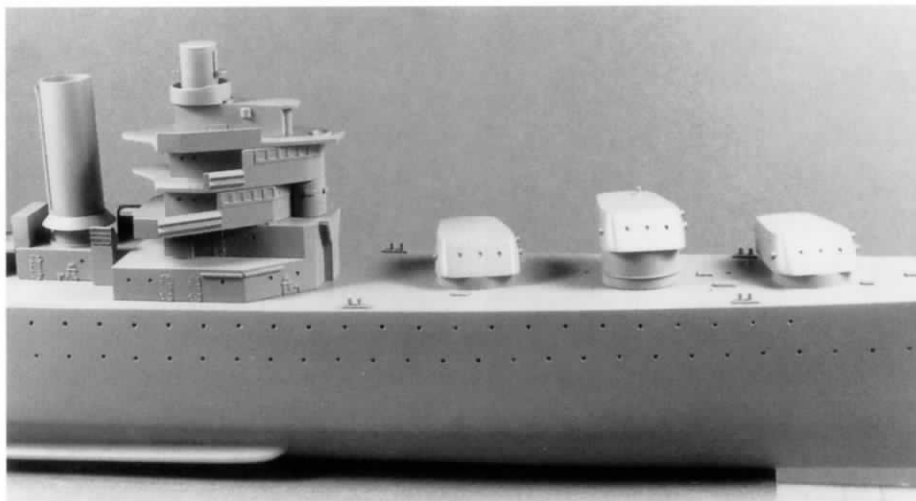
Add details to the center sections of the *USS Brooklyn's* superstructure. Note the storage and gun boxes made from plastic strip.



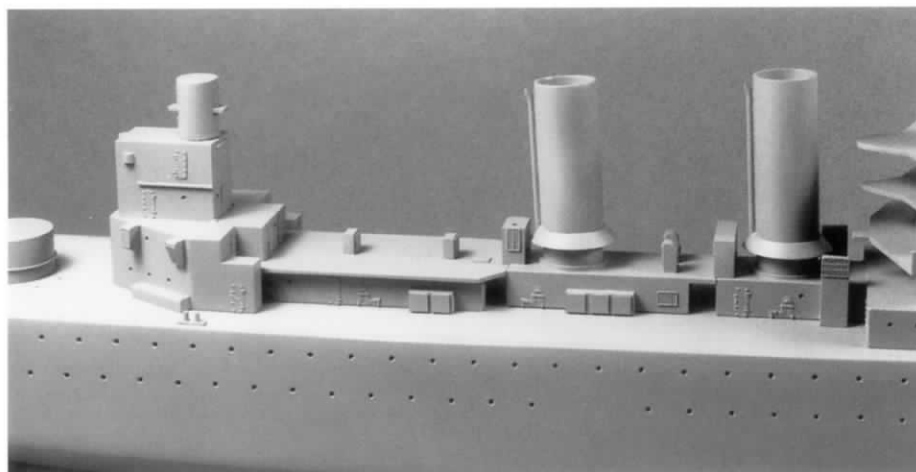
Now add details, including some small vents, to the aft superstructure.



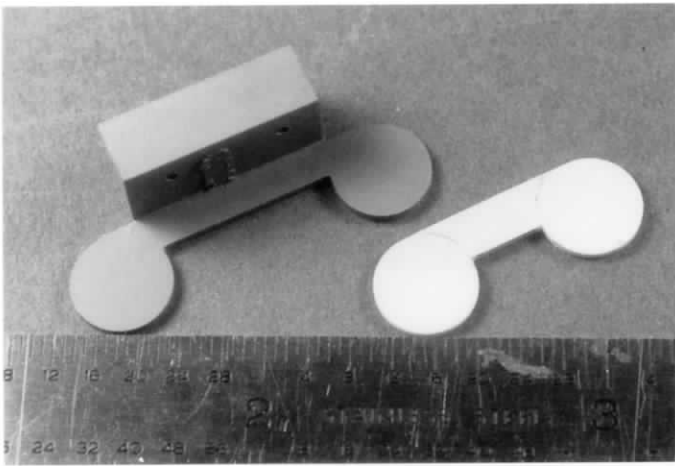
With the smokestacks complete, the center superstructure is now beginning to look like something other than blocks of plastic.



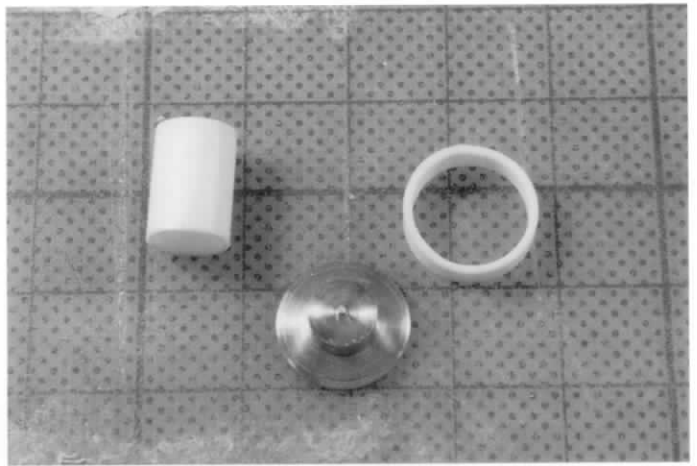
Here the forward superstructure of the *Brooklyn* is pretty much complete. Test-fit it onto the hull.



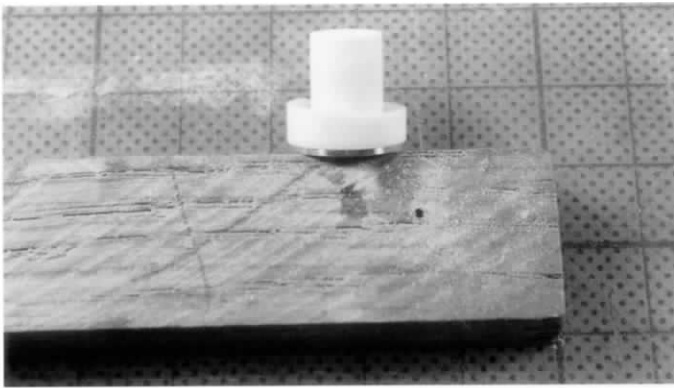
The aft superstructure is also now complete. It's sure neat to see a pile of plastic turned into superstructure parts, complete with portholes and hatches!



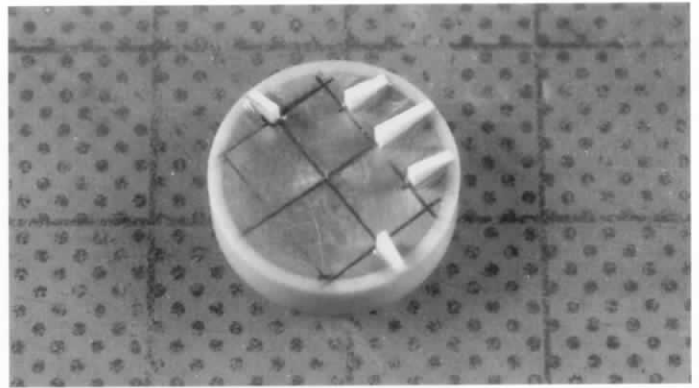
Make these shapes from a set of disks and a carefully cut-out center length of plastic. Use super glue as the filler.



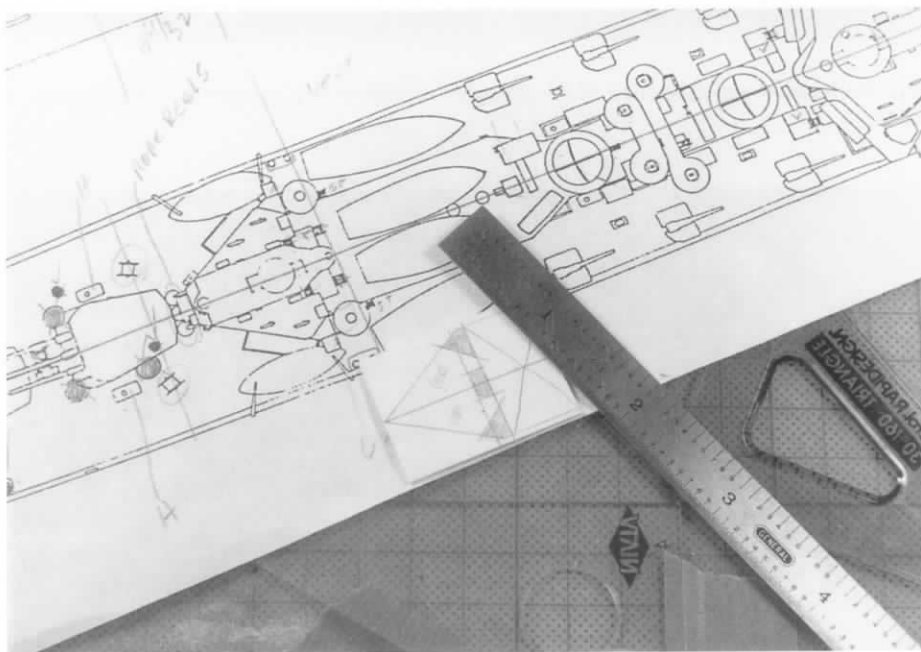
These three parts will form the forward range finder tower for the *USS Brooklyn*.



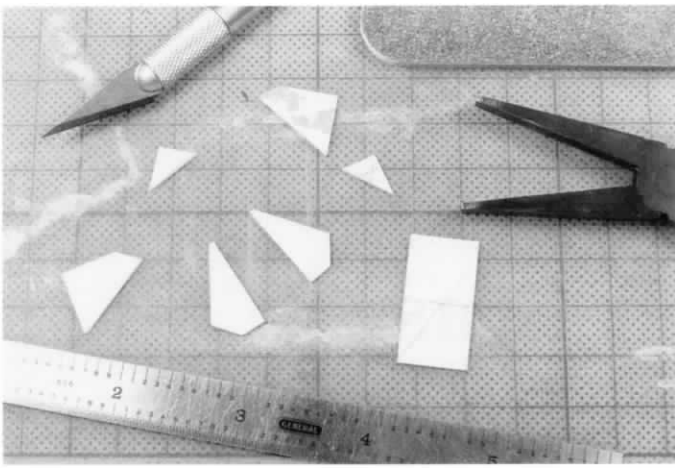
Glue the parts together. After they're painted, they will become part of the forward superstructure.



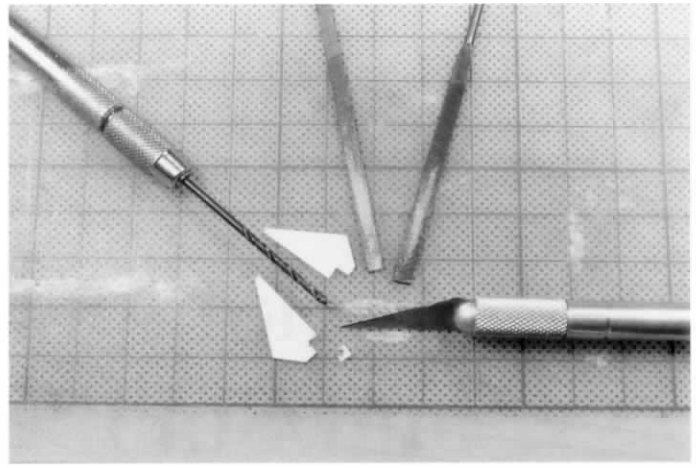
To simulate frame supports, add small lengths of strip stock, cut to shape with a chopper, to the underside of this gun tub.



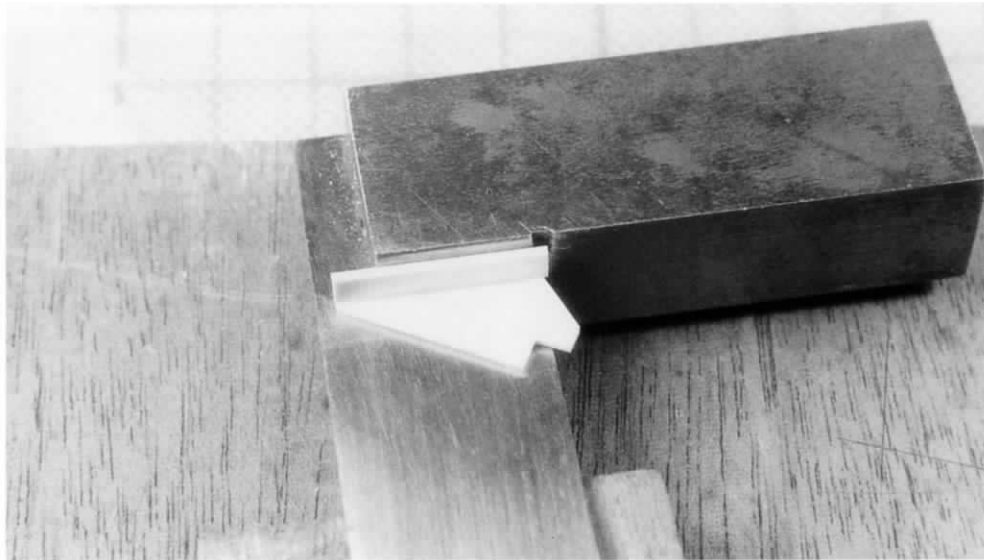
You can also make deck wings using the techniques demonstrated here. Start with a set of drawings and then transfer the drawings to sheet plastic.



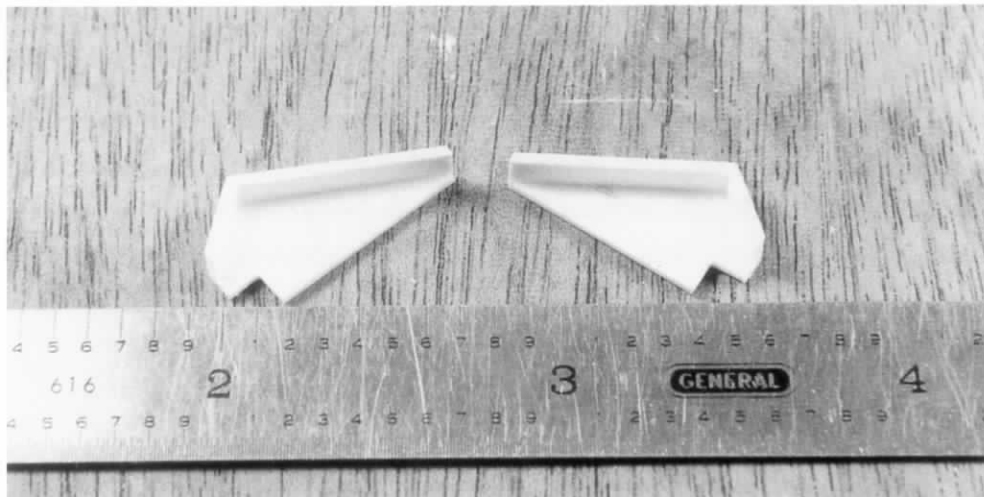
Carefully cut out the rough shapes.



Then carefully fine-tune the shapes. Make sure that both shapes are exactly the same size.



Add splinter shields, cut to shape with a chopper. To help ensure that the shields are set at 90 degrees to the base, I use my machinist's square.



These bridge wing parts are now complete.