



CHAPTER 6

PAINTING, DECALING AND BASIC EXTERIOR WEATHERING

PAINT PREPARATION

There are several different types of paints that are available for scale modeling. The chemical compositions of these paints are very different and they cannot be mixed. There are tried and true enamel paints that have been the mainstay of scale modeling since the 1950's, there are lacquer paints, water based paints and hybrid paints such as the new Tru-color paint line.

As a rule I use the paint manufacturer's thinner or an alternate thinner that they recommend. Enamel thinners are used for enamel paints, lacquer thinner is used for lacquer paints, water based thinners for acrylics and for hybrid paints such as Tru-color or Alclad, use their thinners. If you are using enamels, lacquers or hybrids you can paint water base paints over them or you can paint enamels over lacquers and lacquers over enamels. However I recommend that you not paint either enamels, lacquers or hybrids over water base paints.

Since paint pigments tend to settle onto the bottom of the original bottle over a period of time, it is important to mix the paint thoroughly before each use. This is true of all paints no matter what their chemical properties are. An easy solution is to drop a few copper coated BB's into the paint and shake it for a few minutes. The reason that I recommend copper coated BB's is that steel ones will rust in water base paints, and this will change the paint color. Another very good practice is to get into the habit of cleaning the neck and top of the paint bottle and the inside of the cap cover with tissue every time you open it. This is always the first thing I do after I shake paint and open it. This practice will insure that you will have a good cap seal so the paint won't dry out before your project is completed. I also go through this cleaning process every time I use an airbrush paint bottle.

AIRBRUSHES

To really achieve a quality paint finish on your aircraft models you need to invest in an airbrush and a reliable source of compressed air. Acquiring an airbrush and learning how to use it properly will allow you to produce the types of effects necessary to achieve realism, a perception of depth, and the types of finishes associated with “model art”. With an airbrush you can create very thin coats of paint that will not hide or cover up minute detail. You can mix paint colors, produce different shades of the same color and you can achieve superb weathering and streaking that is impossible to accomplish with spray cans or a paintbrush.

Most modelers use a compressor for their air source for airbrushing, but moisture trapped in the tank is always a problem. If your compressor is pulling in even slightly humid air, water droplets will form inside the tank and lines and ultimately water will spit out onto the surface of your painted model. To avoid this problem and to get rid of the noise factor associated with a compressor I recommend investing in a CO2 air tank and a pressure regulator. The air is very dry and I have never had a problem with water droplets. A tank of air will last you several years and with a pressure regulator you can control the output air pressure from 1 to 100 psi. Once modelers find an airbrush they like they will usually stick with that airbrush and I prefer to use the Badger 200 series single action, internal mix, bottom feed airbrush. This airbrush series is made from brass and they are chrome plated and since I have a tendency to rotate the airbrush during painting I like using a bottom feed so that paint doesn't spill out of a paint cup. I also don't trust my finger to stay in the same position on a double action airbrush button as I sweep the airbrush back and forth across the surface to be painted or rotate the airbrush to get into tight corners, so I stick with single action airbrushes.

Airbrushing creates paint vapors, which need to be pulled away from the model so that the particles in the vapors don't settle on the painted surface ruining the paint job. I have a clean room set up in my hobby studio for air brushing and weathering. The vent system I use has two standard stove vents secured above my painting table to draw away the vapors. The top of the vents have flexible metal tubing which runs to the outside. The sides and back of my paint booth have foam board to act as a barrier against dust and to help the vents draw away the vapors. I also have plastic sheeting sliced into sections covering the entrance way to the clean room so that they can be curled up when I am not airbrushing. The plastic sheeting helps keep out excess dust.

You can also set up a simple paint booth on top of your stove if you have a stove vent, which discharges to the outside. For a spray booth use a large cardboard box that has the top and front removed and to reinforce the sides, tape the edges with masking tape. To protect the stove vent filter from paint dust secure an inexpensive HVAC filter to the surface of the stove vent with masking tape. This setup works great and, best of all, it is very inexpensive. Also, you should always wear a paint mask whenever you airbrush so that you do not breathe in the paint vapors. I use a respirator paint mask with charcoal filters, which fits over my nose and mouth.

PAINT MIXING

The easiest method for mixing proportions of thinner and paint for airbrushing is to start off with two separate, empty airbrush jars of the same size. Most paints should be thinned by 25 percent (1/4) to 33 percent (1/3) by volume of paint. To achieve this ratio remove the copper coated BB's from the paint bottle using a pair of tweezers and pour the paint into one of the airbrush jars. Set the airbrush jar filled with paint next to the empty one that will contain the thinner. Using an eye dropper, fill the second airbrush jar so that the amount of thinner is about 25 percent to 33 percent of the height of the paint in the first jar. Once you have this set mixture ratio, pour the thinner into the paint jar and shake well. This technique is an easy way to get a thinner to paint mixture ratio of 25 to 33 percent by volume. If you are mixing paint colors I recommend that you mix the colors before you thin it and test the paint to be sure you are satisfied with the color. It is also important to let any test paint dry because wet paint will look different than dried paint. If you are just adding a few drops of a paint color to slightly change a paint's shade, then you can do this after the paint has been thinned as a few drops will not have an effect on the ratio of paint to thinner.

Test the thinned paint with the airbrush and then add additional thinner if necessary a few drops at a time. If you are using enamel paint I recommend that you warm the paint before you use it. Warm paint will flow, spray and adhere to a surface much better than cold paint. To warm the paint, use a coffee cup warmer plate which can be found in any grocery or discount store. It warms the paint in a few minutes and it is easy and safe to use. When you place the paint jar on the warmer plate, be sure to loosen the jar's cap so that as the paint warms up and expands it will not pressurize the air in the jar. After warming the paint shake it again to insure that the warmer paint that is at the bottom of the jar will mix with the cooler paint at the top.

When I am satisfied with the paint color, I leave the paint in the airbrush jar and label it with the color's name and the date I mixed the paint. Also, to preserve the paint that remained in the paint manufacturer's jar, add a drop or two of thinner to it and shake it up. This will give you a small reserve of the original paint color in case you need it.

I usually end up with a dozen or so airbrush jars of thinned paint when I am finished with a model. Since these thinned paints do not have a long shelf life I usually pour them into a large container, and then clean the jars and caps when I am done with a modeling project. When this container is full, I take it to the local recycle center for proper disposal.

SURFACE PREPARATION

Surface preparation is very important because it will result in proper adhesion between the paint's bonding agents and the plastic surface as well as helping to insure a good paint finish. Prior to the application of any paint, including primers, the surface should be free of the manufacturer's mold release lubricants, dirt, polishing residue and the oil from your fingers. I recommend that you use alcohol for all your surface preparation needs. This liquid cleans plastic, leaves no residue and it also makes the plastic static free so that dust will not be attracted to it. All surfaces should receive a primer coat of paint prior to any finish coats (except metalizer paints which may or may not require a specific primer). The primer will also act as a final detector for cracks, imperfections and scratches and although you should have corrected any of these problems prior to the painting stage, this will be your last chance to do so.

If you are using a primer or some other color for checking the plastic for defects it is important to give the plastic an even coat of that color prior to the application of the finish paints. Without a uniform surface color the paint finish may have a slightly different color on areas that have no undercoat. Another very important point in surface preparation is to ensure that the plastic itself is the proper temperature. If the plastic is cold, the paint including any primers may not adhere properly. You can also use your airbrush to remove dust particles from the parts you are about to paint by blowing high pressure air from the airbrush over the parts.

MASKING

As I stated in the chapter on tools and equipment, I like to use 3M painters masking tape for all my masking needs. I lay one layer on my cutting board and then place another layer over the first one. I then use a new number 11 X-Acto blade for my tape cutting and I change the blade frequently so that every cut tape edge is sharp. I peel the top layer of tape off with the tip of the cutting blade and then use tweezers or the tip of a toothpick to help position the tape properly onto the surface to be masked. To cut straight lines I use stainless steel rulers of various lengths as a guide, but the one I use the most is my 6-inch stainless steel sewing ruler, which has measurements in 32nds, 64ths, 10ths and 100ths. It is one of the handiest tools I have and I use it all the time for measuring precise widths of tape and for measuring and cutting plastic for my scratchbuilding projects.

I also use 3M painters masking tape for attaching small parts to pieces of cardboard or lengths of balsa wood so that they can be easily painted. Simply take a length of tape and double it over, attach it to the cardboard or balsa wood and then press it flat with your fingers. You can also use drafting templates for cutting shapes into this masking tape. Here again a new number 11 X-Acto blade is important so that you get a very sharp edge. Place the template on the double-layered tape and secure the template with masking tape around its edges so it will not move. Run the tip of the number 11 X-Acto blade around the perimeter using the edge of the template shape as a guide. Fear not as you may have to repeat the process several times before you get a perfect shape. To make the white round circles on the P-38J featured in this book, I had to cut quite a few circles before I got two perfect ones.

If you are finishing your model in a multicolor paint scheme and plan to have fine demarcation lines between colors I recommend that you pencil in the outlines on cardstock first. It is much easier to sketch patterns onto cardstock first until you get the shapes you want than to try to achieve this directly on masking tape. Once you are satisfied with the patterns cut them out and then transfer the shapes to the masking tape. This process also allows you to duplicate your work and keep a record of the patterns you made.

USING YOUR AIRBRUSH

Good airbrushing technique evolves as you gain experience using it. You will find that your airbrush trigger finger and wrist control are important in achieving good results with an airbrush. The distance between the tip of the airbrush and the surface to be painted is also very important. If the tip gets too close to the surface, too much paint will be applied resulting in paint runs. If the tip is too far away, paint particles will dry before hitting the surface of the model resulting in what is commonly called the orange peel effect. The orange peel effect can also be caused by bad thinner, or the wrong thinner, old paint, painting in a high humidity environment (above 55-60 percent) or airbrushing with higher than normal pressure air. I usually set the pressure regulator on my air tank to 15–20psi for general airbrushing. For corners and around protrusions I reduce it to 10-15 psi.

Flat surfaces are the easiest to paint as you can simply sweep back and forth across the surface to get light coats. Push the air button before the paint hits the surface, continue across the surface and then after the airbrush tip leaves the surface release the air

button. Do not try to achieve complete coverage in one airbrushing session. Two or three light, thin coats are better than one thick coat. For surfaces that have corners, protrusions or elevated surfaces, lower the air pressure and carefully apply light coats, rotating the airbrush so that the paint emitting from the airbrush tip will hit the intended area head on.

If you are going to use more than one color during an airbrushing session you can clean out the airbrush and paint bottle connection point with a Q-Tip soaked with thinner and by running thinner through the airbrush to remove the paint from the inside areas. I can usually do this three or four times during an airbrush session before I need to actually take the airbrush apart to clean it and remove the dried paint, which is clogging the tiny tip. After each airbrushing session take the time to disassemble your airbrush and clean all the parts by soaking them in thinner. Every few months I also soak the parts in lacquer just to be sure any tiny paint residue is removed. If you take care of your airbrush it will last for years. Also if your airbrush has seals, bearings and washers, which are usually Teflon, buy spares and replace them every six months.

PAINT BRUSHES

For detail painting and tiny touchups invest in top quality paint brushes. I prefer brushes made with natural hair such as red sable, however I have also had great success with good quality brushes made from synthetic hairs. IMEX makes good brushes and I have been very pleased with them. The IMEX brushes have thick plastic handles that have a triangular shape. Although they do not look like the traditional round handled brushes that you would find in an artist paint store, I like the grip of these larger handles.

Always clean your brushes after each use by dipping them in thinner and then cleaning off the excess paint with a soft tissue using a gentle twisting motion as the brush runs through the tissue paper. Never let your paint brushes rest on their bristles, as that is the surest way to deform the bristle's shape. Good quality brushes will have a clear tube over the tip to protect the bristles which you should always keep on the tip of the brush when you are not using it. To store my brushes I have a 1-foot length of 2 X 4 with holes drilled into it for my brushes. I have brushes that are over 25 years old and they are still good because I take care of them. So take the time to clean and store them properly and they will last a long time.

Paint will respond better and flow from your brushes better if you add a drop or two of the manufacturers recommended thinner to the paint bottle. Typically, paint fresh from the bottle tends to be thick and clingy and a few drops of thinner will help fix this problem. Here again, be sure to shake the bottle well before use so the thinner is mixed with the paint. Also, you should also get into the habit of cleaning your brushes before you use them. Sometimes dust and lint will attach itself to the brush hairs and cleaning the brush in thinner prior to use will remove them. Allow the brush to air dry for a minute or so before using it again so that residual thinner will evaporate off.

SPRAY CANS

If you are using spray cans here are some tips to help get a better finish. Always shake the spray can well prior to use and if there is no agitating ball inside that you can hear when you shake the spray can don't use it. Always test the spray can prior to use and when you are finished turn the can upside down, push the nozzle and allow the excess paint to spray out, then clean the tip to remove any excess paint. To achieve a better paint job with spray cans I recommend that you warm the paint before use. Simply immerse the spray can in a pan of hot tap water from your kitchen sink for a few minutes and shake well prior to use.

DRYBRUSHING & HIGHLIGHTING

Drybrushing is a master modelers technique that simply uses another paint color or a lighter or darker shade of the same color to highlight detail and edges so that the modeling subject appears more appealing to the human eye allowing it to pick out details. The technique is very simple, however it is easy to over do it.

For all my drybrushing needs I use various widths of flat, stiff paint brushes. I dip the tip of the paint brush into the paint or the paint cap and then use a clean colored piece of paper to wipe off almost all of the paint by brushing the paint onto the paper. Even strokes back and forth across the paper are required here. Do not mash the brush onto the paper as this will deform the shape of the bristles and make it very difficult to apply the paint. When almost no paint appears on the paper you are ready to apply the residual paint to surfaces you want to highlight. Essentially you are brushing "almost dried paint" onto the surface to be painted hence the name drybrushing.

The most common color used in drybrushing is silver as it easily represents the shiny metal that gets exposed as the painted surfaces wear off due to a variety of reasons. Silver paint is also used to highlight the edges of box shapes, the edges of seats, console faces, the leading edges of wings and tail surfaces, the front edges of engine cowlings and areas on the upper surfaces of the wings where crew and maintenance personnel walk frequently. You can also tone down the silver color by airbrushing a clear

flat when you are done drybrushing. You can mix lighter or darker shades of the same color you use on parts and drybrush the edges of the raised surface detail such as wiring, bolt heads or interior framing. Here again what you are doing is providing the human eye with various shades of the same color on different surfaces and at different angles so that the eye can discern all the details you want to focus attention on. Drybrushing is very easy to over do almost to the point of ruining the appearance of the model so whenever you are dry brushing remember this one simple rule – less is better.

APPLYING DECALS

As we discussed in the beginning of this book, the third basic technique to master in scale modeling is applying decals. While Ships and armor scale models do not have many decals, aircraft models have lots of them and if you do a poor job of applying them you will ruin the appearance of your masterpiece. Decal application is not difficult and if you follow a few simple steps you will have success every time you work with them. It is also important to realize that from time to time you are going to tear or ruin a decal. Fortunately you can always purchase replacements if you are using aftermarket decals or contact the manufacturer for replacements if you are using the kit supplied decals.

Decals are made by ink printing the required designs and colors onto a clear carrier film that has a paper backing. The layer between the carrier film and the paper backing has a water soluble adhesive. The surface of the decals are sprayed with a special coating to protect the inks and seal them. There is also a clear portion of the decal and it is this clear area that can cause decal disasters by what is known as the silvering effect. Most aircraft colors are flat and this paint has a very rough surface which scatters the light which reflects on it hence the flat appearance of the paint. Gloss paint has a very smooth surface and reflects light uniformly hence its shiny appearance. When you lay a decal onto a painted surface that has a flat color, the decal traps air in the tiny pockets of the rough surface of the paint and as the decal dries and light reflects off the clear areas it will appear silvery. There are several easy steps to follow that will prevent this silvering effect while at the same time giving you a decal that almost appears as if it were painted onto the model.

The secret to preventing decals from getting a silver appearance on the clear sections is to apply them to a gloss finish and remove as much of the decals clear film as possible. When you apply the clear coats be sure that you apply them to the entire model, not just in the areas where the decals go. If you do not you will be able to detect the differences under certain light conditions. Just about every paint manufacturer markets clear gloss finishes and all of them work well. I like to use enamel or lacquer clear gloss paint which can be airbrushed without having to thin them. Another advantage to having a gloss finish is that the decals will slide very easily across the surface of the model and this is very helpful when you are positioning a decal or if a decal folds over.

To cut out decals I recommend that you rough cut out the individual decal off the decal sheet with a new number 11 X-Acto blade. I usually rough cut a 1/8th inch border around a particular decal and I cut them out as I apply them. Some modelers use scissors, but sometimes you will have to bend the decal sheet to fully cut around a decal and I strongly recommend that you never bend a decal sheet. You stand a good chance of cracking the inks on the decal's surface if you bend it. Using a number 11 X-Acto blade is especially helpful if the decals are close together and you have cut too close to another decal. I do all my decal cutting on either a glass or Plexiglas plate. The advantage of using glass is that the blade will not cut into the surface. After using a piece of Plexiglas for several decal projects you may have to replace it due to a rough surface as the blade will cut into the Plexiglas. A glass plate will dull the knife blade sooner requiring more frequent blade changing.

After you have rough cut a decal you are ready to trim the excess clear film from it. In almost all cases I recommend that you remove as much clear film along the outer edges or perimeter of a decal as possible. If the decal is a series such as "115B6" and it is a small, remove the clear film from along the outer perimeter of the decal. If the decal is large and the numbers or letters are spaced far enough apart you may want to consider cutting them out separately, trimming around each number or letter and then applying them to the model.

National insignia are the easiest to remove the clear film from and I also take the time to remove as much carrier film from nose art as I can. If the decal has clear film that is surrounded by a colored portion of the decal such as the upper portion of the letter "A" or the number "9", I recommend that you also remove the carrier film from these areas to reduce the risk of air bubbles getting trapped there. If you do decide to remove all the excess carrier film from the perimeter of a number or letter there are several challenges, which you should be aware of. First, cutting out all the film is very time consuming, because the individual numbers and letters being cut out need to be trimmed very carefully. Second, when they are applied to the models surface they need to be lined up and evenly spaced. Although this is not difficult to do, you need a good eye and you need to be able to judge the spacing between the decals. Here again a new number 11 X-Acto blade works best for trimming the individual decals to remove the clear carrier film from the inked areas. Always cut the decal with clean cuts and if the knife-edge does not cut all the way through give it a second pass. Never tear partially cut areas away from the inked portions especially in tight corners as you stand a good chance of tearing the decal. The cut portion of the decal should fall free from the inked area. I use my trusty

stainless steel sewing ruler to guide the tip of the number 11 blade for cutting straight lines. For odd shaped decals like nose art I free hand the cuts, but I work very slowly and check my work as I go so that I will not cut into inked areas. For curved edges I use a single edge razor blade and make tangential cuts along the curve, removing ever-smaller pieces of clear film.

The decals that I find the most difficult to work with are the label type decals that you find on aircraft surfaces to identify what is behind a panel or to give instructions to maintenance crews or the pilot. These decals are usually very small, and in these cases the excess clear film can actually facilitate the placement of the decal, because it gives you a little extra contact surface to work with. I recommend that on tiny decals you leave the carrier film on. To help apply these tiny decals leave a small length of the backing so that you can easily grab the backing with tweezers and slide the decal off the opposite end. Small round decals with clear carrier film in the center are also a problem, especially the red circle types that are applied to fuel caps. For some reason they do not respond to setting solutions very well and this may be because their round surfaces areas are so small. I have discovered that if you punch out the clear carrier film from the center of the decal with a punch tool, the decal will lie down on the gas caps surface very well and mold itself onto the raised detail.

To apply decals first fill a clear glass container that you will be using to soak the decals with lukewarm water. Keep your decal sheet away from the glass jar so that the wet decals will not drip on to the sheet. The next step is to dip the decal into the water. Most new types of decals only need to be submerged for about 10 seconds or so while older decals may require more time to get the glue to dissolve. When you dip the decal make sure that the entire decal is submerged. Do not let the decal float in the water, because there is a possibility that the glue which holds the decal to the backing paper may dissolve very quickly, resulting in the decal lifting off the paper or, worse yet, the decal sinking to the bottom of the glass.

After you have removed the decal from the water let it sit until the decal slides freely across its backing. While you are waiting, apply your decal setting solution to the model's surface. To apply any setting solution I recommend that you use Q-Tips, because they absorb just enough solution and they will not damage decals. If you use a two-step process like the Micro Scale system, separate the bottles by putting them on opposite sides of the workbench. This way you will not mix up the Q-Tips that you are using as applicators.

When the decal is ready to be applied, slide the decal very slightly off the backing so that you can grab the exposed backing with tweezers. Once you have moved the decal and you are holding the backing with the tweezers tips, place the decal onto the location on the model's surface holding the backing with the tweezers in one hand and a decal setting solution soaked Q-Tip in the other hand. Lay the decal on the surface of the model, place the Q-Tip onto the decal and then ever so slowly, pull the backing away from the Q-Tip. You will have a small amount of working time with the decal before the glue starts to set onto the surface so you can then slide the decal around with your Q-Tip to position it. Be very careful not to put too much pressure on the Q-Tip as you may rip the decal. Once the decal is positioned correctly do a last minute check for location and position and then press down on the decal using either a damp tissue or a damp Q-Tip. It is important to keep the decal wet while you are working with it, so if it gets dry apply some more setting solution.

If the decal is a large one and it is a number or letter such as a "7" or an "F" you will need to be very careful how you slide the backing off the decal. This is because these types of decals have a tendency to fold over or, worse yet, they can rip. With these types of decals I try to move the backing away from the actual decal along the least likely surface that can be damaged. In the case of the letter "F," I would move the backing towards the left and in the case of the number "7" I would move the backing towards the right and upward. It also helps a great deal if the decal's glue is very fluid and the decal is kept wet. If the decal does fold under itself, slide the decal around as this sometimes will move the folded portion just enough for you to correct the problem.

When you position a decal, check to ensure that it is straight, not upside down and not reversed. I know you are smiling to yourself and saying that you would never do that, but if you are applying individual letters such as the letter "D" it can easily be reversed. Another decal that you need to be careful when applying is insignia, which contains a star. On fuselages the center point of the star is always pointing up and on wings it is always pointing towards the leading edge of the wing.

After you have applied a decal and you are satisfied with its appearance and position you need to soak up any excess water and setting solution before it dries. If you let the water dry on the model it will usually leave a stain which can be removed by washing the affected surface with a damp Q-Tip dipped in water.

In order to get the decal to really snuggle down around detail you will need to apply several coats of setting solution. If the decal is lying against a surface that has no surface detail I recommend that you not waste your time applying setting solution because there is nothing for the decal to conform to. I usually apply at least three or four coats of setting solution and I let each coat dry completely. Apply the setting solution with a Q-Tip and only wet the surface of the decal. As the solution dries it will soften the

decal and pull it down around surface detail. If tiny air bubbles appear pop them with a pin, apply some more setting solution to the decal's surface with a Q-Tip and then press down on the area where the bubbles were located. Each successive coat of setting solution will pull the decal down around surface detail until the decal actually appears to be painted on the surface. Even small rivet and locking screw detail will show, so take your time and do not skimp on applying coats of setting solution.

After you have completed applying all the decals and the surfaces are cleaned up from decal glue and setting solutions, seal the decals with a clear flat paint. This will also restore the flat color appearance of the surface paint. If the aircraft is a gloss color use a clear gloss paint.

As a final note on decaling I have purchased a lot of decal sheets over the years especially at conventions. To preserve your decal collection store them in sealed tupperware containers to keep out moisture and protect them from light.

EXTERIOR WEATHERING

If you decide you want to weather the exterior of your model it needs to be done in stages. The first stage is to slightly lighten the paint that will be applied to the upper surfaces of the aircraft that are exposed to direct sun light such as the upper wings and the top surface of the fuselage. Add a few drops of flat white to the paint and airbrush this lighter color onto these surfaces. The underside of the aircraft usually has an almost factory fresh appearance to the paint, because there is no direct sunlight to fade it. Also, fabric covered areas such as control surfaces should be a lighter shade than the faded metal skin color.

Once you have completed applying the lighter colors onto the upper surfaces you can apply all the decals. Keep in mind that although the lower painted surfaces may not get faded, military aircraft that operated from dirt or grass fields, would have slightly dirty undersides. When you have finished applying all the decals and the water and setting solution stains have been removed, and the clear flat finish applied to the entire surface of the model, the next step is to fade the decals slightly. Fade the decals you say! Well consider this. If you painted the model as a factory fresh or almost factory fresh aircraft you can apply the decals, seal them and move on. If you decided to fade the colors on the upper surfaces of the aircraft and the decals look new there will be a visual disparity between the faded paint and the new looking decals.

To fix this problem you can give the upper surfaces a light, highly diluted coat of flat white or a light, light flat gray paint so that the decals will have a slightly faded appearance. This is especially true for decals like national insignia, nose art and large fuselage numbers and letters.

Since you will be using a highly dilute color which will be mostly thinner I recommend that you use water base paints so that the thinner will evaporate off the model. The reason I recommend water base paints is that you will be applying a large volume of thinner to the model's surface because of the paint to thinner ratio. A mixture of 75 percent thinner to 25 percent paint should give you a subtle dusting on the upper surfaces to slightly fade the decals.

Always test your mixture prior to airbrushing to be sure that the paint is just a dusting and that the paint has mixed correctly. If the paint is still too thick just add more thinner until you get the effect you are looking for. I have also had the bad experience of having the airbrush spit globs of water base paint onto the surface of the model. This was either due to bad thinner or bad paint, which does happen from time to time. So always test you paint especially highly diluted mixtures. As a final note to this disaster I quickly streaked the paint from front to back with tissue, which salvaged the models appearance.

For making the bottom of the aircraft dirty use the same ratio of 75 percent thinner to 25 percent paint. If the aircraft operated from an airfield use flat brown lightened up with some flat white or a light tan color. In addition to applying the dirt color to the lower surfaces of the aircraft, dirt also gets splashed into the wheel wells and onto the landing gear, the tires and tire hubs. Here again less is better so hints of the dirt color are better than making it appear as though the airplane has had a mud bath! The result you want is a very subtle, light dusting of paint particles on the surface of the model, especially on the decals. If you decide to dust the bottom of the aircraft with dirt and mud add the leading edge weathering first.

LEADING EDGE & FOOT TRAFFIC WEATHERING

The next step in making your finished masterpiece look realistic is to add the subtle effects of worn off paint on the leading edges of the airplane and on surfaces where there is foot traffic. For simulating worn paint on the leading edges of wings, which includes the tail and rudder leading edges, on the front of the fuselage and the engine cowlings, I use the drybrushing method to add very subtle amounts of silver paint. I use a flat brush for leading edge paint application and I make sure almost all the paint is gone before I touch the brush to the surface. It is also very important to be sure that your brush strokes on the leading edges of wings simulate the actual flow of air, which would be from the leading edge and then across the upper and lower surfaces just beyond the leading edge.

On the leading edge of the aircraft fuselage the worn paint would be around the circumference area of the nose, but here again very subtly and not uniform as paint peels and is worn off at non-uniform rates. On engine cowlings I drybrush starting at the inner edges with brush strokes straight back across the cowlings surface such that the strokes simulate the airflow pattern. I also drybrush the tips of the engine cooling flaps on the aft section of the cowling.

Foot traffic is usually on the upper surfaces of the wings of fighter aircraft close to cockpit and some very subtle worn paint where the fuel caps are located. There may also be worn paint along the sides of the fuselage around the cockpit where the pilot and crew chief spend time getting into and out of the aircraft. I use a flat brush with a blunt end to drybrush on the silver paint by using a stippling effect to simulate the worn paint from foot traffic. Here again the effect is very subtle and there should be hints of silver where the paint has worn off.

EXHAUST AND GUNPOWDER STREAKS

The last step in basic weathering are to add exhaust and gunpowder streaks. The best way to apply these streaks is to use your airbrush and to apply light subtle amounts of paint. For enamel surfaces I like to use Metalizer exhaust colored paint for exhaust stains and for gunpowder stains I use the flat black that has some flat white added to it so it is a dark, dark gray. If you don't like using metalizer paint, just use the same mixture for the gunpowder streaks that you used for the exhaust streaks.

The exhaust streaks should emit from just behind the exhaust pipes and streak back across the surface starting out heavier and then getting lighter in appearance as the streak moves away from the exhaust ports. Gunpowder streaks are pretty much the same except their streaks can be narrow or wide depending on where the guns are located. For wing-mounted guns, the streaks are often times narrow and extend across the upper and lower surfaces of the wing. For nose mounted guns the streaks can be narrow, but most times they are wider and less distinct due to the rounded and blunter shape of the fuselage. In all cases examine pictures of real aircraft to see what the exhaust and gunpowder streak shapes look like.

PANEL LINES

Before we discuss enhancing panel lines lets talk about how metal aircraft are covered. Depending on the aircraft and how it was designed and assembled, the metal sheeting which covers the aircrafts framing can either be joined at the edges or overlapped. Metal sheeting that joins at the edges are called butt joints and those that overlap are called lap joints. Most aircraft have both butt joints and lap joints. Also, the rivets that connect the sheeting to the framing can be rivets with a typical rivet head or flush rivets with a flat surface.

Butt joints typically have a tiny channel between the metal sheeting edges which rests on an aircraft frame section. These channels are typically very tiny in width, because the wider the channel, the more of a negative effect each channel would have on the aerodynamics of the aircraft. Over time, aircraft framing can stretch and twist and this can effect the width of a butt joint. Aircraft that have been sitting in outside museums for many years can also have wider butt joint channels between the edges of the metal sheeting due to expansion and contraction of the aircraft due to temperature differences. Aircraft that have been properly restored and are kept in climate controlled museums typically have more accurate butt joint channel widths.

Aircraft designers sometimes locate butt joints at framing locations that are designed to be detached from the aircraft so that entire sections of the aircraft can be replaced. A good example of this is the aft section of a B-17, which can be detached from the rest of the airframe and a new one attached. That is why some B-17 photos show aft sections of the aircraft with a completely different color than the forward section.

Aircraft sheeting thickness can also vary on the same aircraft depending on their locations. In areas where the sheeting provides additional structural strength to the airframe, the sheeting would be thicker. Hence the channel depth between the sheeting sections for butt joints would be deeper and the edges of lap joints would be higher.

Lastly, aircraft designs are based upon the four forces of thrust, drag, lift and weight. Thrust is the engines power. Drag are those things that can slow the aircraft down and directly counter the aircraft's thrust. Lift is the ability of the aircrafts design, specifically the wings, to provide lift to the aircraft either under power or gliding. Weight is of course the aircrafts weight, which aircraft designers always try to minimize. Anything that disrupts or impedes the airflow across the wings, rudder, elevators or the fuselage is drag. Hence the wider and deeper butt joint channels are, and the higher the edges are on lap joints, the more they add to the cumulative effect of drag across the surface by disrupting the airflow.

With this brief explanation of aircraft design, what would be the typical dimensions of butt joints (width and depth) and lap joints (raised edge height) in the various scales of aircraft models? Lets say all the aircraft's butt joint channel widths are 1/8 of an inch

(.125 inches), which is a pretty wide width and the metal sheeting thickness is a 1/16 of an inch thick. For a representation of this aircraft in 1/32 scale the butt joint channel width would be .0039 inches and channel depth and the lap joint raised edges would be .00195 inches. For a representation of this aircraft in 1/48 scale, the butt joint channel width would be .0026 inches and the channel depth and the lap joint raised edges would be .0013 inches. In 1/72 scale the channel width would be .0017 inches in width and the channel depth and the lap joint raised edges would .00087 inches.

As a second example lets say the aircraft's butt joint channel widths are 1/16 of an inch (.0625 inches), which is a more realistic channel width, and the metal thickness is also is 1/16 of an inch thick. For a representation of this aircraft in 1/32 scale, the butt joint channel width and depth and the lap joint raised edge would be .00195 inches. For a representation of this aircraft in 1/48 scale, the butt joint channel width and depth and the lap joint raised edge would be .0013 inches. In 1/72 scale these numbers would be .00087 inches.

A good reference to these very small widths, depths and heights would be the thickness of a typical sheet of paper which can range from .003 to .004 inches in thickness. A human hair can range from .002 to .004 inches in diameter. With these frames of reference in mind, butt joints in 1/32 scale would be smaller in width and depth than a typical sheet of paper and so would the raised edges of lap joints. In 1/48 scale butt joints and lap joints would be approaching the diameter of a human hair and in 1/72 scale butt joints and lap joints would be almost indistinguishable from the surrounding surfaces.

In the world of aircraft scale modeling, butt joints and lap joints are mixed together and we refer to them as “panel lines”. However it is the butt joints that actually should be referred to as panel lines and the raised edge lap joints should be referred to as “lap joints”. Both types should be differentiated, but with the actual widths and depths determined to be at or smaller than the width of a sheet of paper or a human hair, how should they be represented in the different scale mediums?

Scale model manufacturers have graduated from raised lines to engraved lines and scale model aircraft surfaces now have all engraved panel lines. However, the reality is that scale model aircraft should have very petite engraved lines in both depth and width to represent butt joints and petite raised lines in height to represent lap joints.

So how and when should these different types of joints be accented or highlighted? In the world of scale model aircraft, many modelers have graduated from representing a scale model aircraft as realistic in its appearance, to the very different world of “model art”.

In the world of painting a realistic scale model aircraft, butt joints or “panel lines” should be accented or highlighted from the thickness of a human hair to the thickness of a sheet of paper and lap joints would just be the same color as the surrounding surface. In 1/48 scale butt joints would be accented or highlighted the width of a human hair and in 1/72 scale not at all, while the lap joints would be the same color as the surrounding surface. Achieving accurate accenting or highlighting of these very tiny widths for panel lines, even in 1/32 scale would be a challenge. How you accent the panel lines depends on what you want to achieve with your scale model aircraft.

If you want to accurately represent your scale model aircraft you should do some research and determine how the surface of the actual aircraft was covered. If you decide to accent or highlight the areas where there are butt joints, the lines should be very faint and petite. One good way to achieve petite lines is to use a sharp, soft lead drafting pencil. You can also ink the panel lines or use very dilute paint to accented them, however, the lines will be thicker and more unrealistic. You can also try pre-shading of panel lines, which simply means that before you apply the finished coats of paint, you accent the panel lines. However, when you apply the finished coats they should be very thin so that the pre-shading of the panel lines, although faint, can be seen. You can also choose to not accent the engraved lines, and your scale model aircraft would be just as accurate in appearance. If you want to achieve a scale “model art” aircraft then you should accent all the panel lines using inks or dilute paints to achieve this after the finished coats and decals are applied.

For achieving a realistic appearance for your scale model aircraft, remember that less weathering is always better than more weathering. What you are trying to achieve is a hint of faded and worn paint, streaks of gunpowder and exhaust stains and decals that don't look brand new.

In closing out this chapter, always keep in mind that when you master the three key basic skills of scale modeling discussed in chapter 1, you are what you have strived to become—a great scale model builder!



To ensure that paint is mixed properly drop a few copper coated BB's into the manufacturers paint bottle. The BB's will act as an agitator and mix the paint's pigments which tend to settle to the bottom.



Always clean the inside of the paint bottle lid every time you open the paint jar.



You should also clean the outside neck and lip of the paint bottle every time you open it.



To mix paint and thinner, use two bottles of the same size and shape. This allows you to easily gauge the thinner to paint mixture ratio. The thinner is then poured into the paint bottle and mixed.



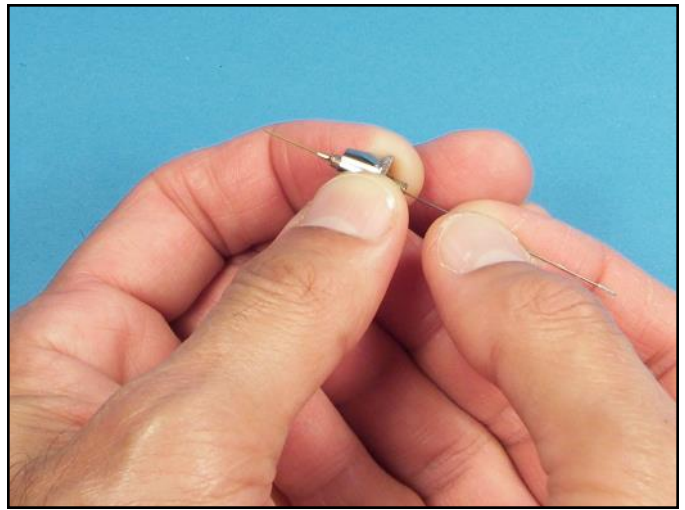
Always label your mixed and thinned airbrush paints. I also include the dates the paint was mixed and what the paint is used for. Labeling is especially important if you are using different shades of the same color for weathering.



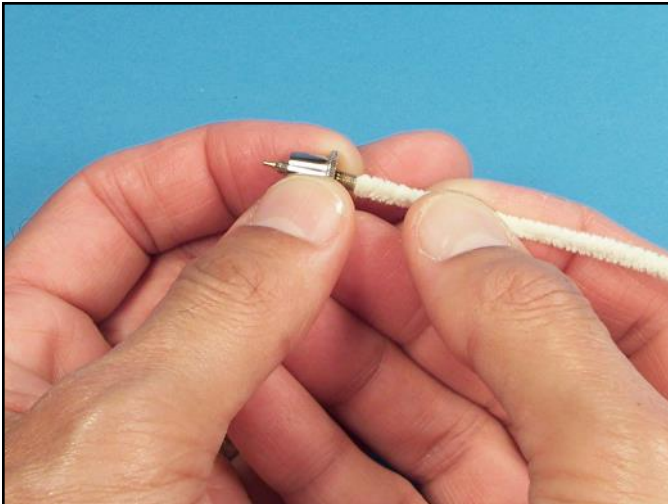
This is the simple organizer that I have for my airbrush, spare bottles and the pipe cleaners that I use to clean the airbrush.



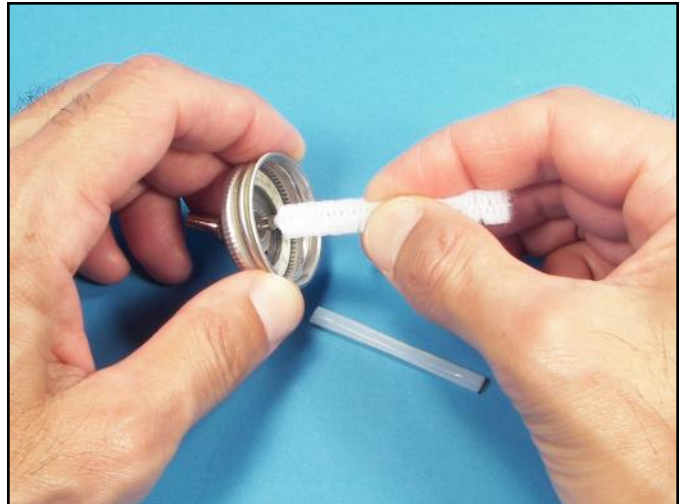
To clean the bottom feed of a Badger 200 airbrush use Q-tips soaked in thinner.



Sometimes the airbrush head can get clogged with dried paint. I use a .015-.019 inch stiff wire to unclog the head and I dip the tip into thinner before running it through the airbrush head.



Small diameter pipe cleaners soaked in thinner can also be used to clean out dried paint from the airbrush tip.



Thinner soaked pipe cleaners can also be used to clean out the airbrush paint bottle cap and the siphoning tube.



Disassemble your airbrush and soak it in thinner after each use to remove all the flakes of dried paint.



The Teflon needle bearing and the Teflon washer on my Badger 200 single action airbrush get replaced every six months.



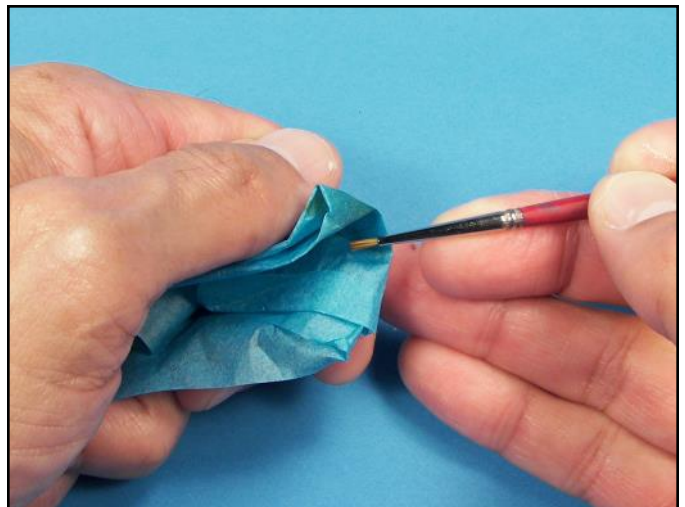
This is the proper way to hold a bottom feed airbrush whether it is single or double action. This grip style allows you excellent control of the airbrush button and good wrist movement of the airbrush.



Airbrush tips can get paint buildup during airbrushing, which can then spit onto the surface. Cleaning the tip with a Q-Tip during an airbrush session will prevent this from happening.



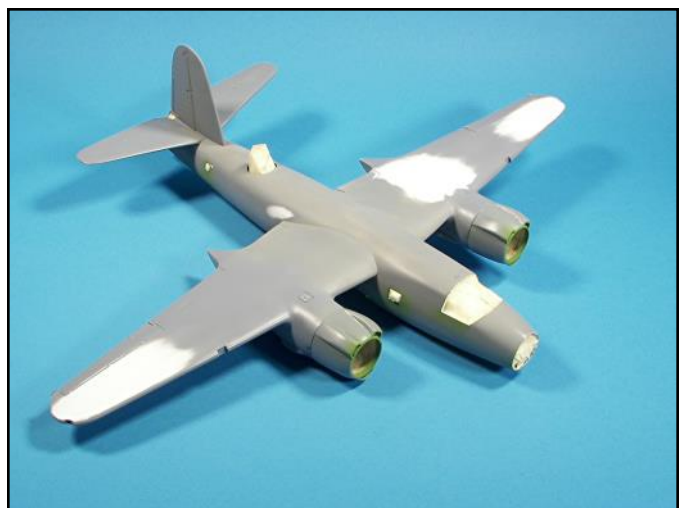
Always clean your paint brushes before you use them and after you are done with them. Never let a paint brush rest on its bristles.



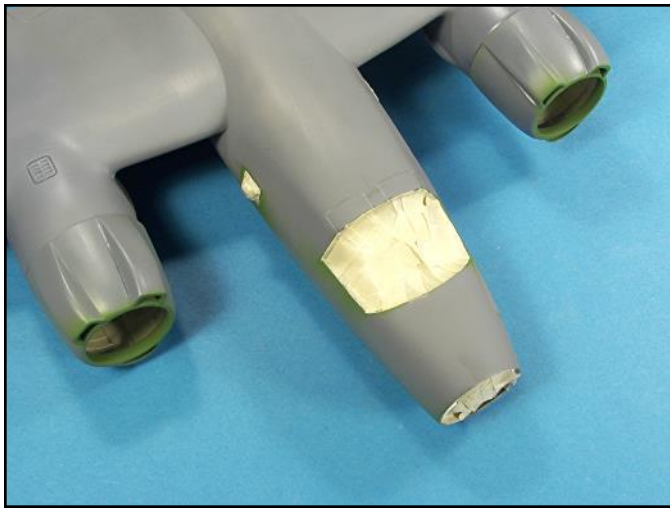
To clean the bristles on a paint brush, fold tissue around them and use a slow, twisting motion to clean the thinner and paint off the bristles.



I have my paint brushes sitting in a simple organizer. Always use the protective covers to protect your brushes.



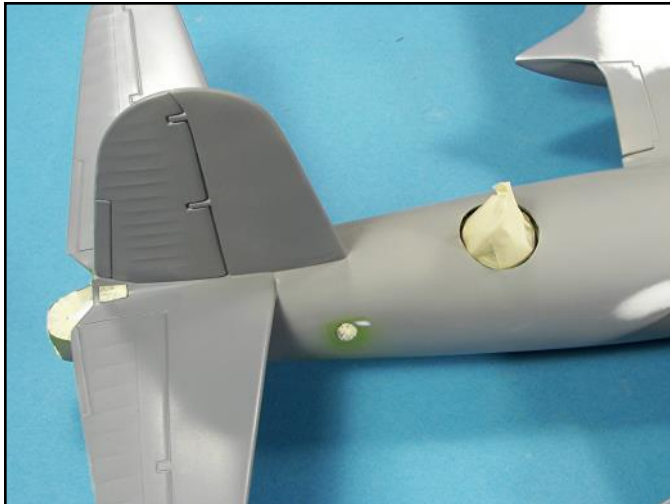
Priming the surface prior to applying the finished colors does two things. It will help identify any surface flaws which can then be addressed and the primer provides better adhesion between the plastic and the finished colors.



To help support the masking tape covering this cockpit, small sections of tissue were stuffed into the cockpit area. Small sections of masking tape were applied along the edges and then larger ones filled in the open area.



Small strips of masking tape were used to outline these openings and then larger strips were attached to them to close up the opening.



Tiny strips of masking tape were also used to cover clear parts that were glued from the inside of the fuselage.



The interiors of the engine cowling were painted and then carefully masked. They were then attached to the engine nacelles with larger strips of masking tape so that the upper and lower finished color demarcation lines would match.



The lower fuselage, engine nacelles and the lower wings on this B-26 was airbrushed a medium gray color first. Note that the bomb bay was also carefully masked.



Patterns were cut on cardstock for the lower fuselage and the engine nacelles. The patterns were transferred to masking tape and applied to the surfaces. The masking was completed and the olive drab color was then airbrushed.



Note how uniform and smooth the olive drab color looks.



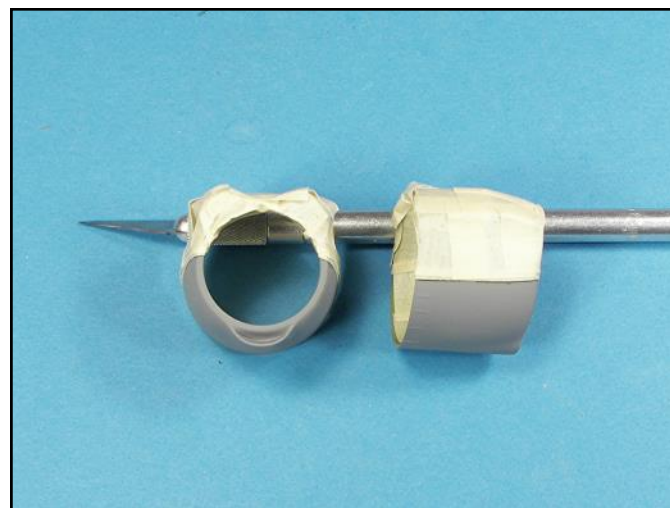
The masking tape was removed from the surface to check for paint bleeding. On this model no touch ups were needed.



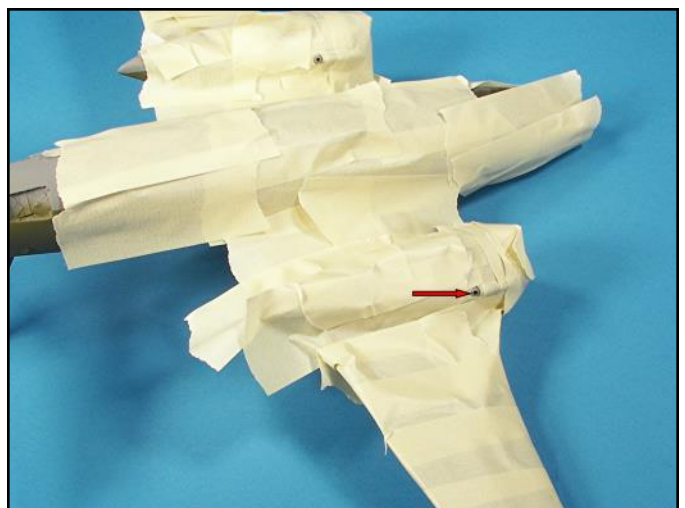
Strips of masking tape were applied around the landing gear bay openings and then the entire lower surface was masked to prevent any overspray or paint bleeding.



Here again, all the masking tape was removed to check for any paint bleeding or over spray of the interior color onto the outer surface.



The demarcation lines between the medium gray and the olive drab colors on the engine cowlings were not very sharp so they were re-masked and touched up.



A lot of effort went into applying a lot of masking tape so that the engine exhausts could be airbrushed. The extra effort was well worth the time because the engine exhausts looked great.



On this Mig-3 the cockpit was masked off and primer was airbrushed onto the seams to check them prior to priming the entire surface.



After the entire surface was primed, slight indentations in the wing surfaces were noted. The indentations were wet sanded and then the plastic was polished with 0000 steel wool pads.



The polished areas were re-primed to blend in the new paint with the surrounding painted surfaces.



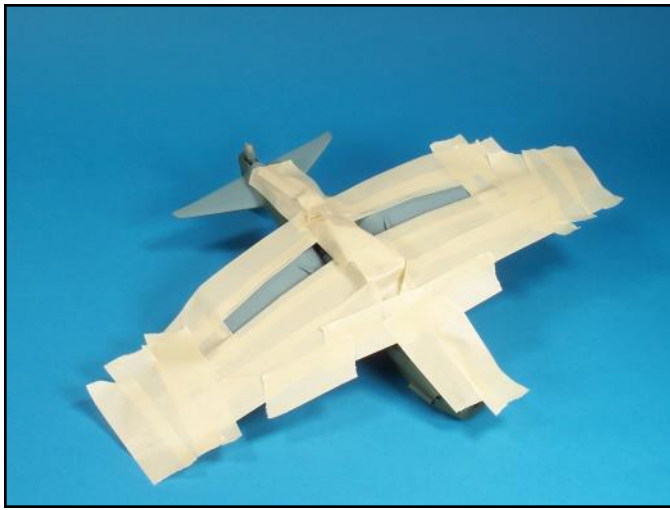
The underside of the wings, the tail, the lower sides of the fuselage, wheel well covers, control surfaces and flaps were airbrushed first with Russian underside blue.



The wing and tail edges were masked and the upper surfaces airbrushed Russian green. A Badger 200 detail airbrush was used to free hand the green and blend it into the underside blue.



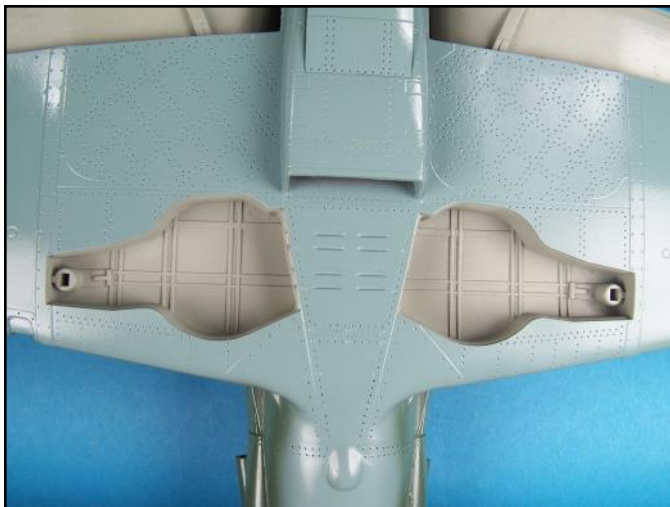
Next, the wheel wells were masked off and airbrushed the interior color of light sea gray.



The wheel well masking was removed and new masking was applied to the areas around the flap openings and airbrushed with the interior color.



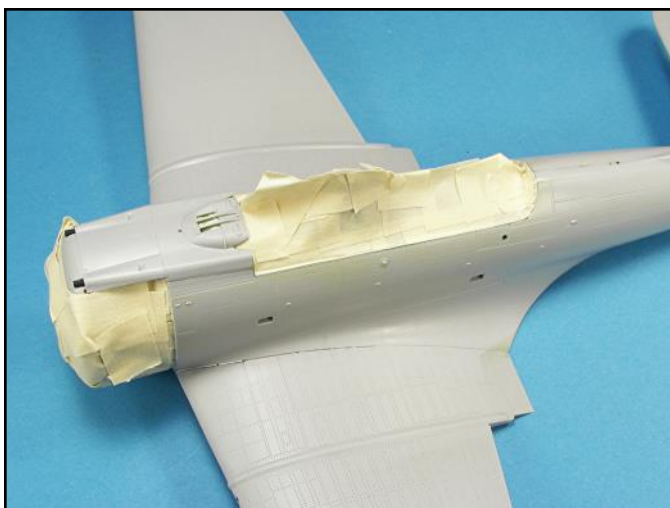
The Mig-3 also has leading edge slat flaps so these areas were masked off next and air brushed the interior color.



Note how clean the airbrushed colors are and how sharp the demarcation lines are between the colors.



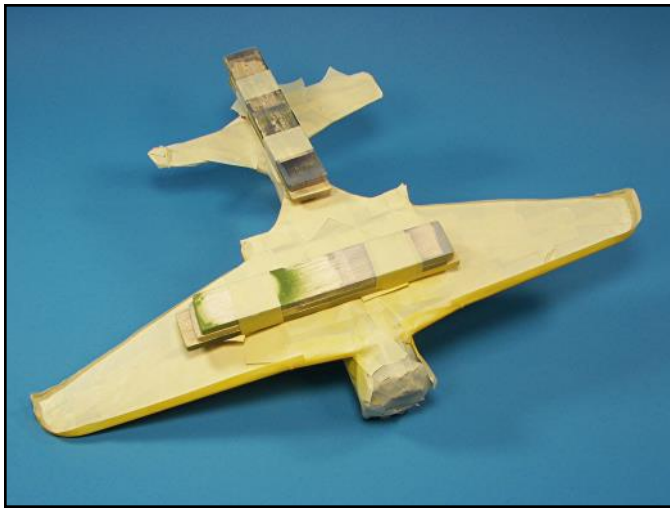
The entire model was then airbrushed with two coats of clear gloss for the application of the decals.



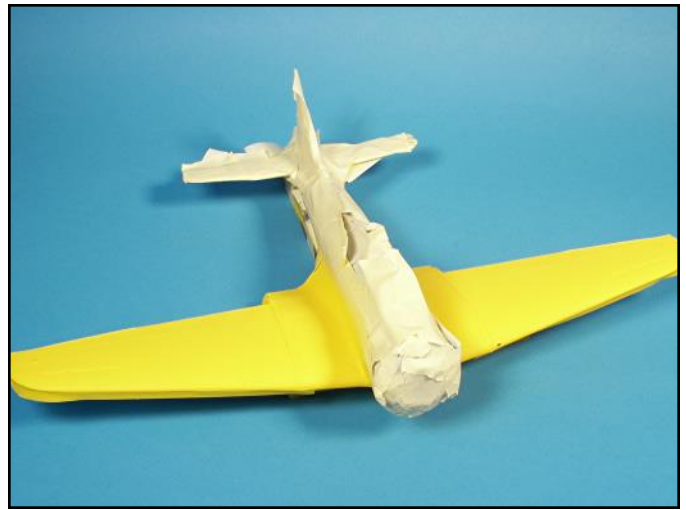
This SBD Dauntless cockpit and exposed interior area between the engine heat shield and firewall were masked off and then the surface was primed.



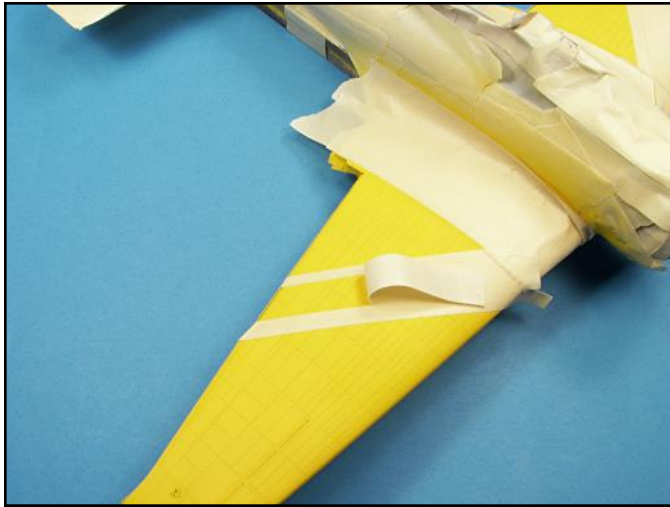
The rudder and the aft fuselage areas were airbrushed flat red and then masking tape was carefully measured, cut and applied to replace the red stripe decals supplied in the kit. The surface was then re-primed.



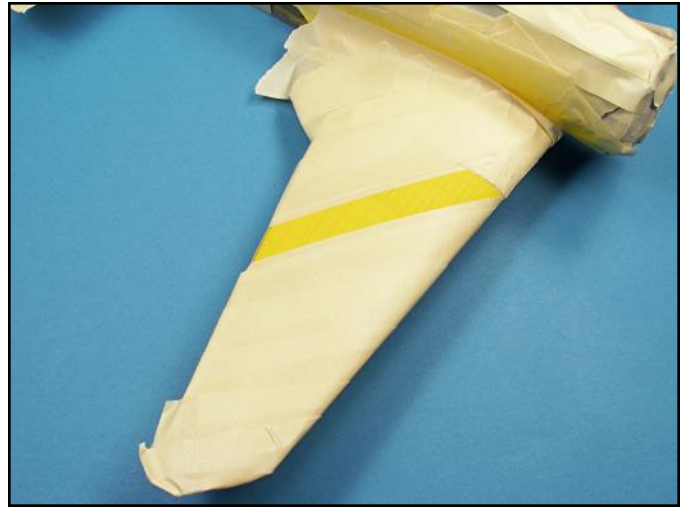
The entire surface was then airbrushed light gray. The fuselage and lower wings and tail were masked off. Strips of masking tape were applied along the fuselage to the upper wing connection to set the color demarcation line.



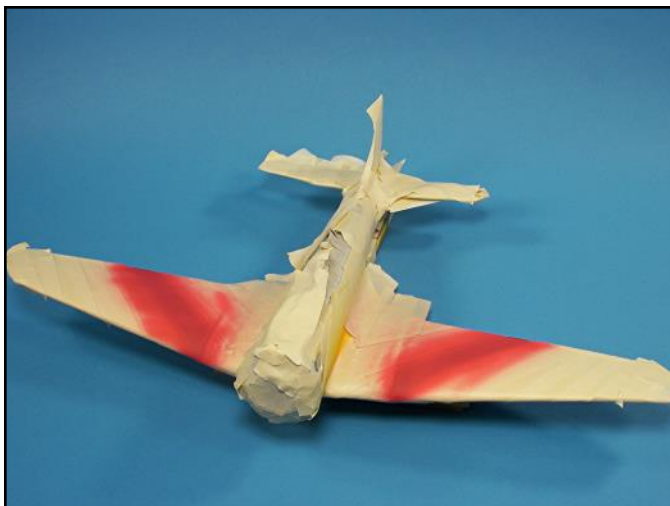
The upper wings were airbrushed flat white and then flat yellow.



The upper wings had red stripes. Masking tape with the proper dimensions was carefully positioned onto the wings. Side masks were added and then the center section was removed. The exposed area is the red stripe.



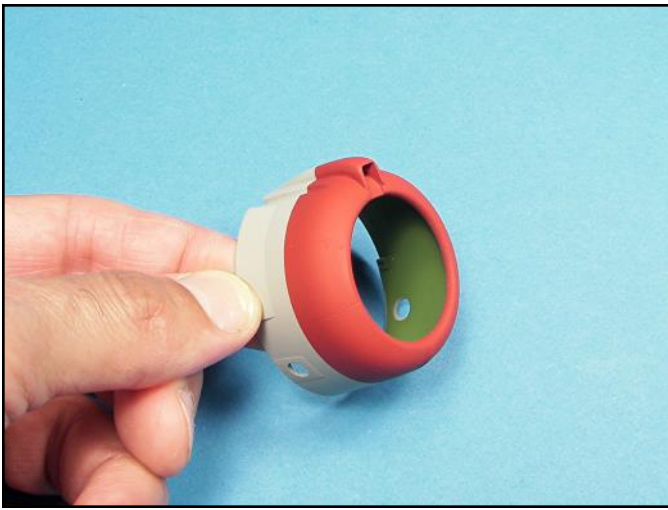
The remaining surfaces of the wings were masked for airbrushing the red stripes.



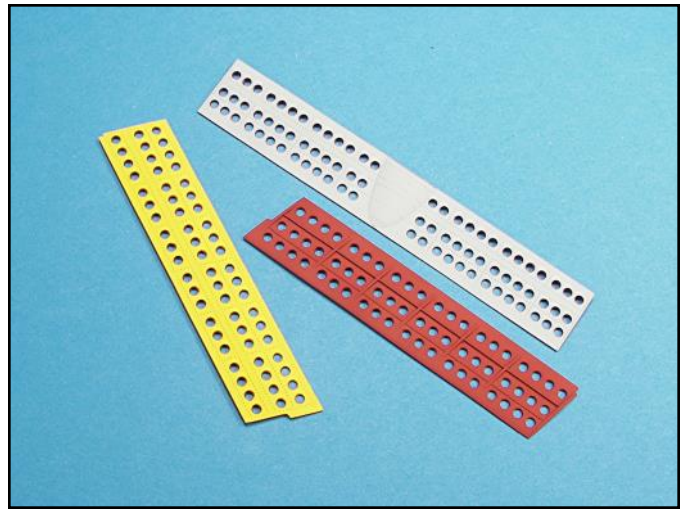
The flat red color was slightly lightened with a few drops of flat white and then airbrushed onto the exposed areas.



With all the tape removed the airbrushed red stripes look much better than the kit supplied decals. The entire surface was then airbrushed with two coats of clear gloss for the application of the decals.



The cowling's interior was airbrushed first and then masked off. The exterior was then airbrushed light gray and additional masking applied to those areas not covered by flat red.



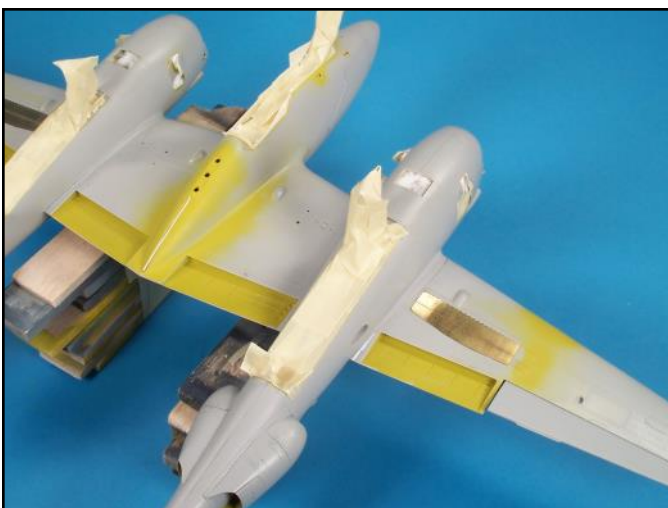
Note how crisp the colors are on the dive brake flaps. The paint is very smooth and consistent.



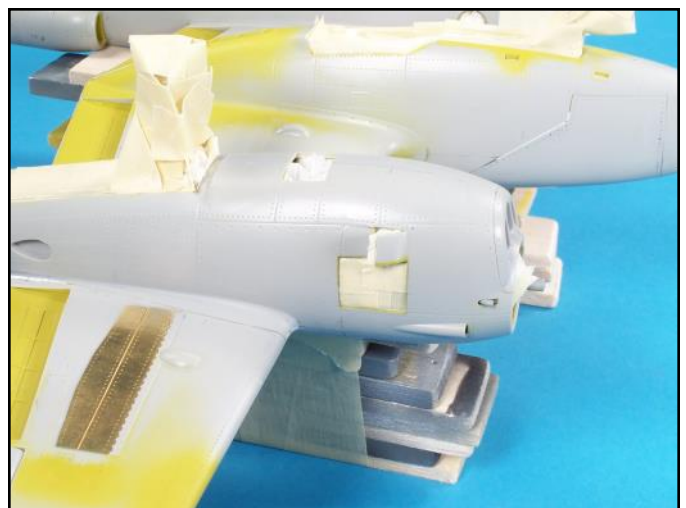
For painting this P-38 lightning, stands were made by stacking sections of balsa wood and then taping them together.



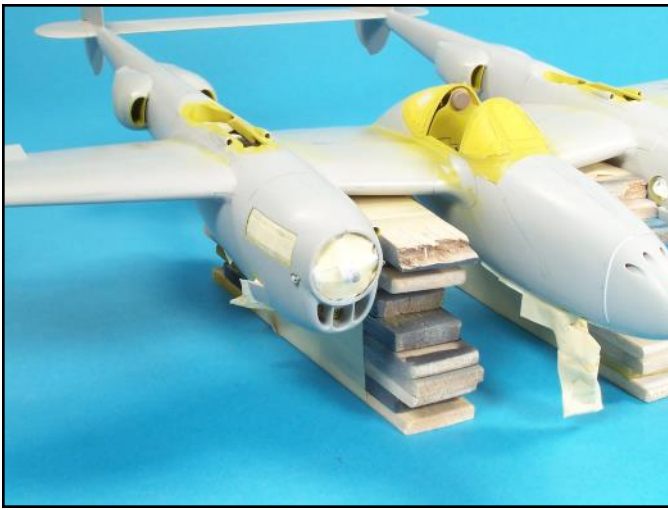
The engines and open panels were masked first. Then the landing gear bays. Masking tape was applied along the edges first.



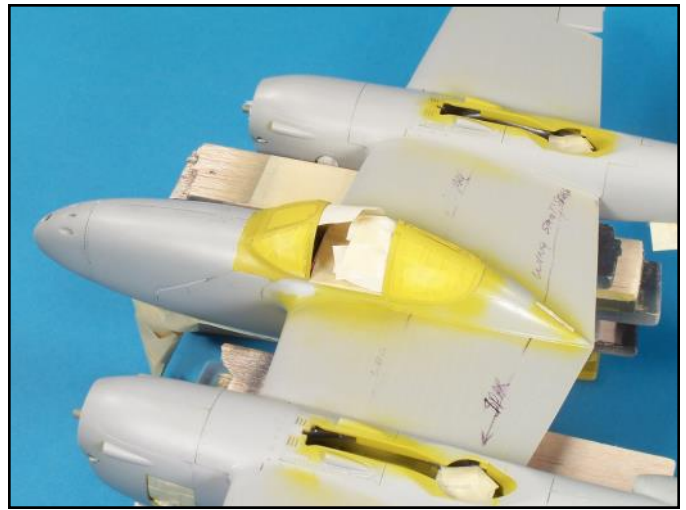
The open areas between the masking tape were closed up and then the landing gear were covered.



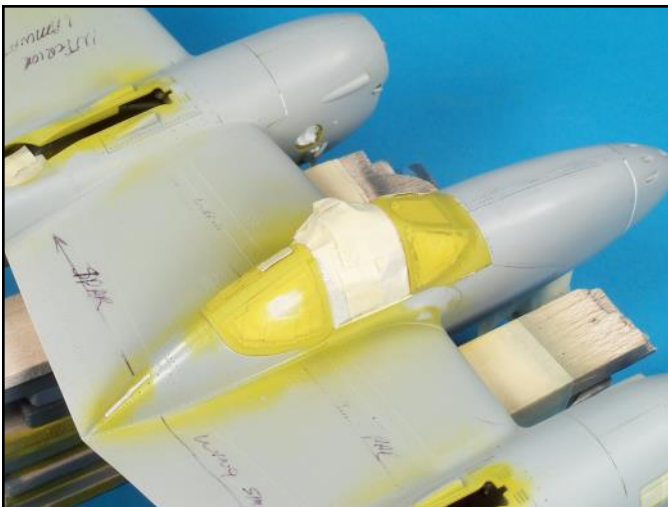
The open panels had small strips of tissue stuffed into them and then they were covered with small lengths of masking tape.



Small sections of tissue were also stuffed into the open engine cowling areas and then covered with strips of masking tape.



Strips of masking tape were attached to the inside area of the canopy and the windscreen to start the cockpit masking process. This left the sticky side of the masking tape exposed.



To close up the cockpit, additional strips of masking tape were placed onto the sticky side of the masking tape. Two layers were applied to ensure the opening was sealed.



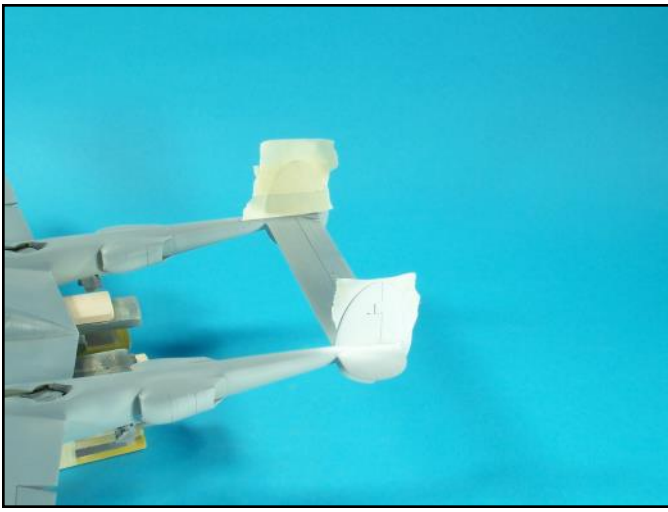
This P-38 is now ready for priming and its final surface colors.



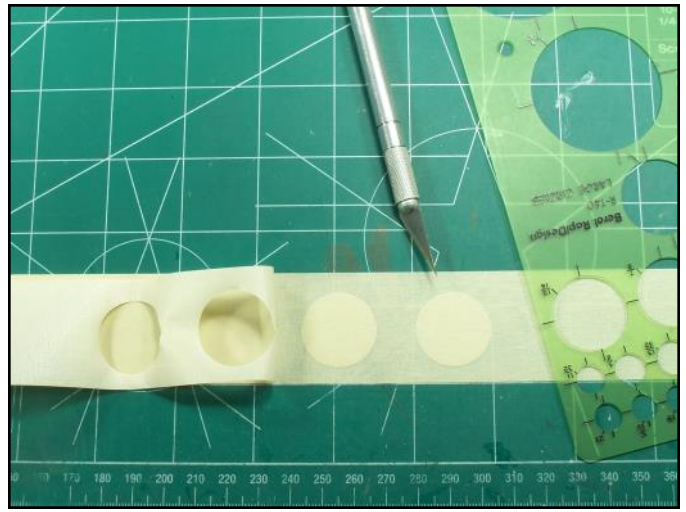
The entire surface was primed and checked for surface flaws.



The underside surface and the sides of the fuselage and engine booms were airbrushed light sea gray.



The outside of the rudders were then airbrushed flat white to replace the large kit supplied circle decals.



Circle masks were cut using a drafting circle template. The tip of a sharp number 11 X-Acto blade was run around the edge of the template. It took several attempts before two good circles were cut.



The wave olive drab upper color on the engine booms and the fuselage were drawn on card stock and then transferred to masking tape. The sections were cut out and applied in pairs so they would not get mixed up with other sections.



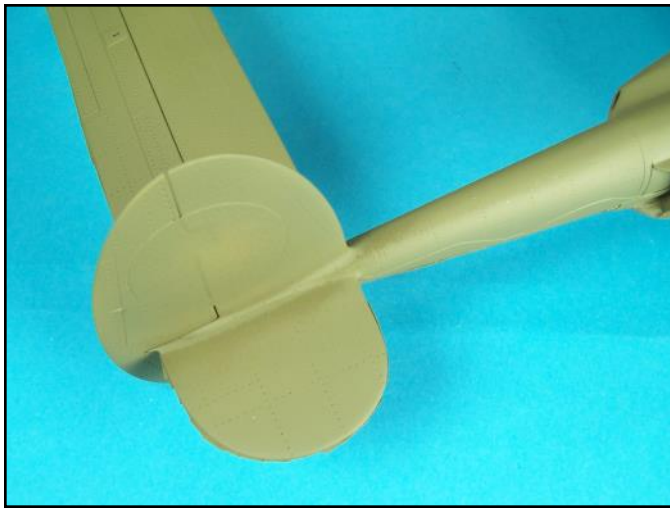
With the shaped masking tape sections applied to the fuselage and the booms, the remaining exposed areas were then masked.



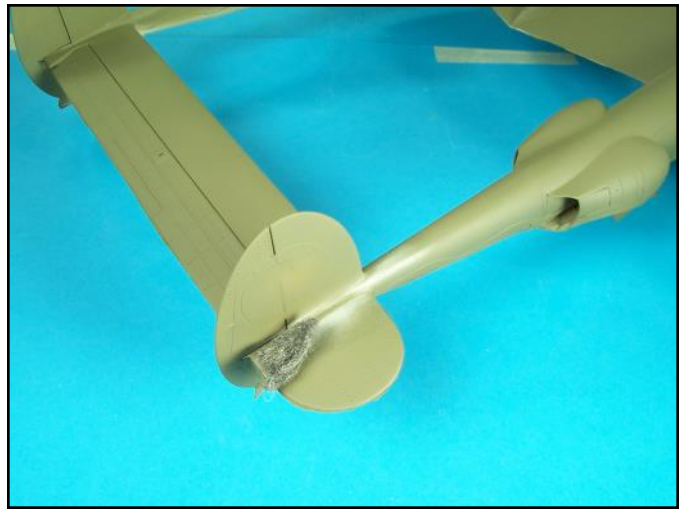
Note how clean the edges of the circular mask tape shape is.



All the exposed area were then airbrushed olive drab with a few drops of flat white added to slightly lighten up the color.



The right tail boom area had some orange peel on it due to the fact that the paint dried before hitting the surface.



The orange peel was carefully removed using a 0000 steel wool pad. The steel wool residue was completely blown off using high pressure air from the airbrush.



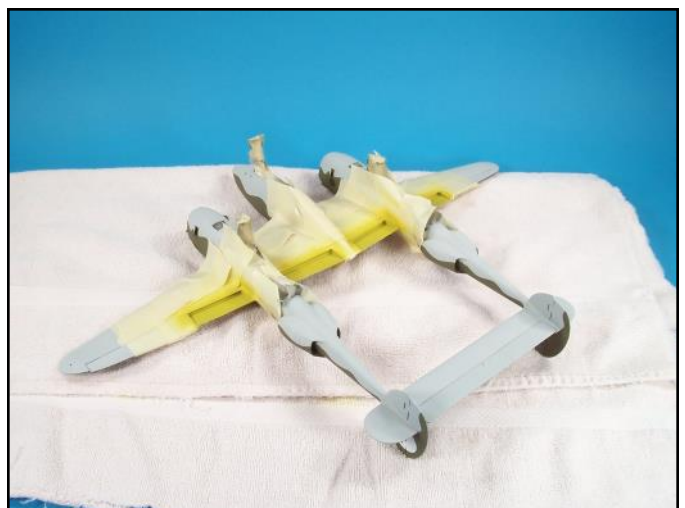
Areas were masked off where there was some olive drab paint bleeding and overspray. The pressure on the airbrushed was reduced to 10 PSI for this touchup work.



There was also some olive drab over spray on the underside. Here again carefully masking and low pressure was used for touching up these areas.



The interior areas of the wings where the flaps will be positioned and extended were masked for airbrushing the interior color.



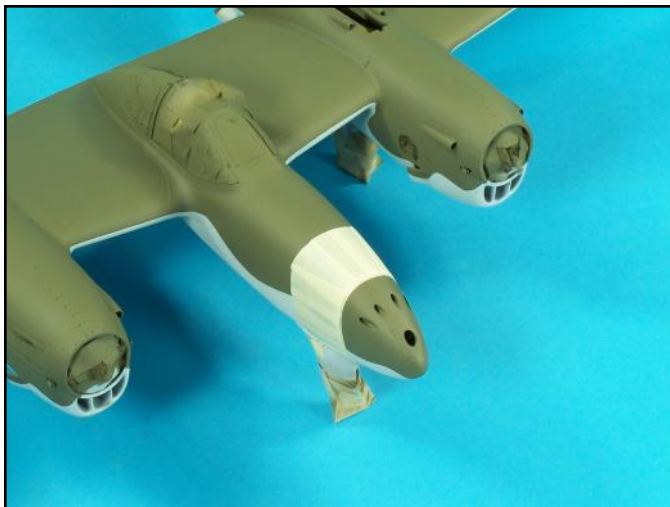
Two coats of the interior color were airbrushed at 10 PSI.



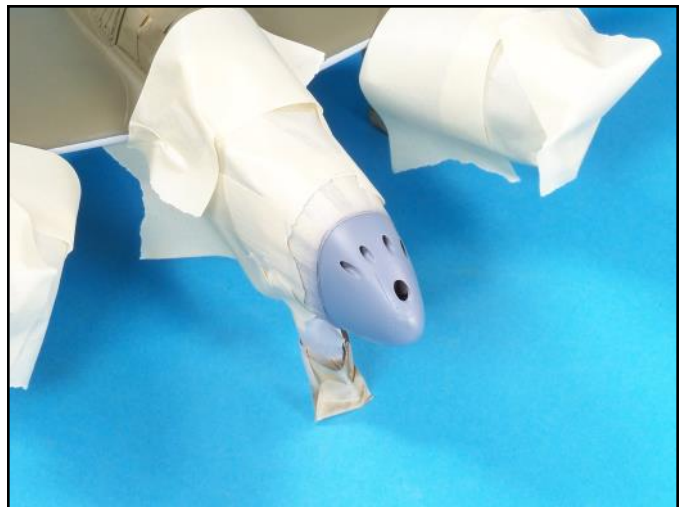
The masking around the flap openings was removed to check for any overspray.



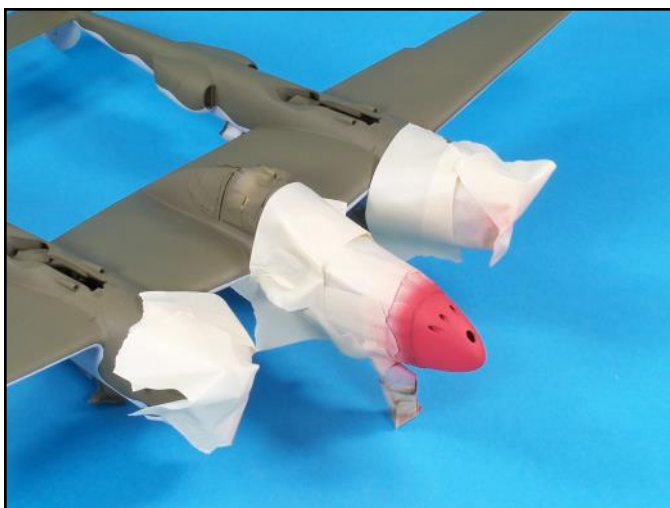
Note how sharp the color demarcation lines are. Careful masking, paint mixing and airbrush technique make all the difference between a mediocre paint finish and a flawless paint finish.



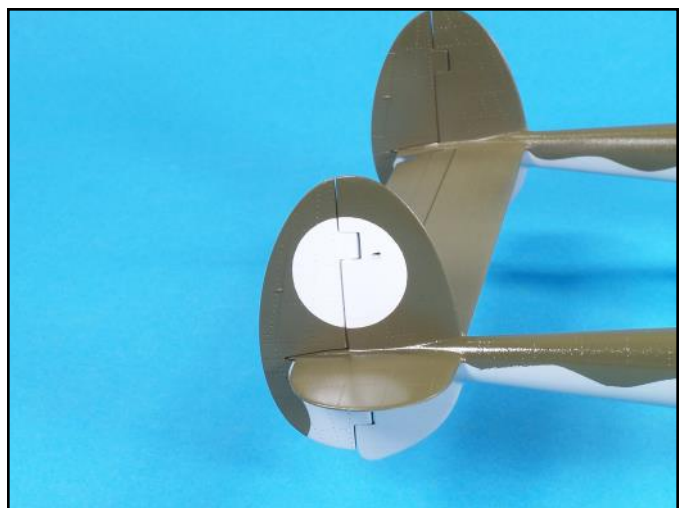
The nose of the fuselage was red so this area was masked using a thin strip of masking tape around the perimeter of the fuselage. Larger strips were then applied.



Additional masking tape was applied to protect surrounding areas and then the nose was primed.



The flat red color was slightly lightened with a few drops of flat white and then airbrushed onto the nose.



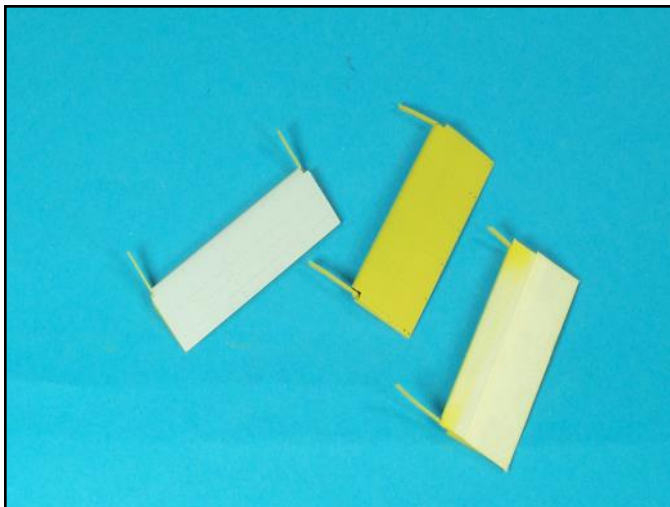
The painted circles look much better than decals.



The model was then airbrushed with two coats of clear gloss for the application of the kits decals.



All the remaining P-38 kit parts were airbrushed using large sections of balsa wood. Sections of masking were folded over so that the tape would stick to the wood and allow the parts to also be attached for airbrushing.



The P-38 flaps had carefully applied masking tape. One side was the interior color and the other side was the light sea gray color.



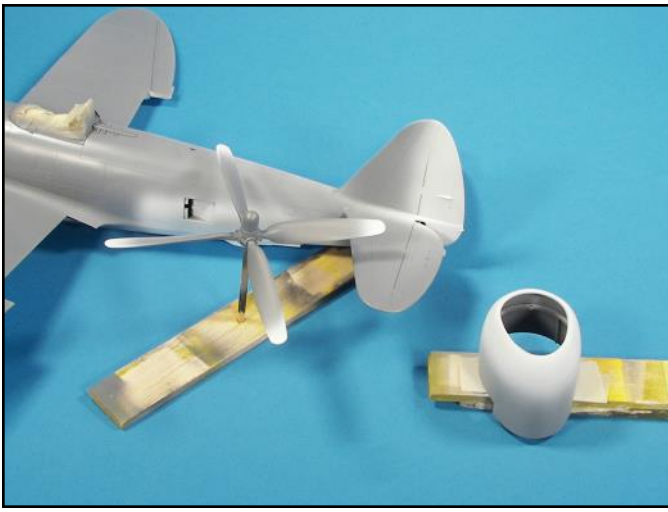
Paint thinned for airbrushing is so thin that successive coats do not show any indication on partially airbrushed areas. Note the small sections of tissue stuffed inside the cockpit area.



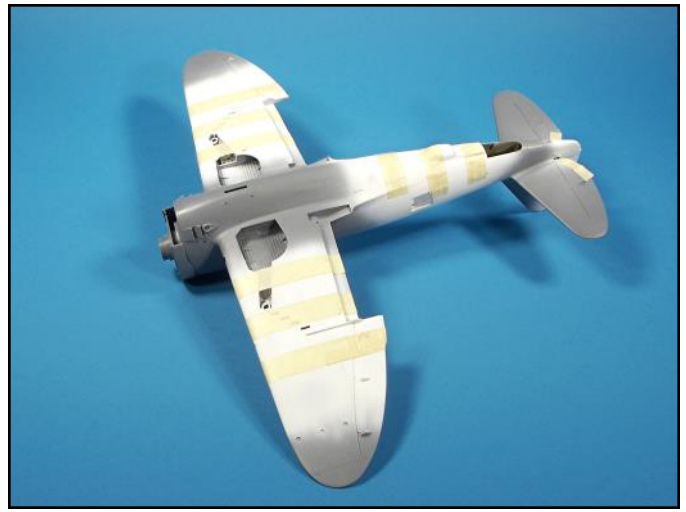
The surface of this P-47D has been primed and the seams checked for any flaws. Note how smooth the airbrushed paint is. There are no blemishes, orange peel or paint runs.



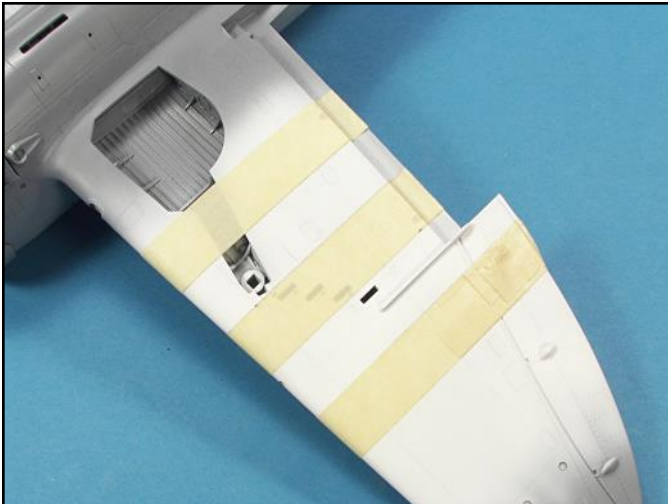
This aircraft is getting invasion stripes so the first step is to paint the flat white color. Working from the lighter colors to the darker colors is usually the best approach for airbrushing.



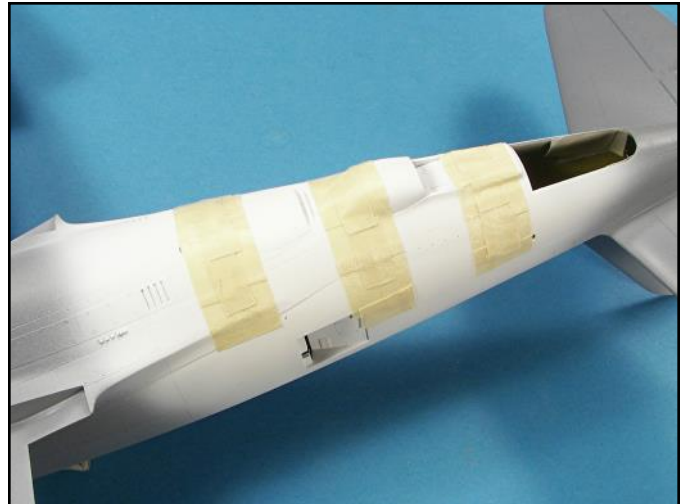
The rudder and forward section of the engine cowling will be airbrushed flat red so an under coating of flat white was applied to them first. The propeller tips also received an under coating of flat white for the flat yellow tips.



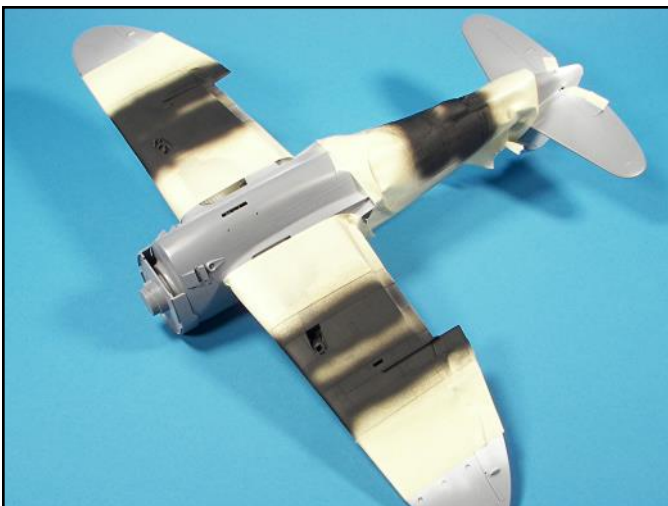
The widths of the white and black invasion stripes were measured and cut from masking tape. The spacing between the white stripes is the same width as the black stripes.



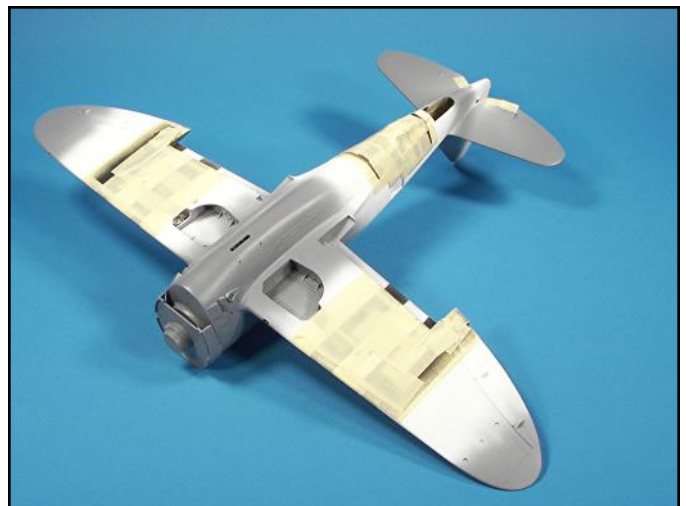
Note how the masking tape has clean cuts along the edges. Always cut new edges using a number 11 X-Acto blade for any masking applications.



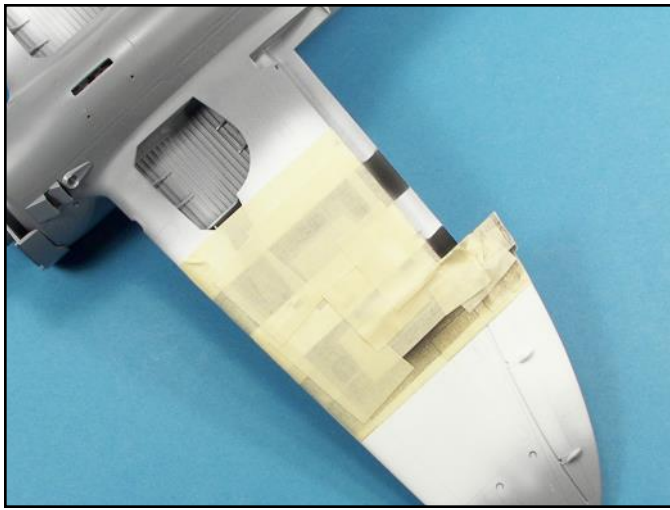
Thanks to the stretch qualities of 3M painters masking tape, the masking around curved areas is easy to achieve.



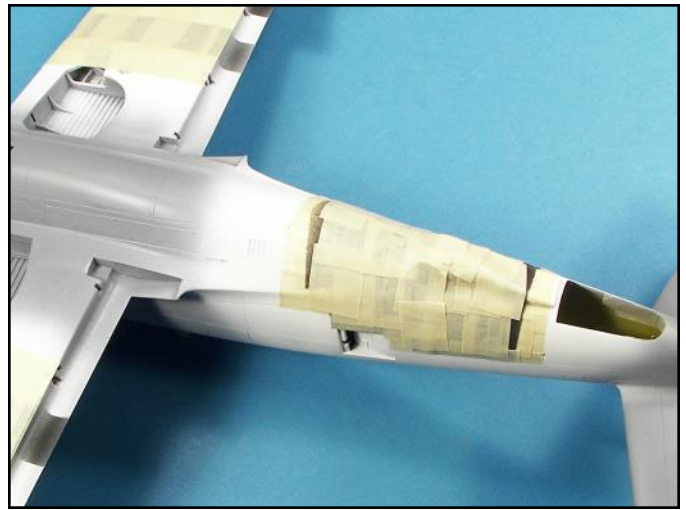
Additional masking tape was applied to protect the surrounding areas and flat black was airbrushed onto the areas between the masking tape strips.



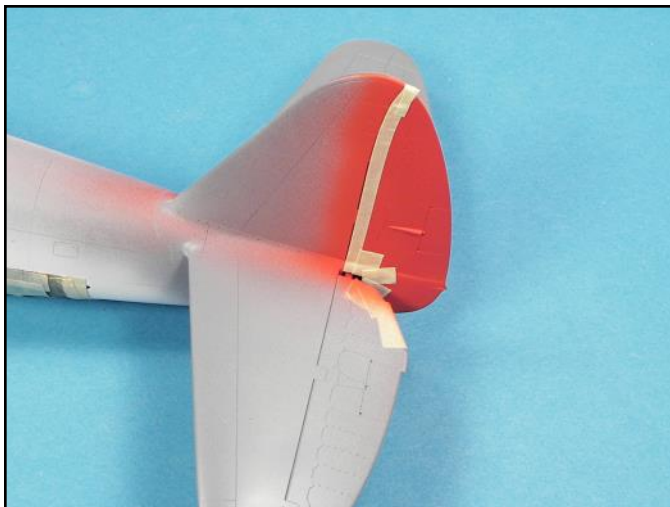
The flat black areas were then masked over to protect the completed invasion stripes.



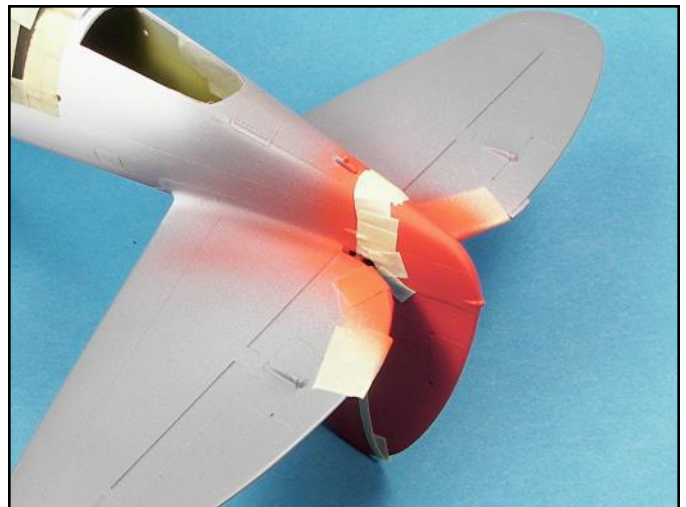
Note how the masking was positioned along the edges of the flap openings. These areas will get airbrushed an interior color.



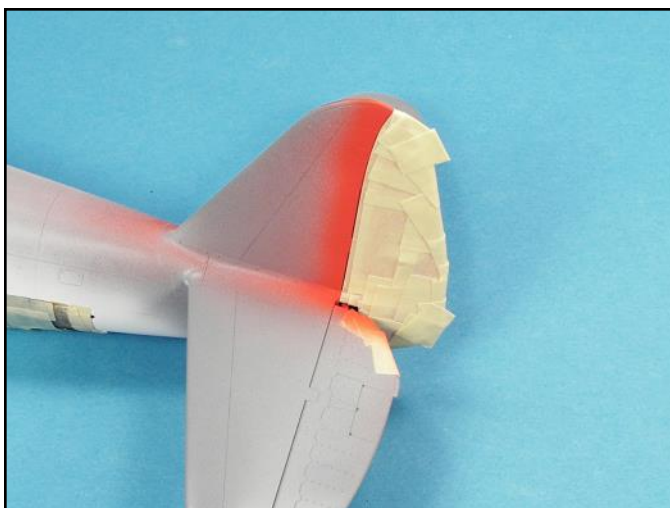
All the masking layers will be removed after the aircraft surface is completely airbrushed.



The rudder was airbrushed flat red with a tiny amount of flat white added to slightly lighten the red color. Small strips of masking tape were applied along the edge of the rudder to ensure a sharp demarcation line.



Small lengths of masking tape were applied around the curved area of the rudder.



Larger strips of tape were applied to the remaining exposed areas of the rudder.



All the exposed surfaces were re-primed and then two coats of flat gull gray were applied with an airbrush.



I decided to remove all the masking tape to check the demarcation lines of the invasion stripes.



Shapes were traced onto card stock, cut out and then transferred to masking tape for the lower fuselage areas. All the exposed surfaces were then masked over for the topside colors.



The exposed surfaces received were airbrushed with two coats of dark gull gray.



The dark green camouflage shapes were traced onto masking tape, cut out and then applied to the surface. The masking tape edges for the camouflage openings were carefully checked to be sure they were sticking flat to the surface.



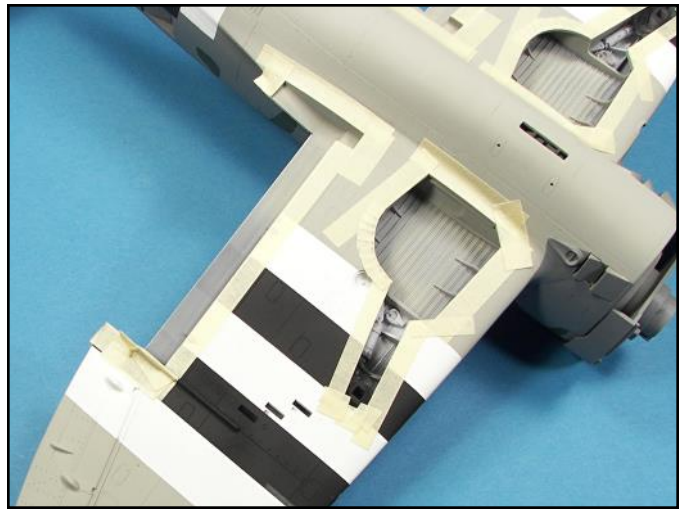
Two coats of the dark green color were airbrushed onto the surface at a very low pressure of 10 PSI.



With all the masking tape removed the dark green camouflage pattern demarcation lines are very sharp. The process of painting, masking, painting and more masking is called the paint layering technique.



The underside looks good and now it is time to paint the flap and wheel well areas.



Note how small strips of masking tape were applied to outline the edges of the openings for the wheel wells and the flaps.



Liberal amounts of masking tape were applied to the entire model to ensure that there would be no overspray or paint bleeding.



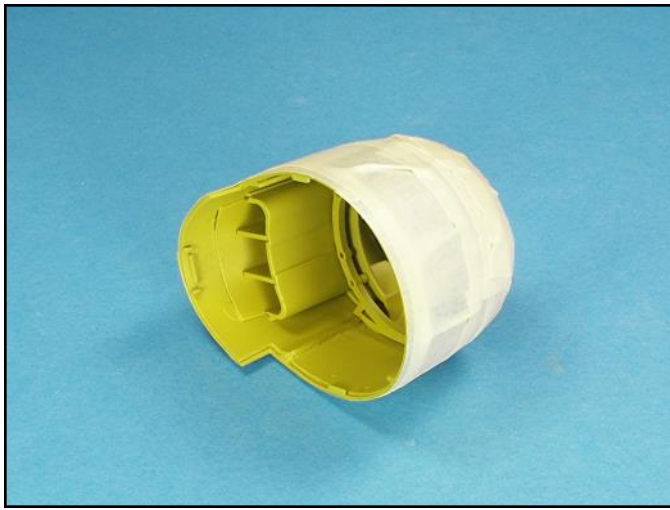
With all the masking tape removed the colors look great.



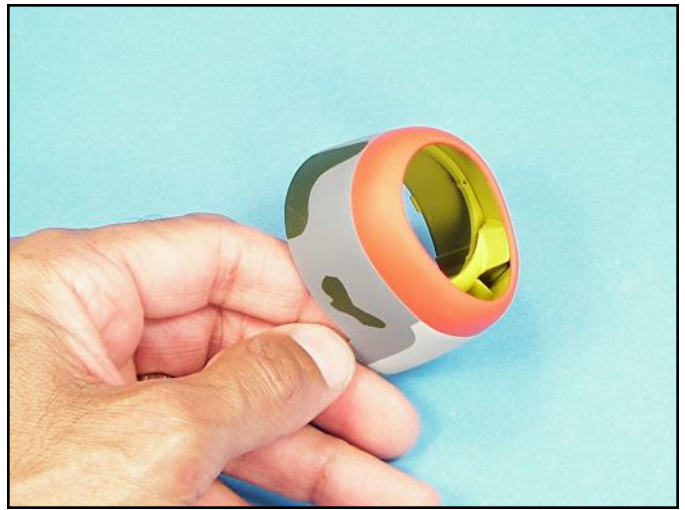
Upon close inspection of the outer black edges of the invasion stripes, I noticed that I did have some bleeding onto the outer flat black invasion stripes so I re-masked the areas and airbrushed several light coats of flat black.



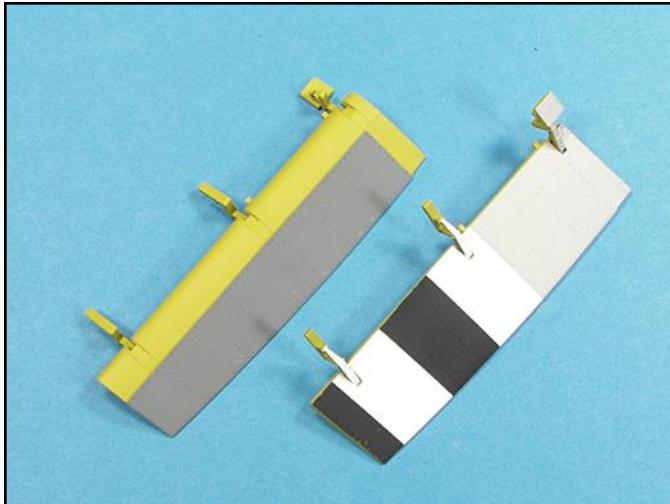
The same paint layering techniques used on the fuselage was also used on the engine cowling.



The surface of the engine cowling was carefully masked and then the interior color was airbrushed into the inside areas of the cowling at 10 PSI.



The completed engine cowling looks great and the demarcation lines between colors is very sharp and clean.



The same paint layering technique was also used on the flaps. The flaps were positioned onto the model and the invasion stripe masking applied to be sure that the stripes on the wings and the flaps lined up.



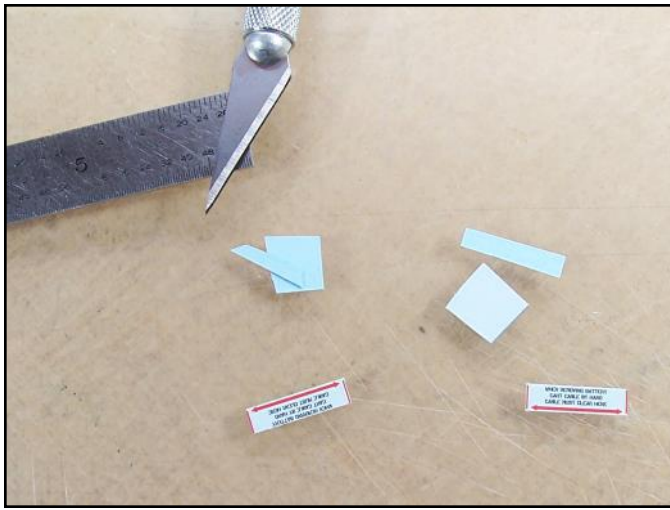
Two coats of clear gloss were airbrushed to prepare the surfaces for decals.



Even with the surface of a model coated with a clear gloss, there is a chance that tiny areas of a decals clear film will silver. To minimize this remove as much of the clear film as possible.



On decals with curved areas make small tangential cuts using a single edge razor blade around the curved edges.



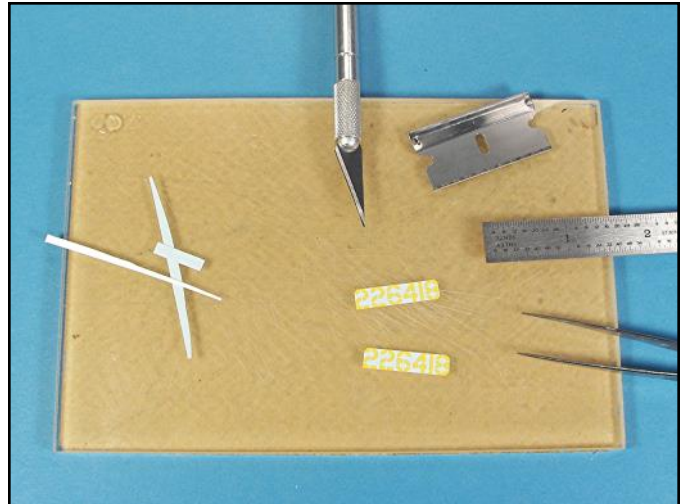
For small instruction decals, use a small metal ruler to cut around the decal and remove as much of the clear film as possible. Always use a sharp blade for cutting decals.



A metal straight edge, a number 11 X-Acto blade and a single edge razor blade were used to remove the clear film from around the perimeter of these fuselage nose art decals.



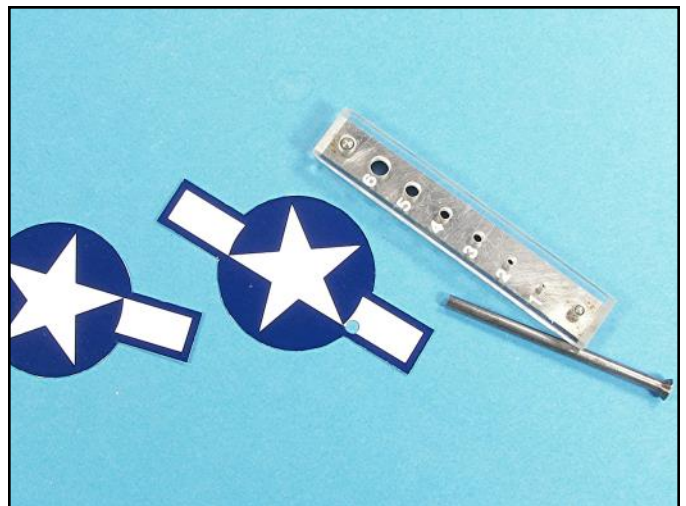
To remove the clear film from the center areas of these fuel cap decals, use a punch tool.



Always cut decals on either a glass or Plexiglas surface. The clear film on this set of numbers was carefully cut off around the edges of the left and right numbers and along the top and bottom perimeters.



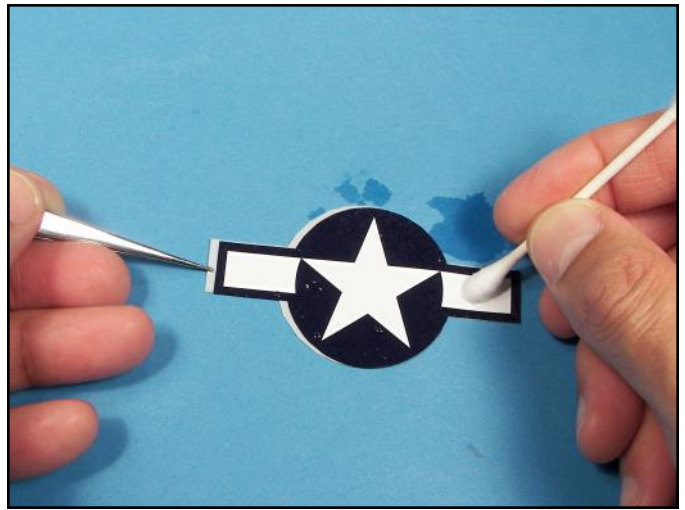
For clear film inside numbers such as "6" or letters such as "A" you will have to free hand the cuts, so go slow and check your work as the cut progresses.



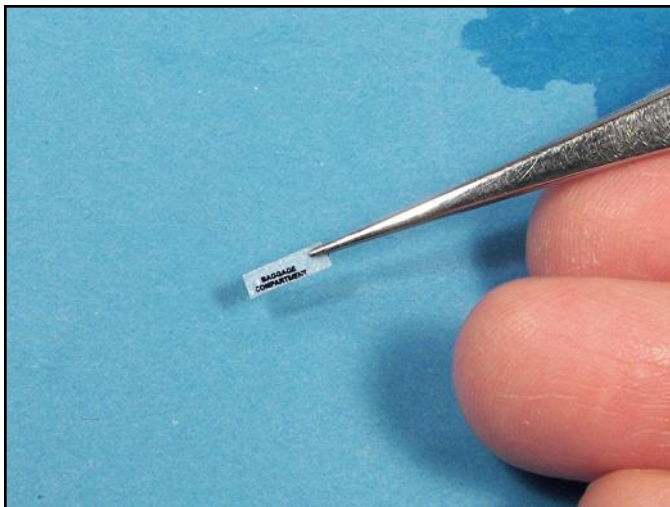
A punch tool can also be used to remove some of a decal for a high surface protrusion, a wing light or a formation light.



Use a glass container for soaking decals. The water should be lukewarm so that the water soluble glue holding the decal to its backing will soften quickly.



A decal should slide freely off its backing. If it does not, soak it some more.



Sliding the decal slightly off its backing allows you to use tweezers to hold the decal and slide it completely off its backing and onto the models surface using a damp Q-Tip.



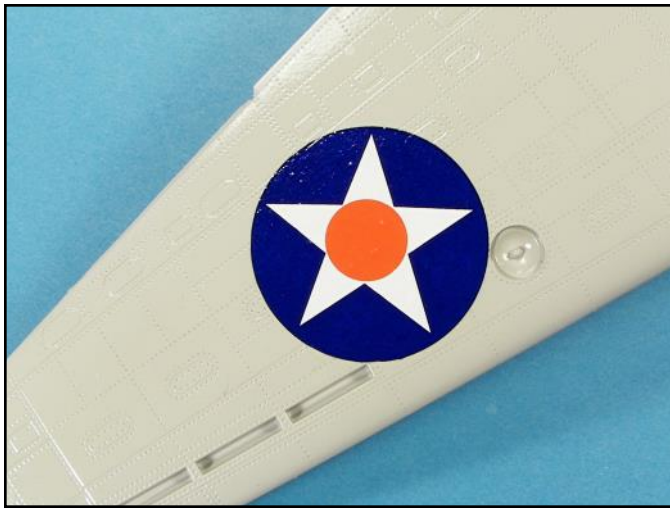
Having a high gloss surface greatly minimizes any silvering of the decal's clear film and it also allows for the decal to slide around for easy positioning.



Another benefit of a high gloss finish is that large numbers and letters that have all of the clear film removed will have a less likely chance of tearing or folding over as you move them around to position them.



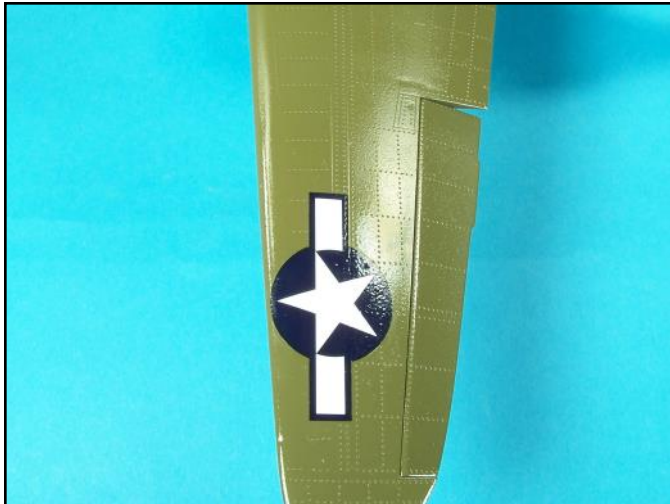
The kit decal sheet for the rudder had a red, white and blue stripe. Instead the rudder was airbrushed using the paint layering technique and then the "SBD" lettering was cut out from the kit decal and applied to the surface.



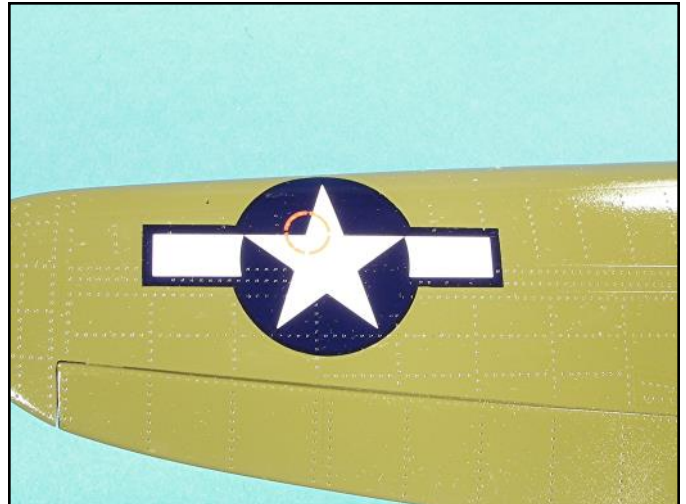
There is no indication of any clear film around the perimeter of this insignia. After several coats of decal setting solution the decal even conformed around the tiny surface rivet detail.



The decals on this P-38 lightning are completed and any residual decal glue from around the perimeter was cleaned off with damp Q-Tips.



This decal needed 6 applications of setting solution before it softened enough to conform to the surface detail.



The national insignia decal was allowed to completely dry before the fuel cap indicator decal was positioned onto its surface. With the clear film removed from the center of the fuel cap decal, no silvering occurred.



Decal setting solution will occasionally wrinkle a decal. Use a damp Q-Tip, a small piece of damp flexible foam or a damp sponge to press out the wrinkles. Be sure the decal remains wet when doing this.



The large letters on the side of the fuselage were cut out and all the clear film removed. Having the ability to slide a decal around ensures that you have some working time to get them level and evenly spaced.



To seal the decals and restore the flat finish of the olive drab color, airbrush two coats of clear flat onto the entire surface of the model.



The bright red and white decals will soon be toned down on this Mig-3.



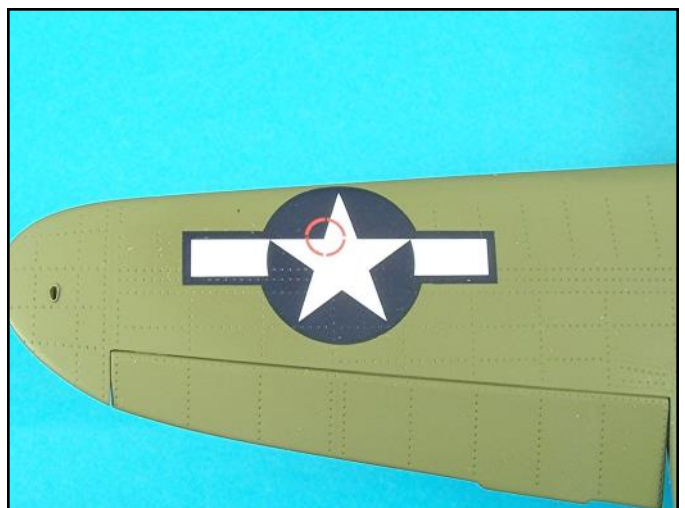
The edges of this decal were right next to surface depressions. Had the clear film around the decal not been removed it would have prevented the decal from laying down properly onto the surface.



The painted red stripes on the tail and the fuselage in combination with the decals, which show no silvering thanks to a combination of a gloss coat and removing all the clear film, look great.



Note how all the decals look as though they were painted onto the surface.



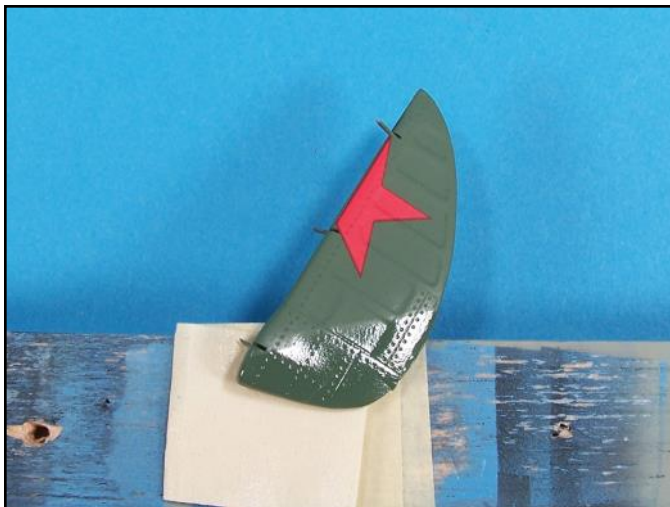
With the clear flat coat applied, the rivet detail shows through the decal very well thanks to many applications of decal setting solution.



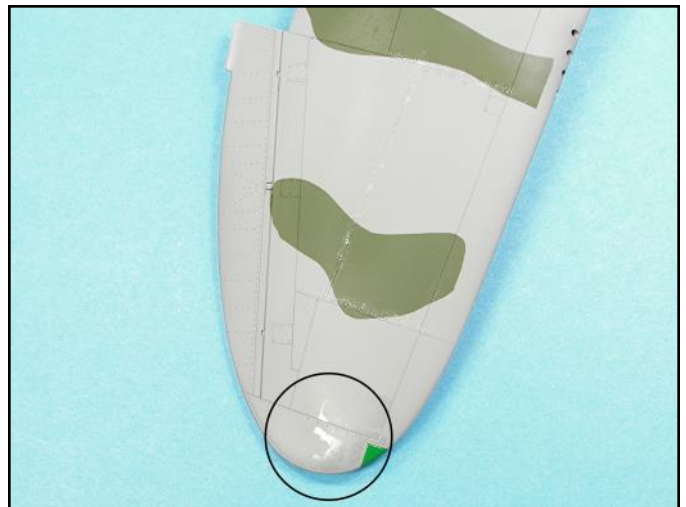
Sometimes small instructional decals have a tendency to fold over so be careful when applying them to the models surface.



Note the spacing on the individual letters and how straight and level they are.



A clear gloss coat will make any flat paint color appear to be darker.



Masking tape was applied to the surround surfaces to airbrush the wing tip navigational lights. The tape pulled up some of the clear flat. To fix this, I airbrushed small amounts of clear flat onto these areas to blend in the clear paint.



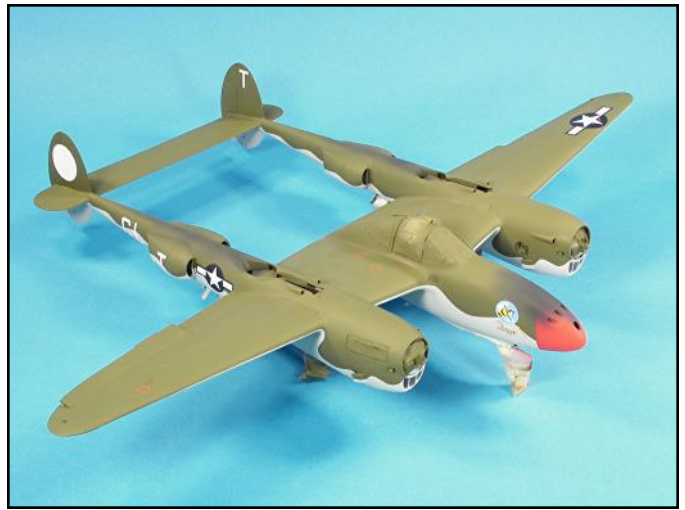
Masking tape was applied around the areas of the engine nacelles just in front of the exhausts so that the airbrushed exhaust streaks would emit from the exhaust ports and back across surfaces of the engine nacelles.



Additional engine staining streaks were also applied behind the engine cowling. Note how subtle the streaking is.



The surface of this Mig-3 was airbrushed with a highly dilute mixture of water based flat white to fade the surface paint color and the decals.



The exhausts and nose gun powder stains and streaks were achieved using an airbrush.



Worn paint around the engine cowling opening was achieved using a small flat brush and drybrushing tiny amounts of silver paint.



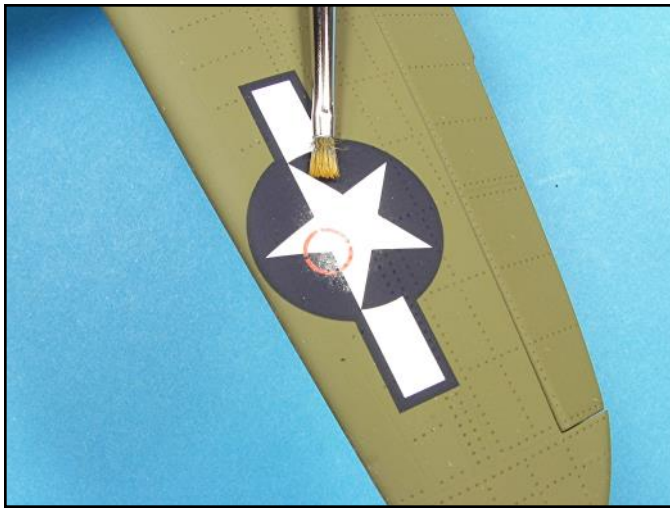
The leading edges of the wings and tail and rudders were drybrushed with silver paint. The subtle streaks follow the air flow across the surface and the streaking was done from the wing top and bottom of the leading edges.



Worn surface paint due to foot traffic is very prevalent on aircraft such as the P-38 Lightning.



A small flat brush with tiny amounts of silver paint on it was drybrushed by stippling the tip of the brush onto the surface with a very light touch.



Stippling was also used on the surfaces of the fuel ports to simulate worn paint due to foot traffic.



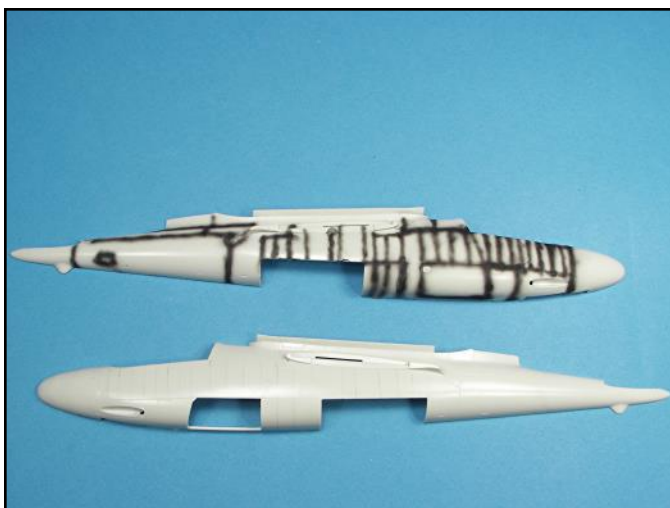
Note how the gun powder streaks start thinner and get slightly wider along the fuselage.



The exhaust staining on this P-47 should have been slightly darker and there should have been some discoloration around the exhaust ports due to high temperatures.



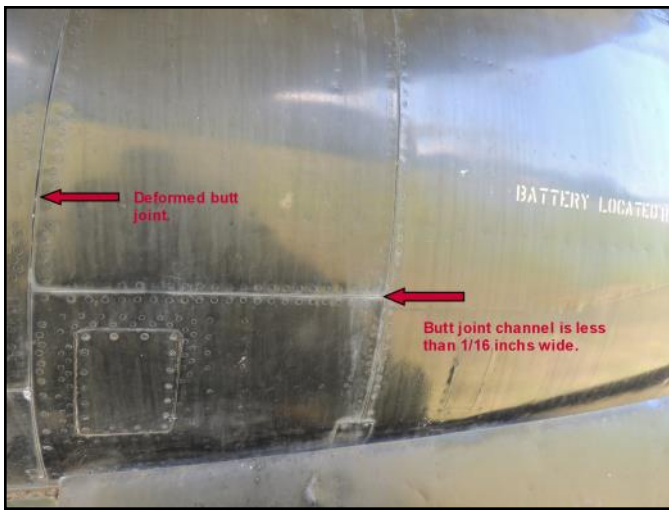
Here is an example of over doing the exhaust stains and oil streaks on this F4U corsair. Note the gun power stains running across the entire surface of the wing and onto the flaps.



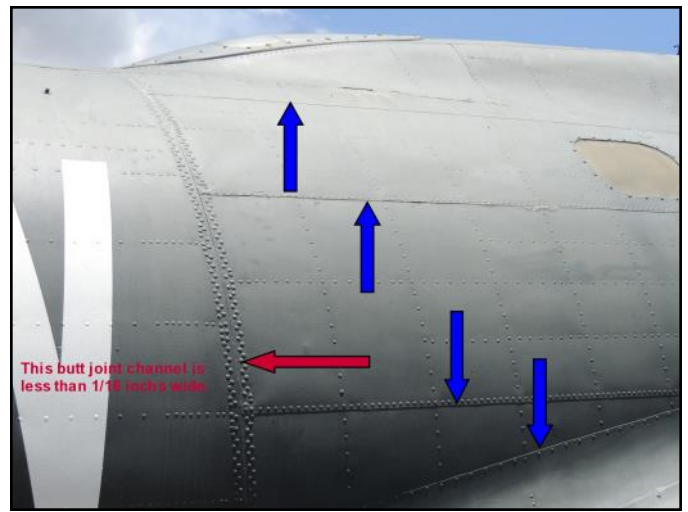
Pre-shading of the butt and lap joints on this aircraft was achieved prior to gluing the halves together.



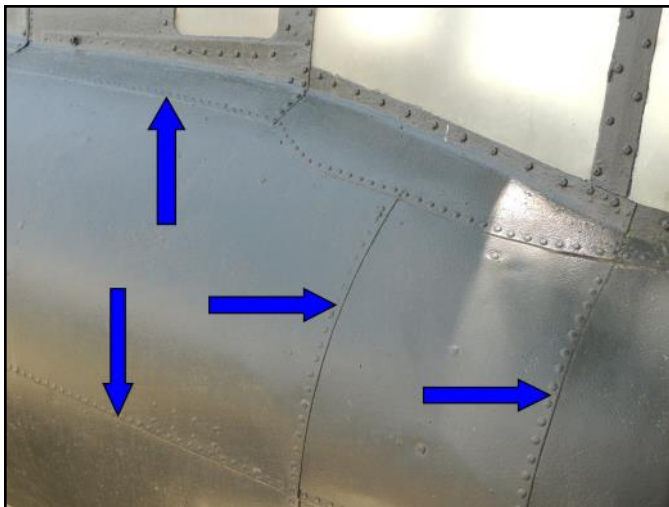
The pre-shading of the butt and lap joints on this model was completed after the model was assembled and it is now ready for priming and the finished coats.



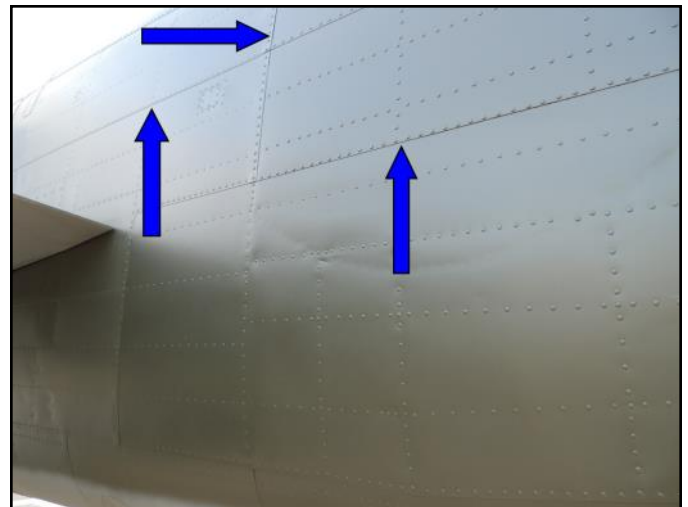
The butt joint on the left side of the engine nacelle on this A-26 invader has been distorted due to expansion and contraction of the metal over time. This aircraft has been sitting in the hot Florida sun for decades.



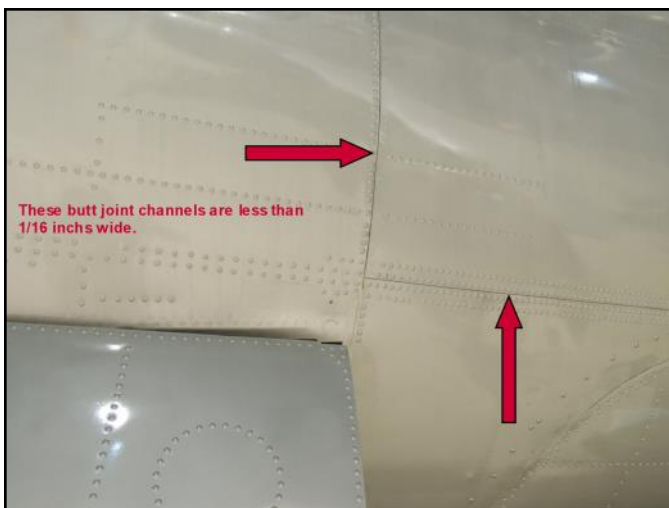
This B-17 butt joint is still pretty tight thanks to the dual rows of rivets on both sides. This is the only butt joint on the aft end of the B-17 fuselage. Note all the lap joints (blue arrows) covering the fuselage.



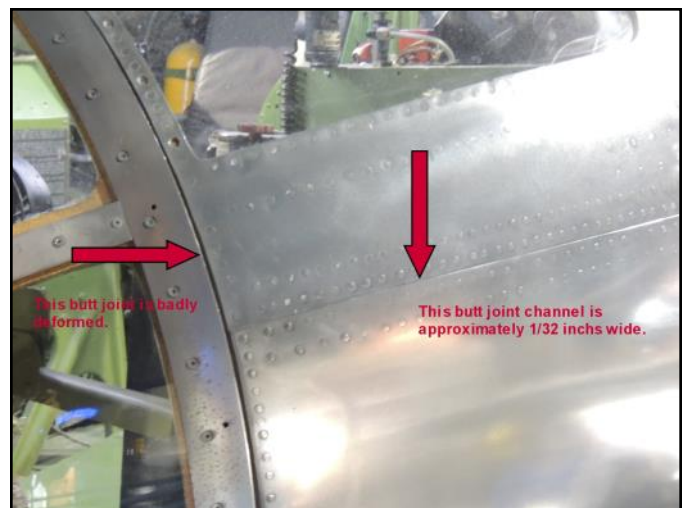
The aft area of a B-17 is all lap joints so there should be no panel lines anywhere on this area of a B-17 model.



This B-25J is in very good condition. Notice all the lap joints which only have one line of rivets. Most of the B-25 sheet metal covering is with lap joints, which adds strength to the structure of the aircraft.



These butt joints on a B-29 are still very tight. Notice the flush rivets and the number of rows next to each butt joint.



The horizontal butt joint on this B-29 is so tight that the edge of a standard card stock business card would not fit into the channel. The vertical butt joint has been distorted, most likely due to the way the museum staff assembled it.

WORKBENCH QUICK TIPS

GENERAL TIPS

Review the kit instructions and become familiar with the kit parts prior to assembly.

Store small parts in plastic bin organizers.

Decide what details you want to add to the model before you start building it.

Decide what colors you are going to use and develop an assembly sequence that will allow you to paint and construct subassemblies as necessary.

Clean parts in warm water and ivory soap using a soft toothbrush.

Assemble the main components of the kit with masking tape. This “tape up” will give you a sense of the models appearance and it also allows you to identify any fit problems and voids.

Use the kits instructions to make notes on seam, voids and fit challenges that you identified from the “tape up” and how to fix them.

Create a simple plan for your model and follow it. This plan should include construction, detailing, modifying, painting, decaling and weathering.

Have good tools. Cheap tools will not last long.

Always use sharp blades.

Keep a note book on your modeling projects, ideas and lessons learned. Your notes become your reference guide for future modeling projects.

Always wear eye, nose and mouth protection when necessary.

Be patient and if you get frustrated set the model aside.

When drilling into or through clear plastic, start with a small drill bit and gradually increase the diameter of the hole with successively larger drill bits until you get the diameter you want.

Most clear parts are best attached with white glue or Testors red tube glue.

Protect clear plastic surfaces with masking tape when using super glue, which can fog clear plastic.

SEAM WORK

Use plastic snippers to remove parts, but be sure to leave a little of the attachment tree on the part.

Use a sharp number 11 X-Acto blade or despruing tweezer cutters to carefully remove the remaining tree attachments and then carefully scrape or wet sand the areas smooth.

Use indelible markers to mark part numbers.

Remove mold lines from around the perimeter of parts by carefully scraping them off using a sharp number 11 X-Acto blade.

Always check gluing surfaces to be sure they are flat. Run parts across a stationary piece of sandpaper to smooth the gluing surfaces.

Fill voids and gaps with plastic strips and apply super glue to both sides. The super glue will seep down into the seam creating a strong bond. Trim off the excess plastic strip and then scrape and wet sand smooth.

Use masking tape to protect surrounding surface detail when sanding.

Wrapping sandpaper around balsa strips for contoured or flat surface sanding reduces the impacts to surrounding surfaces.

Wet sanding reduces surface abrasion and helps polish the plastic.

To polish plastic use 0000 steel wool pads and be sure to remove all the residue prior to painting.

GLUING TIPS

Tape part halves together using small strips of masking tape.

Make a small puddle of super glue on a piece of paper. Using a thin stiff wire applicator with a .015-.019 inch diameter, dip the tip into the puddle and apply a bead of super glue along the seam line and between the masking tape. The capillary action of the super glue will pull the glue down in between the part halves.

After the super glue has dried, remove the masking tape and apply glue along the remaining seam areas. Apply additional coats of super glue as necessary to fill in the seam line.

Carefully scrape the super glue with a number 11 X-Acto blade by holding the blade at about a 45-degree angle to the seam line. This scraping action will remove the excess super glue.

After you have scraped off the excess super glue carefully wet sand the seam area.

Check all seam work with enamel silver paint. Apply additional coats of super glue over the silver painted areas that still show a seam. Repeat the scraping and sanding process. The silver paint will act as an indicator and tell you when the seam area is finished.

Use Testors red tube glue when you need some working time to position a part.

PAINTING TIPS

Clean all the plastic parts with alcohol and a smooth cotton cloth prior to any painting.

Always cut masking tape with a sharp blade so that the edges are even, straight and sharp.

Always prime parts prior to applying any finished coats of paint. The primer provides better adhesion between the paint and the plastic. Primer is also a seam and flaw indicator.

Airbrushing should be in thin paint layers. Do not attempt to coat the entire model in just one airbrushing session.

Let paint dry before handling or applying additional coats. If it smells like paint it is still wet.

Always wash your hands prior to handling painted parts or plastic that is about to be painted.

Flat paints dry very quickly while gloss paints can take several days to dry.

Add some copper coated BB's to your paint to act as agitators when you shake the paint bottle to mix the paint.

Always clean the rim of the paint bottle and the inside area of the paint cap before closing up a paint container.

Always use the paint manufactures recommended paint thinner.

Always start out using no more than a 3 parts paint to 1 part thinner mixing ratio (3:1) when first mixing paint for airbrush use. Test the paint and add more paint or thinner, if necessary, a few drops at a time.

For freehand painting of camoflague the ratio of thinner to paint should be increased so that the paint edges are smooth.

Add labels to your mixed paint airbrush bottles.

Hand positioning and wrist motion are very important when airbrushing.

To minimize the possibility of the orange peel effect and other airbrushing issues:

- Be sure to use the manufacturers recommended paint thinner.
- Airbrush in humidity of no more than 60 percent (50 percent is better).
- Airbrush in a temperature of less than 75 degrees.
- Attach a water trap if you are using a compressor.
- Acquire a CO2 bottle with a pressure regulator for your airbrushing needs.
- Be mindful of the position and distance of the airbrush tip with respect to the models surface. The tip should be parallel to the surface. The distance between the tip of the airbrush and the surface will depend on the air pressure you are using.
- An air pressure of no more than 15 - 20 PSI should be used for general airbrushing. For detail work or for airbrushing around raised detail or inside openings use a lower pressure of 10 - 15 PSI.
- Clean your airbrush after each use. Don't just run thinner through it. Take it apart and really clean it.

Use natural hair paint brushes or good quality synthetic brushes. Clean them after each use and never let them rest on the brush hairs.

Do not use a spray can if you can not hear the agitators balls when you shake it.

When using spray cans, warm the paint before using it by sitting the paint can in hot tap water for a few minutes and then shaking well before using. **NEVER WARM A PAINT CAN IN A PAN OF WATER ON A STOVE.**

Shake spray paint cans well before using them and always test a spray paint can before using it.

After using a spray can, turn the can upside down and spray until no paint comes out and then clean the tip.

Always spray paint in a well-ventilated area and use a mask that covers your mouth and nose.

DECALING TIPS

Always apply decals to a glossy surface so that the clear areas of the decal will not "silver".

Never cut a decal out from the decal sheet with a pair of scissors.

Never fold or bend a decal sheet.

Never pull an almost completely cut decal from a decal sheet.

Remove as much of the clear film from a decal as possible prior to applying and always use a sharp blade and a straight edge to cut off the clear film.

Always use decal setting solution.

Always clean up the areas around a decal after it is dry with a wet Q-Tip.

Always apply either a gloss clear coat or a flat clear coat to protect your decals after you have completed your decal work and cleaned the areas around each decal.

A punch tool can be used to make small shaped holes in decals and to punch out instrument decals.

WORKING WITH RESIN KITS

Always check to be sure that you have all the parts that you need and that there are no defects. If so, contact the manufacturer immediately.

Always clean resin parts prior to working with them to remove any mold release agents.

Always wet sand resin. This keeps the resin dust to a minimum.

Cut off as much of the resin pour block as possible with a razer saw to minimize the sanding and associated resin dust.

Use a circle “8” motion when sanding resin to ensure that any resin pour blocks are removed evenly from the part.

Resin responds quickly to wet or dry sanding so check your work carefully and frequently as you sand.

Always use a dust protector to cover your mouth and nose when sawing or sanding resin.

Always wash your hands after you are done cutting, sanding or just handling resin parts.

Always check the fit of resin parts before gluing them.

Always use super glue to attach resin parts. White glue can also be used on small parts if the parts are coated with a flat paint color.

WORKING WITH PHOTOETCH

Always clean brass photoetch parts by running the parts across a stationary piece of 600 grit sandpaper.

Use flat nosed pliers and single edge razor blades for bending photoetch parts or use a bending tool designed for photoetch.

Cut photoetch parts from the sheet using a sharp number 11 X-Acto blade or a single edge razer blade on a glass or Plexiglas surface.

Only cut photoetch parts off the trees, as you need them.

Reinforce photoetch shapes by gluing small strips of plastic to the inside corners.

Increase the width of the gluing surfaces of photoetch shapes by gluing strips of plastic along the inside edge of the gluing surface.

Flat clear paint will hide super glue or white glue that is on a painted surface if you airbrush the clear flat at low pressure.

3D PRINTED PARTS

Parts that are 3D printed can be made from many different materials.

Follow the manufacturers recommendations for cleaning the parts.

Follow the manufacturers recommendations on what type of paint to use on the material.

Some 3D parts may have a rough surface that may need to be sanded smooth.

Some types of 3D material respond quickly to sanding so check your work frequently.

Some 3D material is very fragile.

Snip 3D parts off their bases using a pair of despruing tweezer cutters.



MIKE ASHEY PUBLISHING
COMPREHENSIVE SERIES SCALE MODEL SHIP MANUAL
NUMBER 4
BUILDING & DETAILING THE TAMAYA 1/350 SCALE
USS MISSOURI BB-63

The Tamaya 1/350 scale USS Missouri was first issued in the early 1980's. The kit is very accurate in its hull and superstructure shape and configuration. The main deck comes in three sections and the mid-deck section is slightly shorter, which can be easily fixed. There are main deck trusses for the 20mm gun positions and they too along with the inner edges of these inserts can be filled with the addition of thin plastic strips. There is no surface detail on the superstructure sides, but this can easily be added. Even with these short cuttings, the Tamaya kit can be built into an outstanding representation of the USS Missouri in her final World War II configuration.

The superstructure sides were enhanced by locating and drilling out portholes, adding Gold Medal Models photoetched hatches, surface details and small scumbehl vents. The modeler and/or more savvy kiters were scraped off and re-cut clean added. Some scumbehl was needed for the mine-sweep chain configuration. Gold Medal Models has two different photoetched sets for the Missouri and both were used along with select photoetched details from the Eduard Missouri detail set.

The 5708 main mast, the 40mm quad Bofors, the M-51 directors, Mk-37 radars, the searchlights and the rope nets were replaced with Black Cat Models 1/350 printed accessories. The 20mm guns were replaced with Blue Ridge Models 1/350 printed accessories. These 3D printed products are easy to use and they are beautifully detailed. They greatly enhanced the appearance of the model and they also simplified construction. The display base is a length of hard rock made stained with Minions red mahogany and the Plexiglas case was ordered from Specialty Plastic Fabrication located in Hamilton, Ohio.

The USS Missouri is painted in her late World War II measure 22 configuration of Navy Blue, Deck Blue and Gray Gray using Testors enamel paints and their clear diallac lacquer.



MIKE ASHEY PUBLISHING
COMPREHENSIVE SERIES SCALE MODEL AIRCRAFT MANUAL
NUMBER 1

BUILDING TRUMPETER'S 1/32 SCALE SBD-1 DAUNTLESS
This manual is applicable to all versions of the Trumpeter 1/32 scale SBD series.

This kit has a lot of parts for the cockpit and all of it is finely molded and has a lot of surface detail. The Wright R-1820-60 engine is well detailed and with the addition of spare plug wires, build-up into an impressive model all by itself. The fuselage halves fit together well to do the wings and the elevator. The doctor to fill fit is snug, however the wing to fuselage fit has some work on the upper surface. The separate clear parts for the fuselage area between the engine firewall and the best destination should also need some attention if you decide to close up this area.

Evergreen spruce were used to fill the voids on the upper surface of the wing to fuselage attachment area. To really get the most out of the cockpit controls you should drill on the instrument faces so you will need a good supply of various size drill bits. The only aftermarket items used for this kit were the Eduard pre-painted seat belt set and the engine detail set. The pre-painted seat belts sold at a substantial price, but due to the fully detailed cockpit. The clear parts are nicely done however one of the clear canopy parts had a slight inward bend that will need to be fixed. The kit instructions are very well done and the decals are crisp and colorful.

Detail painting, paint layering, using different shades of the same color and dry-brushing greatly enhanced the appearance of the cockpit. Testors enamel paints were used for this project and detail setting solution worked well with the kit supplied decals. The sure to have one full roll of masking tape on hand as this is a big kit and consequently it will require a lot of tape.

The finished kit represents a pre-war Dauntless SBD-1 in a pre-war colors and of course it has to be a US Marine SBD.

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COMPREHENSIVE SERIES SCALE MODEL AIRCRAFT MANUAL
NUMBER 2

BUILDING & DETAILING THE AMT 1/48 SCALE B-26 MARAUDER

This kit was an AMT original issue that has been reissued by ESCERTL. In comparing the AMT and Monogram kits there are some interesting differences. The fuselage, wings and tail overall dimensions are the same, but the AMT cockpit is slightly larger and so are the interior parts. The AMT engine nacelles, engines, and landing gear are noticeably larger than the Monogram kit. It appears that the Monogram kit dimensions are slightly smaller than they should be and the AMT kit dimensions are slightly larger than they should be. Consequently the two kit's detail parts are not interchangeable.

The AMT engines do not represent the R-2600 engines series that were used in the B-26 and since engines from other kits were too small I dressed up the AMT engines with some scumbehl. A lot of lead weight was added to the model to get it to sit correctly and I paid special attention to adding strength to the wing and fuselage assemblies so seams would not crack. The kit was molded in white plastic so I primed all the parts to make it easier to work with them. Much of the raised surface detail was damaged during construction so I decided to sand it all off and not rescribe any of it. For interior detailing I used the Eduard pre-painted cockpit set, which was designed for the Monogram kit and their pre-painted 50 caliber machine gun belts. I also used various sizes of Evergreen plastic strip. The model was painted with Testors enamel and the decals are from Microscale.

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COMPREHENSIVE SERIES SCALE MODEL AIRCRAFT MANUAL
NUMBER 3
BUILDING & DETAILING THE HASEGAWA 1/32 SCALE
P-47D THUNDERBOLT

There are several fit issues that you will run into as you build this kit and the challenge is to figure out how to fix them. The individual wing panels and gun covers on the leading edges of the wings need some tweaking to get them to fit correctly. The wing-to-fuselage fit on both the upper and lower sides will require some work. There is also a step between the underside of the engine cowling where it meets the underside of the fuselage. The front of the fuselage is either too wide from top to bottom or the cowling is too shallow. There are also sink marks along the lengths of the upper wings which need to be sanded out. The detail sheet has excellent decals and they respond well to decal setting solution. I used Testors model master enamel paints for this project. For detailing the cockpit, I used Eduard's pre-painted self adhesive placards, their standard brass photoetched sheet, and their pre-painted seat belts. To fix some of the fit, issues I used Evergreen plastic strips of various sizes and shapes.

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COMPREHENSIVE SERIES SCALE MODEL AIRCRAFT MANUAL
NUMBER 4
BUILDING AND DETAILING THE TRUMPETER 1/32 SCALE
P-38 LIGHTNING

The Trumpeter 1/32 scale P-38 L-51-D is a great kit with excellent surface detail. The wheel wells and landing gear are well detailed as well as the cockpit. The forward section of the fuselage has a great deal of interior detail for the guns, but the inside area is needed for lead weight to make the aircraft sit correctly on its landing gear as the detail was not added. The "T" section had rivet brackets and wing landing lights, which were removed for this build to backdate the aircraft to a "P" series. The kit has beautifully detailed engines and I removed some nacelle panels on the outside areas of the booms to display them in addition to not installing the polished landing gear mirrors. I used the Eduard cockpit photoetched detail set and their pre-painted seat belts to add a high level of realism and detail to the cockpit. I replaced the guns with plastic rods and the kits propellers were replaced with ones from a Revell kit, which had a better shape. The kit's plastic is rather thin for a 1/32 scale model so I added interior reinforcement to prevent flexing, which can crack seams. The separate control surfaces and flaps are a nice touch, although some of the parts need some tweaking to improve their fit. The kit was painted with Testors enamel and minimal weathering was done with dry-brushing techniques and a light 200 degree airbrush.

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COMPREHENSIVE SERIES SCALE MODEL AIRCRAFT MANUAL
NUMBER 5
BUILDING AND DETAILING THE MONOGRAM/REVELL
1/48 SCALE B-26 MARAUDER

The Monogram/Revell Marauder was first issued in the mid 1980's by Monogram. Although most Monogram aircraft kits have a good fit, this kit has some challenges. The kit has photoetched resin detail sets that are readily available including replacement engines, cowling and wheels. Eduard offers several different photoetched sets to help improve the interior and the exterior, the most notable of which are the pre-painted cockpit parts and the scumbehl set. The Masters two part 50 caliber brass barrels can also be used and these guns improve the overall exterior appearance of the model. The Monogram and AMT kits have slightly different overall dimensions. The AMT engines, nacelles and landing gear are larger so these parts are not interchangeable with the Monogram kit. Two Monogram kits were used for this build, an original issue in green plastic and a later version in gray plastic which was produced in China. The plastic on the original version is hard and can be easily sanded while the gray plastic is softer and does not respond well to sanding. Since the gray plastic version was used for the fuselage, wings and engine nacelles, the butt and lap joint surface detail (panel lines) were not re-scribed. All the Eduard photoetched detail sets, the Loon Models replacement cowling, QuickBoost resin engines, Cutting Edge Model Works clear, red, green and blue lights, and the Masters brass barrels were all used for this build.

The model was painted with Testors enamel and the decals are from Microscale. Interior weathering was accomplished with pencil point dust applied with a wedge shaped makeup sponge and stiff flat brushes. Dry brushing techniques with silver paint were also used throughout the build.

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COMPREHENSIVE SERIES SCALE MODEL RAILROAD MANUAL
NUMBER 1
BUILDING AND WEATHERING THE ATLAS HO SCALE
3 STALL ROUNDHOUSE

This kit has a lot of parts for an HO scale structure, including separate foundation panels for the exterior sides. The model assembly is straight forward with some seam work required at the connection points of the roof panels and the separate foundation panels. The roof panels need some tweaking to get them to fit and so do the railings on the left and right sides of the structure. The roof vent tubes are also slightly mismatched and need some attention.

Testors enamel paints were used and all the paint colors were applied with a Badger 200 airbrush. Silver paint, applied with a brush was used to help identify steam flows and highlight areas where condensation water gushes around. Evergreen ballroad and was used to hide some seams. Elmers glue was used to fill gaps between wall sections and to attach the windows, doors, roof panels and other small parts.

I decided to paint the model representing a brick and mortar surface that had been painted over, but heavily weathered. Lighter colors of flat red and gray mixed with a few drops of the white were dusted onto the surface of the base paint color to represent the fading and blotching effects of the sun. Pencil point dust and chalks are a great way to represent soot, grime and rust. To make pencil dust, run a pencil point across a piece of sandpaper to create the dust and then apply it with flat brushes of various sizes. To sand the pencil dust, I used Testors clear dilutant from a spray can. Do not use oil paints because they do not create dust that can be applied with a flat brush.

The 3 Stall Roundhouse has a fairly large footprint when finished and when used on a model railroad layout the track extending into the roundhouse will need to be elevated to match the elevation of the kits foundation.

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COMPREHENSIVE SERIES SCALE MODEL RAILROAD MANUAL
NUMBER 2
BUILDING & WEATHERING THE CORNERSTONE HO SCALE
UNION CRANE & SHOVEL

This model has a minimum of fit challenges and assembles fairly quickly. The roof sections lack surface detail, but look good once the kit is primed, weathered and assembled. The big challenge for this kit is to measure, cut, apply and position the large decals located on both sides of the building. The sure to have all the parts prior to assembly so that the paint will stick properly.

Airbrushing allows two to mix my own paint colors and all the colors were applied with my trusty Badger 200 single action airbrush. Spray cans were used for the clear gloss and clear flat paint. I used my last jar of Flaggit tuxon red and antique white for the brick and Testors paints for everything else. For the mortar color, I used a water based paint found at Walmart which worked very well. I thinned this paint with distilled water and applied it with a flat brush.

You will need a good supply of Q-Tips for removing the water base mortar color from the brick surface. As with all my model railroad structure builds, I used lots of masking tape for this project. To prevent decal silvering, always apply decals to a glass surface. Use decal setting solution to soften the decal and get it to conform to the surface details and always remove as much of the clear film from around the decal as possible to reduce the chances of silvering around the decal's edges.

For weathering, I used Flaggit tuxon red mixed with Flaggit antique white and various shades of Testors enamel colors in combination with colored pencil point dust (see oil paints) applied with flat brushes and sealed with a spray can of Testors clear dilutant.

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COMPREHENSIVE SERIES SCALE MODEL RAILROAD MANUAL
NUMBER 3
BUILDING AND WEATHERING THE IHC HO SCALE
650 TON CHEYENNE COAL BUNKER

International Hobby Corporation kits are plastic craftsmen models and although they require the application of model building techniques to address their flaws, their kit structures are unique and will enhance any model railroad layout. The 650 ton Cheyenne Coal Bunker is an example of their kits uniqueness and once completed this large industrial kit will add exceptional detail to any layout.

While IHC is no longer in business, their kits can be readily found on eBay.

IHC kit parts and sub-assemblies have few positioning pins and corresponding holes, part halves have fit issues and there are lots of surface dimples and mold marks. All of these flaws are perfect for demonstrating the basic scale modeling techniques and skills needed to assemble and paint this kit and turn it into a great looking representation of a Cheyenne Coal Bunker, which is why Mike chose to build this kit.

Although the model can be primed and painted with spray can paint, Mike used an airbrush to demonstrate how to use different shades of a base color to achieve an aerial weathering effect. For additional weathering, Mike demonstrates how to use pencil point dust to achieve surface rust, grime and soot residue.

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Inside
Detailing Scale Model Aircraft, Second Edition
Mike Ashley Shows You, In Step By Step Sequenced Color Photos:

What tools, equipment and supplies you need

Advanced construction techniques

Techniques for restoring panel lines and rivet detail

How to reinforce parts

Techniques for removing seams and fixing voids

How to detail engines

Techniques for detailing cockpits and interiors

How to work with standard and pre-painted photoetch

Techniques for modifying kit parts

How to work with resin detail sets

Techniques for detailing landing gear and wheel wells

How to add rigging and control cables to biplanes

How to work with clear parts

How to prepare paint

Airbrushing techniques

Advanced decaling techniques

Basic weathering techniques

