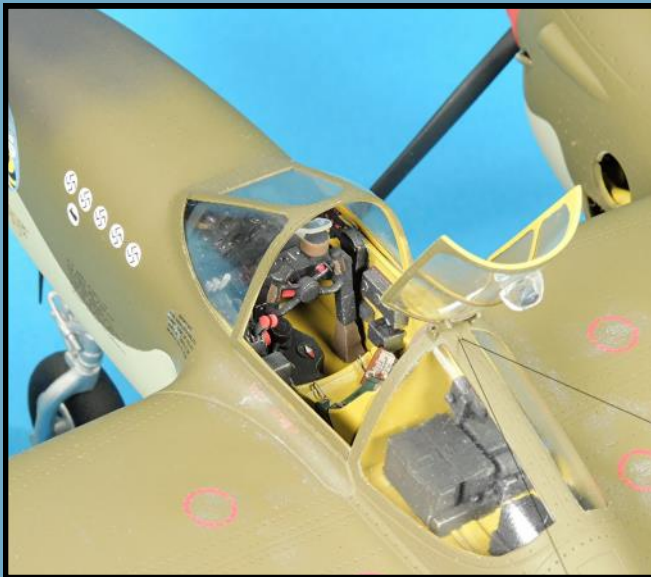


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**MIKE ASHEY PUBLISHING**  
 COMPREHENSIVE SERIES SCALE MODEL SHIP MANUAL  
 NUMBER 1  
**BUILDING & DETAILING THE TRUMPTETER 1/350 SCALE**  
**USS NORTH CAROLINA, BB-55**

This kit builds up into an impressive replica of the USS North Carolina, however there are some fit challenges that require patience and some unique construction techniques. For this kit a Gold Medal Models photoetch set was used along with some radar screens from a Tamiya Model Works photoetch sheet. The kit was backdated to 1943 so there are some minor changes and additions to the radars that need to be made. Evergreen plastic steps, solid red, half and quarter round red, and sheet were used extensively for construction to both add strength to sub-assemblies and to hide seams.

Tamiya's 1/350 scale Missouri was used for parts such as the 16 inch guns, the forward yamato, white boats and the gun directors. The kits 2 inch turrets were replaced with Voyager Models resin turrets and brass barrels. Although the kits 20mm guns were used, the Missouri 20mm would have been a better choice.

Extra manual parts were used including their clear diskons. Four brass lamp housings were used for the display base and the model was mounted on a length of hard rock Maple stained with Minwax red mahogany.

The application of super glue was accomplished with .015 to .015 inch diameter wire applications. The end of the wire applicator was dipped in a puddle of super glue and the glue was then applied along a seam line. Generally, the amount of glue on the tip of the wire can be spread about an 1/8 to 1/4 of an inch along a seam line.

In 1943 the ship had a Measure 21 pattern, navy blue on all vertical sides and deck blue on all horizontal surfaces. The navy blue and deck blue colors were achieved using Tamiya dark sea blue and intermediate blue. Dark sea blue mixed with intermediate blue makes a navy blue color and mixing more intermediate blue makes a deck blue color.

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**MIKE ASHEY PUBLISHING**  
 COMPREHENSIVE SERIES SCALE MODEL SHIP MANUAL  
 NUMBER 2  
**BUILDING AND DETAILING TRUMPTETERS 1/350 SCALE USS FRANKLIN, CV-43**

This manual is applicable to the Trumpteter 1/350 scale Essex class carrier series including the long hull version. The 1/350 scale Essex class carrier kits build into impressive models with the addition of photoetch and some scratchbuilding. There are also some fit challenges, needed adjustments and modifications and a lot of injection mold patch out disks on individual parts that need to be fixed, all of which can only be addressed with straightforward building techniques.

This manual also includes 5 pictures of the Essex class carrier USS Yorktown while she was in dry dock back in 1972 and a supplemental section on assembling the Trumpteter long hull kit, which has a separate forward upper hull section. References used were the ESSEX class carrier ship drawings available from "The Floating Dry Dock" and numerous pictures from various publications. Tamiya enamel paints and a Badger 200 airbrush were used throughout construction and finishing and the photoetch is from Gold Medal Models. A lot of Evergreen sheet and various sizes of red and strip were used along with structural shapes throughout construction and scratchbuilding along with various diameters of brass rod. The kit's details are well done and they respond nicely to Microscale dual setting solution. PG-Road pre-painted aircraft were used on the flight deck and in areas on the hangar deck where the roller doors were cut out.

Resin castings from Voyager Models and L'Ancestral were used for the 5"38 Turrets, the 20mm gun boxes and the 57-38 single open mounts. A Tamiya Missouri, which was purchased on Ebay at a great price, was used to replace kit parts such as the 20mm guns, the lift rafts, various fittings and mast yardarms. A Waltham punch tool and a Northwest Shoreline chopper were used extensively for scratchbuilding and hiding flaws. The wood base was a length of Maple stained with Minwax red mahogany and sealed with a clear polyurethane glue coat. A beautiful Plexiglas display case was ordered from [www.caseofthefab.com](http://www.caseofthefab.com).

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**MIKE ASHEY PUBLISHING**  
 COMPREHENSIVE SERIES SCALE MODEL SHIP MANUAL  
 NUMBER - 3  
**BUILDING AND DETAILING THE HOBBY BOSS 1/350 SCALE**  
**USS ALASKA, CB-1**

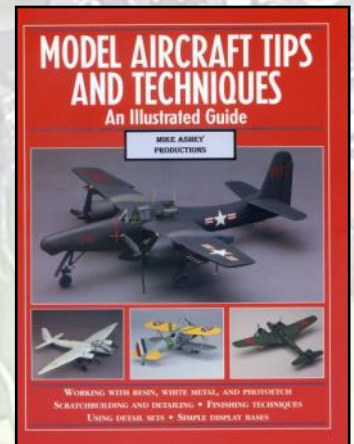
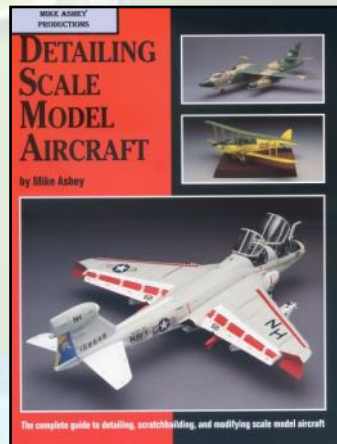
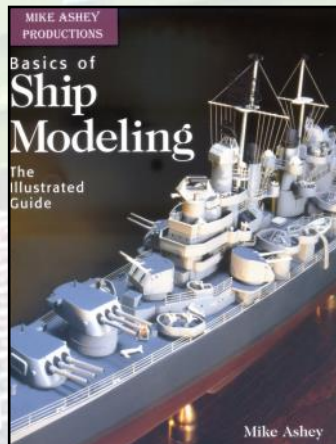
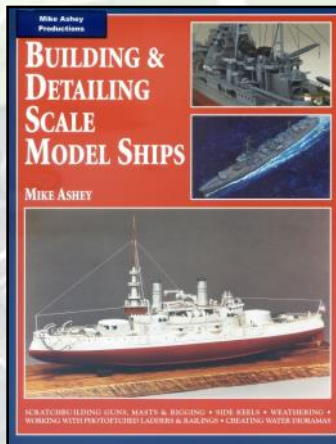
The Hobby Boss 1/350 scale USS Alaska is an impressive model, which has excellent fit and exceptional surface detail. The parts count on this kit is over 1,300, so parts management is very important. I used 8 plastic bins for storing the parts as I worked on building and painting this model. The kit comes with 4 sheets of photoetch, however some of the radars supplied are not usable due to their design, so I replaced them with Gold Medal Models radars. I also replaced some of the kit parts such as the aircraft and 20mm guns with ones from a Tamiya Missouri.

Testors enamel were used including their dulcote. For the display base I used a hard rock maple plank, which measured 30 x 7 inches and stained it with Minwax red mahogany. The Plexiglas display case was ordered from Specialty Plastic Fabrication located in Hamilton, Ohio.

The ship was painted in a Measure 32 dazzle pattern of light gray, ocean gray and dull black. Painting this pattern on a multilayer surface requires a lot of careful masking, but if you take your time the results will be well worth the effort.

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SECOND EDITION

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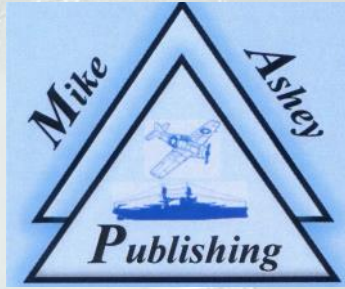
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# **DETAILING SCALE MODEL AIRCRAFT**

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Send us an email at [mikeasheypublishing@gmail.com](mailto:mikeasheypublishing@gmail.com) to get on our mailing list for Detailing Scale Model Aircraft book updates.

### **DEDICATION**

To my wife Leah and our children; Thomas, Erin, Gregory and Rachel.

### **ACKNOWLEDGEMENTS**

A hearty thanks goes to Scott Weller of Tallahassee, Florida and Jim Hudson of Wakulla, Florida for allowing me to include some of their models in this book. Special thanks goes to my beautiful wife Leah for encouraging me to get back into writing about scale modeling and establishing Mike Ashley Publishing.

All text, photos and book layout are by Mike Ashley Publishing.

### **ABOUT THE AUTHOR**

Mike Ashley lives in Tallahassee, Florida. He has been building models since the early sixties and his interests span all types of scale modeling and he is the author of five scale modeling books and one model railroading book. He has also written dozens of modeling articles for various magazine publications. Mike has an undergraduate degree in Ocean Engineering from Florida Atlantic University, class of 1983 and aside from building and writing about scale modeling he enjoys, jogging, weight lifting, hiking and exploring the United States with his wife Leah.

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## CHAPTER 1

### SCALE MODELING TOOLS AND EQUIPMENT

#### HOW TO USE THIS BOOK

When I wrote “Detailing Scale Model Aircraft” way back in 1990, I thought that the scale modeling hobby industry and the cottage industry, which began producing resin and photoetch accessories, had reached the peak of its golden age. As I started to review the text from my first aircraft book in preparation for this book, I realized that aircraft scale modeling had matured so much that complete sections of the original text were no longer applicable. In fact the entire text had to be re-written to incorporate almost 30 years of scale modeling advances. With new kits sporting higher levels of detail and accuracy and a multitude of parts, with resin detail sets for everything from cockpits to bombs and photoetch detail sets both painted and unpainted, comes new challenges on how to best use, build and incorporate all these wonderful accessories into the scale modeling experience.

As with all my books, this one is also organized by topic. That is to say that if you want to learn or read up on construction techniques, cockpit detailing or decal application then you can quickly turn to that chapter of the book and find a specific topic. Since this book has no binding, as chapters are expanded or new chapters are added, you can quickly update this book by replacing or adding chapters instead of purchasing a new book. Not having a binding allows this book to be layed flat on your work bench and it allows for the incorporation of an unlimited number of color pictures. I recommend that you go through the entire book once to get a feel for the book’s organization and where to find specific information and techniques that are presented.

There are three key basic skills for making your scale modeling experience more enjoyable, and these have not changed in 50 years. They are assembly, painting and decaling techniques and these three topics form the triangle of success for scale model building in any subject area. Whether you are building out of the box or adding lots of detail to achieve a higher level of accuracy, your finished model should show no seams, surface flaws or glue marks, have a clean and consistent paint job and sport decals that have not silvered, are straight and level and conform to the model’s surface.

It takes practice to get good at the basics but that’s part of the fun of the hobby. With each kit that you build, you should focus on

the basics. Once you get them down, then graduate to adding details with cottage industry products, and then start modifying the kits to add additional levels of realism. Graduating from the detailing and modification level, you can then start learning different weathering techniques. Scale modeling is a construction hobby with a sprinkling of artistic flair so be patient and don't worry about making mistakes and having modeling disasters. Even those of us who have been building for years and years have disasters now and then. If you get frustrated, set the model aside for a few days and then get back to it.

Remember that scale modeling is a hobby. It's supposed to be relaxing and provide the human mind with an escape from reality. Scale modeling is whatever you want it to be for you. Just have fun and enjoy creating a good-looking, three-dimensional object from a pile of parts!

## **REQUIRED TOOLS AND EQUIPMENT**

On the remaining pages of this chapter are the tools and supplies that you will need in order to build and detail your models. All the items listed are used throughout this book.

I assemble my models with three types of glue. I use super glue for assembling almost everything because it can be scraped, sanded and shaped just like plastic. The super glues that I use are made by Zap-A-Gap and they are specifically designed for working with plastic. They come in different fluid viscosities from very thin to super thick. For attaching canopies and other clear parts, as well as small painted parts, I use Elmers white glue. For parts that need to be positioned and which may need some adjustment I use Testors red tube plastic glue. Sometimes you want to get the super glue to dry quickly so keep super glue accelerator on hand. A two ounce bottle of accelerator will last you for years.

For all your cutting needs, purchase both large and small handled X-Acto knives and at least one complete set of X-Acto blades. I use number 11 blades more than any other blade shape, so I purchase these in packs of 100. X-Acto also makes a stencil knife with a tiny angled blade. Stencil blades come in handy when working with seams in tight locations. I also use lots of single edge razor blades for cutting and shaping photoetch and you can also get them in packs of 100 as well. I also recommend that you purchase a Xuron plastic cutter or equivalent for removing parts from trees and trimming plastic. Also, get a petite sprue cutter called a "despruing tweezer cutter" for removing small parts from trees or trimming tree stubs from parts. All of your cutting should be done on a self-healing cutting board, which can be found in any hobby or arts and crafts store. You will need a good supply of various size tweezers and micro files. Tweezers are a must for working with small plastic and photoetch parts and micro files are a must when opening up plastic or squaring off edges.

You will need an X-Acto miter box and various size razor saws for cutting thick plastic strips. For cutting small plastic strips and making angled cuts I recommend that you purchase a NorthWest Short Line Chopper. The chopper will allow you to duplicate angles and shapes easily and it's a great cutting tool. To get straight edges on cut plastic, purchase a NorthWest Short Line True Sander.

For all of your sanding needs, I recommend the sandpaper marketed by Testors and K & S Engineering Company. The sandpaper comes on a waterproof backing, it is very flexible, it can be used wet or dry and it can be cleaned with soap, water and a toothbrush and used time and time again. The grades range from 150 to 600 grit, they come in 3 X 4 inch sheets and are color coded for easy identification. Another good source for sandpaper is to visit your local automotive supply store. In the car body section you will find 9 x 11 inch sheets of sandpaper designed for vehicle body fillers. It is waterproof and comes in rough to super fine grades up to 1,000. One caution on using automotive sand paper is that it is not as flexible as the K & S sandpaper. A really good sanding tool is a Flex-I-File which is a "U" shaped aluminum bar about an 1/8 inch thick. The strips of Flex-I-File sandpaper are attached onto the open area between the "U" and this simple device is great for reshaping curved areas. For sanding sticks, visit the nail care section of a drug store or super market. You can find a lot of different grades of sanding sticks in large sizes. For sanding blocks I use small lengths of Balsa Wood of various sizes, plastic stock or even the handles of my files. Balsa Wood is especially useful because it conforms to compound surface areas such as wing and fuselage connection points. I also use strips of balsa wood and strips of masking tape to attach small parts and sub-assemblies for painting.

For filling voids, I like to use plastic shapes from Evergreen and Plastruct. Inserting plastic into a void and super gluing it into place adds strength to the seam area where the void is located and the plastic is easy to trim and sand into shape. This technique is especially helpful where wings attach to the fuselage and engine nacelles attach to wings. Occasionally, I use small amounts of putty and when I do, I use either Testors gray putty or an equivalent, such as Squadron's "Green Stuff". Another great filler for small voids around canopy attachment points is Elmers white glue.

Polishing is also necessary for a smooth finish on plastic, as the slightest scratches will show up, especially on natural metal finishes. To smooth out plastic and remove most scratches, I use 0000 and 00000 grade steel wool pads. These grades of steel wool

work great for all your polishing and painting needs, including natural metal finishes. One caution here is that the steel wool pads will generate steel wool dust so protect any open areas of the model, like cockpits, and be sure to blow off any residue steel wool fibers from the model. I use my airbrush at about 30 PSI to accomplish this. If you decide to use a plastic polish, use the steel wool pads first and then apply plastic polish with a soft cotton cloth. Be sure that all the plastic polish is removed using alcohol pads prior to applying any paint. Plastic polish can get into recessed panel lines and indented rivet detail so be sure to check these surface details carefully.

For plastic scribing and for cutting out control surfaces, I recommend the plastic scribers marketed by the Bare Metal Foil Company. You can also use a sewing needle in a pin vise (called a scribing needle), which works well around sharp corners. Scribing templates for circles and box shapes are also handy to have on hand to restore “access panel” outlines. These templates are made from thin sheet metal or photoetch metal. Labeling tape, which is used as a guide for plastic scribers when restoring panel lines, can be found in office supply stores. To clean out sanding dust from scribed lines, use a toothbrush with soft bristles and then smooth the surface with a fine or super fine grade steel wool pad.

For all your drilling needs, have a good supply of various size drill bits on hand. For most of your drilling needs purchase a set of micro drill bits, numbers 61 to 80. For drill bit holders, I use both a pin vise for larger sizes and a brass micro twist drill for tiny drill bit sizes. I also have a collection of large size drill bits both in standard and metric sizes. You will also need a drill bit gauge and a pair of calipers for checking the diameters of drill bits. For electric drills, purchase a Dremel variable speed motor tool. Dremel also makes a drill press designed for their motor tool and they also make a quality vise. I also recommend getting a miniature motor tool chuck for your motor tool. All these specialty items can be purchased from MicroMark ([www.micromark.com](http://www.micromark.com)) or Model Expo ([www.modelexpo-online.com](http://www.modelexpo-online.com)).

Waldron Model Products markets a punch tool set, which can also be used to make perfect tiny disks. You will find a thousand and one uses for it. It is a very valuable tool for scratchbuilding, it simplifies many projects and the diameters are almost a perfect match to fill those pesky mold punch out shapes that we find on the inside areas of parts, such as wheel wells and landing gear covers. Punches used for working with leather can also be used to get different size plastic disks. MicroMark, Model Expo and Unique Master Modelers USA (UMM) also make their own versions of this punch tool.

I have found that scale modelers usually stick with the same type of airbrush once they find one they like. I like the Badger 200 series of airbrushes. They are single action, internal mix, bottom feed airbrushes, which is great for scale modelers like myself who do not have steady hands. I also like the heavy feel of the brass and chrome construction. I keep a good supply of airbrush jars on hand as I usually end up with about a dozen jars of mixed paint by the time I am done with a model. I also keep a supply of the Teflon bearings and washers for this airbrush and I replace them at least once a year. I also keep a supply of spare airbrush heads and needles for quick repairs.

For airbrushing you will need a reliable air source and many modelers use a hobby compressor. There are two drawbacks to compressors: noise and water vapor buildup inside the compressor chamber. The water can sometimes find its way onto the surface of your model as you airbrush, which always spells disaster! I use a compressed air bottle filled with CO<sub>2</sub>, which is the same type of bottle used at soda fountains. The bottle is slightly smaller than a divers SCUBA tank. I also have a pressure regulator gauge and a tank pressure gauge so I can regulate the pressure. The air that comes out of the tank is very dry and it will last you up to two years. You can find these bottles and the pressure regulator and gauges at any store that supplies compressed air and air bottles. The investment that you will make is not much more than a good quality compressor will cost you and once you set up your air bottle and start using it, you will be truly amazed at how well your airbrush will work.

For a spray booth for airbrushing or when using spray cans, you can use a large cardboard moving box with the top and front cut out. Moving boxes are sturdy, come in various sizes and are readily available at a low cost. If you have a vent hood above your stove, which vents to the outside, you can set the box on top of the stove, tape a home air conditioner filter over the opening to capture the paint dust and use the vent to draw away the paint vapors. This set up is simple and it works very well—just be sure the stove is not on! You can also purchase an airbrush station with a vent, but these can be expensive and they can not accommodate large models, such as 1/48 scale bombers. For mixing thinner with paint invest in some eyedroppers. They can reduce the mess associated with mixing paint and save you some clean up time. To protect your skin from paint, keep a good supply of “one size fits all” medical gloves, which you can find in any drug store for airbrushing.

For all your masking needs I recommend Scotch 3M Painters Masking Tape #2050. This tape is one of the best products I have found for masking and painting. It has low tack qualities, but it does not allow paint to bleed under it, the tape has sharp clean edges when cut, it has stretch qualities and thin widths can be formed around curved locations. I always keep several rolls of various widths for all my masking needs. I have also had good luck with Tamiya masking tape and it comes in various sizes. The one drawback to the Tamiya tape is that it does not have the stretch qualities of the 3M tape. Sticky notes also work great for some airbrushing applications, especially on natural metal surfaces or where you need to cover up an area for touch up work.

To detect flaws and scratches on plastic surfaces, joints and seam lines, use Testors silver paint applied with a soft paintbrush. To clean plastic prior to applying a primer coat, use a plastic prep cleaner. Testors makes a good quality cleaner and you can also use alcohol or Windex.

Warm paint will flow and adhere better than cold paint. I use a coffee cup warmer plugged into a timer so that I will not forget to turn off the warmer. I loosen the cap on the paint and place it onto the coffee warmer for a few minutes. I then reseal the paint and mix it again before attaching it to my airbrush.

I recommend that you acquire a good supply of quality flat and round brushes, especially small detail brushes. Natural hair paint brushes made from pure red sable are the best quality brushes that you can purchase. Pactra and Floquil brushes are excellent natural hairbrushes, although they are now very hard to find. I have purchased IMEX brushes from my local hobby store and found them to be of excellent quality and I like their large handles.

I prefer using enamel or lacquer based paints, as they stick well to plastic surfaces and they do not peel up when they are masked over. For almost all of my painting needs, I use Testors and Alclad enamels and lacquers. I am also hopeful that sometime in the near future Floquil enamel paints will be once again available as their primer is the best I have ever used. Also, always use the manufacturers recommended thinner and never mix paint with different chemical compositions, such as mixing enamels with lacquers.

To mix paint, I use copper coated BB's as agitators in the manufacturers paint bottle. I usually place 4 BB's in the bottle to get the thicker paint, which always settles on the bottom of the bottle, to mix with the rest of the paint. Using copper BB's is especially important if you are using water based paints. Steel bee bees can change the paint color when they rust.

For proper decal application you will need to apply a clear gloss finish and I use Alclad clear gloss lacquer. This lacquer provides a clear, hard, glossy finish that is perfect for decaling and adding surface washes for enhancing panel lines and rivet detail. To restore a flat paint finish I like to use either the Alclad clear flat lacquer or Testors clear flat "Dullcoate," which Testors has relabeled as "clear, flat lacquer finish". This stuff can be airbrushed straight from the bottle and if you want to thin it use lacquer thinner. Testors Dullcoate, when airbrushed, also works great for hiding super glue and Elmers white glue that has over overflowed onto painted surfaces.

For great looking decals you will need a decal setting solution, but be sure that the solution you purchase is compatible with your decals. I use the Microscale two-part system and it has never failed me. The liquid in the blue labeled bottle is called "Micro Set" and you apply it to the surface to be decaled just before applying the decal. The liquid in the red labeled bottle is called "Micro Sol" and it is applied to the decals surface after the decal is set in place to soften it and to get it to conform to any raised or engraved detail on the model's surface.

For weathering, I recommend starting with some basic techniques, such as mixing lighter shades of your aircraft's base color so that the weathering effects of the sun on horizontal surfaces can be achieved. It only takes a few drops of white or black to change a base color so be careful how much you fade the paint. Testors silver paint is great for drybrushing around corners and edges to enhance the appearance of small parts. Other good sources for weathering are pastel pencils, pastel sticks and chalks which can be found in any art supply store. There are also oil pastels, so be sure to get pastels that are **not** oil based. To grind up pastel sticks and chalks into dust, I use a coffee grinder. A silver colored art pencil is a great tool for representing worn off paint around the edges of access panels, seats and boxes.

In the last few years, scale modeling and art painting techniques have merged into advanced weathering techniques using specific products. There are specific products available for weathering most notably from "AMMO by Mig Jimenez" and "AK Interactive." There are even magazines now specifically dedicated to weathering. A military ground vehicle can be heavily weathered, but no pilot is going to fly an aircraft that is heavily weathered and looks like the wing panels are about to fly off! As a pilot, I can attest to this first hand. Heavily weathered aircraft may be great looking "model art", but they do not, in my opinion, represent reality unless its an aircraft sitting in a bone yard or an aircraft wreck. Another very important point is that it is easy to ruin a scale model due to a weathering disaster or over weathering, so keep it simple until you gain a lot of experience.

You will need a good selection of drafting templates and at a minimum you should have circles, squares, rectangles and ellipses. These templates can be used to cut out large shapes for masking and painting. A set of small clear drafting triangles is also a must.

For working with photoetch parts, I use a Plexiglas plate as a cutting surface as well as single edge razor blades and number 11 X-Acto blades for cutting the photoetch. The metal dulls the blade tips very quickly so you need a good supply of blades when working with photoetch parts. Stores that specialize in selling stuff to make jewelry are great places to find tools such as flat faced needle nosed pliers, which are a must for achieving clean, sharp edges when bending photoetch parts. The Small Shop



(www.theshop.com) makes a great black backed Plexiglas cutting surface for photoetch and they also make excellent quality photoetch benders called "The Hold and Fold" which come in two sizes. They also make a device for rolling photoetch called a "Brass Assist Roller Set." These products are machined from aluminum and will last you a lifetime.

You should also plan on using several boxes of facial tissue per model for general cleanup and painting needs, especially for cleaning paint brushes. Tissue makes an excellent stuffer in areas that are deep and need to be masked like cockpits and wheel wells prior to painting. Q-Tips are also a must when working with white glue and for cleaning your airbrush. Q-Tips are also great for helping to slide decals off of their backing, positioning them and applying decal setting solution. You will also need various diameters of pipe cleaners for cleaning your airbrush. Tamiya also sells Q-Tips with tiny heads and various shapes, which are perfect for cleaning your airbrush.

A 6 inch stainless steel sewing ruler is a great tool to have and can be found in almost any sewing supply store. The graduations on the ruler are very precise and the ruler's thickness is perfect for use as a straight edge for cutting masking tape.

Evergreen and Plastruct Scale Model Products produce a wide selection of plastic sheet stock, strips, rod sizes and various shapes. Their plastic is easy to use and responds well to sanding and shaping. I keep a good supply of various sizes of sheet stock, strips in widths ranging from .010 to .250 inches thick and rod diameters from .020 inches to .125 inches for all my modeling needs.

I like to apply glue with stiff, small diameter wire of about .015 - .019 inches. You can find various diameters of stiff steel wire at your local hobby store in the radio control section. I also keep a supply of various diameters of brass beading wire, which can be found in jewelry supply and arts and crafts stores. In addition, you can find small diameter brass beading wire in a wide range of colors. This small diameter colored wire comes in hand for adding plumbing and wiring details to the engine area and the cockpit. I also keep spools of clear and black nylon sewing thread for rigging small-scale biplanes and for adding antenna wires to propeller driven aircraft.

To mark plastic parts and to color clear nylon sewing thread and stiff wire for rigging biplanes and adding antennas, purchase Sharpie indelible markers in various colors. The colors I use most are black, brown and silver.

Round toothpicks make good applicators for white glue and for picking up small photoetch parts. I also use the tips of round toothpicks to apply tiny quantities of paint.

I like to use plastic sewing and needle craft bin organizers. These can be found in sewing and arts and crafts stores and large bin organizers can be found in Harbor Freight tool supply stores. These organizers are great for storing parts and photoetch parts for your aircraft projects. They can be found in various colors, sizes and shapes.

Good lighting on your workbench and in your paint booth are a must. I have four large adjustable desk lamps on my workbench and several large construction "clip on lights" with large disk reflectors for my paint booth. These large lamps can be found in hardware stores like Home Depot and Lowes. Invest in a dust mask or painters mask and wear it whenever you are airbrushing. Also, invest in a good pair of safety glasses.

Most of the tools and supplies that you will need can be found in your local hobby store. If they don't have an item in stock have them order it. If they are unable to do so you can always order the item via the internet.

## **REFERENCE AND RESOURCES FOR SCALE MODELING**

Reference material is a must for aircraft scale modeling and there are a wide variety of books that have lots of photos of specific aircraft. How the cockpit actually looks, the colors, the arrangement of all the interior hardware, the details inside the wheel wells and the overall appearance of the aircraft will help you when you are adding these types of details and painting your model. What wiring and plumbing is exposed in the engine area, whether the air intakes are open or covered with screening and how the brake lines are set on the landing gear are all important details that reference photos will show you. The costs of reference material can vary widely and for more expensive books get the ISBN number and have your local library order the book for you. This affords you the opportunity to see if the book is worth the money and that it has what you are looking for.

Reference books should contain a lot of original aircraft photos and these are usually black and white unless it's a modern aircraft. All the pictures should be clear and in focus and each photo should have a caption. Some books have walk around photos that were taken of aircraft at museums and these should all be in color. Keep in mind that restored aircraft may vary slightly in colors and in the placement of some interior components when you compare them to original aircraft photos. There should also be pictures of the variants of the aircraft and a color section for the different paint schemes that the aircraft may have had.

In the last few years, reference CDs and DVDs have also become available and they can contain hundreds of quality photos and videos of aircraft. There are also many websites that have scale modeler resources and links to other sites. I download the pictures from these websites and save them on CD's for later use. The "mikeashey.com" website has reference photos in PDF format and they are free to download. Another great source for reference material is to visit aircraft museums and take lots of pictures.

The internet is a great place to research what types of detail sets are available for a specific model. All the cottage industry companies have websites and you can get a first hand look at the actual detail sets and all of the parts that are included. There are a lot of websites that also have kit and detail set reviews. Sometimes the reviews are just an "in-the-box" review and other times the reviewer actually built the kit or used the detail set. The "mikeashey.com" website has "tape up" kit reviews which provide a lot of information on how kits look and what challenges you will need to address.

The one caution here is that sometimes "in box" reviewers get caught up in what I call the "accuracy trap." They can find a lot of things wrong with a kit or a detail set that most of us would not see or even care about. Some of these people spend so much time consumed by the "accuracy trap" that they never build anything or finish a model. You can also witness a lot of talk and some very mean-spirited keyboard discussions on website chat boards about accuracy. Don't get caught up in it. Scale modeling is a hobby, not a competitive sport, and it is not politics.

In closing out this section, save the website addresses that you visit so that you can build up a digital library of locations of manufacturers, cottage industry products and general information websites. I visit many of these websites to see what new products may be available in the coming months.

## **SCALE MODELING BOOKS AND MAGAZINES**

Scale modeling books are a great resource for old and new techniques for everything from detailing, scratchbuilding, assembly, painting, decaling and weathering. I have a collection of just about every scale modeling book published and I have learned and relearned techniques from all of them. Some of the older books have some very interesting scratchbuilding techniques that every scale modeler should have for reference. Many of these older scale modeling books can be purchased on EBAY and of course my old scale modeling books are in PDF format on my website (mikeashey.com) for free. I have a spare laptop that runs Microsoft XP and a small external monitor set up on my work bench so that when needed I can check the internet for photos, refer to my old scale modeling books or view my collection of reference photos.

## **ORGANIZATION**

The key to having a successful experience in any hobby, especially scale modeling, is to be organized. I use stacked plastic draws to organize and store tools and equipment. I usually keep the most used tools within reach on my workbench and those used less frequently in the plastic draws. I also keep a supply of expendables, such as X-Acto blades, sandpaper and glues on hand so that I am not running out to the local hobby store all the time. I keep a small supply of basic paint colors on hand, but I do not let their shelf life extend more than a year if they have not been opened. Once most paints are opened, their shelf life is greatly decreased so I label all my paint bottles with two dates: the purchase date and the date the bottle of paint was opened. I stock up on needed colors for each and every modeling project. Lacquer paints have a much longer shelf life than enamels or water based paints so I keep a small supply of Testors Metalizer and Alclad paints on hand.

I use small plastic draw organizers like the ones you find in hardware stores for storing nuts and bolts to store and organize unused plastic parts. I use small-to-medium plastic shoe and shirt boxes to store detail sets, decals, plastic sheet, tubing and wire and sandpaper sheets. I have a lot of shelving to store all of the stacked draws and storage boxes, and everything is labeled and organized for ease of identification and access. I also keep an ample supply of small and medium zip lock bags on hand to temporarily store things in and to seal up items like steel wool pads when not in use.

A little bit of planning can go a long way when you are building scale models. This is especially true when you are incorporating detail sets into the kits construction sequences. Study the instructions carefully and become familiar with the part trees and the locations of the parts. Kit manufacturers have gotten very good at keeping sub-assemblies located on the same trees, but this is not always the case. Typically, the larger the kit, the more parts you will have so having an ample supply of those sewing and needle craft bin organizers is a must have.

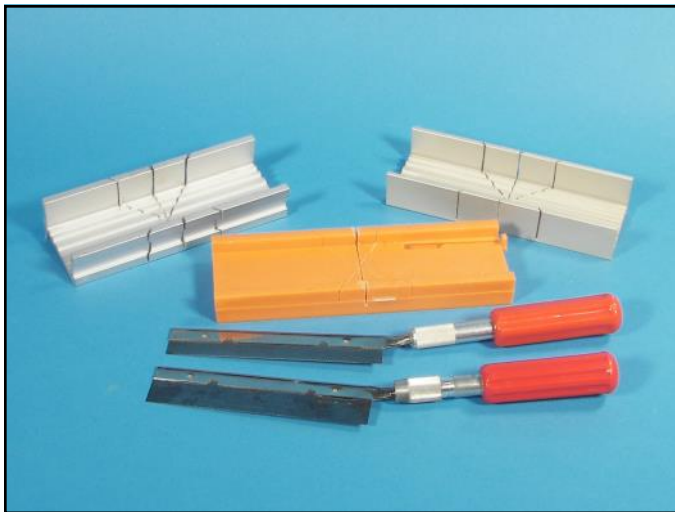
When I am working at my hobby bench, everything I need is positioned around the self-healing cutting board. I use the kit's box top to store large sub-assemblies and my bin boxes for individual parts and small sub-assemblies. I also place a strip of masking tape on the top of each bin box to identify what the parts are. One box will have interior parts and another box will have engines parts. I also strive to keep my workspace clean so after a lot of sanding and scraping, take a little time to do some house cleaning before proceeding to the next step.



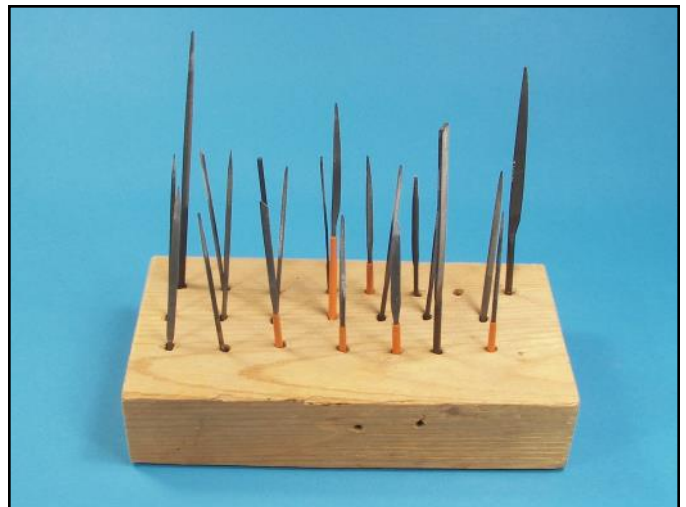
These are the three types of glues I like to use. I made the glue tube holder for the Testors red tube glue for upright positioning. The clear tubes to the right of the Testors glue are for precise super glue application.



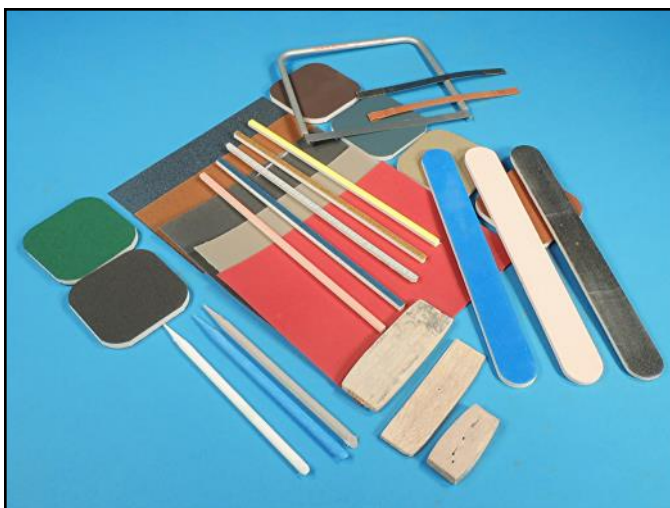
Here are the basic hand tools for snipping, cutting, trimming and scraping. The long black blades are stencil knives and the stainless steel sniper is a despruing tweezer cutter.



Miter boxes and razor saws are necessary for cutting plastic stock. The miter boxes are specifically designed for use with the razor saws. The saws also come in various cutting grades.



I have various sizes of files with different shapes. These files have a lot of uses in scale modeling. They are great for shaping and cleaning up cut outs, such as access panels, hatches and squaring off edges and corners.



Testors, K&S Engineering and Revell sell color coded waterproof sandpaper. The U shaped tool is a Flex-I-File and the nail care sanding sticks work great on plastic. Balsa Wood makes great sanding blocks for contoured areas.



For taping parts together for fit checks, gluing and for masking, I like to use 3M painter masking tape #2050 and Tamiya masking tape.





These steel wool pads come in very fine (00), super fine (0000) and Ultra fine (000000) grades. They are great for smoothing the edges of engraved lines, removing fine scratches and polishing plastic.



A good size, self healing cutting board is a must for scale modeling. I also keep a good supply of tissues and Q-Tips for painting and general cleanup. I use safety glasses whenever I am using my Dremel tool or cutting photoetch



I keep a good supply of drill bits and I use a caliper to check diameters. A drill bit gauge is also a handy tool. The Waldron Punch has a thousand and one uses and twist drills make repetitive drilling easier.



A variable speed motor tool, a Dremel drill press stand and a Dremel vise are the perfect combination for precise drilling. To hold plastic parts in the vise, sandwich the part between strips of balsa wood.



I like to use enamel and lacquer paints, because of their superior adhesion qualities. You can also heat them using a coffee warmer and the paint will flow much better. I reserve acrylics for small jobs where no masking is needed.

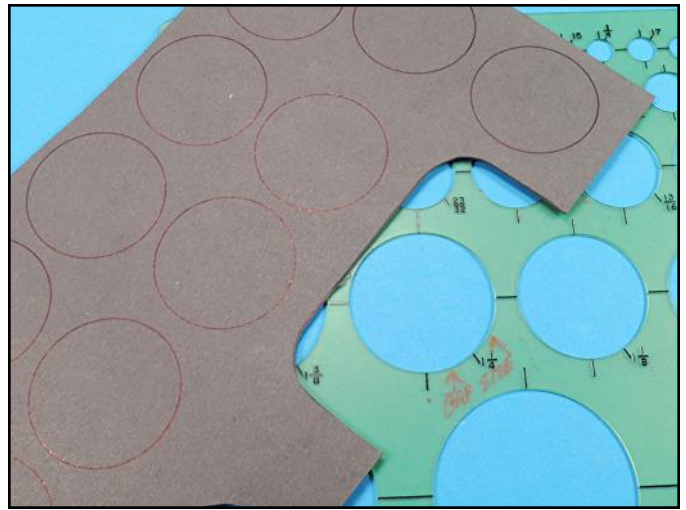


These are the essential tools for airbrushing. Always keep an ample supply of thinner and spare airbrush parts and jars. Copper BB's are great for mixing paint in its original jar. The shaped Q-Tips are made by Tamiya.





I like to keep my airbrushing tools in easy reach. Everything I need for an airbrushing session is stored in these three organizers. The arrow points to a .015 inch wire that I use to clear the airbrush head of paint while airbrushing.



Sometimes the seals on airbrush paint caps need to be replaced. For badger airbrush jars, I use thin automotive gasket material. I trace 1.25 inch circles and cut them out with scissors.



These cap seals are ready to replace worn white ones. Also, airbrush jars sometimes have thin styrofoam seals and these will dissolve when using enamels or lacquers, so remove and replace them with automotive gasket seals.



My airbrush source is a CO2 tank with a pressure regulator. The air is always dry and the tank makes no noise! The air supply will last you up to two years and refills are inexpensive.



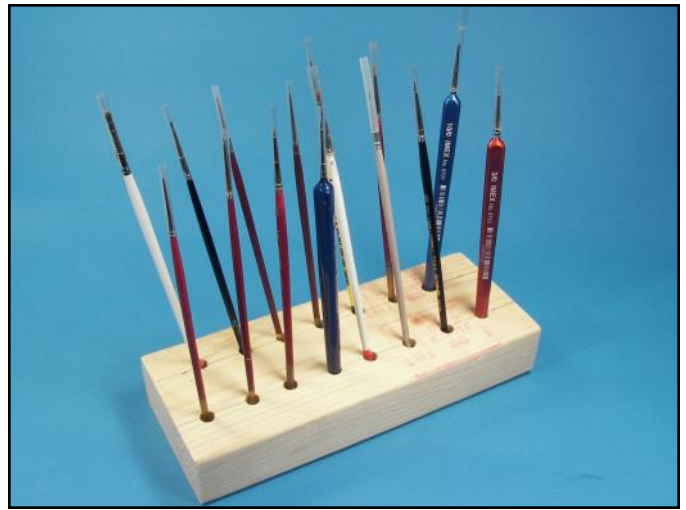
The regulator on my air supply tank has two gauges. The one on the right indicates the tanks air supply and the gauge on the left indicates the pressure of the air being supplied to the airbrush, which is controlled by the black knob.



A spray booth can be as simple as a large box placed on top of a kitchen stove. This set up works great if the stove vent discharges to the air outside. To protect the vent from paint, tape an air conditioner filter to it.



Here is my airbrush work station. It has dual 220-CFM vents and associated lightning. The foam board helps channel the air suction. I usually airbrush at a room temperature of 72 degrees or less and a humidity level of 55% or less.



I have a good supply of quality brushes for detail work. Many of these brushes are more than 25 years old. Always clean brushes after every use. This simple organizer stores the brushes and keeps them in easy reach.



The black backed cutting board by "The Small Shop" was designed for cutting photoetch, but it also provides a nice contrast backing for cutting decals. Two part decal setting solution is a must for decal placement.



You can also use a piece of plexiglas but leave the backing on one side so that it will provide good contrast for your decal cutting and trimming. Always use sharp number 11 X-Acto blades for cutting out decals.

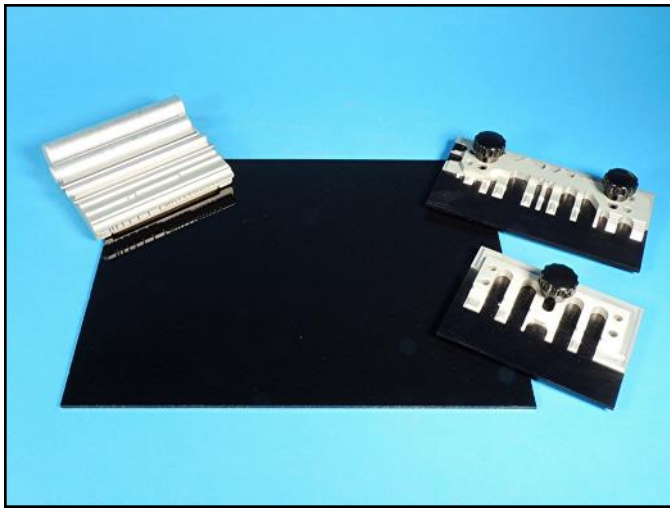


Here are the basic tools for restoring panel lines. Bare Metal Foil makes the best plastic scribe. The best templates for scribing are photoetch, which are very flexible. The needle scribe works great for restoring rivet detail.



For cutting, bending and shaping photoetch, you will need dowels, flat faced needle nose pliers and single-edge razor blades. I found the red handled pliers in a jewelry supply store and they work great.

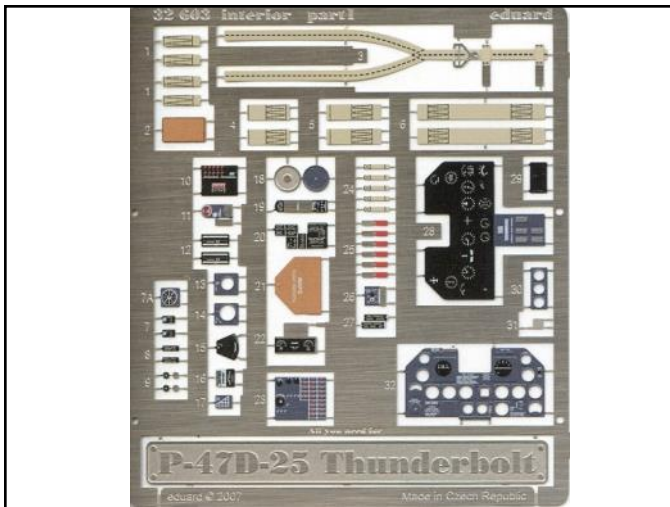




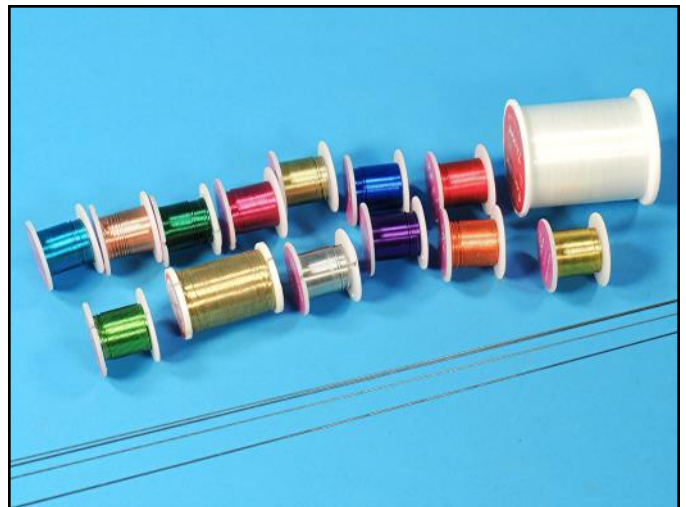
These photoetch benders and shapers are made by "The Small Shop." The various diameter rollers also provide perfect curves for photoetch.



Detail sets are an absolute must for detailing these days. Resin and photoetch detail sets add high levels of realism to cockpits, interiors and exteriors. Aftermarket decals are also available for just about any aircraft.



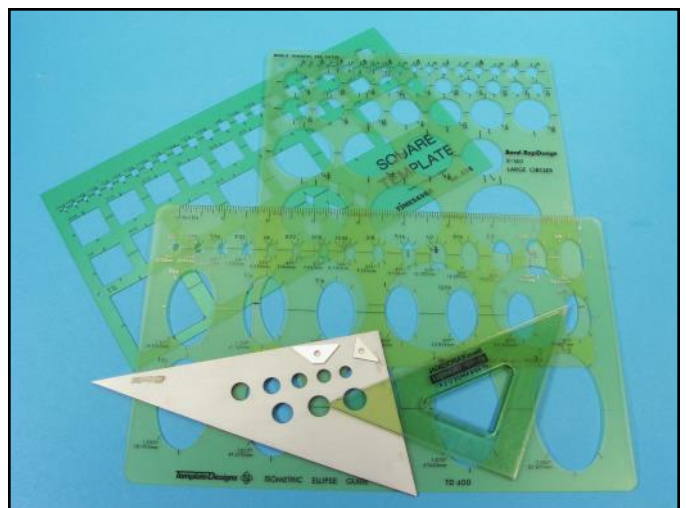
The pre-painted brass photoetch sets sold by Eduard have an incredible level of detail and they also come with a self adhesive backing. Their pre-painted seat belts are easy to use and look very realistic.



For engine wiring and interior plumbing, I use various diameters of brass beading and jewelry wire and it also comes in a variety of colors. Stiff wire is used for 1/32 scale biplane flying wires.



The Northwest Short line chopper and true sander are traditional model railroad scratchbuilding tools and they have a thousand uses in scale modeling. The chopper is especially handy when you need to make multiple parts.



If you are going to do any type of scratchbuilding or just improve kit parts, you will need drafting triangles and templates. I made the small white triangles for checking corners on scratchbuilding projects.



Evergreen and Plastruct sell plastic sheets in various shapes and sizes of plastic strip and round stock. I keep a supply of plastic sheet and shapes for all my scale modeling needs. This stuff has a thousand uses.



I found this organizer, which was used for a store display, at a yard sale and it works great for keeping all my Evergreen and Plastruct plastic organized and easily reachable at my work bench.



I keep a good supply of various diameters of stiff brass wire. It has a lot of uses such as cockpit and landing gear plumbing, engine wiring and landing gear brake lines.



This is my weathering station for using pencil pastel dust. Once the foam board gets dirty I just replace it. I keep most of my pastels organized under the bench. Good lighting is also a must for any weathering.



Indelible markers are great for coloring antenna wires, control cables and flying wires on biplanes. Drafting inking pens can be used to detail small parts and pencils are a must for marking plastic during scratchbuilding.



These are the brushes and sponges that I like to use for using pastels for weathering.





These pastel pencils are the primary colors that I use. I scrape back the wood covering so that I can create different colored dust.



I keep each pastel pencil in a separate container along with the brushes and sponges that are used for that color. Fine grit sandpaper works great for rubbing the pencil and creating very fine pastel dust.



You can find pastel sticks in many assorted colors. Be sure that they are not oil pastels, which will not work the same way as pencil and stick pastels.



Chalk pastels also work great and they can be ground into a fine dust.



For grinding chalk and stick pastels, I use a coffee grinder. Each glass jar has a supply of a different color and you can mix them to create all kinds of effects. The greens are great for weathering brass and bronze.



Colored pencils are also very useful for subtle weathering. The silver color works great on the leading edges of propellers, the edges of access panels and the edges of seats and boxes.





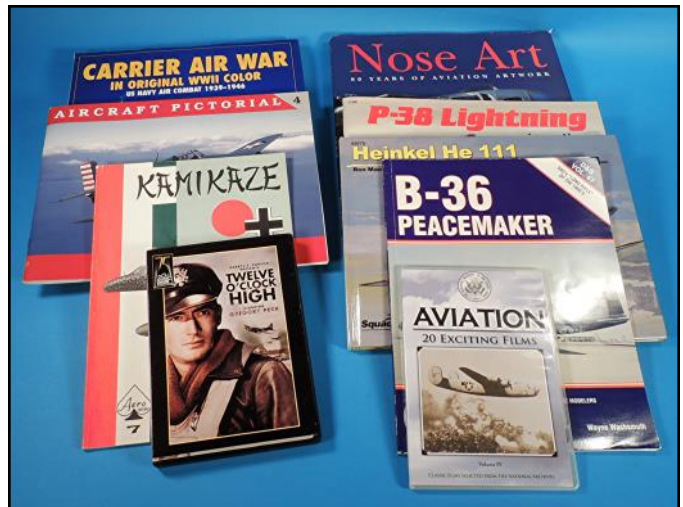
I have about a dozen of these handy part bins and use several for each modeling project to store parts, and to separate cleaned up parts and painted parts.



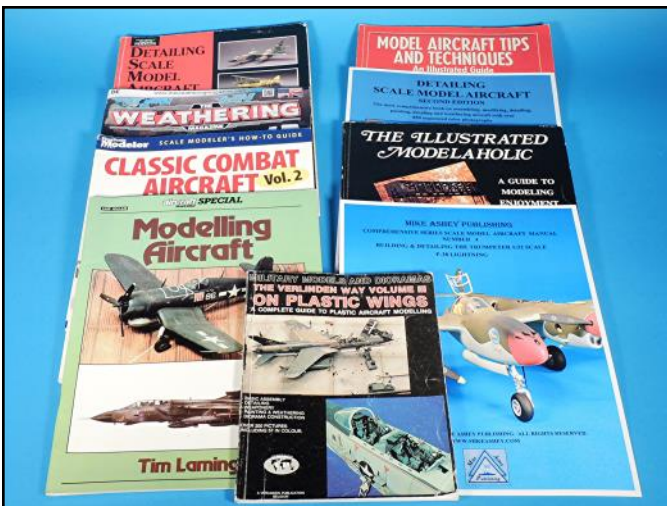
I use large storage containers for organizing all of my aftermarket detail sets and supplies.



These handy drawers are perfect for storing supplies and equipment that are needed for parts cleanup, assembly and scratchbuilding.



Aircraft reference material helps me detail my models, check for the locations of interior and exterior items and verify colors and markings. Old war movies and documentaries have a lot of pictures of aircraft.



Scale modeling books and magazines are also a must for your library. I have learned from every one of them and they are great sources for modeling tips and techniques.



Here is my assembly work bench. Note how all of the storage bins are in easy reach and the surface has good lighting. I use the laptop and monitor to view reference pictures. The other screen is for watching movies.