Rob Pike's "RC Final Touch"
www.rcfinaltouch.com

Instructions for Dash Assembly (General)

First, never use MEK, Denatured Alcohol, Lacquer thinner, or any other thinners or reducers to clean parts. If you must, use Naphtha (Very Flammable) or dishwashing liquid/warm water and a small paintbrush (fine hair). Be very gentle as you wash the parts, as they are a little fragile. Rinse well with cool water, and blow dry. Allow the parts to set on a smooth, clean surface (a piece of glass works excellent). If the parts have become misshapen (new word) during shipping, place them on the piece of glass and slowly warm (I repeat, Warm) them using a heat gun. They should return to the original casting shape in a couple of minutes.

Now, using a Jewelers file, or a 6" Mill Bastard file (single cut), or a flat sanding block with 280 or finer sandpaper, lightly dress the flashing from the rear edges of the dash board(s). The material will 'go away' quickly, so be careful to go slowly.

I like to use a box cutter blade (no handle) to remove the flashing from the back of the gauge bezels. I suggest doing this from the rear. You can also use an X-Acto knife. Position the blade parallel to the inner wall of the bezel, and just move it around in the hole. Try to be cautious as you can cut too much out. After trimming the holes, use a piece of 220-wet/dry sandpaper (shaped like a funnel) to lightly smooth out the bottom edge of the hole.

Now you can paint the dash (airbrush). You can use 'Model Masters' interior black, or flat black, or whatever color you need. You may choose to pre-paint a little silver so you can weather it later (remember, the bezels were brass). What ever you do, use as little paint as possible, so you won't cover up the details with paint. You can use a fine brush to paint the toggle switches with silver paint, and red or green, to paint the warning light bulbs. You can use white ink to simulate wording. You can use 'Rub n' Buff' brass and silver to simulate wear on the dash or bezels. You can use pastel chalks to brush on dust and dirt. Use your imagination.

Note: Some like to mount the faces on a sheet of ply and sandwich a piece of plastic between the faces and the back of the dash. If that's your method, great! However, if you do, the faces will be too deep in the bezels and will not look right. I designed the dashboards using the method that follows. This method is a little more time consuming, but I think it offers better results. One thing to remember is: The cockpit is not judged! Except by everyone who looks at it.

Find a piece of brass tubing that is the same size as the bezel, and place it in your drill press (a three or four inch piece will do). Sharpen the outer edge using

a Mill Bastard file, make it razor sharp! Place a piece of ¼" plywood as a floor (bed) so you can cut out the gauge face backings. I use 1/32" ply for the backings. Cut out as many as you need, and save them. Go to Hobby Lobby and purchase some thin, (like, 1/64 or 1/32" thick) clear, Styrene Sheet. It sells for about $2.50 for an 18"X 24" piece. Using the same pieces of brass tubing, very carefully cut out the glass covers. You'll find it takes some getting used to. The plastic will want to jump all over, or melt…Keep trying, You'll get it (that's why you bought such a big piece of plastic).
If the bezel is too large for your drill press, you can use a piece of plywood and a hammer to punch out the backings and glass covers (if you have a friend that has a lathe…he can sharpen the brass tubing for you).

Next, cut out and glue the gauge faces on the backings using white glue. Make sure they are centered. I like to make the outer diameter bigger by using a black 'Sharpie' to color them. After they are dry, carefully sand the edges off and mount them from the rear into the correct holes in the dash (be sure they are not out of 'Clock' or you will be unhappy (you may also wish to re-color the edges with the 'Sharpie' before you mount them)). Be sure they are flush with the back of the dash by pressing the dash on the glass while pressing the gauge face with the butt end of the X-Acto knife. After ensuring they are flush, glue them in place using 'medium' hot stuff on the backside (just run a small bead around the joint). Wipe any excess off within a few seconds. Allow this to cure, and **do not** use accelerator. Let the dash set for a half an hour or so to make sure there are no fumes left. The fumes will haze the glass covers.

Ensure the face glasses are smooth edged (use some 400 wet/dry sand paper). I have used the X-Acto knife to gently scrape the edge to remove any burrs. When satisfied, clean and mount the glass on top of the face of the gauge. Make sure it fits well, and is 'bottomed' out. I like to use the "Dave Platt" little rivet making bottle with a needle, and R/C 56 or 560 canopy glue. Very carefully, run a tiny (I do mean tiny) bead of glue around the edge of the glass and bezel (if you need to thin the glue, be very sparing with the water, you will not be happy if the glue runs under the glass and gets on the gauge face…it will dry clear, but you will see it). Allow the glue to dry a couple of minutes and move on to the next glass. After you're done, let the dash dry over night. In the morning you should have a dash ready to mount in your aircraft.

For mounting the dash or other components, I like to use 'Medium' cyanoacrylate glue. Just lightly sand the backside of the dash to ensure there are no bumps, and run a small bead about 1/2" from the edge of the dash all the way around (you may wish to draw a reference line on the bulkhead or mounting surface prior to gluing in place).

I think that just about covers it.
Good hunting!
Rob Pike

Instructions for Control Stick

The control stick comes in two parts, the stick and the handle or grip.
First, compare the length of the stick to the length of your application. You may have to trim both ends of the stick. Remember to leave about ¼" of the top end to insert into the handle. Using a # 27 drill bit for the small handle, or a #8 for the large handle, drill a hole, ¼" deep, up into the bottom of the handle. Make sure the hole is perpendicular to the bottom face of the handle, and a little forward from the center. The handle mounts with a 'lean' to the front of the stick. Place the handle on the stick and eyeball it to match the centerline. Now, compare the total length that you need, and trim the bottom to length.
Paint the stick either flat black, or interior green. Paint the handle flat black, and the mic button red.
Notice: I did not put a trigger on the handle. You may do so by making a piece out of 1/32" ply and gluing it on the front.
After the paint is dry, glue the handle on the stick using Medium CA. Put a small drop on the top of the stick, and insert it into the handle. Make sure you have the handle in the correct orientation (you won't get a second chance).
Mount the stick to the floor using the method of your choice.

Instructions for Round Exhaust Pipes

First, inspect all pipes for flaws you just can't live with (there really shouldn't be any). If needed, wash the pipes with dishwashing liquid and a paint brush. Rinse well with cold water. Using you air compressor, blow all the pipes dry (one at a time so you won't lose any). I suggest painting them a rusty brownish color for the base color (airbrush)(they were made from stamped steel and would weather just like an old set of headers for your car would). Next, mounting the pipes on a piece of plywood is a piece of cake. Draw a centerline on the mounting board (use either 1/8 or 5/32" ply), finish the board with glass and resin (both sides). You may wish to paint the board with engine blue or zinc chromate or what ever. Redraw the centerline. Now, place the first pipe on the board and mark it's location. The second pipe should start perpendicular to the end of the first pipe (use a small square or triangle to find the location), and so on, till the end. Mark each location with a pencil, or a small scratch. Divide each location into thirds, drill a 3/32" hole at each third (that's two holes at each mounting location). If you want, you may also drill two holes in the bottom of each exhaust pipe as well (same spacing, 1/8" deep). Now, take the mounting board and place it on a piece

of plastic wrap on your table (make sure it's flat (you may wish to use a piece of glass to do this on)) Use 'Plumbers Goop' to glue the pipes onto the board. Place a small amount on each 1/8" hole of the pipes. Place the pipe on the marked location. Press down firmly. If any glue squeezes out, wipe it off with a piece to toilet paper. Use a fresh piece with each wipe. Make sure the pipe is straight on the line. The weld lines are in the center of the pipe, front and rear, so use those for reference points. Make sure you work quickly as the glue 'skins over' rather fast. Proceed with each pipe using the same method until you're done. Repeat the process for the other bank. I've found the 'Plumbers Goop' will hold things under great amounts of vibration. Now you can add the rest of the exhaust stains to each bank as you like (please use an airbrush).
One thing to remember, the exhaust pipes are mounted on the engine in a straight line. Each pipe is <u>not, I repeat, Not!</u> angled down toward the rear, as many artists think. The angle you think you see, is a result of the photo angle and the aircraft setting on it's wheels. The engine is designed on a 30 deg. Angle. So if you translate that to your plane, the pipes are about 15 deg. lower than horizontal. Study some more photos to see what I am referring too.

Instructions for Throttle Quadrant

I use 1/32 x 3/32 flat brass bar to make the throttle levers. You will notice the slots go deep enough to mount the bars correctly for rotation. Make and shape the bars to accommodate the levers you need. I have used beads to make the round knobs for the mixture, pitch, and supercharger levers. After you find the length, file the bar to a point or thin enough to mount the bead onto. Leave it a little short so you can glue it on using medium CA. I let it dry, then sand the top round so you can't tell its' a bead. Paint the levers and the body of the quadrant flat black before you glue anything together. Paint the beads the color you need and use white ink and a calligraphy pen with a fine point to mark the beads as needed: M-ixture, S-upercharger, P-itch. I use a wooden dowel to make the handle for the throttle. Coat it with thin CA and sand it smooth. Then paint it, and mount it on the lever. After all pieces are dry, you can assemble the levers in the positions you desire. Gently insert the levers in the slots and glue them using thin CA. If you have the old 'Hot Stuff' with the thin tubing, you can insert it into the slot and apply it to the bottom. After you're all done assembling the quadrant, you can weather it to your taste. Use pastel chalks and a paint brush, rub n' buff or what ever you wish. One more thing, I didn't mold the tension knob onto the quadrant because it made the mold too complex. So you'll have to make and glue one on for yourself. Most of the knobs are the same, but some are different. Make the one you need out of a wooden dowel on your drill press (or lathe, if you have one) seal it with thin CA, and mount it on the quadrant.

Instructions for Nav Lights

The Navigation Lights are a little frosty due to the molding process and the mold. If you choose, you can buff the lights with white 'Scotch-Brite' and paint them with high-gloss clear before mounting.
Note: The mounting flange should normally be painted white, as it was a plastic or rubber gasket. I have seen some examples that were painted the color of the aircraft. In any case, the choice is yours. I have provided Red, Blue (scale), Green, White, Amber, and Clear. This should allow your choice of combinations. Of course, Red is for the port wing tip. Blue (or Green) is for the starboard wing tip. Amber or Clear can be used for the dorsal or belly location, and White or Clear is for the fin (Refer to your documentation).
Find and mark the location for the lights. I like to use (once again) Medium CA. Place a very small amount either on the light or on the location, and very gently place the light into position. Allow the CA to flow under the light gently so it will fill the void. Be ready to adjust the location using a pin or a piece of wire.
You may wish to experiment with painting the bottom of the light white or mounting it on the color of the aircraft by using a piece of white paper. Cut out a piece the shape of the light and place it on the aircraft under the light. You can make your own determination of whether it's too light, or too dark, or acceptable.

Instructions for Gun Sight

Sight body:
When you examine the sight, you will find some centerline flashing. This can be removed using a hobby knife blade (scraping not cutting) or a Mill Bastard file, or sanding block with 400 W/dry paper. Whichever method you use, please be gentle! After cleaning up the site, buff it using 'Scotch-Brite' and water. It should now be ready for paint. Paint it with interior or flat black. After painting, use a piece of sharpened brass tubing to cut out a piece of plumber's aluminum tape that will fit inside the reflector light. Press this into position. Cut a piece of clear plastic to fit the width of the back bracket and approximately 7/8" long. Sand the edges with wet 600 and slightly round the top corners. Mount the glass on the sight using RC56 or 560 canopy glue. You may have to baby sit this piece for a while as the glue begins to set. It will dry clear and look great.

Mounting bracket:
The mounting bracket may have some flashing around back edge. You may use the file or sanding block to remove this. Buff using the same 'Scotch Brite' wet method. Paint the mounting bracket Interior Green or Flat Black (I have seen both). The larger gun sight has divots and pimples to aid in gluing the pieces together in the correct position. The smaller one does not! So, study the position to ensure you put it together right. I use a piece of balsa approximately 1/2" wide

to space the sight and bracket parallel to each other. I place it between the back of the sight and the front of the bracket, then my fingers, to clamp it in the correct position. Then I place a small amount of thin CA where they touch at the back of the sight and let the CA seep toward the front. Then I remove the balsa block and the job is completed.
You may wish to make a reference point on the dash, then, using either thin or med CA, glue it on.

Instructions for Pitot tube

The Pitot tube is designed to fit inside a length of brass tubing glued into the leading edge of the wing. You may find some flashing on the sides of the tube. Using a knife blade, gently scrape the edge of the flashing. Don't get too aggressive with your scraping. You may need to fill the edge with some filler of your choice, and gently 'Shoe-Shine' the rod portion using 400/600-wet/dry sandpaper. Use a soft flexible block to sand the head section. After sanding is complete, you can paint the Pitot tube with flat white or white on the bottom and a darker color on the top (I have seen this both ways). I suggest using the Pitot tube for static judging only. It will probably break off during flight due to vibration.

Instructions for Trim Knobs

There are two trim knobs. One is for the rudder and the other is for the elevator. Some aircraft use the same one (type) for the ailerons. The one that has rounded edges on the top is for the rudder. The other is for the elevator, it has a flat top and the crank is glued to that face. Make sure you glue it centered on the top so it is flush all the way around. After gluing, you may paint the knobs interior or flat black. Make 'Hash' marks on the skirts using white ink and a calligraphy pen. You may also choose to mark 'Rudder' and 'Elevator' on them as well (that is if you have a steady hand and Superman vision). Make the housing or mounting box and glue them onto it.

Instructions for Radio Box

The radio box is pretty small and may be tedious to detail. Paint it flat black, and make 'Hash' marks on the dials using the white ink and calligraphy pen. You may choose to put some brass or gold 'Rub 'n Buff' on the knobs to weather them and some dusty pastel chalks to dirty it up a little. Try to find a picture of a radio box so you can duplicate the markings.

Mount the box on the starboard side of the cockpit using some medium CA. If you have some very thin wire, you can wrap a length around a piece of music wire to simulate the coiled microphone wire.

Instructions for fiberglass Seat

You will find the seat has been trimmed 'long' and you need to sand the edges. Use a light source to see the correct edge to sand to. I like to use 220 wet/dry sand paper to wet sand the seat edges. If you dry sand the edges, the dust will hide the line and you have to wipe off the dust very often. After you have sanded the edge to your liking, you can sand the surfaces with 600 wet/dry. Don't sand too much or the cloth will show through. If you need to cut out slots or holes you can do that now. Also if you wish, you may cut out a piece of ply to simulate the angled plate at the bottom/rear of the seat (inside). Make a mounting base out of ¼" balsa, about 2" square (on edge (make it a little taller than you think you need)). This will be glued to the bottom of the seat. You can adjust the height as needed by fitting it in the cockpit, on the floor. Place a piece of ½" foam under your pilot (to simulate the parachute pack) and adjust the height to your liking by sanding the bottom of the mounting base. When satisfied, put some thin cyanoacrylate on the outer surfaces, let it dry, and sand smooth. Now you can mount the base to the seat using either epoxy or medium cyanoacrylate (Make little X's for the glue to hold onto). If you wish to make height adjusting tubes, anchors for seatbelts, or other items, you can do those now. If you wish, you can also use cockpit combing to line the edge of the seat. I have seen photos of black as, well as interior green (use the smallest/thinnest stuff you can find). You can glue the combing on before, or after you paint the seat.

Now you can paint the seat. I use Model Masters Interior Green, but you can use Zinc Chromate if you wish. When It's time to mount the seat, use either epoxy or medium cyanoacrylate (make little X's for the glue to hold onto). Do not depend on the seat to hold your Pilot in the aircraft. Make the seatbelt attachments go to the bulkhead behind the seat and to the floor. Some of the action figures we use for pilots are heavy enough to break the seat loose in short order. (I don't think you get realism in flight scores for bail-out unless the plane crashes after).

Fuel caps (P-51 style)

You may buff the caps using white Scotch-Brite. After buffing, wash them with mild detergent and water. Blow them off using your compressor air.
You may now wish to paint them. I use Model Masters Insignia red (I have seen them painted red and light grey). After the paint has dried, lightly spray (airbrush) some brown or tan over the indentations. Lightly buff the color off the flat area of the cap so that they appear weathered. Spray some clear over the cap to set the weathering.
The impossible method of mounting:
Glue the cap onto a piece of 3/32” balsa larger than the fuel cap using medium CA. Cut a hole in the wing or fuselage the size of the cap, seal the edges with CA or whatever you wish, and mount from the rear. This will leave a gap around the cap creating realisim.
The realistic method:
I would suggest cutting a hole in the wing the size of the fuel cap. Seal the edges as above. Cut and insert (glue) two pieces of balsa to span the hole from the inside. After the glue has dried, trial fit the cap in position. If the cap is too thick (tall), sand the back side of the cap using a flat file, or flat sanding block. When satisfied with the fit, glue the cap in position using medium CA.