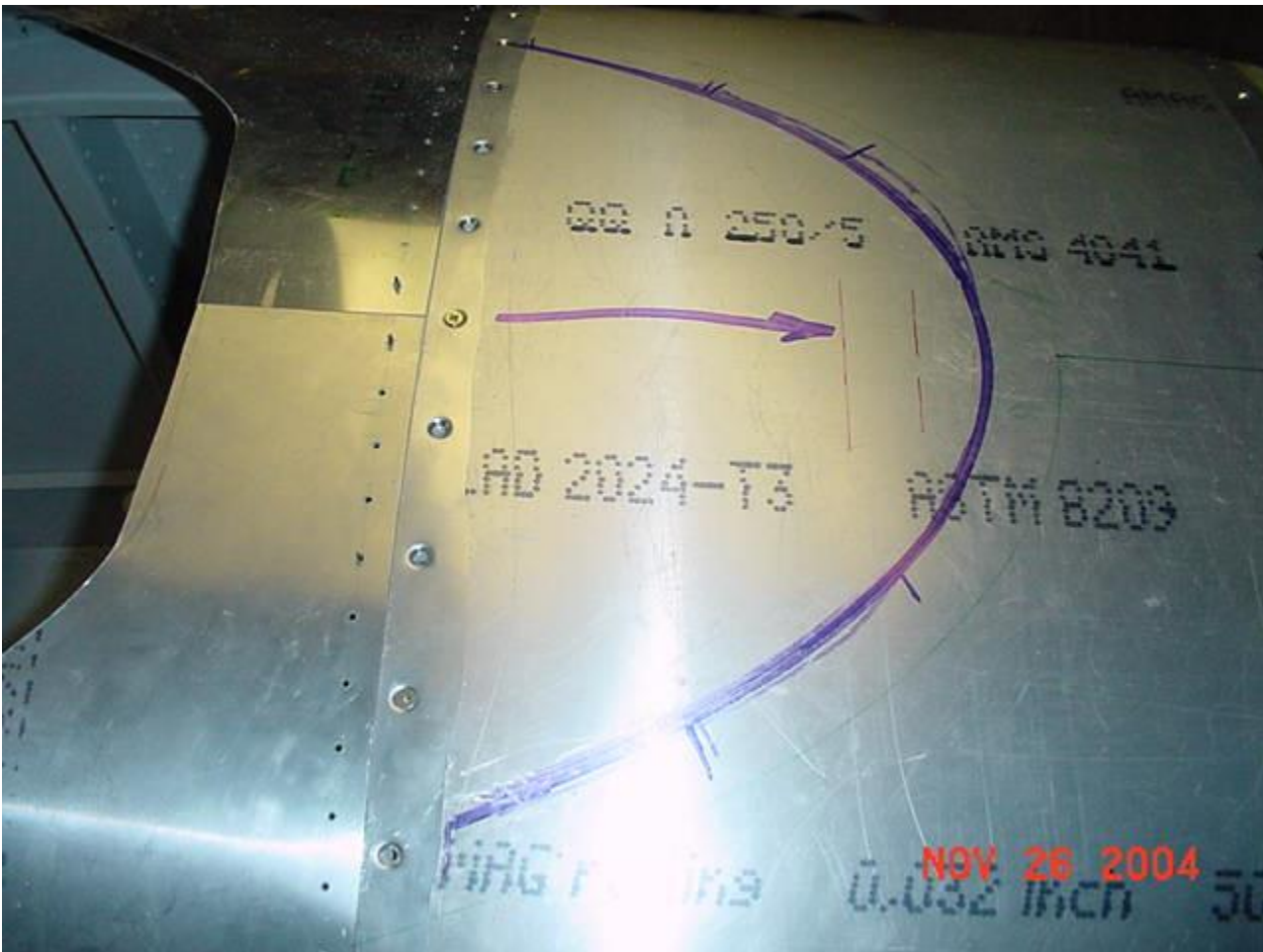


## The SSW Boot Cowl Mod

OK, I'm back to working at the front of the ship! I have the slider canopy under control, but certainly not finished. It's nearly fully constructed, but still have some drilling, tweaking, deburring, dimpling, countersinking, priming, painting and other fun stuff before I can really call that thing "finished". I don't think I can ever call anything finished until after the shake down flight, and MAN, that seems like a LONG ways off!

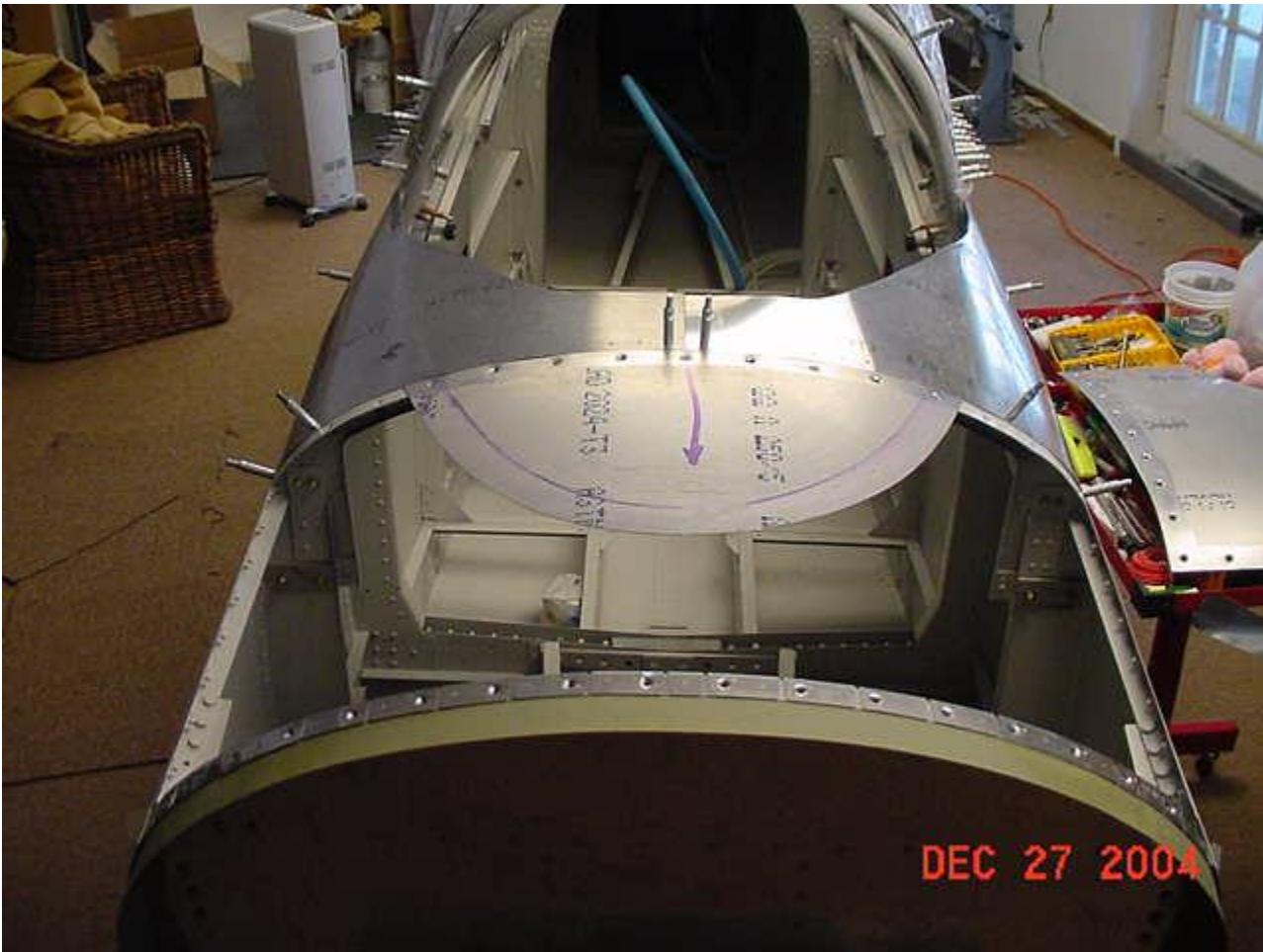
I decided to go ahead and cut the boot cowl today. I started to use hand shears and quit before I even made a cut. I got out my dremel and went around the arc I drew out around the SSW a long time ago. The arc was 1 1/4 inch from the glass as called for in the plans. Unfortunately, I think that figure makes more sense for the standard windshield than the Speed Slope Windshield. I don't see any reason why you couldn't cut the arc right in front of the glass. You have to rivet a doubler on there anyway that becomes the flange to attach the boot cowl halves. The "arc" screws and/or rivets could be hidden under the fiberglass fairing very easily, and you could make it much smaller. This would improve your access under the panel a bit, although there is still plenty of access through the boot cowl.



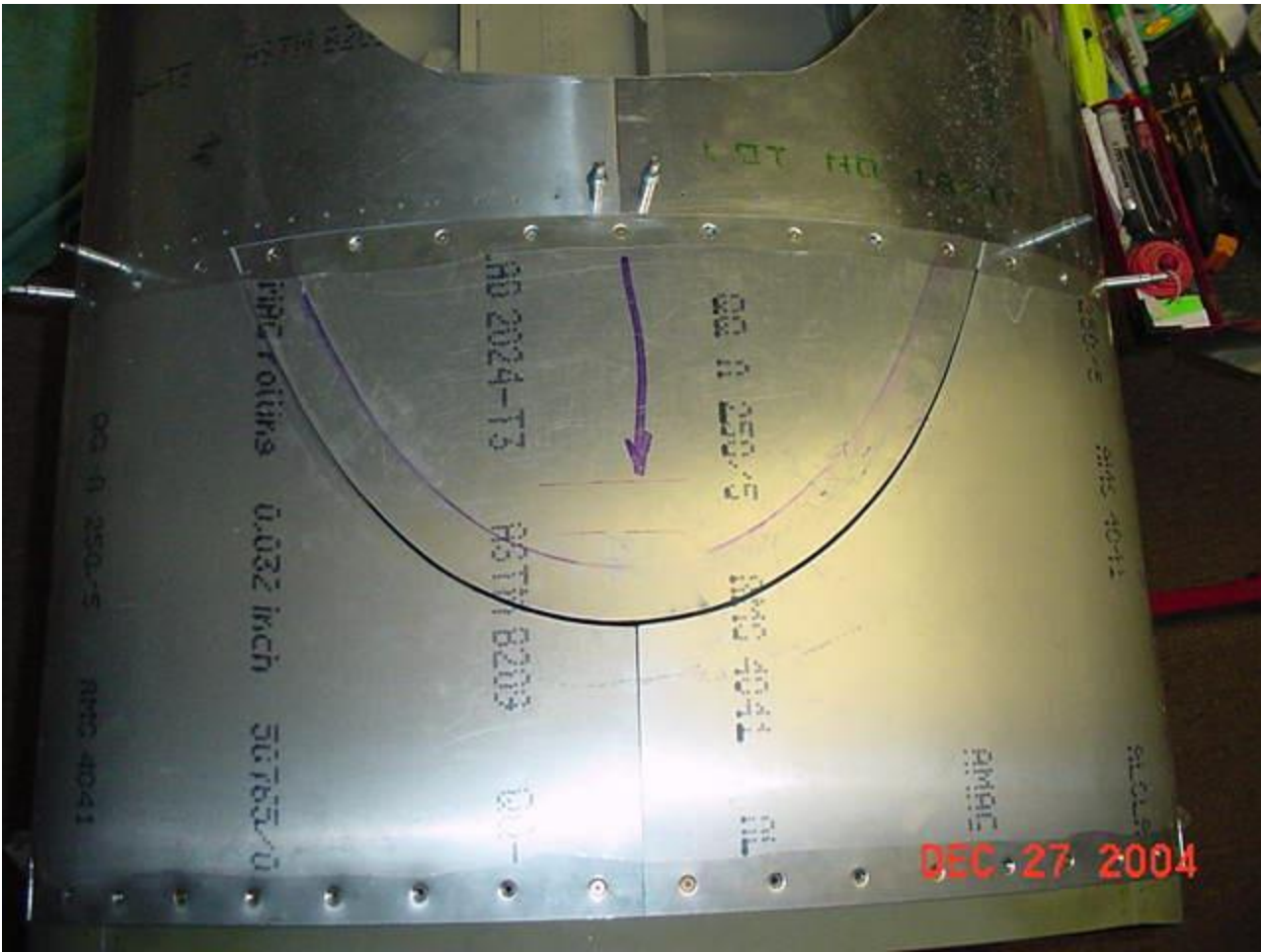
I think I could have made the arc flange much narrower in front of the SSW, and thereby also made the fiberglass fairing narrower, too. I could still overlap the fairing and hide the cut, but leave the boot cowl halves screws exposed. I think about 3/8 inch would be plenty of fairing overlap to hide the cut and still allow removal of the boot cowl halves. In the pic above note the purple line is the edge of the SSW, and the barely visible green line is the cut mark. Wish I would have redrawn this to about 3/4 inch or less, dang it!

Right now the plan is to cover the arc cut edge of the boot cowl under the fiberglass windshield fairing. That way I can perhaps get a better watertight seal as well as hide my lousy work. Well, OK, it won't make much difference on how watertight it is. But hiding the edge of the cut just under the fiberglass probably won't hurt anything, either. It really shouldn't be a problem getting the two boot cowl halves out from under there. We'll

see how it goes.



For now, I have cut the arc and separated the boot cowl into 3 pieces: the arc and the L and R halves. After cutting them with the dremel, I immediately took all the parts over to the scotchbrite wheel on my grinder and smoothed all the edges. After I screwed that parts all back down, I was amazed that they went back together so well. Virtually all the gap that was visible between the pieces was the width of the dremel wheel. SWEET! Still perhaps too wide for most people's tastes.



Just for good measure, I took a piece of scrap .032 and traced the boot cowl arc with a very thin marker. I should be able to cut proud of that line and then fine finish the edge to get a very tight closure against the boot cowl halves. That's IF I decide to replace the original boot cowl "arc". Seems like a lot of extra work just to make a thinner gap at the front.

Oh, by the way, I split the halves of the boot cowl at the top center on my little 3in1 break. I didn't use a dremel or the scotchbrite wheel on that part of the project.

### The Boot Cowl Doubler

I have a 2 foot piece of .040 scrap that I used for the doubler under the arc. I decided to extend the doubler to go under the top center area where the two boot cowl halves meet. I made this area about 5 inches wide. Before I cut the cowl, I formed an angle that was over 5 wide and the entire fore/aft width of the boot cowl. I didn't like the prospect of attaching, cutting, etc with this piece, so I decided to throw it in the scrap pile. So the doubler that I cut will act as a brace for the two boot cowl halves. I left the forward end of the doubler quite long, just in case I want to bend it, flute it and then attach it to the firewall for extra support. BTW, I used .040 just because I had a piece big enough laying around. I'm sure .032 would have been adequate. I feel that I will have extra confidence on how sturdy my boot cowl will be when I get it finished with the thick stuff, though.



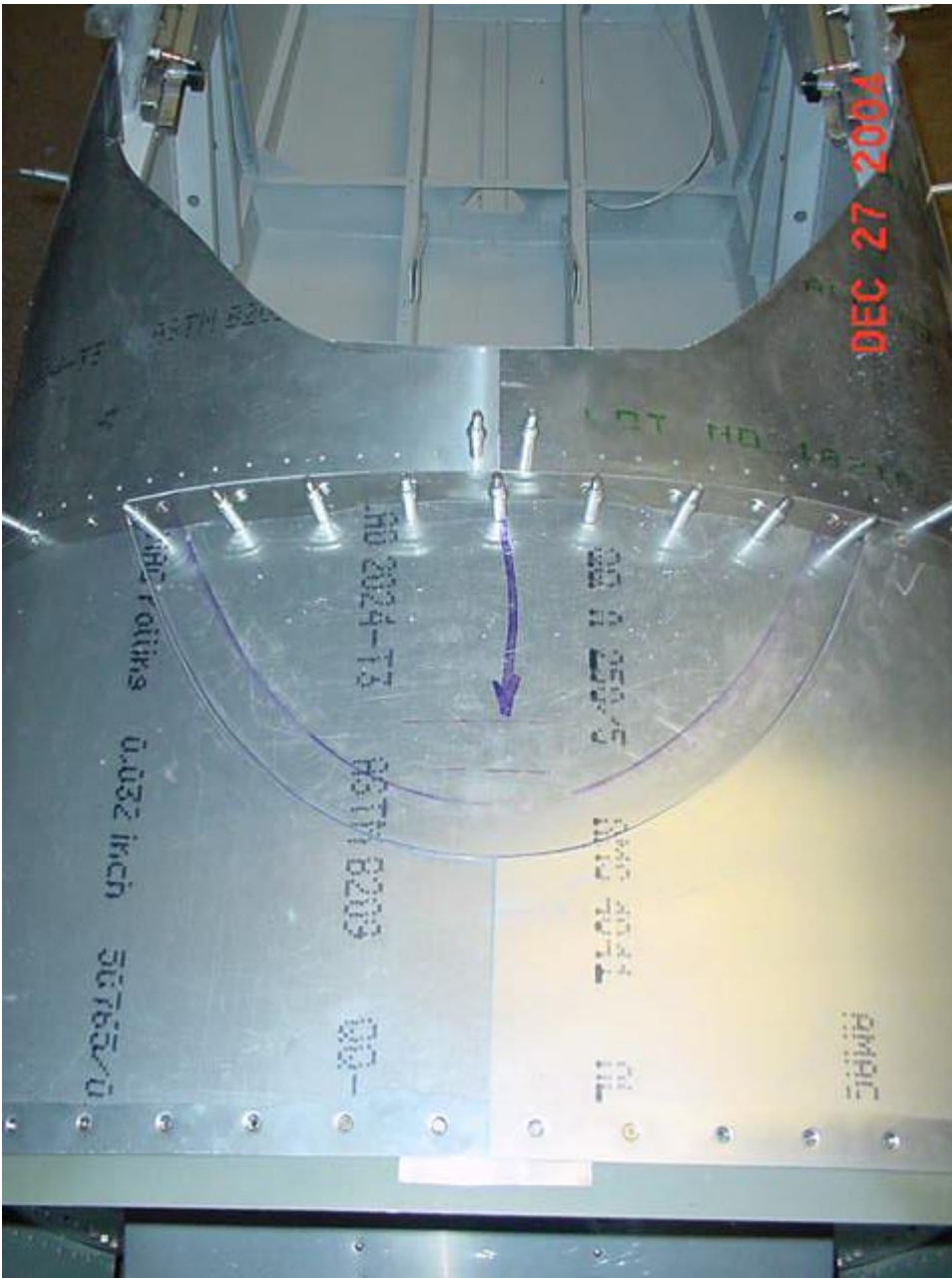
I wanted to make sure the doubler didn't interfere with the flange that the arc screwed to, so I got a marker underneath the arc and traced the flange at the aft end. I took the arc and the doubler to my bench and put them face up, flush at the aft end and centered. I used the screw holes in the arc as a template to orient the first round of rivet holes in the doubler. I went ahead and drilled the "screw holes" with a #40 bit.



I flipped the parts over face down and line the doubler up just shy of the line I traced under the boot cowl arc and clamped the pieces down. I then back-drilled the arc. Now these pieces are normally bowed and they have to sit together. So I biased my drilling to compensate for the slight bow in the natural shape of the pieces.

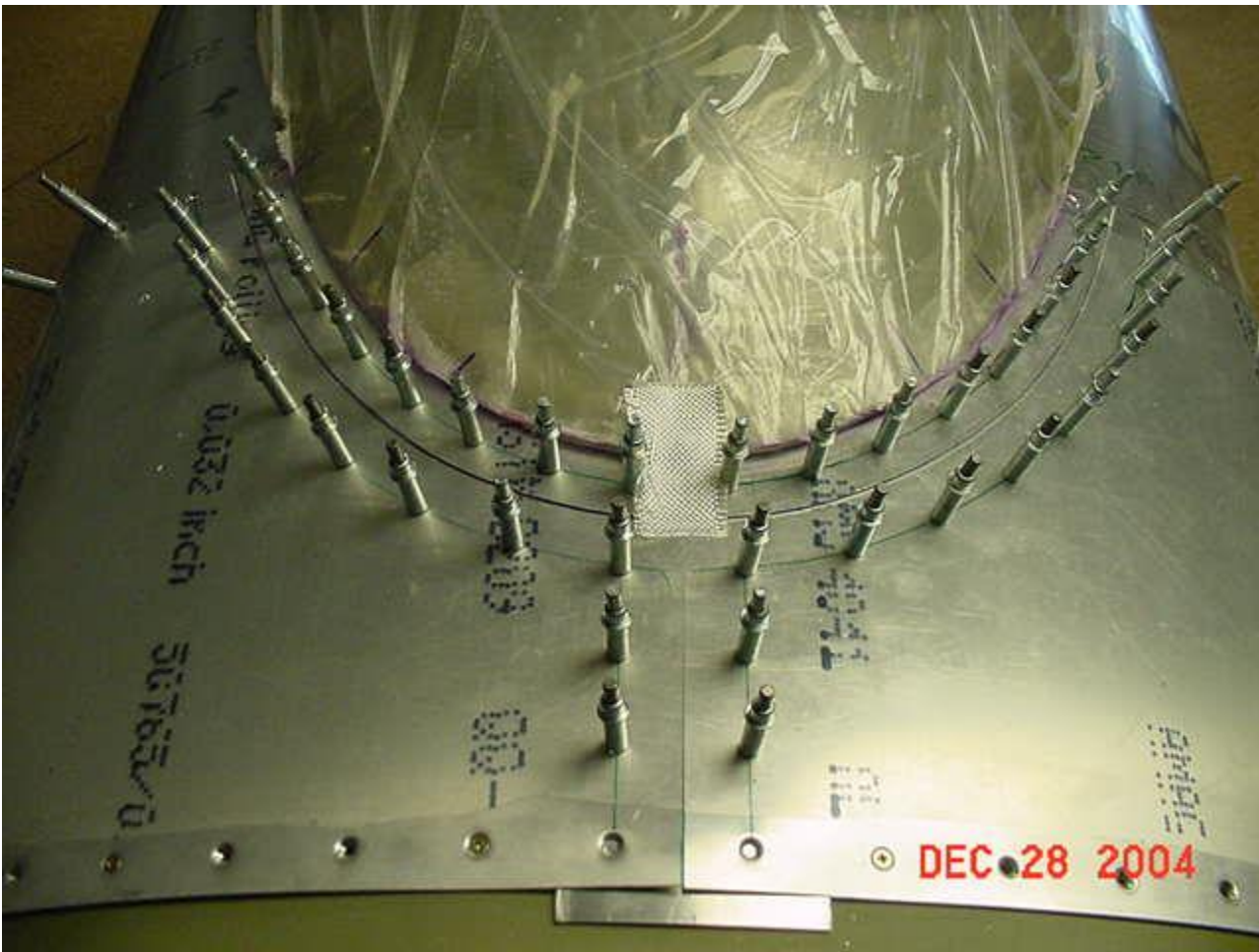


Over at the ship, I screwed down the arc, and clekoed the doubler underneath (although the "tongue" just lapped over the firewall flange). I went ahead and partially screwed down the boot cowl halves. AMAZING! IT WORKS! The parts all pull right back down and actually look pretty good! The gap at the arc cut looks about the same. So that's good to go!



All I have to do before moving on is decide whether or not to keep the original arc. CON: lots of extra work, may end up just as crappy as the original. PRO: Can eliminate the screws from what will be the glare shield, and of course make a prettier junction between the boot cowl parts. Decisions, decisions! I think I'm going to cover my glare shield with black fabric or carpet, so the screws don't make that much difference. Sound like I'm trying to talk myself out of making another boot cowl arc, doesn't it?

I was thinking about whether or not I wanted to stretch the windshield fairing over the boot cowl cuts. So I went to the basement to have a look see. I put the SSW back on and clekoed it down. Hmm... I cut off some 3 inch fiberglass tape and laid it in place. Hmm... Not bad... Lets see how the holes work out. I was shooting for a match with the 2 inch spacing I had with the original boot cowl screws. It worked out perfectly with the arc, but on the tongue it ended up that the 4 holes were 44mm apart. Go figger. Hmm...



More thoughts on the move to change the boot cowl arc under the SSW: There are K1100 nutplates spaced two inches apart. If I drill them out, the area where the nutplates used to be is worthless for riveting. That means I might be able to get two rivets in between where the screw holes used to be. Is that going to be as strong as the screws? I don't think so. And this is a structural assembly.

Now I wish I would have cut the boot cowl arc either at the glass or within 1/2 of an inch of the glass. With the arc cut that close I could have perhaps used 2 inch fiberglass tape for the fairing instead of 3 inch tape to hold down the glass AND cover the arc cut. As it is now, the arc in front of the glass has a lot of excess dead space Ah, if I only knew then what I know now! Dang it!





My RV6 builder buddy Bruce Dallman helped make me a skirt to cover the center track at the rear of my slider. We used .025 and some hard maple wedges cut to shape (taper) on a band saw. A couple bodacious clamps helped hold the wood and metal in place while he hammered the aluminum to shape. We made the 1 inch wide bends for the track on a break at ISU, but the taper bends had to be done with the tapered wood. Wish I would have taken some pics of that process. It was actually very clever! Dr. Dallman put a tapered piece of hard maple, cut to 1 inch wide and band sawed to the appropriate taper, inside the "trough" bent into the piece on the break. Then he clamped a similar shaped piece of maple outside the piece and folded the "wing" of the "trough" down to a taper. Hard to describe, but easy to understand if you saw it. Then he took a tiny piece of scrap aluminum and pressed a step at the forward tongue in the track skirt using a break. It turned out very nicely! Thanks Bruce! I'll trim the width of the flanges on the piece after I drill, debur and dimple.

Turns out I did not use the above part. I thought I'd leave it on the website, though, in case anyone wanted to make one out of aluminum. It's pretty easy to visualize what you need to do. I ended up making one out of fiberglass.

I had fashioned a huge piece of .032 to double between the rear skirts and actually cover over the track skirt. It was massive, and was going to have at least a double row of rivets on each side. I've reread the plans and looked at the pics and came to the conclusion that I'm making them too big. I'll cut them down to just a single row of rivets on either side and not make them any larger than necessary based on edge distances for strength. Keep in mind that all of the slider and WS doublers are set back away from the finished edges. This hides them a bit, and in the case of the slider skirts, will hopefully keep them from contacting the ship surface.

## **Windshield Skins 2**

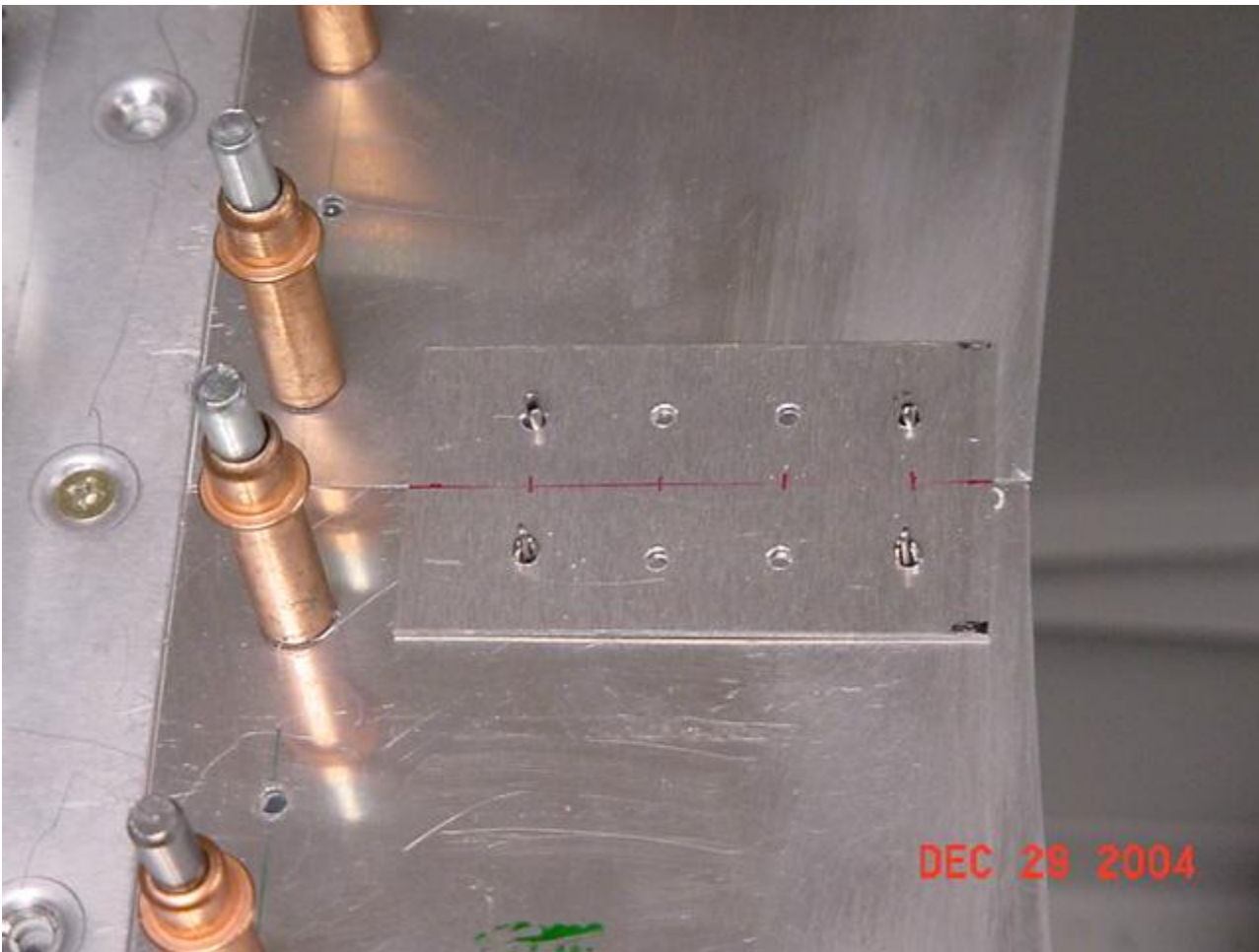
Lately I find it hard to get motivated to build. But I duck my head and go at it anyway, taking several breaks in between jobs.. I removed the SSW, the WB, and the slider. I decided it's time to finalize the windshield skins.

I'm content that I can continue with the boot cowl, so there's no sense waiting any longer on the SSW. I putzed around trying to improve the way the two sides of the windshield skins laid down. After a couple hours of work, they were more flush than before, but the gap between the WS and the fuse sides was every bit of .040. Too big in my opinion, but that's what the plans call for. So I'm going with the parts as is... again.

Some of the holes in the WS were not, errr...., kosher. I decided I needed to rework them, so to speak. What I did was have some holes offset after I reshaped the WS pieces that I had drilled #40 a long time ago. Well, to fix them up, I just drilled them up to #30. I think you are supposed to use #3 rivets, but I went ahead and moved up to #4. That allowed me to get better hole alignment. My edge distances are still within limits, so other than the fact that the heads are going to look big, there isn't really a problem stepping up in size.



I decided to go ahead and sand down the WS before I dimple them. Perhaps I'll get better primer and paint adhesion. I used a cheap sanding sponge that I bought at Walmart. I used the course side quite a bit. I think that's about 150 grit, but I'm not sure. Anyway, I scoured both sides after I deburred them. Then I dimpled them with my Main Squeeze. Man, I love that thing! Now the Windshield Skins are ready to prime and paint. I'll probably end up painting them before and after I rivet them down.



I also constructed a little doubler to go in between the WS which will be the center area of the glare shield. I found a piece of scrap .025 and cut it about 1.5 by 2.5 inches and drilled two rows of four holes with a #40 bit for #3 rivets. I deburred, sanded, and dimpled the part (and the WS), and it's ready to prime, paint and install. I also worked quite a while trying to clean up the glare shield edges of the WS. The edges that will be in front of my face are now quite smooth and symmetrical.

The WS were d&d'd and then primed with self etching primer from a rattle bomb. I set the pieces aside for painting. I'm going to shoot flat black on the top and bottom of the glare shield before I rivet these parts down. I'll probably have to touch them up later, but I've already found other places that need touching up already, too. Guess that's part of it.

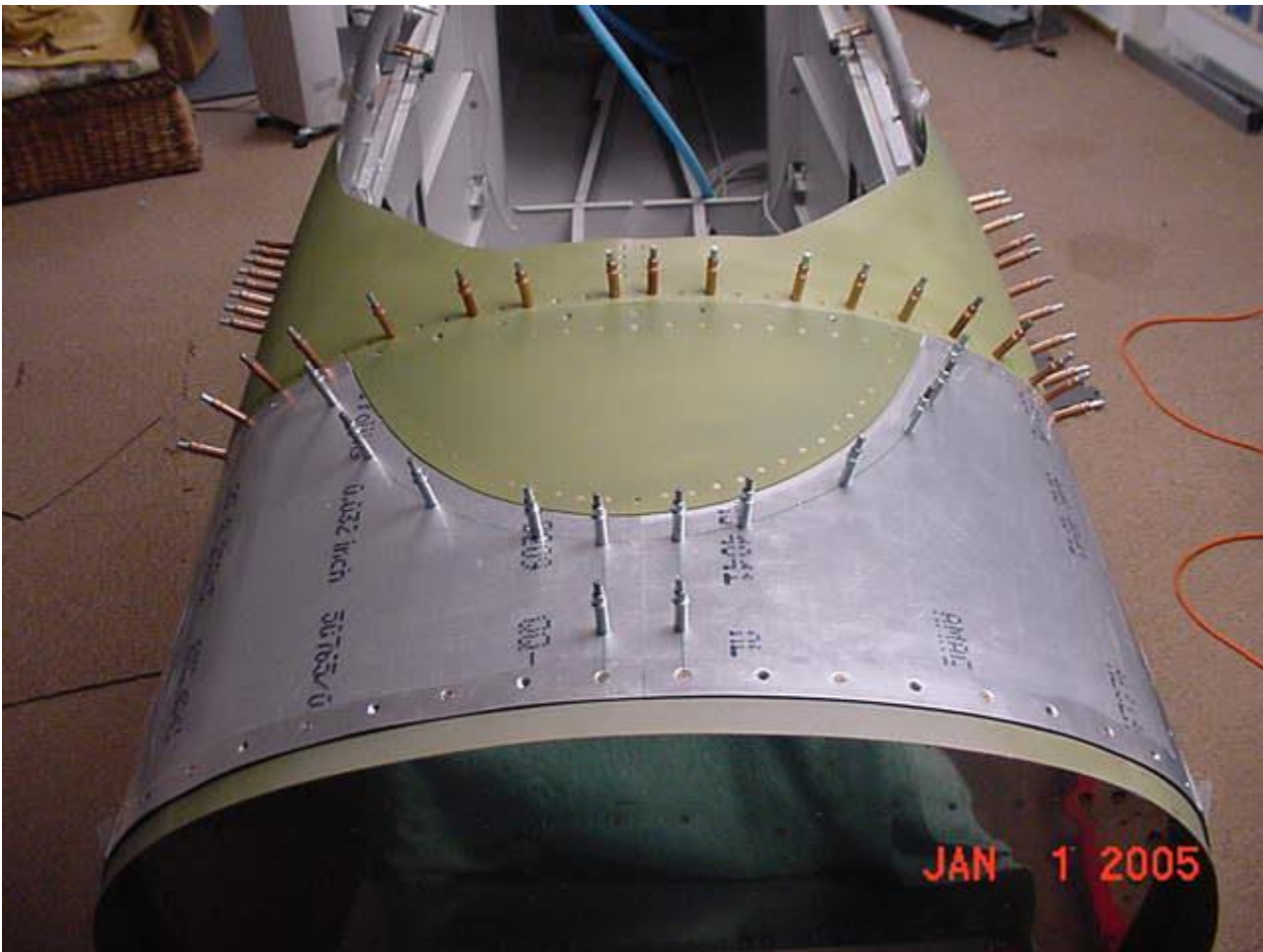
The boot cowl doubler rivet holes were already drilled parallel to the arc screw holes. That puts the rivets about 2 inches apart. The plans call for 1 inch. I thought going up to #4 rivets might solve the problem without going to the extra holes. Then I thought better of it, and drilled a #30 hole in between each of the existing holes. I sanded, deburred and dimpled these parts, then shot them with self etching primer. They are ready to rivet together, but I think I'll get the K1100 ( 20 extra nutplates not provided with the SSW "kit") under the doubler and get the boot halves dimpled for #8 screws before I assemble all this windshield stuff. I'm going to prime and paint the halves, too. Pretty soon I'm going to need to shoot a big batch of PPG gray, so I'm trying to get lots of little parts ready to shoot all at once.

My boot cowl has never sat completely flush. I couldn't figure out why. From the first day I removed the factory pop rivets, it never sat back down properly. Then I tried to fit it and get it to sit just so, and it fit worse. I finally got the bottom edges to lay down. I reworked all that. I had to "touch" a few of the dimples over the K1100s in a few places with a machine countersink bur. I also bent the flanges on the ship somewhat. I also took my thumb and fingers and tried to put some roll on the halves outside the dimples. Man, my hands hurt. FINALLY, the parts sit on the ship pretty nicely. Good. I want to reassemble all these parts completely before I final rivet

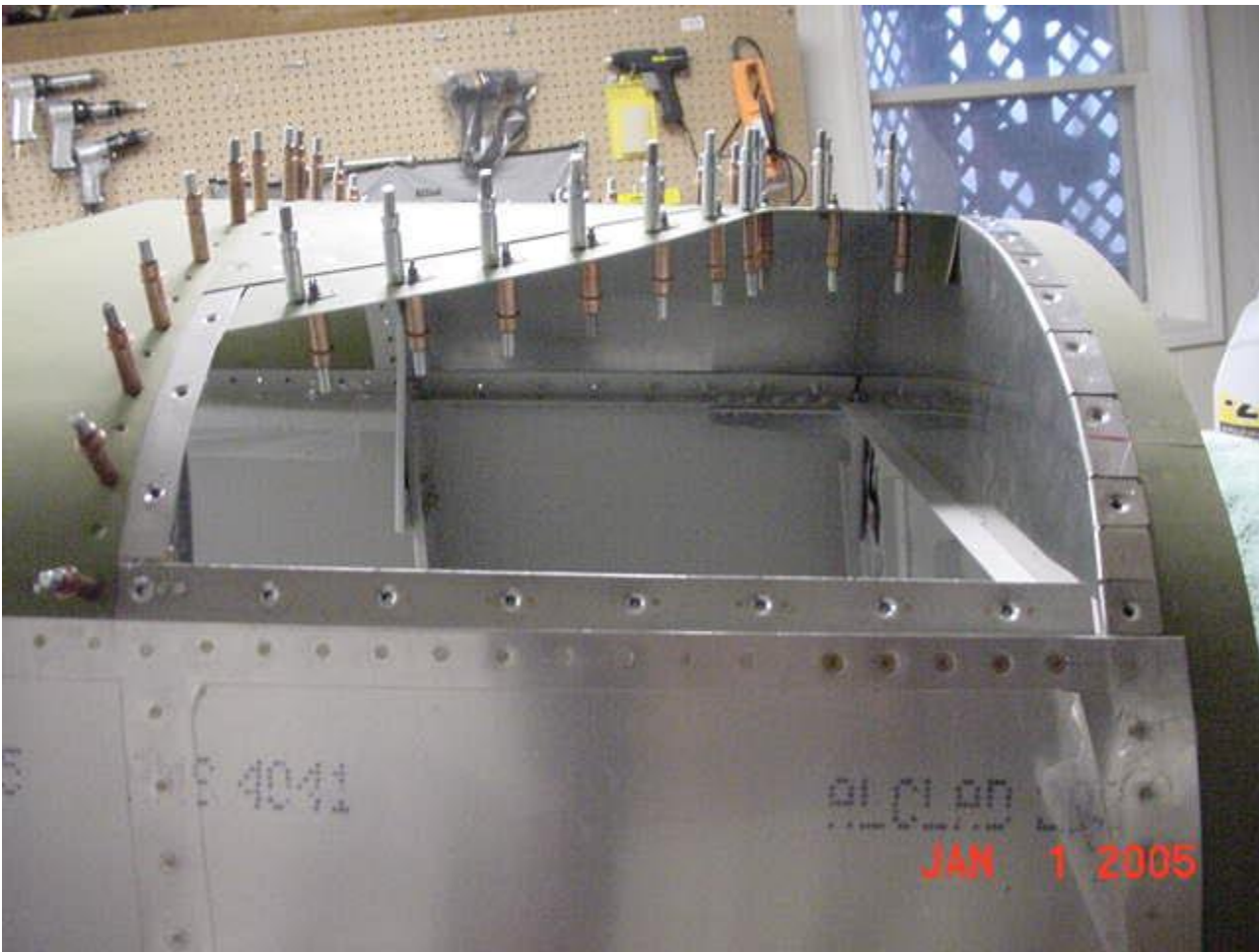
everything. I'm probably going to have to trim the boot cowl half edges for some clearance to make everything match even better.

The windshield skins are in their final configuration, primed and ready to paint. I just thought I'd mention that I can't get my windshield bow in if the windshield skins are in place. At the same time, I can't get the WS riveted if the WB is in place. Therefore, the plan is to rivet the lower row of the WS, then final install the WB, then rivet the rest of the WS. That way, I can "unfold" the windshield skins and get the bow in place, since the two sides split in the middle at the top. Actually, I probably could get the WB in place after the skins are riveted completely down, but at best it would probably mangle the paint.

I screwed down the boot cowl halves and the boot cowl arc. My doubler was clekoed in place. I went ahead and drilled the halves up to #30 and clekoed every hole. I had already primed the two parts, so I was ready to get some #4-4 rivets and put the pieces together permanently. I unscrewed everything and then unclekoed every other hole in the doubler and started squeezing the rivets in the center at the back. After riveting all the way around, I went back and riveted all the remaining holes.



Time to insert the K1100 nutplates in the doubler. First, I removed the halves (after screwing them down for the 50th time to verify the fit...) and clekoed the K1100's to the doubler. Then I drilled the retainer holes one side at a time. I clekoed each hole (well, on one side anyway) as I went. After I drilled every pair of nutplates retainer holes, I put everything back together and drilled the screw holes through the halves and doubler using a 5/32 cobalt bit for the #8 screws. Then I disassembled, deburred, sanded, primed and dimpled the boot cowl halves.

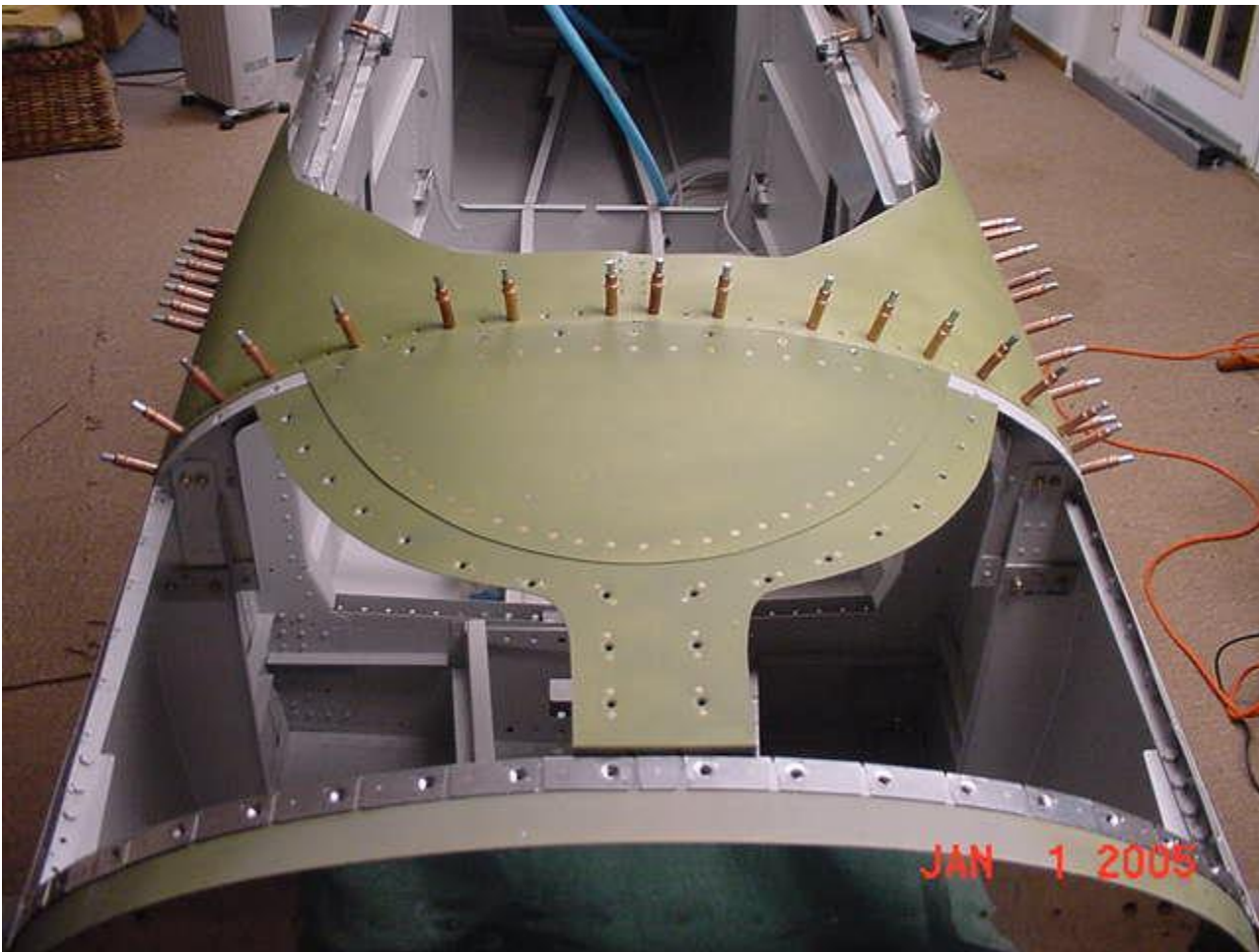


I has some fun riveting the nutplates on the bottom of the boot arc. What I found was I had either dimpled some of the holes off center (unlikely), or the nutplate had slipped on the cleko (more likely) and the retainer holes were slightly off. Anyway, those nutplate retainer holes have to be machine countersunk, and I ended up having to "bias" some of the holes. I want to be able to look right in the screw hole and see those threads in the nutplate well centered. Gotta be that way to get the parts to screw back together properly.



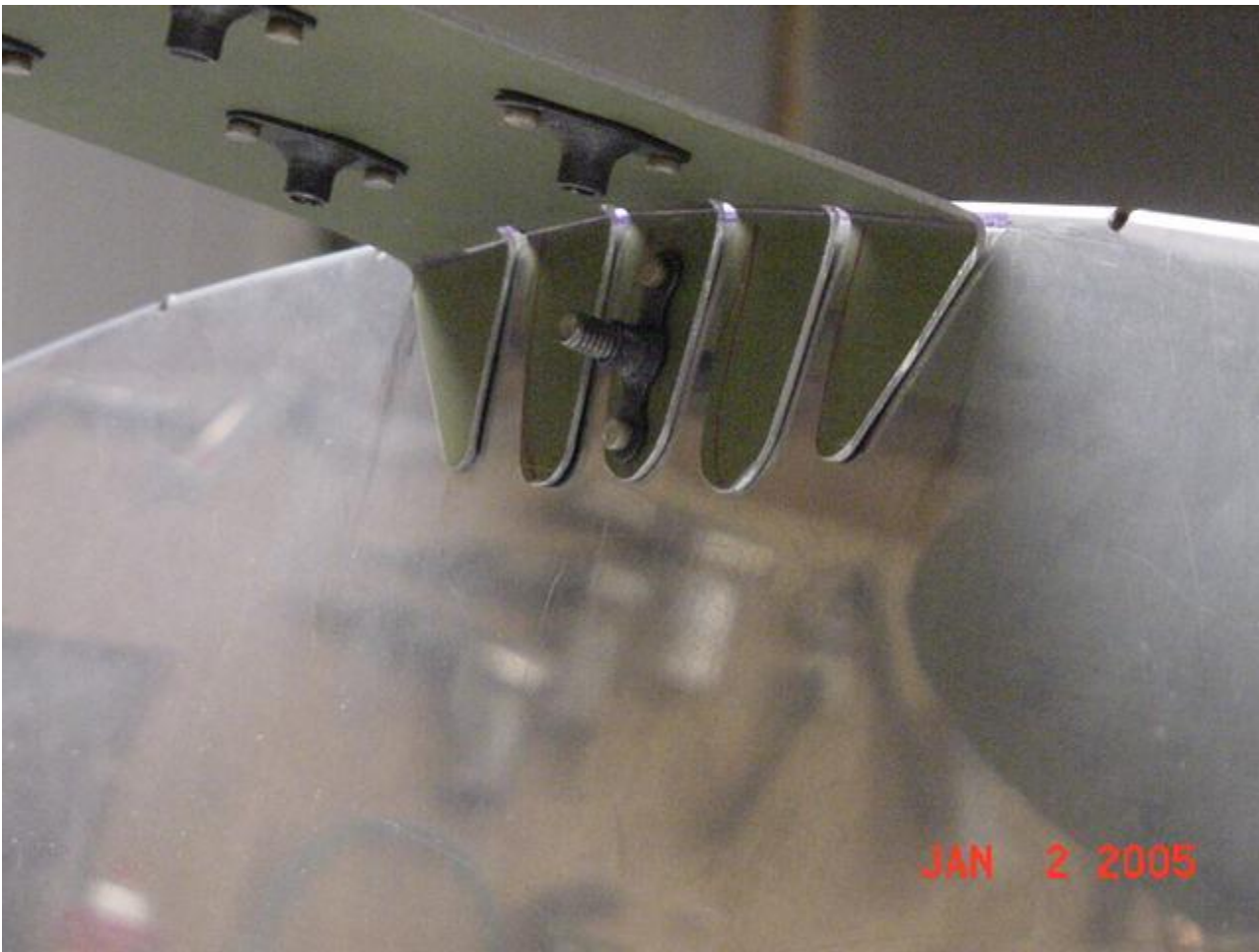
I love that green primer! I bought it in a rattle bomb at the auto parts store. It's self etching primer, and it's pretty durable. Anyway, I never thought I'd like green, but as of late, I'm thinking about painting my plane "Marine Green". Perhaps some sort of quasi military scheme. The plane is probably going to fly before it's painted, so at first it's going to look like a green, gray, and silver patchwork. But I do like that green. Maybe even drab. Time will tell.

I thought about going back and trimming the doubler to a nice symmetrical edge. You can't tell by the pic above, but the sides are twice as wide at the aft sides outside the nutplates as it is up front by the tongue. I'm not in any hurry to change it. And from what I understand the EVO needs a little extra weight up front. So I'll be lazy again and leave it as is.



BTW, I dropped a couple nutplates and a couple screws under the cowl today, and I'm happy to report that the hole under the arc/doubler is still big enough that I can just about climb in the hole (through the boot cowl half). Certainly not a problem reaching anywhere behind the panel, or anywhere in that entire compartment! Very nice!

Man, it seems like this part is just inching along. This AM I cut fingers in the 90 degree bend in the tongue of the doubler. I think I'm only going to put a nutplate on one of the 5 fingers. I'll leave the other ones on just in case I feel the need to use them, but more than likely I won't. I think I could have even left the fore end of the doubler completely disconnected. The boot cowl halves would probably be enough to keep everything taut. But what the heck. I went this far, I might as well put one #8 screw in the end. And of course cutting the fingers allow me to bend the tongue to conform to the boot cowl curve. If I start losing sleep over it, I may well go back and add nutplates on the outermost fingers, too.



I cut the fingers with a dremel and cut into the tongue beyond the bend. I used a small round file to make sure the slots between the fingers were smooth. Then I took a pair of flangers and grabbed the tongue over the nutplates and introduced a bit of roll in it to correspond with the boot cowl. I screwed down one of the halves over the top of the doubler and back drilled a #40 hole (where I had already drilled the k1000 nutplate location holes) through the stainless firewall. Then I increased the screw holes to a #8 with a 5/32 bit, and finally installed the nutplate. Test fit with everything screwed together looks pretty good. And just one stainless pan head #8 screw (so far) through the firewall. Maybe I'll be able to use that thing for double duty later on.

The boot cowl halves are primed, but there was a run on one, and I needed to clean up the edges, hopefully for the final time. I sliced some clearance at the bottom edge of one half, and filed some clearance at the other. Then I took a file and rounded the edges and corners of these removable pieces. I'll be less likely to jab or cut myself that way, and perhaps the paint will stay put better.





I put the SSW back on the bow for funsies. I marked the lower edge of the glass on the WS and the boot cowl arc. Time for a little painting. Flat black on the glare shield underneath, and on top under the glass. Then it will be time to get those Windshield Skins installed.

You can tell by the pic above that my Shar-Pei, Indy, is very protective about my F1. She is perched at the largest access to my house guarding against intruders. She is trained to kill without command. OK, OK, I lied. She's bored, and watching the horses in my neighbor's yard, and she's too fussy to go outside in the cold/wet to watch.

### **Slider Skirts 2**

Next phase: get the slider skirts finished. The nice thing about having the windshield off was that I could just crawl inside and drill the bottom row of skirt brace holes by myself. Initially, I had the slider closed against the stops (slightly open still) and duct taped the lower edges of the slider skirt completely flush. Really wasn't necessary on the left side, but I did it anyway. Turns out it didn't matter much because by the time I was about half way down the row (I worked from front to back, not from the middle out), I had to open the canopy anyway. Not only could I not even hardly get a 12 inch #40 drill bit to the holes, but I couldn't cleko the holes because the canopy track is in the way. So the skirt position turned out to be a guessing game, anyway.



Once everything was drilled, I removed the lower row of clekos from the inside and put them on the outside and closed the canopy against the stops again. The left side still looked beautiful, and the right side was open about as much as it was. Now I'm either going to bend the skirt, or actually, I may remove everything and bend the frame in about 1/4 inch at the aft lower corner. I think everything will still line up, and I'll improve the seal. Of course I'll work the skins, first. But the right side looks like the frame is a bit more outboard than the left. But it's all really close. In retrospect, I should probably left well enough alone. Or left all the skirts and braces connected, and manipulated the slider assembly to shape to close the gaps.



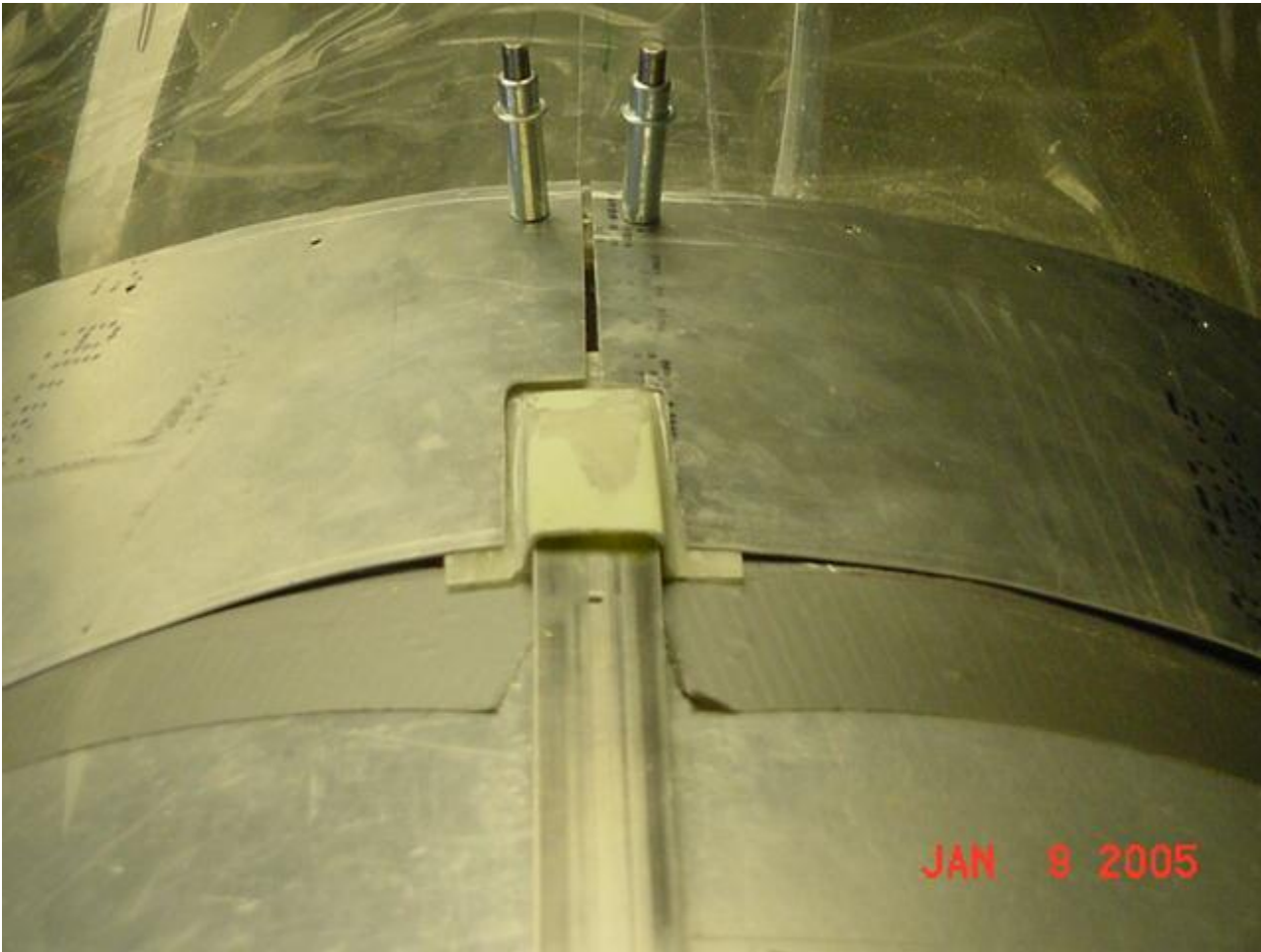
The WB is off the ship, and I ground off the rear ends of the base to allow more clearance at the canopy tracks. I re-primed that area and I'm going to put a second coat of PPG gray over everything.

Back to the windshield skins for a bit. The WS's were clekoed along the bottom row with #30's. I started riveting one hole at a time from the angle/bulge in the middle out toward the ends. The forward edge along the boot cowl is hanging free to make reinsertion of the WB a little easier. As I was riveting along the WS lower edge, I used an angle head bucking bar that had to be ground down on the outer edges to make it narrow enough to get between the clekos. To prevent damaging the already painted canopy rail with the bucking bar, I duct taped a mouse pad from my computer desk along the rail in the working area. This little trick worked out quite well.

I wasn't happy with the center track fairing we made out of aluminum. It was hitting the track, and I still don't have the canopy closed down all the way. So I decided to whip up a fiberglass fairing. I used the mistake aluminum pieces I wasted as a template for the "negative" of the new fiberglass fairing. Of course, it was an over sized piece and I had to use other pieces to allow for extensions and flattening it. I laid some cling wrap inside it, then glassed in one layer of bid cloth. I have a 1 inch metal ruler that I wrapped with cling wrap and set it in where the track sets. Then I took another piece of scrap and topped the whole thing off and weighed it down to keep everything flattened and conformed to a slight curve, like the turtle deck. Once the West system epoxy sets up, we'll see if it's usable or not.



The center track fairing turned out OK, but the cling wrap left many wrinkles. I started with one layer of cloth and let it cure. I trimmed and sanded it a bit, then laid up another layer inside the first one. Then I smeared micro balloons to fill the imperfections. I found that using the West System, one pump each epoxy and hardener fills well with one mountainous heaping tablespoon of balloons. Not scientific, but it works. And the stuff sands out nicely. The only problem was that I had trouble seeing the results. So I used some polyester body putty and shaped it again. Then some sanding primer to really get a look at it. Overall, a nice little project with good results. Now I have a fairing that I don't have to seal at the cuts in the corner (as with the aluminum fairings). I may make an impression of the fairing at my office and make a stone die of the fairing, just in case anyone else wants one. When I attach this fairing to the rear canopy slider skirts, I'll use NAS or soft rivets.



I was trying to figure out on the skirts what is dimpled and what (if anything) is not. I understand that the lower row of rivets are #3-3.5's and those will be dimpled and squeezed. I think everything else is just popped or screwed. I still have to figure out if the screws are countersunk and if I cut the bubble and skirt for them.



In the mean time, I went back and drilled all the holes into the horizontal steel frame on the slider up to #30, to fit the blind (pop) rivets. The rivet holes on the inside are not going to be countersunk, but the outside blind rivet holes will. As I was doing this, I notice that as I was drilling every other hole from front to back on the inside along the skirt brace, that the skirt brace actually pulled inward at the aft bottom on it's own! That was a plus, because I'm off about 3/8 inch or so on the right side. I still think I need to bend the slider frame in a bit at the lower corner. I've marked that place with tape to remind myself to do that later, after I take everything apart but before final assembly (of course).



Once the steel holes were drilled up, all the side skirt parts came off, I sat in front of the TV making blisters on my fingers with a deburring drill bit. The side skirt assemblies are ready to sand, prime and dimple.

To take a break, sort of, in between other projects, I sanded down the latch mechanism parts, and self etch primed them for paint. I also removed the slider trucks and finished them down, and sanded them before priming. I have lots of little parts ready to paint with the big ticket items of the slider and windshield. It's starting to feel like there's light at the end of the canopy! Oh, wait a minute. I still have to construct the fiberglass fairing around the windshield. Yuck. Sigh... Well, OK, I still have a long way to go...

\*Side Skirt Assembly Note: I contacted Mark Frederick at Team Rocket to clarify what goes where when attaching the side skirts (although I'm not quite ready for that). The bottom row on the side skirt that attaches the skirt to the inner brace uses #3-3.5 hard rivets. I'm actually going to use #4-3.5 rivets. The middle row uses countersink blind rivets to attach the skirt to the horizontal steel tube in slider frame. Mark said the way to do that is cleko all the way across, then countersink the skirt and retainer one hole at a time on the ship. Then pop (blind) rivet as you go. Machine cs, rivet, cs, rivet, cs, rivet. etc.. The top row uses #6 stainless screws. The bit size for this is #27, but do not drill the plastic UHMW strip with anything other than the #40. You are supposed to dimple the skirt only with a #6 dimple die or a #27 countersink. Also, note that the blind rivets that attach the inner brace to the slider frame are not flush rivets, just normal "universal" rivets. No countersinking or dimpling there, at least per plans.

I don't possess a #6 dimple die, so I'm in a little bit of a hold. I'll order one today, if I can't borrow one right quick. In the mean time, I did dimple the bottom row on the skirts, as well as the holes for the doublers at the end. I also dimpled the lower row of the inner brace. Remember to dimple this one inward, not outward, to match the side skirt. IOW, flush on the outside, not the inside.

The side skirts are off the ship and just about ready to paint. I self etch primed them already. I am going to

paint them before assembly. There are just too many nooks and crannies to get to. I will probably paint everything again after assembly, but before insertion of the plexi. Now all I have to do is finalize and drill the track fairing.

I found the bag from TR marked "Canopy Assembly", and everything you need to put that puppy together is in there. Both types of blind rivets, tinnerman washers, even the rubber tubing for the windshield screws AND the #6 screws. Very nicely organized. That really makes it nice.

Cleveland tools has a #6 dimple die set AND a #6 countersink bit. I ordered both, and I did it online. The order was processed and shipped (actually mailed, I think) within 24 hours. I like Cleveland's die sets better than Avery's. All of the Cleveland dies that I own or have seen are stamped with a part number and size. I have so many of them, it's hard to keep them straight, especially unmarked ones. Had I to do the tool kit ordering all over again, I would get the entire die set from Cleveland.

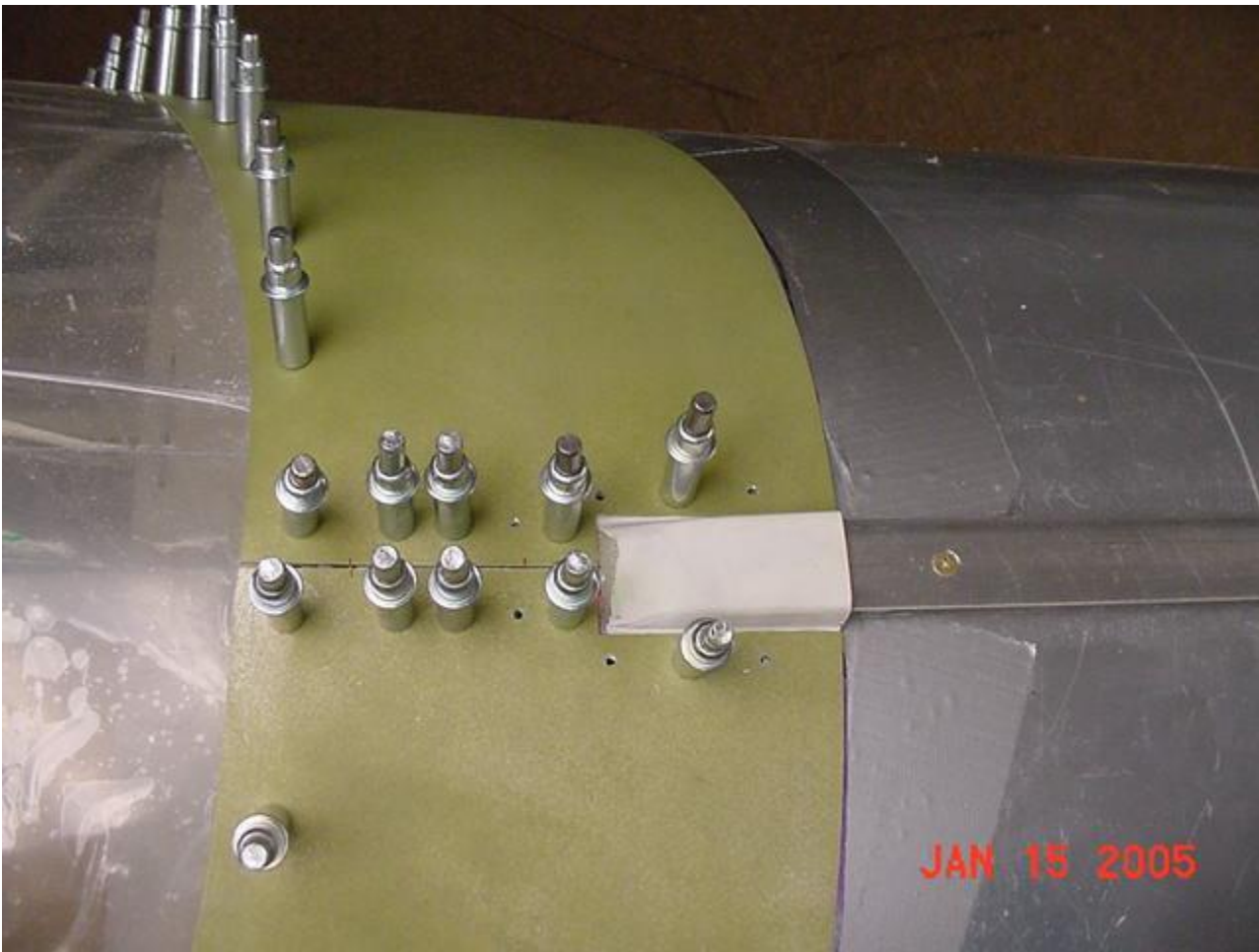
I asked Mark Frederick at TR if I could shorten the rear skirts on the canopy. He essentially said no. Seems like they are pretty wide compared to the lower skirt. Well, you really can't make them any narrower. I have a minimal 1 inch or so overlap at the top and bottom of the turtleneck bulkhead. I could trim the rear skirts back to 1/4 inch like the lower edge of the side skirt, but I elected to go ahead and just leave it long. That may give me more weather protection back there, and also will mean that I probably won't change how the aft edge of the skirts lay against the ship. I guess the only reason to make the rear skirts narrower is if I get the whole thing together and the slider skirts don't overlap the ship enough. IOW, trim the rear skirts to lower the slider. Since the whole thing is being constructed slightly open, I suppose trimming it would be a way to adjust how it sits.

My cuts on the rear skirts were not all that even, so I dressed them down today. I sanded them out and squared them up. I scuffed them and primed them. My #6 dimple dies and cs bit came in less than 4 days via USPS, so I'm ready to move on those. Let's see, I need to dimple the side skirts for the #6 screws in the slider bubble, and I need to countersink the plexi as well. First, I'll drill everything with a #27 or #28 bit that gets the #6 screw. Then I'll dimple it.

For practice, I went ahead and drilled the #6 screws to the canopy center track. The parts bag has some extra long screws just for this. Unfortunately, there are no nutplates in there. I was going to go ahead and make the track easy to remove for painting later on, so I'm going to need to rivet in some #6 nutplates. For the time being, I went ahead and put the 4 (only 3 by plans) long screws in the track, and used a nylon stop nut on the most forward screw.

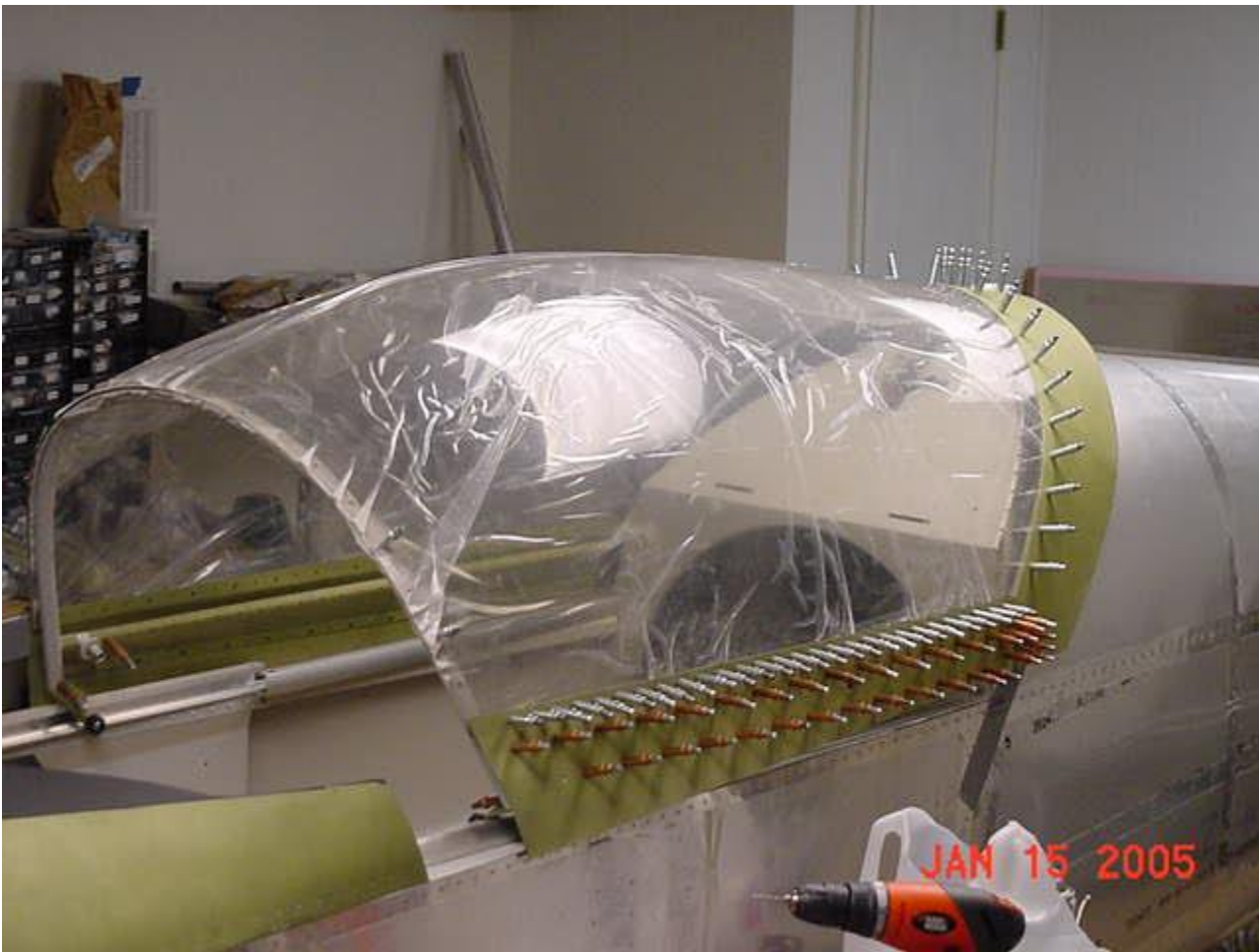
The fiberglass fairing I whipped up is GO FLIGHT! I trimmed it back and set it in place in the slot on the rear canopy skirts. I drilled 8 #40 holes in it to keep it in place. I also made an .032 doubler for between the skirts. For now, the doubler overlaps the fiberglass. I was thinking about putting a step in it so it would act as a retainer for the fairing at the leading edge. The only problem with that idea is that the doubler is already drilled without the step, which of course will offset the holes when the step is introduced. More than likely, I'll just cut the doubler back passed the edge of the fiberglass.





One thing I did on the track fairing was to trim back the aft edge. I cut the flange back at an angle, pretty close to the aft rivet holes. I also thinned the fiberglass to paper thin at the aft end. In the pic above, the last two clekos are actually touching the turtleneck. I probably should have skipped the aft two holes. I'll use NAS rivets here and mash them down to next to nothing. All the other rivets should clear just fine.

I'm ready to drill the #6 screw holes. All the slider canopy parts are clekoed in place, and the fit is consistent. I'm wondering why we screw 3 sides of the slider bubble down, but rivet the aft end and rear skirts. Guess the rear bow is too small diameter to work well with the screws. Seems like it would be nice to make it completely removable. I was thinking about getting some "specialty" screws for this, or just cut the #6's to length, so that they penetrate just right. Oh well, it's not that many rivets to drill out if you ever have to change the bubble, I suppose.



Notice in the pic above that I drilled the lower row for rivets up to #30 (for a #4 rivet). The plans call for just drilling to #40 (for a #3 rivet). I had some mis-matching of the holes, so I decided to step up a size. I could have just drilled a few holes up to #30 and then used "oops" rivets, but decided to just go for the larger rivets altogether. The rivets along the windshield skins are also up-sized to #4 rivets, so the whole row across will be #4's.

Next, I'll drill the skirts up for #6 screws along the sides, and drill #30 along the rear, and then D&D them. Then I'll be ready to do some painting prior to assembly.

To take it as easy as possible on the Plexiglass, I stepped through bit sizes. I went around all the plexi holes with the #30 bit. That's where I stopped on the front bow of the slider. Remember, you are going to tap those holes for the screws. Then I went around using a 1/8 bit on the side and rear skirts. So far, that has been large enough to accommodate the blind rivets and small enough that you can just get the #6 screws through the holes. I used a cordless drill during this process and ran it VERY slowly. I tried to avoid that creaking, cracking sound you get when you plow through the plexi too fast.



Finally... I feel like I'm getting somewhere! This has worked out pretty well so far. When you get all those copper clekos in there, you feel like you're nearer to the end. Good thing. I used EVERY #30 cleko I have in the slider! Every other hole is filled on every part on the outside. I don't have enough clekos to completely fasten down the skirt brace, but I didn't think that too critical at this point. Especially since I wanted to open and close the canopy a bit while working on it.

BTW, if you are going to put #6 screws in the FB of the slider, you probably shouldn't drill up to a #30 bit (& copper colored cleko). That'll make your threads for a #6 screw a wee bit slim. I'll probably use a #8 screw.

On the left rear skirt, the aft gap was still a little large. When I final drilled it, I took all of the clekos out, except the two at either end (top and bottom). I held the gap closed with one hand and drilled with the other. I was able to reduce the gap by about half, which was great.



Now the only concern I really have is that the right rear corner of the skirt at the bottom is still outboard about 3/8 inch. As I was pondering this dilemma for the hundredth or so time, I looked in through the front of the ship at the gap. It was beneficial to look at the problem from the inside. The left side of the ship looks just right. The right side looks to be bowed out about 3/8 inch or so. The rear bow and the pin are too far outboard. So I'm reverting back to the plan to bend the rear bow inward at the bottom to close the skirt. I can close the skirt itself some, too, but I think the frame needs to come in more. The pin could be bent inward to engage the grab slot thing on the track (still not installed), but it's so far off now that it would end up rather wonky. I think I can coax a gentle bend in the right frame that won't totally disrupt the holes and parts already drilled and clekoed together and improve the frame gap substantially. I opened the canopy to see about the clearance at the turtleneck, and confirmed that I should be able to move the frame inward a good 3/8 inch and still clear the corner.

**Don't try this yourself at home!** Otherwise known as the "Slider Frame Debacle"....



If you look closely at the pic above, the dark shadow at the rear bow down by the pin next to the turtle deck is larger on your left (ship's right) than on the other side. That makes the gap at the bottom of the side skirt pretty large (3/8 inch) Yes, I wish I would have realized the discrepancy a long time ago. Well, that's not entirely fair... that it was a previous problem. Actually, when the bubble is clekoed on, the frame is pulled to a new shape. Then you add the side skirt and the retainer and braces, and the shape changes again. I guess I should have said I wish I could have constructed this part with everything staying passively in shape. But alas, it is not to be...

The new #6 dimple die was put to good use today. I unclekoed the side skirts, deburred and dimpled them. I used the new #6 screw countersink and made the matching countersinks in the Plexiglass. I re-clekoed everything just to make sure it all fit, and the results are quite nice. Except I still have a 3/8 gap at the lower right corner. And that's where the trouble started...

I should have just removed the slider with all the parts clekoed together. But I took it all apart and tried to bend the frame by itself. What I thought was going to be a first order bend, ended up with a broken weld and two hours of trying to get the frame back to shape. And it's not even re-welded at the broken corner yet! Anyway, had I just removed the slider clekoed intact and squeezed both lower corners of the skirt/frame assemblies, I think it would have done what I wanted without all the fuss. DANG IT! Of course I may not have found the weakened slider frame joint until after assembly, and that would have been a larger debacle!

I finally got the rear bow of the frame back to shape and clekoed the bubble back on the frame. It goes back to position very nicely. And I got the frame and ss pins to close in toward the track much better than it was before. Now I need to put all the skirt assemblies back on and see where I stand. I may be cutting some new skirts! OUCH!

I tapped the WB to accept the 6/32 screws today. That was the only successful mission out of about 5 hours

worth of work. The idea was to get the slider frame finalized and tap the FB, too, but with the SNAFU I had, well, I just hung it up.

Oh, I take that back, I also trimmed down the stainless pins on the slider frame, and that was successful. They were gouging the tracks with all the trial and error I was fussing with, so I took my trusty side grinder and beveled them at an angle similar to the contact at the slider track. Where the canopy is supposed to sit, they will not contact the track. They do look much better with a bevel than that stupid point that was on them from the factory.

Once the slider frame is re-welded and the skirts are reassessed, I'll then be ready to tap the FB 6/32 and cs the plexi for #6's at the FB, and for the blind rivets at the RB. Painting and assembling all these parts has now been acutely delayed. And it's possible that the FB may need to be tapped 8/32 if I can't get a nice thread in the holes. The holes in the FB have already been drilled to #30, so they may be too large already for a 6/32 tap.

WHEW! I feel better. I removed the slider frame and worked with it for about an hour before heading off to work today. It looks better than it did the first time now. Well, if you don't count the fact that the weld in the corner is still broken! The rear skirts still aren't flush like they were, either, but they are REAL close. Close enough to plan on moving forward. A word to the wise: Make sure you have the frame just the way you want it before starting the skirts. Then DON'T TOUCH IT! Keep in mind that the slider bubble wants to pull that frame outward, and the way I installed the skirts and braces, those parts want to pull the frame back in toward the ship. So changes are inevitable. However, if you start with the frame the way you want it, chances are the skirts will be easier to deal with, and the results will be better. Make sure the RB barely clears the turtle deck, and keep those ss pins right next to the track! Then if something is amiss toward the end, bend the skirts, or bend the frame with everything clekoed to it. Ahhh.... hindsight....

My buddy TIG welded the corner of the slider frame back together for me. I think the problem there was that I had used a dremmel drum and sanded too much of the welds down, and I weakened the joint. It doesn't help that I drilled a hole for a rivet into the junction there, too. And one side of the weld was a pretty large area of "fill" around thinned wall due to my aggressiveness with the cutting on the thin wall tubing. All better now, though! You can see where the break was welded, and also note the bevel of the ss pins. It's good to bevel these during trial fitting without the skirts on. I was trying to get the slider frame to sit evenly on the canopy side tracks. It's a little kinder to the tracks if the point is off the pins. I also put two layers of duct tape over the base of the tracks.