
I put the slider frame back on the tracks and checked it out. Even better than before (after I bent it some more). Now to try it again with all the skirt assemblies clekoed on. Again, the frame went pretty much right back to where it was, and the gaps at the rear skirts wasn't pretty at all. The gap was however a lot smaller than the first trial after I broke the weld. It's VERY close, just not sealed, or pretty. Hopefully I'm back to minor tweaking.

Remember when I wrote that I was about 10 hours from finishing? That was about 20 hours ago.... Duh...

Finally!! I bent the RB of the slider frame to my content. It appears to be in about the same configuration as it was before this debacle started. The canopy frame now sits as good as I can get it without using a micrometer (which I just bought, by the way...). The Rear Bow (RB) just barely clears the turtle deck on both sides, and the stainless steel latch pins hit evenly on both sides, and the canopy slides down the track without effort. I cleko the rear skirts on and they are about as conformed to the turtle deck as I can get them. However, when the rear skirts are on, the ss pins do not bottom out, and there is a bit of bowing on the skirts at the bottom edge. I'm just getting to the point where I think I'll have to rely on the ss pins to pull the skirts down and in. At this point, the canopy sits on the rear skirts at the very top in the track area. The nylon block sits in about the same place when the canopy is fully seated closed, so I don't think there's much else I can do. I have thought about trimming the rear edge at the top of the rear skirt, but the amount of lowering of the slider overall I think would be negligible.

A sad feeling that I have is that there are so many variables in this slider canopy, when you assemble it, there are probably going to be changes in it's shape. It had better be assembled in a very precise order. Even then with the difference in amounts of force (rivets, screws..) that I expect some distortion. And it may or may not be for the better. We shall see.

When the slider is closed now, I can definitely tell it looks more symmetrical from the inside. This is one of the advantages of working  without the windshield in place. It's easy to visualize inside the slider at the turtle deck bulkhead.


The image above is slightly off center. One thing I was working towards was the position of the RB at the "corner" of the turtledeck. Note that there is no daylight coming in from under the rear skirts, and the frame overlap at the turtledeck is quite uniform. The skirt gaps are about as closed as I can get them. The situation at the rear skirts has reversed, though. The left skirt now sits beautifully flush to the ship, and the ship's right has a slight gap at the rear. At this point, I can either take it apart and try to coax the frame some more, or I can relax the skirt position by re-drilling the holes as I hold the skirt closed. I've re-clekoed the skirt and I can get it flush with three clekos in place, but not all of them. If I re-drill the holes, I could weaken the attachment and it may look flawed cosmetically. I might need to go up a size on blind rivets. The prospect of re-drilling is not appealing. I could just make a new skirt, too. What I think will happen, though, it that the over center latch mechanism will pull the gap closed by virtue of pulling down the ss pins. There's many ways to approach this little problem.


Before I started this debacle, the frame on the left side of the ship (right hand view) was three times as far out from the bulkhead! You can see in the pic above with the canopy raised up the track that the slider frame barely clears the bulkhead corner. This is what you want. But it's not the whole story. Remember, as it is in the above pic, the right skirt of the ship (left side of pic) has a gap at the aft edge. however, the slider frame is closer to the bulkhead on that side. So having the frame barely clear the bulkhead won't solve all of your problems. It will, however, make it much easier to get the skirts shaped and closed flush.

As I was finishing this process, I noticed I had a hard time getting the skirts clekoed in on the ship's right. Turns out that with all the manhandling (or during the re-welding), I had bent the right horizontal of the slider frame. It was bowed up in the middle. I nearly gave myself a hernia trying to pull the frame to shape while still on the ship. Alas, I have to take everything apart for about the 30th time and put the frame on the ground and bend it. I had to do this TWICE! Dang it! But it was worth it. It's much better when you don't have to force the pieces or the clekos to shape. When I was bending the horizontal, I set the frame on 2x2's at either end, and pressed my foot down "vigorously" at the point that appeared bowed the highest. I knew the part was bowed and the location of the highest point by comparing to the relatively straight line of holes drilled in the retainer and the inner brace (neither of which would cleko properly). The horizontal was bent enough that some holes near the middle of the tube were not even visible!

Now I'm back to where I was about 15 hours ago. Time to tap some more holes, paint some steel and finish some Plexiglass!

Well, almost. OK, OK, I thought I was ready to go. Nope. Gonna play with the canopy some more

before I shoot the parts. I have all the doublers between the skirts and the track fairing clekoed in place. And I can close the skirts flush against the turtledeck if I really whale on the slider. But now I've run into another glitch. The lower edge of the skirt at the right doubler does NOT overlap the side of the ship completely. Yes, there is a gap. I can close it, but I have to hold so much force on it that I'm not so sure I can duplicate that with the ss latch pin. It's open enough that the wind would probably be somewhere between and dog whistle and a fog horn. Not good. Probably, it would make the rear passenger lose hearing in their right ear.

What to do, what to do? Well, if I was industrious, I'd just cut and drill a new side skirt and rear skirt. This was the correct thing to do in retrospect.

Looking at the center track, I notice that fully closed, the nylon block is not as far down the track as I remember when I was working with the naked slider.

AHA! So, just pull the slider down and forward some more! Nope. The tongue on the track just bows. And I have to use a LOT of pressure to hold it down. Dang it.

AHA! Cut off the slider runner that holds the nylon block and re-weld it shorter, thereby lowering the frame. No! The rear skirts at the top of the turtledeck are what don't allow the canopy to close lower. DRAT!

AHA! The problem is at the TOP of the slider rear skirts! So I remove the clekos from the track fairing and doubler and check it again. BINGO! IT WORKS!. I can hold the canopy down with light pressure and the gap is closed. Now the skirts are going to look somewhat splayed, maybe 1/8 inch, and I'll have to re-drill the track fairing and make a new doubler. And added advantage to this method is that it also closes the rear skirts completely flush with the turtledeck! WOOHOO!

OK, that is what I'm going to do, I'll open the gap at the rear skirts and splay them a bit to allow the canopy to lower. I floxed in the track fairing holes and tomorrow I'll remake the doubler and re-drill everything. Problem solved.... I hope. (It wasn't. I had to remake the skirts.)

Another solution to the problem would be to move the canopy track over to the right about 1/8 inch. I could do that with the screw holes before I insert the nutplates on the ship. However, I have measured (as best I can) and eyeballed it, and the track appears to be centered. I'd rather have a gap problem on the skirt rather than introduce a turning tendency by the track being off center. So I'll use the track location change as the last resort. Yes, there is a little excess coverage at the lower edge of the skirt on the other side, but not much.

Ultimately, something else caused the problem. Remember, I had the rear skirts beautifully flush AND the track fairing was clekoed in place. So there's a different culprit afoot. I'm just to the point where I don't want to have to mess with bending the RB any more. (Ultimately, the problem was that when I remade the skirt on the right side, I cut it too narrow at the aft end. Simple as that. Dang it!)

The boot cowl doubler and halves need interior paint. It will match the rest of the interior. Some of the canopy parts require painting prior to assembly too, in my opinion. There's just some nooks and crannies that you can't get paint to easily, such as the tubing side of all of the lower skirt parts. So I mixed up a batch of my '99 Toyota truck gray paint and used my little HVLP touch up gun and shot the parts. Again, I'm going to try to paint them kind of an orange peel texture. At the same time, I also started painting the canopy latch mechanism parts. I also had to disassemble, sand and re shoot the control stick mechanism. That had Rustoleum on it, and that stuff is all scraped and scuffed. I have my little oil heater in the garage and did one batch last night in comfort. I'll shoot another batch tonight

or tomorrow. Hopefully, in a few days, I'll assemble the slider and then shoot it all again later (before putting in the plexi permanently if I can help it).

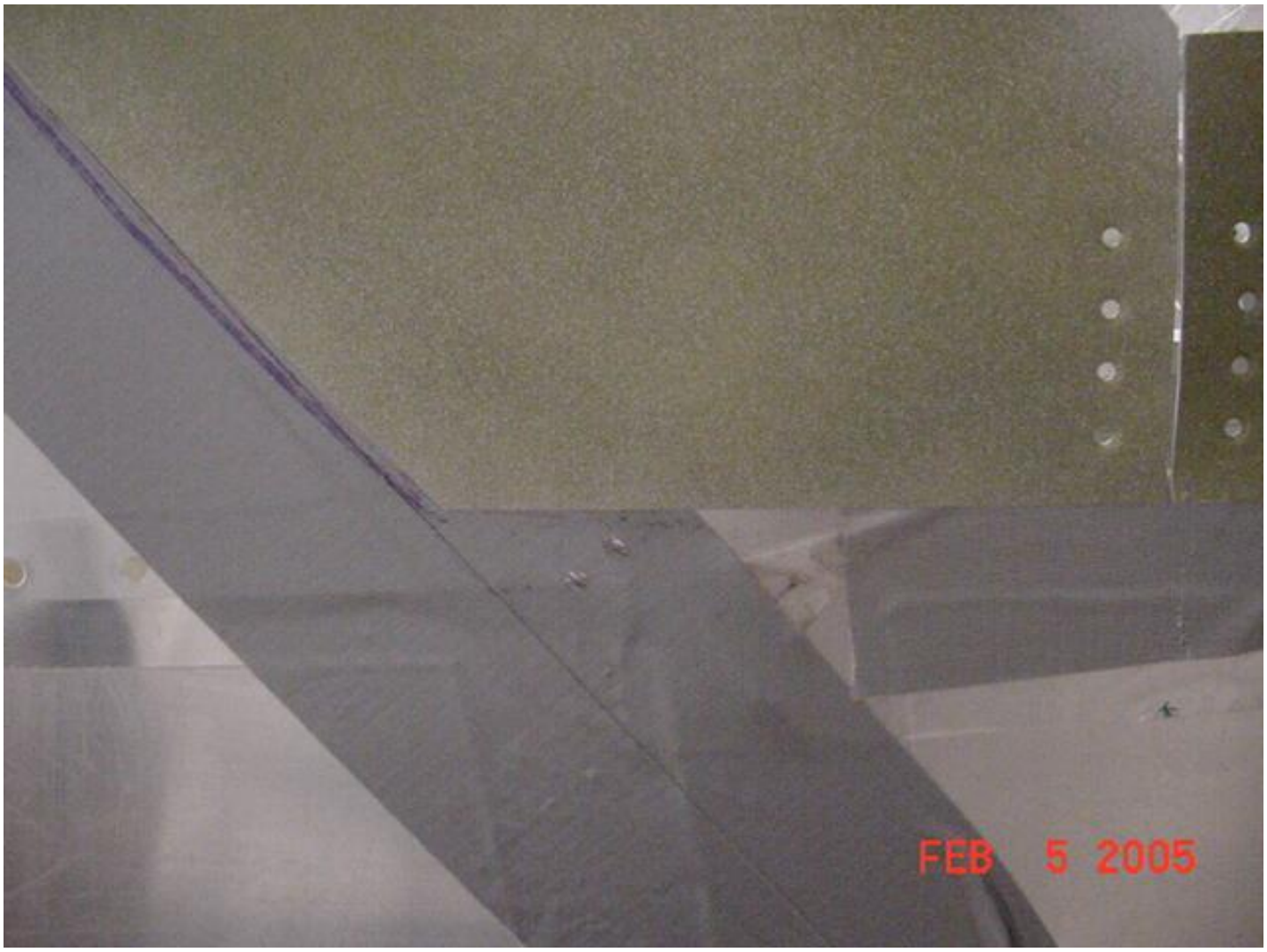
I'm still painting the canopy slider frame. The skirts are painted inside and ready, but I've boogered up the paint on the frame. I sanded it and I'll shoot a 3rd coat on it tomorrow. Looks like it will be until the next weekend before I tackle the assembly. In the mean time, I went back and installed the control stick mechanism and started going back in the baggage area to work. The Windshield Bow is ready to install, too, and that means riveting the rest of the windshield skins. I have plenty to do in between coats of paint.

Ahhh.. The paint is cured and I'm ready to assemble the slider.. so I thought!

The Windshield Skins are completely riveted now, with the Windshield Bow in it's final place. I clekoed the glass on and put the skirts on the slider frame. I even put a latch together to test the location of the final pull down.


DRAT! The rear skirts lay down quite nicely along the turtledeck, but there is the slightest gap at the lower edge of the side skirt still in the left aft lower corner. You can see daylight next to the side of the ship and the skirt. I can manhandle it and close it, but I don't know if I can make the latch mechanism

pull down on the SS pins that much,. DANG IT, it's sooooo close. But so far, it's also not right. You can barely see a gap between the lower edge of the primer green metal and the duct tape I have laid over the ship sides and turtledeck to protect it from me. The area that is about an inch or so on the picture is with the slider closed, but at rest.




I can close the gap and get maybe 1/8 inch overlap here. I'd be content with that. But I'm not sure about the best way to accomplish closing the gap  Time to stop what I'm doing and contact Team Rocket for instructions.

In the mean time, I had to trim the SSW a little bit at the lower aft corners. It hits the weldment for the WB foot. So I beveled the corner. There was kind of an acute, thin angle there anyway, so now it's blunted off. At this point, I would go ahead and complete the SSW assembly, but I'm leery of closing out the front with the slider canopy still under construction. It's nice to be able to reach inside the slider right through there.


Mark hasn't returned my email, but it's the weekend, so I'm not at all surprised. I'm not going to wait for his reply. I made up my own mind. I'm going to remake the skirts on the right side of the ship. I can't get that gap to close without really cranking down on the slider. I just don't think the latching mechanism is going to pull the side down enough to satisfy me. So, I'm going to cut new skins, match drill them (again... 2nd time), re-roll it, flange it and blah blah blah. DANG IT!

I think the ultimate problem with the lower edge gap was not the frame after all, it was the fact that I tried to cut the new skirt (after botching the first one) too close to it's final width, and overshot by about 3/8 inch. Just at the aft end. The forward end fits fine, so I'll only have to modify the one measurement.

Back to the basement, time to keep on truckin'! (Boy, that phrase dates me, huh?!)

My inventory of .032 (and .025) is dwindling. I may have to order more sheets before I'm finished. I have lots of .040 and .020, which I've hardly used. You may see that stuff on eBay at the end of this project. Anyway, I took the bends out of the right rear and lower skirts as much as I could. I hand cut the rear skirt with snips and left the cut proud of the line. Cutting those lines with hand shears sure leaves a wonky edge. I scotchbrited the edges back a good 1/8 inch to get rid of the trash from the cuts. I used my air shears to rough cut a piece for the lower skirt, making sure I added what measured out to be about 3/8 inch additional width at the aft end. My 3in1 break only has about a 1 inch "throat"due to it's frame width, so I had to cut relatively close with the pneumatic shears to be able to fine trim the edge on the break. Even at that, I had to make two passes to make a full cut on the lower skirt, which is over 30 inches wide. But it turned out to be very easy, and looks great.

Once the right rear skirt was trimmed to nearly the correct size, I clamped the old and new together on my bench and match drilled them. I went ahead and used a #40 first and tried to center the holes. Then I went back and drilled a #30 and tried to bias the hole if the initial hole was off center. I then hand rolled the skirt using the helical twist and then clekoed it in place. In the span of about 20 minutes, I was back in action with a new extended right rear skirt!


In the pic above you get an idea of the discrepancy in the dimensions. The blue lines are where the skirts should terminate. You can tell how much wider the lower right skirt (green) needs to be in order to get that 1/4 inch coverage over the side.

The lower right skirt took a little longer. It has about 100 holes in it. I stomped on the old piece a few times. I was kinda pissed at it anyway, but mostly I just wanted to flatten it out a bit. Then I clamped the old with the new and match drilled them. Again, I started with a #40, but only along the #6 screw holes at the top. The two lower rows of holes I went direct to a #30 bit. Then I used my 2 inch pvc and palms and rolled the forward end again. I didn't pussyfoot with it this time, I went at it pretty aggressively. Once I had it close to shape, I went ahead and used the AVERY flanging tool I borrowed from Randy Pflanzer. I clamped the piece to my bench this time to keep that tool on track better. I STILL nearly botched the part, but flanged it a little farther aft and it turned out fine. Then the moment of truth: I clekoed the new lower skirt to the ship. YES!! A GOOD FIT!!! WOOHOOO!!!! (It's the little things in life!!!....)


Now I feel like I'm back on track. I'll need to do some dressing and fitting, but I should be back up and running toward finishing the slider in no time. Not bad. Took me about 2 hours to get back to this point. I should have just remade these parts a long time ago. I didn't realize the "learning curve" advantage, nor did I think match drilling would work as well as it did. YES!!!!!! Ahhhh, if I only knew then what I know now...

This time around I was almost having fun. Almost. I trimmed the lower skirt, then marked and trimmed the rear skirt. DAMMIT! I cut the rear skirt to narrow this time. Dammit! I only marked one side and eyeballed the cut to the other side. Oh well, I remade it... uh... three times, I can do it again! DAMMIT! This time it only took me 15 minutes! I'm getting better at rolling those rear skirts. This time I was VERY careful marking the overlaps at the ends, and now I have the skirt trimmed and fitted. Finally! (didn't I say THAT already?!)

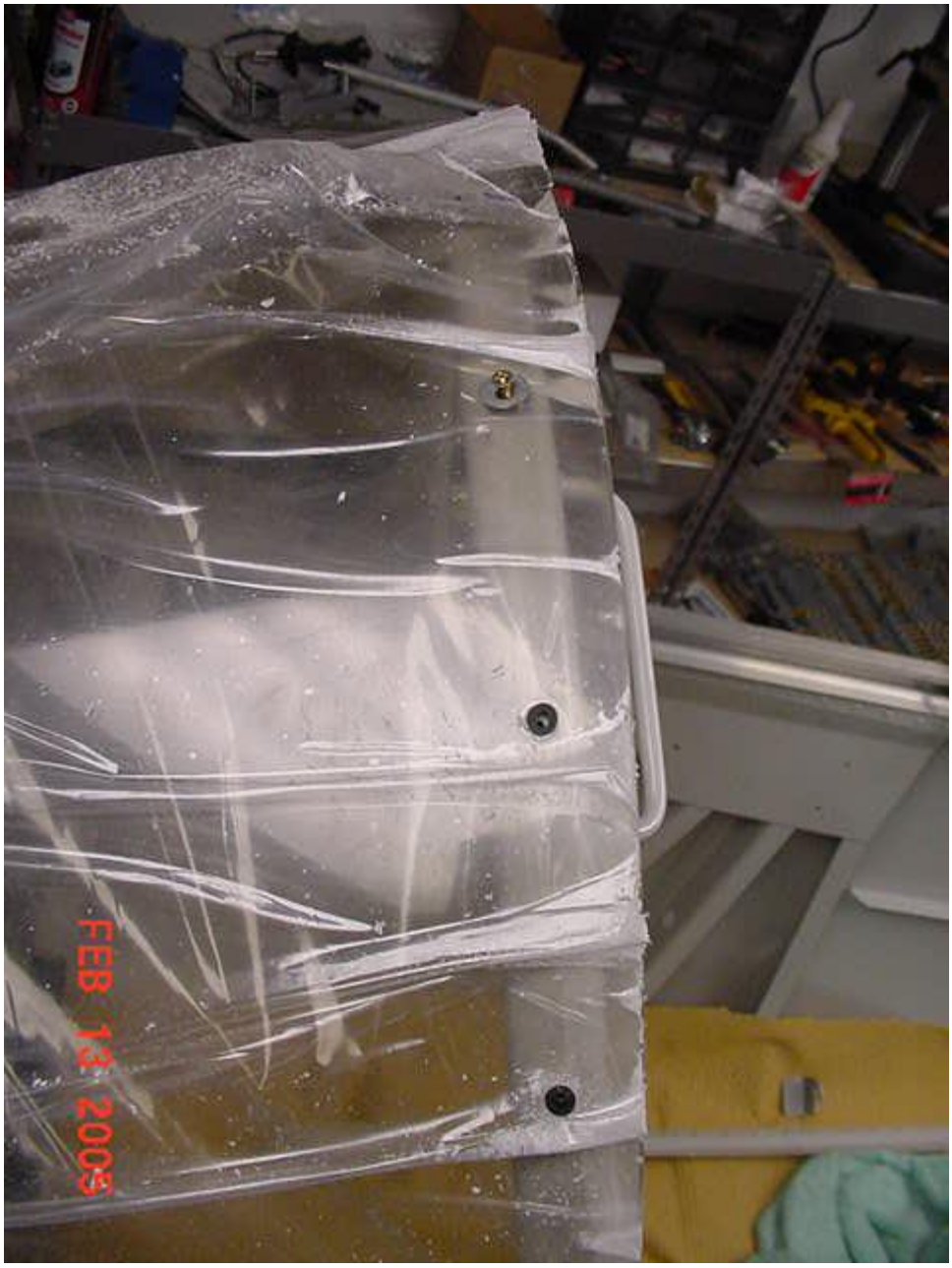
OK, now the slider is skirted. I clekoed it all up, including the inner braces. The plans are spot on when it tells you to keep the brace 1/2 inch away from the ss pins. As of yet, I still haven't attached the hold down hooks that grab the pins and pull them in and down when you roll over the latch handle. I started to fit one, and didn't like the results. The slot on the hook is smaller than the pin, but not beefy enough to trim to fit the pin. So I need to trim the pin. I'll take my dremel and thin the sides in the region that goes into the hook. I'm also going to more than likely need to bend the pins inboard toward the canopy tracks. I gave up on this for now, but I'll remember to trim the pins AND trim the inner skirt braces at the aft end to clear the hooks AND the side of the ship..

Mark replied to my query about the discrepancy between my slider plexi and the SSW. The slider was about 3mm (less than 1/8) over the top of the SSW. When you fair it, there would probably be a

noticeable bulge up top, unless you make the fairing humongous. I didn't want the ship to look lumpy or wonky so I asked Mark what to do. First off, he said it wouldn't look as bad as I thought if I went ahead with it as is. I gave him all kinds of scenarios on how I though I should approach the problem. He came up with: bend the front bow outward. WHAT? HUH? Now why didn't I think of that? If you bend the sides out, you pull the top down! That's what I need, and not very much. How simple. Duh. Glad I asked! So I took the slider off the ship, stood with the trucks at my shoulders and pushed outwards with my hands and a lot of forearms. All I can do is flex this thing. I left all the skirts on and well clekoed in, btw. I inverted the slider and did the opposite on the aft end. I needed to bring the pins in toward the track, anyway. And bowing out the front could have widened the back. Hokey Smokes, it WORKED! I put the slider back on the ship. The trucks dropped right back in, the slider rolled very nicely still, and I got rid of HALF of the overlap! YES! Remember: KISS! OK, tomorrow, I'll try it again, bow the front out, and the rear inwards one more time and see if I can get away with it. Then I have to hope it stays that way when I assemble it!

## SSW Install

Back to the SSW while I'm working on priming and painting the slider parts! The Windshield Skins (OWKA:front skins in parts of the plans) are riveted and painted flat black under where the windshield is located. Time to get the SSW ready to permanently install. I started drilling the attach holes along the WB with cobalt bits. They cut way too well, and as much as I tried to lighten up and shave the holes, those cobalt babies wanted to grab, cut deep and try to chip or crack the plexi. So I backed off and used my crappy titanium dipped cheapo drill bits. I don't have any plexi bits, so I chose to use the lousy dull bits. They actually worked pretty well. I used the lettered bits, each one in order all the way up to the letter Q.




Mark's plans describe using fuel line for gaskets around the #6 screws under the tinnerman washers. He gives you a small section of rubber fuel line hose. Cut carefully! I used 5 mm increments and got 12 pieces for my 11 holes. I laid the hose along a ruler and used a box cutter and sliced nearly all the way through each 5 mm cut. After all were done, I went back and made a release cut on all of them. Then I tucked each fuel line gasket in the "Q-sized" hole in the windshield and started the #6 screws. One hole was tapped funky, so I re-tapped it. I also started using the long #6 screws provided with the kit. They suck. Those screws would not go in. They must be slightly over sized. My screwdriver was chewing up the heads of those screws, so I pitched them. I'll use my own SS screws.

Some of the tinnerman washers did not want to lay flat. On the first one, I used the box cutter again and trimmed the gasket in the hole. Remember that you want the tinnerman to slightly squeeze on the rubber fuel line, i.e. better to hold down the rubber than the plexi. Anyway, I got it to sit nicely. On the 3 others, I got lazy and used my countersink bit and just shaved the rubber and a little plexi around the edge, too. Now all of the tinnermans sit flush. Contrary to the plans, on the SSW, no gasket or shim is needed under the plexi around the tow holes shown in the pic above. I think that

problem is only with the standard windshield and then  probably only with earlier kits.

I backed off the screws and peeled the vellum off of the plexi. I used an air hose to blow off the plexi shavings. Ahhhhh... that SSW sure is starting to look pretty!!!!


I had contemplated putting a bracket of sorts at the nose of the SSW to aid in retention.  Frankly, I don't think it needs anything other than the #6 screws to hold it in place. However, keep in mind this is just my uneducated, non-mechanic guesstimation. As Vince Frazier likes to say:YMMV!  I am going to go ahead and use ProSeal to glue down the SSW. Then I'll make the fiberglass fairing that completely surrounds the SSW and then glue it down, too. I may even rivet it in place to help keep the windshield sealed against weather and held in place.

I decided I had better try to get going on the SSW and get it installed so I can start the fairing pretty soon. Off came the velum from the inside of the SSW. Then I grabbed my ProSeal  and mixed a partial batch at 10 parts base to 1 part catalyst. I used tongue blades and mixed it up in a margarine spread tub. I had already sanded the edge of the glass and where the SSW sat on the ship. I went through the paint partially when I sanded it and cleaned it off well. I buttered the bottom edge of the SSW and smeared the ProSeal on the ship right where the glass is going to sit. A finger inside a latex exam glove works well. Then I used more tongue blades as spatulas and filled and contoured the ProSeal under and around the SSW. It's not perfect, but it's going to be hidden anyway. The whole idea here was to glue down the glass. There might be better materials to use on gluing the SSW, but I had the ProSeal, so I used it! I still have enough left to seal down the fairing, too.


ProSeal is some drippy stuff. It's messy to work with because it always wants to string out and drip. I cleaned the SSW with a paper towel about as much as I was spreading the ProSeal. It wiped right off without any solvent. Now I have to wait for it to set before I can begin the fairing construction. Also, the slider still isn't assembled, so I need to continue that work, too. I'll let the ProSeal sit for 24 hours and then mask off the SSW to start construction of the Plexiglass fairing.


One thing I tried to do when spreading out the ProSeal was to create a contour that followed the glass. It wasn't necessary to make it perfect, but I wanted it to be close enough to aid in fabrication of the fairing. Pre-gluing the SSW gave me a chance to preform the contour so that forming and filling with fiberglass shouldn't be
quite as laborious. I hope it saves me some difficulty. The ProSeal has taken up a lot of the slack, but I'll probably still have some shaping and filling to do with flox or balloons. More on that later.

The SSW is COMPLETED! YES! Now, to complete the Slider and then fabricate the Windshield Fairing.

The slider parts are being sanded and I'm planning on turning up the heat in the garage to paint tonight or tomorrow. In the mean time, I went into the basement 12 hours after using the ProSeal to check it's status. I'm getting a little nervous. I knew it was slow to set, but MAN, is it still sticky! Is it ever going to set up? I sure hope so. If not, I'm going to have a big clean up job ahead of me. YIKES!

OK, it's two days later and the ProSeal has gone from sticky to tacky. It never completely hardens, so I wasn't expecting rigidity. I was hoping for it to be a little more like rubber and less like taffy. But it's slowly setting and we're good to go.

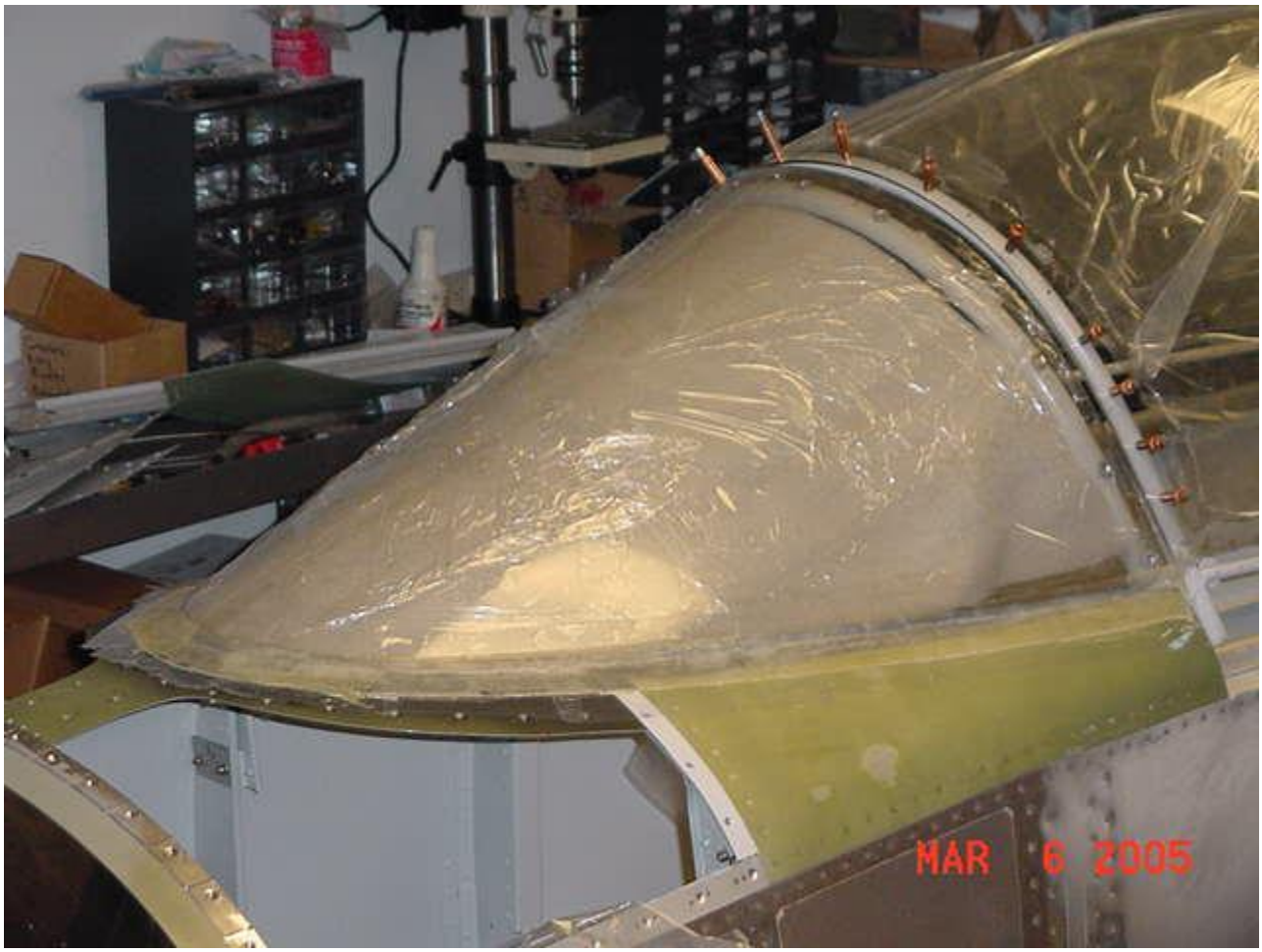
In the mean time, the GPS in my Super Decathlon coughed up a fur ball, so I've been out to the airport three times in the last 24 hours trying to reinitialize it. That, and I seem to have developed a bit of an oil and induction weep in the engine compartment, too. So while the GPS is rebooting, I was cleaning the cowl and tightening up the fittings around the engine. It doesn't take much to make an oily mess under there. At any rate, I haven't had time to do any painting. I'll try to get back at it. I don't

have any real deadlines, but as I've said, you have to keep pressing on if you ever hope to get finished.


Back to a little spray painting of the slider frame and parts. Now to let it cure. The SSW ProSeal has finally set like rubber (and still stinks). I covered the inside of the SSW with some packing foam that came wrapped around kit parts. I trimmed it to press inside the WB and up against the glass like some sunscreens you can by that "press fit". Then I used some cling wrap to cover and protect the outside of the windshield and the windshield skins. I may lay on another thicker plastic just before I start the fiberglass process. Of course, I have to assemble the canopy slider before constructing any Windshield Fairing (WF).

Well, I'm on my 4th repaint of the front slider bow. In the mean time, I removed the cling wrap and used some of my dental cling plastic to cover over the SSW in order to make the fairing. It's still a bit of a bitch to get the stuff to lay flat without bubbling or bowing. I finally got the perimeter down and covered the SSW with cling wrap to protect it.


I cut 3 strips of 2 inch tape again; a short one for the nose and two long pieces for the sides. I used my West System fast set epoxy and wet the tapes and laid them in place. I then used a disposable 2 inch brush to fill the voids, sweep the excess and move the tapes to position. Even after all that, one of the edges of the tape wanted to take it's own form. So I got my dental cling plastic and covered over those bowing/buckling areas of tape. This dental cling stuff sticks to about anything and leaves no residue. It's pricey, but since it's 4 inches wide, it's just right for this project.




This go around, I got the tapes laid out nice and looking good. Now I have a nice 2 inch base along the lower edge of the SSW. Once the next coat of paint sets and I can finally assemble the slider, I can get going on the vertical part of the fairing and then move on.

Side note: the Pro Seal finally hardened to a decent consistency and is not sticky at all. It remained pliable and is tenaciously stuck on to the airframe! I think the problem with the set time on the Pro Seal was the fact that it only had about a 6 month shelf life when I bought it about a year ago. It still polymerizes, but boy, it sure takes a long time.

**Slider Final Assembly**

Ah, the little things in life! The Slider frame is finally painted and I set it over an oil heater to help it cure. Perhaps after another 12 hours or so I will be able to assemble the slider.

I am going to assemble the slider on the ship, working in the same order that I drilled it. I've found that it clekos together easier and aligns the best if I work in the original order. There is a lot of tension on those parts from the Plexiglass, so it's not only the clekos working on the shape.

Cross your fingers, here we go! Wish me luck!

Yes, you're right. I can't leave well enough alone. I had the entire slider clekoed together in anticipation of final assembly. Didn't like the relationship of the slider bubble to the SSW. It's too high (still) and it's lop sided. So of course I took the entire thing apart and started re-bending the front bow. I used my scientific foot and arm wrestling techniques to wallop that thing into submission. Didn't even scratch the paint for once. After about an hour I got it in better shape. It's still not perfectly

symmetrical, but it's MUCH better than it was. The front bow (after all this time....) was too high/steep on the right and had a bit of a reverse curve above the "foot" (above the truck) on the left. So I flattened out the right side (very little) and tried to make the left side more convex. It worked out pretty well.

**NOTE: Keep On Truckin' !! When I was first starting this project many months ago, the trucks didn't sit right on the tracks. They put the wheels at an angle. I didn't notice why it was happening. My buddy Bruce (otherwise known as OB - Over Build) realized the problem and took the angle of the truck over to my brake and got some scrap and tweaked the angle a bit. He was very precise and methodical (as usual). Today, after manhandling the FB of the slider, I had the same problem. My scientific approach to fixing the problem was to use a pair of Channel Lock pliers and open the jaws as wide as then go. Then I just grabbed the wheels over the screw ends and bent the angle. Worked great. Took 30 seconds.

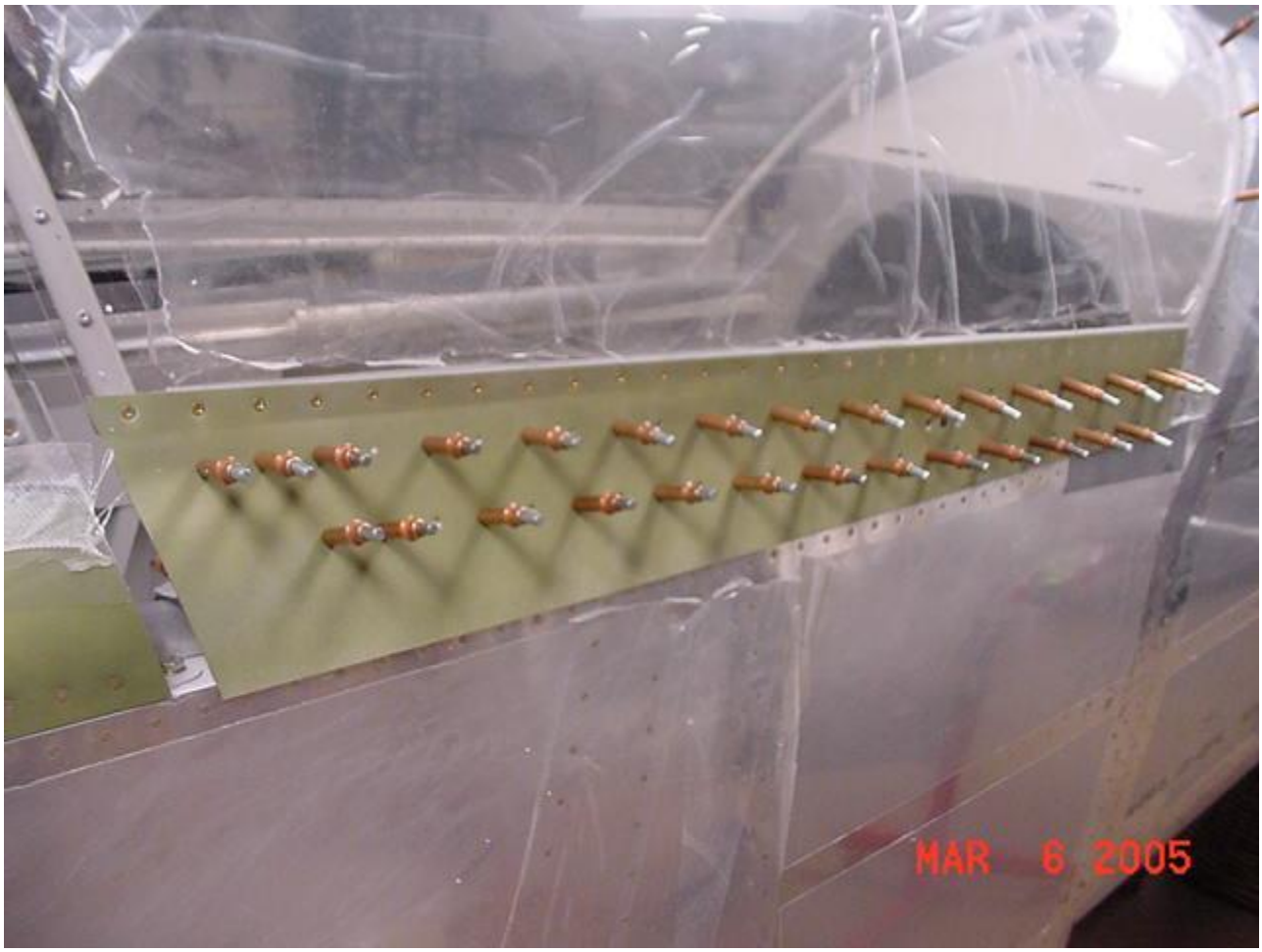

After I had the relationship as good as I could make it (without making new parts) I removed the vellum around the perimeter of the bubble. At this point I also checked the edge of the plexi and did some more smoothing. Finally, I put the bubble back on the frame and I'm moving on with final assembly.


I clekoed the slider bubble retainer to the horizontals on the slider. I clekoed the skirt brace, too, while it was easy to get in there. I used some white paintable caulk liberally between the retainer and the side skirt. I essentially filled the entire recess under the plexi and made sure there was just a bit of excess. Not enough to squirt down between the skirts, but just a little did come up to the edge of the plexi. A quick wipe with water and it was gone. I clekoed right through the latex caulking. BTW, I only used about 2/3 of one squeeze tube.

Note that in the pic above, I felt I didn't have enough caulk in there so I went back and laid another bead under the first bead to completely fill that angled recess under the plexi.

First thing I blind riveted was the FB. That's what I drilled first, too. I machine cs the plexi and used the long cs pop rivets provided with the kit. A couple of them didn't look right so I drilled them out and reset them.

Next I cut the UHMW strips that I drilled with the retainers months ago. The were too long, so I cut them down to size. Then I started screwing them down through the skirt and plexi with the #6 screws that came with the kit. BTW, at this point I went back and removed the #6's from the WB and replaced them with the longer #6 screws provided with the kit. This time they went right in.




The plastic strip was hard to get going. I may have put in inside out, and the holes didn't line up very well vertically. I couldn't figure out any way to cleko the strip down, so I started at the front of the ship, held it with one hand and screwed it with the other. In several places I have a hard time getting the screws started. I finally took a #30 drill bit and just touched the hole in the strip. That opened the hole enough to get the screws started. I sent ahead and completely screwed down the strip, retainer and side skirts.

Time to rivet the rear skirts. These are countersunk right through the skin down to the plexi. I used the blind rivets provided with the kit. They suck. Maybe I used the wrong ones. There's a bunch of canopy parts that aren't labeled. The plans specify what rivet to use, but all of them aren't labeled and even so, Mark seems to use names/descriptions that don't follow universal nomenclature. Anyway, the rivets were loose after I pulled them. Luckily, I had a bag of countersunk blind rivets from Wicks that I bought at the beginning of this project just to have some spares. The blind rivets that came with the kit were so crappy, I could knock them out with a punch. Without drilling. They suck. I replaced EVERY one of those rivets on the rear skirts, because I just knew they were going to smoke pretty fast. I took those factory rivets and set them aside. I may just throw them away.


It was getting kind of late and it's been a long day. I did go ahead and blind rivet along the left side skirt, but that was as far as I could get without falling over from exhaustion. It doesn't take much. The rivets provided for this part worked great. I machine cs the skirt and popped them in starting from the front to the back, doing every other one on the first round. Then all the rest. Man, those pop rivets kinda look like shit. No wonder Randy Pflanzer puttied his all in. I'll end up doing the same thing.

Next day: My pop rivet gun quit working, so I made a mad dash and bought a new one. This one is a "Professional" rivet gun with a swivel head. For less than $20 it was a pretty good deal.


I climbed inside the cockpit and clekoed every other hole in the skirt brace. I grabbed up the standard head pop rivets supplied with the kit and put them in form the front end to the back. This process went pretty quick. The rivet heads deformed the paint around them a little, but it doesn't look too bad.

I asked Mark if there was any other way to attach that brace, and so far no one has come up with a better solution. Unfortunately the standard head is the only choice. They actually don't look that bad. And considering there's a big assed strip of plastic screwed to the panel right above this row of rivets, well let's just say it's not the most cosmetically appealing part of the ship. But let me tell you I had a big smile on my face sitting on the inside looking out!

Time to pull the slider off of the airframe. I set it in between two wicker chairs on top of some rug "anti skid" and already had every other hole in the lowest rivet hole row along the side skirts. Remember, I drilled this row up to #4 rivets. I used 4-3.5 hard solid rivets and hand squeezed them with my Main Squeeze. I still love that thing! Even with the clekos in place, these skirts did not want to go into position entirely, so I had to use one hand to pull the skirt to position (realigning the holes) and then use the other hand on the squeezer. I have had to use my hip just below my belt line on many occasions to hold the other handle on the squeezer. I did this on almost every rivet along the bottom of the skirt. Another choice would have been to just open the jaws of the squeezer more so that the handles were very close together and then do multiple squeezes. Either way works, but I'm getting pretty good at shooting from the hip!

While I was doing this I finished installing all of the skirt doublers. There is one hole that I did not have access to, so I had to use another cs blind rivet.

## Canopy Latch Mechanism

Now that my slider is all but assembled (still need to attach the track fairing), I started finalizing the latch mechanism. I used the wrong hardware on the initial fit up, so I took it all apart and changed things. The plans don't have any diagrams, just a list of parts. It's puzzle time again! It wasn't too hard to figure out what goes where. On the rod ends, there are now clevis pins that attach with washers and cotter pins. They look great and work very well. The bolt between the lat and latch handle take a drilled AN bolt with a cotter pin. I went ahead and put a washer between the latch handle parts. I wanted to get something between them to keep the rubbing down to a minimum.

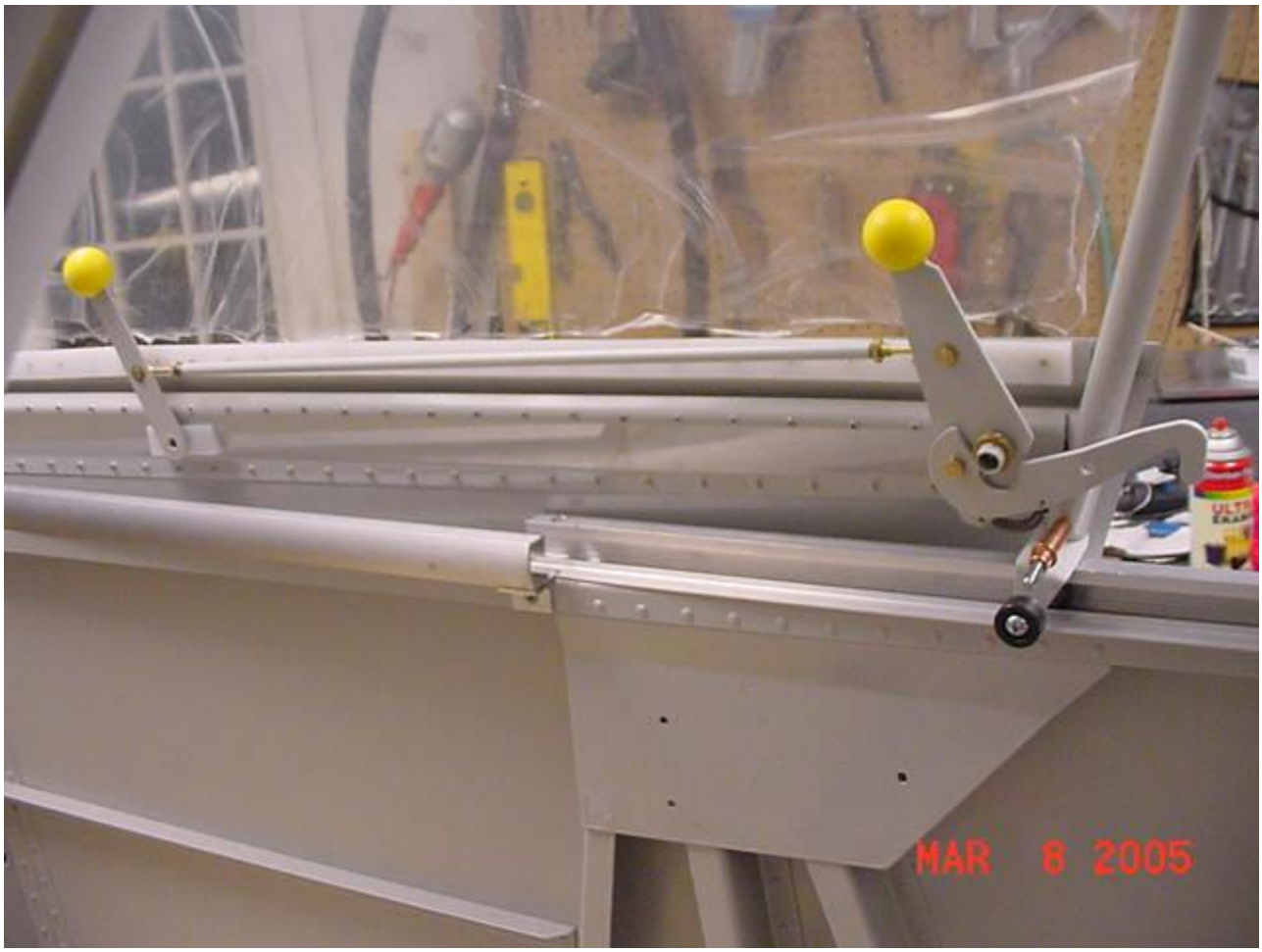
The rod ends and drilled bolt on the handles are all permanently pinned in. The ring that holds the latch handle is loosely cotter pinned and the rear handle and plastic block are pushed through the skirt and in position. It looks like you need to have the rear handle about 1/8 to 1/4 inch away from the ship on both sides to clear everything during function. I don't have any washers to put on the rear handle shaft, so it's going to free float for now. If I can ever find a couple shims/spacers that are inconspicuous (small O.D.) then I might take that apart and install them. I'll check at the hardware store next time I go.

The F1 kit does not come with knobs for the latch handles. You can buy a set of 4 from Van's for about $10. They come with instructions and a screw. I drilled the screw hole up one size and then tapped the knob onto the latch handles with a rubber mallet. Then in goes the #10 screw. I hid the screw head to the outside of the ship. Slick!

I went ahead and marked the location for the cut on the rear handle shaft.I used a reinforced dremel disc and cut both shafts off the handles. I'm keeping the handles pretty tight to the ship inside and out. You have to, otherwise the rear handles won't clear the turtledeck. After cutting them, I took them to my scotchbrite wheel and reduced the steel shafts so they sit in the aluminum exterior handles. The exterior handles still fit pretty snug on the shaft. I'll drill them a little later.

The plans have some nice pics of the latch mechanism. I like hiding the hardware on the backside, but you cant do that with the rear handle.  I put the clevis pins in so that the cotter pin is hidden on the outboard side on the front handle. I'm not worried about inspecting those things. Heck, you'll be able to see them through the window.

I put 1 #10 screw in each side of the plastic block to fasten down the rear handles. I put the proper bolt through the nylon runner block back at the center track and snugged up the stop nut. It makes it a lot easier to take the canopy on and off by yourself if that block isn't flopping around. I temporarily pinned in the front latch handle assy, and screwed on the horizontal tube that links the handles. Then I put the slider back on the ship.




The right side latches beautifully, but not the left. The hook now lines up, but the slider seems racked and the left side over closes. Remember, I didn't put the ss pin retainers on the track yet, and I'm wondering if that will give the tension necessary to correct the discrepancy. Another possibility is to take the slider off and see if I can rack it to square up how it closes. Don't think so.

One thing I noticed is that the rear latch handles contact the turtle deck when you push back the slider. It doesn't hurt anything, the handles ride on the plastic knobs. And what happens is that the handles take the least path of resistance and actually clear themselves away from the ship, in a nearly vertical position.

**My Slider has a Nickname**

She is called Maraca. Why you ask? Well because the slider sounds like a maraca when I shake it. Yes, there's about 40 pop rivets sliding around in there. The blind rivets from Mark that I used didn't pull tight enough. I could see the rear skirts flex away from the rivet heads when I moved them. Today, I looked again, and I didn't like the ones I replaced in there, either. What I determined was that I was using too short a rivet. The ones I put in there today almost touched the back side of the RB on the slider when you put them in the hole. NOW I'm done blind riveting the slider (again... I hope...).


Below is my building buddy Belle again. I taught her to sit on the coffee table which I use to get inside the canoe. Now she wants to get in the canoe, too! When I had my Grumman Tiger, both my dogs would jump in and sit down just like it was a truck. Don't think I need her jumping in the F1 right now though.


**The Linch Pin That Holds It ALL Together**

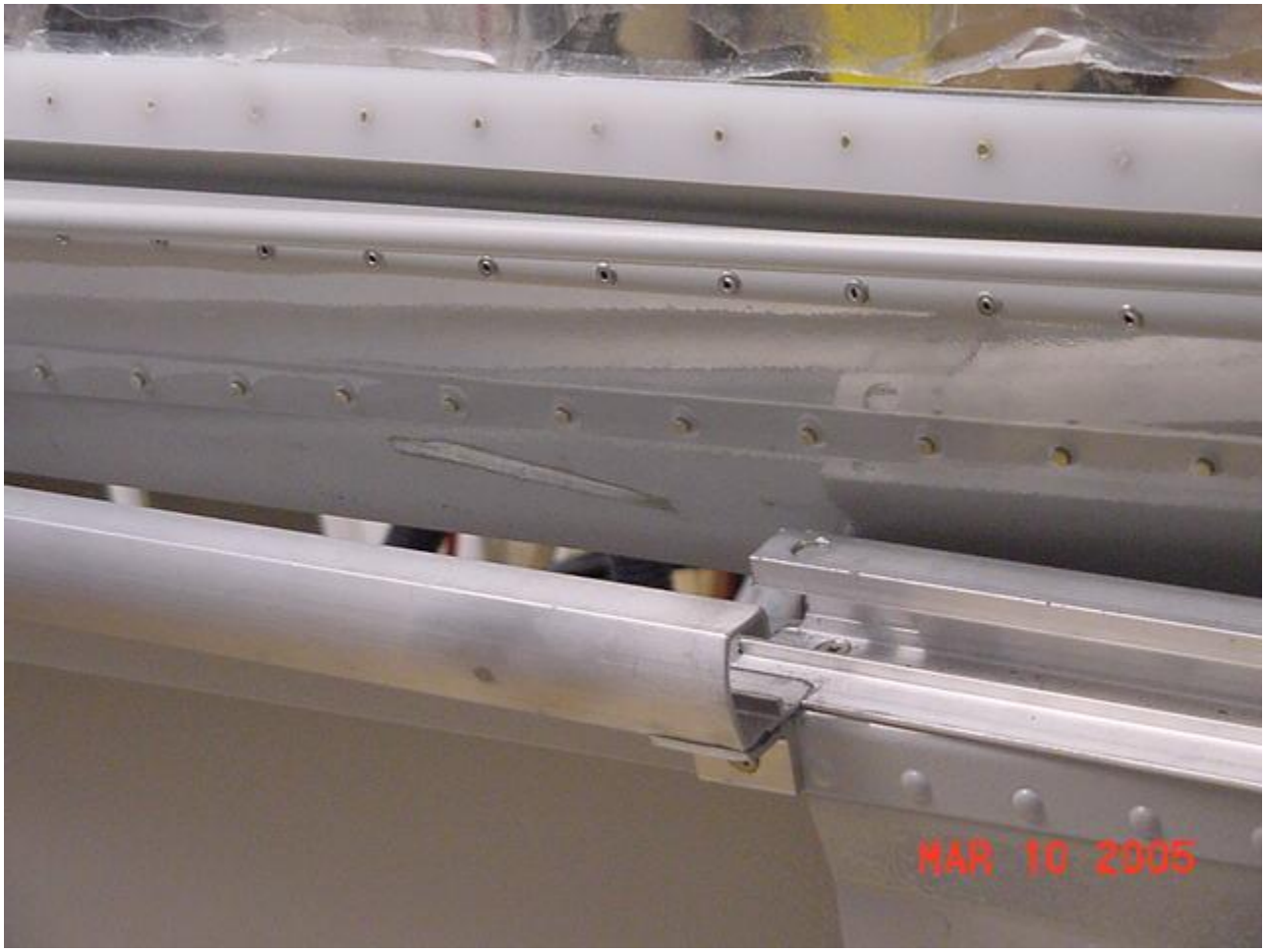
Well, it's not really a linch pin, its the stainless steel pins that pull down the rear of the canopy I'm talking about. Now that my slider is on the ship with everything attached, I have to figure out how to get those pins hooked in. I worked on it a bit tonight, but ran out of steam. I evaluated the situation and here's where I stand. The slider appears a bit racked. The left side closes before the right. The bottom rear corners are open on both sides. Did you read how much trouble I went to trying to correct that early on? Well, it's back. The Rear Bow just BARELY clears the turtledeck, so I can't just bend the rear bow anymore. And the SS pins ALSO just barely clear the turtledeck, so I can't bend THOSE in any more, either. So, I have to make the track hook reach out and grab the ins and pull them in. I'll also have to coax the skirts some more. Perhaps even use a shrinker, which would mean some painting. I'll have to play with it some and see how much closer I can get it to close back there. Then I may have to ask the other builders (or Mark) what I need to do to close the gap.

**Call Me Manglor, or ...this was just stupid**

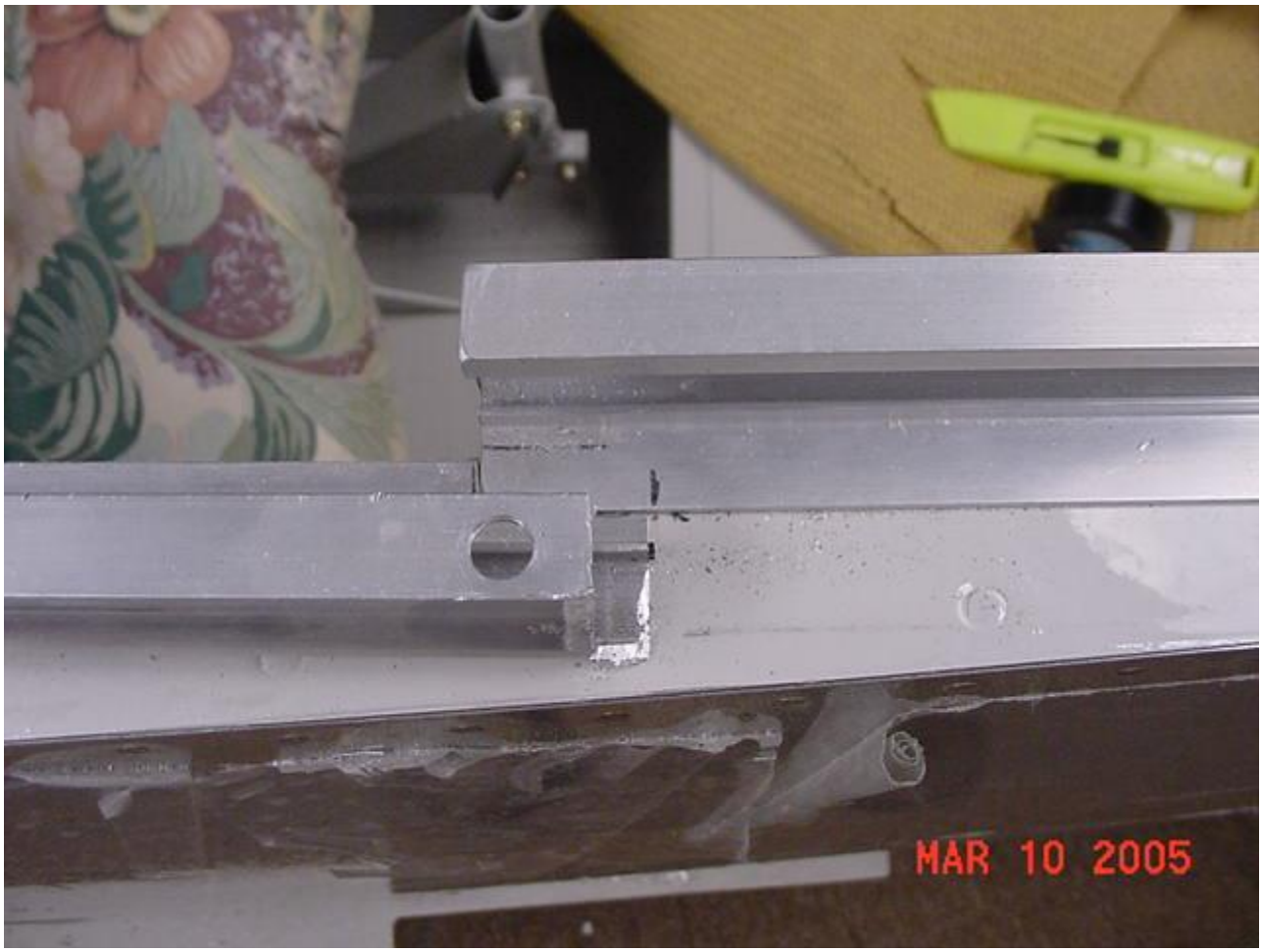
The slider just wouldn't close well on the left side. It was beautiful before I riveted it up. Evidently,

when I riveted, there was a shape shift on the skirt brace and that caused it to pull inboard at the bottom. No problem, just manhandle it and bend it out. And bend it out. And bend it out. And bend it out. You get the picture. Well, I was watching the bottom edge as it closed and eventually, there was daylight pretty much along the entire bottom edge. Of course in the process of trying to re-introduce the S-curve and bow out the bottom, I put a few slight creases in the skin. But that SS pin on the left kept getting closer and closer to the track like it should so I can capture it in the hook. When I was testing it before riveting the slider, the whole thing would just roll sweetly into place and clunk solidly to a close. But not now. And I could figure out why. OK. And bend it out. And bend it out. And bend it out. It still didn't close very well. Every so often I would go to the right just to make sure it was OK. No problem there. A little tight perhaps, but that SS pin is perfect over there.

I grabbed the exterior latch handle (still not screwed on) and slid the slider with my right hand and felt along it with my left hand. I even pushed a little inward and felt a scrape. Hmmmmm.. Must be something scraping on the other side. Slide back the canopy and go to the other side. This is what I saw looking back to the inside of the left skirt:




Get the picture? The silver streak is where the canopy was closing and getting scraped by the track end? DANG IT! There goes the paint job. CRAP. OK, No problemo. I got out a big hand file and filed. Still scrapes. File again. Still scrapes. CRAP. Get out the dremel and make a BIG cut out of the outer end. I cut it back about 3/8 inch AND beveled the face parallel to the side of the ship.




And it still didn't clear. Back to the flangers. Yes, the flangers. My fingers were hurting and I didn't want to subject my patients to my hand trauma, so I wrapped heavy paper around the beaks of the flanger and grabbed from the bottom up over the skirt brace rivets (or as close as I could get ) and Manglored the brace into an S-curve. I didn't bend the brace, I pushed it up and out. Firmly. And it moved. And it shows. DANG IT!

Well, at least I got some clearance there now. And the slider goes to close sweetly.. so far. I'll have to remove the track and dress it. Then I'll have to spend some time with Mr. Bondo and fill in some of those creases. Yup, call me Manglor - the mangler. DRAT! The SS pin tracks right along the track like it should and I think with a little more tweaking of the skirts I'll have the shape and closure I want. Then I can attach the pull down track hooks.

After a good nights rest and a crappy day at work, it's back to the slider. I still had to tweak the closure some. I expanded the lower edge of the skirts some more, and I like the thud of the closure now. I had to file the track a bit more to make sure I had enough clearance. As I do this, the SS pin relationship keeps improving, and the pins are now both very close to the tracks. Time to start working on the SS pin capture hooks.

Then I had an epiphany. Yep, you probably already figured it out. I has disassembled the trucks, and when I put them back together, I put the left one on the bracket backwards. So the whole thing was about 1/4 or 3/8 inch too far inboard. Shit. Oh well. I can just make a new left canopy track, and touch up the paint and a little bondo on the skirt and I'm back in business. Too bad I wasted all that time. Now to roll the skirt back where it should be an Manglor it some more.

## Exterior Latch Handle

Before I can do that, I need to be able to latch the canopy, inside and out. So I installed the exterior latch handles. That was pretty straight forward. I used Vice Grips (yes, Bruce, Vice Grips) and closed the latches. Then I worked the handles over the shaft of the interior latch. I made sure the horizontal tubes between the inner latches were screwed about mid thread so I could leave room for adjustment. I made the latch handles line up pretty close (by Mark II Eyeball), then re-aligned the exterior handle. I put my 90 degree adapter in my drill and the smallest bit I have for it. I marked the center of the threaded hole in the handle, then removed everything. Over on my bench, I drilled through the shaft as centered as I could eyeball it. Then I made sure the #10 screw barely went through. If I were more patient, I might have just used a tap after undersized drilling and made the whole thing thread together. I don't think that's necessary, but it was an idea. At any rate, I took everything back to the ship and screwed it down. Cool. Works great. I'd still like to fins a shim for under the exterior handle. That shaft can still move in and out in the plastic block, and eventually, the handle could gouge the skirt. At least the latch mechanism is complete.

## Hold Down Hooks

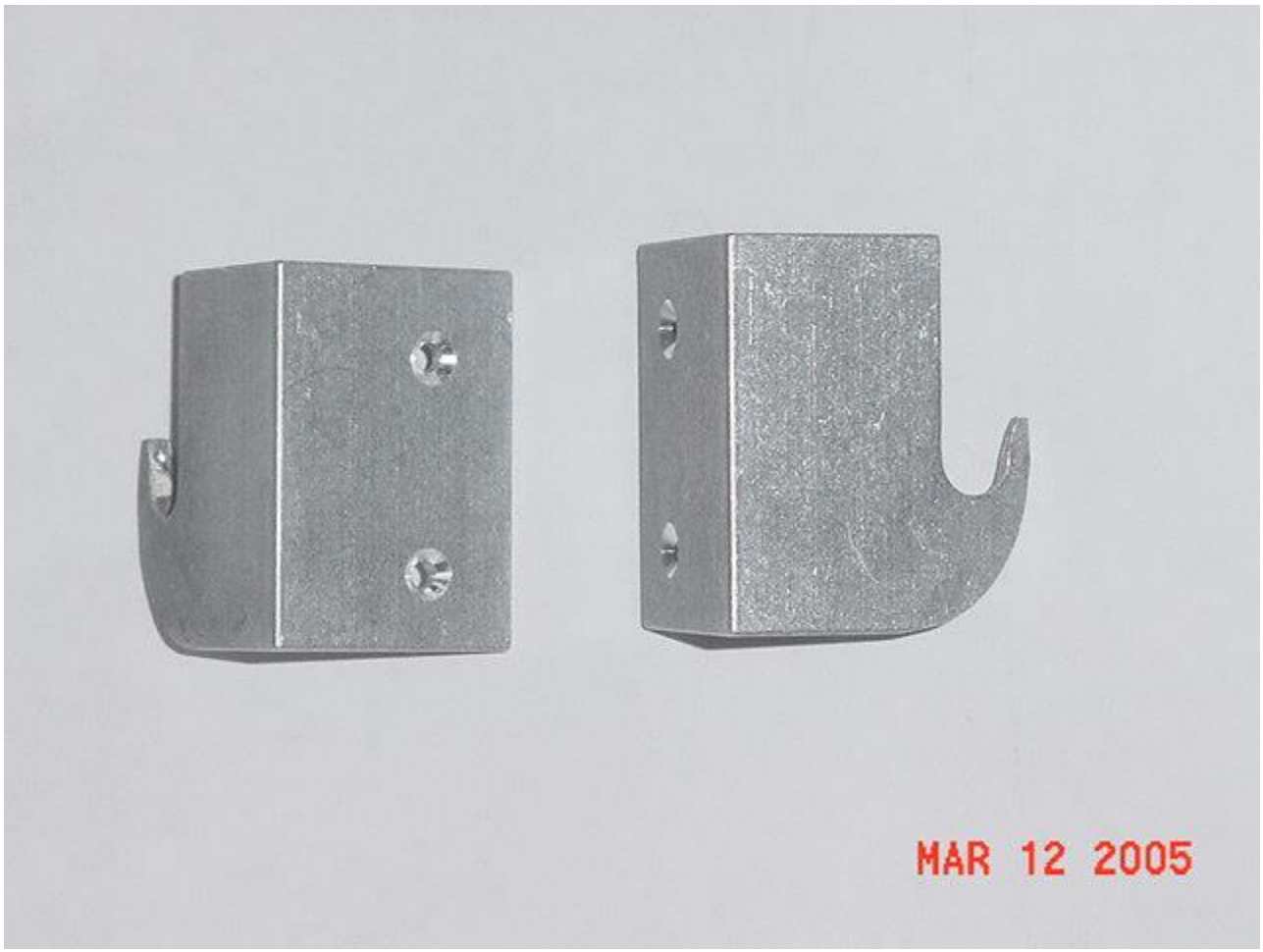
Those hold down hooks that attach to the track for capturing the SS pins aren't installed yet. I probably could have installed them before now, but after riveting everything up, the pins don't go to the same place. Sure, there's room for a little adjustment, but not much. My rear bow is so close to the turtledeck that I can't even bend the SS pins inward. They do come very close to the track upon closure, but not like they did. Perhaps I still need to Manglor the skirts some. At any rate, I still have to position the hooks on the tracks.

First thing I notice is that the pins don't come down evenly. The left pin is longer than the right. I'm going to cut them off even. The theory there is that if the pins are even and at the same angle with the track, the pull down will be even, too. So it's dremel time. A reinforced cut off wheel works great for this.

Another problem is that the pins are still too wide for the slot in the hook. I have already dressed them down some. Now it's time to make them fit. You could open the slot in the track hooks, but it's only aluminum, and you might end up breaking them in function. So I'm trying to leave the depth of the slot alone. As it turns out, putting a slight taper on the SS pins is going to help the capture while closing anyway, so I can kill two birds with one stone. It's dremel time again!

One thing I didn't check along the way was to make sure there is clearance at the skirt and brace for the hook before assembly. I even have rivets in the doublers that sit right behind them that are in the way. I've already drilled out the rivets, and may end up epoxying the holes closed. But the hooks may still collide with the skirt and gouge it just like it did with the track earlier. So I may have to thin the hook after all. It's going to be close. I wish I would have put more bow in the skirt and the brace at the SS pin AND I wish the doubler was much farther back behind the pin. Hindsight is always 20/20.

Well, I did have to shorten *and* thin the hooks. I rounded the forward curve more substantially, too. I had to cut them down to make them clear the skirts. The way this is working out, I may have to have a couple new hooks made out of steel to be strong enough to capture and pull the SS pins down and in. We'll just have to see.




The plans don't tell you how to attach the hold down hooks. I've decided to rivet them on from the side. I drilled two holes at #40 along the side at the tangent where the hook and track touch. I cs the inboard side of the hook for a #3 cs rivet. There is a gap at the deepest part on the side of the track because of the bow. I should be able to get in there and squeeze a solid rivet in there. Later on, I may need a 3rd rivet or #4 rivets, but for now I'm attaching with two dinky ones.

I clamped down the hook on the left and latched the slider closed. I then racked the slider forward enough to latch the right side. Since the hook captured the pin, the left side stayed put and the right side operated nicely. However, the left side does not operate so smoothly. I need to figure out what to do about the asymmetric closing before I move on.


The cowl took a bit of horsing to get just a minor amount of improvement. Finally, I latched one side, made sure the rear was pulled down as best I could and drilled a hook to position. I was inside forcing the hook onto the pins. I drilled two #40 holes and clekoed them. I did the same thing for the other side. I tried to err on the side of just a bit tight. Mark F. Said all this will cure/settle with the plane sitting in the sun. All I need to do now is set 4 solid rivets on the hooks and the canopy is done.

## Windshield Fairing

I tried a couple attempts at glassing the bottom of the SSW. The second time around turned out pretty good. I pulled that attempt off and measured 3 strips of 2 inch fiberglass tape and one long strip of 3 inch tape for over the FB and the WB. I mixed up a batch of fast set epoxy and wet all the tapes. I took the wet tapes over to the plane and placed them in position. Then I moved it with my gloved fingers and a disposable brush. I'm not real crazy with the results so far. I may mix up a bunch of flox and balloons and do some filling when it sets. It the shape looks halfway decent, I'll keep going.

The lay up was OK, so I went ahead and went over it. I put two layers around the front, and 5 layers over the top. It's going to take a LOT of finishing. I think I'm going to have to do some serious filling over the middle and edging around the periphery to get it looking half way decent. Depending on how it looks the next morning, I may even add more layers. Probably not around the front, but over the top. People have a habit of grabbing the glass instead of the handles, so the plans recommend some serious strength there. I also heed to do some contouring because my front bow ended up not being symmetrical with the windshield bow. And you can REALLY see it in the lay ups. So I'll have to do some cosmetic trickery there to blend in the problems.


There is a bunch of guesswork for me doing this fairing. I've never done anything like this (or most of these other aircraft building projects) before. Other than the page or two of pictures and plans, I'm really shooting from the hip. The plans describe a bit different technique in so much as the fairing is bonded to the airframe in it's construction. Mine is removable. I want to be able to finish my fairing off of the ship. If I had to finish the fairing on the ship, I'm sure I'd have sanding gouges everywhere. Plus it has to be tough to get the edges the way you want them. The way I'm doing it, I can take it off, sit in a chair and work were I can make a nice mess without getting everything dusty, probably back out in the garage, or outside if it ever warms up.

I'm using the West system. I like it. Next to no smell. Easy to handle. Premeasured pumps. I bought a bunch of those paper cups and brought home some tongue blades from my office. Armed with those, I pumped out 4 squirts of resin and 4 squirts of catalyst and started mixing. This was when I was putting on the second row of tapes I had three lower tapes and the top tape. I laid out some poly sheeting on my workbench and started brushing the mixed resin into the cloths all stacked up. I put the first one on the ship and came back to finish wetting the second and third strip around the front of the SSW. The "pot" started feeling a bit warm. When I can back to the bench to grab the pot so I could brush down the strips I already laid out, the pot was SMOKING! And the resin was already hard. Fortunately, the resin in the 3 inch strip for the top had not hardened. I mixed up a 2 squirt batch and wet the whole tape quickly, then took it to the ship and laid it down. With the resin remaining, I brushed everything out. Fortunately, the resin in the tapes was still workable. Lesson" no four squirt batches Fewer tapes and 1 squirt batches. Or go back to regular set. I like fast set, though.

I tried to cut thin strips of cloth to use for filler. It was pretty easy for the three inch top area, but around the front it kind of sucked. I put two layers of cut cloth on the top, then two layers of tape

around the front. I overlapped each layer at the lower corner. Then I went back and put another layer of tape over the top.

After that set up for an hour or two, I went back and mixed up some "micro". I bought a pound of micro balloons at the beginning of this project. Time to put it to use. I made a 3 squirt batch of resin and stirred in 3 HEAPING tablespoons of balloons. I took the wet semi-runny mix of micro over to the ship and spackled it over the tapes. I used two batches of micro, and I still didn't get everything covered that I wanted. The plans say cover with 1/4 inch of micro. I don't have that much anywhere, and it seems a bit much. But none the less, it takes more micro to cover and contour the tapes than I thought.


It was getting late, so I decided to let this batch set and went to be. I'll check the micro layer the next day and probably add to it. While it's setting, I'll be reading the engine cowl plans and mounting the engine mount.