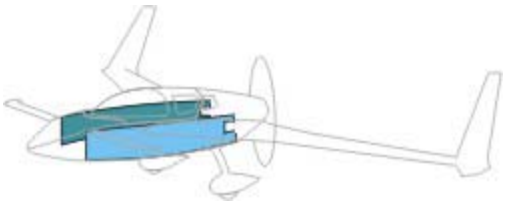


Chapter 5

Picture by Bernard Siu

Comments and Tips

(Darren DeLoach (FAQ)): Cut and glue the Masonite and 3/8" foam **BEFORE** you glue your jigs to the table, so that you have plenty of flat space available to work on.

(Joe Hull): made marker lines at a 30 degree angle so I could get the fiberglass

(Nate Wolfe): In my excitement, I did not test fit my parts (Bulkheads) to the fuselage sides prior to taking apart my jigs- (DON"T DO WHAT I DID) This caused me to have to deal with them freely on the table and I paid for it with some dings in the unprotected foam of the outer fuselage in doing so. Test fitting is very important and will determine how well things go together early in this chapter. Take your time and test fit while things are still jigged up.

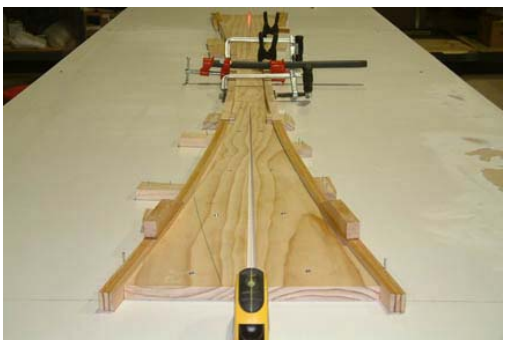
Step 1 – Jigs and Top Longerons

(Wayne Hicks): I saved some time in Chapter 5 by borrowing Bill Kleb's fuselage jigs he borrowed from someone else. It saves lots of time when you can reuse someone else's stuff. Bill and Mary Kleb are building an AeroCozy and they live only 15 minutes from my house. They're rocket scientists, too.

Making the Jigs (FJA to FJF)
The FJA (with curved edge) requires a bit more attention than others. Since I wanted to make sure all 4 are exactly the same, I tried to make the first one as precisely as I could. That means tracing the curvature carefully, trimming close to the curvature with a band saw, then sand, sand and sand to the contour line. After I accomplished that, I trimmed and clamped all four FJA's together, then sand, sand and sand some more! Here's a picture how they turned out.

5.1 - How do I get a smooth curve when cutting the *FJA* jig?
(Darren DeLoach (FAQ)): Although the measurements given in the plans do not fall on a true monotonically increasing curve, the Masonite effectively "filters" the curvature anyway, so do not worry about it. To draw a nice curve along the measured points, use a metal yardstick. Lay the yardstick on edge along the points to be connected and you will get a nice smooth curve.. You can use small finishing nails on the points as a reference to steady the yardstick if necessary.

Mounting the Jigs on the Work Table

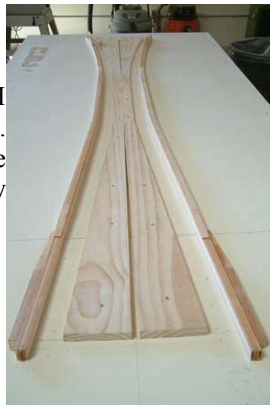


(Bernard Siu): Once the jigs were made, I bolted them down on the worktable. The plan requires a ½" gap at the tip of the two ends – a perfect application for a laser beam. I cut two 1"x½" wood blocks – one for each end of the jigs. I put a mark at the mid-point of the ½" sides of the blocks. Now, I placed these small blocks 102" apart (per plan) and ran the laser beam right down the center of these two blocks. The laser beam is the centerline of the jig set up as shown.

Instead of using nails, I pre-drilled the wood jigs and screwed them down onto the work table. This way, I have less tendency to move them out of alignment while

securing them in place. Don't forget to double-check the dimensions once they are secured. Now I am ready to build the longerons.

(Clark Canady): I used clear plastic under the longerons and jigs before applying epoxy to make the longerons. I did not bondo the jigs to the workbench. I nailed jig guides to the table and bondoed the jigs to the guides. This kept my table nice and clean for the next operation.



Building the Longerons

(Bernard Siu): The longerons were quite straight forward. Between clamps, nails and wedge blocks, I managed to secure the longerons in place to cure. I gave it 3 days to cure (while I built a local heat tent). They popped off quite readily and retained their curvature - I was impressed. The packing tape under the longerons did a great job in keeping the longerons from sticking to the work table - thanks to the friendly advice from the plans!

(Joe Hull): The plans suggest using nails into the workbench next to the longerons to hold them in the jigs. I found that that worked OK on the straight sections but didn't cut it on the curves or where more force was needed to conform the wood to the jig. Thus - one can never have too many clamps!!

Steps 2-3 – Fuselage Side Forms, Contouring the Insides, Glassing the Inside Lay-ups

Preparing the Masonite Boards

(Bernard Siu): First thing I noticed was that there wasn't quite enough material for a 2-piece per side set up as shown in the plans. Figure it is going to be another one of those 'creative' tight fit layouts (as we all experienced in the past), I measured, re-measured and re-measured some more... I finally gave up and ended up with 3-piece per side, 94"x21", 4"x21 and 4"x21". I was able to make both masonite sides with a single 4'x8' board though. *I later found out from the archive, someone did mention briefly that there was not enough material for a 2-piece masonite per side - nothing specific though. Considered yourself FOREWARNED!*

5.4 - The plans appear to show a definite crease in the Masonite when mounted on the jigs. Is this correct?

(Darren DeLoach (FAQ)): No. The Masonite should follow smooth curves, the lines depicted in the plans are simply to point out that the differences in *FJB/C* and *FJD/E* result in differences from top to bottom.

Setting Up the Fixtures for Fuselage Sides

(Bernard Siu): This step requires the securing of the FJA - FJE fixtures at an upright position to shape the fuselage sides prior to glassing. With the help of a laser beam, I drew out the foot prints for the fixtures on the work table. Then I lined up the fixtures on the foot print. I noticed some warpages on a few fixture boards which I think needs to be corrected (I may be too picky on this one). I was concerned that Bondo (as recommended per plan) may not be strong enough to hold and correct the warpages in my fixtures. I decided to use Wayne Hick's approach by making fixture frames instead of gluing them on the table instead. I cut up a bunch of 2.5"x 14.5"x.75" plywood boards as spacers, screwed them to the fixture boards (5 places), forming a fixture frame (as shown).

There are two main advantages to this approach - 1) I can straighten out the warpages in the fixture boards, and 2) I can hold the foam boards onto the masonite with screws instead of 5 minute epoxy (per plan). This will eliminate the patch work later when the foam fuselage is separated from the masonite boards.

Fast forward a bit here... the picture to the left shows the size of the hole left on the foam by the hold down screws after the fuselage is done. They are much smaller than the chunks of detached foam as described when using the 5-minute epoxy method. I filled them with micro before moving to Chapter 6. The thumb tack is just for size reference.

I made a 7/8" thick block for lining up the fuselage foam sheets as I 'pulled' them down onto the masonite (with screws from the bottom side up). Surprisingly, the foam lays down on the masonite boards quite nicely even without any screws to begin with. Nonetheless, when it was done, they looked pretty good.

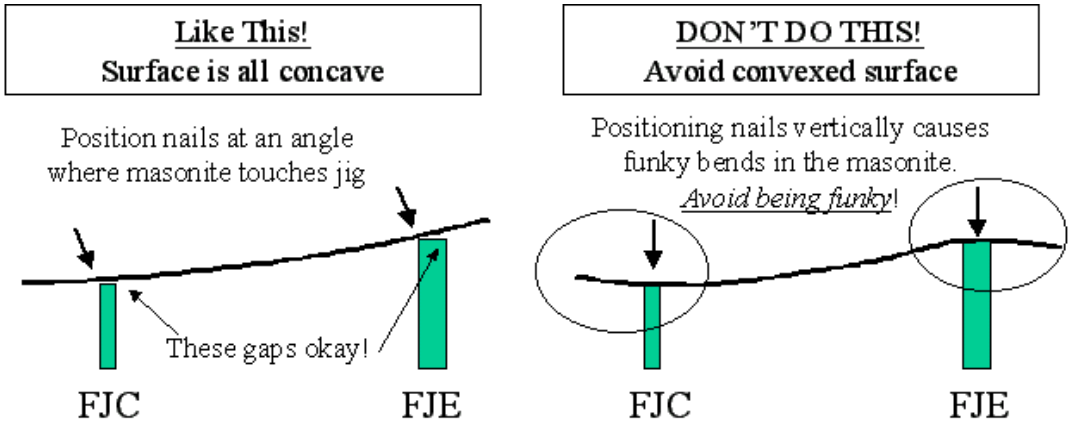
Tip - Attaching Masonite to jigs

(Rick Maddy): When you nail the masonite to the jigs don't go crazy with the hammer. When done you should be able to run a straight edge down the length, perpendicular to the top edge and there should be no gap. Think of all those bulkheads being put in place later. Remember that they have straight sides.

(Wayne Hicks): Instead of mounting the fuselage jigs directly to the table, I made two "jig boxes" by mounting the FJA's through FJE's onto 1-inch pine stringers and closing off the ends with 5-inch pine boards (16 inches wide). In this manner, I had two jig boxes that I could bolt onto the table or unbolt and remove from the table at will. I drilled reference holes at all four corners of both jig boxes so that I could always repeat the side-by-side setup as shown in the plans.

Be careful when nailing the masonite to the side jigs. It's everyone's natural tendency to nail the masonite flat against the jigs. If you do this, the masonite takes on a funky, convexed bend in lower, aft areas where the landing gear bulkheads will be. This

is my theory why some builders are horrified when their LG bulkheads don't fit against the sides when assembling the fuselage in Chapter 6. What I did to "correct" this was to renail everything aft of the A jigs. (The masonite can be nailed flat to the A jigs. There's no much vertical curvature there.) Beginning with the B, D, C, and E jigs, the masonite touches only at the corners and does not lay flush against the top surface of the C and E jigs. You'll end up driving the nails into the inside corners of the jigs. I was rewarded later in Chapter 6 as all my bulkheads fit perfectly.



Not wanting to face the prospect of repairing/filling holes left from the 5-minute glue, I used dry-wall screws to hold the foam sides to the masonite. After cutting the masonite sides, I drilled a series of small holes, checkerboard style, one every 18 inches or so. I also drilled holes on the perimeter every 6 inches or so. With the jigs being supported off the edge of the table, I put the foam sides onto the top of the jig, then screwed in the drywall screws from the underside of the masonite. I tried using double-sided carpet tape, but the foam didn't stick. The archives say that some people are having success using double-sided grip tape, the kind used to secure grips to golf clubs. It didn't work for me. ☹ Anyway, the drywall screws were well worth the effort! When I released the sides from the jigs, there were no holes or torn foam of any kind. No repairs. The holes left from the dry-wall screws are so small that there's really nothing there to fill. And it didn't take but maybe 30 minutes longer to set up the jigs. 30 minutes seems like a good investment of time when one considers the amount of time needed to fill gouges from the 5-minute glue, not to mention the fill and sand, finishing work needed 6 years (??) from now on the exterior lay-ups. (I know, I know...some of you out there were lucky enough not to have problems with the 5-minute glue method. My hat's off to you!)

Making the Fuselage Sides

(Bernard Siu): Foam for the fuselage sides was easy to cut with a razor blade. The curved edges at the bottom were not too bad either. Again, I completed one side first, then I traced out the second side using the first side as a template. This way, I should get two symmetrical sides or at least a pretty close pair.

Tip - Cutting Foam sides

(Rick Maddy): When cutting the 3/8" foam for the sides, make the bottom edge a 1/4" too long from all the given dimensions. Later in the plans, when putting on the lower longeron, you will be asked to double check the dimensions and place the lower longeron in the proper place. Odds are if you cut the foam to the exact size the longeron will end up overhanging a bit. This will cause grief in chapter 7. Once the longeron is in place you can simply trim the foam flush with the longeron. See my chapter 7, step 2 pictures to see what happens if you don't follow this suggestions - isn't hind sight great!

(Source Unknown): A fuel cell finish nailer, instead of 5 min. epoxy, was used to affix the foam to the masonite. The sides held tight and after glassing pulled off from the jig like a Velcro zipper, leaving only pin sized holes.

(Joe Hull): Here we have "attached" the foam to the masonite and cut and glued the "spacers" (yellow contouring foam on edges). The plans call for using dabs of "5-minute" epoxy to hold the blue foam to the masonite. However, I heard too many complaints about the large divots in the blue foam when you remove the sides from the jigs. Somewhere in the archives I read about someone who used double-sided tape. So, I got some double sided foam tape and tried it out on a scrap piece of foam. It worked great and that is what I used. "Next time" I might just use regular double sided tape. The foam tape adds about a 1/16" height to the foam which I was afraid would change the curvature and straight line measurements. It did - but only when I forgot to factor in the extra height! But since the sides are trimmed a quarter of an inch at the end - I was able to "fix" my little oversights.

Spacer Board Preparation

(Bernard Siu): Let me digress a bit and discuss how I prepared the spacer boards. The plan calls for 7/8" spacer. Well, most lumber does not come in 7/8" thickness. As you may recall, I have a neighbor that works for a lumber yard. A visit to the neighbor (with cookies) and I got myself a 6'x 1' board, planed to 7/8" thickness... the next day. I cut them into 8"x12" boards and wrapped them with packing tape. The reason for the packing tape is to make sure they do not stick to the flox that will ooze out between the longerons and the fuselage when they are clamped together (refer to longeron installation in this Chapter).

Shaping the Spacers

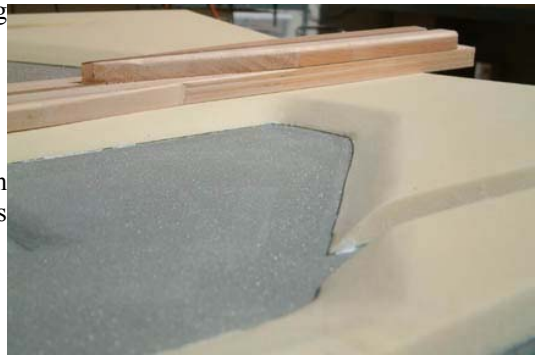
(Balderston): I clamped some straight edges 45* offset, and shaved the spacer down to create a good bevel angle. Again, the band-saw ended up being easier, I just hadn't committed the $ at this point to buy one.

(Bernard Siu): I followed the plans in forming the spacers. Two dimensions were missing from the plans but I found them in the Archives:

I used the same slope dimension (identified in C-C) for the large spacer at the aft end.

I started the heat duct slope 6" from the aft end of the fuselage and extended the slope for 3.75". I followed Rick Maddy's footstep on this one per his Web Site.

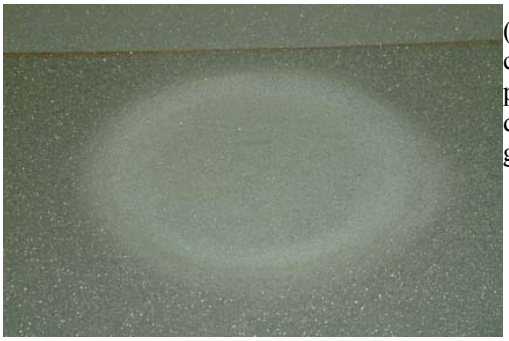
I set up my band saw for rough cutting the slopes for the spacer strips. I then sanded them to desired dimension with my HDSSS (Home Depot Sanding Stick Special). This foam is



easy to shape, except it puts out *lots* of dust and they get into *Every Where!* I added a couple inches to the spacer strips when I shaped them because, I figure, when I attach them onto the curved fuselage sides, it will add a bit of length to it - *it did*. I cut the spacers strips to length before I was ready to micro them onto the fuselage. I used a lot of C clamps to hold the spacers in place during curing.

Tip - Gluing foam spacers in place
(Rick Maddy):See the picture for the better way to put the foam in place on the fuselage jigs. I did mine the *bad way* and found my sides were a speck short when trimming at the end of chapter 5.

Preparing Control Stick Clearance on Fuselage Sides



(Bernard Siu): I drew out the positions of the control stick clearance (with a compass and felt tip) on both of the fuselage sides and double-checked its positions. I used a plunge router with a flush router bit and milled out about 6" diameter x .25" deep of foam. Used various grit sand-paper and shaped a gradual slop that forms an 8" diameter clearance per plan.

(Clark Canady): For the foam cut outs I used a dremel router with a ¼ square cutter. I got accurate cut and depths on the dishes and fuel sites. I ordered Vance Atkinsons fuel site gauges before this chapter so I could custom fit the cuts for future installation.

Preparing Fuel Gauge on Fuselage Sides

(Bernard Siu): Next I carved out the fuel gauge indentation for the right side according to plan - 19" from the rear edge... Marked out the pocket with a felt tip and start gouging with various grits of sandpapers. Looked good! Now do the left side. Fifteen minutes later ... done!

Stand back and admire my work of art and surprise.... they do not line up????!!!! A quick measurement revealed that the right side was 12" from the end instead of 19". How it got there ... I dunno. As warned by Mark Zeitlin - measure, measure and measure - well, now I know what you mean!

One of the wonderful things about foam structures is that you can easily fix your mistakes. I actually cut out the entire back panel (instead of filling up the indentation) and re-carved the fuel gauge indentation at the correct location. Scraping the back side of the panel makes Oops#2.

I later decided to use Vance Atkinson's LED fuel gauge indicator which requires a flat .25" indentation instead of the slope surface. Arrrrg... but I convinced myself that it will look pretty when its done!

Vance's fuel sight gauge arrived. It consists of a white plastic for the back with a clear cover & a little pea size float. The white part is about 7.5" tall, while the clear part is .25" wider all around. These dimensions are much larger than the plan dimensions. The obvious question would be - where should I carve the trough to accommodate these new fuel sight gauges?

I posted the question to Vance and was told to carve it with an extra .5" space all around such that I can adjust its position after the strake is installed. Well, I ended up carving a trough the same size as the white plastic (7.5"x2.5"), with a .5" curvature starting 2.5" from the top edge of the fuselage, and added another .5" curvature from the bottom of the trough back to the top of the foam.

Hopefully, the fuel sight gauge will be at the right place when it is ready to install them. Incidentally, there's wiggle room if I trim the fuel sight gauge to a smaller foot print as well.

Mod - Vance Atkinson Fuel Guages

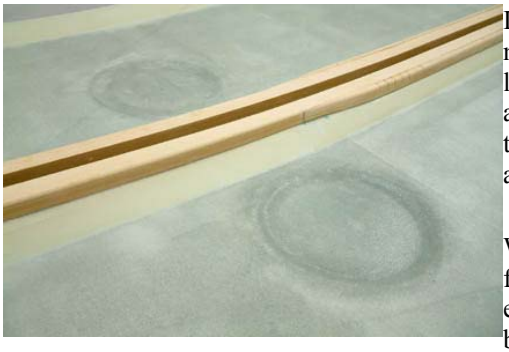
(Rick Maddy):I have ordered the guages and made the depression to fit them. I made the depression flat since the cant isn't necessary with these guages.

5.5 - Do I do anything different from the plans' canted indentation to use Vance Atkinson's fuel gauges?

(Darren DeLoach (FAQ)): Various solutions are being used. The simplest is to use a rectangular indentation (so that you can have the gauges flush with the sides) which is flat, not canted, since Vance's gauges have a 180 degree view anyway. Others have installed them in a canted indentation per plans. Note: be sure to make your indentation long enough so that your top and bottom fuel holes will go through glass-to-glass and not glass-foam-glass. The second edition plans (#501, up) point this out.

Applying UNI onto Fuselage Sides

(Bernard Siu): This step requires 2 layers of UNI glass at 30 degrees over the entire inner surfaces of the fuselage. If you have an opportunity to ask for a extra pair of helping hands - this will be a good time to ask! I got Susann (my better half) to help me lay out the UNI on top of the fuselage so that I can pre-cut them for subsequent lay-up. The pre-cut UNIs were rolled up, marked and placed under cover to keep the dust out.



I microed both sides of the fuselage with Susann helping me by mixing the micro. It took us 2.5 hours - much longer than expected! I then proceeded to UNI lay-up with Susann continuing on with epoxy supply. I took special care to push and pat down the glass at the stick control and fuel sight curvatures. I was able to avoid the air bubble problems many builders experienced J. We did both sides at the same time - without much of an air bubble problem - we were fortunate.

While the lay-up was still wet, I trimmed the glass along the upper edges of the fuselages per plan with my electric scissors. It was difficult to trim right up to the edges - I left about 1/16" glass overhanging. We were at hour 7 since the beginning of this task, I was getting tired and did not pursue perfection - I should have.

Step 4 – Installing the Upper Longerons

Installing the Longerons

(Bernard Siu): After I trimmed the glass along the top edges of the fuselage sides, I slipped five (5) 7/8" spacer boards (prepared above) evenly between the fuselage sides. I brushed flox onto the mating surfaces of the upper longerons and upper edge of the fuselage and clamped them tight together. At this time, I was concerned about the 1/16" glass (I left un-trimmed earlier) because by pushing the spacer board down between the fuselage sides, I was shoving the 1/16" glass (overhang) to fold down against the foam of the fuselage sides. I used *lots* of clamps to hold down the longerons onto the fuselage sides as well as to the spacer boards. Strips of peel ply were added per plan. This lay-up took us a total of 9 hours straight and we were exhausted when completed. My back was stiff for 3 days afterwards.

After a 24 hour cure, I couldn't wait to remove the clamps to see the results. The folded glass at the upper fuselage did not cause any problem because I squeezed them so tight with clamps, they did not have any dimensional effect. The flox did not stick to the 7/8" wood spacers either because of the packing tape. With all the good news, I forgot to take pictures! The picture shows the aft spacers - cured with 2 layers of UNI. You can see the fuel sight gauge and the electrical duct. The UNI covering the electrical ducts needs to be trimmed - later. The light in the background is my heat source for my localized heat tent. I trimmed the glass overhang from the lower fuselage edges at this time.

(Joe Hull): I made a couple of bone head mistakes in this chapter. The first was in floxing the Longerons to the sides while the side lay-up was still wet. Everything seemed to go alright. The Longerons looked like they had a nice snug fit and flox seemed to be oozing out nicely. So I weighted them down and clamped them to the 5/8 inch spacers. However, when I took the sides out of the jigs and was able to see the top of the Longerons there was a gap between the side and the Longeron about 1/16 wide and about 3/8 inches deep at a couple of spots on each longeron.

(Darren DeLoach (FAQ)): Change the 5.9" dimension to 6.25" (See questions/answers 12.1 and 12.2.)

5.2 - How much should the longerons extend beyond the fuselage sides?
(Darren DeLoach (FAQ)): When you glue the longerons together the book says, "let the excess extend equally at both ends," with the front doubler placed 5" from the front end (with the excess extending beyond). When you attach the longerons to the sides the book says "[l]et the longerons overhang slightly at the forward end and the remaining excess extend aft." If you take this literally, you will find that when you assemble sides to the bulkheads, since *F28* gets placed 6.25" (was 5.9") back from the front of *F22*, your doubler location may be a 1/2" to 1" short (too far aft) of this point. Instead, when you attach the longerons to the sides use roughly the same overlap that you had when you glued the longerons together and the front doubler will be positioned properly. Measure the 6.25" (was 5.9") back to be sure, and also make sure the the rear doublers will go all the way through the firewall.

5.3 - I used the wrong longeron overlap and now my doubler does not reach the 6.25" (was 5.9") location of *F28*. How can I fix this?
(Darren DeLoach (FAQ)): Basically, you flox on an extension to the doubler, then glass over it. For a good, strong joint and peace of mind, make a scarf joint matching the added on piece to the existing longeron. Flox it in place and glass over the piece. To make a scarf joint you would taper the end of the longeron back for 4" or 5". You would also taper the add on piece, forming an angled wedge. You will be placing the two wedges together. This is a much stronger joint than gluing end-grain to end-grain.

Applying the 4 layers of UNI

(Bernard Siu): The instruction (for this task) is contained in a 44-word sentence - it took me 8 hours from preparation to completion!

First, I un-rolled the UNI on a long table making sure its straight and flat. I used 1" wide x 102" long strips of masking tape and taped along the full length of the UNI. I repeated this every 5" apart. Once taped, I used my electric scissors and cut along the middle of masking tape - lengthwise. Since the UNI cloth is 30+" wide, I can make six 5" wide strips of UNI, each 102" long. I made a total of 8 strips - 4 for each longeron. The tape keeps the UNI from fraying and allowed easy handling.

I decided to epoxy the 4 UNI layers together first before applying onto the longerons. I cut a 6"x 105" 4 mil plastic strip and laid it down on a flat surface. I placed the 1st UNI layer on it and wet it with epoxy, followed by the 2nd, 3rd and 4th respectively - adding epoxy on each layer as necessary. Once completed, I laid down another layer of 4 mil plastic on top (poor man's peel ply method) and squeegeed out the excess epoxy. When all the bubbles were removed, I used the electric scissors and trimmed off the rest of the masking tapes - leaving a 4+" x 102" strips of UNI, sandwiched between 2 layers of 4 mil plastic. I then transported the strips to the longerons, peeled off the top layer of the plastic and laid it face down onto the longeron and spacer per plan. Don't forget to brush a layer of fresh epoxy onto the longeron before applying the UNI though. Surprisingly, the UNI laid down easier than expected. After removing the remaining 4 mil plastic from the UNI, I peel plied the UNI to ensure a smooth transition to the fuselage. After applying the peel ply, I re-laid the 4 mil plastic back on top of the UNI strips and squeegeed some more to ensure the UNI laid down nicely. I then covered it with the heat tent to help cure through the night.

(Wayne Hicks): If you've never handled long strips of UND cloth, you're in for a big surprise when doing the 4-UND upper longeron lay-ups. Once the selvage edge is cut, the stuff unravels and single strands get all over the place. I wish I knew then what I know now about handling strips of UND cloth. Now, I first press down strips of masking tape onto the cloth, then cut through the middle of the masking tape. I wet out the strips, then trim the tape off.

I didn't radius the corners of the upper longerons and had a helluva time getting the 4-UND upper longeron lay-ups to stick at the corners. Yeah, Chapter 3 says to radius all corners at least 3/16th inch for UND, but that applies when the fibers are at 90 degrees. On the upper longeron lay-up, the fibers are running at zero degrees. Still, do yourself a favor and radius the corners just enough to get the UND to lay down properly. Else, you'll be out there every hour like I was tacking the corners down until cure.

5.8 - How do I get the 4 UNI layers to lay down on the double 90-degree turns of the front fuselage doubler on the top longeron?
(Darren DeLoach (FAQ)): Do not bother. Look at the photos in Chapter 6, there is a picture showing the *F28* installation which shows the glass not even reaching the end of the longeron. Chapter 7 has a picture showing this area with a backsaw plowing through it! The whole front end of the doubler will be cut off to mount the canard, so do not waste time trying to get the glass to lay down perfectly.

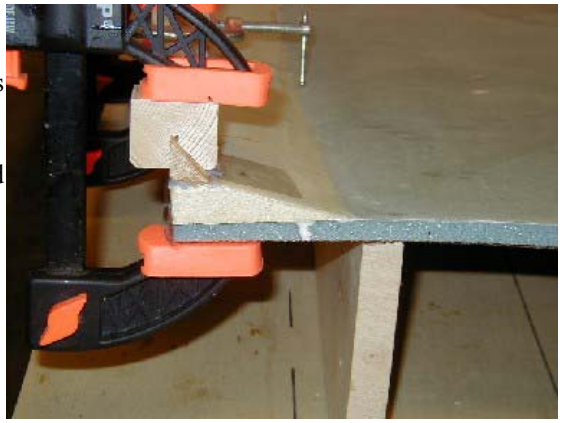
Step 5 – Installing the Lower Longerons

(Wayne Hicks): I found it hard to hold the triangular longerons in place with clamps alone. Instead, I used drywall screws to hold them in place. I predrilled the lower longerons deep enough to get enough screw threads to hold the longerons in place. In some places, especially in the curvy sections, I had to drill a deeper hole so as to apply enough hold-down force to get the lower longeron to screw down and sit properly onto the foam spacers. The way I did this was to dry fit everything before microing or floxing. With one hand, I held everything is position (PVC, spacer, lower longeron). With the other hand, I drilled from the bottom through the masonite, PVC, spacer, and then into the longeron. Then I put the screw in. I repeated this about every 6 inches. After I was happy, I disassembled everything, micro'd, and reassembled.

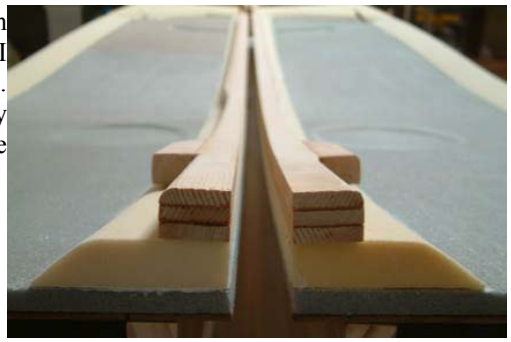
Trick - Clamping the lower longeron
(Rick Maddy): Clamping the lower longeron can be tough. I made some small blocks with triangle cutouts. Worked great.

(Bernard Siu): According to the plans, I am suppose to check the dimensions in Fig 5 and mark the exact location of the lower longerons with a felt tip pen. With the white spacers and upper longerons installed and no access from the bottom side of the masonite, there's no way I can measure and mark the locations *EXACTLY* per fig. 5. I posted the question to the builder's group and got a few amusing responses. Basically, the distance between the lower longerons from the upper edge of the fuselage, should be close to the dimensions in Fig. 5. Most importantly, the dimensions should be equal on both sides. I laid a carpenter's square along the top edges of the longerons at designated locations per Fig. 5 and took measurements on opposite sides of the fuselage. Note that these dimensions will not be the same as the ones in Fig. 5 because the dimensions are no longer taken from a flat foam board as in the beginning.

(Will Simmons): We used carpet tape to hold the foam to the masonite. In this picture you can see the foam stuck to the masonite form. I used small wood blocks under the clamps to hold the triangular longeron down. This was not my first plan. Plan #1 was to put notches in the plastic cover on the clamps. After I floxed the longeron down, I attempted to clamp them in place. Plan #1 failed miserably. I then quickly made the blocks. This worked well.



Besides rounding the foam spacers, I learned (from other builders) that the longeron edges need to be rounded as well. Otherwise, the fiberglass will not lay down nicely. I used a router to put a 1/4" rounded edge along the entire length of the upper longerons. Initially, I was a bit concerned about the curved shaped longerons and that the router may not sit right, however, it worked out OK. Here's a picture of the longerons after I have the edges rounded.



5.7 - How should I position the electrical conduit?

(Darren DeLoach (FAQ)): If you assume that the conduit is exactly parallel to the upper longeron, it will intersect the firewall rudder bracket. Instead, match the temporary firewall up with the fuselage sides before gluing the electrical conduit in place, you may find that it needs to be installed at a slight angle to hit its hole in the firewall. You might also choose to simply cut the channel at about 14.7" down instead of the 14.5" called for in the plans. For the beveled area, a good choice is from 6" beveled down to 8" from the firewall, though anywhere between *LWX* and the firewall will do; there is nothing magical about the degree of the slope, you just want to make sure that it is gradual enough to push electrical lines through.

Tip - Electrical Channel Covers
(Rick Maddy):Make the form 0.7" thick instead of 0.75". Otherwise you will have a bump when you sand the foam to match LWX, LWY, and the lower longeron (which are all 0.7" thick).

5.6 - Where is the urethane foam used that is listed in the materials list?
(Darren DeLoach (FAQ)): The urethane foam was originally included in the Chapter 5 materials list to make the forms for the electrical conduits. However, the Chapter 5 plans call for using 3/4" Clark foam to shape the conduits instead of urethane. The bottom line is if you use Clark foam for the conduits, then you do not need the urethane in this chapter, though you **WILL NEED** this foam later when building the NACA scoop (Chapter 7). On the other hand, urethane is probably a better foam for shaping the conduits than Clark; but just make sure you will have enough left over for the NACA scoop. If you use the Clark foam, make sure you purchase the urethane for Chapter 7 since it is not in the Chapter 7 materials list in the plans or the Wicks catalog.

5.9 - What about the divots I got when I removed the sides from the jigs and tried to remove the epoxy blobs?
(Darren DeLoach (FAQ)): In general, do not worry about them. The simple solution is to fill them with dry micro. On the PVC foam, you could fill with micro, let cure and then sand flush. (On softer foam, you would use the dry micro immediately before glassing without a cure stage, as it is difficult to sand cured micro without sanding softer foams away first.) If you really want to go for perfection, route out these spots to half the depth of the foam (about 3/16") and glue in (dabs of 5-minute epoxy on bottom only) pieces of the 3/8" PVC to match the hole size, then sand flush.

Tip - Foam Divots
(Rick Maddy):When you remove the sides from the jigs you will most likely have a few divots. Remember how the sides get contoured in chapter 7. Don't worry about small divots in those areas.