F35 Joint Strike Fighter

.18-.26/Mini 480 Ducted fan RC Model Jet

Oakdale Aircraft
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PRECAUTIONS:

This aircraft is not a toy. This model has been designed using state of the art miniature ducted fan technology. For your safety and the safety of others, please observe all product safety warnings for this kit as well as all accessories included. Also, please follow all field safety rules.

This plane is capable of high speeds. If you are uncertain of your ability or have never flown a radio controlled model aircraft before, please seek the help of an expert. Oakdale Aircraft strongly recommends you be a member of the AMA (Academy of Model Aerodynamics).

Read through this construction manual in it's entirety before starting so you have a thorough understanding of the building process.

Complete all instructions in the manual including assembly, radio and engine installation, pre-flight, starting and flying. We have attempted to include guidance through all phases of this kit and by doing so, we hope you will enjoy many flights with this model.

SPECIFICATIONS:

Length: 40" (1016mm)
Wing Span: 30" (762mm)
Power: Glow: .18-.26 Ducted Fan Unit (Toki .18, Kress RK720, etc…)
EDF: Mini 480 or equivalent
Control Functions:
Throttle, Taileron, Nose Wheel Steering
Optional Control Functions:
Ailerons, Elevator
Radio:
Recommended
6 channel with mixing
Optional
4 channel (for Aileron/Elevator use)
Control Surface Throws:
Taileron:1/8"-1/4"
Nose Wheel Steering: 10°
Weight:
2.8-3.5lb (1.27-1.59kg)
Thrust:
2.75-3.0lb_f using the Toki .18 Ducted Fan unit
CG:
2"-2 3/8" behind former F8

BILL OF MATERIALS:

Part Number	Qty	Description
1000	1	3 Ply Birch-Laser Cut Sheet
1001	1	Lite Ply-Laser Cut Sheet
1002	1	Lite Ply-Laser Cut Sheet
		Foam Cores
1004	1	Foam Core, Wing, Left
1005	1	Foam Core, Wing, Right
1006	1	Foam Core, Taileron
1007	1	Foam Core, Fin
		Accessories
1010	*1*	*Taileron Pivot Tube (5/32")*
1011	*1*	*Taileron Pivot Rod (1/8")-Music Wire*
1012	***2***	***Fuel Tank-3oz-Hayes***
1013	***3***	***Sullivan Fuel Tubing (ft)***
1014	*1*	*Wire, Main/Nose Gear-1/8"x36"*
1015	*3*	*Wheels, Dave Brown Lite Flight-1 1/2"*
1016	*12*	*Wheel Collar Set-1/8"*
1017	*3*	*Pushrod (w/ nylon clevis)*
1019	*1*	*Steering Arm Assy-5/32"*
1021	*4*	*6-32 wood screws (fan mounting)*
1022	***2***	***T-Fitting (fuel tanks)***
1023	*1*	*Flexible Pushrod*
1024	*2*	*Taileron Control Ball Assembly*
1025	*1*	*Main Gear Straps (1/8")*
		Balsa
1037	*14*	*1/16" x 3" x 36" Balsa Sheet*
1038	*8*	*1/16" x 1/4" x 36" Balsa Stick*
1039	*15*	*1/16" x 3/8" x 36" Balsa Stick*
1040	*2*	*1/8" x 1/4" x 36" Balsa Stick*
1041	*2*	*1/4" x 1/4" x 36" Balsa Stick*
1042	*1*	*1/16" x 1/8" x 36" Balsa Stick*
1043	*1*	*1/2" x 2" x 6" Balsa Sheet*
		Engine
1049	*1*	*Toki .18 Engine w/ Fan*
		Instructions
1051	1	JSF Instruction Manual
1052	1	JSF Plan Set

Italic part numbers and descriptions are included in the standard and deluxe kits only.
Bold*/Italic part number and descriptions are omitted from the EDF standard and deluxe kits.*

REQUIRED TO COMPLETE:

Components:

.18-.26 Ducted Fan Unit (Toki .18, Kress RK720, etc…)
Mini 480 or equivalent

Accessories:

(2) Servo Wire Extensions (24")
V-Tail Electronic Mixer (if building with tailerons and do not have mixing capabilities)
1/16" scrap plywood
Monokote or other Mylar covering

Tools:

Adhesive
- 5 minute epoxy
- 30 minute epoxy
- Cyanoacrylate (Loctite, Super Jet, or CA)
- CA Accelerator (to decrease building time)

Sandpaper-200, 220, 300, 400, 600 grit
Sanding Block
Masking Tape
Fine tooth file
Rubber Bands (#64)
2 ½" –3" diameter form (i.e. soda can)
Razor blade or knife
Rotary tool (i.e. Dremel)
Straight Edge
1/8" Drill Bit + Drill
For Fiberglassing:
- Epoxy resin (West Systems or AeroPoxy Recommended)
- Microballons type resin thickener
- Squeegee, old credit card, or playing cards (for Fiberglassing)
- Disposable Containers
- Mixing sticks
- Acetone (for clean up)
- Scissors

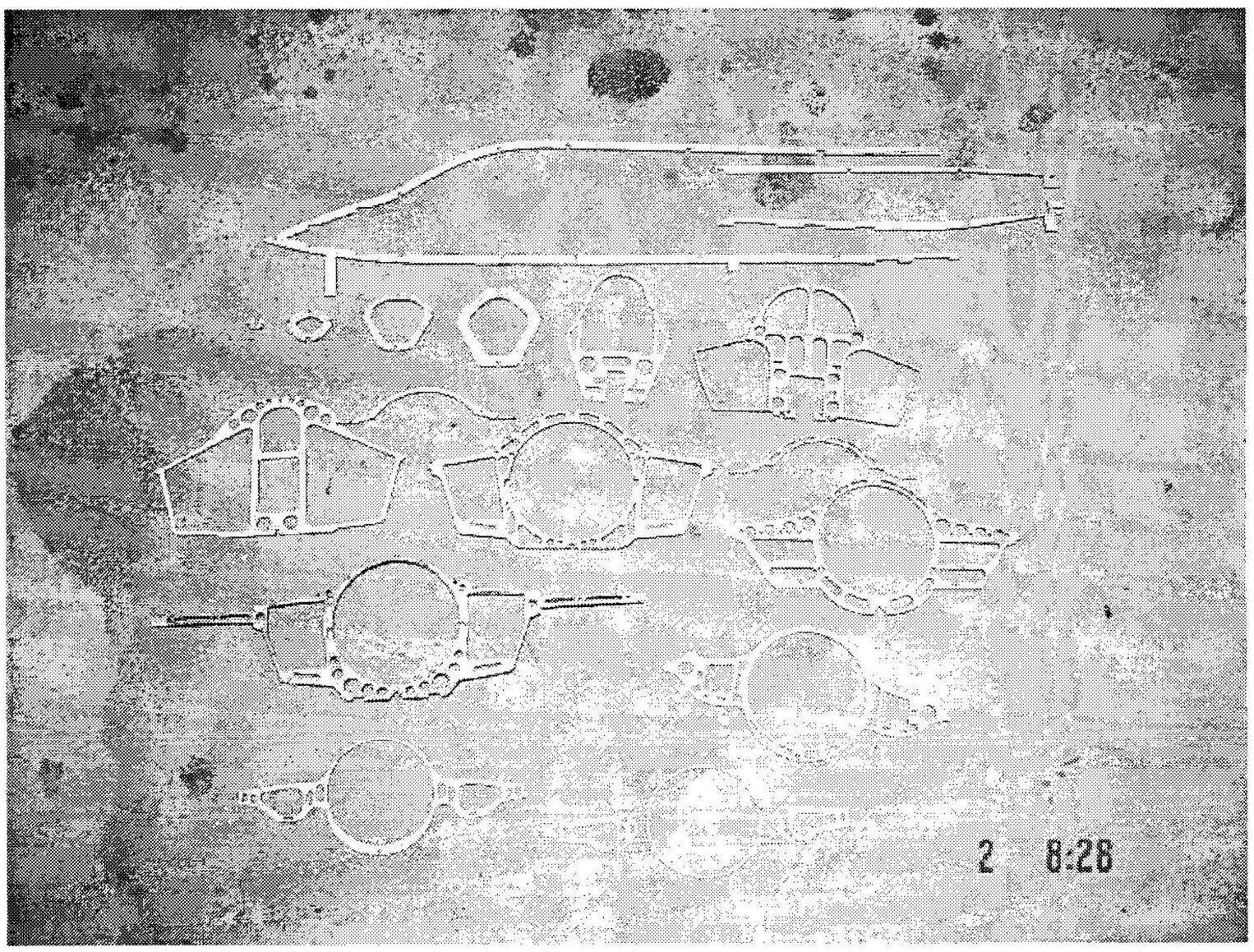
Assembly Instructions for the F35. Joint Strike Fighter

Note: During assembly of this model, you must at all times strive to keep the weight as low as possible. This kit has been designed to build easily and fly the same. Excess balsa, glue and any other components will only add to the weight and decrease the performance.

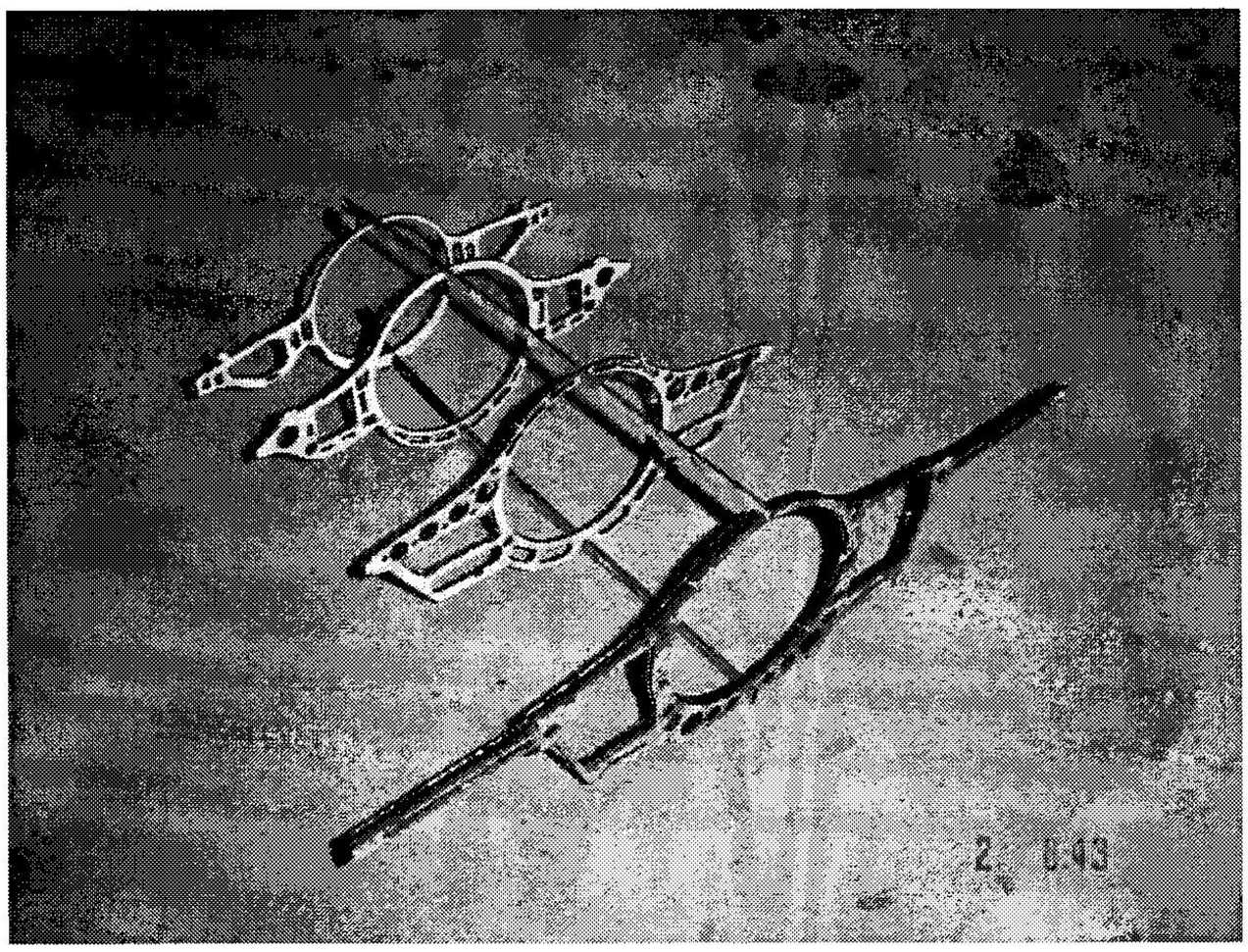
This kit can be built with taileron control, but a computer radio is required. If you do not have a computer radio, an electronic mixing V-Tail unit can be used or the aircraft can be built with conventional elevator and aileron control. See Appendix C for details on this conversion.

FUSELAGE CONSTRUCTION:

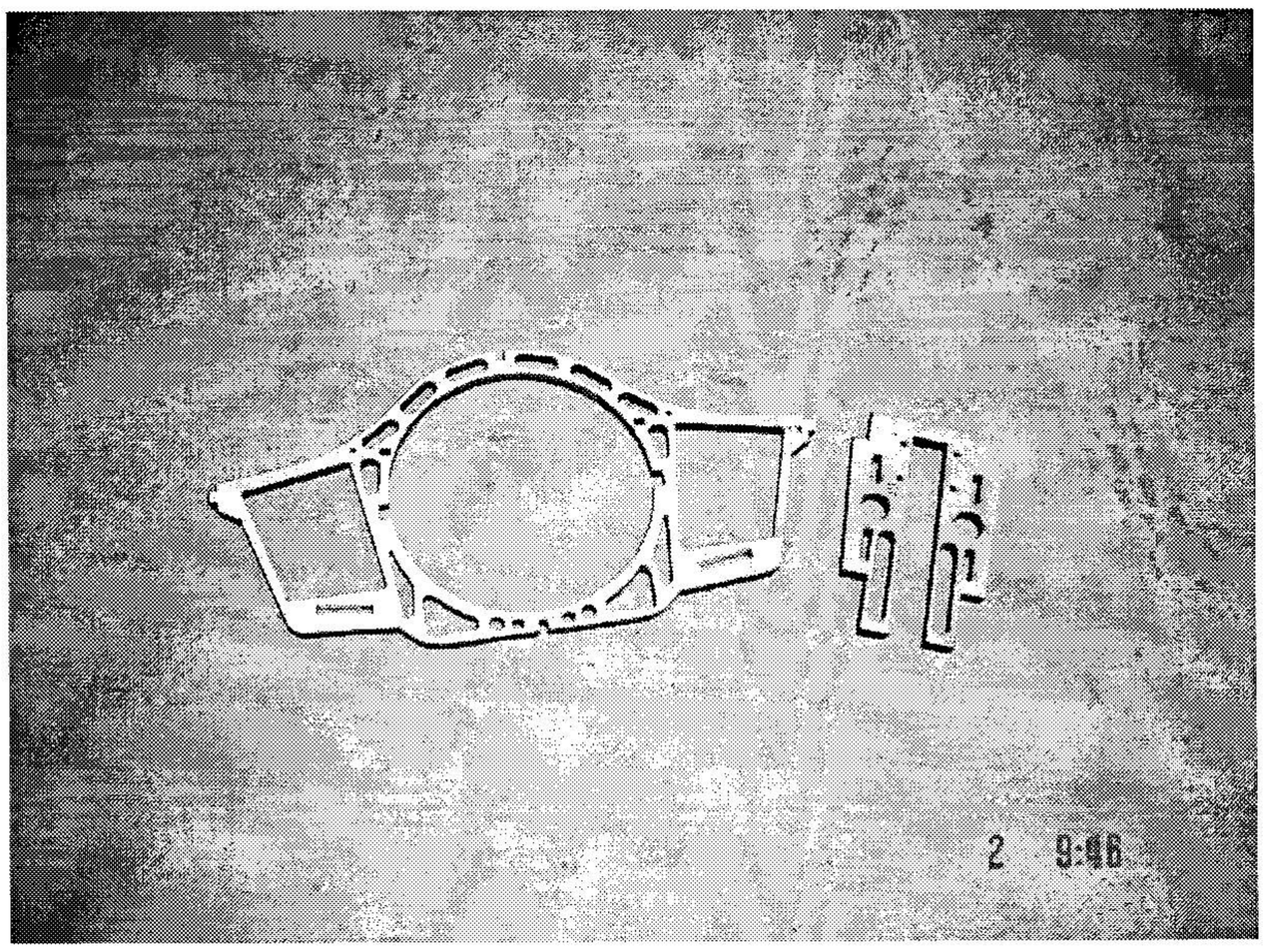
( ) Remove all the laser cut components from the lite-ply, birch and balsa sheets.
( ) Using a sanding block with 200 grit paper, carefully sand all the coupons off each component.
( ) The image below shows all the components for fuselage skeleton construction.



( ) Using 5 minute epoxy, glue the lite-ply former F9 to the birch former F9 to double it up.
( ) Using medium CA, attach the bottom rear spine (BRS) to former F9. Repeat for formers F10, F11, and F12.
( ) Attach the top rear spine (TRS) to formers F9-F12.
Note: Former F13 will be installed later. Put aside for now.
( ) Visually sight down the spines to ensure that they are positioned relatively straight (don't worry if they're not perfectly straight right now, as they can be aligned later).

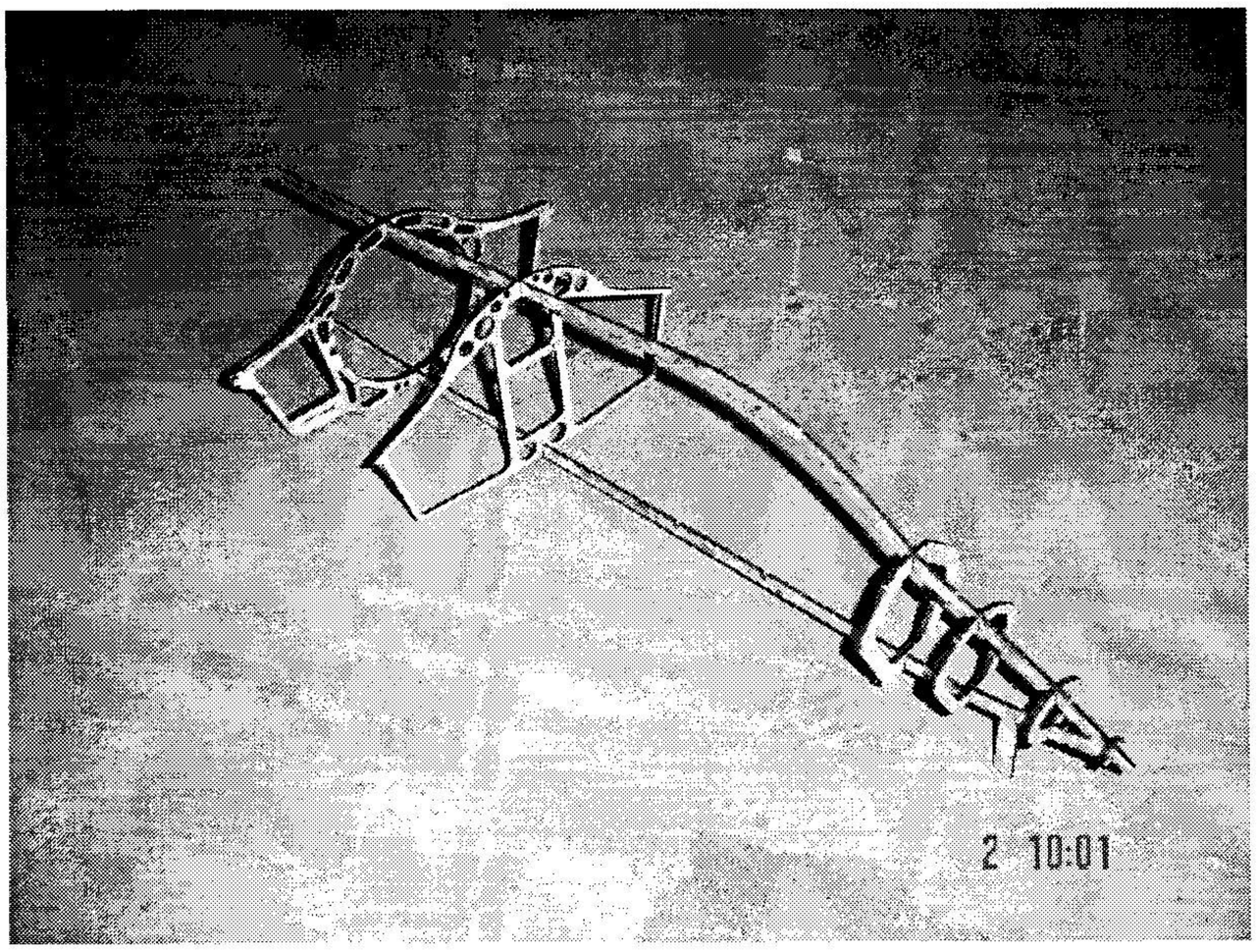


( ) Using 5 minute epoxy, glue the lite-ply former F8 to the birch former F8 to double it up.
( ) Repeat for the front landing gear mount, GF.
NOTE: The F35 has been designed to accommodate a micro retract system. If you intend to install this, remove the center cutout per the marking lines before you double the gear mount up. If you intend to use a fixed gear system, leave the center section of GM.

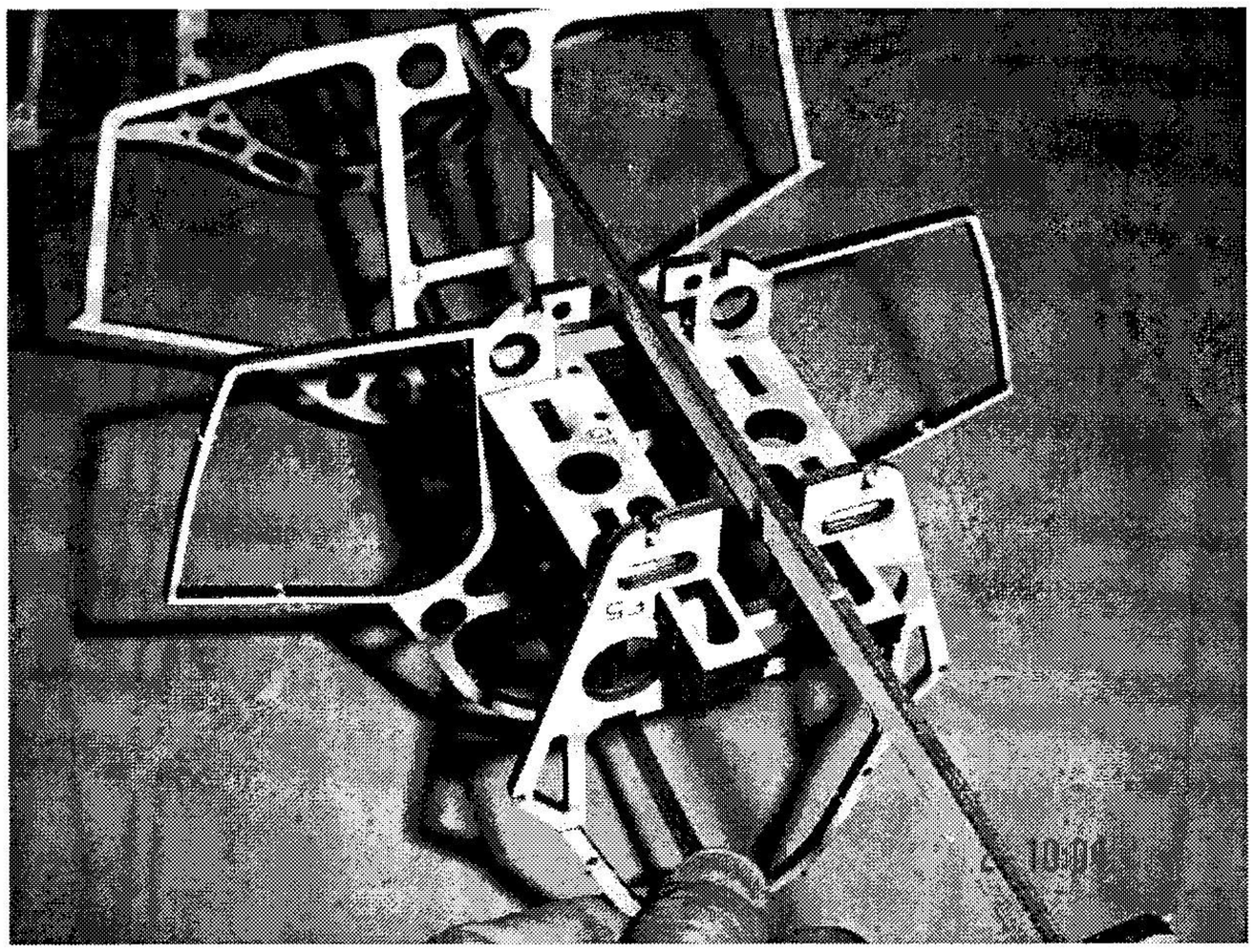


( ) Attach former F6 to the rear of the landing gear plate GF. Attach former F5 to the front of the landing gear plate GF as shown below.
NOTE: For formers F5 and F6, the small piece at the bottom of the former can be temporarily removed to aid in the fuselage construction, but do not discard. This part will be needed later in the fuselage assembly.

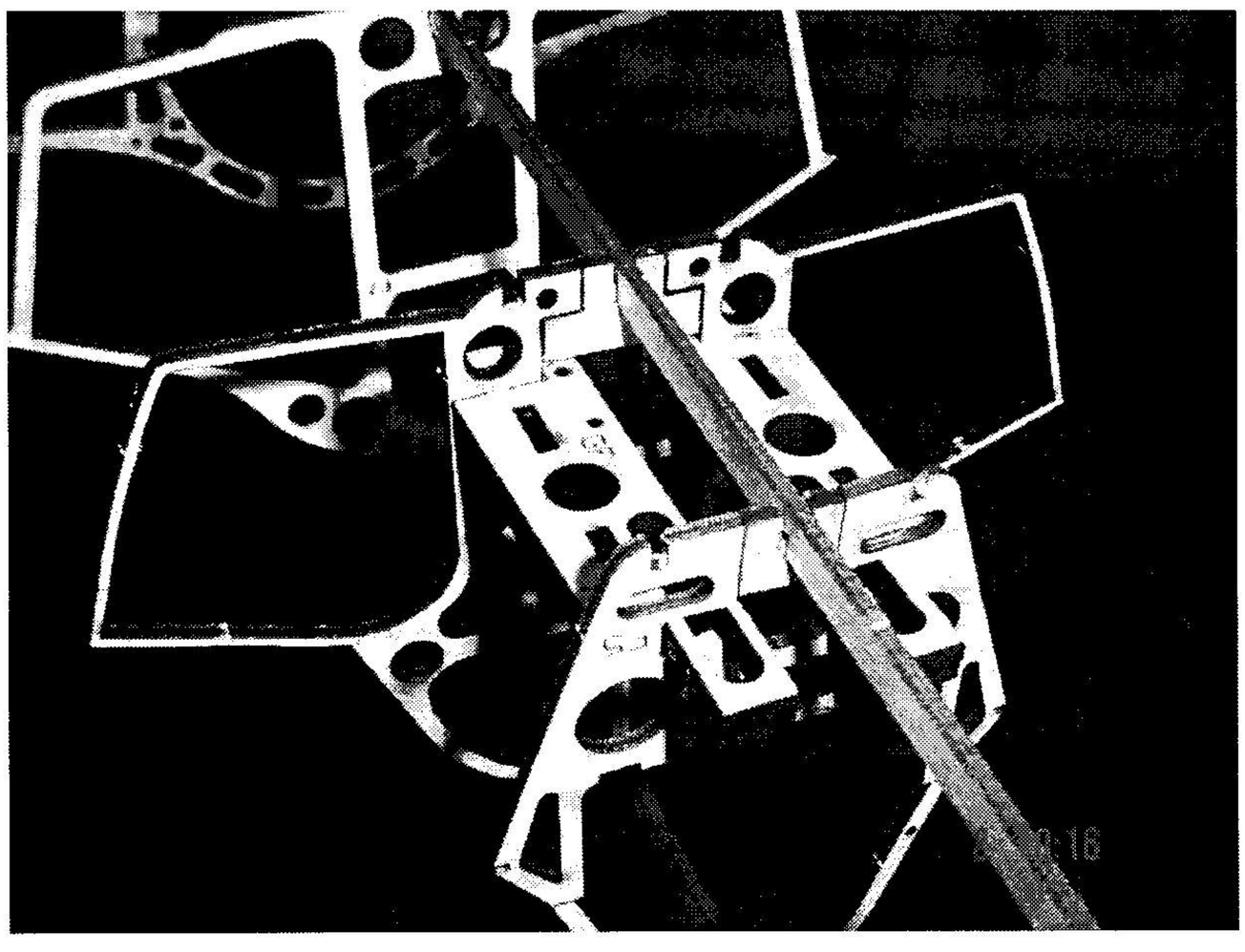
( ) Locate the fuselage front spine FS.
( ) Attach formers F1-F4 to the nose section, but do not glue at this time.
( ) Insert the F5 and F6 former sub-assembly into the front spine. You may have to spread the spine a little to get the assembly in, but use caution.
( ) Insert F7 and F8 into the rear of the spine.
( ) When all the formers are inserted into the spine, glue using medium CA. During the gluing of each former, ensure it is straight and perpendicular to the spine.



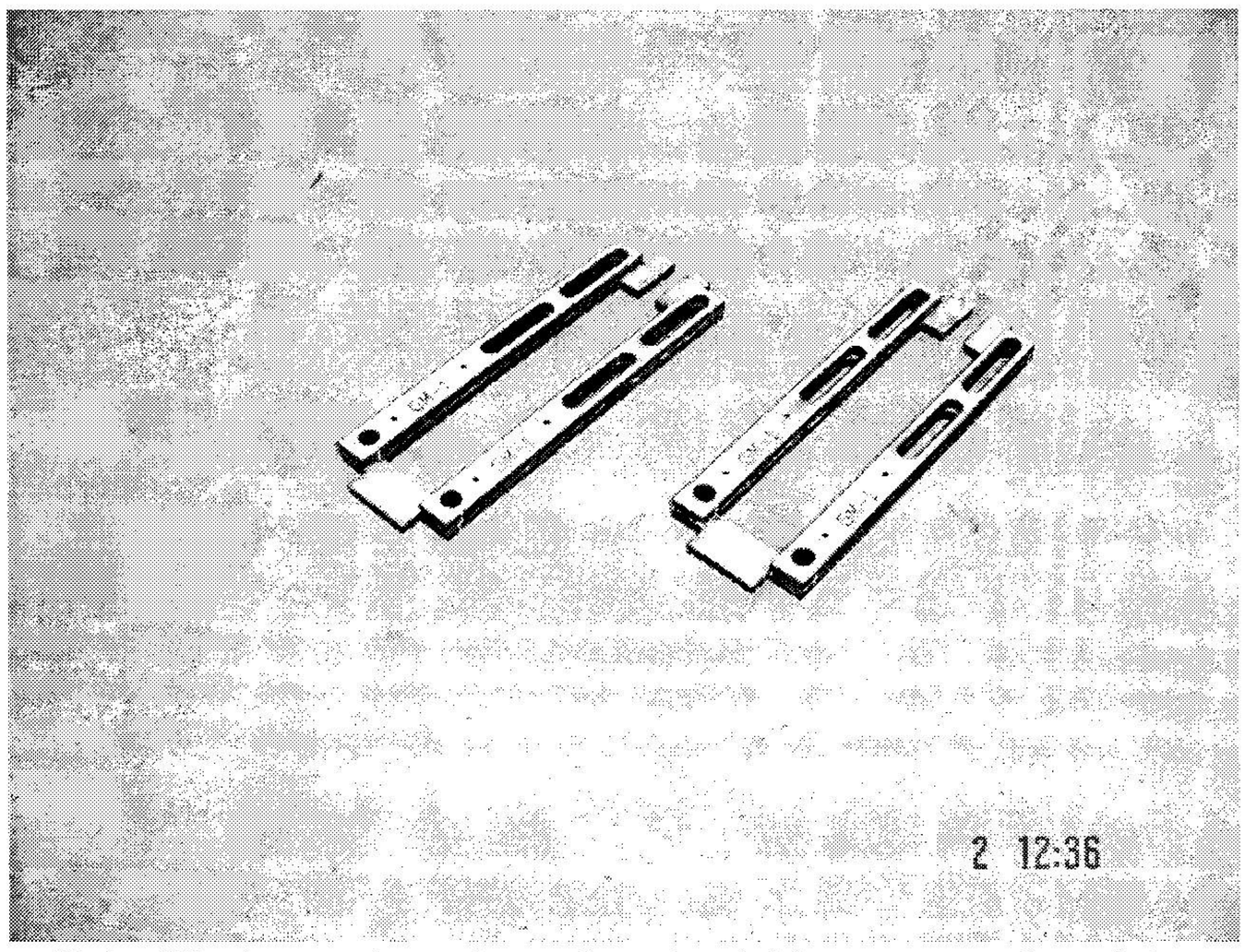
( ) Locate the small pieces that were removed from formers F5 and F6 and replace them in the formers while locating them in their respective slots on the spine.



( ) Glue with medium CA or epoxy.

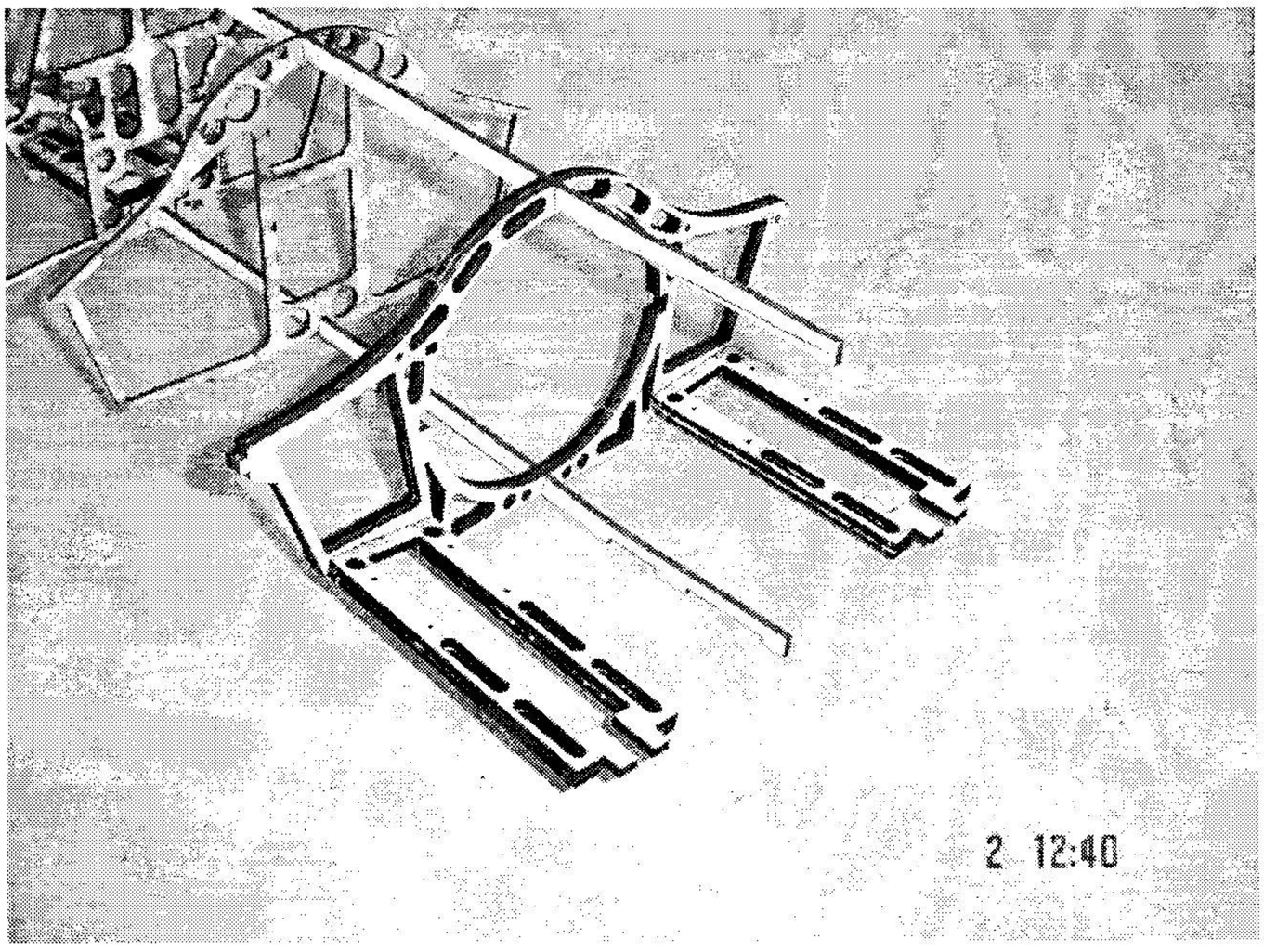


( ) Locate the main landing gear mounts GM and the gear mount doublers GM-1.
( ) Using 5 minute epoxy, attach GM-1 to the sides of GM, ensuring that they are aligned properly.



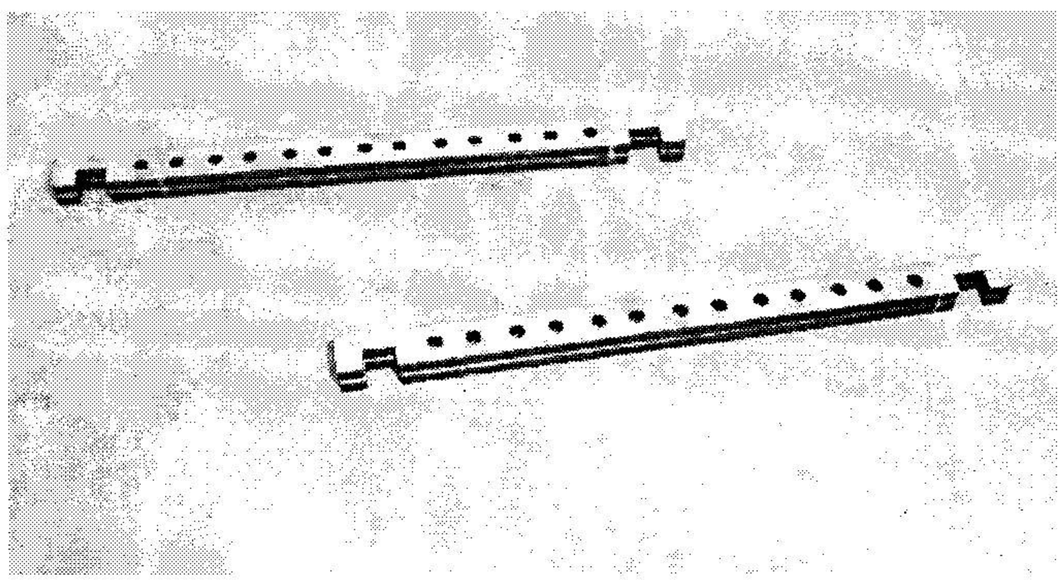
Note: The image above shows the retractable gear mounting plates. For the fixed gear, use the LG filler piece and glue in between the GM-1's.

( ) Trial fit the gear mounts into the accepting slots in former F8 on the front fuselage and F9 on the rear fuselage.
( ) Using 30 minute epoxy, coat the tongue and ends of the gear mounts and insert them into their accepting slots on F8.

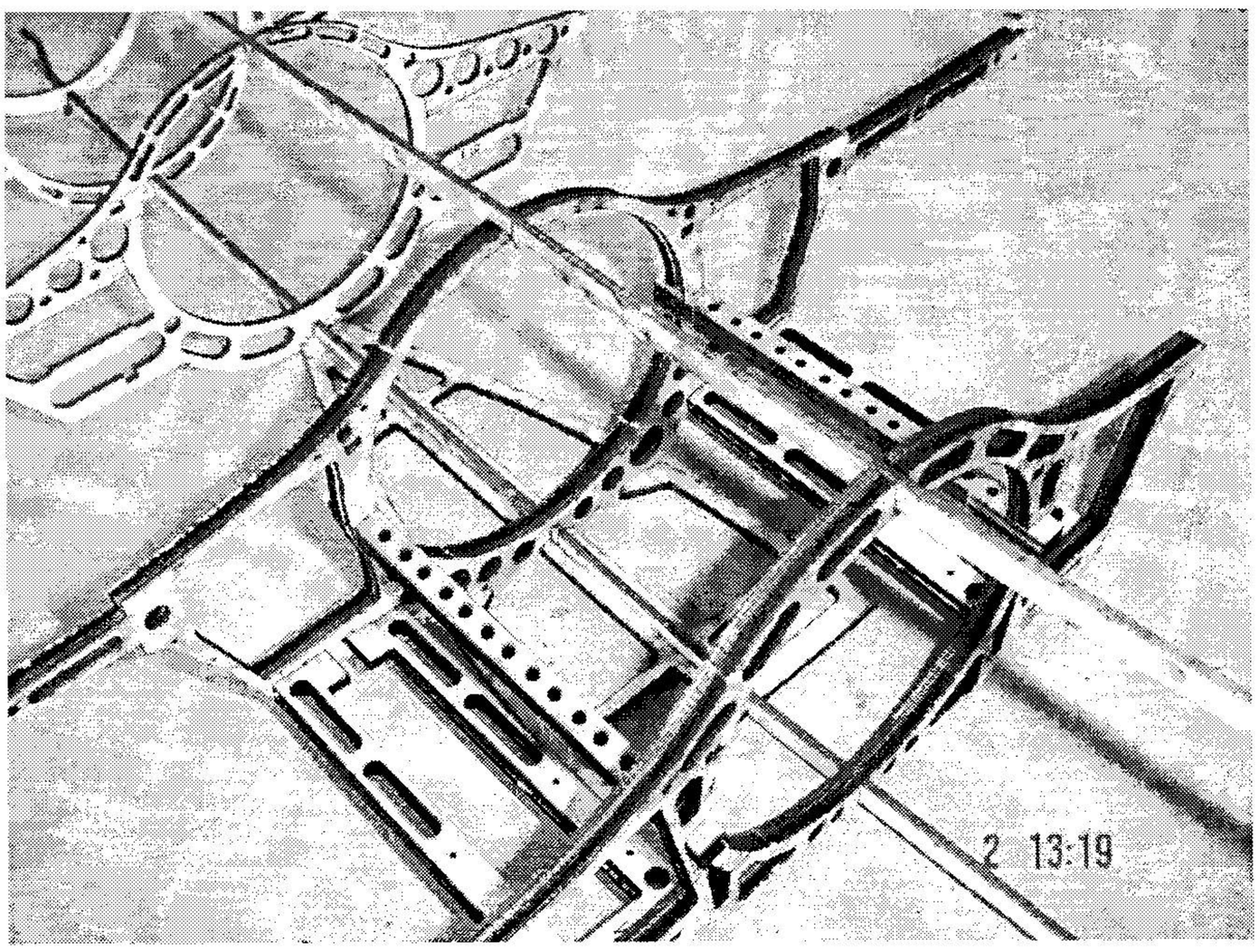


( ) After the glue has cured, attach the rear fuselage sub-assembly to the front fuselage sub-assembly via Former F9 and the main gear mounts using 30 minute epoxy. Allow this to cure before proceeding.
( ) Once this assembly has cured, using medium CA, butt glue the top rear spine and bottom rear spine to the front spine. Let this cure before proceeding.
( ) Locate the bottom spine connector, SC and attach to the bottom fuselage assembly spines with the arrow pointing toward the rear of the aircraft.

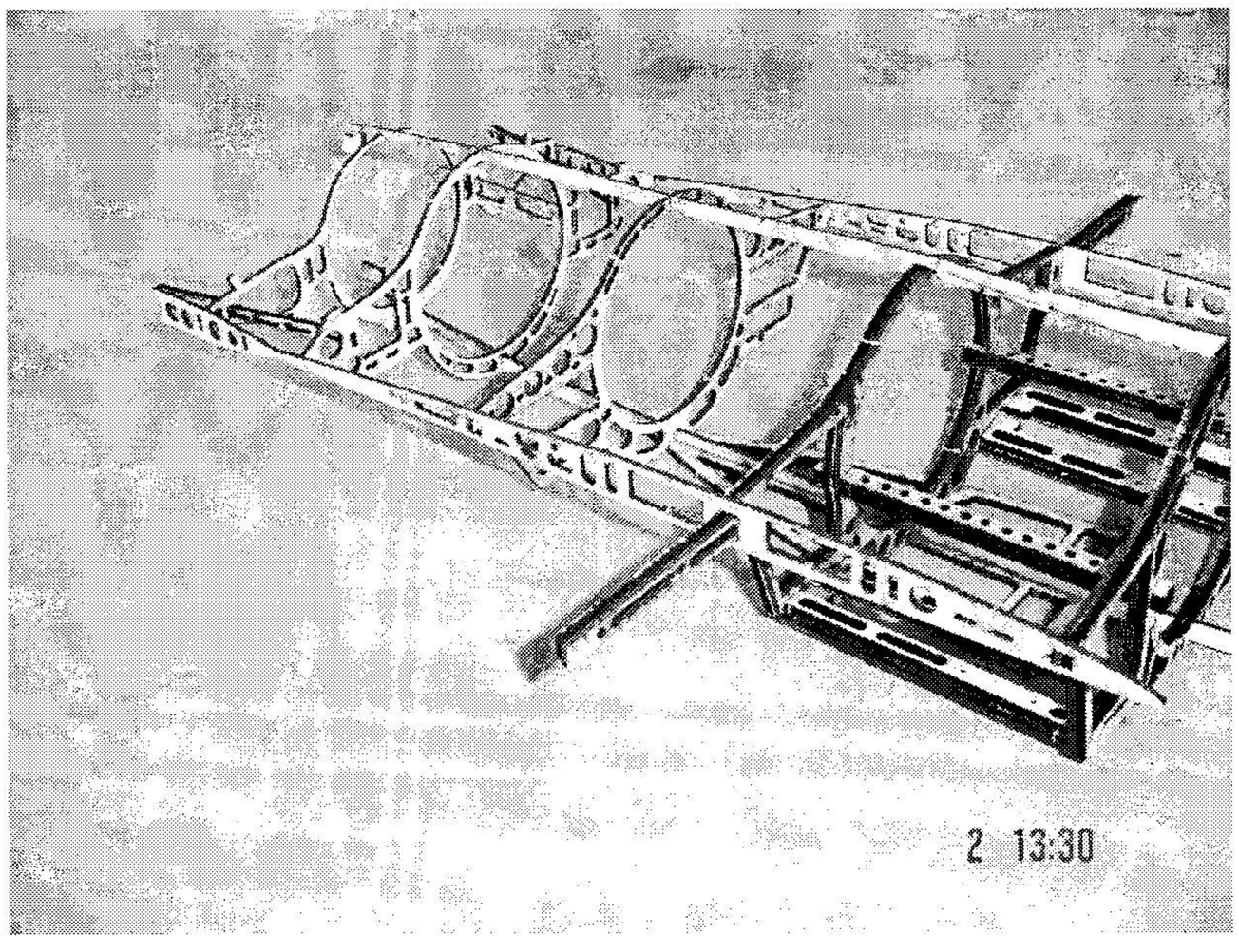
( ) Locate the fan mounting rails and using 5 minute epoxy, double these up. Note, that there is an F8 and an F9 marked on each end. The rails should be doubled such that the F8's and F9's correspond.
( ) Put aside until the epoxy has completely cured.



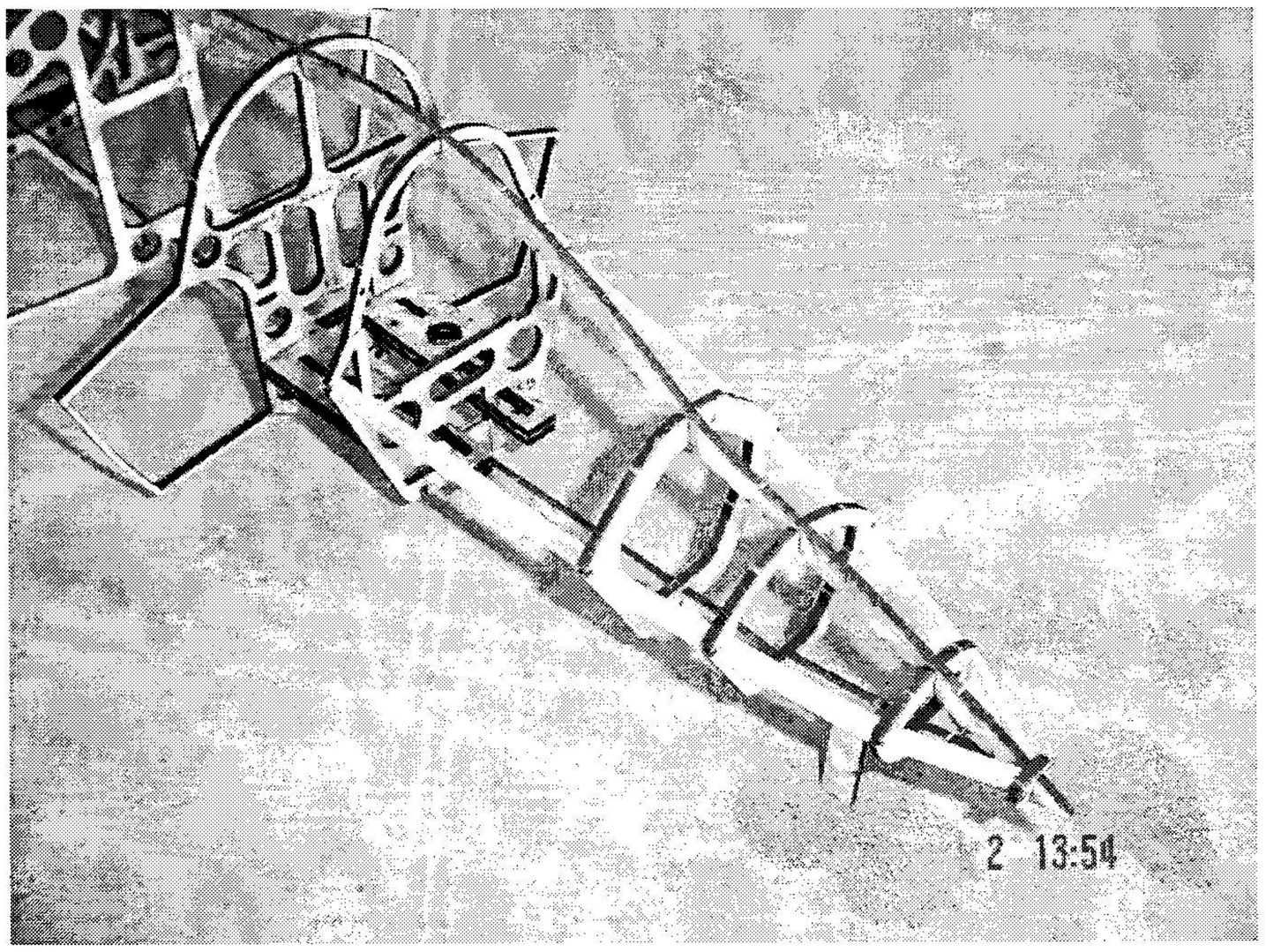
( ) Position the fan mounting rails into the slots on F8 and F9, noting the orientation of the rails. The fit should be snug and not loose.
( ) Verify that when the rails are positioned, they are horizontal with each other. Use a straightedge to verify this.
( ) When satisfied with the fit, apply 5 minute epoxy to the slots and position the rails.
( ) Double check that they are level with one another before the glue has set.



( ) Locate the fuselage wing profiles (FWP).
( ) Trial fit the profiles to the fuselage. The profiles should but up against all formers and should be straight when sighting down the top of it.
( ) When satisfied with the fit, attach using medium CA.
( ) After the FWP have cured, cut and discard the section of the top spine between formers F8 and F9.



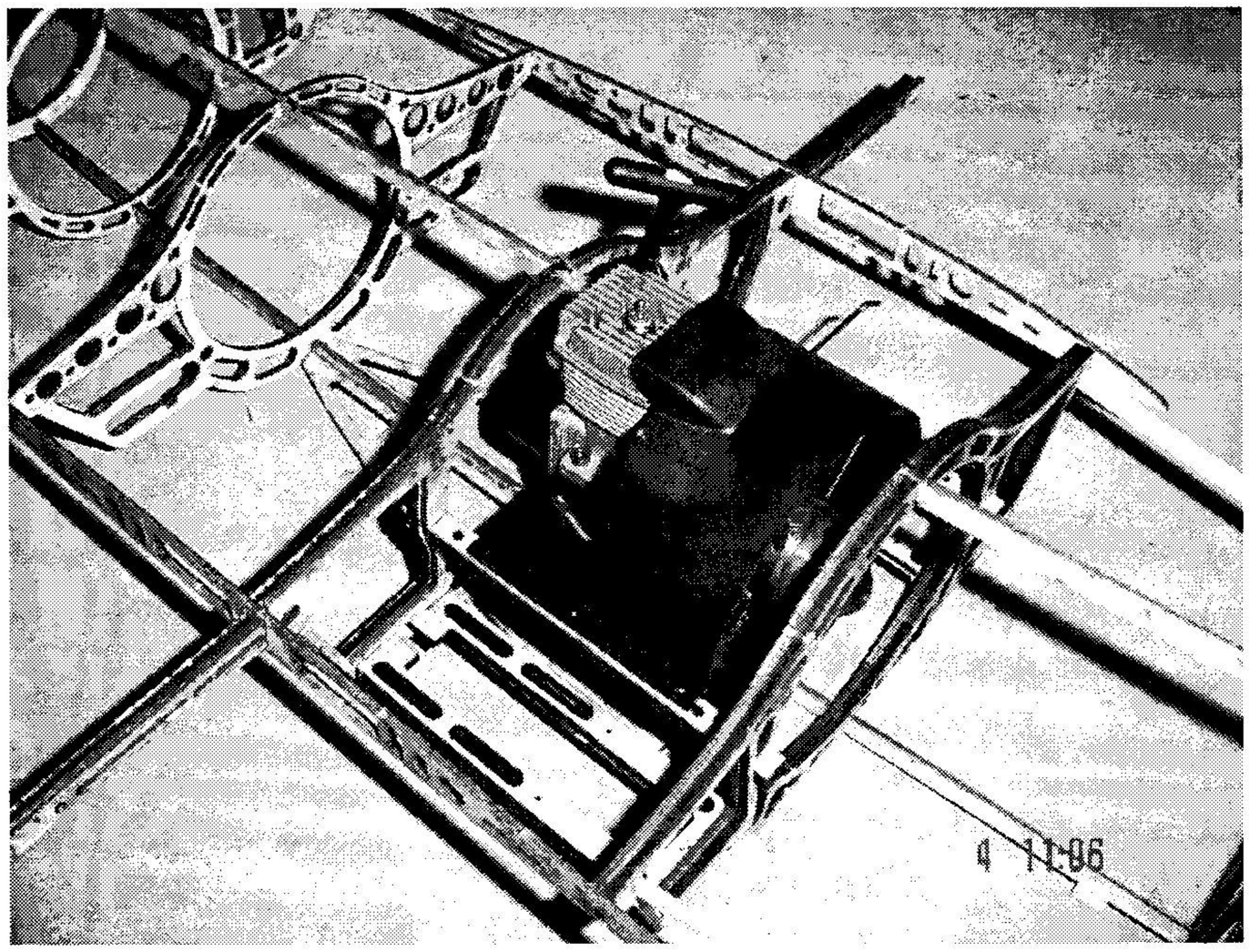
( ) Using 1/16" x 1/8" balsa, create a skeleton frame work between formers F1-F5 as shown below.
( ) When the nose framework has been completed, cut off the nose that extends in front of former F1. A balsa block will be added here and shaped when the fuselage is planked.



F35 Joint Strike Fighter

This aircraft was designed around the Toki .18 ducted fan unit, however other power plants can be adapted.

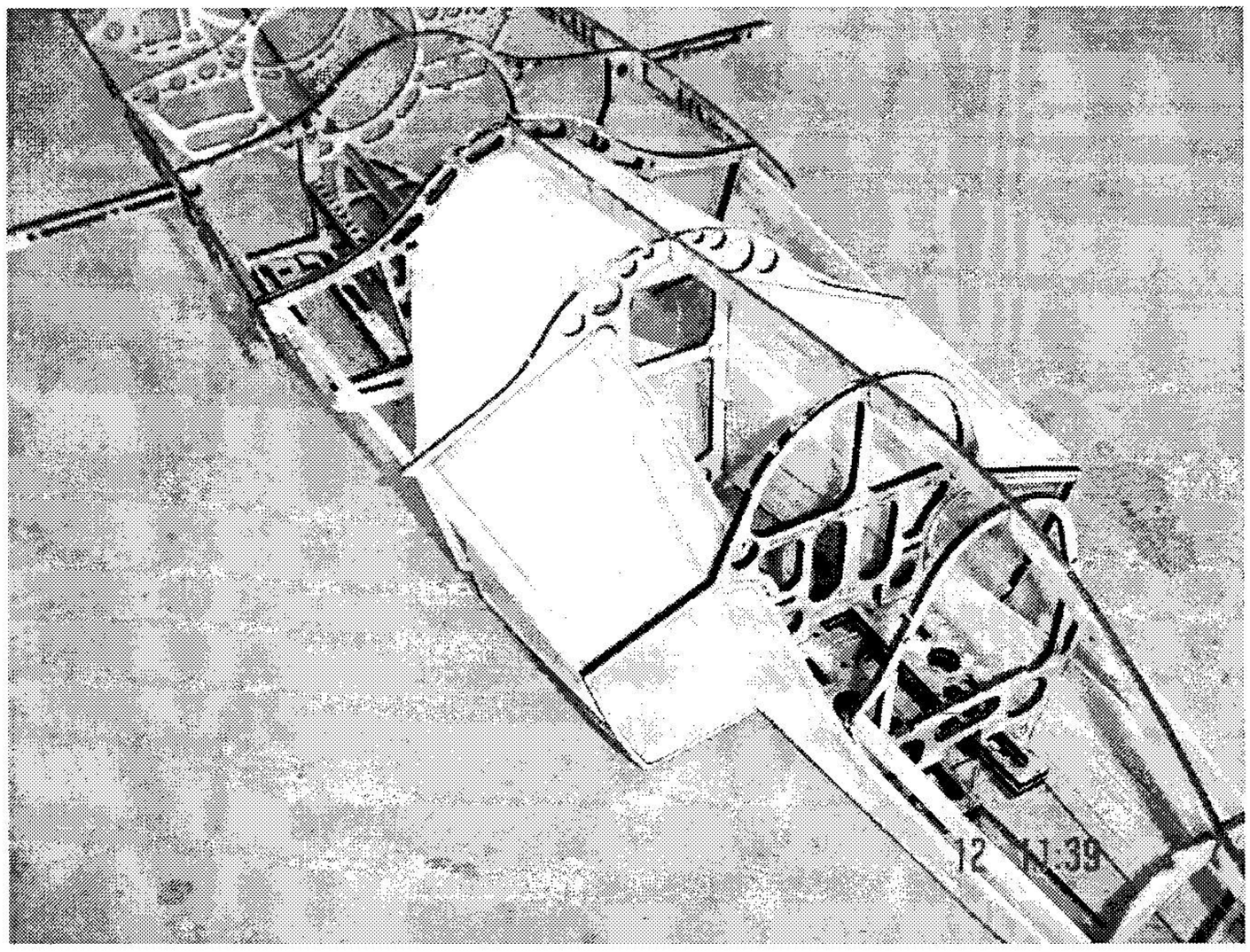
( ) Trial fit the ducted fan unit at this time. Locate the fan unit on the mounting rails and slide the fan forward into Former F8. The fan unit should be centered against the former.
( ) Mark the mounting holes from the fan mounting tabs on to the mounting rails and remove the fan.
( ) Drill the fan mount and secure the fan with four #6 x ½" wood screws.

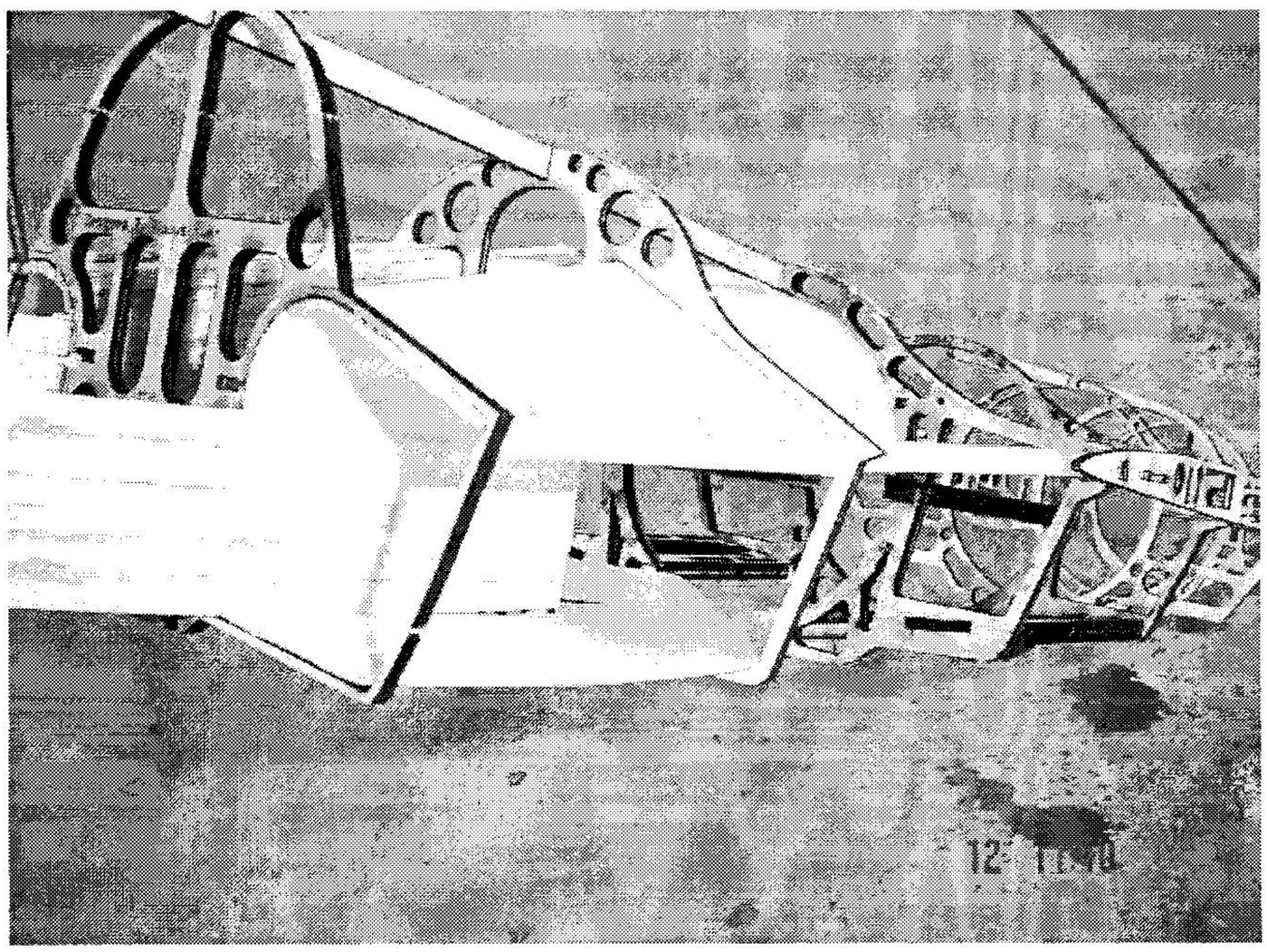


INLET DUCTING:
You will now have to build the inlet ducting.

( ) Start the planking of the front of the model using the 1/16" x 1/4" balsa strips.
( ) Locate the end of the planks on former F7 (inside the ducting) and plank up the side of the wall and forward up to former F2.
( ) Plank the inside wall of the ducting up and around the curve.
( ) Using 200 grit sandpaper, sand this wall smooth, removing all irregularities.
( ) Repeat for the opposite side.

( ) Using a piece of scratch paper as a template, cut and fit it to the bottom of the inlet between formers F6 and F7. Trace this template onto the 1/16" x 3" balsa sheet and cut it out.
( ) Fit it into the inlet and glue in place using medium CA.
( ) Using the same template, cut out another piece, invert it and fit it into the opposite inlet.
( ) Glue with medium CA.
( ) Repeat the template process for the top section on both sides.
( ) Repeat the template process for the side pieces, but do not glue in place. Once fitted set aside.
( ) Continue the template process, fitting the inlet ducting between formers F7 and F8.
( ) When you're complete and all ducting pieces have been installed (except the sides between F6 and F7), sand the inside with 220 grit sandpaper (through the side openings). Sand as smooth as possible. Use some lightweight modeling filler to clean up any joints that are not optimal.
( ) When satisfied with the sanding, install the side pieces.





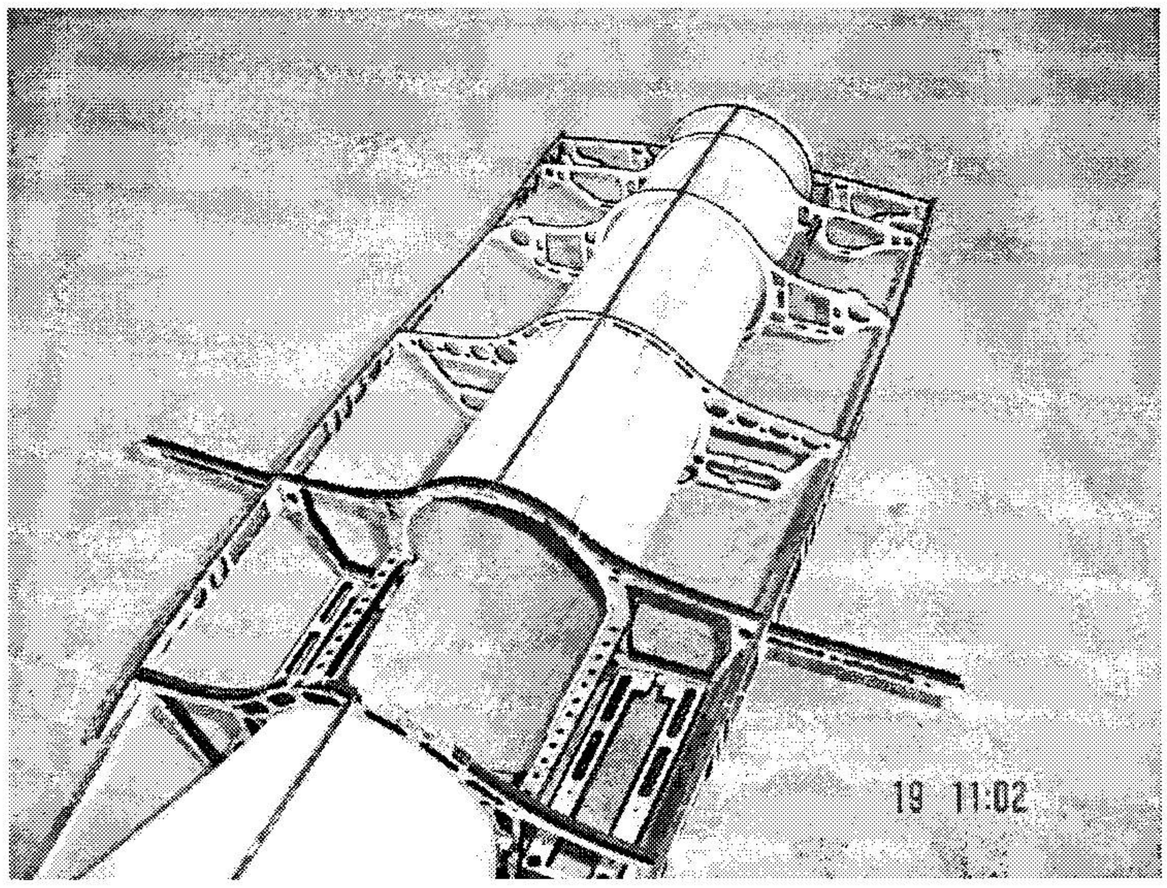
EXHAUST DUCTING:

The exhaust ducting can be made out of a number of materials. This manual describes using 1/16" balsa sheet as well as fiberglass sheet. If you decide to use any type of wood, ensure that it is properly sealed, and most importantly, light.

Balsa Exhaust Ducting:

( ) Glue the edges of three sheets of 1/16" x 3" x 36" balsa together to create a 9" x 36" sheet.
( ) Soak the sheet in water for 10-15 minutes, until it becomes flexible and will not crack when rolled.
( ) Roll the balsa over a soda can, or any other 2 1/2" -3" diameter form. Overlap the balsa over itself and using rubber bands, hold in place. Let it set until the balsa has dried out completely.

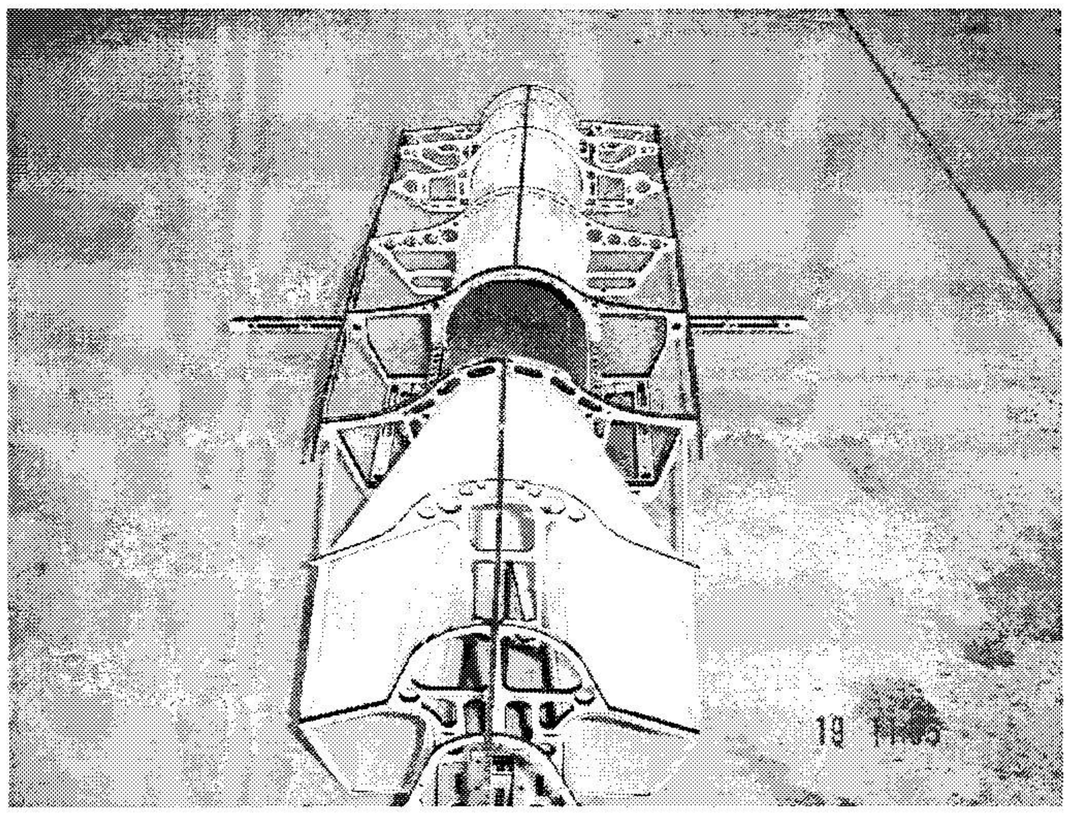
( ) Remove the rubber bands and the form. The balsa sheet should be dry in roughly a tube shape. This will help when gluing into the model.
( ) Re-install the ducted fan unit and butt it into Former F8.
( ) Slide the balsa into the fuselage up to the fan unit and open it so the ducting touches the inside of former F9. Mark former F9's location on the outside top of the ducting and on the top of the fan mounting rails.
( ) Mark the location of the overlap in the ducting
( ) Remove the fan
( ) Remove the ducting.
( ) Trim the ducting at the overlapped line.
( ) Using fiberglass epoxy resin (I use West Systems 205) thinned with acetone to 50%, paint a thin layer on the inside of the ducting.
( ) Let cure 24 hours.



( ) Using 220 grit, then 300 grit sandpaper, sand the inside of the ducting until smooth.
( ) Re-install the ducting into the fuselage lining up the reference marks made earlier and spread it until it touches the inside of former F9. Glue with medium CA.
( ) Spread the ducting so it touches the inside of former F12 and glue with medium CA.
Note: There will be small gaps around the ducting at former F10 and F11.
( ) Using a razor knife, cut the ducting at the top of the fan mounting rails and along the front of former F9.
( ) Using small scraps of balsa, create filler pieces around the ducting at formers F10 and F11 to lock it in place.

Fiberglass Exhaust Ducting:
( ) Trim the fiberglass sheet so that one end has a nice square edge.
( ) Install the fan in the fuselage.
( ) Roll the fiberglass sheet into a small tube and slide into the fuselage up to the fan unit and open it so the ducting touches the inside of former F9. Mark former F9's location on the outside top of the ducting and on the top of the fan mounting rails.
( ) Remove the fan
( ) Remove the ducting.

( ) Trim the ducting per the marked lines.
( ) Re-install the ducting into the fuselage lining up the reference marks made earlier and spread it until it touches the inside of former F9. Glue with medium CA.
( ) Spread the ducting so it touches the inside of former F12 and glue with medium CA.
Note: There will be small gaps around the ducting at former F10 and F11.
( ) Using a razor knife, cut the ducting at the top of the fan mounting rails and along the front of former F9.
( ) Using small scraps of balsa, create filler pieces around the ducting at formers F10 and F11 to lock it in place.

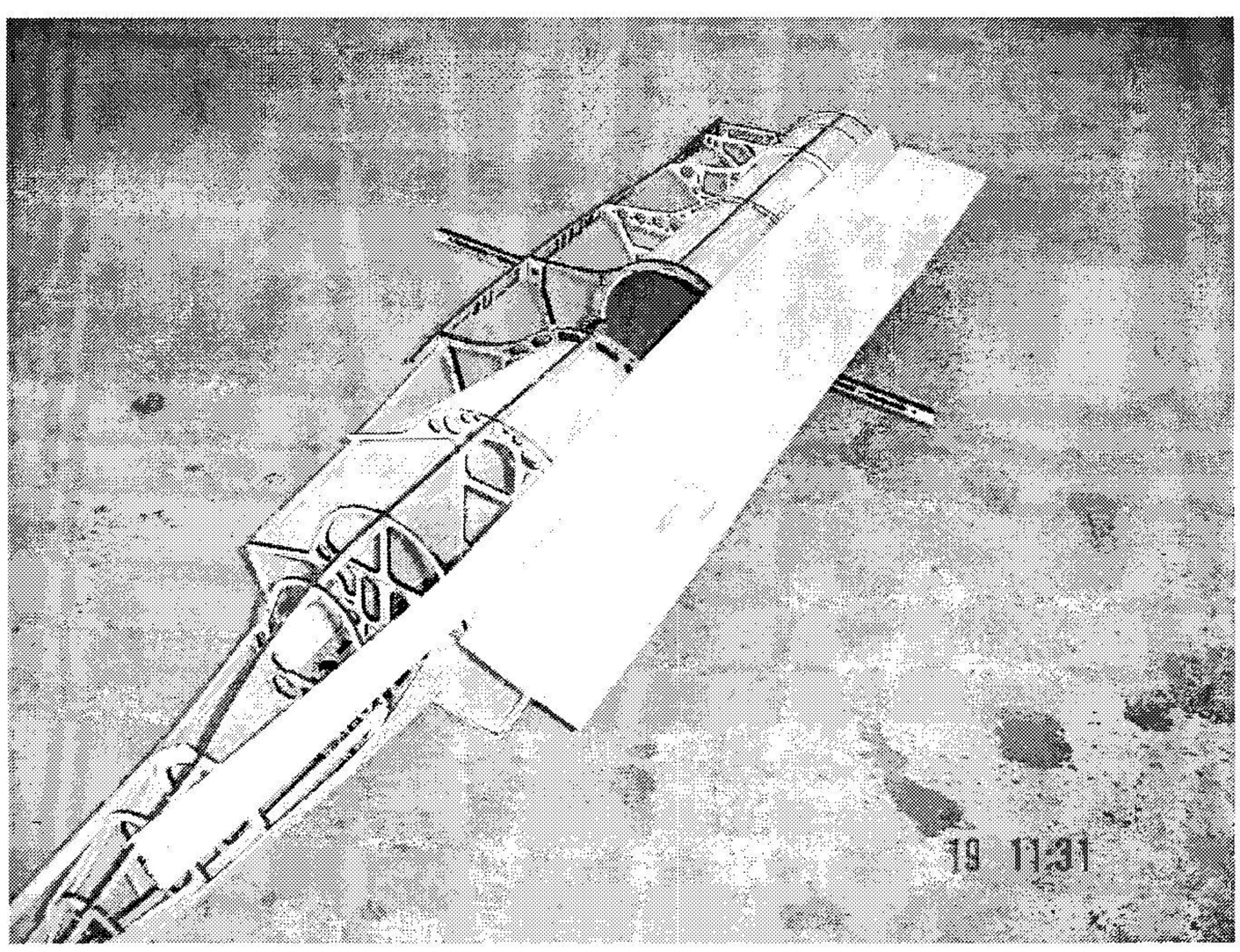


END OF DUCTING INSTALLATION

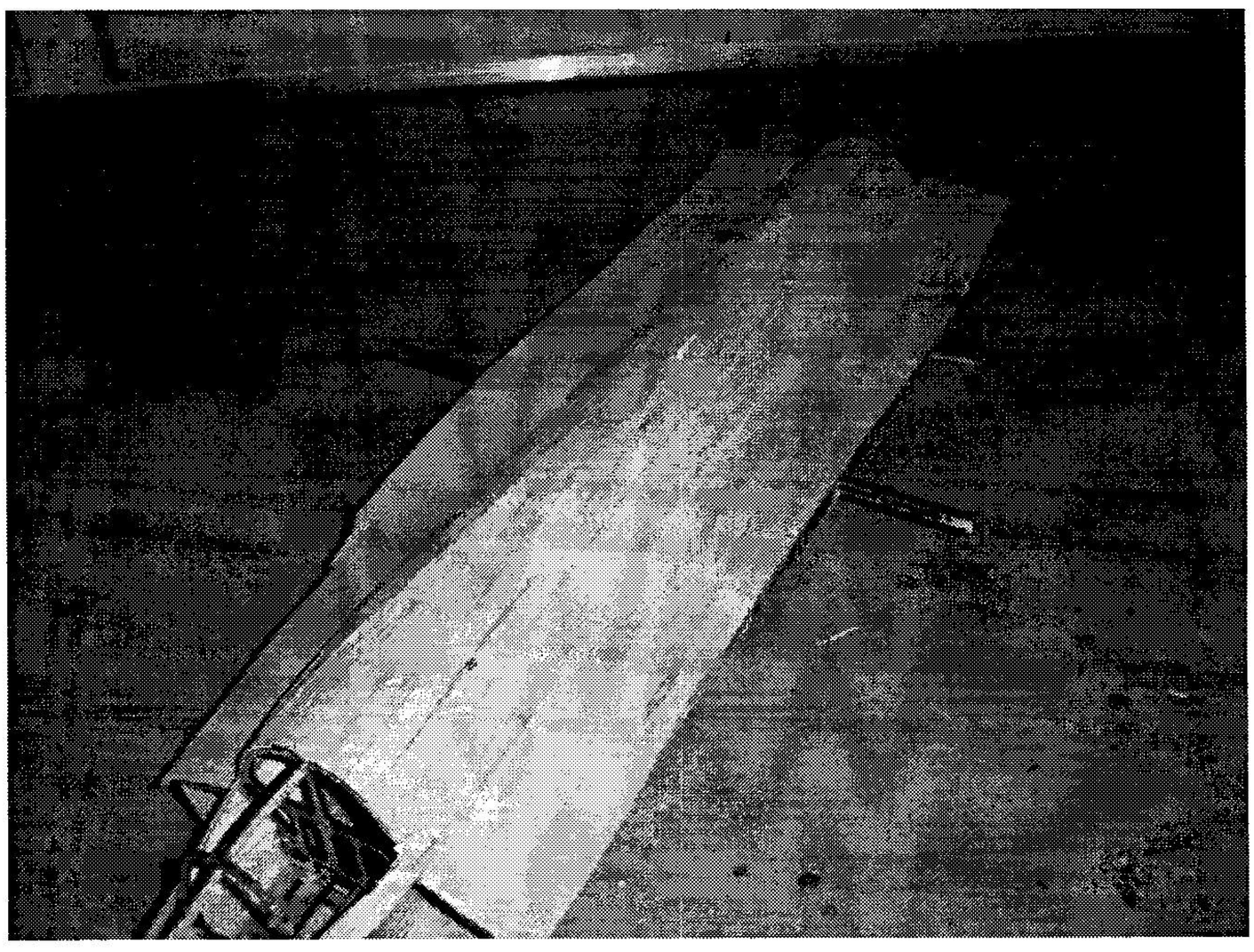
BEGIN FUSELAGE PLANKING:

The planking process is self explanatory. Use the widest sheets possible until the curves become tight, then proceed with smaller strips. Let the planks overhand the edges and ends until the planking is complete. Also, let the planks hang at least 1" over the front of the inlet on the top and sides.

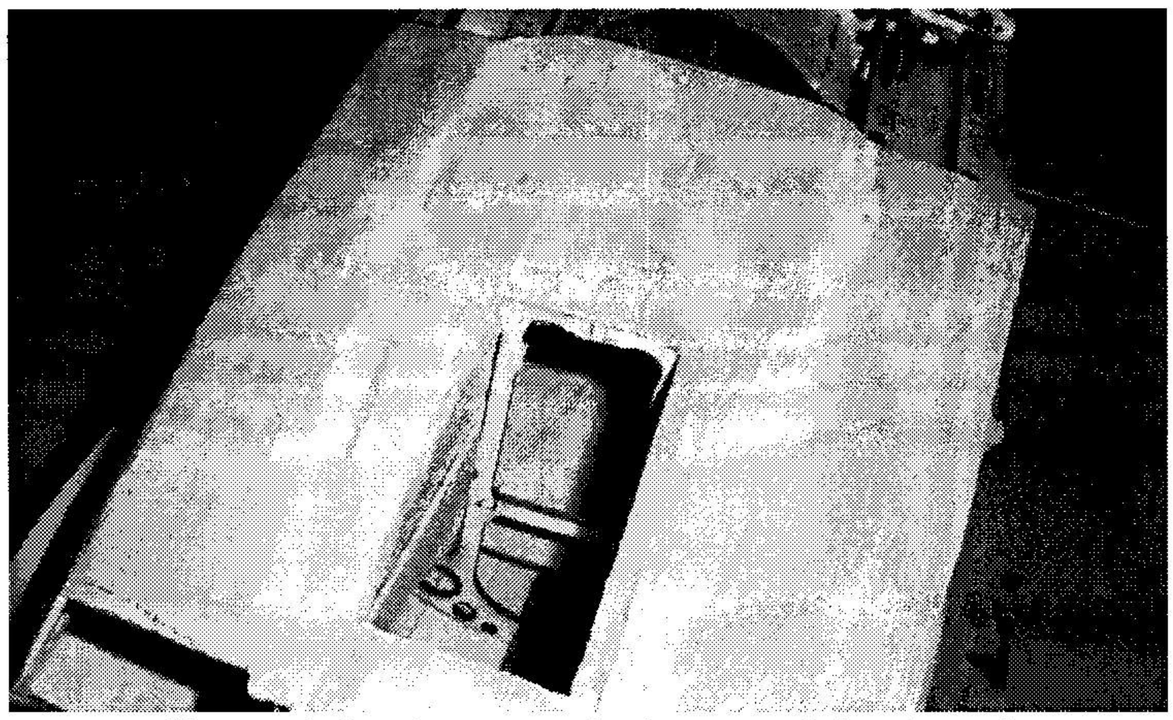
( ) Start the planking at the edge of the aircraft, using a 1/16" x 3" sheet of balsa gluing to each former.
( ) Proceed up the side using thinner strips and sheets.



( ) Continue the planking until the whole top side is covered.



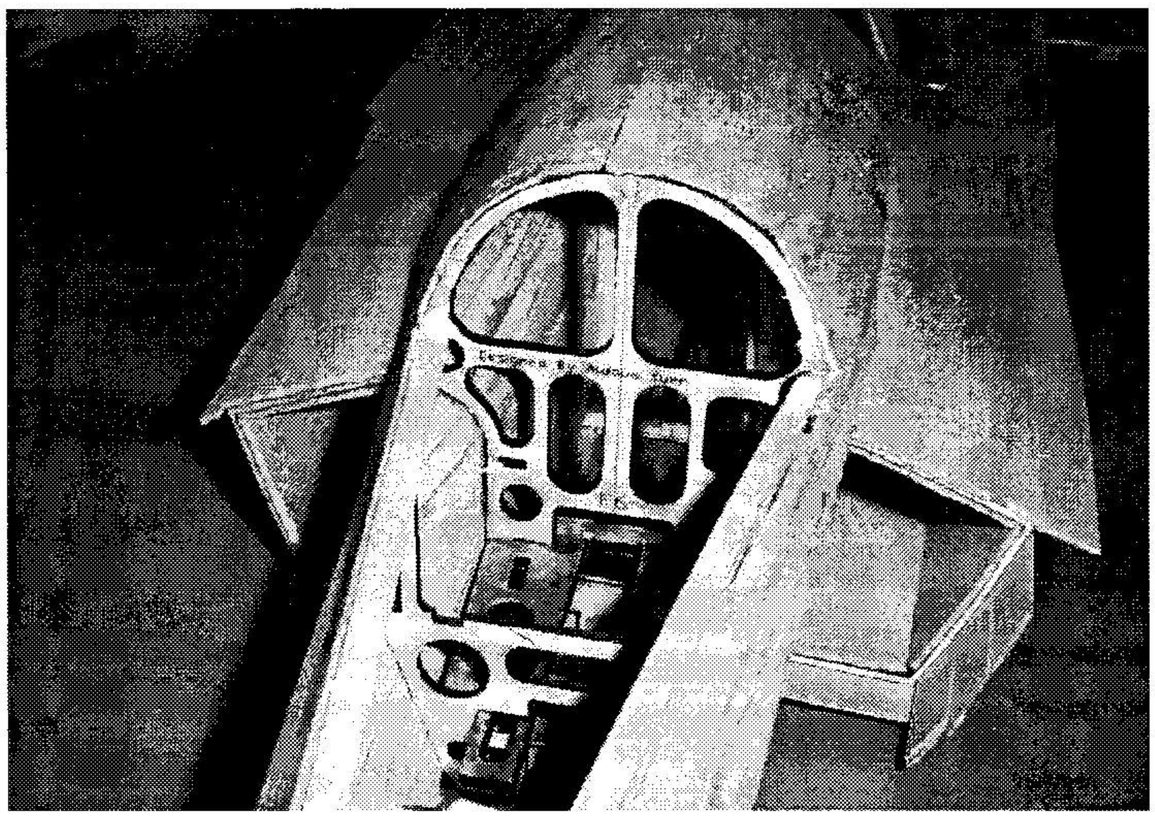
CHEATER INLET:
Due to the scale inlets, a cheater inlet is recommended for this aircraft. The inlet can be built either on top of the aircraft or underneath. The inlet should be between formers F6 and F7 if on top and F7 and F8 if on the bottom.



Cheater inlet shown on the bottom of the aircraft.

ENGINE HATCH:
( ) From the underside, use a razor knife to cut through the planking at the engine hatch (between formers F8 and F9) and remove.
( ) Using tiny drops of CA, temporarily tack the ply engine hatch formers, F8H and F9H, to their respective formers.
( ) Replace the planking that was cut out earlier, or replank this area if a better fit is desired.
( ) Using your razor knife, slice through the CA tacks you made and pop the hatch loose.
( ) Sand the ends and edges to obtain a good fit.
( ) Using the 1/8" x 1/4" balsa sticks, create a frame around the edge of the hatch and the opening in the fuselage.
( ) Install the hatch latches to secure the hatch during flight.

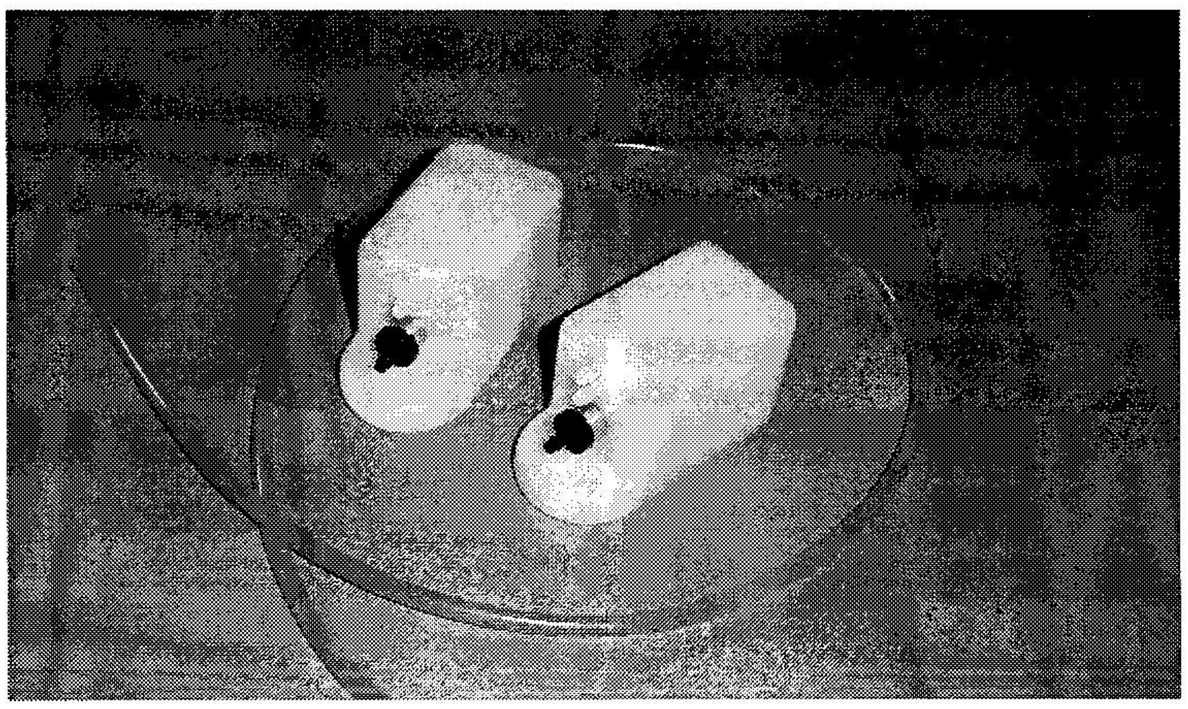
CANOPY HATCH:
( ) Using the same temporary tack method, tack in place the canopy hatch formers F4H and F6H.
( ) Slice off the balsa planking at the base of the hatch formers.
( ) Plank the canopy hatch and break it loose like you did the engine hatch. Cut F5 at the hatch base so the top is part of the canopy.
( ) Using the 1/8" x 1/4" balsa sticks, create a frame around the edge of the hatch and the opening in the fuselage.
( ) Sand the ends and edges to obtain a desired fit.
( ) Install the canopy latches to secure the canopy during flight.



( ) Sand the entire top section of the model. It is critical that the shape be smooth and consistent. The shape of the fuselage is a lifting body and aids in the lift of the entire aircraft.

INSTALL FUEL TANKS:

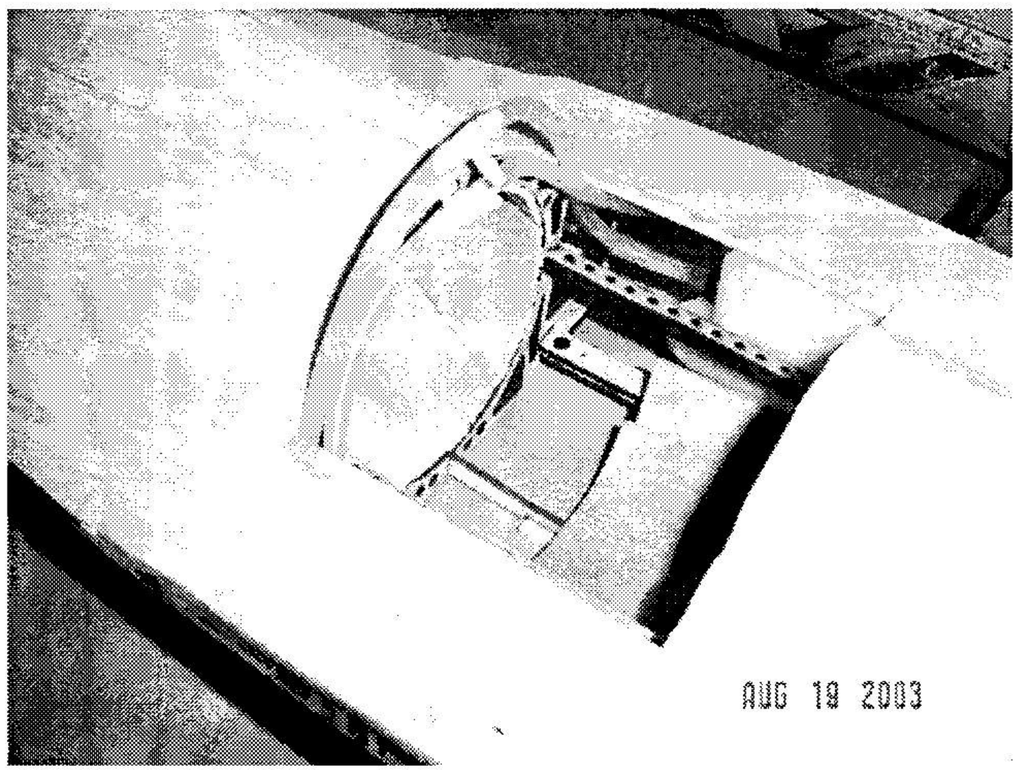
( ) Assemble the fuel tanks per the manufacturers instructions.



( ) Install the fuel tanks in the space next to the fan on top of the main gear mounts. Secure in place with silicone adhesive or wrap the tanks in foam and secure in place with a rubber band.

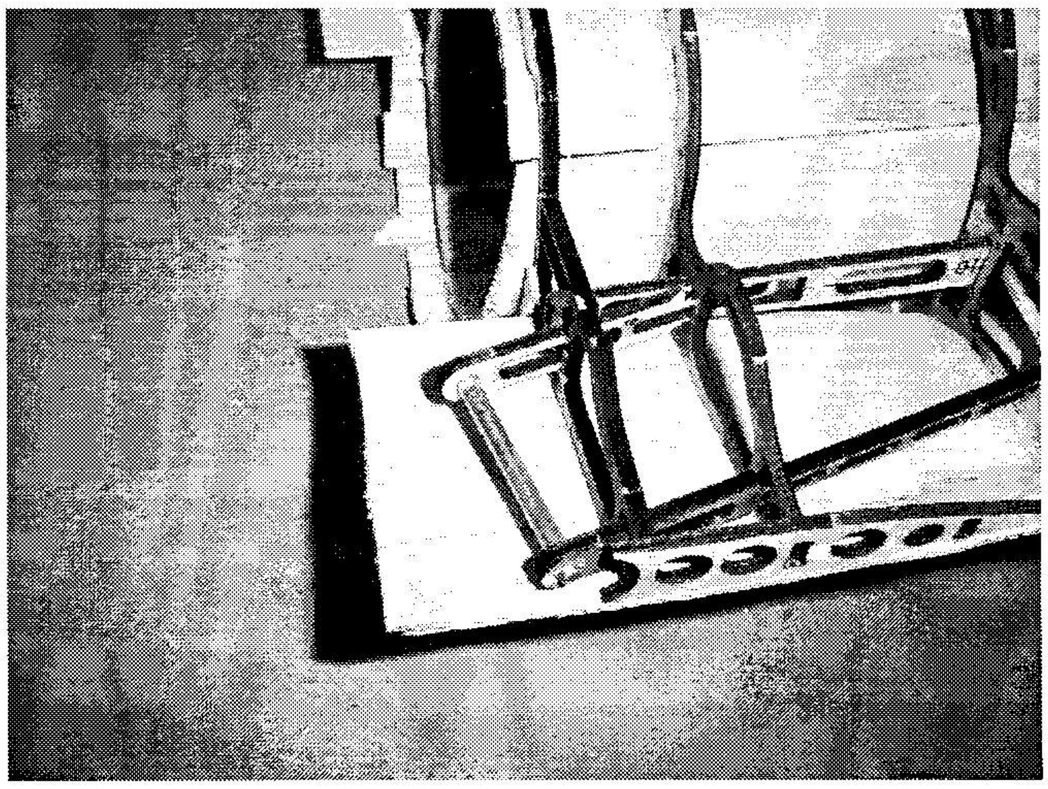
( ) Using equal lengths of standard fuel tubing, route the fuel lines from the tanks to the 'T' fittings and a single line to the engine. Install an additional fuel line and "T" fitting to approximately where the tuned pipe pressure nipple would be.

( ) Cap the ends of the fuel lines (or connect the T fittings to each other using a small piece of tubing). This will prevent any dust from entering the fuel system during the rest of the construction.



FORMER F13 INSTALLATION:
( ) Install former F13, butting it up against the top and bottom rear spines and the fuselage wing profiles. Glue in place when satisfied with the fit.

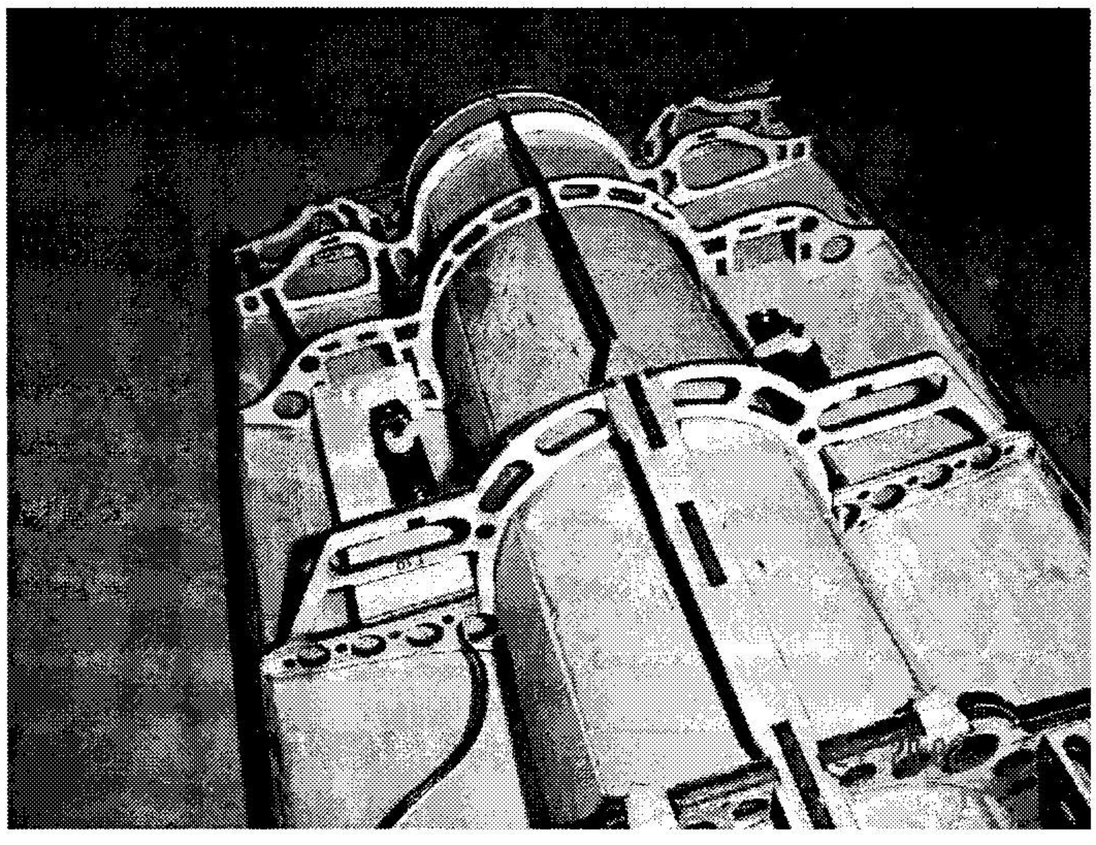
TAILERON PIVOT:
Trial fit all of the following parts first before gluing.
( ) Slide T3 through formers F11, F12 and nest the notched end into F13.
( ) Slide T1 through F13, F12 and into F11 until the end of it is flush with the front face of the former F11.
( ) Insert T2 into F13 until it nests with the opening in T3.
( ) Slide the 5/32" aluminum tubing through T1 and T2 ensuring they're aligned properly. Glue T1, T2 & T3 in place using epoxy. Create small fillets around all the joints where they meet the formers.
( ) Repeat for the other side.
( ) Using a dremel or tubing cutter, cut the tube so it extends beyond T2 about 1/16" and is beyond T1 approximately 1/16". Glue in place with epoxy.



( ) Mount your mini servos per the manufacturers instructions to the taileron servo mounting plates.
( ) Using 5 minute epoxy glue the servo mounts between formers F10 and F11.
( ) Attach a 24" servo extension to each servo and route the leads through the formers until it reaches the front of the aircraft.

( ) Align the pushrod so the nylon clevis is approximately centered with the aluminum tube. Mark the location of the servo horn on the pushrod.
( ) Place a Z bend in the pushrod at the marked location.
( ) Install the Z end of the pushrod into the servo horn and route the rod through the formers until it protrudes the rear of F13.

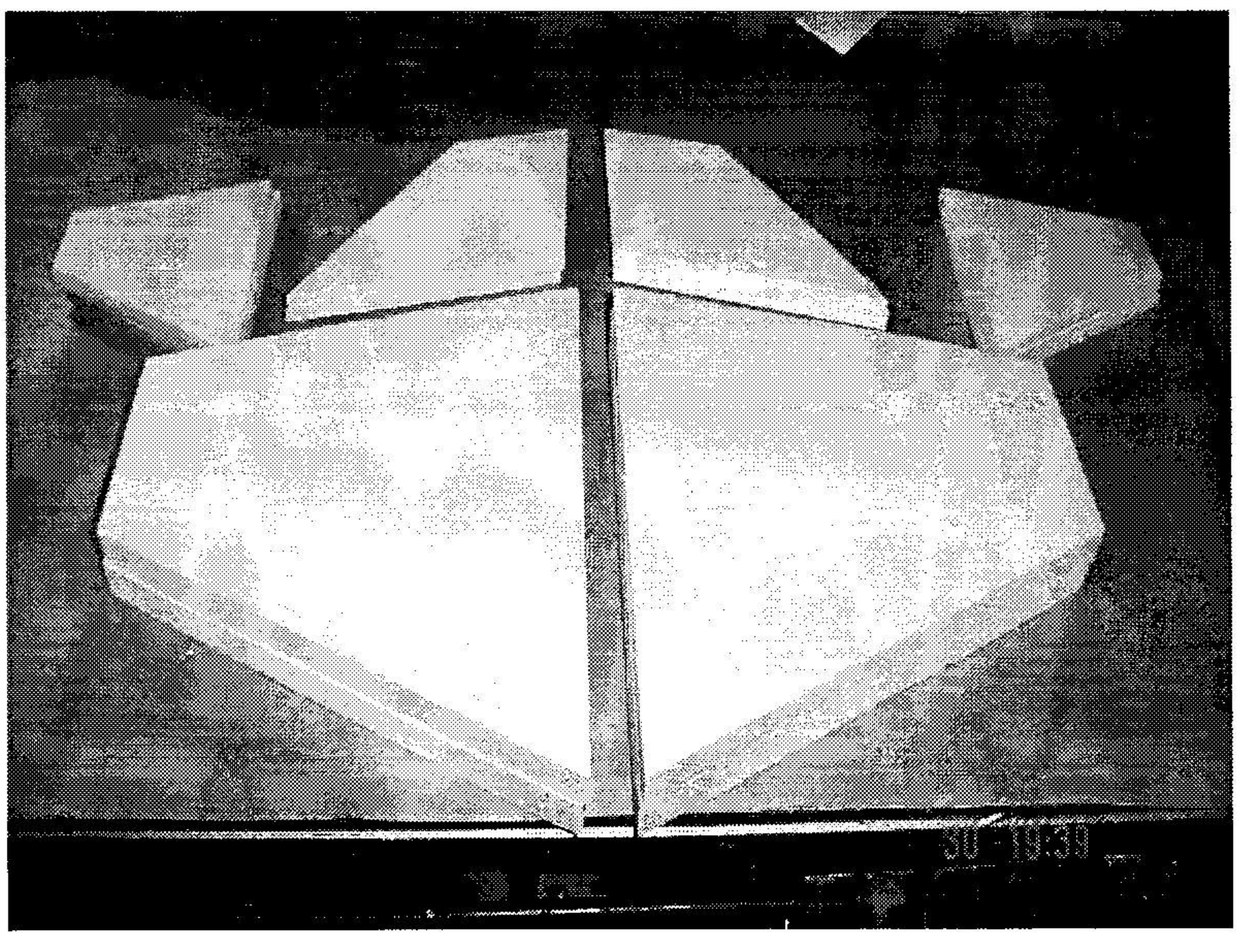
Note: Leave the underside of the aircraft un-planked for now. We'll return to it later.



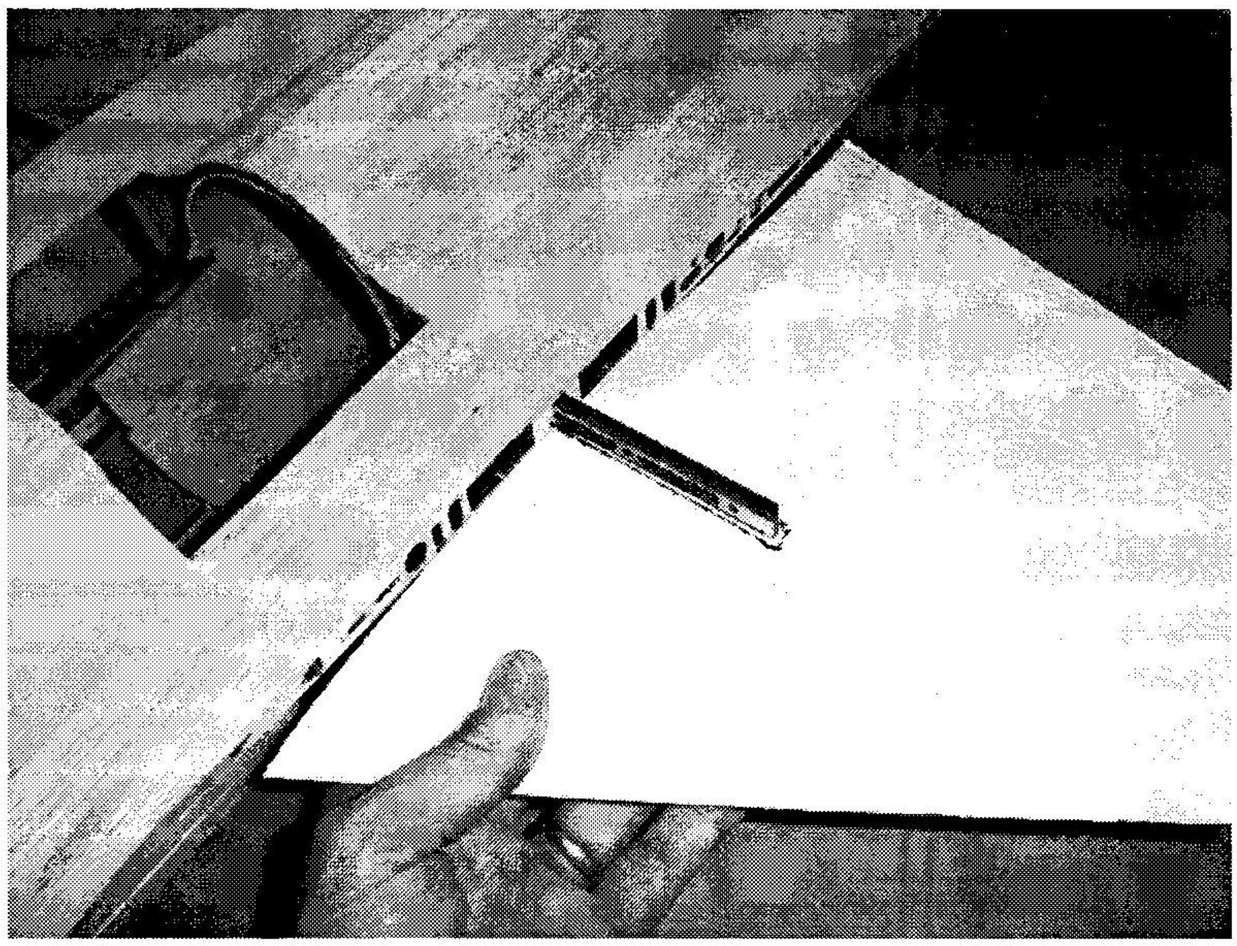
WING CONSTRUCTION:

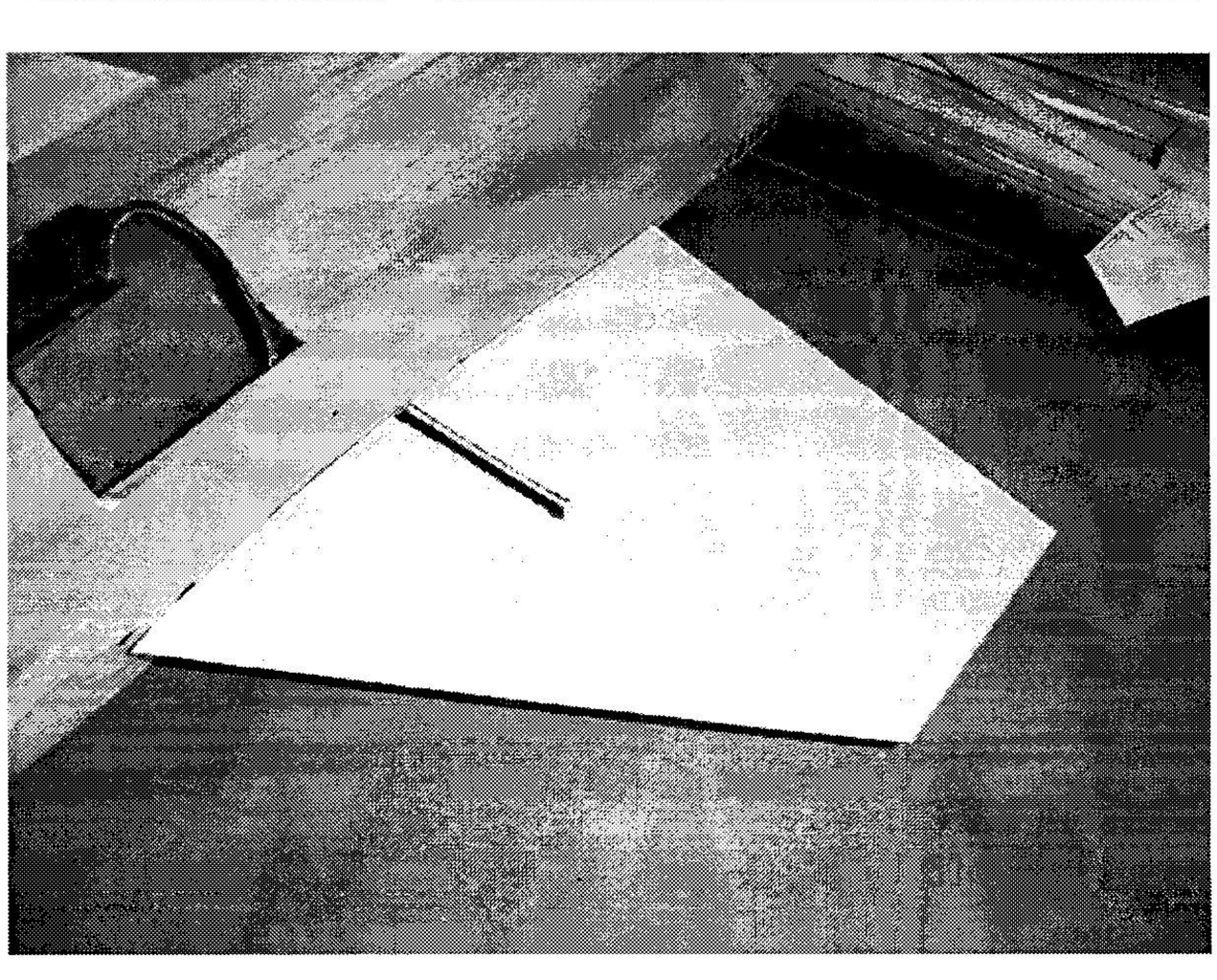
For the construction of the wing, you will need to sheet the foam core with balsa skins. There are numerous methods out there to do this and you are not in any way obligated to follow these steps. The following method is just one example.

( ) Open the foam wing core from it's cradle and inspect the overall surface and shape. Ensure there are no defects. If there are any dents or defects, fill them with lightweight model filler and sand smooth.
( ) Using a sanding block with 220 grit sandpaper, lightly sand the foam cores of any "fuzz" or "hair".



( ) Position the wing core against the fuselage so the leading edge matches the ply wing profile on the side.
( ) Mark the location of the wing spar on the core that is protruding from the fuselage.
( ) Using a razor knife or saw, remove the foam from the marked line. Do not remove excess foam. Take your time. You want a snug fit between the foam and the spar.

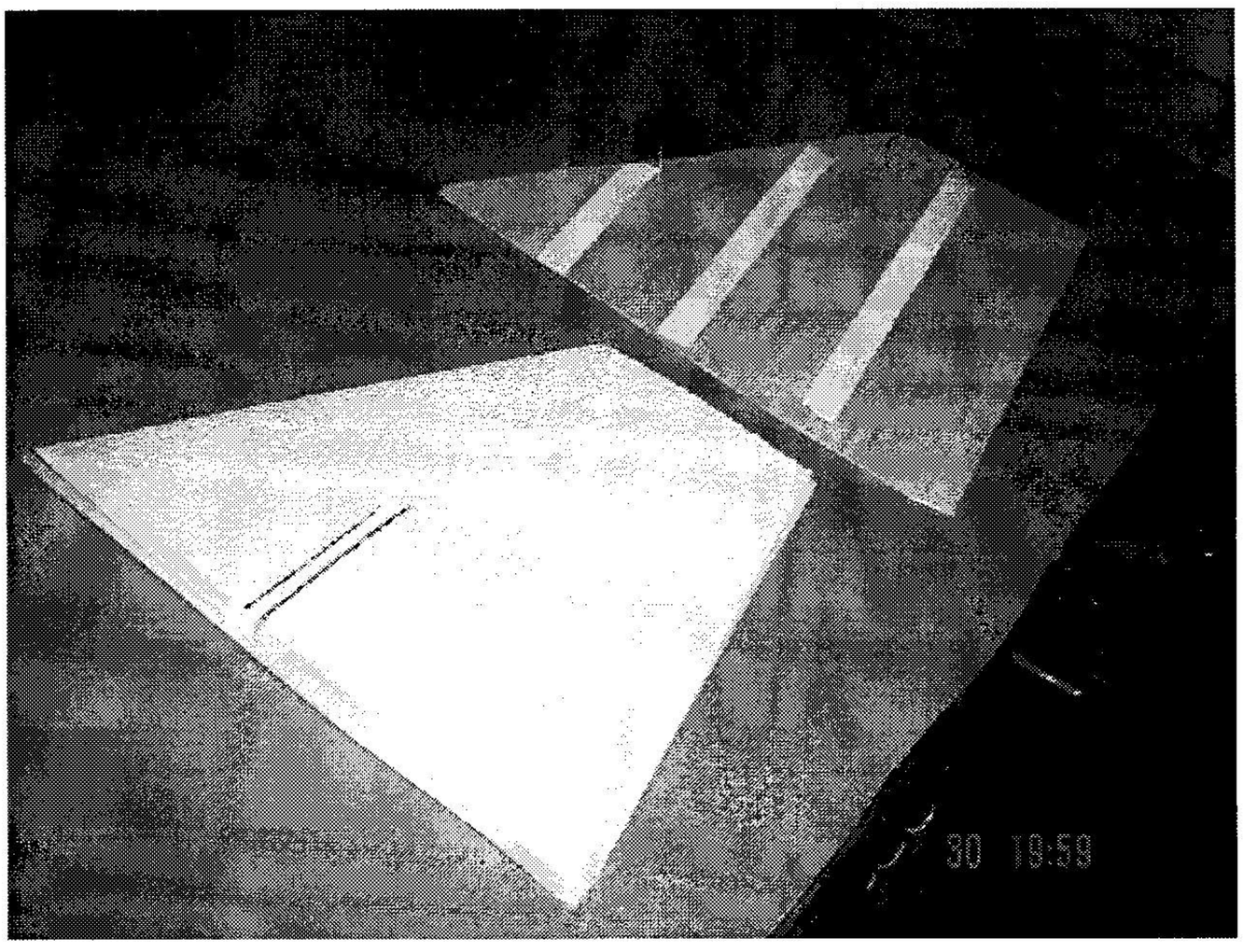




( ) Trial fit the core onto the spar.
( ) Using a 1/4" wide x 1/16" thick strip of balsa, build up the top and bottom of the spar so it is flush with the top and bottom of the core. Sand if necessary to get it flush.

Sheeting:
( ) To square the edges of the balsa sheets, use a metal straight edge and a sharp razor knife to slice off a small strip. Ensure that the knife is perpendicular to the edge.

( ) For each side of the wing, 4 sheets will be necessary. Butt the sheets up against each other and use masking tape to hold together.
( ) Position the wing cores on the sheets and trace the outline, making them slightly larger (½") all the way around.



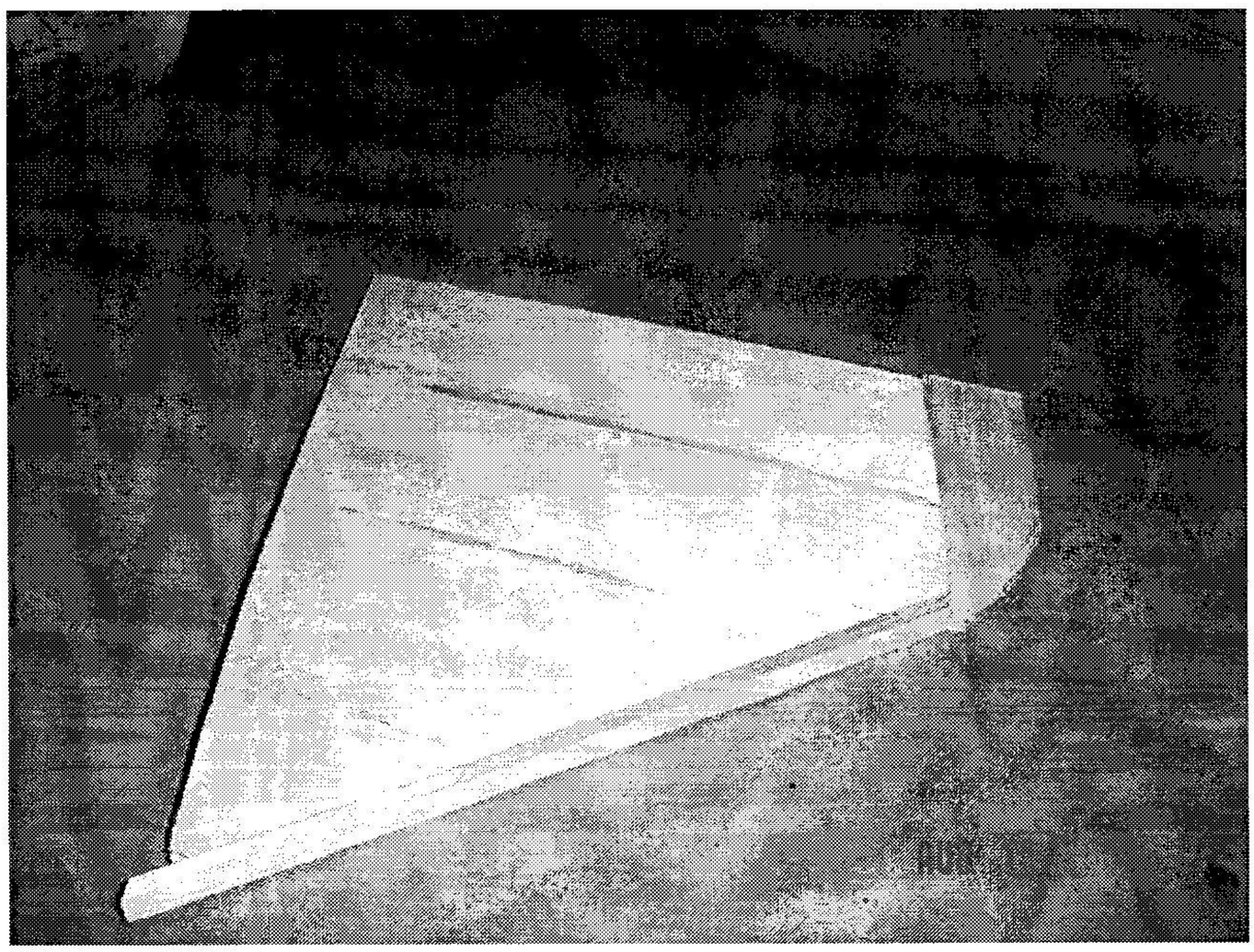
( ) Cut out the sheets.
( ) Repeat for the opposite surface sheet. Make sure that each sheet has the tape on the "outside" surface.

( ) Before mixing up your resin test fit the sheets and the cores in the cradles to make sure you have everything set correctly.
( ) Locate at least 20lb of weight and have it near your work area before you mix any resin.

( ) To glue the sheets to the wing cores use a slow cure epoxy resin. Two good systems to use would be West System or AeroPoxy. Mix up enough epoxy to cover both wing sheeting panels. Note, you only need a thin layer, so don't mix too much as you'll only be wasting it and you'll be adding excess weight.
( ) Lay the bottom sheeting on a work table, placing the taped surface down.
( ) Use a small squeegee or credit card to spread a **thin** coat of epoxy over all the sheets. Remember to keep the resin at a minimum. Excess resin won't make the wing stronger and will only add weight
( ) Place the bottom sheeting of the wing core down into the cradle with the resin surface up.
( ) In a separate cup mix up some epoxy with micro balloons or an equivalent thickener to make a paste/peanut butter like consistency. Use a small brush and apply the paste mixture to the trailing edge of the wing sheet where the core stops.
( ) Place the foam core on top of the bottom sheeting.
( ) Repeat for the top sheeting then place on top of the core.
( ) Place the top piece of the cradle on the top of the wing and center everything.
( ) Place the cradle on a flat surface and put a flat board on top of it. Place 20-30lbs of weight on top of the board evenly distributed and allow to dry for 24 hours. Make sure you use a flat surface and a flat board when sheeting the wings as to prevent warps or twisting.

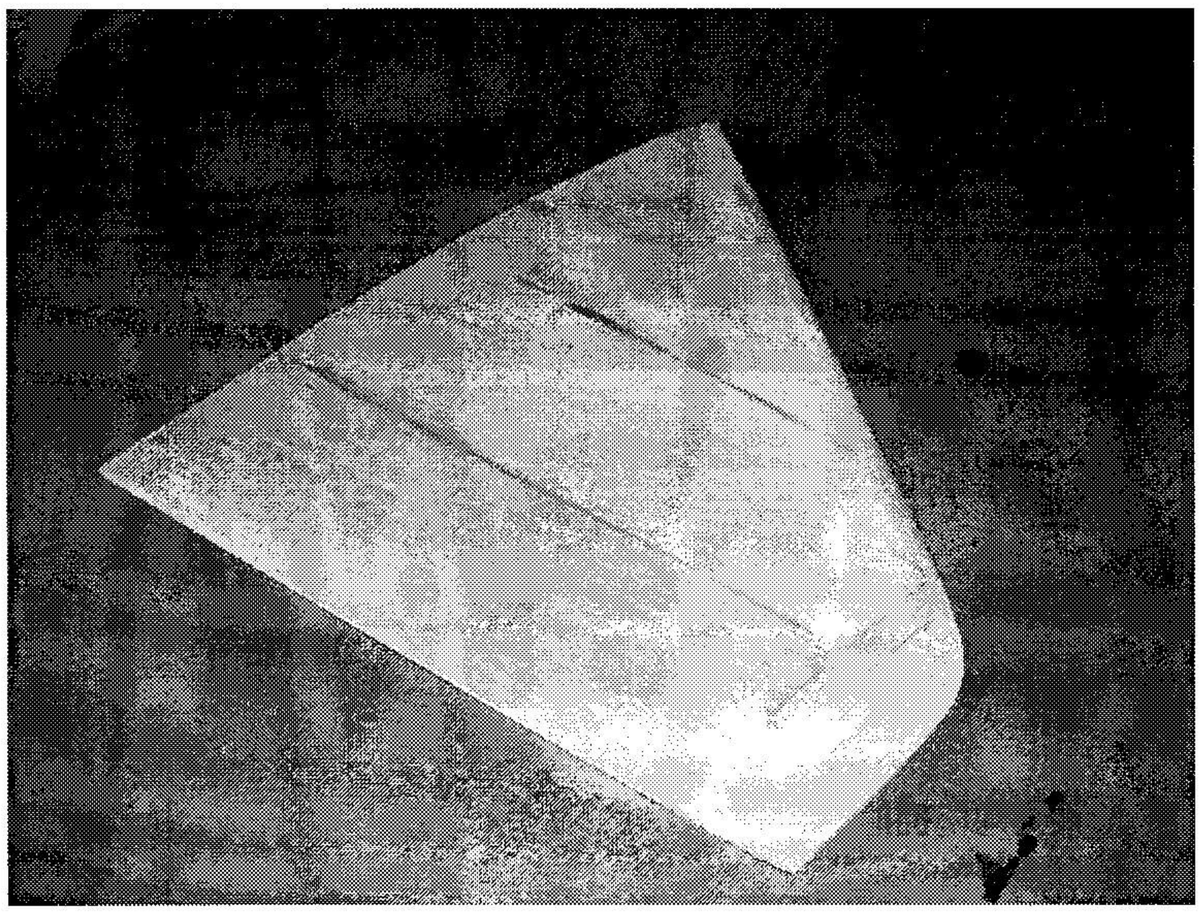
Note: There is washout built into the wing, so it may appear slightly twisted.

( ) After the wings have dried for 24 hours, remove them from the cradle and inspect.
( ) Cut the sheeting at the leading edge and flush with the edges being careful not to cut into the foam.
( ) Locate the ¼" x ¼" square balsa stick to be used for the leading edge and cut to length. Use 30 minute epoxy and glue the leading edge stock in place. Be sure to center the stick and use masking tape to hold in place while drying.



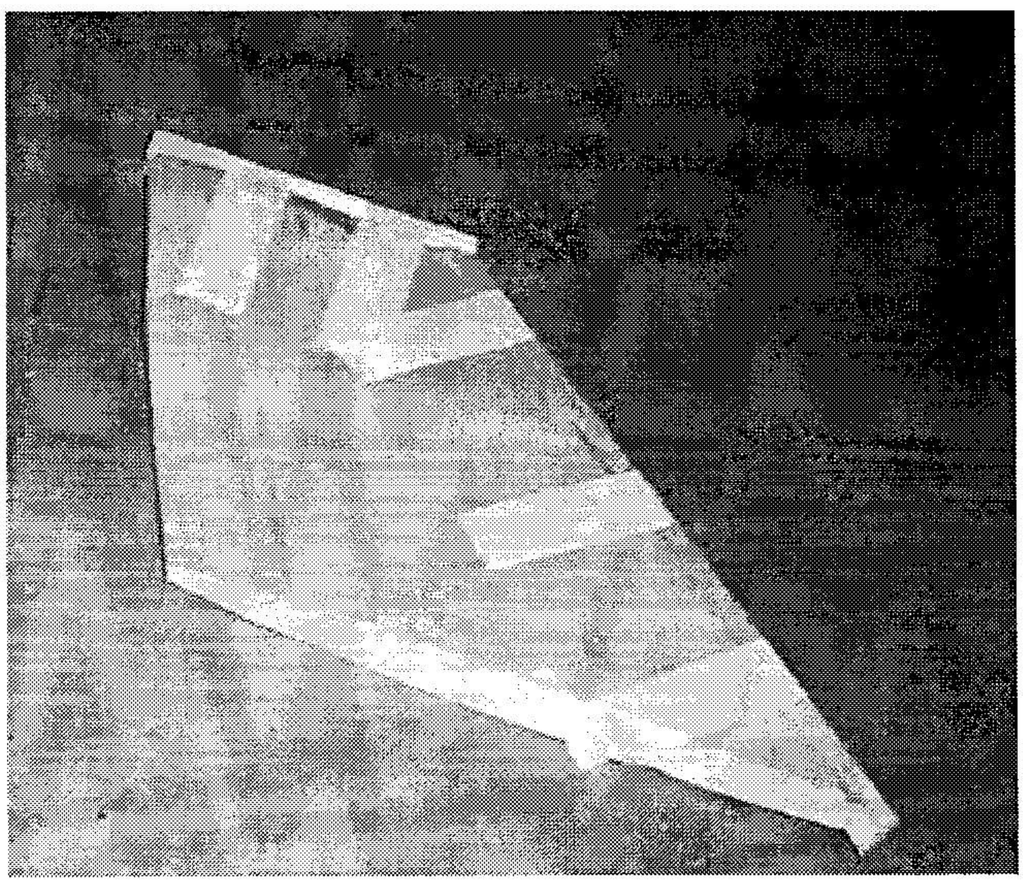
( ) Once dry, sand the ends flush and shape the leading edge to match the top and bottom of the wing profile.
( ) Attach the balsa tip blocks so the wing is extended an additional 1". Use 30 minute epoxy to glue the tip blocks in place.
( ) Once dry, use a sanding block to sand the tip blocks to match the shape of the wings.
( ) Using a sanding block, sand the trailing edges leaving a thickness of approximately 1/16".
( ) Sand the entire wing first using 220 grit sandpaper, then proceeding to 300 grit.
( ) Wipe the entire surface with a damp cloth, removing all the dust.

F35 Joint Strike Fighter



FIN CONSTRUCTION:
The construction of the fin is similar to the wing. You will need to sheet the core but fiberglassing is optional.

( ) Using the method described in the wing construction section, sheet the fins.
( ) Attach the leading edge and the tip blocks using 1/4" x 1/4" balsa strips.
( ) Apply a 1/4" wide x 1/8" thick balsa strip to the base of the fin. Sand smooth to the contour of the fin.



FIBERGLASSING:

Note: The fiberglassing step can be omitted if you plan on finishing the model with a Mylar type covering (such as Monokote).

Remember, excess resin will not increase the strength of the wing, only add weight. Keep the resin at a minimum. You can always go back and add more if needed, but once cured, you can not remove it without a lot of destructive work.

( ) Start with the bottom surface.
( ) Using .5-.75oz fiberglass cloth, cut it so it hangs over the edges by 1/2-3/4"
( ) Mix up a small amount of epoxy resin and drizzle a small amount on top of the cloth.
( ) Using a squeegee or an old credit card, distribute the resin over the entire surface, so that it just soaks into the cloth.
( ) Pull any excess resin to the edge of the cloth.
( ) When the resin begins to cure and becomes "tacky", fold it over the leading and trailing edge. Gently work it until it sticks to the opposite surface.
( ) Let cure completely.
( ) Repeat this procedure for the top surface but do not fold the cloth over. Let it hang over until it has cured.

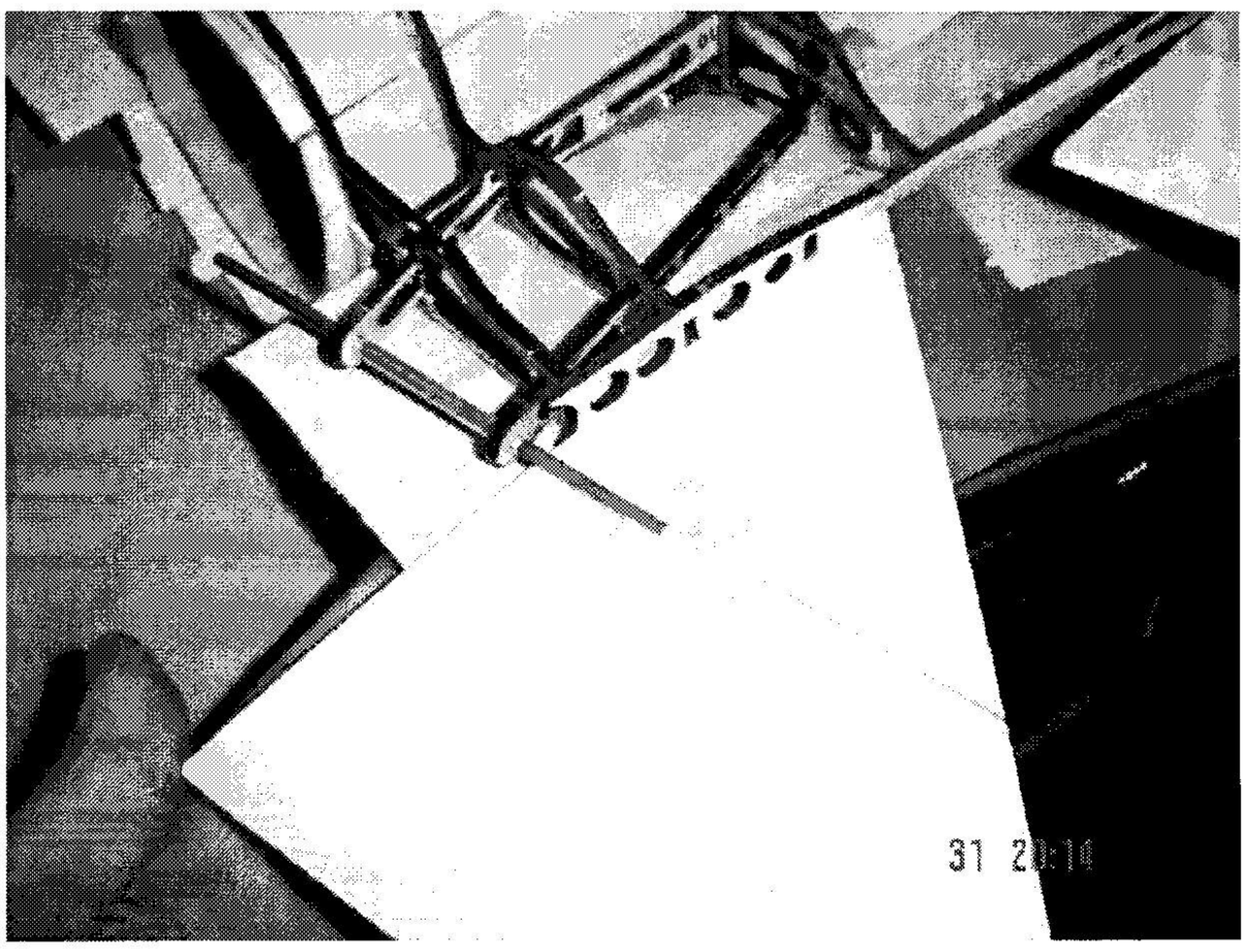
( ) Once completely cured, use a sanding block with 220 grit sandpaper and lightly run it over the edges, cutting away the excess fiberglass.
( ) Sand the wing, removing any irregularities in the fiberglass. Be careful sanding. A couple hard strokes and you could be through the cloth and into the balsa.
( ) Clean the surface of any sanding dust.

( ) Mix another batch of epoxy resin. Lightly drizzle a small amount over the top surface of the wing. Using a squeegee or old credit card, pull the resin over the cloth to fill in any pores that were missed during the first glassing. Remove all excess resin.
( ) Let cure and repeat for the bottom surface.
( ) Once cured, sand the entire wing with 300 grit paper, then 400, then wet sand it with 600 grit. This will produce an exceptional finish.

TAILERON CONSTRUCTION:
The construction of the taileron is similar to the wing. You will need to sheet the core but fiberglassing is optional if your using a Mylar type finishing material. Before any sheeting is started, you will need to install the taileron pivots.

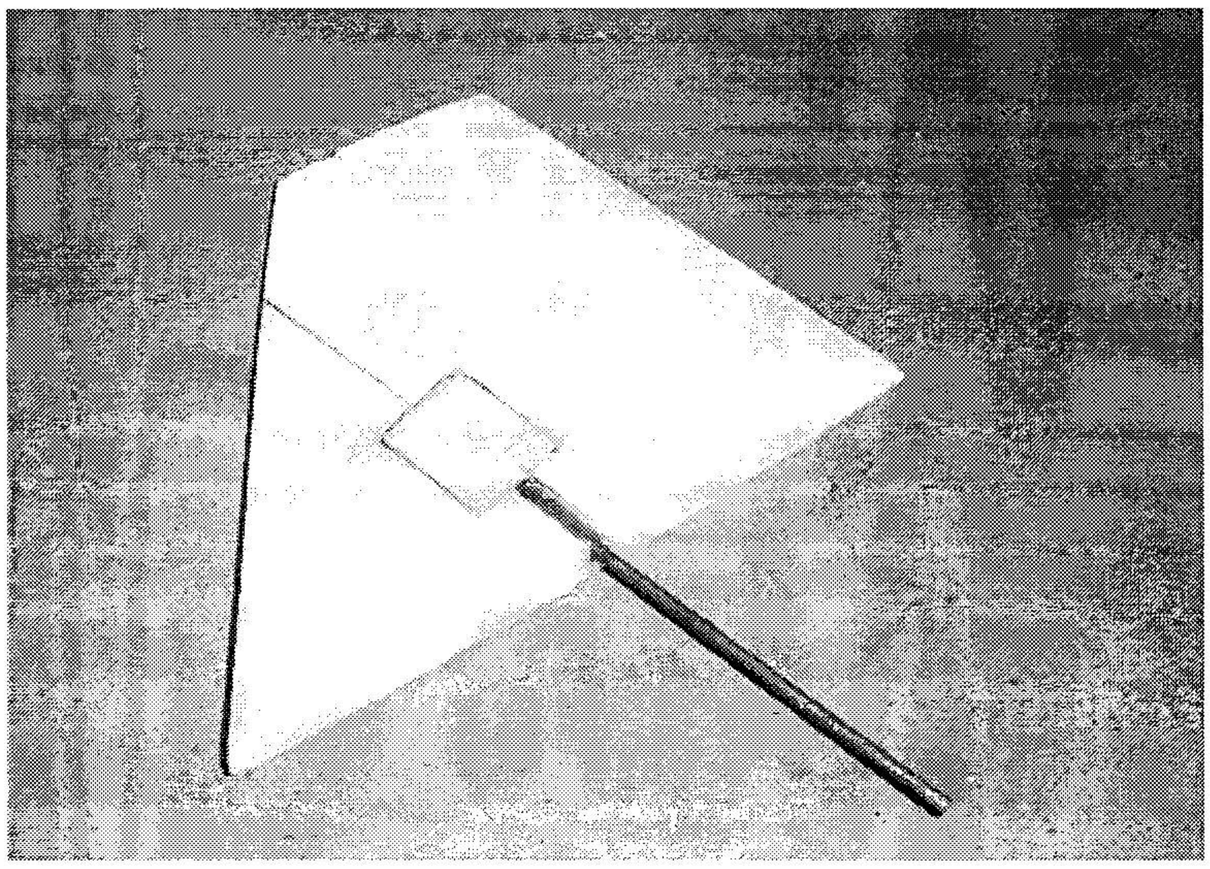
( ) Using a dremel rotary tool or hand file, grind a 1/16" slot in the end of the solid 1/8" taileron pivot rod approximately 3/8" deep.
( ) Cut a piece of 1/16" plywood ¾" wide x 1" long and position it centered in the slotted rod.
( ) Glue using epoxy.

( ) Position the foam core on the edge of the fuselage so that the leading edge is approximately 1/2" behind the front of former F11.
( ) Insert the 1/8" aluminum rod into the pivot tube so that it overhangs the foam.



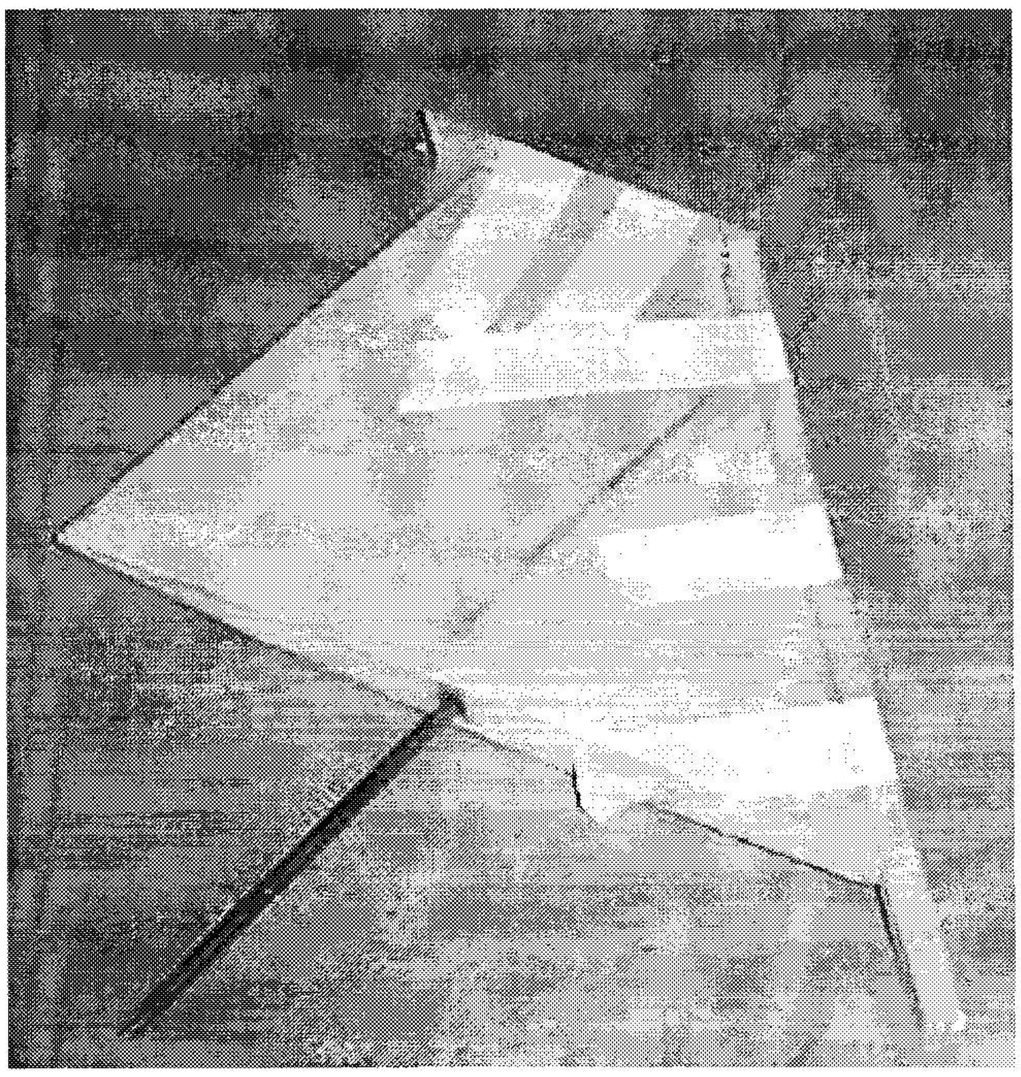
( ) Using a marker, trace the outline of the pivot rod sub assembly onto the core.
( ) Place the foam core back into the bottom half of the foam cradle.

( ) Using a razor knife, cut out the tracing of the taileron pivot rod and save the scraps of foam. They will be used as filler later.
( ) Using the foam that was just cut out (balsa is a suitable substitute), fill in the opening half way so the taileron pivot rod will lay on the centerline of the taileron. Glue in place using epoxy.
( ) Position the rod in the cutout and glue in place using epoxy. Let cure.
( ) Cut a 1" length of the aluminum pivot tubing and slide it over the pivot rod into the core so the end of it is flush with the outer edge of the core. Glue in place with epoxy both to the foam core and to the pivot rod.
( ) When cured, use the scrap foam that was cut out (or scrap balsa) to fill in the slot. Use epoxy to glue.
( ) When cured, sand both sides of the foam to smoothen out the slotted area.



( ) Repeat for the opposite taileron. Note, the tailerons are symmetrical so you don't need to pay attention to orientation.

( ) You are now ready to sheet the tailerons. Follow the same procedure that was described to sheet the wings then attach the leading edge and tip blocks. The leading edge and tip blocks should be constructed out of 1/4" x 1/4" balsa stick.

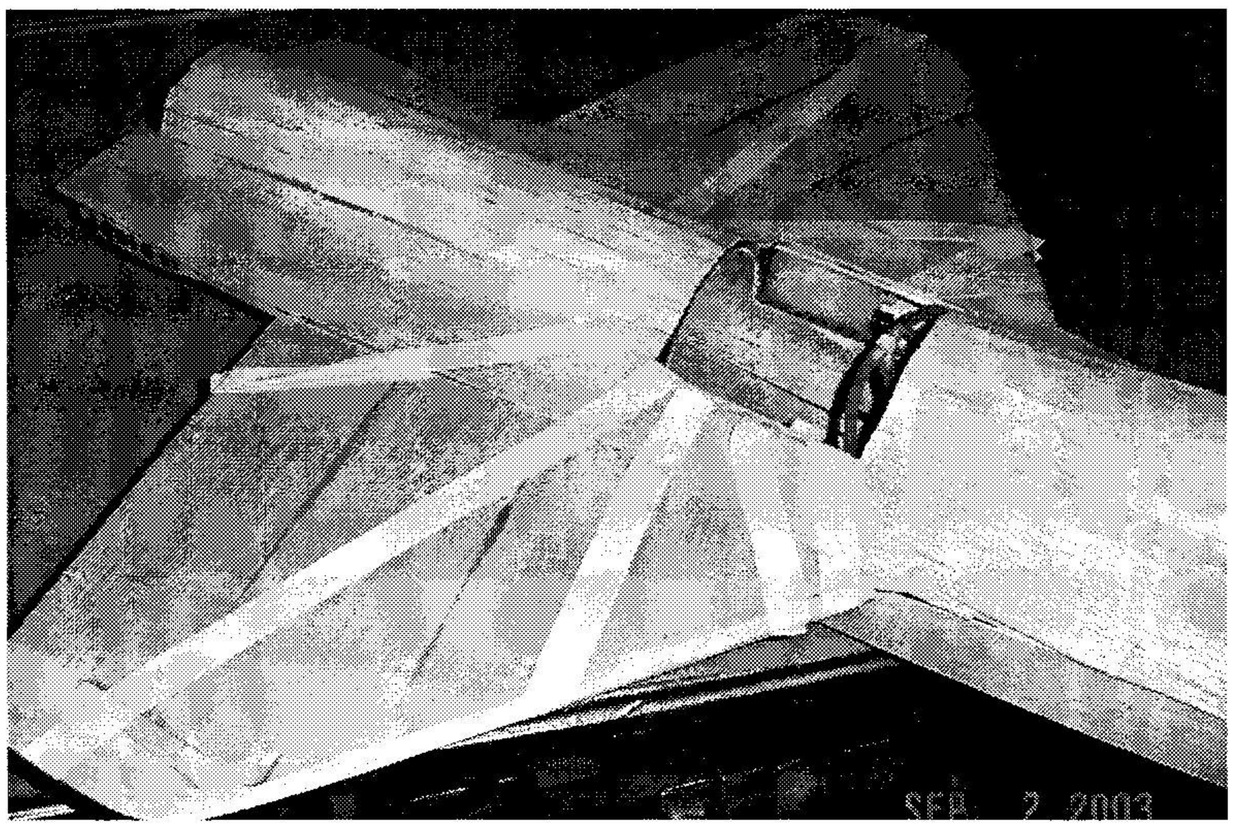


( ) Using the template in Appendix B, frame and sheet the taileron extension. Use 30 minute epoxy when gluing to the foam. Repeat for the opposite taileron.
( ) Fiberglass the tailerons as described in the wing construction section if you are not finishing the model with a Mylar covering.

WING, TAILERON, AND FIN ATTACHMENT:

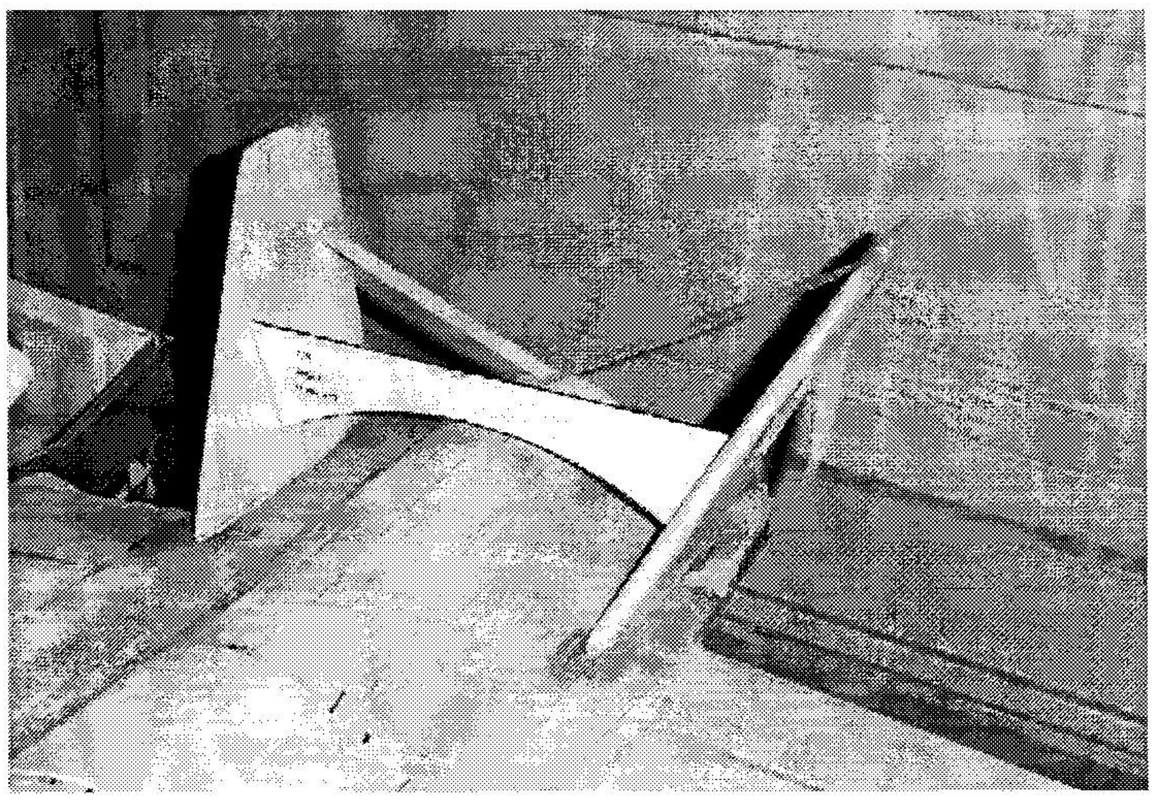
Wing:

( ) Using 30 minute epoxy coat the wing spar and the inside edge surface of the wing core.
( ) Slide the wing on the spar.
( ) Repeat for the opposite side.
( ) Using masking tape, position and align the wings so the leading edge and trailing edges are at the same height and viewing from the nose, they appear level. Let cure overnight.



Fin:

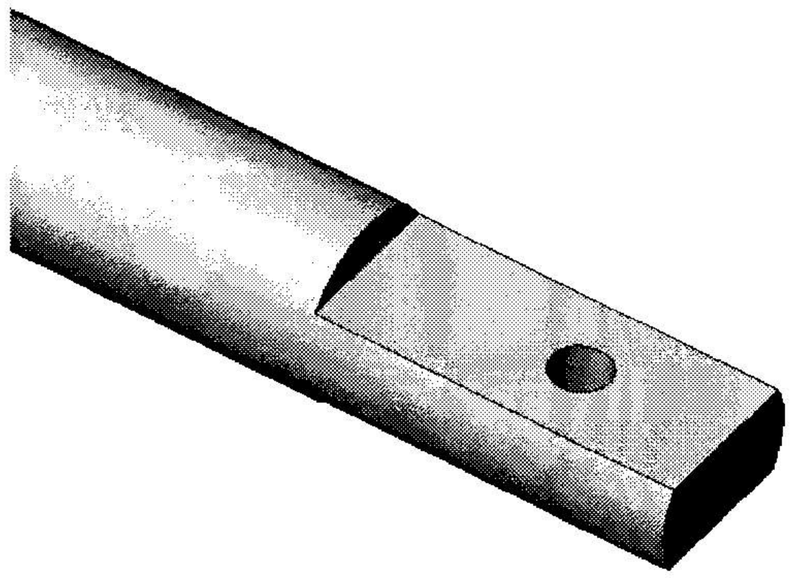
( ) Using 30 minute epoxy, coat the bottom edge of the fins and position on the top surface of the fuselage.
( ) Locate the fins per the location on the full sheet plans.
( ) Position the fins so they are at approximately 50° to each other. Use the laser cut guide to obtain the correct angle.
( ) Hold the fins with masking tape until cure. Verify that the fins are lined up straight by sighting up the front.
( ) On the underside of the fuselage, add a 1/16" thick x 1"wide strip of balsa to the underside of the sheeting under the fin. This will help strengthen the point of attachment.



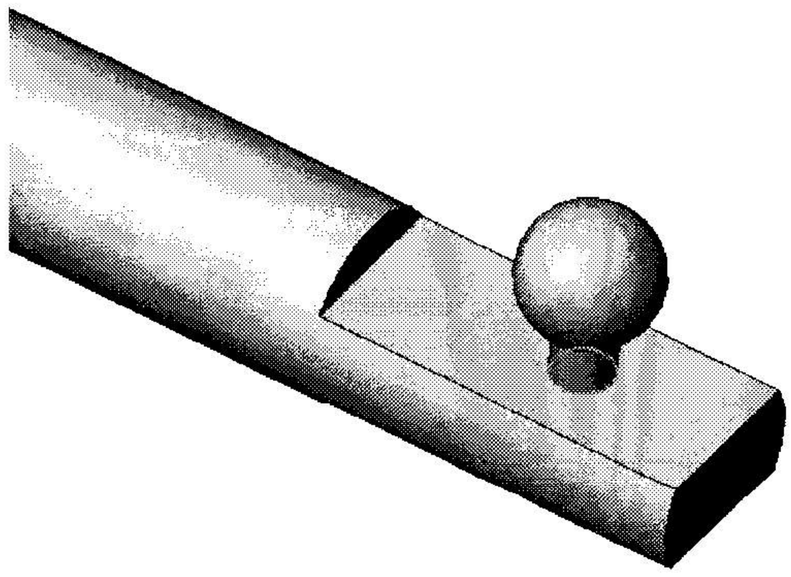
Taileron

Note: All screws should use a thread locker or CA to ensure they do not back out during flight.:

( ) Grind a flat on each side of the taileron pivot rod. Drill a small hole in the center of the flat to fit the taileron control ball screw.



( ) Slide a 1/8" collar onto the pivot rod up against the foam edge. Tighten the set screw.
( ) Slide the taileron into the pivot tubes so the collar is against the tube and the taileron can rotate without binding. Adjust if necessary.
( ) Slide a 1/8" collar onto the pivot rod up against the pivot tube. Tighten the set screw. Check the rotation to ensure it moves without binding.
( ) Attach the Taileron Pivot Ball to the pivot rod and screw in place. Secure with thread locker.
( ) Connect the push rod to the control arm assembly.



FUSELAGE FINISHING:

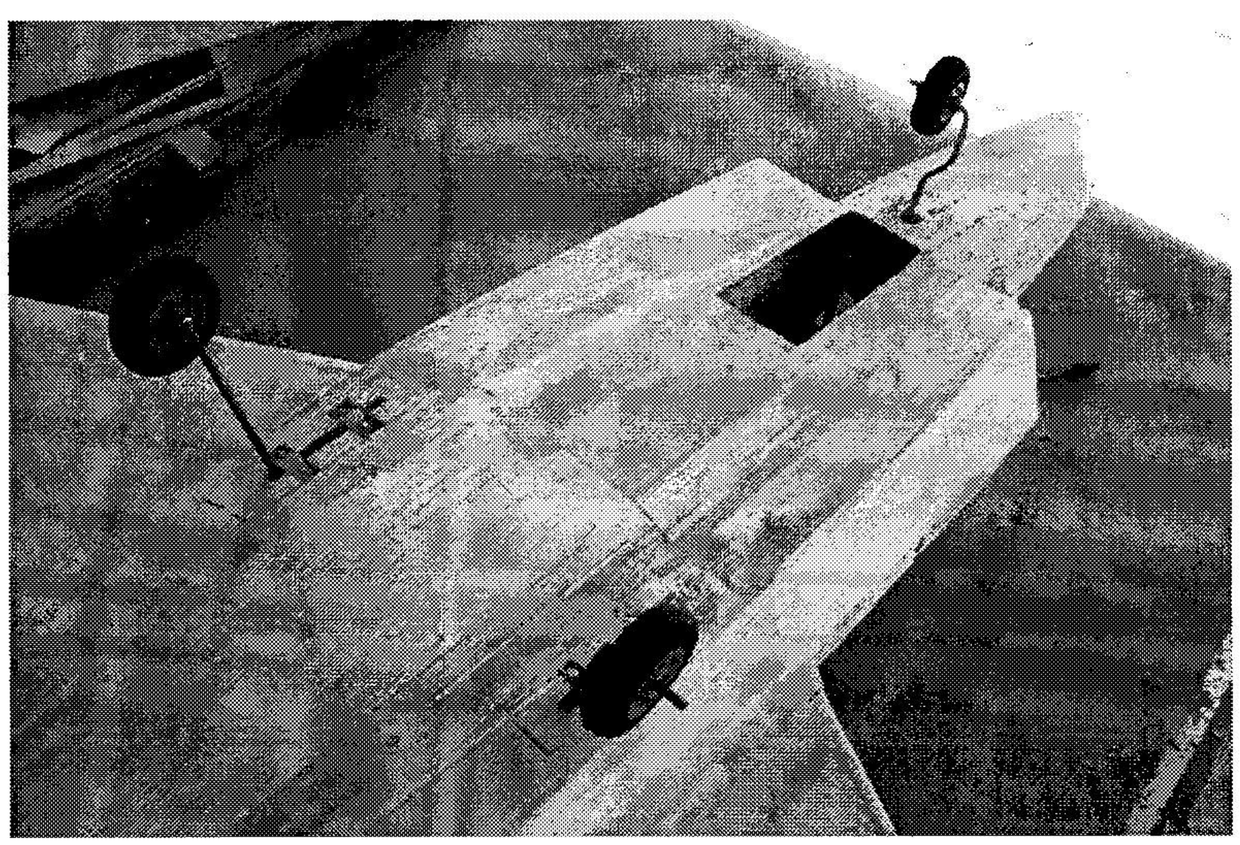
( ) Finish planking the bottom side of the fuselage.
( ) Using scrap balsa, build up a nose block and sand to shape.

If you intend on runway launching and landing the aircraft, you will need to install the landing gear. If you intend on bungee launching the model, the landing gear steps can be omitted.

( ) Using the 1/8" music wire, bend the landing gear per the template in Appendix A
( ) Mount the main gear with the "L" in the hole in the LG plate. Secure the gear with the mounting straps.
( ) Using 30 minute epoxy, glue a scrap block of hardwood 1/2" x 1/2" x 1" to the top of the GF plate, centered over the gear hole. Let cure.
( ) Using a 1/8" drill bit, drill from the underside through the gear hole in GF all the way through the hardwood block.

( ) Mount the nose gear to the GF plate in the front of the aircraft. Attach a 1/8" collar to the underside of the plate and to the top of the block.
( ) Attach the steering arm to the top of the nose gear.
( ) Install the wheels and secure with a 1/8" collar on both sides.

( ) When the fuselage has been completely planked, sand the entire aircraft up to a 220-300 grit smoothness.
( ) Pay special attention to the contour of the fuselage. Ensure that it is smooth and consistent. The contour of the fuselage adds to the overall lift of the aircraft.



( ) Paint or Monokote cover the model to your preference.

This completes the fuselage construction.

ACCESSORY INSTALLATION:

Fan:

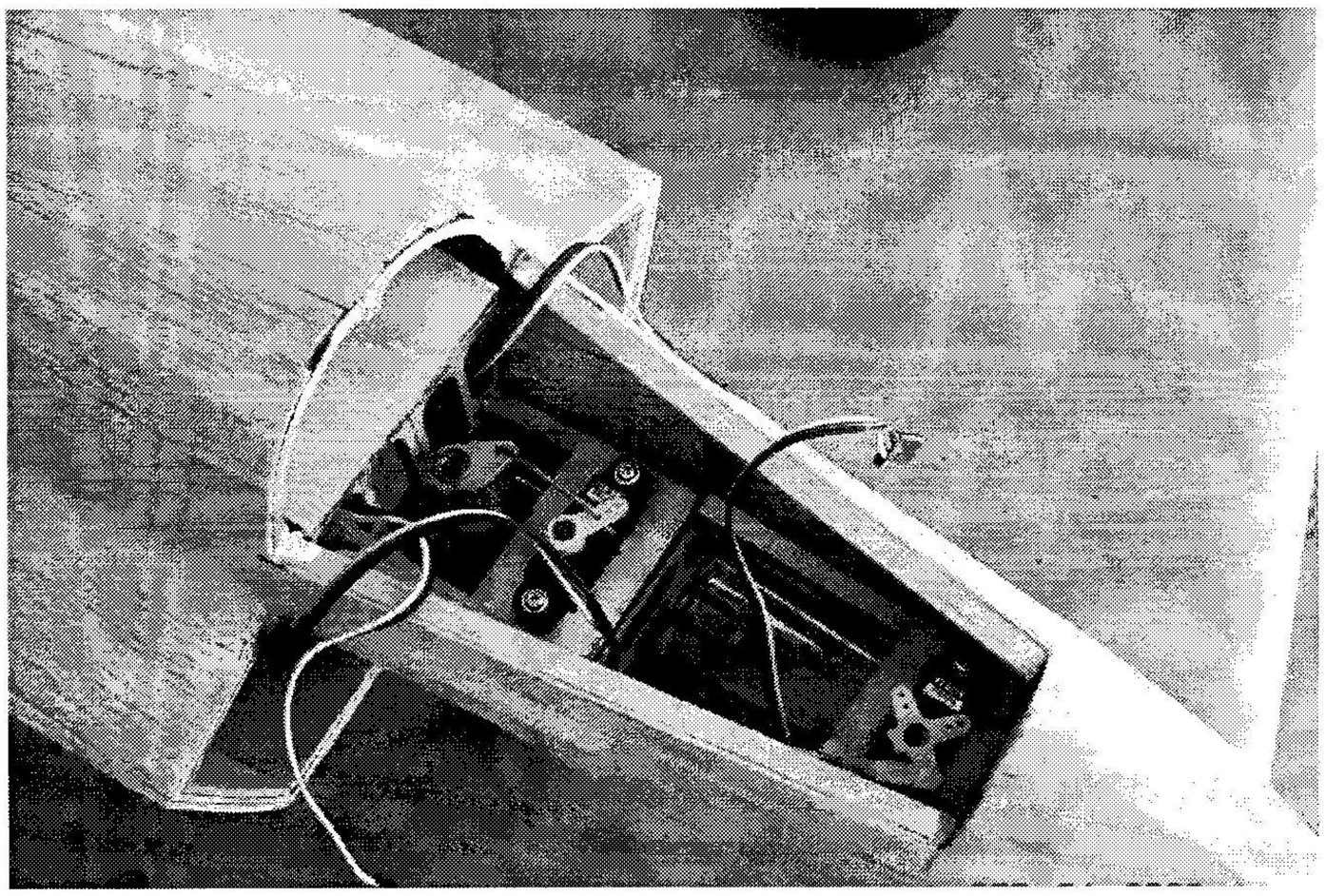
( ) Prior to re-installing the fan unit, you should check and balance the impeller for optimal thrust.
( ) Re-install the fan unit and attach the tuned pipe per the manufacturers instructions.
( ) Mount the tuned pipe to the top of the ducting using the bracket provided in the fan kit.
( ) **Loctite all screws.**

Fuel Tank:

( ) Verify that the fuel tanks are securely mounted
( ) Route the fuel lines from the T fittings to the tuned pipe and the engine.
( ) Ensure that none of the lines are in the way of the fan unit nor are they kinked.

Radio:

( ) All radio gear should be mounted per the radio manufacturers instructions.
( ) The taileron servos should have been mounted in the rear.
( ) ¼" x 5" Servo mounting rails have been provided in the ply sheets. These can be cut to length to fit inside the fuselage nose. Drill and mount the steering and throttle servos here (micro or mini servo's are recommended).
( ) Connect the nose steering arm to the nose servo via a wire pushrod.
( ) Connect the flexible pushrod to the throttle servo and the throttle on the ducted fan unit.
( ) Make sure the throttle pivots when the hatch is in place.
( ) Connect all radio gear and verify that all control surfaces move properly without and binding. Adjust if necessary.



PRE-FLIGHT SETUP:

( ) Check the Taileron rotates without any binding.
( ) Make sure all pushrod clevis' are securely connected.
( ) Check the fuel tubing to make sure there are no kinks and the tube does not bind.
( ) Secure all screws with a thread locker or CA.

( ) Check the control throws of each surface:
    ( ) Taileron: 1/8-1/4" (Dual rates recommended)
    ( ) Nose Wheel: 10° both directions
    ( ) Throttle: Full open to idle. Full close when trim tab is moved all the way down.

( ) Check the ducted fan unit to ensure the impellor spins without rubbing the shroud.

( ) Check your battery. Oakdale Aircraft advises that you use a battery checker to ensure a proper voltage is maintained prior to any flights.
( ) Range check your radio and receiver prior to any flights.

FLIGHT TESTING:

If you have built your F35 per these instructions, you should have an aircraft with a great thrust to weight ratio. An important step that should be performed prior to any maiden flights is the engine break in. We advise all users to run at least 12 oz of fuel through the engine to properly break it in. When broken in, the engine can produce up to 3lb of thrust.

Oakdale recommends that a 30% nitromethane fuel be used. With this, RPM's up to 27,500 can be obtained.

Takeoff's should be 100-200', depending on the weight of your aircraft. Takeoff's should be at full throttle. Remember, ducted fan jets do not have the prop wash over the wings, so they need the airspeed to produce the lift. Keep this in mind while flying as well. Don't force the jet into the air, wait for the airspeed to build up and give it small amounts of elevator for liftoff.

If you built your wings per the instructions, you should have a small amount of washout built in. This will help force a straightforward stall as opposed to a tip stall, which can be deadly at slow speeds.

For landings, keep your speed at a halfway point. Decents should be controlled by the throttle. Landings should be straightforward and simple.

F35 Joint Strike Fighter

THANK YOU:

We thank you for purchasing the F35 Joint Strike Fighter model jet from Oakdale Aircraft. This model should provide you with numerous enjoyable flights. Should you ever have any questions, comments or concerns regarding this kit, please contact us immediately. We will do whatever it takes to help resolve your issues.

Again, thank you for your purchase.

DISCLAIMER:

This aircraft is not a toy. This model has been designed using state of the art miniature ducted fan technology. For your safety and the safety of others, please observe all product safety warnings for this kit as well as all accessories included. Also, please follow all field safety rules.

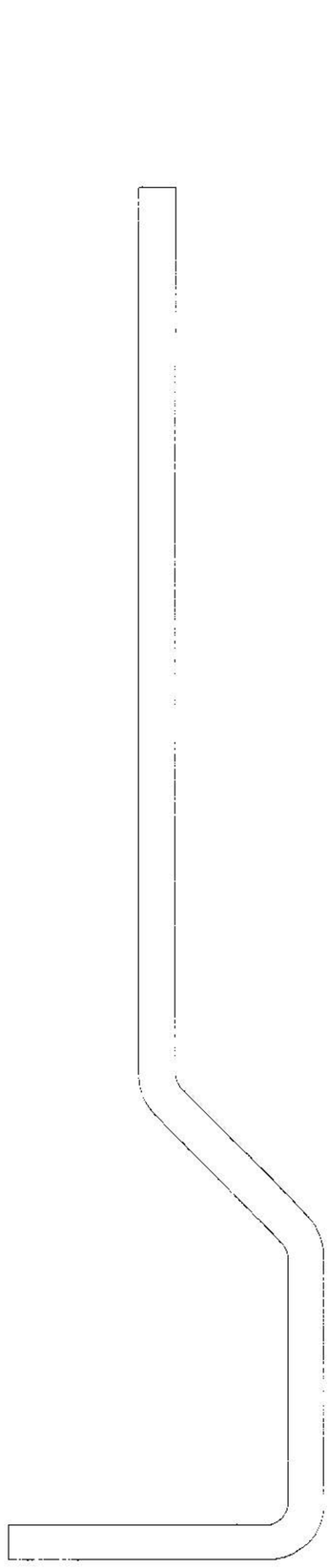
This plane is capable of high speeds. If you are uncertain of your ability or have never flown a radio controlled aircraft before, please seek the help of an expert. Oakdale Aircraft also strongly recommends you be a member of the AMA (Academy of Model Aerodynamics).

Oakdale Aircraft offers no warranty for this kit once the construction begins. However we will make every effort to help resolve any problems that may surface during construction as well as during your flights.

APPENDIX A:

Fixed Gear Bend Templates:

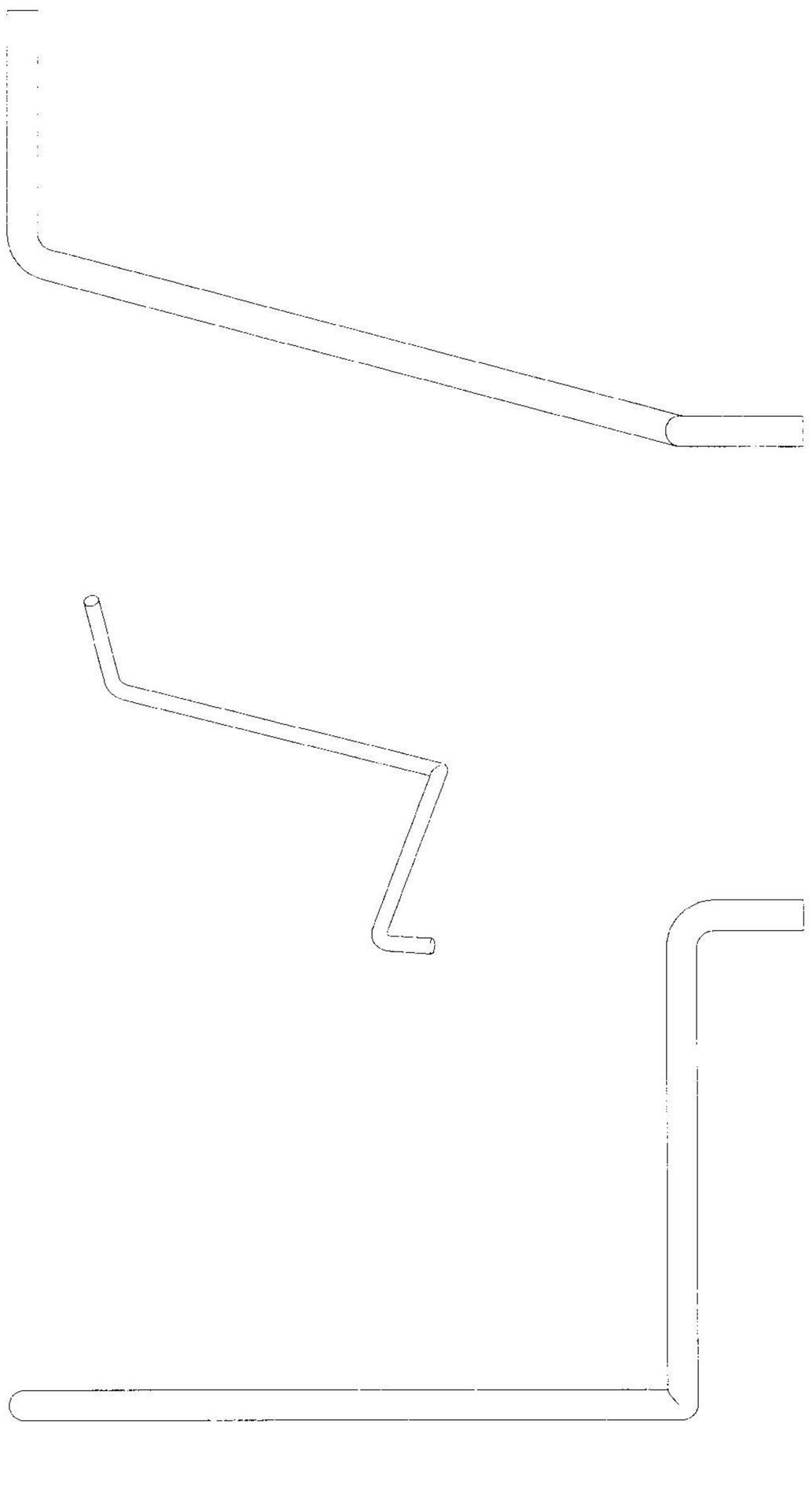
Nose Gear:



APPENDIX A:

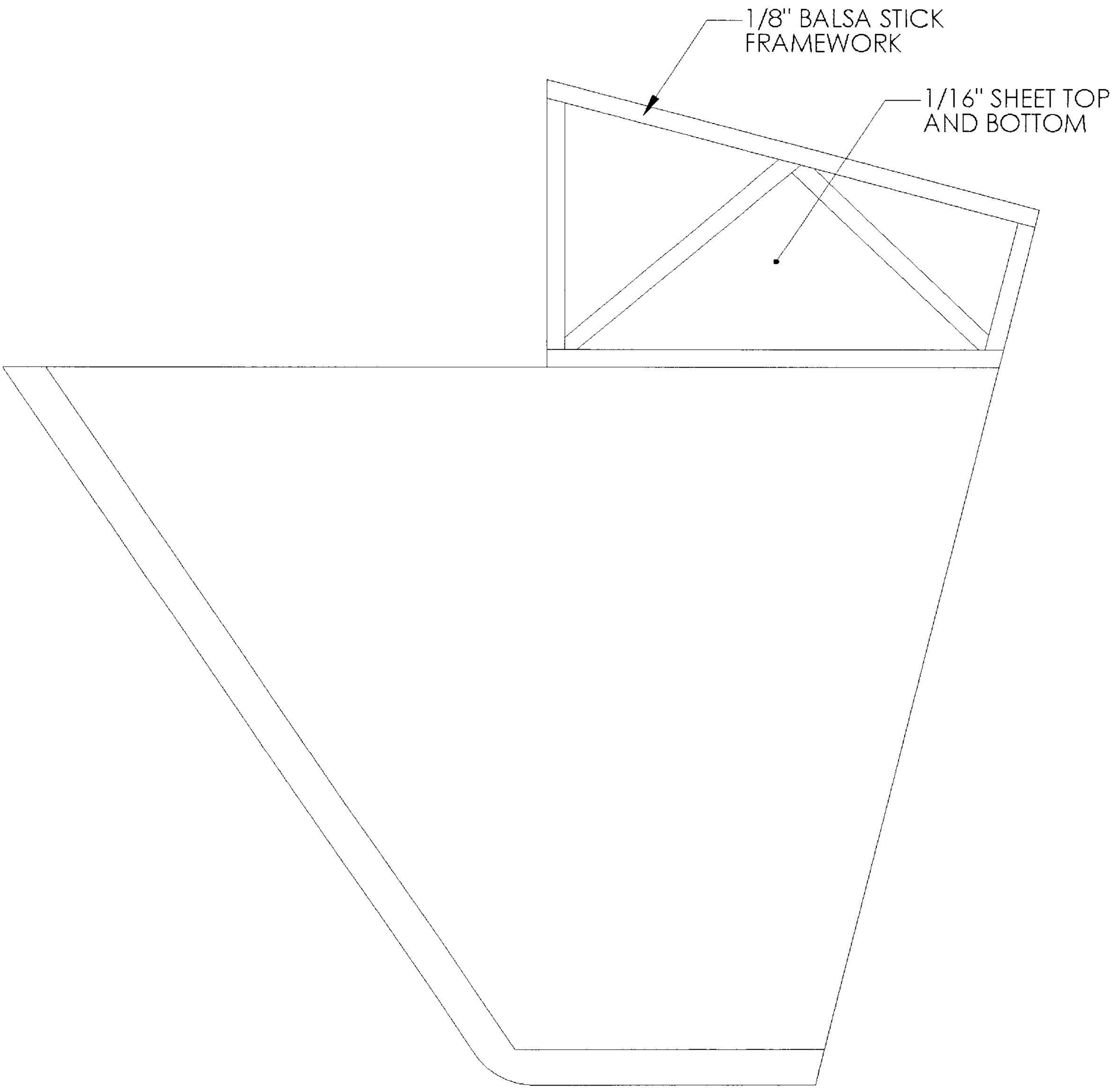
Main Gear:

Top Image = Front View
Center Image = 3D View
Bottom Image= Side View



APPENDIX B:

Taileron Extension:



APPENDIX C:
Elevator/Aileron Conversion Notes:

The F35 can be built using conventional elevators and ailerons for control. If you do not have a mixing radio, or just want to incorporate aileron control into your aircraft, follow these additional instructions:

AILERONS:
( ) After the wing has been sheeted, leading edges and tip blocks attached and sanded, mark the aileron cutouts per the full sheet plans.
( ) Using a razor knife, cut through the wing at these marks. Make sure you slice the foam core and don't tear it.
( ) When the aileron has been removed, cut an additional 1/8" off all the way around the aileron
( ) Cut an additional 1/8" off the wing around the aileron cutout.
( ) Sand both the wing cutout and the aileron edges smooth and remove any irregularities.
( ) Using 1/8" balsa sheet (not supplied with deluxe kit), line the inside of the aileron cutout in the wing. Glue with 30 minute epoxy.
( ) Using 1/8" balsa sheet, cover the edges of the aileron. Glue with 30 minute epoxy.
( ) Sand the wing so the balsa sheet is countered to the wing.
( ) Sand the aileron so the balsa sheet is countered to the aileron.
( ) The ailerons are complete. Repeat for the other wing.

Servo Mounting:
( ) Mark the location on the wing where the servo will be installed (Mini servo's recommended here). Keep the mounting location as close to the fuselage as possible. Also, mount it in the thickest part of the wing, but don't cut through the wing spar.
( ) Using a razor knife, remove the sheeting around this mark.
( ) Cut out the foam for the servo mount.
( ) Cut a 1/8" ply mount for the servo to mount to.
( ) Mount the servo on it's side to the ply mount.
( ) Carve a channel for the servo leads through the foam into the fuselage.
( ) Using 30 minute epoxy, glue the servo mount into the recess and route the leads through the core into the fuse. Attach a servo extension to the leads and route into the canopy.
( ) Attach the hinges, control horn and pushrods to the servo.
( ) A cover plate can be made out of 1/6" balsa sheet. Secure with 4 screws in each corner.
( ) repeat for the other wing.

ELEVATORS:
The elevators are built the same way the tailerons are. One servo will be required for each. These servos will connect to a Y lead and then the servo extension which will route into the canopy.

Make sure you connect up all the wiring and the elevators both mode in the same direction when tested. Do this before the bottom planking is completed.