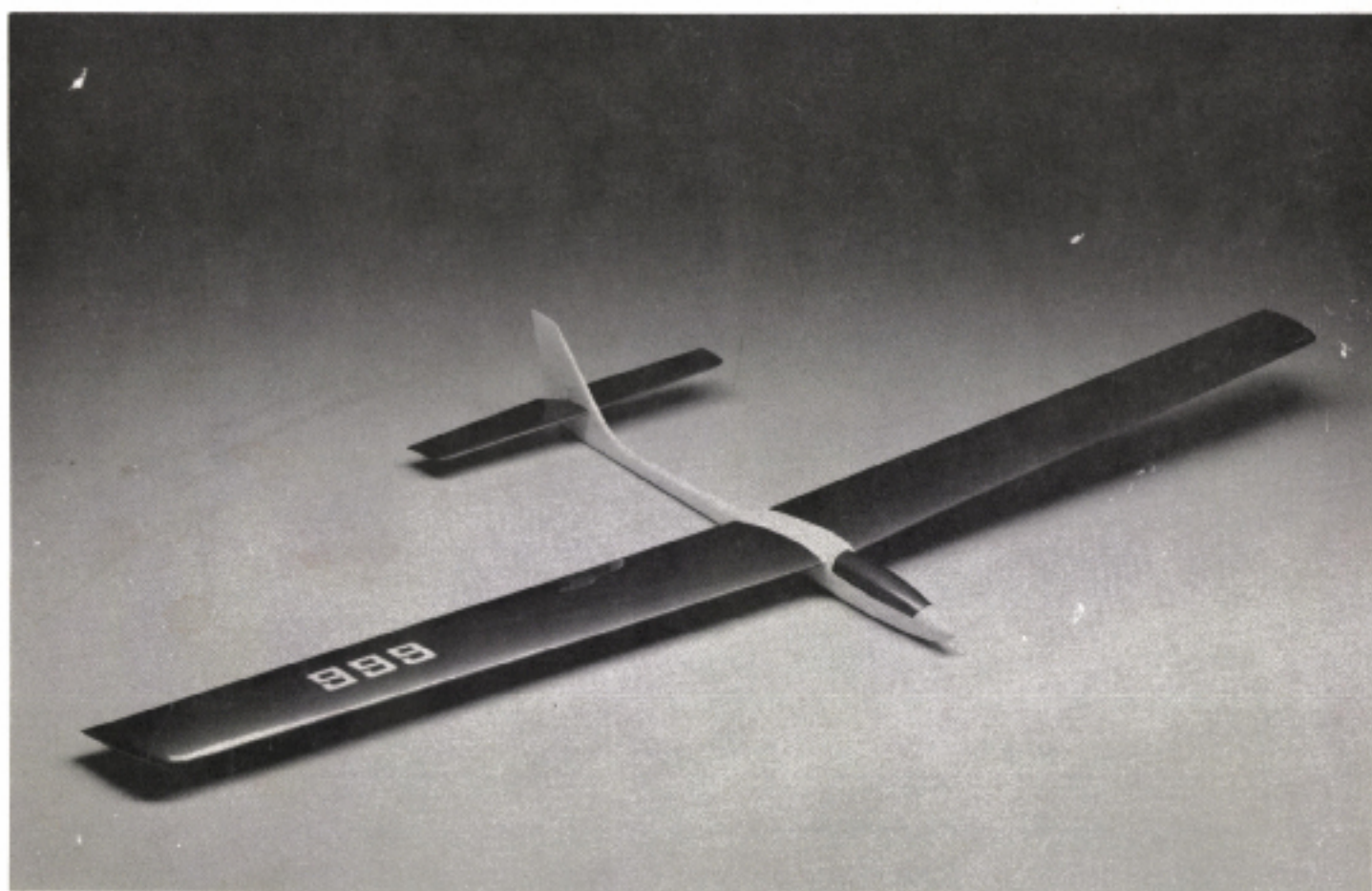




AIRTRONICS[®]

BUILDING INSTRUCTIONS



ADANTÉ

ADANTÉ



INTRODUCTION

The Adanté is one of the highest performance sailplanes available. The design is intended to deliver flight performance not before seen in a commercially available kit. There have been no compromises to make the airplane easier to kit. The epoxyglass fuselage, the extra heavy duty joiner system, and the sealed flaperon hinge line are all included to improve the plane's flight capabilities and durability. We hope you feel the result is the best sailplane you can buy.

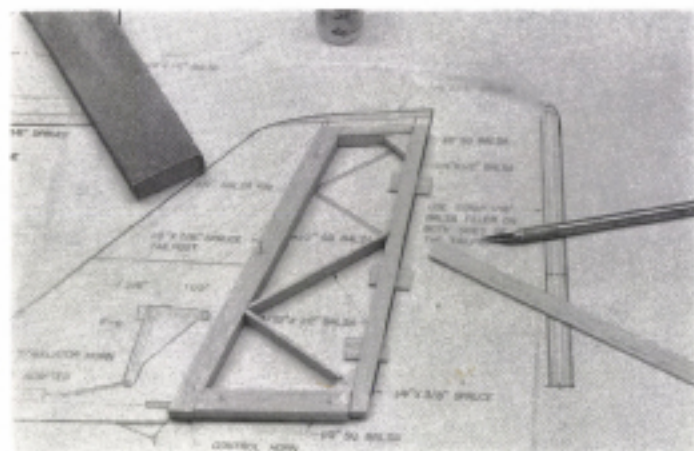
Before beginning construction, we would like to thank several individuals without whose help the Adanté would not have come about. First, Dave Shadel for his assistance in the area of foam cores and foam wing construction. Second, Col. Bob Thacker for building one of the first prototypes and providing invaluable advice in finalizing the design. Finally, Joe Newland and Ed Holder. These two gentlemen have encouraged, advised, begged, pleaded and pushed from the very beginning of the project through the production of the first kits, and the debt owed to them is a very large one indeed.



RUDDER

1. Begin rudder construction by cutting the 1/2" square balsa pieces and pinning them in place. Also cut and install the 1/4" x 1/2" balsa rudder top.

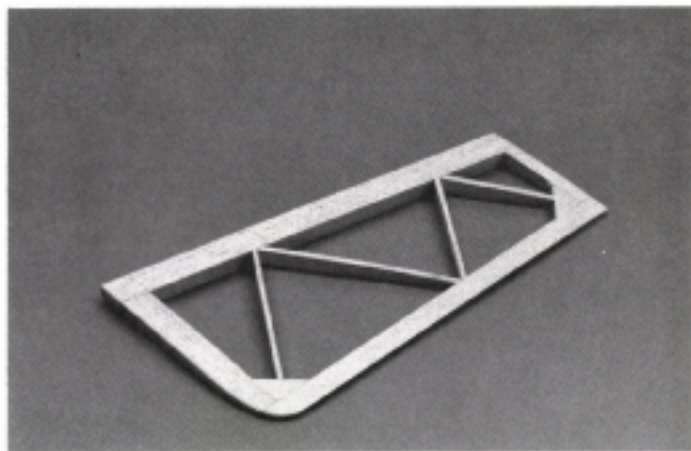
2. Cut the 1/4" x 3/8" spruce rudder T.E. and install it, making sure it is shimmed 1/8" above the work surface. Cut the rudder gussets from 1/2" square balsa and install them.



3. Cut the rudder ribs from 3/32" x 1/2" balsa and fit them in place. Work carefully to get tight fitting joints.

4. Hit all the rudder joints with regular CA and remove the rudder from the building board. Carve and sand the rudder to the section shown on the plan.

5. Use a razor plane to bevel the front edge of the rudder. Note that the bevel stops 1/2" from the bottom of the rudder to allow the rudder horn to mount securely.



6. Mark the locations of the rudder horn screws and drill two holes in the rudder. Mount the control horn using two #2-56 x 5/8" machine screws. This completes the rudder assembly.



STABILATOR

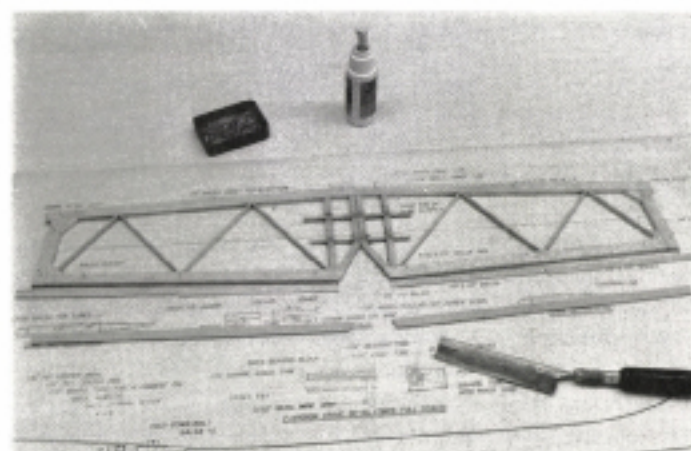
1. Cut 1/2" off the 5/32" x 3-1/2" brass stab joiner tube. Save the 1/2" cut-off to use as the stab bearing tube in the fuselage.

2. Mark the center of the 1/8" x 3" brass joiner tube. Measure out 3/8" to either side of the center mark and use a file to notch the tube for the retaining collar set screws. Use a sharp knife to clean any burrs on the tubing.

3. Slip the wheel collars in place on the tube. Align the set screw holes over the notches in the tube and make sure the collars are 1/2" apart. When satisfied use a drop of CA to hold the collars in place.

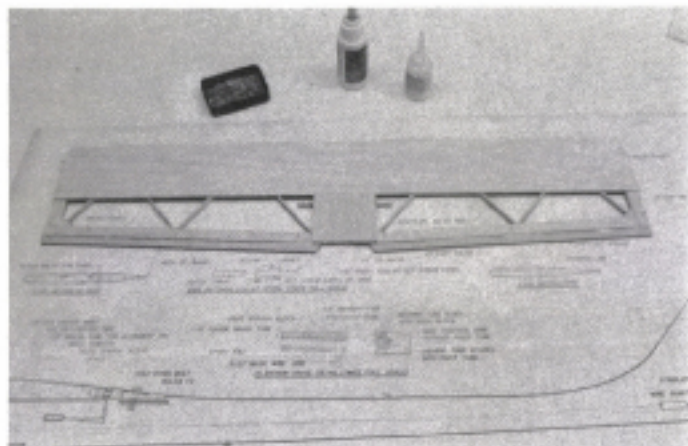
4. Cut and pin the 1/4" x 1/2" balsa outline pieces in place. Fit the 1/4" x 1/4" balsa center pieces and glue them in place. Cut the gussets from 1/4" x 1/2" balsa and install.

5. Notch the 1/4" square balsa for the joiner tubes. Use the stab joiners and stabilator horn to be sure the tubes are spaced properly. Make sure the holes for the set screws in the wheel collars are facing straight up and epoxy the tubes in place. Lightly crimp the end of the tubes with needlenose pliers.

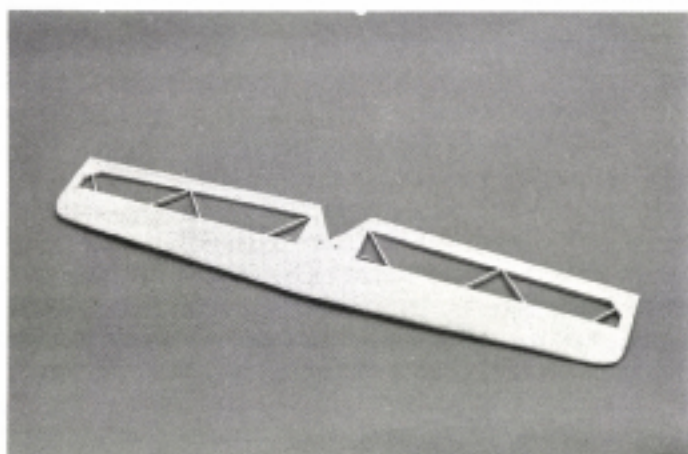


6. Cut the 3/32" x 1/4" stab ribs and install, fitting the joints

tightly. Install the 1/8" x 3/8" spruce T.E., making sure to shim it 1/16" above the building surface.



7. Remove any pins from the stab LE, and install the 1/8" balsa sheeting. Cut and install the center sheeting and remove the stab from the board. Flip the stab over and install the remaining 1/8" sheet.

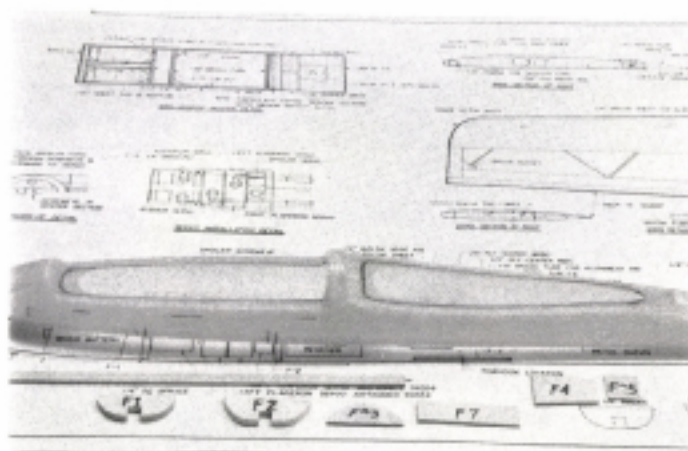
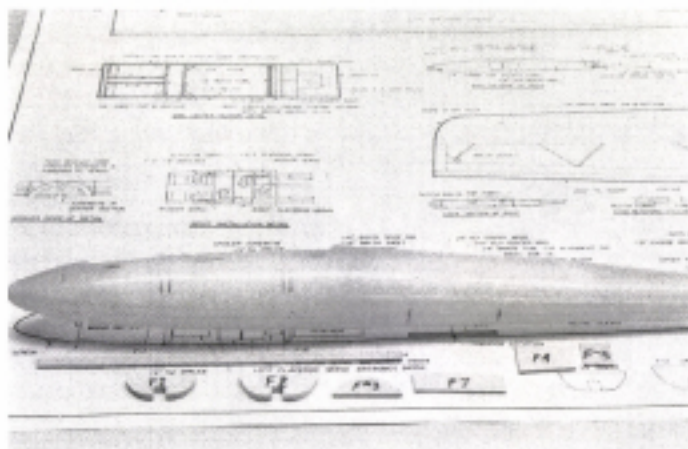


8. Shape the stab as shown in the sections on the plans. When shaping and sanding are completed, use a razor saw to cut the joiner tubes and separate the stab halves. Deburr the ends of the tubes and slide the stabs onto the joiners. Open up holes in the 1/8" sheet for the set screws and lock them onto the joiner wire. This completes the stab.

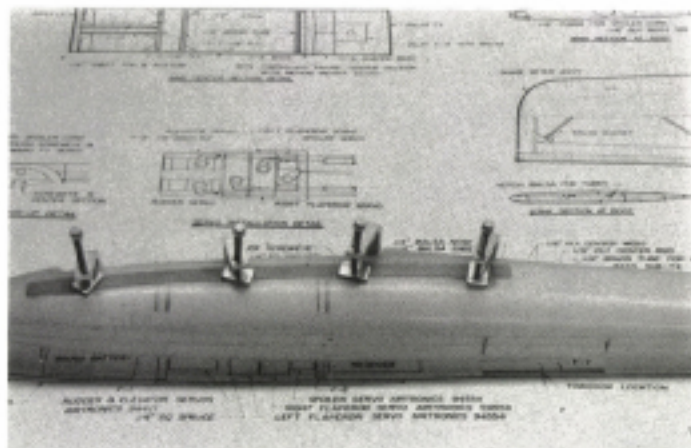
FUSELAGE

The fuselage supplied for your Adanté is laid up with epoxy, so only epoxy should be used during construction. Before construction the entire inside of the fuselage should be wiped down with acetone to remove any mold release, oil, or residue which would cause poor glue joints.

1. Using the plans as a reference, mark the location of the spruce side rails, F-1 and F-2 on the outside of the fuselage. Note that the spruce runs parallel to the canopy opening 1/4" below it.



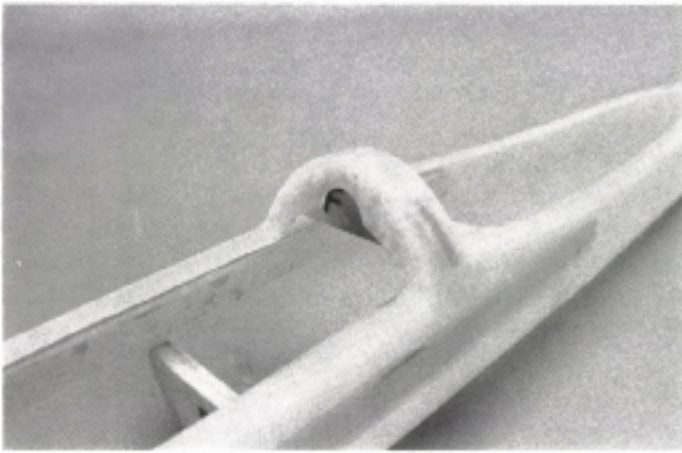
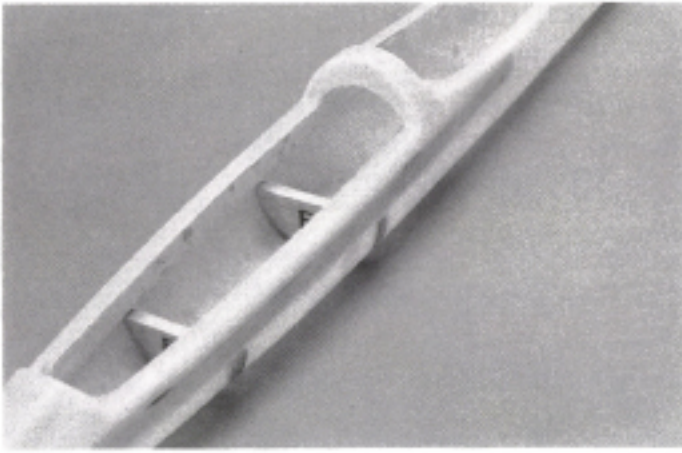
2. Mark trim lines around the canopy and wing openings so that a 1/4" of flange will remain after trimming. Radius all the corners 1/4". Use a Dremel tool to cut away the excess material and finish the edges with coarse sandpaper.



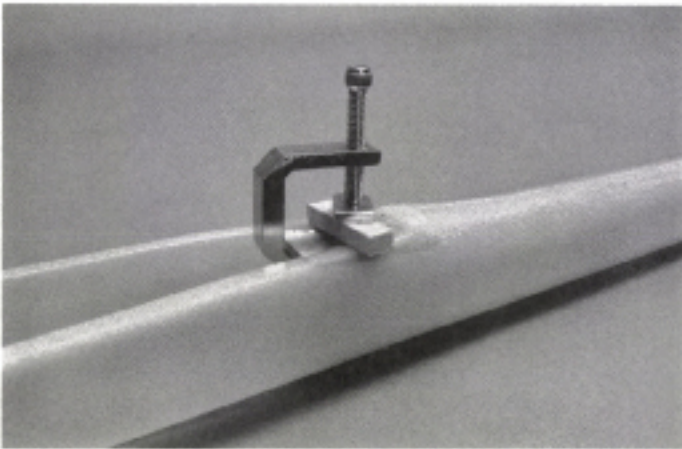
3. Cut the two spruce side rails to length. Epoxy them in place, using clamps to hold them until the epoxy sets.

4. Cut out the notches in the bottom of F-1 and F-2 as shown on the plans. After notching, epoxy both in place using the marks on the fuselage as a guide.

5. Install F-3 and F-4 using epoxy. After both are in place, mix up a batch of micro-balloons and epoxy and use it to gener-



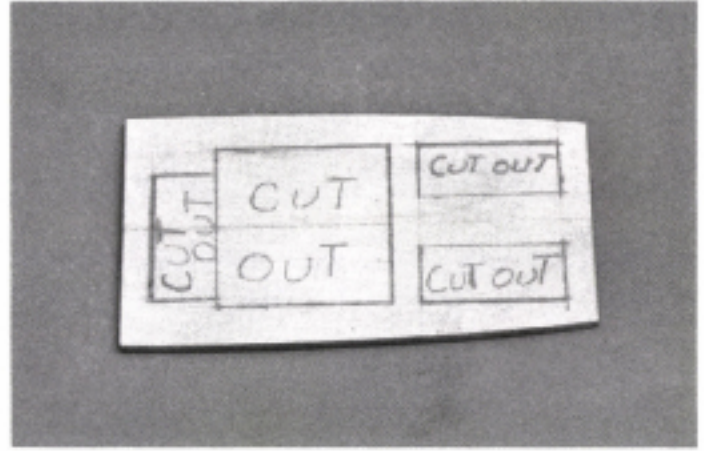
ously fillet both F-3 and F-4 to the fuselage. Leave the fuselage upside down as the epoxy/micro-balloon mixture sets.



6. Epoxy F-7 in place to serve as a towhook mount. Install the 1/4" square spruce on top of F-1.

7. Mark the servo locations on the plywood servo tray and make the cut outs for the servos. Slip the tray into the fuselage through the wing opening and slide it forward into position and glue in place. Add the 1/4" square spruce under the tray and between the side rails above F-2.

8. Use a sanding block to square up the aft end of the fuselage. Epoxy the 1/8" ply stab reinforcements to the inside of the fin.



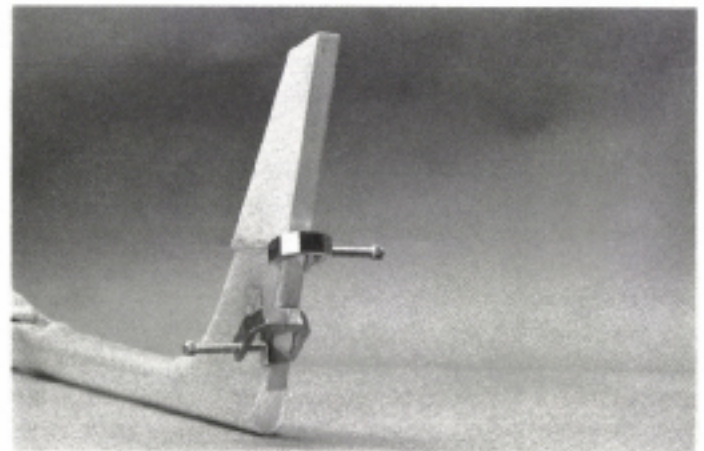
9. Use the 1/8" ply drilling template to drill the holes for the stab pivot tube in the fin. Start with a 1/8" drill, then check to be sure a 1/8" wire passed through the fin is square to the fin in all planes. Then enlarge the holes to 5/32" with a small file, correcting any misalignment as you go.

10. Using the stabilator horn as a spacing guide, make an arc shaped cut out in each side of the fin to clear the rear stab joiner. The slot should be long enough to allow 10° of travel in each direction.

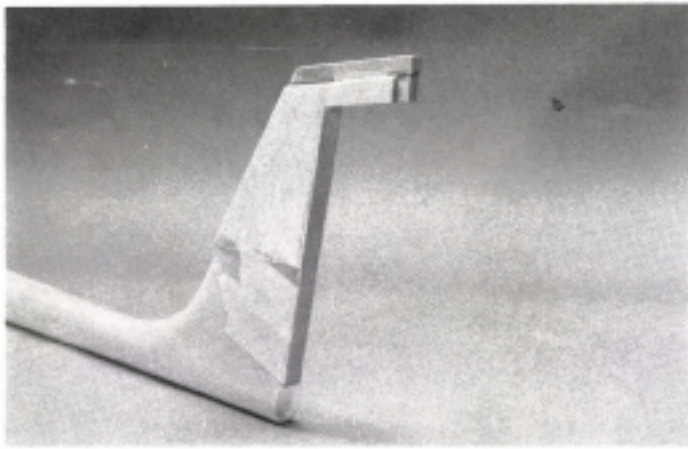
11. Make up the elevator push rod from 1/4" dowel, a 4" wire adapter and a 12" threaded rod as shown on the plan. Secure the stabilator horn to the push rod with a Snap-R-Keeper.

12. Locate the 1/2" section left from the 3-1/2" long piece of 5/32" brass tubing. Slide the elevator push rod into the fuselage and use tweezers to get the stabilator horn into proper position. Slip the 5/32" x 1/2" pivot tube through the fin and stabilator horn. Carefully epoxy the tube in place, making sure not to glue the stabilator horn to the tube.

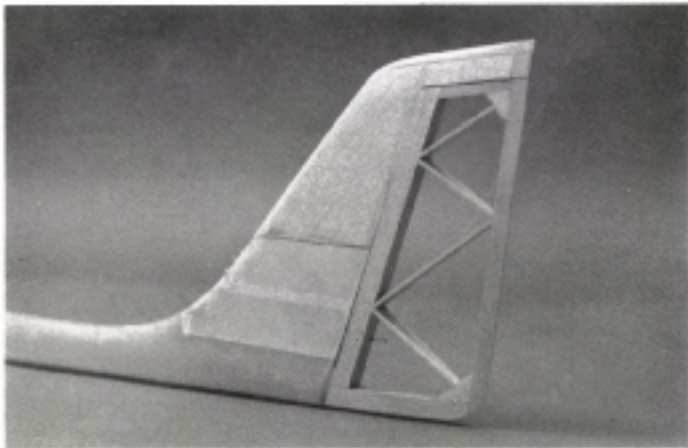
13. Use a file to notch the top of the fuselage for the tailpost. When the notch is complete, epoxy the 1/8" x 7/16" spruce tailpost in place.



14. Glue the 1/2" balsa fin in position and trim the tailpost flush with the top of the fin. Complete the fin by gluing the 1/2" square balsa and 1/4" x 3/8" spruce in place. Add the 1/16" scrap fillers to either side of tailpost and shape the fin assembly to match the fuselage.



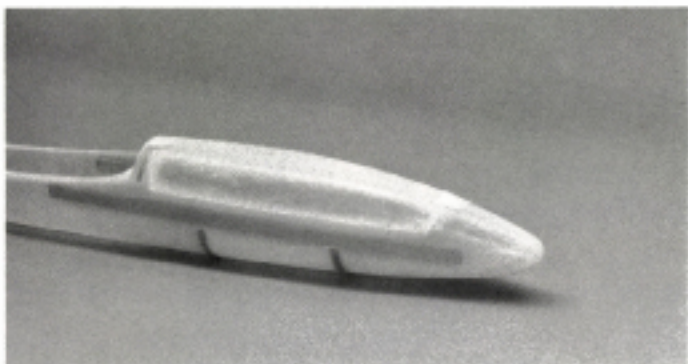
15. Notch the fuselage as shown for the rudder push rod exit and make up the rudder push rod from a 1/4" dowel, a 4" wire adapter and a 12" threaded rod.



16. Slip the rudder push rod into the fuselage and temporarily hinge the rudder with masking tape. Hook up the rudder push rod and check both the rudder and elevator action to be sure there is no binding and that the push rods don't interfere with each other.

17. Clean up the seam on both the canopy and fuselage using a file and coarse sandpaper. Once smooth, drop the canopy in place and make sure it fits properly. Remove the canopy.

18. Mark the location of the canopy hold down dowel on the fuselage and drill a 1/8" hole for the dowel. Epoxy one of the F-6 pieces in the fuselage aligned with the hole you just drilled.

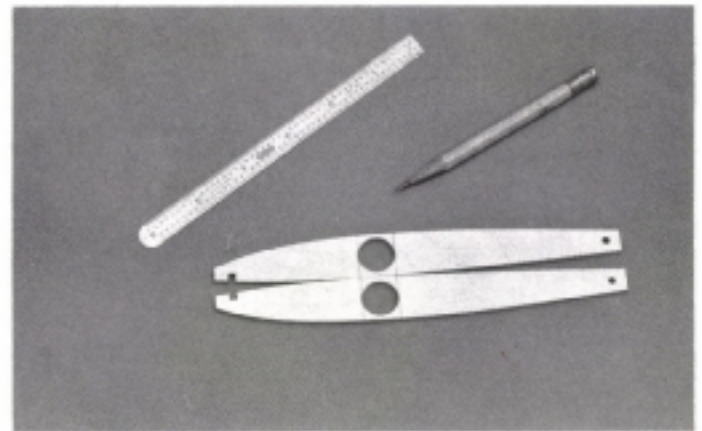


19. Drill a matching 1/8" hole in the canopy and temporarily insert the hold down dowel. Put the canopy on the fuselage and check for proper alignment. Use a small file to correct any problems. Epoxy the hold down dowel and second F-6 into the canopy.

20. Lightly sand the outside of the fuselage and fill any pin holes with automotive body putty. This completes the basic fuselage assembly.

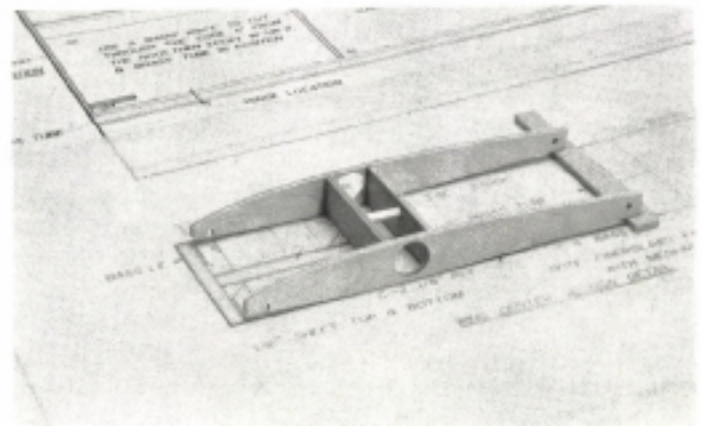


CENTER SECTION



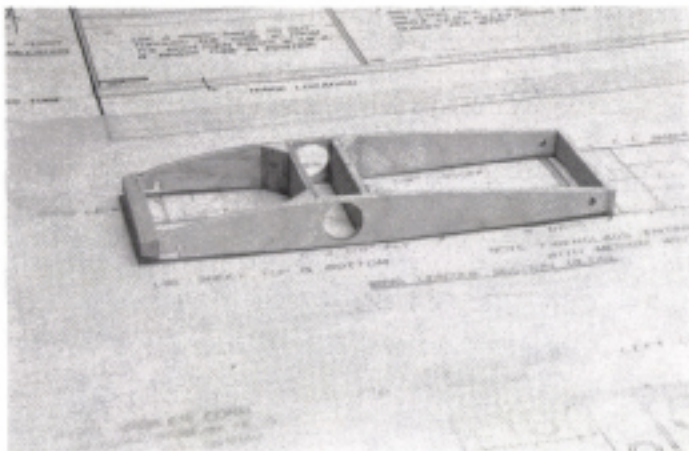
1. Lay the two C-2 ribs on the bench so that their bottom edges are touching. Use a straight edge to align the back edges of the ribs and draw two reference lines tangent to the joiner holes across the ribs.

2. Leaving one of the C-2 ribs on the bench, glue the two C-3 center webs in place. Use the reference lines and the bottom of the rib to locate the webs properly. Also be sure to use a small square to get the webs perfectly square to the rib.



3. Set the rib/web assembly over the top view of the center section on the plans. Slide a piece of 1/8" stock under the aft edge of the rib until the webs are square to the bench. Glue the second C-2 rib in place using the reference lines, shim, and a square to help align it properly.

4. Measuring carefully to assure the ribs are parallel for their entire length, glue the center section L.E. and T.E. in place. Add the 3/8" triangle stock between the ribs and webs.



5. Sheet the bottom of the center section with 1/16" balsa. Trim and sand the sheeting, L.E. and T.E. flush with the outer surfaces of the ribs.

6. Round the lower side of the center section L.E. and place the center section on the fuselage. Make sure the center section is centered on the fuselage and tape it in position.

7. Slip the C-1 rib in position, lining it up with the hole in F-3. Use a sharpened piece of 1/4" brass tubing to drill through F-3 and C-1 for the L.E. dowel.

8. Install the dowel in C-1 and check to make sure the center section is still properly centered on the fuselage. When satisfied, glue C-1 in position. Add the two C-1A ribs and the 3/8" triangle stock. Remove the center section from the fuselage.

9. Sheet the top of the center section with 1/16" balsa, notching the sheet to clear the L.E. dowel. This completes the basic center section.

FLAPERON DRIVE

The flaperon drive consists of three basic elements; a pivot tube with a square brass tube extending out of it, a bearing tube for the pivot tube to rotate in, and a square tube installed in the wing to accept the square tube from the pivot tube. Study the cross sections and exploded view on the plans so you understand the drive arrangement before beginning.

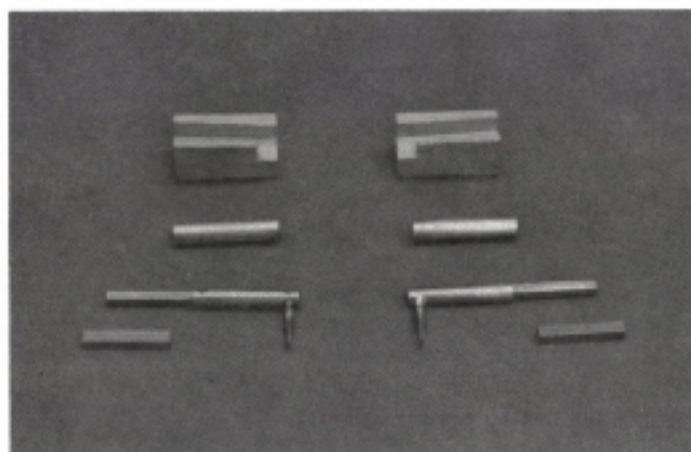
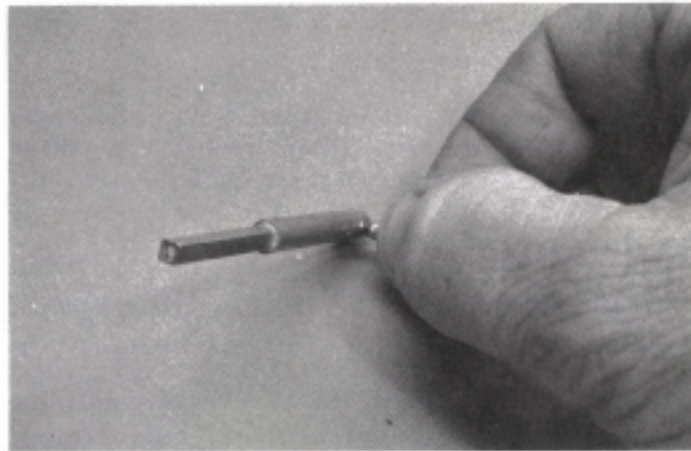
1. Locate the 1/8" x 2-1/4" square brass tubes and the 7/32" x 1-1/4" brass tubes. Use epoxy or CA and micro-balloons to glue the square brass tubes into the pivot tubes. Inserting a straight pin on each side of the square tube will help to keep the square tube centered in the round pivot tube.

2. Cross drill the pivot tubes for the 3/32" wire control arms. Use care to drill the pivot tubes on center and make sure the drill passes directly through the center of the square tubes and not from one corner to the other.

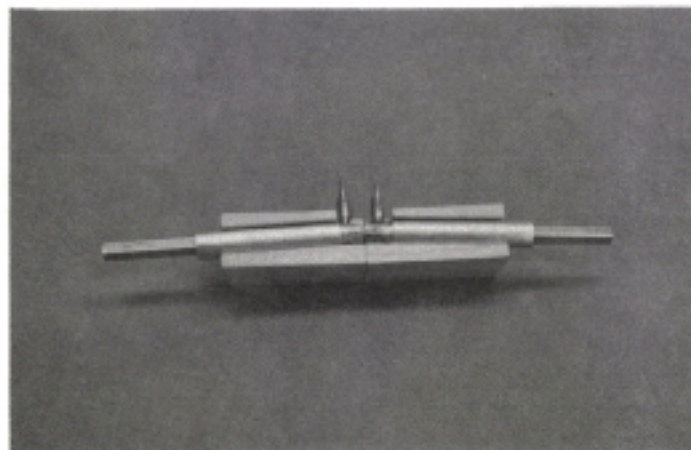
3. Locate the two 1/8" x 1/2" brass tubes and flatten one end of each in a vise. Drill the flattened end to accept a clevis pin and solder the brass onto the 3/32" music wire control arms.

4. Cut the control arms so that the center of the hole for the clevis pin is 1/2" above the surface of the pivot tube. Slip the arms in place and solder them to the pivot tubes.

5. Locate the C-5 and C-6 bearing tube blocks. Notch out approximately 1/4" of the lower surface at the center end of each block to clear the flaperon control arms.



6. Use epoxy to glue the 1/4" x 1-1/4" brass bearing tubes into the bearing tube blocks. Note that the tube extends 1/4" past the outboard end of the blocks. DO NOT GLUE THE TWO BLOCKS TOGETHER YET.



7. Coat the pivot tubes with vaseline and insert them into the bearing tubes. Check that the tubes rotate freely, then glue C-5 and C-6 together. This completes the flaperon drive assembly.

WING

The wing is the heart of any sailplane, and the Adanté is no exception. The Adanté's wing is constructed quite differently from most of the other sailplanes on the market, so we will go into quite a bit of detail describing the building sequence. But before beginning the actual construction, let's talk about the specialized skills and techniques involved in foam wings.

The actual foam that the wing cores are cut from is quite flimsy and unsuitable for carrying any large portion of the flight loads. The strength of the Adanté wing lies in its balsa skin and the fiberglass sandwiched between the skin and the core. It is crucial that the bond between the skin and core is a good one over the entire surface of the wing. The better and more complete the bond between the skin and the core, the stronger the finished wing. For this reason we recommend the use of Hobby Pox Formula 2 epoxy for constructing the wings. This epoxy has been used extensively in both Formula 1 and Pattern planes for years and we feel there is nothing better available.

Do not use contact cement or double sided tape on your Adanté. While both of these adhesives can be successfully used to make foam wings, they don't allow the fiberglass to be sandwiched between the skin and core.

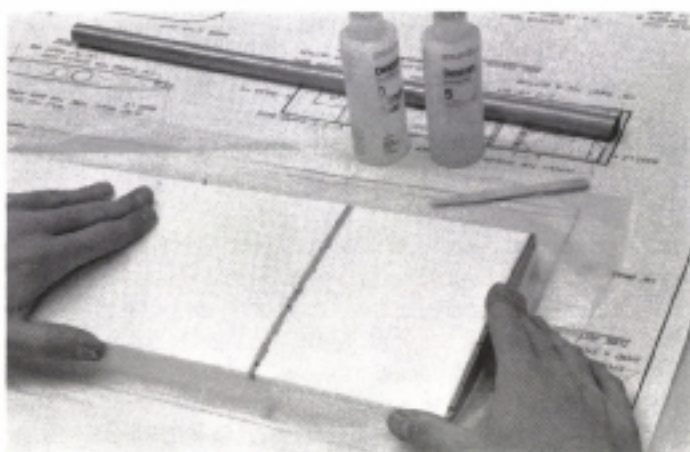
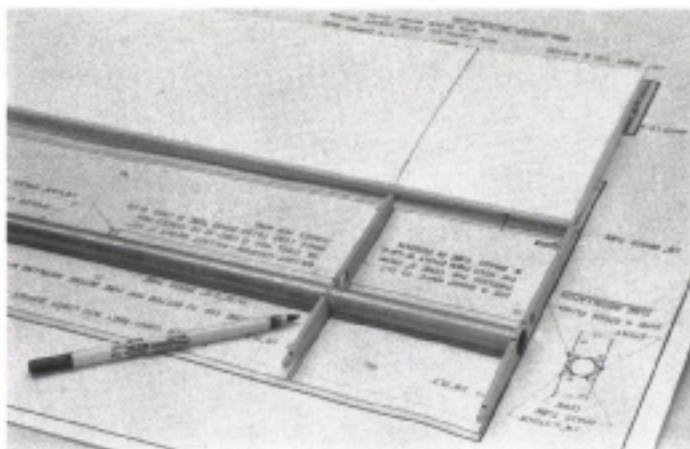
To get a good set of wings you need to have an absolutely true building surface that is able to support at least one hundred pounds of weight without flexing. This weight will be evenly distributed over the entire wing while the epoxy on the cores is setting up. The photos in this manual show the wings being weighted with cans of oil; however, many things such as phone books, magazines, sandbags, or lead weights will work. The important thing to remember is to spread the weight out evenly over the entire surface of the wing. There is almost 300 square inches of gluing area that needs to be held together; piling one hundred pounds on a six square inch area doesn't do the other two hundred eighty two inches of surface much good. Strive to get equal pressure on all areas of the wing.

The wings are made up one panel at a time in the core blocks they were cut from. Resist the temptation to do both wings at the same time. Two hours of working time may seem like plenty of time to do both wings, but by the time all four skins have fiberglass and epoxy on them you'll find that there isn't much time to get the wings aligned in the core blocks and weighted down. Have patience and do one wing one night and the second wing the next night. It's much better to take your time and use two nights than to have epoxy start to set up at the wrong time and ruin a set of wing cores.

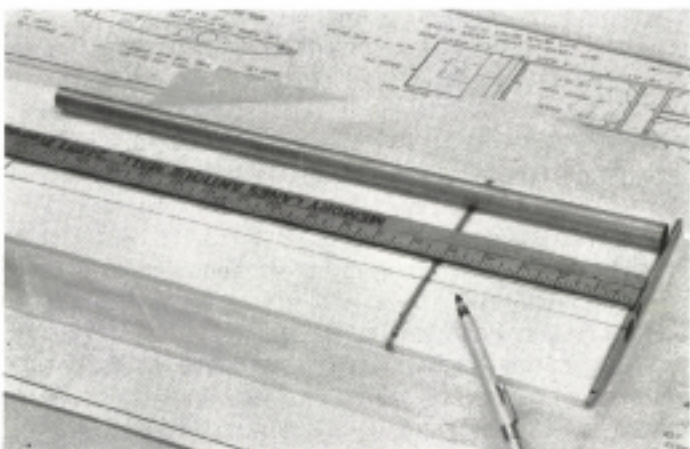
Now let's begin the construction of the wing.

1. Locate the W-1 and W-2 plywood wing ribs. Align the ribs over the views in the upper right corner of the plans and carefully draw the reference marks on the top and bottom edge of each rib. These marks will be used when cutting the wing core for the main joiner tube, so use care to be as accurate as possible.

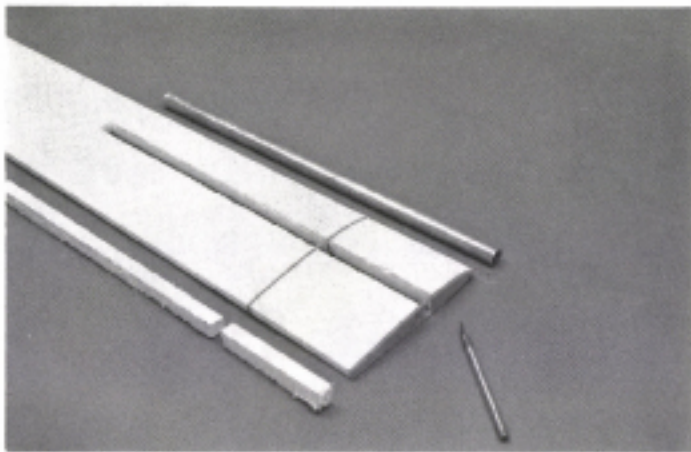
2. Carefully measure 5" out from the root of the core and draw a line chordwise across the core. Using a straight edge and a brand new blade, cut through the core. Use care to keep your knife square to the core as you cut.



3. Line the upper core block with a piece of wax paper and lay it on the bench. Use 15 minute epoxy and glue W-1 and W-2 to the wing core. Make sure the trailing edges of the ribs are aligned with the core. A slight misalignment at the leading edge is all right, but the trailing edge must be perfect. Tape the ribs and foam together and place the core in the upper core block to keep the core true while the epoxy sets.



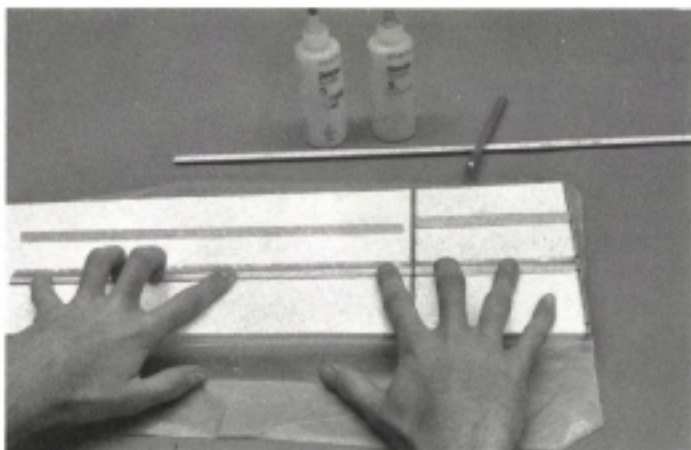
4. When the epoxy is set, lay a straight edge across the reference marks on the ribs and cut the slot for the joiner tube. Cut halfway through from the top and then flip the core over and cut halfway through from the bottom. Remove the foam from the slot.



5. Clean out any epoxy blocking the holes in the ribs and slip the joiner tube into position. Don't glue in place yet. Complete the second wing core to this point before going on.

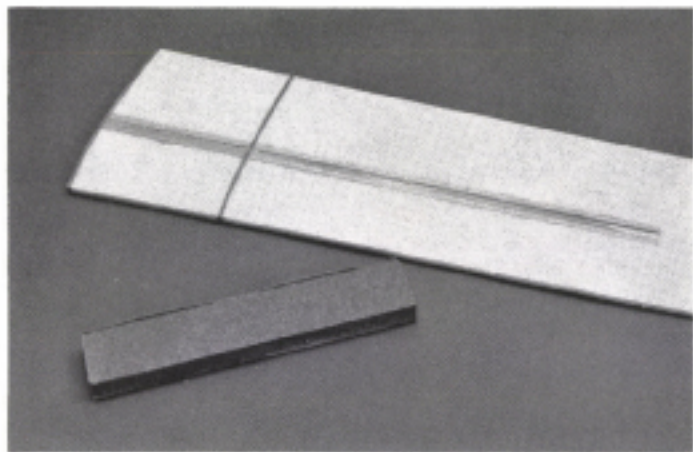
6. Slip the 5/8" aluminum main joiner into one of the wings and then slide the two wings together flat on the bench. Check to see that the two root ribs match up well and that neither panel sweeps forward or aft. Correct any alignment problems now by trimming away small amounts of foam or ply rib. Trim only a very small amount of material at a time so that the final fit will be as tight as possible.

7. When you are satisfied with the fit and alignment of the wings, take them apart and remove the joiner tubes. Plug one end of each tube with scrap 1/8" balsa. Roughen the outside of each tube with coarse sandpaper and clean the tubes thoroughly with acetone, then reinsert the tubes into the wings.



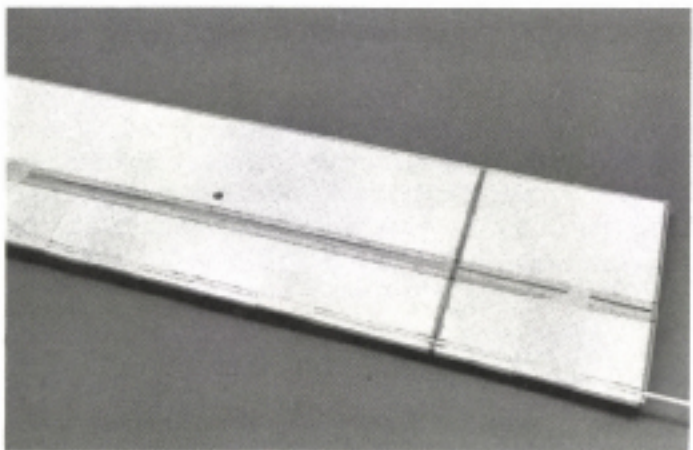
8. Lay each core in its upper core block. Cut the 1/4" triangle fillers to length and glue them in place with 5 or 15 minute epoxy. Don't try to completely fill the cavity around the tube with epoxy, just use enough to bond the balsa to the foam and the brass. When the epoxy sets, flip the cores over and install the fillers in the top surface.

9. Using care not to sand a flat spot in the core, sand the balsa fillers flush. Mix up a batch of 15 minute epoxy and micro-balloons and fill the remaining cavity around the tube on the bottom surface of the cores. When this cures, sand the epoxy fill smooth and repeat the process for the cavity on the top surface.



10. Mark the routing of the 1/8" plastic tubing for the spoiler cord on the bottom surface of the cores. Make sure the end of the tubing will be exactly 18-1/4" from the root so that you will be able to measure and find the tube after the wings are sheeted.

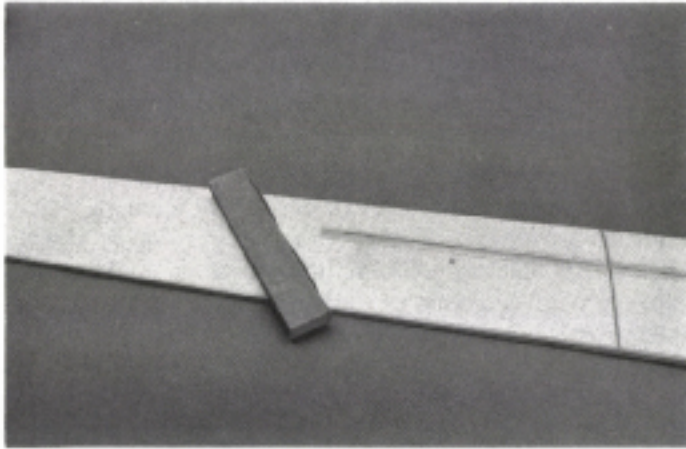
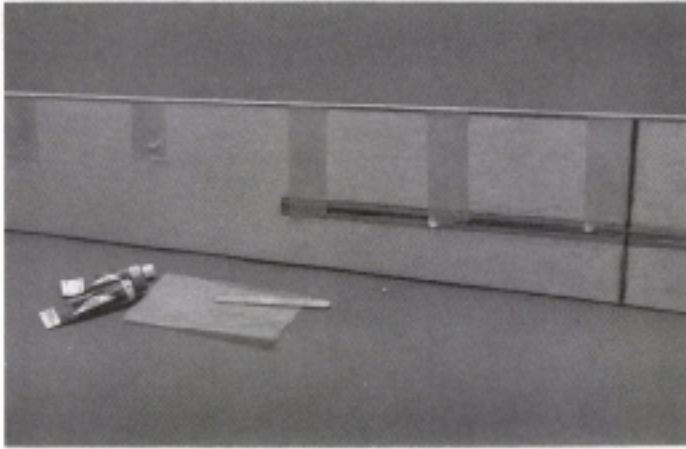
11. Use a pencil type soldering iron to melt a 1/8" deep channel for the spoiler tubing in the cores. The foam will melt in the area around the tip of the iron, not just where the tip touches. It is best to practice on the material removed from the joiner tube slot to master the technique before doing the cores themselves.



12. Cut the spoiler tubing to length. Use a heat gun to heat the tubing and pre-bend the curve into it. Put a small amount of petroleum jelly into the end of the tubing to prevent epoxy from plugging it and glue the tubing in place with a dab of 5 minute epoxy every 3" or 4" along its length. Be sure that the tubing is flush or slightly below the surface of the cores.

13. Mark the location of the 1/4" dowel ballast stop on the cores and use a sharpened piece of 1/4" brass tubing to drill the cores for the stops. Cut two 1/2" long pieces of dowel from one of the long pieces of dowel and epoxy the stops in place.

14. Use 15 minute epoxy to glue the 1/8" x 3/8" x 48" spruce sub T.E. in place. Use masking tape to hold the spruce in position and make sure that the spruce is straight and properly aligned on the core. When the epoxy sets, carefully taper the top and bottom of the spruce to match the airfoil contour.



15. Use a sanding block with 150 grit paper to lightly sand the wing cores. With minimal pressure move the block across the core using strokes 45° to the chord. The purpose of this sanding is to remove the tiny ridges and filaments raised when the cores are cut so that the skin will bond better. Remember that the purpose is not to change contour, merely to clean the surface.

16. Depending on wood availability, your Adanté kit will have either 8 pieces of 1/16" x 4" x 48" balsa or 8 pieces of 1/16" x 4" x 36" and 8 pieces of 1/16" x 4" x 21" balsa for the wing skins. If your kit has the 36" and 21" wood, you will need to splice the sheets. If your kit has the 48" wood, please go to step 20.

17. To splice the sheets, lay a 36" piece down on the bench. Next lay a 21" piece on top of it, allowing the two pieces to overlap 9". Check to be sure the two pieces are straight with respect to each other, then pin everything in place.

18. Use a straight edge and sharp knife to make a diagonal cut from one corner of the overlapped area to the opposite corner. Don't try to cut all the way through both sheets with one pass of the knife; you will get better results making several shallow passes.

19. Unpin the pieces and discard the 9" long triangular pieces. Fit the two sheets together and check to make sure the joint between the two is tight. When satisfied glue the two pieces together. Repeat this process for the other 7 pieces.

20. Use a 48" long straight edge and trim one edge of each sheet true. Matching the trued edges to each other, glue the



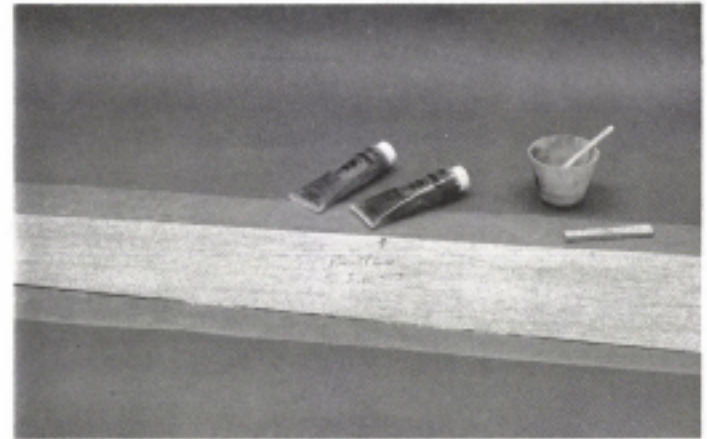
sheets together so that you have 4 wing skins 8" wide and 48" long.

21. Trim the skins to the outline of the cores, allowing for approximately 1/4" of overlap. Note that the skins for the upper surfaces will be slightly wider due to the greater curvature of the wing surface. Mark the sheets to avoid confusion later.

22. Use a sharp pair of scissors to cut four pieces of fiberglass cloth for the upper and lower wing reinforcements.

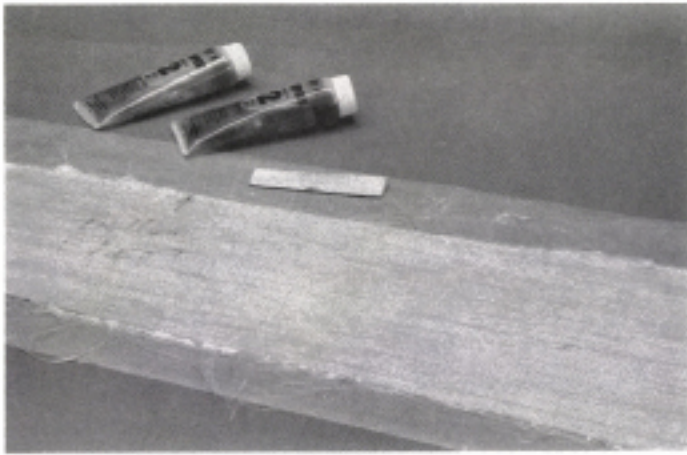
23. Slip the right wing core in place between its upper and lower core blocks. Make sure the core is properly aligned in the blocks, then tape the blocks together and set them on your bench.

24. Vacuum the left wing core and wing skins to remove all dust. It is critical that the core be absolutely dust free for a good bond between the core and skins.

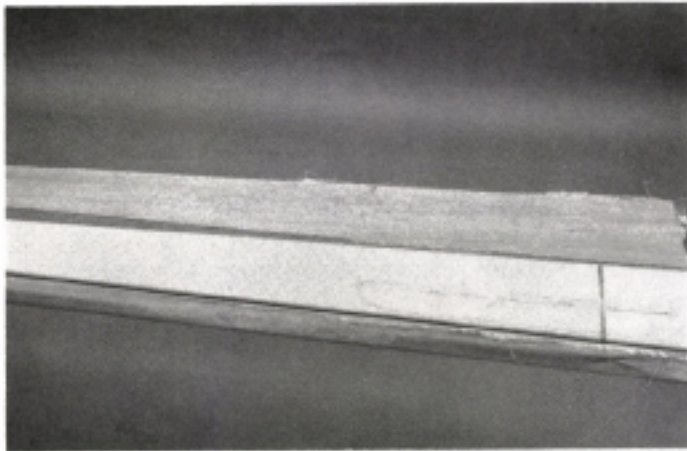


25. Mix up five ounces of Hobby Pox Formula II. Pour approximately an ounce and a half on the lower wing skin and use a piece of 1/16" balsa scrap as a squeegee to spread the epoxy evenly over the skin. You want to squeegee the epoxy off of the skin until the balsa is just barely "wet" looking. It does not take much epoxy to bond the balsa to the foam. Under no circumstances should you apply epoxy to the foam! The foam will absorb much more of the epoxy and you will have an extremely heavy set of wings.

26. After you have a thin, even coat of epoxy on the balsa, lay the fiberglass reinforcement in position. Wait a minute or



two to let the glass soak up the epoxy on the balsa, then pour about a half ounce of epoxy onto the glass. Again squeegee this out so there is a thin, even coat of epoxy.



27. Line the core block for the left wing with wax paper, then set the lower skin epoxy side up into the lower core block. Making sure that the skin and core are properly lined up, place the wing core onto the lower skin and set the upper core block onto the stack.



28. Repeat the application of epoxy and fiberglass for the upper wing skin. Remove the upper core block from the stack and place the upper skin onto the core. Place the upper core

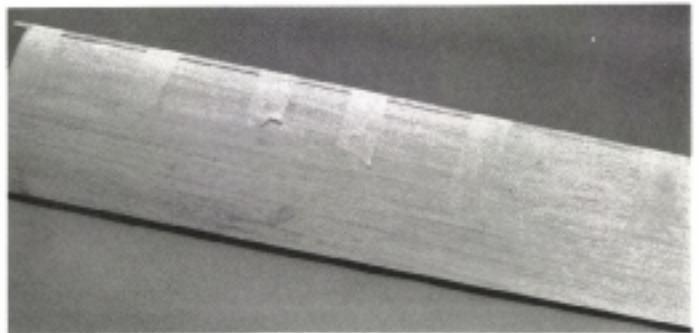
block into position and set a couple of weights at the root and tip end of the wing. Check to be sure that the core is properly aligned in the core blocks, then put the rest of your weights on.



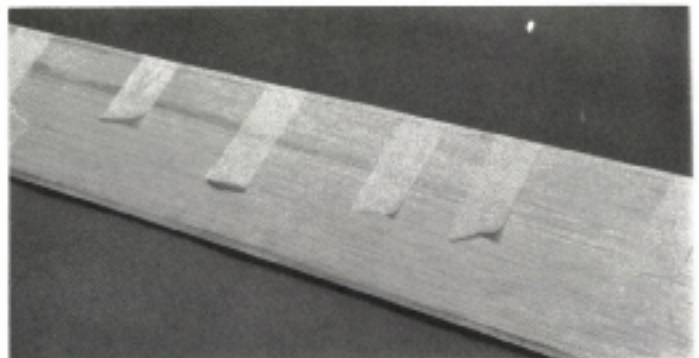
29. Once the weights are in place, sight down the leading and trailing edges of the core to be sure they are straight and true. Also check that the skin is being held tightly against the core at both the L.E. and T.E. When in doubt, add more weight! Also remember to keep the weight spread as evenly as possible.

30. Let the epoxy set up for at least 18 hours. When it has cured, take the weights off and repeat steps 23 through 30 for the right wing core.

31. Trim and block sand the sheeting flush with the root rib, L.E. and T.E. of each core. Use care to keep the L.E. and T.E. straight and square.

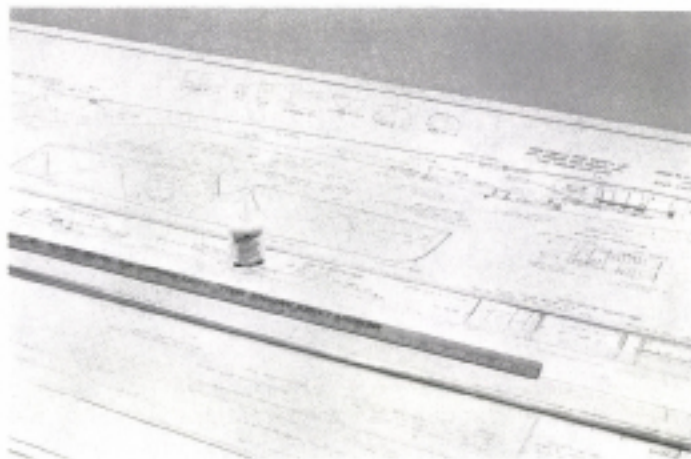


32. Using 15 minute epoxy install the bass leading edge. use masking tape to hold it in place while the epoxy cures.



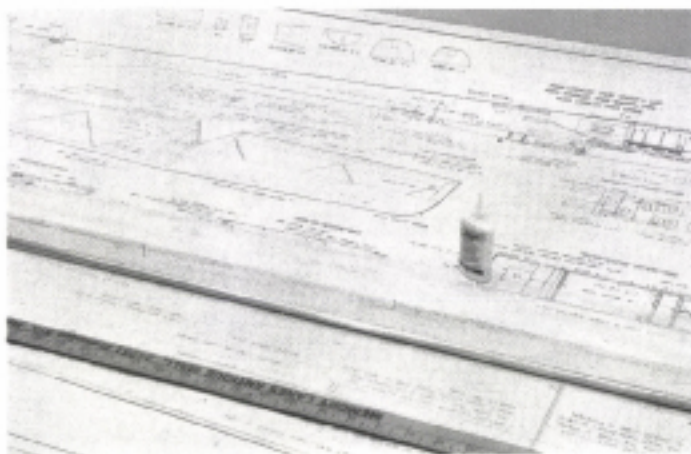
33. Use 15 minute epoxy and masking tape to install the 24" long pieces of grooved bass T.E. The T.E. will be slightly narrower than the aft edge of the core, so center it on the core.

34. Use a razor plane and sanding block to shape the leading edge. Block sand the entire wing smooth, using strokes 45° to the chord. Blend the aft edge of the core into the grooved bass T.E.



35. Pin two pieces of the 24" flaperon stock to your building board with their front edges against a 48" straight edge. When you have them perfectly straight, glue them together.

36. Clean one piece of 3/8" diameter aluminum tube with acetone to remove any oil or residue. Run a bead of thick CA down one side of the tube and press it tightly into the groove in the front edge of the flaperon stock.



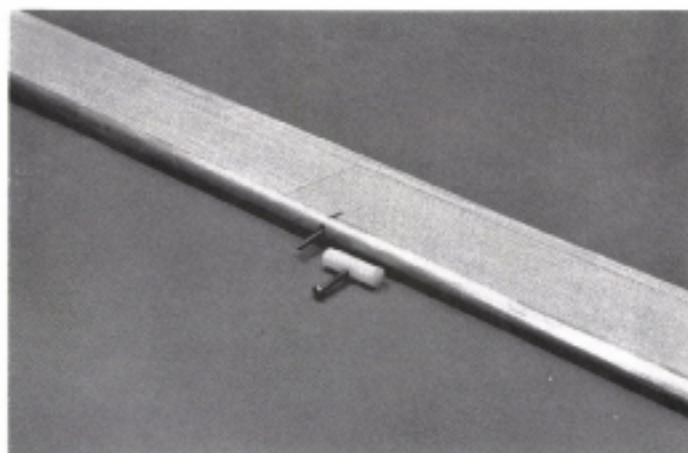
37. Glue the 3/32" x 3/8" spruce T.E. cap to the aft edge of the flaperon. When dry, remove the flaperon from the board and repeat steps 35 through 37 for the second flaperon.

38. Use a razor plane and sanding block to shape the flaperons to the cross section shown on the plan.

39. Mark the hinge locations onto the aluminum tubes and use a rattail file to notch the tubing for the hinges. Carefully remove any burrs with a sharp knife.

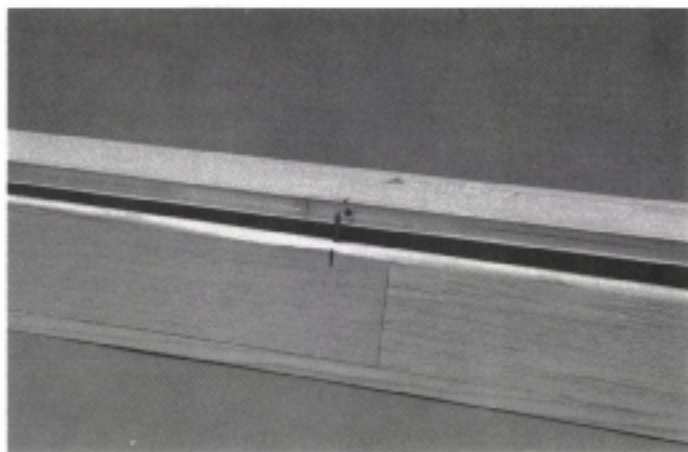
40. Lightly radius each end of a 5/16" x 1" long plastic hinge insert. Drill a hole through the center of the insert and thread it by running one of the self-tapping screws into it. Remove the screw, use a knife to slightly chamfer the edge of the hole and

remove the portion of plastic raised when the screw was run into the insert. Repeat for the other inserts.



41. Slip the inserts in place inside the aluminum bearing tube. Thread the screws through the notches in the tube and into the insert. Move the hinges up and down several times to check for free action. If they bind, check the aluminum tubes for burrs or the inserts for protrusions. When satisfied that the hinges work freely, cut the heads off the screws.

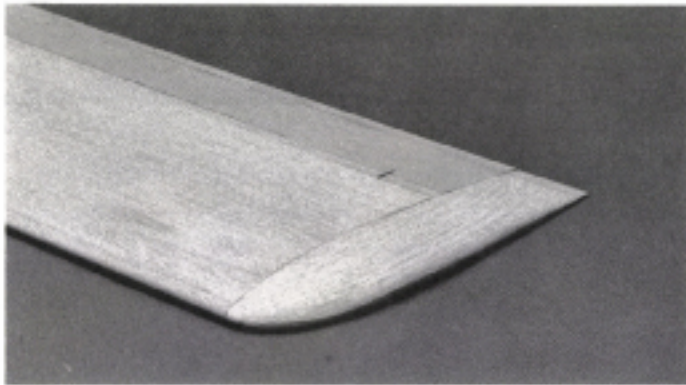
42. Trim the inboard end of each flaperon to match the angle of the wing root. Position the flaperons so that the root of each is approximately 1/32" inset from the root of the wing and mark the hinge locations on the wing trailing edges.



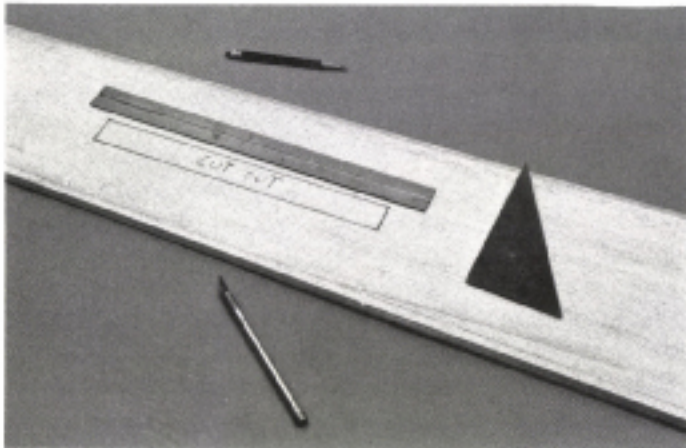
43. Drill holes in the wing for the hinges, being careful to line up the holes on the centerline of the groove in the T.E. Insert the flaperons into the wings and check for free movement up and down. Don't glue flaperons into position at this point!

44. With the flaperons in position, trim the ends of the wing cores and flaperons off to match the plan. Epoxy the wing tips in position. Make sure the aft edges of the tip blocks are 1/2" in front of the flaperon T.E.

45. Make a template out of light card stock to match the lower surface of the wing as shown in the view marked "Wing Section at Root." Using this template to droop the flaperons to their neutral position, mark the outline of the flaperons on the inside faces of the tip blocks. Glue the 1/8" x 1/2" spruce T.E. caps to the wing tips.

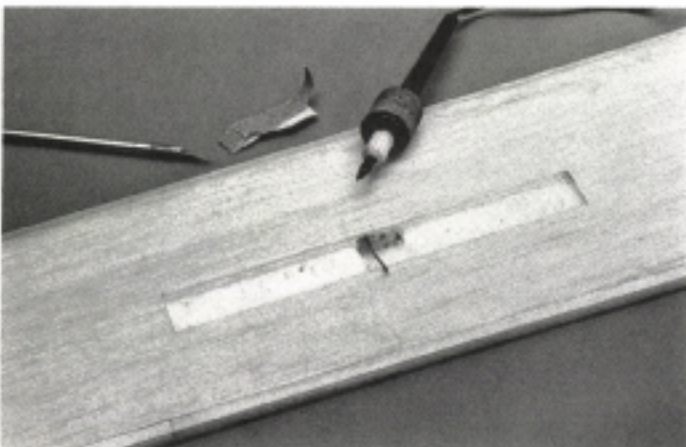


46. Remove the flaperons and carve the wing tips to match the sections shown on the plan. Use the flaperon outline as a guide when shaping the tip behind the wing T.E. Final shaping of this area should be done with the flaperon in position.



47. Carefully measure and lightly mark the spoiler location on the top of each wing. Use a metal straight edge and sharp knife to cut through the balsa and fiberglass around the spoiler outline. Try to end the cuts right at the corner of the spoiler rather than past as the wing skin will be less likely to develop stress cracks.

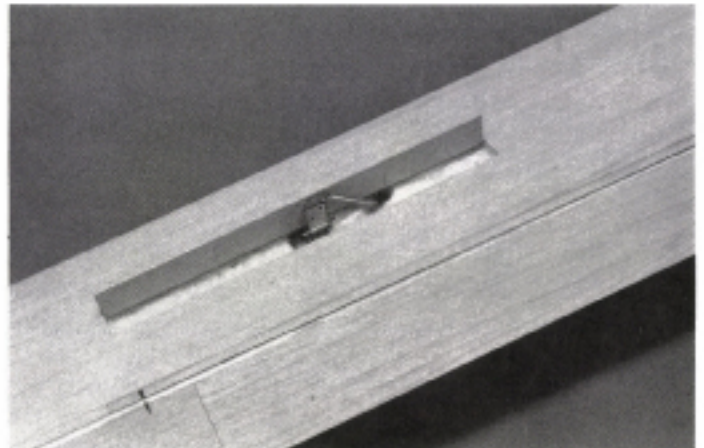
48. Use a knife, small chisel and pencil soldering iron to remove the balsa skin and foam under the spoiler. Remove only enough foam to let the 1/4" x 1" T.E. stock spoiler to sit flush with the surface of the wing.



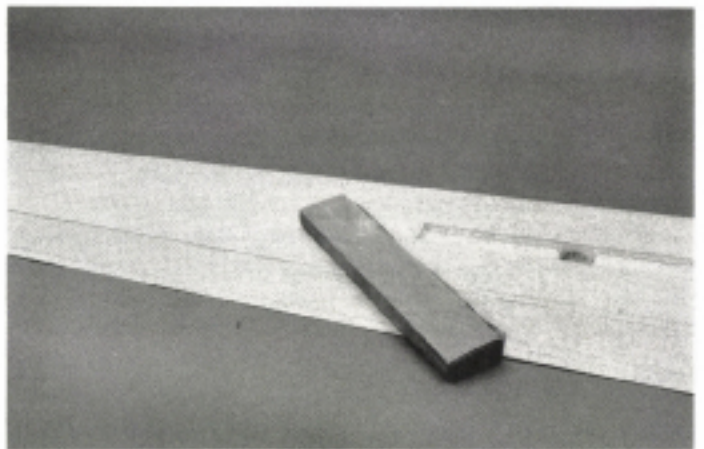
49. Measure out from the root of the wing to locate the spoiler cord tube. Use a small screwdriver or large pin to probe through the foam and find the tube. When you've found it, remove the foam from the area extending from 1/4" outboard of the tube to 7/8" inboard of the tube and from the front to the back of the spoiler bay, all the way to the lower skin. **Be very** careful not to cut into the lower skin in any way.

50. Cut the screw-eye mounts from scrap 1/8" x 3/8" spruce. Thread the screweyes into them and epoxy them into position.

51. Fit the balsa spoilers into the spoiler bay. Glue the spoiler horns into position and temporarily hinge the spoilers with masking tape.



52. Feed the dial cord through the nylon tube, through the screweye and back to the spoiler horn. Use the end of a round toothpick as a wedge to hold the cord in the spoiler horn. Pull on the cord and check the spoiler action.



53. Give the entire wing a final sanding and you're ready for finishing.



COMPLETING THE CENTER SECTION

1. Mark the center of the 5/8" aluminum main joiner. Bend the joiner over the sharp edge of your work bench until it matches the view on the plans. The dihedral angle is 3° each side, or 6° total.

2. Slip the joiner into the center section. Slide the right wing onto the joiner. Line up the 1/8" holes in the C-2 and W-1 ribs and drill through the center section into the wing core to a depth of 1".

3. Remove the wing. Cut a 1" long section from the 1/8" x 4-1/2" brass tube. Epoxy this piece into the wing. Repeat steps 2 and 3 for the other wing. Glue the remaining piece of 2-1/2" long brass tube into the center section.

4. Glue a 3/4" length of 1/16" x 5/32" spruce to each side of the 1" long 5/32" square brass tubes. Slip one of these tubes into the root end of each flaperon bearing tube.

5. Using the main and rear joiners, assemble the wing panels and center section. As you slide the wings toward the center section, position the flaperon drive assembly so that the square tubes extending from it will slide into the square tubes in the flaperons.

6. Check to be sure the flaperons are tightly against the wing T.E. Trim C-4 to fit between the center section T.E. and the flaperon drive. When it fits snugly between the two, glue it in position.

7. Glue the balsa filler in place behind the flaperon drive. Check to be sure the flaperons are in neutral position and mark their outline on the center section.

8. Remove the wings and shape the aft end of the center section to match the flaperon outline and fuselage. Reassemble the wings and center section and fit them to the fuselage.

9. Push a pin into the center of the top of the fin. Tie a string to the pin and measure the distance to one wing tip. Check this measurement against the other wing tip and adjust the wing until the distance to the two tips is the same.

10. Drill the hole for the wing hold down bolt through the center sections and F-4. Remove the wings and drill out the hole in the center section to clear the bolt. Inlay F-5 into the balsa as shown on the plans. Tap F-4 to accept the 1/4-20 hold down bolt.

11. Glass the entire center section with medium weight glass cloth. Be careful not to allow the resin to run into the flaperon drive assembly. Sand smooth when completely dry.

12. Glue the two balsa L.E. fairing blocks together and fit them to the center section. Install the center section on the fuselage and carve the fairing to match the fuselage contour. When finished, glue the block in place permanently.

13. Notch the lower sheeting of the center section to clear the spoiler cords. Install the screweyes as shown on the plans. This completes the wing center section.



FINISHING

For finishing the fuselage and center section of your Adanté we recommend K and B Superpoxy. It will provide a good looking and durable finish. Cover the stabs and rudder with Top Flight's Super Monokote.

The wing can be finished one of two ways. The first way is to glass the outside of the wing with 3/4 ounce cloth and paint it. The second is to cover it with Monokote. The wing is sufficiently

strong without any external glassing so the choice is entirely up to you.



FINAL ASSEMBLY

1. Remove the 5/32" square brass tubes from the flaperons. Slip the tubes onto the square tubes in the center section and coat the 1/16" x 5/32" spruce with epoxy. Slide the wings into position and fit the brass tubing into the flaperons. Make sure that both the flaperons and flaperon control arms are in the neutral position as the epoxy sets.

2. Remove the wings and pull the flaperons out of the wings. Cross drill and pin the square brass tubes in the flaperons as shown on the plans. Apply epoxy to the flaperon hinges and glue the flaperons into the wings, making sure they fit tightly. Use wax paper between the flaperons and the wings to keep them from sticking together.

3. Permanently hinge the spoilers with 1/2" wide Slick Tac. Relieve the foam to clear the spoiler spring. Bend two hooks from pins and glue one to the spoiler and one in the wing. Tie a loop in one end of a 3 foot length of dial cord and feed the cord into the wing and hook up the spoiler. Don't cut the excess cord until the radio is installed.

4. Hinge the rudder with a piece of 1/2" wide Slic Tac on each side. Install the rudder push rod in the fuselage.

5. Install the servos, battery, and receiver. Hook up the rudder and stabilator push rods. Make sure that the controls work freely.

6. Make up the flaperon pushrods as shown on the plan. Hook the metal clevises onto the flaperon control arms and install the center section on the fuselage. Hook up the flaperons to the servos.

Note: The Adanté is intended to use a radio which will electronically couple flaps and ailerons for flaperon control. If your radio does not have this feature, Airtronics sells a two function electronic mixer, part number 96100, which will work with any brand radio and do the job quite nicely.

7. Assemble the wings onto the fuselage. Feed the spoiler cords into the center section, through the screweyes, and hook them to a screw in the spoiler servo arm. Note that it will probably be necessary to put a slight kink in the 1/8" square tubes extending from the center section to achieve a slop free linkage to the flaperons.

8. Check all the control actions. The rudder should move 3/8" in each direction. The stabilator should move 1/2" in each direction measured at the trailing edge. Aileron throw should be 3/8" up and down. Flap reflex should be 1/8" above the neutral point, while full down flap should be 3/8" below the neutral point. The spoilers should both start to open at the same time and extend about 70°.

9. Install the nose and tail skids. Balance the plane by adding lead shot to the nose. With the plane assembled, check the lateral balance and add weight to the light tip.

10. Install the towhook and give everything a final check. This completes your Adanté.



FLYING

The Adanté will surprise you with how easily it handles in the air. One thing to remember is that this is a very clean sailplane and likes to be flown faster than most other sailplanes. Once you get used to the flying speed and realize the amount of ground you can cover without losing altitude you'll find it hard to go back to your other sailplanes.

After you've adjusted to the Adanté's flying speed, you're ready to learn the use of the flaps. The flaps are intended to be used to change the airfoil for different situations. Drop the flaps about 1/2 of their total throw and try a launch. You'll be pleased at the difference they can make. Experiment with the amount of down flap on launch until you find the best setting for your particular launching style.

If you are zoom launching, try the following technique. Launch with down flap. As you go over the top and into the pre-release dive, go to neutral. As you pull into the zoom portion of the launch, go to reflex. The reflex will make the Adanté convert its speed into altitude much more efficiently and yield higher launches.

After launch, return the flaps to neutral. If you hit lift, start to circle. Once you have established the turn, start to feed in down flap to maximize the climb. Don't be fooled into believing down flap will turn a weak thermal into a boomer. What it will do is slow the airplane down and make it easier to thermal smoothly, and it will increase the lift the airfoil produces. But in general you'll find that the lighter the lift, the less flap you'll

wind up using to get the most out of that lift.

If you are in a patch of sink or know where a thermal is and want to get there in a hurry, hit the reflex. Once the flaps are up, the Adanté will really cover ground! But the longer legs of the airplane don't come at a very high price. The speed goes up, the L/D goes way up, and the sink rate goes up only a fractional amount, compared to the other two. Of course the reflex comes in very handy on speed and distance runs also!

When landing your Adanté, the best method is to drop the flaps to slow the airplane down and use the spoilers to control the glide angle. Resist the temptation to use the flaps on final approach. Dropping the flaps more to slow the airplane down generally leads to the model ballooning and an overshoot landing. Pulling the flaps up to stretch the glide causes a reduction in lift and generally plunks the airplane down short of the circle. Set the flaps once, forget them, and use the spoilers and elevator to get to the spot.

A final word about ballast. The flaperons give the Adanté such a broad speed range that it doesn't require as much ballast as you might be used to. If you want ballast, the first thing to try is filling the joiner with lead shot. Do not insert metal bars into the joiner as they will concentrate the stress in the center of the joiner and cause a fracture. If you still want more ballast go ahead and open up the holes in the wing cores for ballast tubes. Good luck with your Adanté, and may you have many hours of flying pleasure.



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