

ROCKWELL

AERO COMMANDER

SHRIKE



ASSEMBLY MANUAL

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A couple of helpful hints before you begin:

Your Shrike kit is designed in CAD and completely laser cut for a fast accurate building experience. The empennage takes advantage of the core sheet technique of construction to keep the weight in this section of the aircraft to an absolute minimum. You will discover that these laminated ply structures are extremely strong and exceptionally light. Because of the precision of laser cut parts they will assemble rapidly and provide excellent scale and flight characteristics.

GLUE

If you have been building for a while you probably have your favorite techniques already however I have added some gluing tips where I think they will make things easier. One gluing tip I highly recommend is the following regarding adding the laminated balsa corner structures on the fuselage. These corner sections are laminated up from two layers of balsa to make the bending process easier, if they are not glued properly it can be problematic to sand and shape these structures. I recommend you use aliphatic resin glue such as Elmer's Carpenters Wood Glue on these structures. Aliphatic resin glues such as Elmer's or Titebond is by far the most sandable adhesive when combined with Balsa. However even these adhesives can be problematic when trying to sand soft balsa and hard glue to shape. It is important to use only as much glue as necessary to do the job. The good news is that its easy. I will use the bottom fuselage corners as an example.

After flattening the fuselage corners for good contact with the corner sheeting, coat the entire gluing surface with glue; smooth it into contact with the fuselage sides. Next temporarily place the corner sheeting into position and let the glue transfer from the fuselage to the fuselage corner piece. This will show you exactly where you need to put the adhesive. Now run a generous bead of glue along the entire length of the area indicated and smooth it out with a finger. Use a razor blade or putty knife to scrape off all the excess. Then install the parts and use plenty of masking tape to hold the parts into contact with each other. A thin layer of aliphatic glue like this will set in about 10 minutes. When laminating the next layer, simply coat both surfaces with glue, scrape off the excess and put in place, once again use plenty of tape to hold the parts in contact. This technique will yield a glue seam that is almost imperceptible and will not inhibit planing or sanding to shape.

PINNING TECHNIQUE

Some parts require laminating to other parts, such as the nacelle doublers. Where this is required, the parts are supplied with 1/8" pinning holes. These holes when used with a 1/8" pin will force perfect alignment of these parts. See the pinning info sheet included with your kit.

FIBERGLASS PARTS

The cowls are hand laid fiberglass and should be washed in warm soapy water to remove any wax or release agent used in the lay up process. Then lightly sand off the gloss with 220 grit paper before priming and painting.

NACELL ASSEMBLY

NOTE:

The nacelles are not symmetrical from side to side. It is important to observe the labeling and assemble left and right inboard and outboard sides. The tops and bottoms of the nacelles must be oriented correctly for this reason. Where possible, orientation of the parts is assured by dissimilar notch and tab dimensions. Observe the correct matching of these alignment features.

- 1. Prepare the nacelle sides by gluing on ND; the 1/64" ply doublers. Use the pinning holes. You will notice that several of the nacelle parts have dash cut knockouts in them. Do not remove these knockouts until after assembly.
- 2. Test fit the firewall and mark the backside of it. Install four #4-40 blind nuts into the firewall from the back.
- 11. Glue one side to the firewall; maintain a 90° angle between the two. When the adhesive has set, install the remaining nacelle side at 90° to the firewall. Cut two 2" pieces of 1/4" triangle stock and reinforce the corners with it.
- 4. Install the nacelle trailing edge (NTE) and glue in place.
- 5. Install N-1, N-2 and N-3. When all parts are correctly nested, glue the assembly.
- 6. Install 1/4" triangle stock along the top of the nacelle sides. Note that the top and bottom will fit between the nacelle sides so allow a 3/32" set back for the triangle stock. This works best if you glue just the forward end of the stock to the firewall flush to the top of the firewall and then proceed to form it to the remainder of the nacelle side. Some glue is unavoidable but minimize and glue between the wing knockout and the other parts. This will make removing these components easier later. Make bending cuts in the 3/8" triangle stock to make bending easier. Install 3/8" triangle stock along the bottom of the nacelle sides in the same manner as the top.
- 7. Install and glue NH-2 to the bottom back edge of the firewall. This should be flush with the bottom of the firewall. Inset it into the 3/8" triangle stock to make it flush with the firewall bottom.
- 8. Install and glue NH-1 to the backside of N-2. Align the 1/16" holes that receive the retainer dowels for the hatch cover plate.
- 9. Install the nacelle top. Make sure it is seated on the 1/4" triangle stock, and then install the nacelle bottom.
- 10. Install two 1/4" lengths of 1/8" dowel into the top and bottom of the firewall. Round the ends and leave them protrude about 3/32" to engage the holes in the cowl ring.
- 11. Place the fiberglass cowl face down on the bench and measure back exactly 2-1/2" from the bench top. Mark the entire perimeter of the cowl at this location and trim and sand it to this length. NOTE that the nacelle is a lifting surface it has an airfoil shape, the cowl is the leading edge of that surface and the curved part should be at the top of the nacelle.
- 12. Test fit the 1/16" ply cowl ring (CR) to the inside of the cowl. Note that the cowl has a 3/8" radius at the bottom and a 1/4" radius at the top. Cut the opening for the motor and prop at the front of the cowl. Place the cowl ring in the cowl, place the assembly flat on the bench on waxed paper and glue the cowl ring in place with Epoxy. Make sure the cowl ring is flat on the bench and even with the back of the cowl. Use scrap wood and pins to press the cowl against the cowl ring so the cowl conforms to the shape of the ring.



Nacelle sides, firewall and nacelle doublers are assembled at 90° to each other as shown. Install the #4-40 blind nuts before gluing firewall in place.

- 13. Cut along the dash cut hatch outline and remove the material.
- 14. See the detail on the plan and cut two 1/16" x 3/16" balsa strips 4" long. To these glue a piece of 1/16" x 1/16" balsa to one edge of these strips. Glue these assemblies to the inside of the cowl bottom along the hatch opening leaving a gap at the back for clearance for NH-3 on the hatch. These will serve as a step for the hatch to rest on.
- 15. Glue NH-3 to the aft end (the end without the screw hole in it) of the 1/32" ply hatch (HC). Round the ends of two 1/16" x 3/16" dowels and glue them into the holes in NH-3. These will engage the holes in N-2 and a screw at the front will retain the hatch cover. Glue stiffener NH-4 to the leading edge of the hatch.
- 16. Radius the corners of the nacelle and match the front of the nacelle to the cowl.
- 17. Cut along the dash cut of the wing opening on both sides and remove the material. Break out the dash cut material from N-I, N-2 and N-3.
 NOTE: The 1/32"ply hatch is not designed to retain the battery. When installing the battery make sure it is secured to the wing.

Repeat steps one through eighteen for the remaining nacelle.

WING ASSEMBLY

- 1. We will begin by assembling all subassemblies for both wings. Remove all wing components from their carrier sheets.
- 2. Clean up any nubs left from the retainer tabs. Place the wing plan on the bench and lay a piece of waxed paper over it.
- 3. Assemble the rib doublers on W3, W4, W6 and W7. Note the correct orientation of these doublers. Assemble wing parts for both wings at the same time. Simply make a left and a right of each rib and then select the correct one for the wing half you are working on.
- 4. Place a straight edge over the plan and line it up with the aft edge of FLE. Secure it with pins so it cannot move. Place FLE up against the straight edge and tack glue some scrap 1/8" balsa to the stand off legs. Pin these pieces to the building board. Make sure each stand off is flat on the building board and at 90° to the building board and then remove the straight edge.
- 5. Locate SWB and slide each rib into the appropriate slot.
- 6. Slide the top shear web SWT into position behind SWB and tack glue the two shear webs at both ends. You should now have all ribs except W1 and W12 captive in the shear web assembly. SWT and SWB are exactly the same width and should be perfectly aligned before applying glue. Use finger pressure to assure the two shear webs are aligned and then apply CA through the glue ports cut into SW-T.
- 7. Install the 90° gusset (WG) to assure square and glue rib W2 to the leading edge.
- 8. Install the trailing edge (WTE) and tack glue it only to W-2 and W-10 at this time. Adjust so that all ribs are square to the plans.



NOTE:

Do not be concerned if the ribs are not positioned exactly over the plan drawing. Variables such as humidity will affect the size of the paper the plans are printed on. Use the plans to assure that the ribs are square to the leading edge.

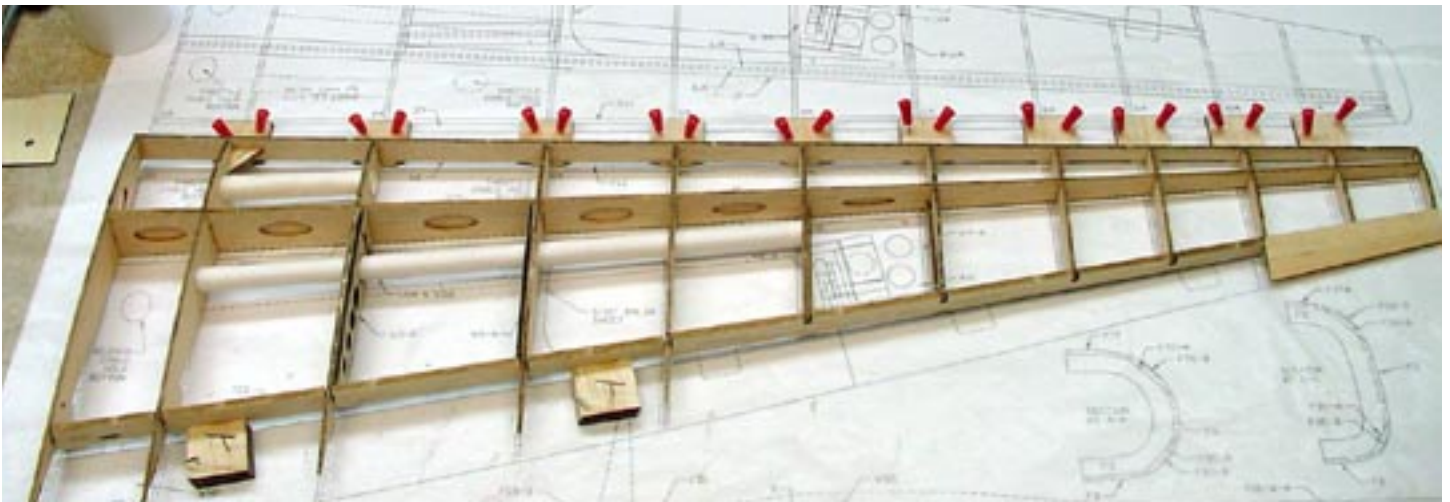
- 9. Now move down the false leading edge (FLE) and glue each rib to FLE. Do not install W-1 until after the cable tunnel tubes are installed.
- 10. Roll a piece of 8-1/2 x 14" paper (two wraps) the long way around a piece of 7/16" wood dowel. Tape one end and then insert it into the cable tunnel holes in ribs W-2 through W6. Cut the tape and let it expand, then glue it along the seam and to each rib. Use a shorter length between W-2 and W-3 for the controller leads.
- 11. Install and glue W-1. Note that the correct dihedral is set by the sheer web.
- 12. Glue SWB and SWT along the entire length and assure that the two are in good contact. The holes in SWT are provided as glue ports. Then glue each rib to the sheer web assembly
- 13. Use aliphatic resin (carpenters glue or any slow curing adhesive) to the entire length of the sheer webs and to the tops of the ribs where they will contact the top spar flange and then install the top spar flange. Use a weighted straight edge to assure good contact with the sheer webs until cured.
- 14. Install WMP into the slots at the trailing edge of W1 and W2 and the tab into WTE. Glue and add triangle stock along the interface with WTE.
- 16. Plane the leading edge and trailing edge to contour with the ribs. Note that there is a jog in the trailing edge at the aileron bay. The ribs are not offset for wing sheeting at this location.
- 17. Using a slow setting adhesive, run a bead of glue along the entire length of the top spar flange except the first 1" length at the root end and install the 1/32" top leading edge sheeting. The first 1" of sheeting will be removed later to install the wing joiners. Leave the ribs and leading edges unglued at this time. You will use CA from the bottom to glue these later. Align the sheeting with the aft edge of the spar flang.
- 18. Assemble the two sections of 1/16" center section sheeting and sand out any irregularities. Taper the trailing edge about 3/8" from the aft edge to the aft edge down to about 1/32" thick.
- 15. Install the top 1/16" balsa top trailing edge between the end of the aileron bay and the wing tip.
- 19. Apply a bead of glue along the wing trailing edge from the root to W5 and to the tops of ribs W1, W2, W3 and W4 and the trailing edge of W5 behind the trailing edge spar. Install the top center section sheeting and weigh it down with sand bags, magazines or some other weight that will contour to the wing shape.
- 20. Remove the wing assembly from the building board, remove the pin tabs and all stand off feet. Plane the bottom leading and trailing edges to contour with the ribs.
- 21. With the wing assembly upside down on the building board, prop up the trailing edge until the sheer web is vertical. Install and glue the remaining 1/32" ply spare flange as you did the top one.
- 22. Use a pin to poke a hole in the top sheeting through the boltholes cut in WMP. This will be used later to locate the bolthole positions.



Wing rib W-1 is installed after the optional cable tunnel tubes are installed.



Note that the sheer web and the leading and trailing edge set the correct dihedral angle of W-1. The 1/8" holes in W-1 will align with dowels in WJ to assure perfect alignment of both wing panels.



Pinning tabs secure the leading edge straight and firmly to the building board. Scrap balsa blocks tack glued to the trailing edge secure the rib stand offs firmly to the building board. Here the wing construction is well under way. The next step is to install the 1/32" ply top spar flange and the 1/32" leading edge sheeting. The 1/16" center section sheeting will go on next and then the assembly can be removed from the building board.

- 23. Install the bottom 1/32" leading edge sheeting. Apply aliphatic resin glue onto all the ribs between FLE and the spar web. Then apply thick CA to the ply spar flange and install the bottom sheeting. When the CA has set, use finger pressure to wrap the sheeting tight against the ribs and the leading edge. Apply thin CA to the sheeting along the leading edge. Start in the center of the wing section and work outward.
- 24. Assemble the landing gear block from LG-1 and LG-2. Note that the slot in LG-2 should line up with the hole in LG-1. Install this assembly with the slot outward and the hole should align with the slot in W3-A. The gear leg will lay in the slot and the stub will protrude through the hole and into the slot in W3-A.
- 25. Assemble the bottom center section sheeting. Taper the trailing edge down to about 1/32" thick and then glue on.
- 26. Glue on both servo screw plates SSP-F (front) and SSP-B (back). Note the screw holes in SSP-B should be on the leading edge side.
- 27. Glue on the 1/4" leading edge and plane and sand to shape.
- 28. Assemble the two 1/4" wing tip sections and glue on the wing tip. Plane and sand to shape.
- 29. Cut three pieces of 1/4" triangle stock 1-1/8" long and glue to the inside of the trailing edge at the location of the hinges. This will give the hinges more glue land when installed.
- 30. Repeat the above steps to build the remaining half of the wing.

Assembly of the wing halves

- 1. Cut two 1/2" long pieces of 1/8" dowel and glue them into the holes provided in WJ. These will engage holes in W1 on both wing halves and assure correct incidence alignment.
- 2. Glue WJ to one half of the wing using the dowel pins to align it.
- 3. Glue the remaining wing half to WJ.
- 4. Use the 1/64" ply wing joiner (WJ-1) to mark the sheeting on the top and bottom of the wing over the ply spar flanges. Then remove the 1/32" sheeting from this area. Glue WJ-1 to the ply



Wing joiner (WJ) has been glued to the left wing panel, note the alignment dowels in WJ and the carbon fiber wing attachment dowel has been glued into WJ. The right wing panel will be aligned by the dowels and then glued into place. The hole in WJ and W-1 is for parallel wiring the battery packs if so desired.

spar flange and when cured, glue the second one on top of the first one. Repeat this process on the other side of the wing.

- 5. Test fit the wing on the fuselage. Back sand the trailing edge at the root if necessary until the wing seats snugly on the wing saddle.
- 6. Place the wing in the saddle and use the wing bolt plate to locate the wing bolt holes, then open up the wing bolt holes and check for alignment.
- 7. Place the wing bolt plate on the wing and secure the wing to the fuselage with the wing bolts. Glue the wing bolt plate in position.
- 8. Remove the wing; place a piece of waxed paper under the leading and trailing edges and the re-secure the wing to the fuselage.
- 9. Test fit the wing section keel (WSK) and F7-W in position, F7-W should provide a 1/16" reveal to allow for the 1/16" center section sheeting. Sand a bevel on the bottom to match the wing leading edge until the 1/16" reveal is accomplished. Then glue F7-W and WSK in position.
- 10. Test fit F10-W at the aft wing position, sand as necessary for correct fit and then glue in place, add F10-W-A.
- 11. Test fit the wing deck sheeting, taper the edges to fare in at the wing interface to minimize the need for fillers, then glue in place. Sand the for and aft sheeting flush with the formers.

Stabilizer Assembly

- 1. Locate and prepare the two 1/16" balsa stabilizer core sheets, Locate and prepare all stabilizer ribs, S1 through S8 and the stabilizer leading and trailing edges.
- 2. Use the dihedral gauge to set the angle of S-1 and glue it in place on one side of the core sheet. When installing the split ribs, be sure the ribs are pressed flat against the core sheet before applying glue.
- 3. Glue all remaining half ribs S2 through S8.
- 4. Glue on the 1/4" leading edge. Use a straight edge to hold the assembly flat while applying glue.
- 5. Glue on the trailing edge using the same technique.
- 6. Flip the assembly over and repeat the process on the opposite side, be sure to continue the angle on S1.
- 7. Plane the leading and trailing edges to contour with the ribs.
- 8. To install the sheeting, first apply glue to each rib on one side with slow CA, and then apply a bead of glue to the spar. Install the sheeting by first aligning it with the notches in the spar and then applying pressure to bring the sheeting into contact with the ribs until the CA sets.
- 9. Turn the assembly over and repeat this process with the remaining side.
- 10. While applying finger pressure to the trailing edge, apply thin CA to the entire trailing edge.
- 11. Plane and sand the leading and trailing edges then glue on the stabilizer tips' Plane and sand to shape.
- 12. Sand as required the root ribs to provide a dihedral of 1-1/2" at each stabilizer tip, then glue the stabilizer halves together.
- 13. Place the elevator halves into position in the stabilizer and mark the shape of the airfoil on both ends. Plane and sand to shape, then install but do not glue the hinges.

Elevator Assembly

- 1. Glue the elevator leading edge ELE to one side of the elevator core.
- 2. Glue rib sections S-1 through S-6 to one side.

- 3. Glue on the elevator horn block EHB to the core sheet.
- 4. Glue the remaining leading edge ELE to the opposite side.
- 5. Install the remaining ribs S-1 through S6 to the opposite side.
- 6. Glue on the elevator horn block EHB to the core sheet where indicated.
- 7. Plane the elevator horn blocks to contour with E-1 and E-2.
- 8. Glue on the 1/32" sheeting on both sides.
- 9. Plane a 30° angle to the leading edge from both sides to accommodate the movement of the elevator.
- 10. Repeat steps 1 through 9 for the remaining elevator.

Fin Assembly

- 1. Assemble the fin sheeting (2 Pieces), FNS for both sides.
- 2. Assemble (2 pieces) the fin core FNC; clean out all notches and lightening holes.
- 3. Prepare all ribs FN-1 through FN-7.

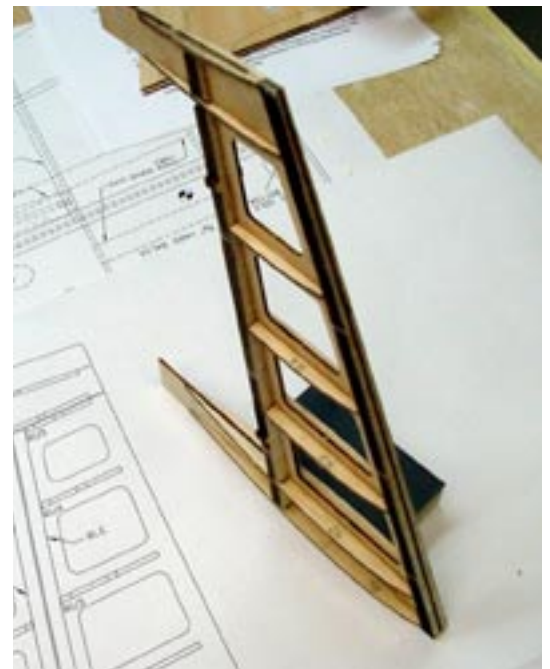
NOTE:

The fin, rudder and stabilizer are constructed using the core sheet method. This will produce components that are essentially hollow plywood structures. These components are extremely strong and light. It is imperative that when the components are installed to the core sheet that the assembly be held flat against the building board when glue is applied. This will result in a perfectly true structure.

- 4. Install the fin (FTE) trailing edge. Use a straight edge to hold the parts flat when gluing.
- 5. Install and glue all rib halves FN-1 through FN-7
- 6. Install the fin leading edge (FNLE).
- 7. Turn the assembly over and repeat steps 4,5 and 6.
- 8. Glue on the fin sheeting, and then shape the leading and trailing edges.
- 9. Assemble the fin tip, glue on and the shape it.
- 10. Cut along the dash cut lines at the base of the fin and then remove the material.
- 11. Glue on two laminations of 1/16" balsa along the opening at the base of the fin. This will support the sheeting and provide glue land for attaching to the fuselage.

RUDDER ASSEMBLY

- 1. Install rudder ribs R-1 through R-5 into the rudder core sheet.
- 2. Install and glue the rudder leading edge (RLE).
- 3. Glue the rudder horn block (RHB) into position on the right side of the rudder. Plane the rudder horn block to contour with ribs R-1 and R-2.
- 4. Install and glue the rudder sheeting (RS).



The vertical fin assembly shown here ready for the sheeting to be installed. A minimum of shaping is required because of the laser cut components and the finished fin will have a true airfoil shape. The laminated construction produces a very strong structure.

- 5. Sand the trailing edge to shape.
- 6. Plain a 20° bevel on both sides of the leading edge to accommodate rudder swing.
- 7. Cut the slots for the CA hinges and test fit all components. Put the assembly aside for covering.

FUSALAGE ASSEMBLY

- 1. Prepare the fuselage sides by gluing on the tail extension pieces. Also add the stabilizer platform doublers (SD). Take care to assemble a left and a right side. Do not remove the dash cut windows until later in the assembly process.
- 2. When installing formers F-7, F-6 and F-5 in the next steps, apply glue only to section of about one inch wide between the tabs. The remaining area of the formers will be glued later when the sides can be formed to come into contact with the formers.
- 3. Use Epoxy or thick CA and glue F-7 to one fuselage side. Use a square to assure it is at 90° to the fuselage side.
- 4. When cured, cut a piece of scrap balsa the same length, as F-7 is wide. Use this as a tail spreader in the next step to make the fuselage sides parallel. Glue F-7 to the remaining fuselage side. With the tail spreader in place assure that the sides are aligned. Use a square along the stab mount.
- 5. Install four #2-56 blind nuts into F-2.
- 6. Cut two 3/8" sections of 1/8" brass tube. Install them into the 1/8" landing gear clamps and install these onto F-2 with four #4-40 Socket Head screws.
- 7. Assemble the F-1, F2, FNA-1 and FNA-2 nose assembly. This assembly will aid in pulling the nose section together and assure that F-2 is at the correct angle for the correct nose gear rake. Note that the tab on F-2 should be on the top of the assembly. Bevel the sides of F-1 to contour with FMA-1 and FMA-2 to provide more glue land. Put this assembly aside for installation a little later.
- 8. Taper the stabilizer doubler at the tail section so both sides can come into contact with each other. Carefully align the fuselage sides at the tail section and glue them together.
- 9. Starting at the aft end, install formers F-13 thru F-8. Use medium CA and form the fuselage side to the formers.
- 10. Wet the outside of both fuselage sides from f-5 forward. Install the F-1/F-2 assembly.
- 11. Use medium CA and accelerator for the next steps. Install F-3 and F-4. Use finger pressure to form the sides to the formers and retain with medium CA and accelerator.
- 12. Moving from F-5 aft to F-8, form the bottom half of the fuselage to the formers and glue with medium CA. Form a nice glue fillet between the formers and the fuselage sides to assure a strong bond.
- 13. Wet the outside of the top forward deck and glue into position, forming it to formers F-1 thru F-4. Glue and form first to F-4 and then to F-1. Then follow up but forming to F-2 and F-3.



Construction of the fuselage begins by gluing only a 1" area of the formers between the tabs to the fuselage sides. This will allow forming and gluing the fuselage sides to the formers after all formers are in place.



This sub assembly of F-1 and F-2 simplifies the installation of these components. It also assures the correct rake angle of F-2 to accommodate the nose gear mount.

- 14. Glue two 1/8" x 1/4" X 2-1/4" pieces of basswood along the front and back of the servo openings on the servo mount. This will add some materials to hold the servo screws. Then glue in place between F-9 and F-10.
- 15. Wet the fuselage sides from F-7 forward and form and glue to Formers F-7 and F-8. Install and glue former F-5A.
- 16. Install and glue on FS1.



All formers installed, now the fuselage sides can be formed to the contour of the formers and gluing completed.

Building tip

In the next step and some of the following assembly, you will be laminating two layers of balsa that will later be shaped with a plane and sandpaper. When gluing on the second layer of material use aliphatic resin glue such as Titebond or Elmer's carpenters glue. This will make the shaping and sanding task much easier as this adhesive sands easily. The use of CA will make this task much harder.

- 17. Assemble the two pieces of CR-1. Sand the fuselage top from F-6 forward flat until flush with F-5A then glue on CR-1. Next Glue CR-2 on top of CR-1.
- 18. Install and glue the aft top deck, forming it to contour with F-11 and F-12.



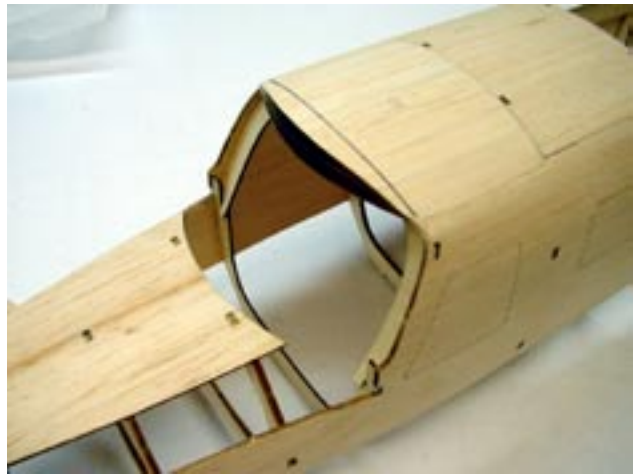
After all formers are glued, the top fore deck and cabin top are installed. The fuselage sides will now be planed flush with the top of F-5A in preparation for the installation of FCR-A and FCR-B.

- 19. Test fit F-10-A; bevel the top to contour with the Aft Top Deck. When correct, the top of the Aft Top Deck should be straight between F-10-A and F-12.
- 20. Use clothes pins or other clamping devices in this step. Carefully align the wing saddle doublers with the wing saddle cut on the fuselage sides. Clamp into position and the glue with thin CA.
- 21. Install two #8-32 blind nuts into the wing mounting plate (WMP) and install into F-10 and against the wing saddle doublers. Add some small pieces of triangle stock between WMP and the fuselage sides on top and bottom.
- 22. Draw an arched line starting 3/8" back from the leading edge of CR2 and terminating at the corner of the windshield opening. This will be the bevel angle at the cabin top. Start by planing and sanding this angle and then round off the top section to get the streamlined silhouette shown on the plans.



After installing FCR-A and FCR-B, shaping of the forward cabin section can now begin.

- 23. Install the fuselage bottom. Start by wetting the outside the entire length of the sheet, Then begin by gluing to F-6 and F-7, then proceed for and aft.
- 24. Bevel the top fuselage sides and the aft fuselage top in preparation for installing the top aft fuselage corner pieces. They should be beveled until flush with the formers. Then glue on the 1/4" balsa aft corner pieces with aliphatic resin glue. It's best to glue on one corner at a time and use several wraps of masking tape to hold it in position until the glue sets.
- 25. Bevel the forward top fuselage as you did the aft section and then glue on FTC-A. When cured, coat the outside of FTC-A with glue and glue on FTC-B. These are laminated in two 1/8" thick pieces to facilitate bending.
- 26. When cured, plane and sand the top fuselage to contour.
- 27. Prepare the bottom fuselage corners again by planeing and sanding them flat to accept the corner sheeting. Wet the outside of FCB-A and use long strips of masking tape to secure it to the fuselage. Apply aliphatic resin glue along all interfacing surfaces.
- 28. After curing, install FCB-B in the same manner. Then plane and sand to contour.



After installing the cabin roof sections a guide line has been drawn and the forward section is tapered from that point to the cabin opening.



- ### FINAL ASSEMBLY
- 1. Open up the top sheeting where the wing bolts go just enough to install the wing bolts and secure the wing to the fuselage.
 - 2. Assemble the wing bolthole liners, the one with the smaller hole will go on the bottom and the wing bolt will seat on that one.
 - 3. Mark the top sheeting using the bolthole liner and slowly open the top sheeting until the bolthole liner will fit in it and seat on the top of the wing.
 - 4. Glue in the liner and then remove the excess flush with the top sheeting, repeat this process for the remaining liner.
 - 5. After both liners are installed and sanded flush, apply a liberal amount of thin CA to the liner to harden the bolt seat.
 - 6. Test fit the nacelles and adjust for a snug fit to the wing. The outer side of each nacelle should rest 1/4" in from the edge of the wing center section sheeting. Use a straight edge across both firewalls to assure there is zero offset on the motors. If not adjust the wing openings as required. When the position and angles are correct, glue each nacelle in place.





- 7. Open up the landing gear slot on the bottom of each nacelle. Assemble the battery plate (BP). Install the landing gear and then install the battery plate with four #2-3/8" sheet metal screws. Glue the forward battery plate mounts (BPM) to the wing leading edge.
- 8. Bolt the wing onto the fuselage. Test fit the stabilizer in the stabilizer saddle and make any adjustment required to the saddle. Use the wing as a sighting guide when installing the stab. A slow setting adhesive works best here to allow time to make adjustments.
- 9. When the stabilizer glue has cured, install the vertical fin. Use a ruler to assure the tip is equidistant from each stabilizer tip.
- 10. Install the fin fillets (FF) for and aft and sand to shape.
- 11. Install the nose gear assembly. Use a piece of tape to secure the #4-40 x 1" bolt and 3/32" wheel collar to a hex head driver and install this through the wing opening while the gear leg is inserted through the nose gear opening in the bottom of the fuselage. Adjust the angle as required for your linkage.
- 12. Fabricate a split push rod assembly using the 1/8" ply linkage plate and install all the linkages.

SETUP

The Aero Commander Shrike airframe should weigh in around 28 ounces with no covering or electronics in it so you can calculate your all up weight and wing loading with what ever components and finish you decide to use. The model is quite quick so if your thumbs are not up to snuff, have one of the local hotshot pilots do the first flight. Once trimmed, any intermediate pilot should be able to enjoy this fine aircraft.

Use the following throws for initial test flights and then adjust for your own comfort.

Ailerons 1/2" up and down measured at the root end.

Elevators 3/8" to 1/2" up and down measured at the root end.

Rudder 1-1/4" right and left measured at the root end.

With the model sitting on the wheels, check all incidences. They should all be 0°; some adjustment can be made with the nose gear. With the propellers installed, check for any thrust offset. They too should all be 0°.

IMPORTANT

Because much of the weight in your Commander is carried in the wing, it is easy to have an imbalance problem. Be sure to do a lateral balance of the model before test flying by suspending the model by the nose and tail.

AERO COMMANDER KIT CONTENTS

LASER CUT MATERIALS

Sheet #	Material	Size
1	AC PLY	1/16 X 6 X 24
2	BALSA	1/16 X 6 X 36
3	BALSA	1/16 X 6 X 36
4	BALSA	1/16 X 6 X 36
5	BALSA	1/16 X 6 X 36
6	BALSA	1/16 X 4 X 36
7	BALSA	1/16 X 4 X 36
8	BALSA	1/16 X 4 X 36
9	AC PLY	1/32 X 3 X 32
10	AC PLY	1/32 X 3 X 11
11	BALSA	1/32 X 4 X 36
12	BALSA	1/32 X 4 X 36
13	BALSA	1/32 X 4 X 36
14	BALSA	1/4 X 4 X 36
15	BALSA	1/4 X 4 X 36
16	BALSA	1/4 X 4 X 4
17	LPLY	1/4 X 4 X 2
18	AC PLY	1/64 X 4 X 11
19	AC PLY	1/8 X 6 X 14
20	BALSA	1/8 X 3 X 36
21	BALSA	1/8 X 3 X 36
22	BALSA	1/8 X 3 X 36
23	BALSA	1/8 X 3 X 36
24	BALSA	3/16 X 3 X 36
25	BALSA	3/32 X 4 X 36
26	BALSA	3/32 X 3 X 36
27	BALSA	3/32 X 6 X 36
28	BALSA	3/32 X 6 X 36
29	BALSA	3/32 X 6 X 36
30	BALSA	3/32 X 6 X 36
31	BALSA	3/32 X 6 X 36
32	BALSA	3/32 X 4 X 36
33	BALSA	3/32 X 3 X 36
34	BALSA	3/32 X 3 X 36
35	AC PLY	3/32 x 4 x 2
36	BALSA	3/32 x 4 x 2

ADDITIONAL ITEMS & HARDWARE

QTY.	ITEM
1	3/32" WHEEL COLLER
2	1/8" LANDING GEAR MOUNTS
1	1" X 1/8" BRASS TUBE
4	#2-56 BLIND NUTS
2	MAIN GEAR FORMED WIRE
1	NOSE GEAR FORMED WIRE
2	#8-32 BLIND NUTS
2	#8-32 X 2" NYLON BOLTS
1	1.5" X 1/8" CF ROD
5	SMALL CONTROLE HORNS
8	#2X1/4" WOOD SCREWS
4	#1X3/8" S.M. SCREWS
1	#4-40 X 1" S.H. BOLT
8	#2X1/2" S.M. SCREWS
1	NYLON AILERON LINK
8	#4-40 BLIND NUTS
1	1/8" X 1/4" X 5" BASSWOOD
1	LASER CUT WINDSHIELD
1	SET FORMED WINDOWS
2	#4 WASHERS
1	ROLLED PLANS
1	ASSEMBLY MANUAL
2	1/4" TRIANGLE STOCK
2	3/8" TRIANGLE STOCK
1	1/16 X 3/16 X 36 BALSA
1	1/16 X 1/16 X 18 BALSA
1	1/8 X 1/4 X 18 BALSA
1	1/8 X 1/4 X 6 SPRUCE
1	1-7/8 X 1-1/2 BALSA BLOCK

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