

Giles 202

WARNING! THIS IS NOT A TOY!

THIS IS NOT A BEGINNERS AIRPLANE

This R/C kit and the model you will build from it is not a toy! It is capable of serious bodily harm and property damage. It is your responsibility, and yours alone - to build this kit correctly, properly install all R/C. components and flying gear (engine, tank, radio, pushrods, etc. and to test the model and fly it only with experienced, competent help, using common sense and in accordance with all safety standards as set forth in the Academy of Model Aeronautics Safety Code. It is suggested that you join the AMA and become properly insured before attempting to fly this model. If you are just starting R/C modeling, consult your local hobby dealer or write to the Academy of Model Aeronautics to find an experienced instructor in your area.

Write to : Academy of Model Aeronautics, 5151 Memorial Dr, Muncie, IN 47302

LIMITED WARRANTY

Lanier R/C is proud of the care and attention that goes into the manufacture of parts for its model kits. The company warrants that for a period of 30 days, it will replace, at the buyers request, any parts or material shown to the company's satisfaction to have been defective in workmanship or material at the time of purchase.

No other warranty of any kind, expressed or implied, is made with respect to the merchandise sold by the company. The buyer acknowledges and understands that he is purchasing only a component kit from which the buyer will himself construct a finished flying model airplane. The company is neither the manufacturer of such a flying model airplane, nor a seller of it. The buyer hereby assumes the risk and all liability for personal or property damage or injury arising out of the buyers use of the components or the finished flying model airplane, whenever any such damage or injury shall occur.

Any action brought forth against the company, based on the breach of the contract of sale to the buyer, or on any alleged warranty thereunder, must be brought within one year of the date of such sale, or there after be barred. This one year limitation is imposed by agreement of the parties as permitted by the laws of the state of Georgia

GILES 202

BUILDING INSTRUCTIONS

FUSELAGE CONSTRUCTION

1. Locate the fuselage top, sides and doublers, **FT1**, **FS1** and **FD1**. These parts are CNC router cut and need to be cleaned up before beginning construction. Start with fuselage top, **FT1**. Using a razor saw, cut one side of the joint holding the piece in one of the lightening holes. Now break off the part and saw off the remaining stub to clean it up. **Do not break out the pieces by twisting them.** It may cause undesirable splitting and breakage. Once all the lightening hole centers are removed, square up the radii's in the notches left by the router along the sides and both ends with a flat file. Don't worry about the bulkhead tab slots. We have allowed extra space here. Handle it carefully, it is somewhat fragile. Lightly sand all over to finish cleaning it up. Now clean up the sides and doublers as described above.
2. Locate sheet 1, 2, and 3 of the laser cut ply parts. Remove the entire laser cut part by cutting through the micro joints that retain it in the sheet. We recommend cutting rather than breaking the joint to minimize the possible breaking and splitting. **Lightly sand the edges that are mated and glued to eliminate the loose charred wood particles for better adhesion.** It is not necessary to sand down to the clean wood.
3. **Photo #1:** Determine the outside required for each side, **FS1**, and place on a flat work surface. **Remember that you will need a LH and RH side.** Locate the doubler, **FD1**, and align on the side using the fiber tube in the wing spar hole. Check the alignment and fit. Now mix up some 30-min. epoxy and thin slightly with 91% isopropyl alcohol for easier application. Brush the epoxy on one side of the doubler, align using the fiber tubing, and weight down until cured. Now do the other side.
4. Locate the 4 – 1/4" x 1/4" x 30" spruce sticks. Glue one from the back edge of **FD1**, doubler, to the end of the side, flush with the bottom edge of the side. Glue another from the back edge of **FD1** to the front end of the side, flush with the bottom edge. It will be necessary to make a saw cut to make a sharp corner at **F4** bulkhead. Locate the eight (8) **FD3's** and glue them in at the forward and aft edge of each servo cutout on the **inside** of both fuselage sides. Use white glue or thin CA glue.
5. **Photo #2:** Place the fuselage top, **FT1**, on a flat surface and install bulkheads **F5**, **F7**, **F8**, **F9**, **F10**, **F11**, into their respective slots with the identification no. facing forward. Center each bulkhead with the top sides and glue each one at the tab on each side. This will allow the side of the bulkhead to flex slightly in case of warpage so it can be positioned into the slot on the side. Be sure the bulkhead is firmly against the fuselage top. You will re-glue all of them later on. **Do not glue in F12 until the sides are installed.** **F4** and **F6** will be installed after one side is assembled to **FT1**.

- 6 **Photo#3, and #4:** Locate the two **EM1's**. These are laser cut parts from 1/4" lite-ply. Also locate the 1/4" lite-ply **F1** and **F3** laser cut bulkheads. Slip these pieces together in an egg crate fashion and position them in their respective slots. **Do not glue in place yet.**
7. Place the fuselage on the workbench with the top piece resting on a flat surface and the tail from **F10** extended out over the edge. Careful, it is fragile at this stage. Place weights inside to keep it from shifting. Trial fit one of the sides aligning the slots and tabs. Note: the bulkhead tabs enter the sides at an angle so it will be necessary to sand the slots at a slight angle for easier insertion. Bond some 80 grit sand paper on to both sides of a piece of hard 1/16" balsa or ply wood, 1-1/4" wide, to use as a file. Trial fit each side until you are satisfied of a good fit. It will take some filling here and there because of the close fits.
8. Using thick CA glue, start with one side at **F7** and tack the bulkheads and rails together in various locations. Do this at each bulkhead until the side is firmly located in place. Locate **F4** and **F6** place them in their respective locations. **Do not glue the opposite side on without F4 and F6 positioned or you will never get them in place.** Now do the other side. Locate **F12** bulkhead and glue in place. Place the fiber tube in the wing spar hole to align the two **EM1's** with the side. You have to relieve the spar hole some because of the angle of entry. Do this sparingly with a Dremel drum sander. A quick trip around it is all you need. When satisfied, glue the fiber tube in place and trim the ends almost flush. They can be sanded flush with the sides later on. Now tack glue the rest of the bulkheads in the front area.
9. **Photo #5:** Load a glue syringe with white glue and start gluing. Lay a bead around each bulkhead and along the side rail. Run your finger over it to fillet and smooth the glue bead. Do the entire fuselage leaving the weighs in place until the glue is cured. This is the most time consuming job on the fuselage. Glue every joint.
10. **Photo #6:** Find nine 1/4" sq. x 48" sticks. Install the center stringer on the bottom first, beginning at F11. Typically do not glue the stringer to **F3** until the rest of the joints are cured. Now bend it down and CA it in place. Install the rest of the stringers beginning at the back and giving them a slight twist at each bulkhead as you work forward.
11. Locate the 1/4"x 5-3/4" x 12-1/2" landing gear mount. Position it on the fuselage and trace the angle of the sides. The width should be ok. Trim off the sides and epoxy, holding it in place with weights or masking tape. Sand flush with sides and front.
12. Find **F1B**, **F2**, and lightly sand off the edges that mate with the landing gear mount. Glue them in place. **F1B** flush with the front surface centrally locating it with the sides. Make sure it is in the same plane as **F1** or the cowl will not fit properly. Use the landing gear as a spacer to locate **F2** leaving a slight amount of clearance.
13. **Photo #7:** Install the stringers between **F1B** and **F2**. Use a 1/4" sq. x 36" balsa stick. Sand them flush with both ends. Using a 3/32" x 3" x 24" balsa sheet, sheet the stringers between **F1B** and **F2**. Cut four pieces 4" long. Starting from the center, glue one piece with an edge on the centerline of the center stringer. The other side will fall on a stringer. Now glue one down on the other side. Edge glue a sheet to the

side in a vertical position. Let it cure well. Dampen it on both sides and form it around the curve. When satisfied it will bend, glue it down with CA glue, trimming off the end on a stringer. Now sheet the space left. Do the other side to complete the sheeting.

14. **Photo #8:** Locate the 1" x 3"x 4" balsa block. Square up one end and fit it between **F11** and **F12**. Trace the fuselage side configuration on each side, remove and trim off unwanted stock. Now glue the block in place using white glue. Locate **TW1** and glue on top using the centerline on it for alignment. When cured, shape the block and **TW1** to conform to the fuselage bulkheads. This now completes the bottom of the fuselage.
15. **Photo #9:** Find **F7A**, **BRACE**, **F7B**, **F8A**, **F9A**, **F10A**, **F11A**, **F12A**, and **FT2**. Also locate five, 1/4"sq. x 48" balsa sticks. Glue in **F7B** and the brace to hold it perpendicular. Glue **F7B** to the brace and top of fuselage. A line drawn across the fuselage will help position the base of **F7B**. Now glue in the next three bulkheads making sure they are perpendicular to the fuselage top. Glue in **F11A** and **F12A**. Before gluing on **FT2**, cut a short piece of 1/2" tri-stock and glue it at the base of **F11A** on the backside.
16. Install and glue in the top center stringer. Note that there are no notches in **F7A**. All the stringers come up against it, must be cut at an angle and butt glued. Cut another stringer from the same piece of wood. The left over length can be used at the front. The edge of **F7A** must be sanded to conform to the angle set forth by the stringers. Lightly sand all the stringers before sheeting.
17. **Photo #10:** Bend the fuselage sides in against **F10A** using thick CA. Spray the side with Kicker then apply glue and hold until cured. Thank god for CA, huh? Fill in the little space not sheeted on the end of the turtledeck with a small scrap piece on each side. Locate the two **FD2**, 1/8" balsa laser cut parts. Glue them on the inside of each fuselage side at the stab mount.
18. Sheeting the turtledeck. Using two 3/32" x 3" x 48" sheets, cut two pieces each from them at 20-1/2". Cut the left over piece down the middle giving you two pieces 1-1/2" x 7". Edge glue two 20-1/2" sheets together. Now edge glue the small piece 1-1/4" from one end. Do both sheets. Block sand them for smoothness and keep that side out. Edge glue one sheet to the fuselage side in the vertical position with thick CA, using the method stated in Step 13. The end should be against the fuselage side. The small gap, near the stab mount, will be filled after sheeting is complete. Apply thick CA to the stringers and bulkheads, form the sheet around and hold until cured. Use minimum glue on the edge of the top stringer so the sheet can be easily trimmed off. Now do the other side being careful to trim the sheet for a good fit along the top edge.
19. **Photo #11:** Before installing the stringers and sheeting over the top front section, after installing **F1A** and **F3A**, locate the 1/2" tri-stock. Cut pieces to reinforce **F1** where it meets the landing gear mount (**LG1**), three places across the front. Also glue two pieces along the inside surfaces of both **EM1's** where they meet the landing gear mount. Cut two pieces 8-1/2" long and glue them at the top of **F5**, on both sides, where it meets the top. Use epoxy to glue them in place. This will reinforce the top cross piece where you will invariably pick up the fuselage while building.

20. Now sheet the upper front section with 3/32" sheet using the method stated in step 13. Sand both ends flush with the bulkheads. Now fill all the little holes, dents and cracks with Goldberg Model Magic or your favorite filler.
21. **Photo #12 and #13:** (shown with canopy base installed and tail block not shaped) this completes the fuselage construction for now. You will need it to build the Canopy section.

CANOPY CONSTRUCTION

The canopy base is built up right on the fuselage. Before starting to build, hold bulkheads **C1**, and **C2** in their respective places and check the offset with the adjacent surface. It should be .040 - .050 to allow for the canopy thickness. If not, sand them or the sheeting on the fuselage to conform. Use thick CA or white glue for the following construction.

1. **Photo #14:** Cut a strip of wax paper approx. 1-1/2" wide. Lay a piece at the joint where **F3A** meets the fuselage top and another piece at the joint of **F7A**. Now position and tape **C1** to **F3A** likewise tape **C2** to **F7A**. Locate a spruce 1/4" sq. stick, cut, and glue in the two rails joining **C1** to **C2**. Offset them in from the fuselage side .040 - .050 to allow for the canopy thickness. Cut, fit and glue in the cross brace over **F4** between the rails. Glue in a 4" piece of 1/4" sq. at the base of **C1** centering it, to support the sheeting
2. Locate the **C3** and **C4** corner gussets and lightly sand the edges. Now glue them in place. Use a scrap piece of 1/8" balsa under the gusset to shim it up flush with the rail when gluing. Find the **C5** and **C6** canopy parts. You should have four of each. Glue **C6** into the notch on **C5**. Place on a flat surface to align so that the end of **C5** will be flush with the bottom surface of **C6**. Make up four assemblies.
3. **Photo #15:** Glue in the four canopy hold-down assemblies. Position them at the forward end of the slot in the fuselage top with a little clearance from the end. They should also be flush with the top edge of the rail. Use wax paper under them to keep them from being glued to the fuselage top.
4. Before sheeting the top surface, and while the hold-downs are exposed, draw a line from the center of each **C6** down the fuselage side. Mark a center 3/8" down from the fuselage top and drill a #28 hole through the side and hold-down. Re-drill the holes in **C6** and install a #6 blind nut in each. Install with flange facing the fuselage side. The flange will act as a shim to allow for the offset required on the canopy base rails. Now do the other three places. Locate the two **C7's** and glue them in the holes in **F3A**. You have to go through the hole in the front to do this. Use glue sparingly, re-glue when canopy base is removed.
5. **Photo #16:** Using two sheets of 3/32" x 3" x 36" balsa, sheet the top of the canopy base. Start at the center of the cross brace and work both ways. Fill in the small space left near **F3A** with a scrap left from sheeting the turtledeck. When glue has cured, remove the base from the fuselage and sand the sheeting flush with the rails.

6. **Photo #17:** Remove the base from the fuselage and turn over. Glue in the 1/4" spruce diagonal bracing as shown on the plans.
7. Fitting the canopy to the base can be a frustrating and taxing job. It's simply a matter of fit and try until you are satisfied. Cut both ends out of the canopy to make it flexible. Mount the base on the fuselage making sure it is down flush to the fuselage surface. Tape **C1** and **C2** against their adjacent surfaces. Now lay the canopy over the base and temporarily tape it in place. Mark, at the base of the fuselage parting line all the way around. Remove the canopy and trim to the lines you marked. Now trial fit again and trim until you are satisfied with the fit. Remove and lay the canopy aside. Now finish the inside of the base to suit your needs. Paint, install a pilot and instrument panel and etc. When final gluing the canopy in place we recommend Zap Formula 560 Canopy Glue. Use wax paper to keep it from sticking to the fuselage and use masking tape to hold it in place until cured. **Note: Glue the canopy to the base with it mounted on the fuselage for best results.**

COWL CONSTRUCTION

1. Before assembling the upper and lower half of the cowl, it is necessary to assemble the mounting blocks to the cowl ring and bulkhead **F1**. Locate the cowl ring, eight **CW1's** and eight **CW2's**. Laminate one **CW1** with another, giving you four **CW1's**. Do the same with the **CW2's**. Use thick CA glue.
2. **Photo #18:** Epoxy the **CW2** assemblies into the square holes in **F1** to the engraved line on the part. Hopefully you didn't cover it up. Use a square to make them perpendicular to the surface. Don't be too sloppy with the epoxy on the surface facing the cowl. Use the cowl ring to hold them in alignment however remove it before the epoxy gets too hard. You don't want to glue it fast.
3. Slip the cowl ring over the **CW2** mounting blocks and check the offset distance between the fuselage periphery and the ring. It should be .040 to .050. If smaller, some can be sanded off the sheet balsa, top and bottom, and the sides to match the cowl. If too large sand some of the cowl ring.
4. **Photo #19 and #20:** Tape the ring to the front surface and install the **CW1** blocks flush against the **CW2** block. Use epoxy and take care not to glue them together. When cured, remove the ring and sand a slight bevel along the bottom edge to accept the slope of the cowl. Again, remove the cowl ring before the epoxy fully cures.
5. **Photo #21, #22, and #23:** Locate the upper and lower half of the cowl and trim off the back edge, the sides, and the front to the scribe line. The line may be hard to see so enhance it some with a ball point pen. Pin or weight down the cowl ring on a flat surface with wax paper under it. Using thick CA, glue the lower half of the cowl to the edge of the cowl ring. Note the centerline on the inside of the cowl. Align this with the engraved centerline on the cowl ring. Glue it there first, then work outward both ways. Locate the two strips of plastic and CA them on the top sides of the bottom cowl, inside, allowing 1/2" to extend above the side. Use thin CA. This will reinforce the joint where the top and bottom cowl meet. Now mount the top cowl part and tape

it to the lower half. Tape the front edges together and CA the joint to tack it together all the way around.

6. Use Bondo to fill in the joint and fair it in with the surrounding surfaces. Sand off the excess Bondo. Next, fiberglass the inside of the cowl with 2 oz cloth. Cut pieces of cloth to fit, lay them on the surface and use Ace Multi-Purpose Cement 43691 to stick it to the plastic. Use it sparingly, just enough to do the job. **Do not flood it on.**
7. Next, remove the material from the air vents using a Dremel Motor with a drum sander.
8. Now, back to the fuselage. Mark the center location of the center of the cowl blocks on the fuselage, four places. Slide the cowl assembly in place over the mounting blocks and against the front surface. Tape in place. Now extend the marks on the fuselage on the cowl. Mark a centerline $\frac{3}{4}$ " from the parting line. Drill a #28 hole through the cowl and cowl blocks, four places. Remove the cowl and enlarge the holes in the blocks on the fuselage with an 11/64" drill bit. Install a #6 "all thread" insert in each hole and thin CA them. Now enlarge the holes, in the cowl only, to 5/16", enough to clear the head of a #6 socket head bolt.
9. This completes the cowl except for clearance hole for the muffler pipes and any other required access holes.

FIN and RUDDER CONSTRUCTION

Building overview: Inspect and sand the foam core if necessary. Notch the foam core to dimensions shown on the plans. Cut and edge glue the sheeting as shown in the diagram on the plans. Apply the sheeting to the foam. Cut and cap the leading and trailing edges after trimming them. Final sand the parts to shape.

1. **Photo #24:** Locate and layout the notch to the dimensions shown in the diagram on the plans. Do not remove the tape until you cut it out. Now carefully remove the tape and inspect the core. It may have some slight ridges on the surface. If so, sand them lightly with 220-grit paper to smooth them. Do not over do it.
2. Lay the core aside and locate four 1/16" x 3" x 48" balsa sheets. From two sheets cut four 19" lengths and two 7" lengths. From the other two sheets cut two 14", 11-1/2", 10", and 5" pieces. Each of the four pieces can be cut from one sheet.
3. **Photo #25:** Noting the layout diagram on the plans, edge glue these pieces together to conform. (See edge gluing and bonding the skins) Once the skins are prepared, lay the foam packing on them and trace the outline allowing 3/16" extra on the leading edge and tip. The notch, bottom, and trailing edge can be flush. Cut off the excess balsa and block sand the skins on one side. When through, lightly mark the sanded side. It is much easier to sand at this time than after the skin is bonded to the core.
4. After the skins have been bonded in place, sand the leading edge and tip overlap flush with the foam. Locate the 3/8" x 1" x 15" leading edge and glue in place with

white glue. Use masking tape to hold in place. Sand the leading edge flush with the tip and glue on **RU1**. When cured, sand leading edge and tip to conform. At this point you are ready to saw the fin and rudder apart.

5. **Photo #26:** Layout the hinge line using the dimensions shown, on the sheeted core and tape it in the packing to hold it level while sawing. Use a band saw if at all possible. Once sawn, do not remove the parts from the packing. Now remove 1/8" from the tip of the fin and 1/2" from the trailing edge. Remove 3/4" from the leading edge of the rudder and 1/8" inside edge of the offset. Sand these surfaces lightly. Now glue on **VF1** and sand flush all around.
6. **Photo #27:** Locate the 3/8" x 1-3/4" x 10" fin trailing edge and glue in place. Sand flush with sides, top, and bottom. Find the 1/8" laser cut tail post, align and glue in place on the fin with the centerline facing out.
7. **Photo #28:** With the rudder still in the packing, mark a line from the bottom corner of the hinge line aft at 2-1/2 degrees to conform to the bottom of the fuselage. Now offset this line 1" toward the tip and saw off the lower portion. Locate the 1" x 2" x 10" block and glue on to bottom edge of rudder. Sand flush with leading edge of rudder. Find **RU2** laser cut 1/8" balsa part and glue to inside edge of offset. Sand flush all around. Tip: lay the bottom of the rudder on the block and scribe around it. Remove excess stock before gluing it in place. Easier to shape later on. Do not round off the block until the leading edge is glued in place.
8. **Photo #29:** Locate the 1/2" x 2" x 16" leading edge and cut to length. **Tack glue** in place for sanding flush with rudder surface. Once sanded, scribe a hinge line down the center. Note: we recommend using Robart Hinge Points and drill the holes for them before shaping the rudder leading edge while the surface is flat. Once the holes are drilled, the leading edge is removed, easily shaped and glued on permanently. You'll find this method easier, enabling you to layout both ends of the chamfer on the leading edge.
9. Locate the control horn dowel support position from the plans. Once located, place the rudder in its packing and drill the 1/2" hole with a Forstner drill bit using a drill press. Cut off a piece of the 1/2" dowel to proper length. Drill a #29 hole down through the center and tap with an 8-32 thread. Harden with thin CA and tap again. Shape the dowel to fit flush with the surfaces and epoxy in place. This completes the fin and rudder. Final sand them and lay aside.

HORIZONTAL STAB and ELEVATOR CONSTRUCTION

Building overview: Inspect and sand the foam core if necessary. Slot the foam core to dimensions shown on the plans. Cut and edge glue the sheeting as shown in the diagram on the plans. Apply the sheeting to the foam. Cut and cap the leading and trailing edges after trimming them. Final sand the parts to shape.

1. **Photo #30 and #31:** Carefully unpack the foam cores and inspect them saving the packing. Remove any ridges and irregularities by lightly sanding with 220 grit paper. Do not over do it. Tape each of the cores in one side of its packing and tape them in place. Layout the slot in each one to the dimensions shown on the plans. Now carefully saw the slots in each core. Locate **SJ1** spar and trial fit it in each slot to be sure of the fit.
2. Remove and set the cores aside. Locate seven 1/16" x 3" x 36" balsa sheets. Cut six sheets in two giving you twelve pieces. Now cut the remaining sheet into four 9" lengths. Edge glue four skins as shown in the diagram on the plans. (See edge gluing and bonding the skins) Once the skins are prepared lay the foam packing on them and trace the outline on them allowing 3/16" at the leading edge and tip. Trim off the excess balsa and block sand the skins on one side. When through, lightly mark the sanded side. Now bond the skins on to the foam cores on both sides.
3. After the skins have been bonded in place, sand the leading edge and tip overlap flush with the core. Locate the 3/8" x 3/4" x 36" leading edge and cut into two 18" pieces. Glue these to the leading edge of each stab piece. Plane and sand to shape as shown on the plans. Locate the two **E1** laser cut 1/8" balsa tips and glue in place. Use masking tape to hold them in place. When cured sand them flush with the surfaces.
4. **Photo #32:** Sand the sheeting flush with foam core on the root end on each stab. Be careful not to impart an angle when sanding. Place the stabs into a packing and tape in place. Layout the hinge line from the plans and saw the elevator from the stab. With both pieces still in the packing remove 3/8" from the stab trailing edge and 1/8" from the tip. Remove 1/2" from the elevator leading edge and 1/8" from the tip inset surface. Lightly sand all the sawn surfaces.
5. Now the stab halves are going to be joined together. First the stab must be joined at the center. Place the two stab halves in their packing. The packing may not be the same thickness so it will be necessary to shim one or the other to attain equal height. Insert **SJ1** into one stab slot and trial fit the other checking the fit at the center joint. When satisfied, glue the halves together with 30-min. epoxy and allow to cure. Now locate the 3/8" x 1-1/4" x 36" trailing edge and glue in place. Use masking tape to retain it. This is glued on full length to act as an additional spar to help reinforce the center joint. **Do not install in two pieces.** When cured, sand it flush with the surface on both sides. Sand the tip flush with foam and glue **ST1** laser cut 1/8" balsa part on both tips. Sand flush all around.
6. **Photo #33:** Layout a 1/8" wide slot, centrally located over the center line on the stab joint. Place the stab in one of its packing and band saw the slot. Do not cut through the **SJ1** stab joiner but, just to it. Now locate **SJ2** and epoxy it in the slot flush with the top surface. **SJ2** serves two purposes. It locates the stab when placing it on the fuselage and, helps retain the stab with more gluing surface. Neat, huh?
7. **Photo #34:** Locate **E2** laser cut 1/8" balsa part and glue on to insert inside surface of the elevator. Sand flush all around. Find the 1/2" x 1-1/8" x 36" elevator leading edge and cut in two. Tack glue in place and sand flush with top, bottom, and end surface. Once sanded, scribe a hinge line down the center. Note: we recommend using Robart Hinge Points and drill the holes for them before shaping the elevator leading

edge while the surface is flat. Once the holes are located and drilled, the leading edge is removed, easily shaped and glued on permanently. You'll find this method easier, enabling you to layout both ends of the chamfer, and saw it, before gluing it back on the leading edge.

8. Trim off the inboard end of the elevator to the dimensions shown on the plans. Locate **E3** and **E4** and glue them on with white glue. Use masking tape to hold them in place. When cured, sand them flush with the surfaces. Do both elevators.
9. Locate the control horn dowel support position from the plans. Once located, place the elevator in its packing and drill the 1/2" hole with a Forstner drill bit using a drill press. Cut off a piece of the 1/2" dowel to proper length. Drill a #29 hole down through the center and tap with a 8-32 thread. Harden with thin CA and tap again. Shape the dowel to fit flush with the surfaces and epoxy in place.

LOCATING AND DRILLING HINGE HOLES

1. Before shaping any of the hinged leading edges, it is best to drill them while you are working with a flat surface. To ensure accurate alignment, make up a drill gauge for each of the hinged control surfaces. e.g., rudder, elevator and ailerons.
2. Using a piece of hardwood, 1/4" x 3/4" x appropriate length, locate and mark a centerline. Layout the hinge hole locations from the plans, on the centerline, and drill with a 3/16" drill. On one end make a stop index for positioning. Label each gauge for its use.
3. To use the gauge, first establish a centerline on the control or flying surface, align the index stop and holes with the centerline and securely tape in place. Now drill the holes.
4. Although you cannot drill many holes without wearing out the gauge, for the small number to be drilled, the gauge will be of great benefit. Its thickness will also help guide the drill straight. Control surfaces will actually be interchangeable with accurate alignment.
5. The above is just one way of locating the hinge holes. There are many available commercial tools that will also do the job. The above is only a suggestion.

WING CONSTRUCTION

1. Remove the foam wing cores from their shells and inspect them. Handle the cores carefully because of the fragile trailing edge. Do not throw away **the foam core shells** (packing). They will be needed later as the wing construction progresses.

There is a RH and LH core. The top surface is perpendicular to the end root. Mark the top surface of each panel.

2. Sand the surfaces of the cores lightly with 100-grit paper, if necessary, to remove any ridges and irregularities you might find. Do not over-sand.
3. **Photo #35 and 35A:** Locate and install the fiber tubes in each wing core. Spread a thin coat of epoxy or white glue around the periphery and length of the tube. Insert into the core with a twisting motion at the same time slip a **W2** over the inboard end of the tube. Insert the fiber tubing as far as it will go. Now apply epoxy, to the glue side of **W2**, and position it against the foam. Wipe off any glue around the exit point at the root end. It is important that this area be free from glue.
4. Locate eight 1/4" sq. x 42" spruce sticks. Install these in the spar slots provided for them with white glue or epoxy. Four are required in each panel. Keep them flush with the foam surface. Locate the four **W3** spar webbing. Epoxy in place on the forward edge of the spars, against the fiber tube, top and bottom. Place the wing core back in the foam packing and weight down while the glue on the spars is curing. Use wax paper to keep glue from foam.
5. **Photo #36:** While the spars are curing, locate eight sheets of 3/32" x 4" x 42" and four sheets of 3/32" x 3" x 36". Make up the four leading edge pieces in accordance with the diagram on the plans. Trim the leading edge sheeting to the proper configuration allowing 3/16" extra along the leading edge (See edge gluing and Bonding the Skins in place). The trailing edge sheet is a 4" wide piece. Both the leading and trailing edge sheeting edge are located 1/8" from the inside edge of the spars. In other words half the spar width. Note: The leading edge sheeting is not quite long enough when aligned at the wing root.
6. **Photo #37:** Locate four 3/32" x 3" x 36" sheets and sheet the area between the leading and trailing edge at the root end of the panel. Cut off three pieces, 11" long from each sheet. Start from the trailing edge, installing the sheets toward the leading edge. Fill in the small triangular area left with scrap sheet left over with trimmings from the leading edge sheeting. Sand the sheeting flush with the foam end being careful not to sand away the foam and disturb the angle. Trim off the fiber tube leaving 3/16" protruding beyond the foam.
7. Sand the excess leading edge sheeting flush with the foam core. Locate and install the 3/8" x 1-1/8" x 42" balsa leading edge with white glue and tape in place. Sand flush at tip and root.
8. **Photo #38:** Next, install the 3/32" x 3/8" rib cap strips. Starting from the wing tip they are spaced 3" apart. Keep them perpendicular with the aft spar. Before installing **W4**, draw a line the length of the wing panel on the wing surface along the back edge of the aft spar while you can see both ends of it. Locate **W4** wing tip cap and glue in place. When cured sand flush with all surfaces.
9. **Photo #39:** Now is a good time to cut out the ailerons. Measure in 35" from the tip on that line you just drew. Draw a line from the endpoint of the measurement perpendicular to the trailing edge. Next,

place the wing in a packing shell and tape in place. This will keep it level during the cutting operation. Use a band saw and carefully cut along the line and remove the aileron. Do both wings.

10. Locate **W5** and glue in place at end of wing aileron inset. Sand the aileron inset (wing trailing edge) smooth with a long sanding stick and cap with a 3/8" x 1-1/8" x 36" balsa stick. Sand flush with wing tip and root.
11. Leave the aileron in the packing shell, in its respective place, and tape down. Using a band saw cut a strip off the leading edge 7/8" wide and 1/4" off the inboard end of the aileron. Sand the leading edge surface smooth and install a 1/2" x 1" x 36" leading edge with white glue and tape in place. Sand the both ends flush and cap inboard end with **W6**. Use white glue and tape in place until dry.
12. **Photo #40:** Locate and drill the 1/2" hole for the dowel supporting the aileron control horn. Support the aileron with foam packing and use a Forstner bit for a clean hole. Cut off a piece of dowel to length and drill a #29 hole down through the center of it. Epoxy in place and sand flush with top and bottom surfaces. Locate and drill the hinge point holes. (See Locating and Drilling Hinge Holes) Plane and shape the leading edge with a 40 degree angle on both sides of a line drawn down the center. See plans for shape.
13. Plane and shape the wing leading edge as shown on the plans. Note the front is more round than pointed.
14. **Photo #41:** Locate and layout the servo well on the foam. It is located at the inside edge of the fourth cap and 1-1/4" down from the spar. The well size depends on the size of your servo. For the average size servo make it 7/8" x 1-21/32". Cut around the well as deep as you can with a sharp X-Acto knife using a straight edge. Now dig out, with a flat bladed screwdriver, the depth required to clear the servo.
15. Inset and epoxy in the 5/16" sq. pieces at each end of the well. To make it easier to inset the rails, cut a piece out of the capping and re-glue it in afterwards. Check to see that the servo fits properly before the epoxy cures. Trim the servo well with 3/32-x3/8" balsa.
16. Locate the **W1** wing root ribs from the laser cut parts. Note that these ribs are slightly oversize to allow for building and sanding tolerances and to give you some material to sand off. Place **W1** over the fiber tube against the foam. Sand off the tube flush with the surface of **W1**. Install the aluminum wing spar in the fuselage. With **W1** still in place, slide the wing into spar and against the fuselage side. With **W1** against the fuselage, check the fit between it and the wing. Note where it fits snug and where there are gaps. Back the wing off slightly and pin **W1** to the fuselage side in approx. location. Apply epoxy to the places where it fit snug. Slide the wing up against **W1** and pin, tape, or prop in place. Now fill in all the gaps with 30-min epoxy mixed with micro-balloons to thicken it. Admittedly this seems like a lot of words to explain this but, you end up custom fitting the wing to the fuselage side. It is well worth following this procedure.
17. A 1/2" hole from the wing root to the servo well is required for the servo lead. Sharpen a long piece of 1/8" music wire. Push the wire down through the center of the 1/2" hole in **W1**. Work the wire up and down until you reach the servo well. You now have a lead hole. Enlarge it with long pieces of brass tubing or make up your own drill on the end of the 1/8" music wire with short pieces of brass tubing.
18. Next, install the 3/8" dia. x 4" dowel alignment pins. It will be necessary to drill holes into the foam. Locate these from the respective holes in **W1** rib. **Drill these holes parallel to the aft trailing edge,**

not perpendicular the rib root surface. Each pin should protrude 3/4" from the surface. Use 30-min. epoxy.

19. Locate and drill the 1/2" holes to hold the dowel hard points for retaining the wing to the spar. They are locate 5" out from the wing root on the center line of the spar. Drilling information is given on the plans. Do not drill and tap until wing is slid onto the spar in its proper place.
20. **Photo #43:** This completes the wing construction to this point. Sand the parts and set them aside for covering and final assembly. (**Photo #42** shows servo/pushrod installation.)

LANDING GEAR

Layout the holes, to mount the landing gear, using the dimensions shown on the plans. The two holes requiring bolts to retain the wheel pants will also have to be drilled. Locate these on the centerline of the axle hole, 3/4" up the leg using a #28 drill. The axle holes have been drilled undersized and must be drilled out to fit the axle specified.

1. Locate the 1" x 2" x 12" balsa block and shape it to fit over the landing gear in the slot. Once shaped, drill two 1/4" holes, as shown on the plans, to accept the retaining bolts. Mount the landing gear, center it, and match drill the mounting holes into the plywood base. Install four 1/4-20 blind nuts on the far side.
2. Install the landing gear with all of the retaining bolts. Place the filler block over the bolt heads and push down marking the head location on the block. Now route out enough balsa to provide clearance for the bolt heads so the block will rest down on the landing gear surface.
3. Place the block in position and match drill and tap, 1/4-20, through the landing gear and plywood base. Sand the filler block and set aside for covering.

WHEEL PANTS

1. **Photo #44:** Locate the wheel pants and pair them up. You will need to make up a LH and RH. Lightly sand the edges with a flat sanding block so the halves will mate better. Tape the halves together aligning the edges and apply thin CA along the seams where possible. Remove the tape and finish gluing.
2. Cut out the opening in the bottom of the pant, to allow clearance for the wheel. Use a Dremel Motor with a drum sander.
3. Cut a strip of 2 oz glass cloth approx. 1" wide and place on the seam inside the pant. Here again, as you did when glassing the cowl, use the Ace Hardware General Cement. Lay the strip of cloth and paint it in place with the dauber. You will find it most effective. Do both wheel pant.
4. Locate the two **WP1's** and round off the bottom edge to fit in the pant. Find the center of the wheel opening and thick CA in place on the inside of the pant. Remember to make a **LH** and **RH**.
5. Now remove the plastic inside the hole in **WP1** on both wheel pant. Note the section of the wheel and pant on the plans as you proceed to the next step.

6. **Photo #45:** Locate the landing gear and install a wheel axle. Slide a wheel into the pant opening and slip the pant and wheel together on the axle. The hole in the pant should fit over the hex on the axle.
7. Locate the **WP2** part. Round off the surface of one side, which will fit up against the pant to help support it on the outer end of the axle. Now slip it on the axle.
8. **Photo #46:** Mount the landing gear on the fuselage and block up the tail to flying position. Position the wheel pant so that its level and match drill a 5/32" hole from the hole in the landing gear. Remove the wheel pant and install a 6-32 "All Thread" insert on the inside of the pant. Reassemble the pant and wheel on the axle and secure with a 6-32 soc. hd. bolt, metal and plastic washer. Orient **WP2** over the axle to fit against the pant and thick CA in place.
9. Now install the other wheel pant as described above. When installing the pants after painting, use wheel collars to space the wheel as shown on the plans.

GLUING ON THE STAB AND VERTICAL FIN

Gluing on the stab and fin is a relatively easy task. Additional glue tie downs have been added to locate and really hold it in place. The stab rests in a saddle, the trailing edge is tied into **11A** and in the front, **SJ2** falls into a slot centering the stab as well as holding it in place when glued.

1. **Photo #47:** Mix up some 30-min epoxy and thicken it slightly with some micro-balloons. Apply the mixture to all the gluing surfaces and mount the stab. Wipe off excess epoxy on the bottom side along the saddle. Hold in place with weights at the center.
2. The fin must be cut out and fitted to the configuration of the fuselage and stab. Make a cardboard template of the necessary configuration and transfer it to the fin base. Once fitted apply epoxy thickened with micro-balloons to the fin base and white glue to the tailpost, and mount to fuselage. Tape and pin in place until cured.
3. **Photo #48:** Locate the plastic fairing and trim it out to the scribe lines. This gets a little tricky as there isn't much left when you are through. Trim and trial fit until you are satisfied. Once fitted, glue in place with thick CA and fill in the gaps with Goldberg Balsa Magic. If you make a mistake and cut out too much plastic, thin CA in a scrap piece and have another go at it.

WING ASSEMBLY AND INCIDENCE SETTING

1. Now is the time to set the wing incidence. This is critical so take your time and do it right the first time. You want both wings to be at zero incidence with the stab. Set the fuselage up on a flat surface and block up the tail in flying position. Flying position means the stab should be at zero incidence. Use a Robart Wing Incidence Indicator with a to accomplish this.
2. With the fuselage firmly blocked up in place, slide the wing spar into the fuselage and slide a wing panel on it all the way in until the 3/8" dowels are in the 1/2" elongated holes in the fuselage side. Place the Incidence Indicator, using the Robart long beam on it and zero out the wing. If you can't zero it out because the 3/8" dowels hit the edge of the 1/2" holes, then enlarge them slightly until

you can. More than likely you did not centrally locate **W1** or install the dowels perpendicular to the wing trailing edge as we told you to do.

3. Locate two **W7's** and slide one on each dowel, on the inside of the fuselage, up against **FD1**. Because of the fuselage side angle it is best to run a 3/8" drill through each of the **W7** holes at a slight angle to make them slide on the dowel easier. Apply epoxy to the periphery of **W7**, slide it over the dowel and against the fuselage side. Be careful not to move the wing adjustment. Note: Gluing on the aft W7 only and allowing it to cure will mean less chance of disturbing the adjustment. The forward W7 can be glued on later under better conditions.
4. Slide the other wing panel in place and repeat the alignment procedure as described above.
1. Remove the wing panels and aluminum spar. Slide the wing on the spar and tape it in place to hold it there. Now drill and tap a 6-32 hole through the 1/2" dowel and spar, as shown on the plans. Install a 6-32 x 7/8" Soc. Hd. bolt to retain it.
2. Slide the wing and spar assembly against the fuselage and position the other wing panel against the fuselage. Now drill and tap the dowel and spar as stated above.
3. In the future when it comes time to remove the wings, it is not necessary to remove both. Leave the spar in one wing, if possible. This will make it easier to locate the remaining wing retainer screw.

ENGINE MOUNTING

We have shown a Zenoah G-62 on the plans. The G-62 will fly this airplane reasonably for the average sports flyer however, don't expect endless vertical. If the airplane is kept exceptionally light you will have no problems with average maneuvers. Keep the radio, batteries and fuel tank as far forward as possible. **Warning: you may have to relocate the servos out of the tail when using a lighter engine.** Cover the model with film keeping the finish to a minimum. If you want more performance, install a larger engine, which will give you much more vertical and plenty of maneuver pull-through power. We have flown the proto-types with the above engines and also recommend any power range in between a 3.7 to 5.0 cu/in.

1. **Photo #49:** Before cutting off the engine box measure the cowl length to the scribe line, and add a 1/8" for spinner back plate clearance. Measure the engine from the backside of the spinner to the crankcase-mounting surface. Subtract this from the overall cowl length and you have the distance required from the face of **F1** to the mounting surface of the crankcase. **Do not cut off the cowl to fit the engine, make the engine fit the cowl.**
2. It will be necessary to set the engine out on blocks so the muffler will clear the firewall. Subtract the thickness of the blocks to finalize the position of the firewall. If you decide to soft mount the engine, that distance will have to be taken in to consideration also. When satisfied, epoxy in the 1/2" firewall between the sides. Cut to length and epoxy **MB1** to the bottom side. Add the 1/2" tri-stock as shown to reinforce giving it more gluing surface. Now add the other MB1 on the topside. As added reinforcement we recommend you pin the sides to the firewall with short 3/16" dowels. Four or five on each side will do it.
3. Trim out the bottom of the cowl to facilitate the muffler exhaust pipes and other extruding parts where necessary.

FINISHING AND INSTALLATION NOTES

1. We leave the covering and finishing up to you and the material you have had experience with. In order to keep your Giles 202 as light as possible we recommend you cover it with a film covering. Keep the paint down to a minimum, also heavy decals. With extra power up front you can cover it with Super Coverite or Super Shrink and paint it making the model more durable. But, expect it to weigh more. Keeping the model light will give you added performance with lesser power.
2. Our prototype's were covered with Super Coverite and painted simply because we wanted a lasting finish. In the interest of keeping your Giles 202 as light as possible, you might consider covering it with one of the popular film coverings. We recommend using Fommla U. K&B Superpoxy, Hobbypoxy, Perfect Paint, Coverite 21st Century or MonoKote paint over the ABS plastic cowl, tail fillet, and wheel pants. Do not try to mix different paints and thinners together and by all means test a small piece first before using any other paint not listed.
3. Install the radio and batteries to suit CG conditions. Wrap them in foam and tie them down to keep them from wandering around. You have plenty of room to shift them forward or aft to help offset any balance problems. Locate the throttle servo where convenient to the carb. on the engine you are using. There is plenty of room in the fuselage. Locate the fuel tank over the CG so it will have no effect on trim.

EDGE GLUING AND BONDING THE SKINS

During the construction of this model you will be instructed to edge glue balsa sheets together and bond them to the foam cores. Balsa sheets are normally crowned with edges that are not straight. Very few are true. Before edge gluing them together, use a straight edge and cut off the minimum amount to true up the edges so they will fit tight against each other. Fit one sheet against the other and apply masking tape over the joint to hold it in several places. Lift the pieces and open in book form. Run a bead of white glue along the edge, lay the sheets on a flat surface, squeegee off the excess glue, and tape the joint several places. Place the skin on a flat surface with weights to keep it flat until cured. CA can be used for this purpose but is more expensive and will not sand as well.

Bonding the skins to the foam cores should be done with care. We recommend using epoxy for this purpose. Contact cement can be used, if that's your thing but we have encountered some delamination because of improper application. You will get better results and find it easier using epoxy.

Mix up some Pacer Z-poxy, 30 min. formula or HobbyPoxy II, 30 min. formula and thin it **slightly** with 91% Isopropyl alcohol for easier brushing application. Bush a thin coat of epoxy on the bottom skin and lay it in the core packing on a **flat surface**. Of course, glue side up. Now align the core on the skin with the packing. Coat the upper skin with epoxy and position it on the core. Align the top packing in place and apply weights evenly all around. We recommend using a heavy board to distribute the weight evenly over the whole surface. Fill one gallon Zip-Loc plastic bags with sand for weight. Double bag them for safety against leakage. They will come in handy for other purposes in your workshop.

PRE-FLIGHT NOTES

Before the first flight, and to ensure some longevity in your Giles 202, you will do well to check out a few things before heading to the flying field.

1. Balance the Giles 202 at the indicated CG point range shown on the plans with the fuel tank empty. Depending on your type of flying you may want to adjust it.
2. Check the control surface travels. We have given you a starting point however, they need to be fine tuned to meet your flying needs.
3. Run the engine and check the idle. Have it ready so you don't encounter any problems at the field.
 1. Turn on the radio with the engine running to make sure there are no intermittent glitches. Give it a good range check.
 2. Check all hardware to be sure it is secure. There is nothing worse than losing an airplane on the first flight because of a loose nut or clevis.

Hopefully by now you are ready. We know you will be thrilled with your first flight and that it was most successful. From now on - Happy Fly'in and tear up the sky!

Jerry Smith

GILES 202 MATERIAL LIST

FUSELAGE

* laser cut parts + router cut parts

| | |
|------------------------------------|--|
| + FT1 (1) (fuselage top | |
| * FT2 (1) (fuselage top, tail) | |
| + FSI (2) (fuselage side) | * F10 (1) (bulkhead) |
| + FD1 (2) (fuselage doubler) | * F10A (1) “ |
| * FD2 (2) (fuselage doubler, tail) | * F11 (1) |
| * FD3 (8) (servo mount reinforce) | * F11A (1) |
| * EM1 (2) (engine mount box) | * F12 (1) “ |
| * F1 (1) (bulkhead) | * F12A (1) “ |
| * F2 (1) “ | * TW1 (1) (tail wheel mount) |
| * F3 (1) “ | * Brace (1) (canopy C2) |
| * F4 (1) “ | * MB1 (2) (engine box cover) |
| * F5 (1) “ | 1/4" x 1/4" x 30" spruce (4) (fuselage lower rails) |
| * F6 (1) “ | 1/4" x 1/4" x 48" balsa (15) (top and bottom fuselage stringers) |
| * F7 (1) “ | 3/32" x 3" x 24" balsa sheet (2) (top and bottom front sheeting) |
| * F7A (1) “ | 3/32" x 3" x 48" balsa sheet (2) (fuselage turtledeck) |
| * F7B (1) “ | 1/4" x 5-3/4" x 12-1/2" plywood (1) (landing gear mount) |
| * F8 (1) “ | 1/2" x 4-31/32" x 4-31/32" plywood (1) (firewall) |
| * F8A (1) “ | 1" x 3" x 4" balsa block (1) (tailwheel mount) |
| * F9 (1) “ | 1" x 2" x 12" balsa block (1) (landing gear filler block) |
| * F9A (1) “ | 1/2" x 1/2" x 30" tri-stock (2) (fuselage bracing) |

WING

Foam cores in packing (2)

1-1/2" OD x 36" x .049 wall aluminum spar with fiber tube) (1)

1-1/2"ID x 12" fiber tube (1)

* W1 (2) (wing root rib

* W2 (2) (wing spar support)

* W3 (4) (spar web, upper and lower)

* W4 (2) (wing tip cap)

* W5 (2) (wing inset cap)

* W6 (2) (aileron end cap)

* W7 (4) (anti-rotation pin lock)

3/32" x 4" x 42" (8) sheet balsa (wing leading and trailing edge sheeting)

3/32" x 3" x 36" (8) sheet balsa (wing sheeting, leading edge, center section)

3/32" x 3/8" x 36" (8) balsa (rib capping)

3/8" x 1-1/8" x 42" (2) (wing leading edge)

3/8" x 1-1/8" x 36" (2) (wing trailing edge)

1/4" x 1/4" x 42" spruce (8) (wing spar)

1/2" x 1" x 36" balsa (2) (aileron leading edge)

1/2" dia x 10" dowel (1) (control horn support)

3/8" dia x 24" dowel (1) (wing anti-rotation pin)

5/16" x 5/16" x 12" spruce (1) (servo mount)

FIN / RUDDER

Foam core in packing (1)

3/8" x 1" x 15" balsa (1) (fin leading edge)

3/8" x 1-3/4" x 10" balsa (fin trailing edge)

3/4" x 2" x 16" balsa (1) (rudder leading edge)
1" x 2" x 12" balsa (1) (rudder bottom block)
1/16" x 3" x 48" balsa sheet (4) (fin and rudder sheeting)
* VF1 (1) (vertical fin tip)
* RU1 (1) (rudder tip cap)
* RU2 (1) (rudder inset cap)
Tailpost (1) (fin support)

STAB / ELEVATOR

Stab / elevator foam core (2)
3/8" x 3/4" x 36" balsa (1) (stab leading edge)
3/8" x 1-1/8" x 36" balsa (1) (stab trailing edge)
1/2" x 1-1/8" x 36" balsa (1) (elevator leading edge)
1/16" x 3" x 36" balsa (7) (stab and elevator sheeting)
* ST1 (2) (horizontal stab tip cap)
* SJ1 (1) (stab joiner)
* SJ2 (1) (stab hold down)
* E1 (2) (elevator tip cap)
* E2 (2) (elevator inset cap)
* E3 (2) (elevator inboard cap)
* E4 (2) (elevator inboard cap)

COWL

Cowl, upper and lower half
1" x 12" ABS plastic strip (2)
* Cowl ring (1)
* CW1 (8) (cowl retainer)
* CW2 (8) (cowl retainer)

CANOPY

Canopy, clear plastic
1/4"x 1/4" x 24" spruce (2) (side rails)
1/4" x 1/4" x 36" spruce (1) (cross bracing)
3/32" x 3" x 36" sheet balsa (2) (canopy base floor)
* C1 (1) (former)
* C2 (1) (former)
* C3 (2) (gusset)
* C4 (2) (gusset)
* C5 (4) (support)
* C6 (4) (support)

LANDING GEAR AND WHEEL PANT

Formed aluminum landing gear
Wheel pants – (2) LH and (2) RH
*WP1 (2) (pant reinforcement)
*WP2 (2) (axle pant support)

HARDWARE AND MATERIAL LIST FOR GILES 202

GENERAL

1. 4 or 6 channel radio
2. engine - suitable size (3.7 – 5.0 cu/in)
3. Muffler - Slimline (Pitts style to suit engine)
4. fuel tank – 24 - 32 oz Du-Bro
5. propeller - suitable size to fit engine
6. fuel line
7. 5" spinner - Tru-Turn
8. covering, paint and trim - your choice
9. 4" dia.- Du-Bro 4.0L Feather Lite wheels or Sullivan Skylight.

Note: Fiberglass cowl and wheel pants available from Lanier R/C.

FUSELAGE

1. 1/4-20 soc. hd. cap screw (4) (engine mount for G-62)
2. 1/4-20 soc. hd. cap screw (4) (landing gear retainer)
3. 1/4" lock washer (8) (engine mount and landing gear)
4. 1/4" flat washer (4) (engine mount)
5. #6-32 x 1" soc hd cap screw (6) (cowl mounting and wing retainer)
6. #6-32 x 5/8" soc hd cap screw (6) (canopy and wheel pants mounting)
7. #6 lock washer (6) (canopy and wheel pant mounting)
8. #6 flat washer (6) (canopy and wheel pant mounting)
9. #6 "All Threads" (2) (wheel pant insert) (Ohio Superstar)
10. 3/16" axle (2) (landing gear) (Du-Bro no. 249)
11. 3/16" wheel collar (4) (landing gear) (Du-Bro no. 141)
12. #6-32 blind nut (4) (canopy)
13. 1/4-20 blind nut (4) (landing gear)
14. Tail wheel (1) (Ohio Superstar L)
15. #4 x 3/8" sheet metal screw (2) (tail wheel mount)
16. 1/4-20 x 1-1/2" pan hd nylon bolt (2) (landing gear filler block)

WING AND TAIL

1. Robart Super hinge point (24)
2. 4-40 solder Kwik-Link (6) Du-Bro no. 305 (aileron, elevator, and rudder)
3. threaded rod (6) Du-Bro no. 144 (aileron, elevator, and rudder)
4. swivel link offset (6) Rocket City Specialties no. 69C (aileron, elevator, and rudder)
5. strip aileron horn (1) Du-Bro no.103 (tail wheel)
6. 2-56 solder link (1) Du-Bro no. 109 (tail wheel)
7. threaded rod (1) Du-Bro no. 172 (tail wheel)
8. spring steel Kwik-Link Du-Bro no. 304 (tail wheel)

MISC.

Zap CA (thick and thin)
White glue (aliphatic resin)
Zap 30-min epoxy

Masking tape
2 oz glass cloth
Ace General Cement #43691

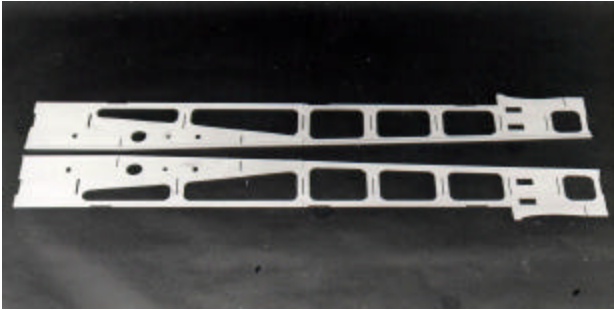


Photo No. 1

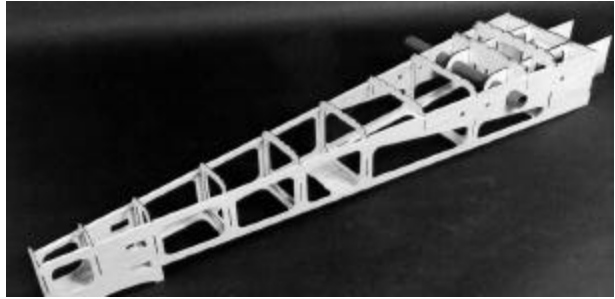


Photo No. 5

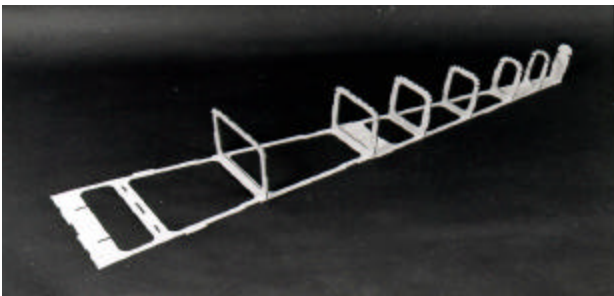


Photo No. 2

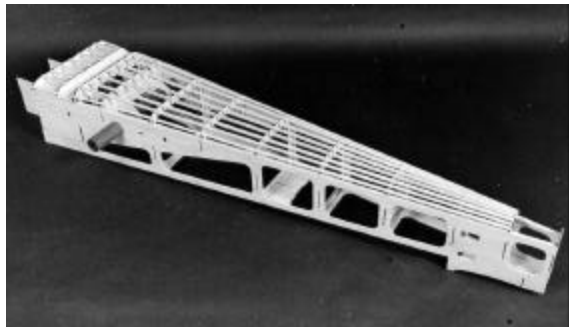


Photo No. 6

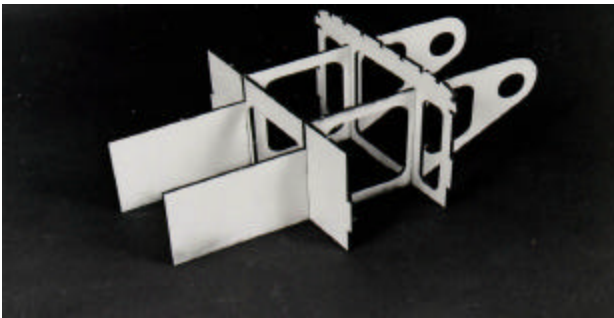


Photo No. 3



Photo No. 7

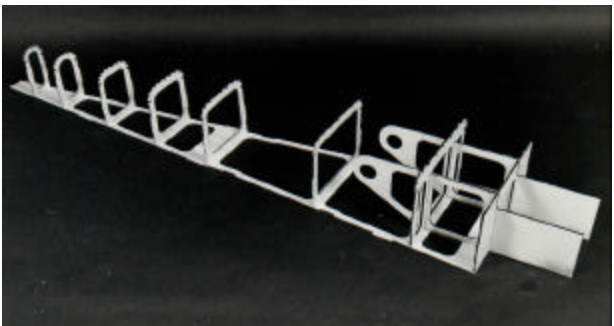


Photo No. 4

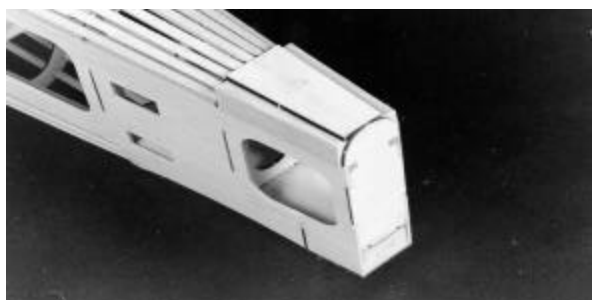


Photo No. 8

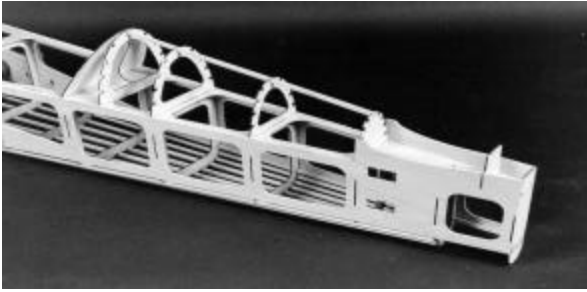


Photo No. 9



Photo No. 14



Photo No. 10



Photo No. 15

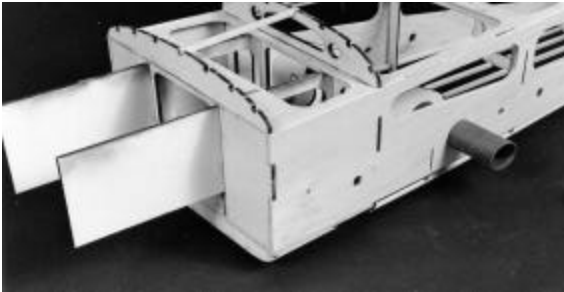


Photo No. 11



Photo No. 16



Photo No. 12



Photo No. 17

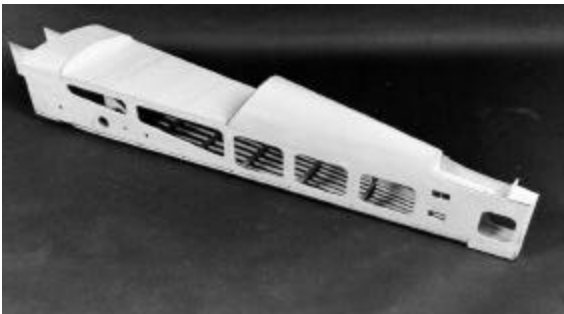


Photo No. 13

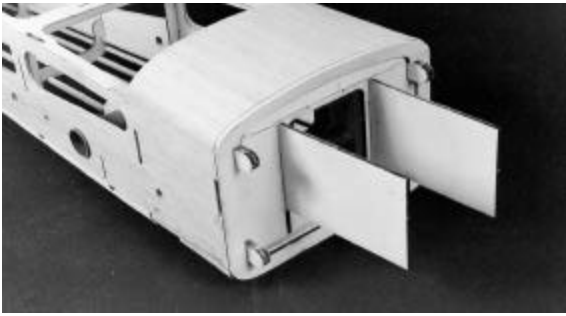


Photo No. 18



Photo No. 22



Photo No. 19

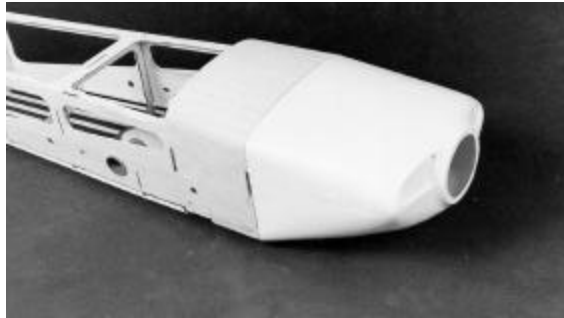


Photo No. 23

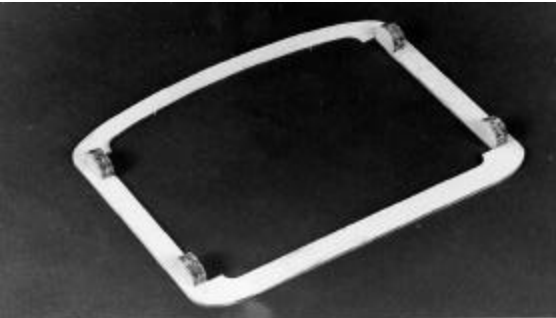


Photo No. 20

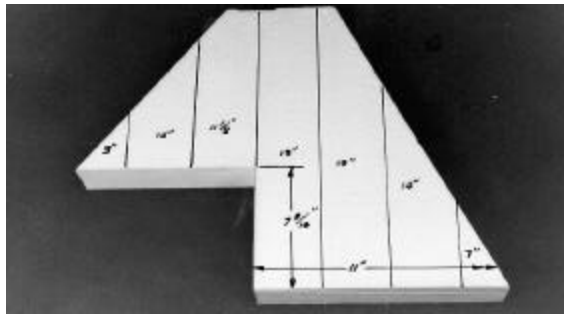


Photo 24.



Photo No. 21

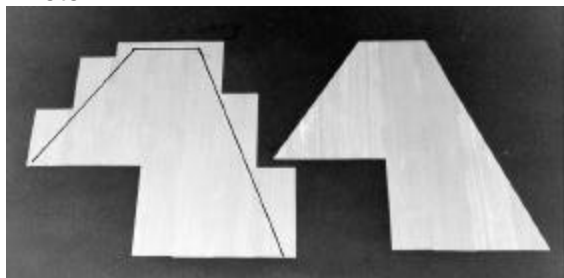


Photo No. 25



Photo No. 26

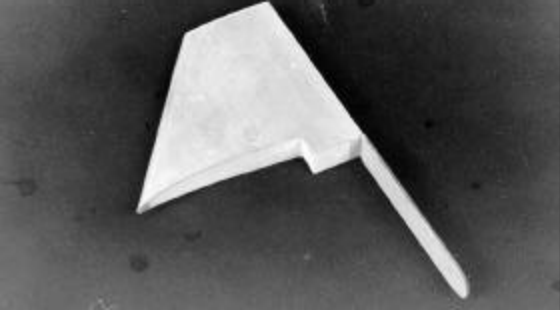


Photo No. 27

Photo No. 31

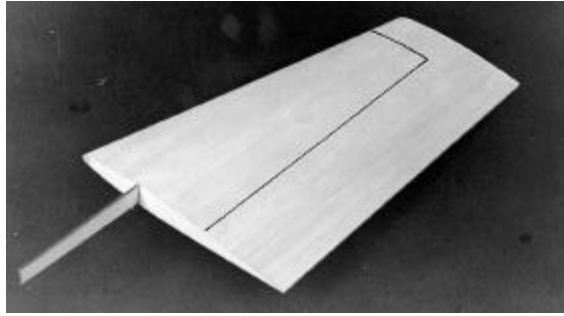


Photo No. 32



Photo No. 28



Photo No. 33



Photo No. 29

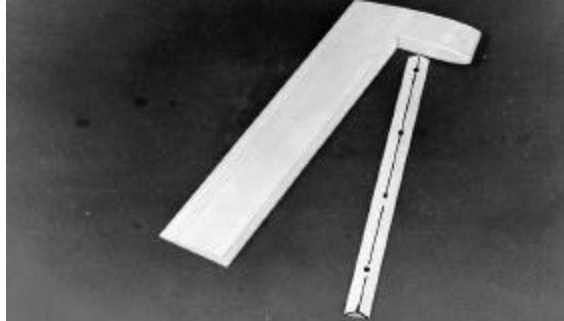


Photo No. 34



Photo No. 30



Photo No. 35

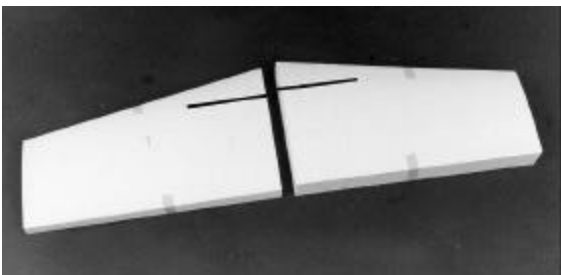




Photo No. 35A

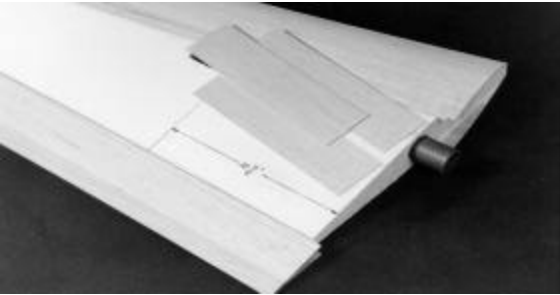


Photo No. 37



Photo No, 38



Photo No. 39

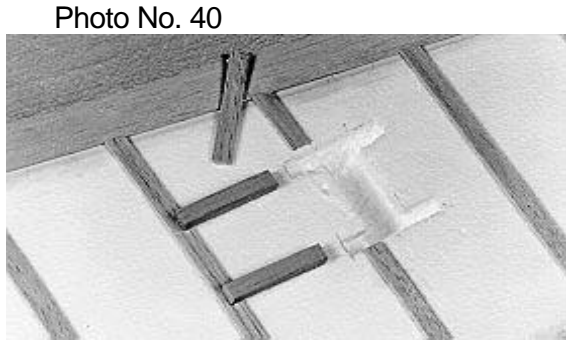
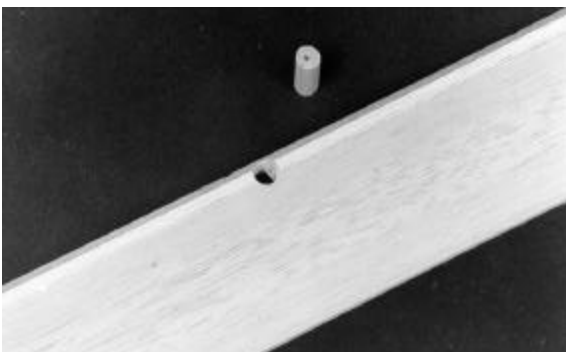


Photo No. 40

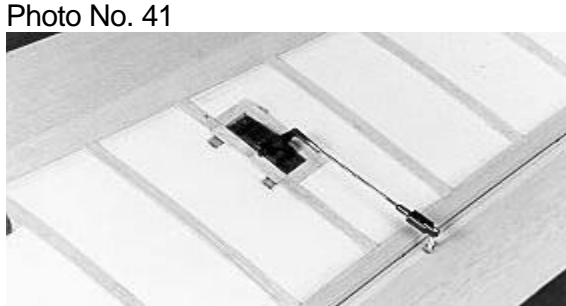


Photo No. 41

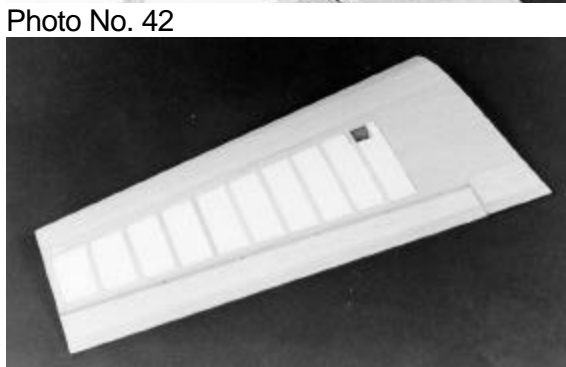


Photo No. 42



Photo No. 43



Photo No. 44

Photo No. 45



Photo No. 46

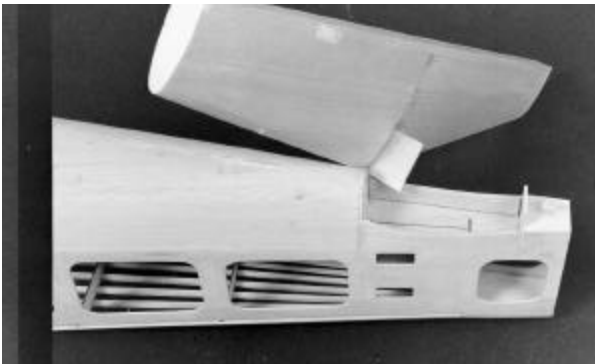


Photo No. 47



Photo No. 48

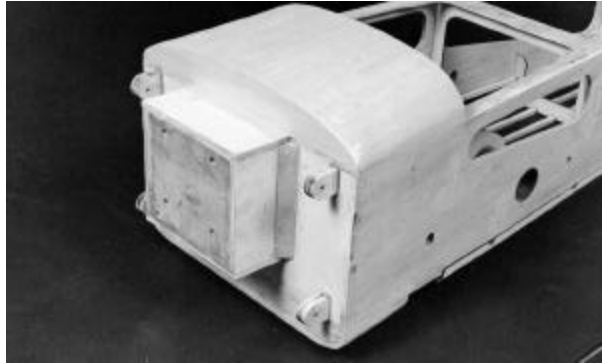


Photo No. 49