LANIER RC

SHRIKE 40

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 and experienced instructor in your area.

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

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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.

SHRIKE 40

BUILDING INSTRUCTIONS

The Shrike 40 is a fun and exciting airplane, enjoyable to fly and will provide you thrills with its Jet like planform and speed. It can easily be carried without disassembly and the minute you arrive at the flying field it's ready to go. A good change of pace airplane to have in your hangar when you desire to switch stress levels from your daily work or, when you are tired of flying the same old airplane all the time. We know you will enjoy the Shrike 40.

Before starting to build, we urge you to read through these instructions while reviewing the plans. They contain some important building sequence as well as instructions and warnings concerning the assembly and use of the model. Some building tips have been included along the way to help you out. Or, if you have your own way of building, which some modelers have, so be it. At least read what we have to say then make your own determination. It will save you some time. We expect that you have some building experience to take on a built-up model however, every minute detail is not covered. This is not a basic trainer. The plans and instructions together with the laser cut parts, and the simplicity of this kit will allow you to produce a first class model.

FUSELAGE CONSTRUCTION

The fuselage is most likely different than anything you have ever built before. We suggest you build it completely before adding the wings and tail. This will allow you to round off the nose with complete freedom. It will go together quite fast with the exact cutting of the laser cut parts and this simplified building method

1. Locate the three sheets with the **FS1A and FS1B** sides. We have purposely left them in the sheet with micro joints. Rather than pop them out like die cutting, lay them on a flat surface and cut each micro joint with a razor or ex-acto knife. The part will fall out. Note how crisp and exact the parts are cut. Sand the ridge left by the micro joint if necessary. Lay both parts on a flat surface and glue the sides together with CA, being careful to align the finger joints correctly. Refer to the plan side view if necessary.

2. Lay both sides on a flat surface with the top side up, (it's noted). Locate **F3** and **F4** formers. Place **F3** in the slot, as called out on the plans, with the top side up. Place it against a square and CA glue it in place. Now, slip **F4** in its slot and glue it in place using a square to make sure

it is perpendicular to the side. It is important that both of these formers be installed as described.

3. Place the other side with its slots in each former, with the top side up. Using a square on a flat surface, make sure the side edges are in line with each other. Check all the way around. Now tack CA glue in place. Hopefully you glued the formers perpendicular to the sides. When satisfied, final glue them in place. **This is an important step.**

4. Next install the stab trailing edge which must be notched for the fuselage sides. Locate the 3/8" sq. x 36" stick.. Cut a length 11-5/8". Find the center and mark it. Now measure out each way 1 1/2". Cut two notches, 3/16" wide and 3/16" deep. The outside edge of each notch should fall on the 1 1/2" mark. Now align by laying the rear end of the fuselage on a flat surface. Sight from the back aligning with top edge of former F4 for squareness. Now glue in place. This is somewhat like gluing on a stab. Get it on straight.

5. Locate the 3/32" rib sheets #1 and cut the micro joints on the two **H1** parts. Lightly sand the curved edges.

6. Building the hatch next, cut two strips of wax paper, 1" wide, the approximate length of **H1.** Lay the fuselage on its side. Lay one strip on the inside top edge of the fuselage with the end against **F4.** Now locate **H1,** with the small end against **F4,** and pin in place over the wax paper. Align the top curved edges and pin in place several places to keep aligned.

7. Fold and crease the wax paper and trim off, holding the razor against the side,
leaving a 3/16"" flange. Crease it down good. Now install the other **Hl** and wax paper on the other side. Make sure the pins do not extend above the top surface, angle them down.

8. Cut a piece from the 3/32" x 3" x 36" sheet to 16" in length. Apply a bead of thick Ca glue along the top edge of each **H1.** Align the rear edge with the front edge of **F4** and flush on both sides. Tape in place until cured.

9. Remove the pins by reaching through the bottom of the fuselage. Now remove the hatch and strip off the wax paper on both sides, Square off the forward end flush with the ends of the two **H1's.** Glue in a piece of 3/8" sq. balsa at the forward end between the two **Hl** rails. Square up the aft end if necessary. Cut out **H2** and glue in between the rails at the aft end, the wide side against the hatch top

10. Locate a piece of 1/4" sq. x 36" spruce. Cut four pieces 3" long. These are the servo mounting rails. **Be careful not to squeeze the sides together when installing them.** Place one in the upper part of the slot**,** aft of **F3,** and glue in place. Install one in the next 1/4" hole, viewing the fuselage from the top, and **glue the right side only.** Now locate the gusset **G2** on sheet 1 and cut out. Glue in under servo rail on the right side as shown on the plans. Using a razor saw, cut the rail allowing 1" to protrude from the right side. Remove the cut off piece

from the hole. Now glue in the remaining two servo mounting rails. **Note: Gluing in the servo rails at this time will prevent the sides from bowing** out **when pulling them together at the front.**

11. Locate the firewall **F2** and layout the holes for the engine mount. Measure up 1 1/2" from the bottom edge and draw a line perpendicular to the side. Find the center and draw a line thru this point perpendicular to the top edge. Center the engine mount on these lines, mark the hole locations, and drill a 1/8" hole in each for a **4-40** blind nut. CA the nuts in place.

12. Using epoxy, glue the firewall into the slots provided in the **FS1** sides. Use clamps to hold the sides against the firewall while the epoxy is curing.

13. Locate the upper and lower front block wood (3/8" x 3" x 12"). Note the templates on the plans. Cut them out and lightly contact glue to the block. Now, carefully cut and sand them to the template. They will require some sanding to fit perfect however, if you are careful you should encounter no trouble. Do not remove the cutout for the engine until the block is glued in place. Locate them as shown on the plans. The upper block will rest against the top edge of **F2**

14. Cut four pieces of 1/2" tri-stock from the 36" piece. Glue them in the nose as shown on the plans. Two on top and two on the bottom. These are required to provide material when you round the nose to former **Fl.**

15. Cut two more pieces 6-3/4" long. Trim to size and glue these in between **F2** and **F3** flush with the bottom edge of the fuselage. It will be necessary to add some razor saw kerfs on each one to help them make the bend. Careful not to cut them in two.

16. Locate a 3/32" x 3 x 36" sheet and cover the entire bottom with the balsa running cross grain. If you manage the waste carefully, one sheet will do it. So try, or you'll buy.

17. Using the remainder of the 3/32" sheet you used to make the hatch, sheet the top of the fuselage from the front edge of **F4** aft to the trailing edge of the stab. Also from the forward edge of the hatch to the end of the nose. The grain should run length ways in both cases. Cut out the access hole for the engine. A Dremel Motor with a drum sander will do the job.

18. Block sand the fuselage sides to trim the top and bottom sheeting flush with them.

19. Install the engine in the mount as far as it will slide to the back leaving just a slight clearance (less than 1/16"). Locate and drill the engine mounting holes. Also drill the holes for the fuel lines and throttle pushrod. Now install the engine on the mount. Bolt in the engine and mount it to the firewall. Check the distance between the front edge of the prop washer and the end of the fuselage. Remove enough from the nose so there will be a 1/16" clearance between the back of the spinner plate and **Fl** with the engine mounted. Keep it square. Now centrally

locate **Fl** with the engine crankshaft, with the spinner backplate mounted on the engine, and glue in place.

20. Now round off the nose to **Fl.** So that you don't round off too far back it is a good idea to lay rib **Rl** in position and trace around it with a ball point pen. This will give you an idea where the wing leading edge starts. Provide room for the muffler and needle valve after rounding off and shaping.

21. Locate, drill, and install the front hatch retaining dowels as well as the aft hatch block in the fuselage. Cut these from the 1/8" dowel provided. Drill a 1/8" hole through the fuse sides and into the hatch plates **(HP)** for the ½ 4-40 blind nut and bolt. Re-inforce the holes in the balsa fuse sides with ca.

WING CONSTRUCTION

In order to ensure a straight wing with no warps, build the wing panels the following way. The wing spars are installed in the fuselage, the ribs slid in place and then the sheeting and cap strips applied. Began by taping the wing plans down at the edge of the work bench. The wing root, next to the fuselage, should be flush with the edge of the work bench. Using a square, check to see that the spars or trailing edge of the wing on the plans are perpendicular to the edge. The side of the fuselage will be aligned with the work bench edge so it is important that things are square.

1 . Locate a 3/8" sq. x 42" spruce stick and find the center. From the center measure out 1-1/2" each way and mark. Align marks with outside edges of fuselage. This is the rear spar in the wing. Install it in the middle 3/8" sq hole in the fuselage (the rear most 3/8 hole is for the tail balsa, use the 3/8 hole in front of that one), making sure it is centered, and CA in place.

2. Locate the 3/8" x 24" spruce stick and cut to a **22 1/2" length**. Find the center, measure out 1-1/2" each way and mark. Slide this spar in the forward 3/8" square hole (**not** the diamond shape hole) in the fuselage, under the servo rail, making sure the marks are aligned with the outside fuselage sides. CA in place.

3. Find the sheets with the ribs. Carefully cut them out so as not to break off the tabs. If you do break one off, CA it back on. These tabs are required to space the ribs parallel to the work surface during wing construction. Lightly sand edges of each. **Note: When we say cut them out, we mean cut the micro joints that hold them in the sheet. These joints keep the parts in tact on the sheet.**

4. Carefully slide **Rl** rib on the spars and up against **the** fuselage. Glue it in place with CA but, do not glue the tabs to the sides. These must be removed later.

5. Now slide ribs **R2, R3, R4** and **R5** the spars of one wing, roughly positioning them.

6. Place the fuselage against the side of the work bench with the rib tabs resting on the surface over the plans. Some small weights on the spars should hold it while you position the ribs to location. Align the back edge of each rib tab with the trailing edge of the wing on the plans. Pin them in place if necessary.

7. Once the ribs are located over the plans, CA them in place on the spars.

8. Locate the 1/4" sq. x 42" balsa trailing edge stick. Notch for aileron horn as shown if you are using 1 aileron servo, if you are using 2 skip the notch. Carefully slide it through the 1/4" sq. holes in the fuselage and center it. Now glue it in place on the notch provided at the end of each rib. Tack it the ends of the ribs, keeping as much glue off the tab possible. The sheeting over the ribs will hold them in place securely.

9. Locate the four pieces of 3/32" x 1-1/2" x 24", trailing edge sheeting. Apply glue to the ribs and trailing edge. Install flush with the trailing edge and against the fuselage allowing it to over-hang the tip.

10. Next find a 3/8" sq x 36 stick. Cut to 24" in length. Glue one into the notches provided in the ribs along the leading edge. It will be necessary to file the diamond shaped hole in the fuse to accept the LE.

11. Locate four, 3/32" x 3" x 36" sheets. These will have to be cut to size and shape before gluing in place. Cut each sheet to 24" in length. Starting at the upper left hand corner, draw a line at 68 degrees angle, from the end, across the sheet and cut off the corner. Cut three more sheets to this configuration. Refer to the plans if needed.

12. Locate one of the leading edge sheets on the wing and check the angle with the fuselage. It should be very close, that is, if you cut the 68 degree angle accurately. Sand slightly if necessary. Bevel and trial fit the front edge of the sheet to fit snugly against the fuselage and 3/8" sq. leading edge. Apply CA to the beveled edge of the sheet only and glue in place along the leading edge with the sheet resting on the ribs and against the leading edge. Next, apply CA to each rib. Bend the sheet down to the ribs and hold until cured.

13. Break off the tabs on the bottom side on all the ribs and install the trailing and leading edge sheeting on the bottom side. Trim off any rib tab balsa which might have been glued on at the trailing edge. Take care not to twist the wing and build in a warp. Now install the front spar ply brace **WEB**. Apply glue to the tab and the spar, then slide the brace into the slot in the rib R1 and hold against the spar until the glue is cured.

14. Find the two 3/32" x 3/8" x 24" rib cap strips. Cap rib R3, R4, and R5 on both sides of the wing. A cap is centered on each rib. Glue them in place carefully.

15. Using the 3/32" sheet cut from the LE, sheet between ribs R1 and R2. To use 2 aileron servos, first install two ¼" x 6-1/4" hardwood rails across the rib bay in the notches, then sheet the bottom wing as shown on the plans. Cut a hole in the sheet for locating the servo, then cut another hole in the side of the fuse to pass the servo wire through. Now sheet the top of the wing.

16. Locate the 1/2" x 1-1/2" x 12" block and cut in half. Stand the wing tip on end and trace the airfoil on one of the blocks. Cut it out and glue on the tip. Sand to shape at final sanding before covering.

17. Now build the other wing panel as described above.

18. Locate the two 7/16" x 2" x 16" aileron stock. Cut and taper them to the configuration shown on the plans, Sand the trailing edge uniform on each. Locate and install the hinges but do not glue them in until the covering has been applied.

STAB CONSTRUCTION

Building the stab is very straight forward and easy. Make sure the joints fit tight and flush with each other. Very few parts are required.

1. Cut a 11-5/8" length from the 3/8" sq. stick. Install it in the 3/8" hole in the fuselage side against the wing trailing edge. Center it, leaving a equal amount sticking out on each side. **Note: The aileron horn set must be installed at this time if you are using 1 servo. Slot the 3/8" sq. stick to accept them and glue in place together with the 3/8" stick against the trailing edge of the wing.**

2. Cut four lengths of 3/8" sq. balsa, 7-1/2" long for the side rails and rails against the fuselage. These are cut purposely long and must be fitted between the stab leading and trailing edge. Before fitting them, one side of two of the stab ends must be cut at a 10 degree angle. Use a band saw or table saw.

3. Now fit the two outer end side rails and glue in place, making sure the angle is on the outside. This will allow the fins to cant outward at the proper angle when glued to this surface. Fit and glue in the two 3/8" sq. inner rails against the fuselage

4. Cut and sand the leading and trailing edge ends to match the angle on the side rail on both sides.

5. As indicated on the plans, cut and install the 3/8" tail stringers with CA. Install the front and rear stringers first, then the middle one.

6. Locate the 3/16" sheet **G1** gussets and glue in place as shown on the plans.

7. Cut a piece 11-3/8” from the 3/8” x 2-1/4" x 12" trailing edge stock. Shape the ends to the configuration shown on the plans. Sand the angles shown on the leading edge. Install the hinges at the location shown on the plans.

FIN CONSTRUCTION

1. Using the two 3/16" x 2" x 24" sheets, one sheet per fin, cut out the pieces required to make them. Lay a piece of wax paper over the plans and pin down the parts on the configuration shown. Make good square cuts to promote stronger glue joints.

2. When the glue has cured, block sand each fin on both sides and final sand for covering. Do not glue them in place yet. It is easier to cover them first, cutting away the covering where they are fastened to the stab. Now set them aside until required for gluing in place at final assembly. When glued in place don't forget to add the 3/8" tri-stock on the bottom side for additional stability.

FINAL FINISHING

1. Give the complete airplane a final sanding, depending on how well you want to finish it. ****IMPORTANT - glue a piece of 2-1/2” nylon glass tape (GOLDBERG #451) along the upper and lower joints between the wing and the fuse with CA as shown on the plans**. Some of the small parts, like the ailerons and elevator, can be painted if you don't like covering. Cover the Shrike 40 with your favorite covering material, the one you feel most comfortable with. Let your imagination go wild on the trim. Cover the bottom of the wings, the top, and then cover the stab top and bottom separately. Cover the fuselage last as this will try your covering skills. Oh, well, you can always paint it. We covered ours with 21st Century film and 21st Century Fabric. If you want to keep it light go the film route.

2. Fuel proof the engine compartment with epoxy. Melt candle wax into the blind nut holes to keep out the epoxy. When cured use an undersized drill to clean them out. Cool! The threads are lubed and ready.

3. Bend the wire skids and mount on the bottom of each fin as shown on the plan. Use epoxy to keep them in place.

4. Locate the 1/8" x 1/2" x 1-1/2" spruce block and shape it as shown. Paint this part the color of the fuselage. When cured, cut away the covering at the nose and epoxy it in place on the bottom side.

5. Assuming that the fuselage is painted or covered, peel off one side of the tape supplied. Locate one end of the tape at the back edge of the nose block. Place the rest down the center of the fuselage towards the tail. Now pull off the rest of the paper and stick down the strip of plastic on it. This skid will protect the bottom when landing.

6. Assemble and prepare the fuel tank for installation. Cut a l' length of fuel line in two. Place one piece in each of the fuel line holes in the firewall. Pull them through until they can be hooked up to the tank. One on the vent and one on the clunk line. Wrap each line at the tank with a nylon zip tie to hold the lines on.

7. Now grab the two lines at the firewall and pull the tank into position. Mount the tank as high as possible blocking it up with foam.

8. As a start, locate the receiver batteries under the fuel tank. You may find it will be necessary to shift it to another location when balancing at the CG shown on the plans.

9. Mount the throttle servo where shown. Hook up the pushrod using the hardware specified not supplied.

10. Mount the aileron and elevator servos. Hook them up with the hardware specified. It will be necessary to make a slot in the section behind the aft edge of the hatch to accept the elevator pushrod. You will have to put a slight bend in the rod to clear the hatch. If you are using two aileron servos, mount the servos in the wings and run the wires into the fuselage. Use (2) 4-40 control rod and an aileron horn set as shown on the plans.

11. Trim and install the canopy where shown on the hatch. Use Zap New Formula 560 Canopy Glue to hold it in place. If desirable install a pilot of your choice.

PRE-FLIGHT NOTES

Before the first flight, and to ensure some longevity in your Shrike 40, you will do well to check out a few things before heading to the flying field.

1. Balance the Shrike 40 at the indicated CG point shown on the plans with the fuel tank empty. Depending on your type of flying you may want to adjust it forward some.

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.

4. Turn on the radio with the engine running to make sure there are no intermittent glitches. Give it a good range check.

5. Check all hardware to be sure it is secure. There is nothing worse than losing an airplane on the first flight because of a lose nut or clevis

6. Always launch with up elevator for reflex action.

7. 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!

MATERIAL LIST

FUSELAGE

1 (1) - bagged parts (laser cut Fl,F2 formers, sheer webs)
2 (2) - sheet 1 (laser cut fuselage sides FSlA)
3 (1) - sheet 2 (laser cut fuselage sides FS1B and formers)
4 (2) - 3/32" x 3 x 36" balsa sheet (top, bottom fuse, and wing sheeting)
5 (2) - 3/8" sq. x 36" balsa (stab leading, trailing edge and ends)
6 (1) - 1/2" x 36" tri-stock (front reinforcement, fin reinforcement)
7 (1) - 1/4"sq. x 36" spruce (servo rails)
8 (1) - 3/8" x 3" x 12" block (lower front block, upper front block)
9 (1) - 1/8" x 1/2" x 1-1/2" spruce (front nose skid)
10 (1) - 1/8" dia. x 2" dowel (hatch hold down)

WING

1. (2) sheet 3 (laser cut Rl, R5, and hatch parts)
2. (2) sheet 4 (laser cut R2, R3, and misc)
3. (1) 3/8” sq. x 24” hardwood (front spar)
4. (1) 3/8" sq. x 42" hardwood (rear spar)
5. (2) 3/8” sq. x 36” (leading edge)
6. (1) 1/4" sq. x 42" (trailing edge)
7. (5) 3/32" x 3" x 36" (leading edge, center sheet)
8. (4) 3/32" x 1-1/2" x 24" (trailing edge sheet)
9. (2) 3/32"x 3/8" x 24" (rib capping)
10. (1) 1/2" x 1-1/2 " x 12" (wing tip block)
11. (2) 3/16" x 2" x 24 " (tail fin)
12. (2) 7/16" x 2" x 16" tapered trailing edge stock (ailerons)
13. (1) 3/8" x 2-1/4" x 12" tapered trailing edge stock (elevator)

MISC.

1. (1) - 1/2" x 16" (abs plastic skid cover)
2. (1) - 1/2" x 16" (double sticky sided foam tape)
3. (1) - 6" length of wire

HARDWARE AND MATERIAL LIST FOR SHRIKE 40

GENERAL

1 4-5 channel radio with 3-4 servos
2 Recommended engine - standard sport .40 (if larger than a .40, nose will have to be lengthened to suit)
3 Muffler - to suit engine size
4 fuel tank - 8 oz. Sullivan SS-8
5 propeller - suitable size to fit engine
6 fuel line - Dubro no. 197
7 2-1/2" Tru-Turn spinner
8 covering, paint and trim - your choice

FUSELAGE

1 Engine mount - Hayes KM-40
2 Mounting bolt set - Dubro no. 129
3 Mounting bolt set - Dubro no. 127
4 Throttle pushrod - Dubro no. 108 Kwik-link with rod and Dubro no. 121 Ez-connector.
5 Elevator and ailerons pushrods (3) threaded 4-40 rods Dubro no. 144, (3) 4-40 Kwik-links Dubro no. 304.
6 Hinges - Kwik Hinge - Dubro no. 537 (aileron and elevator)
7 Aileron Link Set - Goldberg no. 402
8 Aileron Horns - Dubro no. 107 (2 pair)
9 Hatch mount - Dubro no. 571 ½ 4-40 screw, #135 4-40 blind nut, and #323 #4 flat washer.
10 Wing reinforcement - 2-1/2” Nylon tape - Goldberg #451

MISC.

1. Masking tape
2. Straight pins
3. Sandpaper - 80, 120 , and 220 grit.
4. Ex-acto knife with no. 11 blade
5. CA glue - thin and thick or white glue
6. Zap New Formula 560 Canopy Glue
7. Wax paper
8. Straight edge