LANIER RC

STINGER 10

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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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 buyer's request, any parts or material shown to the company's satisfaction to have been defective in workmanship or material at the time of purchase.

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STINGER 10
BUILDING INSTRUCTIONS

Thank you for purchasing our Stinger 10. We sincerely hope you will enjoy building and flying it as much as we did when flying the proto-type for the first time. The Stinger 10 is an all up four channel airplane requiring average pilot skills. It is also the one in our Stinger series for those sport pilots who like to tear up the sky with a small airplane.

Designed expressly for the OS .10 engine, which by the way flys it well, there is no doubt that many modelers will find it most inspiring with an ASP .12 or OS .15 size engine. It is absolutely spectacular in roll and snap maneuvers and will do anything within your capable skills. Yes, so small and compact it can ride fully assembled in the front seat of your car to the flying field.

Before starting please read through these instnuctions while looking over the plans. Start with the wing, then the tail group; in that order. These parts will be required when building the fuselage. We have also included some building tips to help you out along the way. Follow these instructions to avoid building mistakes and assurance of intended results.

WING CONSTRUCTION

The wing is a foam core with leading and trailing edges covered with sheet balsa. There are no spars except the center section piece of lite-ply which strengthens the area around the notch. Don't be afraid of breaking it. It will take all the forces you can apply in flight and has been thoroughly tested under rigorous conditions.

1. Remove the foam core and inspect it. Sand the surfaces lightly with 100 grit sandpaper paper to remove any ridges and irregularities. Also check the ends for squareness. The core should be 36" in length.

2. Locate the 3/16"x1/4"x36" balsa stick and glue the 3/16" thickness to trailing edge of foam core. Use white glue and masking tape to hold it in place. Make sure it is centrally located. Lay on a flat surface to cure and prevent warping.

3. Romove masking tape and scribe a line down center of the trailing edge. Block sand trailing edge to conform with airfoil and centerline. **It is important to shape trailing edge down so when rear sheeting is applied the total thickness is 3/16"; the thickness of the aileron..**

4. Locate a 1/16"x2"x36" balsa sheet. Place it on the leading edge of the foam core with the ends flush. Now extend the sheet approx 1/16" forward of the foam leading edge, tape it down and mark along the back edge of the sheet from tip to tip. Make sure the sheet extends beyond the leading edge for the complete length of the wing.

5. Lay the foam core and balsa sheet on a piece of newspaper. Apply Sta-Put ll along the leading edge to the line on it and on one side of the balsa sheet. Let dry for approx. four min. at normal room temperature then apply to foam core. Make sure it's flush at the ends and even with the line before setting down. Once down you will never get it up in one piece so be sure it's lined up properly. Be careful, rest the core on a flat surface so as not to induce a warp when pressing the balsa in place. Install the opposite leading edge and the top and bottom trailing edge sheeting using this same method.

A brief word about Sta-Put ll. Stay-Put ll is a new product on the model market and is available thru your local hobby dealer or contact Lanier R/C. It is a spray adhesive contact cement specifically formulated for Styrofoam and is absolutely the best contact cement we have ever used. It has superior strength and a special nozzle that sprays the adhesive accurately. We recommend it highly.

6. Locate the 1/16"x3"x36" balsa sheet and cut off three lengths 6-1/2". Use these to sheet the center section. Apply Sta~Put ll on the foam core where the sheeting is to be located, then on one side of the balsa, wait four min., and press in place. Save the left over balsa to use on the fuselage bottom.

7. Install the 1/16"x1/4' capping next. Use white glue and space them as shown on the plans. These add no strength to the wing but give the appearance of open framework when covered.

8. Sand the leading edge sheeting flush with the foam core. Use a long sanding stick to maintain an even and square surface. Locate the 1/4"x1/2"x36" balsa stick. Glue in place with white glue and retain with masking tape. Make sure it is properly centered. When dry, plane and rough sand the leading edge to the configuration shown on the plans.

9. Cap the wing tips with 1/16" sheet balsa. Stand the wing on end and trace around the airfoil. Cut out and glue in place with white glue. **TIP: Wet the opposite side before pinning in place to prevent the wood from curling.**

10. Layout the notch and slot in the wing with the dimensions shown on the plans. Cutting the notch and slot can best be done with a jigsaw and a bandsaw. When cutting elevate the trailing edge so the airfoil centerline is parallel with the saw table. Also keep the slot parallel with the leading edge of wing. This is necessary for a good ft with bulkhead **F-2.**

11. Locate the 1/8"x1-1/4"x5" lite-ply wing reinforcement and glue in wing slot with 5 min. epoxy. Apply epoxy only to the surfaces that come in contact with each other. Wipe off excess epoxy.

12. Cap the sides of the notch with 1/16" sht. balsa. Use white glue and the same method as capping the wing tips in step 9.

13. Locate the 1/8"x5/8"x2-3/16" lite-ply wing bolt reinforcement and glue in place with white glue.

14. Layout the servo well as shown on the plans. Cut along lines as deep as possible with a #11 Exacto blade then dig the rest of the foam out. Check to see that servo fits as shown on plans. Cut servo bearers from scrap piece of lite-ply and 5 min. epoxy in place . Cut a hole in the bottom of opening to allow the servo lead to feed through bottom of wing.

15. The two ailerons, 3/16'X3/4"x16-112", are cut to size. Temporarily pin or tape ailerons in place and mark hinge locations. Also mark aileron torque arm hole location. Drill a 1/16" hole, perferably with a drill press, in each aileron. Epoxy in the torque arms and install servo hardware per manufacturers instructions with servo mounted.

16. Sand entire wing and ailerons and ready them for covering. Slot the wing and ailerons to accept the Kwik-Hinge. The Kwik-Hinge shown on the plans is 3/8" wide. Cut Kwik-Hinge as purchased down center to make two hinges 3/8"x3/4'. Do not install the hinges until the wing and ailerons are covered.

TAIL GROUP

1. Sort thru the 3/16'X3/8" sticks and pick out the hard pieces. Use these for the leading and trailing edges of the stab, elevator, fin, and rudder.

2. Cut to length, pin down and glue in place all the 3/16'x3/8" outline pieces. Fit and glue in the 3/16" sht. in the center of the stab. Fit and glue in the 1/8"x3/16" vertical and diagonal braces. Measure carefully and make good square joints.

3. Shape the elevator leading edge as shown on the plans. Round off the leading edges, tips, and trailing edges. Block sand all the top and bottom surfaces. After final sanding glue vertical stab to horizontal stab.

Make sure it is square and flush at trailing edge of the horizontal stab. When glue has cured mark the hinge locations and cut in the slots. Do not install the rudder and elevator yet.

4. The tail surfaces can be covered at this time if desireable. It makes covering easier before installing on the fuselage. Be sure to leave the covering off areas where gluing to fuselage is required. The tail group must be temporarily pinned to the fuselage in order to fit the ABS Turtledeck properly.

FUSELAGE CONSTRUCTION

1. Layout the two fuselage sides. You will need a **LH** and **RH** so choose the side you want facing out.

2. Mark locations of **F2** and **F3** on inside of each fuselage side. Cut to length and glue in 1/4" tri. stock along the bottom edge of both sides. Allow room for bulkheads. The tri stock just aft of **F3** should be angled slightly to permit a sharp bend in the fuselage side. It should be filled and glued to **F3** after the fuselage is complete.

3. Drill two 3/16" holes in **F2** at the punch marks. Build up **F3** assembly as shown on the plans. Make sure the servo tray is perpendicular to **F3**. Trial fit servos to make sure they fit. There is little room in the fuselage to make changes.

4. Glue **F2** to one of the fuselage sides. Make sure it is perpendicular to side. This is important because this will affect the wing mounting squarely up against **F2**. Now glue **F3** assembly in place.

5. When dry glue on other side. Make sure side is aligned properly and that **F2** is still square with sides.

6. Score both fuselage sides at aft edge of **F3**. Bend side until it cracks. **Don't break it off.** Do the same to other side. Pull tail together and remove enough tri.- stock from both sides so that they touch. **Tlip: A thin piece of metal with 100 grit sandpaper bonded on both sides will help. Hold a slight pressure on sides while moving sander back and forth in a straight line in between the sides.**

7. Once satisfied, lay the fuselage over top view on plans to promote straightness, bring sides together and apply glue. Apply CA glue to each of break marks on fuselage sides at **F3**. The sides should be straight in order to accept the turtledeck.

8. Sheet bottom of fuselage with 1/16" balsa with remaining sheet balsa. Use white glue or CA . Glue on 1/8" lite-ply tail wheel strut support as shown on the plans. Glue in three 1/8'x3/16" cross braces behind **F3.**

9. Temporarily mount wing in the saddle. Make sure it is properly aligned and secure. Using a long 3/16" drill, match drill the wing mounting dowel holes from **F2** thru lite-ply reinforcement in wing. Remove wing and glue two 3/16" dowels in place. They should extend out no more than 1/4".

10. Laminate two **F1's** together. Drill engine mounting holes and install 4-40 T-nuts. Epoxy **F1** in place and add tri. stock to reinforce it. Glue in rest of tri.-stock. Epoxy on 1/8"x2-1/4"x4-1/2" lite-ply bottom. Epoxy in the 1/8"x1"x2" landing gear reinforcement and add the 1/4" tri.-stock above it. Epoxy in wing hold-down piece. Add the short pieces of Tri-stock to each end for added gluing surface. Laminate a small scrap piece of 1/8" lite-ply in center to increase thickness for mounting bolt. Make sure the wing hold-down piece is against **F3**. The fuselage is basically finished except for adding ABS plastic pieces on top.

11. Locate Tank Cover. Note the trim lines along bottom edge. Trim off excess ABS to lines. Wherever possible use a straight edge and blade to score a straight line. Then break plastic back and forth and it will fracture on scored line. In some cases you may find it better to use a Dremel dnum sander to cut away the plastic. Trim all plastic pieces using method desribed.

12. Locate **FT1** and trial fit it inside rear flange of Tank Cover. If it don't ffit one way tum it end for end. Some light sanding may be necessary. Now glue **FT1** with CA inside the rear flange. When cured tack glue other **FT1** outside of flange. Allow enough clearance for Wing Cover to line up with Tank Cover. Drill two 1/8"dowel holes thru both **FT1's.** Cut two 1/2" lengths of 1/8" dowel and insert them in holes. Set this aside for time being.

13. Trim excess plastic from Turtledeck. Also trim out fin slot. Temporarily mount fin and stab on fuselage. Trial fit Turtledeck on fuselage. Trim as necessary to make fin fit snugly up against forward end of the slot in Turtledeck. Trim end of Turtledeck off square.

14. Locate Wing Cover and trim off excess plastic to mold lines. Temporarily tape Tank Cover and Turtledeck to fuselage in their proper locations. Mount wing in wing saddle. Now is a good time to drill the holes for wing hold-down bolts. Make sure wing is up against F2. Drill at angle shown on plans with a # 21 drill bit. Now re-drill hole in wing with a # 11 drill bit. Tap hole in fuselage with a 10-32 thread. Harden threads with thin CA and re-tap if necessary.

15. With wing securely mounted fit Wing Cover. Some trimming may be necessary. Remove **FT1** with dowels from Tank Cover. Glue in dowels allowing them to stick out 1/4". Place a small piece of wax paper over Tank Cover end. Insert FT1 with dowels thru wax paper into holes in Tank Cover. Spread CA around the edge of **FT1** and place Wing Cover over it and tape in place. When cured remove Wing Cover and wax paper. **FT1** with dowels should now be glued to Wing Cover.

16. Trim excess plastic to mold lines on canopy. Check for fit on Wing Cover. This is a good time to install pilot. It is necessary to cut off most of the shoulder to make him fit under canopy. When fitted and painted, securely CA glue pilot in place. Mount canopy and tape in place. Apply RC- 56 glue all around edges. Remove tape the next day. Note: if you intend to paint Wing Cover do not install canopy at this time. **Tip: Load a glue gun with RC-56, for better control to apply bead of glue around canopy. It will turn out much neater.**

17. With wing mounted and Wing Cover in place, locate Wing Cover hold-down screw holes as shown on plans. Make sure Wing Cover is firmly against Tank Cover. Drill a 1/8" hole thru Wing Cover and Turtledeck on both sides. Now drill out hole in Turtledeck to 5/32". Install a #4 "All Threads" and CA in place. Use two #4 x1/2" screws to retain Wing Cover.

Briefly, "All Threads" are a short piece of plastic available in a number of screw sizes. They are light, easy to install, and cheaper than any insert. Simply drill a hole and push in insert. Hold in place with thin CA. They can be tapped or sheet metal screws may installed without tapping; requiring greater torque to screw in.

LANDING GEAR AND WHEEL PANTS

1. The landing gear is preformed but does require some additional holes. Locate all holes as shown on plans. The wheel axle hole is drilled with a #27 drill bit. The wheel pant retaining screw hole is 3/32" dia. The landing gear mounting holes require a #19 drill bit. Install the 8-32 T-nuts in the fuselage and glue in place.

2. The wheel pants are in two pieces and must be glued together. Remove flashing, lightly block sand mating surfaces and match up halves. Tape together in the middle and apply thin CA to both ends maintaining alignment. Remove tape and apply CA to the rest of joint. When cured cut out opening for wheel with a Dremel cutter. The opening should be 11/16"x1-3/4" with a small radius in each corner. The pant mounting slot and retaining screw hole information is shown on the plans. You will need a **LH** and **RH** set. Lightly sand and prime, then paint your desired color.

TAILWHEEL

1. The tailwheel and wire strut is not supplied however, construction information is given. Using 1/16"dia. music wire bend as shown on the plans. Note: install a 1/16" wheel collar on strut before making final bends. Drill a 1/16" dia. hole in the rudder leading edge, 3/4" up from bottom. Groove the leading edge from hole down to accept the wire dia. Glue in place with 5 min. epoxy. The tailwheel is held on with a 1/16" wheel collar.

ENGINE COWL

1. The engine cowl is in two pieces and must be glued together. Slide top half over bottom half until the spinner dia. in the front is 1-1/2" dia. Mark this location across front on bottom half. Note straight section of the spinner diameter on lower half. Remove this, on each side, down to within 3/32" of mark you just made. Slide top half over bottom half to mark. The surfaces should mate much better now. Using thin CA, glue only front together. The sides should not be glued at this time.

2. With engine installed measure the distance from **F1** to spinner backplate. Add 5/16" to that dimension. Stand cowl nose down on a flat surface, measure up and mark dimension for trimming off back edge of cowl. Mark it several places so it can be trimmed evenly.

3. Temporarily mount Tank Cover on fuselage. Measure back 13/32" from Tank Cover flange on top centerline and mark. On the lower front sides of fuselage about 1/2" up from the bottom, measure back 3/8" and mark. Slide rear cowl edge to these marks and tape temporarily making sure the cowl is up against fuselage all around. Now CA tack glue flange on each side. Remove cowl and final glue both side flanges.

4. Cut out cowl in front and bottom as shown on plans to permit engine clearance and cooling. Use a Dremel coarse sanding drum for this purpose. Slot side of cowl to permit clearance for muffler. Mount cowl on fuselage and drill screw clearance holes and hole for installing "All Threads" inserts. Locate as shown on plans. When cowl is complete lightly sand it and apply a coat of primer. It is now ready for painting.

TIP: To ensure a longer lasting cowl, we recommend applying 2 oz glass coth on the inside. This can be done before the cowl halves are put together or afterwards. It is easier before. Lay the cloth on the surface and apply a coat of medium thick CA glue into it. Work from the center out to eliminate air bubbles. Do not use kicker. Allow to cure at room temperature.

FINAL ASSEMBLY

1. Cover entire airplane with film covering. There is much to choose from on the market. After covering fin and stab, glue to fuselage with 5 min. epoxy. Be sure to remove any covering over the glue area. Make sure the stab is parallel with the wing before the epoxy sets up. Hinge elevator to stab with Kwik-Hinges. Finally, install rudder with Kwik-Hinges. The rudder must go on last.

2. The fuselage can be covered before Turtledeck and Tank Cover are installed. This will allow you to install servos and pushrods and get everything aligned without a stnuggle. You can also paint all plastic parts at this time. Cover the fuselage. Trim covering down 3/16" from top edge of fuselage. The Turtledeck can now be glued in place. Tape it in place. Apply thin CA all around the edges. **Tip: When gluing down the sides use a straightedge moved back from the edge about 1/8" to keep them flat against the surface while gluing. Do not let glue run under straightedge. Now glue Tank Cover in place using same method.**

FLYING THE STINGER 10

The day arrives and you are finally ready to fly. You expect a fast, quick, smooth fly'in, and highly aerobatic airplane. Of course, you made sure the control surface travels were according to plan. And you did check the CG balance? At the field you did dheck to see that the control surfaces were moving in the right

direction? You range checked your radio and were assured of a reliable engine run - go ahead and 'feel" the experience of a great fly'in Iittle airplane. Keep it in close cause it will get out of sight fast. Try all those fancy maneuvers you like to show off with. Fly it around and have a ball. When you're through, bring it in for a smooth and easy touch-down, taxi back and shut her down. Well, ain't it just like we said? You never had so much fun - and only used two ounces of fuel! HAPPYFLY'INI

HARDWARE & MATERIAL LIST TO FINISH THE STINGER 10
General

1. 4 channel radio with mini servos
2. Engine - .09 to .15 (.10 - .12 recommended)
3. Fuel line - medium size - 1 ft.
4. Propeller - depending on engine size
5. 1-1/2" dia spinner - Tru-Tum or Du-Bro
6. Covering, paint, and trim - your choice
7. Fuel tank - 2 oz. (4 oz for .15 eng.)
8. Heavy thread

Fuselage

1. #2x3/8" button hd. scr. (2) Du-Bro #525 - wheel pant
2. #2 "All Threads" (2) Ohio Superstar - wheel pant
3. #4x1/2" button hd. scr. (5) Du-Bro #527 - cowl and wing cover
4. #4 "All Threads" (5) Ohio Superstar - cowl and wing cover
5. #4-40x5/8" mach scr. (4) - engine rnount retainer
6. #4-40 T-Nut (4) - engine mount retainer
7. #6 32x1" rnach scr. (2) - wheel a~de
8. #6 plain washer (4) - wheel ~de
9. #6 plain nut (2) - wheel axle
10. #6 lock nut (2) - wheel axle
11. #8-32x1/2" mach scr. (2) landing gear retainer
12. #8-32 T-Nut (2) landing gear retainer
13. #10-32x3/4" nylon bolt (1) wing hold-down
14. EZ Connector (1) Du-Bro #121 - throttle arm

15 Engine Control Flex Cable - Du-Bro #165 - throttle
16. 1/16" dia. music wire (6") K&S
17. 1/16" wheel collar (2) Du-Bro #137
18. 1-1/2"dia. wheel (2) Dave Brown Lite-Flite
19. 3/4" dia. tailwheel (1) Williams Bros. #136

Wing

1. Strip Aileron Ball Link Set - Du-Bro #186
2. Kwik-Hinge - Du-Bro #537
1. 1 /2A Control Hom - Du-Bro #107

TAIL ASSY

2. Mini Nylon Kwik-Link with Rod - Du-Bro #228
3. Kwik-Hinge - Du-Bro #537

Glue

1. White glue - general gluing
2. Zap CA and CA+ - general gluing
3. 5 - min. Z-poxy - where extra strength is required
4. R/C 56 - to retain canopy
5. Zap Plastic Kicker