

# Stinger 60

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**THIS IS NOT A BEGINNERS AIRPLANE**

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

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# STINGER 60

## BUILDING INSTRUCTIONS

The Stinger 60 is the fifth and final version in the Stinger series. It features the very successful BFPP (balsa, foam, ply and plastic) system of construction embraced by Lanier throughout this popular sports series; having fewer parts, allowing for ease of assembly thereby promoting faster building and more flying time.

The Stinger 60 has the same flight characteristics as its bigger brothers, proportionally that is. When powered with a strong 60 engine you can expect exceptional performance providing you keep the weight within the limits stated on the plans. It can also be slowed down for that nice and easy landing. It is the type of sport plane you can consider your everyday fly'in machine and not have to worry about the time you spent putting it together. It didn't take that long.

We at Lanier are proud of our Stinger Series and know you will be happy with your purchase. We thank you.

Before starting to build we urge you to read through these instructions while reviewing the plans. They contain important instructions and warnings concerning the assembly and use of this model. Some building tips have been included along the way to help you out. Or, if you have your own way of building, so be it. At least read what we have to say then make your own conclusion.

### WING CONSTRUCTION

1. Remove the wing cores from their shells and inspect them. Don't worry about left and right hand panels because the airfoil is symmetrical. Handle them carefully. Split the trailing edge of the shell so that you have two pieces. Break off the spar protrusion flush so the inside surface is free from any obstructions. You will be using these shell halves during the construction of the wing.
2. Sand the surface of the panels lightly with 100 grit paper to remove any ridges and irregularities you might find. Do not over sand.
3. Trial fit the 5/16" sq. spars in the grooves in the foam core. It is impossible for us, because of wood and foam cutting tolerances, to make the spar fit perfect. You will most likely find that the spars will fit tight and some re-working of the groove will be necessary to make them fit. It is better to have them fit snug than loose. Glue all four 5/16" sq. x 30" spars in place with white glue or Z-Poxy. Be sure the wing core is on a flat surface when pushing the spars in place so as not to induce a warp. **Tip: Round off the lower corners slightly of each spar before gluing them in place. They will be easier to push in the groove.**

4. Pick out the root end of each wing panel to be joined and layout, on the foam, the notch in the leading edge. Also layout the the slot for the 3/16" ply wing joiner **W1**. Note that the slot is cut back along the spars allowing **W1** to tie in with them. The dimensions are specified on the plans.
  
5. Cutting the notch and slot can best be done on a scroll or band saw. A hand coping saw can be used if you are careful. **Tip: Mount the wing core in its shell and tape in place. This will hold it in a level position when cutting the notch and slot allowing for a better fit against F2 in the fuselage.**
  
6. Butt the wing panels together and trial fit **W1** wing joiner. Check to see that the trailing edge lines up. This may require some sanding. A two foot long sanding stick with 100 grit paper is ideal for truing edges. Don't even think about gluing the panels together yet.
  
7. Install a 5/16" sq. x 30" balsa stick on the trailing edge of each core. Use white glue and hold it in place with masking tape. Make sure it is centrally located. When cured block sand to conform with the airfoil. **Note: it is important to shape the trailing edge down so when the rear sheeting is installed and sanded the total thickness at the trailing edge is 5/16"; the same thickness as the aileron.**
  
8. Lay a 3/32" x 2" x 30" balsa sheet flush with the trailing edge. Use the opposite edge to draw a line from end to end. Apply contact cement in this area. Also apply contact cement on one side of the 3/32" sheet. We recommend Sta'-Put II Spray Adhesive especially formulated for Styrofoam. It is also water resistant. **When installing the sheet be careful to rest it on a flat surface!** Use this method to sheet all four trailing edge pieces.
  
9. Measure in 1/8" from the front edge of the wing spar. Strike a line the full length of the wing panel on all four spars.
  
10. Apply contact cement in the area between the line on the spar and the leading edge. Apply contact cement to one side of four 3/32" x 3" x 30" sheets. When ready install each sheet by placing the edge on the line located on the spar. **Make sure you work on a flat surface while pressing the sheets in place.**
  
11. Trim off the excess sheet on the leading edge flush with the foam. A long sanding stick will come in handy here. Glue the 3/8" x 7/8" x 30" leading edges in place. If the stick is crowned do not try to straighten it when taping in place. We have allowed extra width allowance on the leading edge. Use white glue and hold it in place with masking tape until cured.

12. Now is the time to decide whether you will use a servo on each aileron or one single servo to drive them both. Both methods are shown on the plans. If you are looking for a responsive, snappy performance by all means go for the servo on each aileron. If not, skip the next step.

13. Determine the location of the servo well, on the bottom side of the wing, from the plans. Measure in 15-11/16" from the wing root and strike a line perpendicular to the leading edge. Layout the servo well from this line with the front edge against the spar. Using a sharp X-acto knife and straightedge, cut as deep as possible all the way around the well. With a flat blade screwdriver dig out the well in depth until a servo fits properly. Layout, cut, and dig out in the same fashion the 1/4" x 12" servo access lead slot. Now do the other wing panel.

14. Install the 3/32 x 3/8" rib capping with white glue in position by measuring from the plans. Do each wing panel on both sides. Add the 3/32" x 3/8" trim around the servo wells.

15. Sand each wing tip smooth and flat. Place a wing panel on end and trace the airfoil on the 1/8" sheet balsa. Cut out and glue in place. Now do the other wing panel. **Tip: When gluing on sheet balsa with white glue, dampen the opposite side to prevent curling of the wood.**

16. Plane and sand the leading edge to match that shown on the plans. Use the long sanding stick to insure a true and straight edge.

17. Trim out the excess sheeting over the leading edge notch.

18. Sand the root end of each wing panel smooth and square. Squareness is important. Just a slight amount out will cause sweep back or sweep forward when the panels are joined. Trial fit to be sure the panels are in line with each other. Once satisfied, apply 30 min Z-Poxy to wing roots and **W1** and join the panels **on a flat surface**. No dihedral is required. **Tip: Place a strip of wax paper in the center of one of the foam shells. Align the wing panels in the center, apply epoxy to both mating surfaces and W1, and push together. Use weights to hold the panels in position until epoxy has cured.**

19. Glue **W2** (1/8" x 1-1/4" x 3-1/4" lite ply die-cut) in place. It is installed on top of the wing and not inset.

20. Cut to length and shape the ailerons from the 5/16" x 1-3/8" x 30" stock. Do not shape the leading edge until the hinge holes are drilled.

21. Locate from the plans and drill the 1/8" dia. Hinge Point holes in the aileron and wing trailing edge. Make sure each hole is perpendicular to the surface ensuring them straight. **Tip: Make a simple drill gage from a 5/16" sq.**

**hardwood stick. Locate and accurately drill the hole locations for the hinges in the center of the stick. Allow enough overlap on the end to provide a stop block allowing the holes to be gaged from that end. Now tape the gage securely, against the stop, to the wing trailing edge making sure it is centered. Drill the holes. Next, remove and tape the gage to the aileron leading edge and drill the 1/8" holes 3/4" deep. Remove the gage and the holes should match perfectly. This same method can be used to locate the hinge holes in the tail surfaces.**

22. Now shape and sand the leading edge of each aileron. If you intend to use only one servo to drive the ailerons install the strip aileron horn wires with Z-Poxy. When cured cut the slots for the bearings and fit to wing.

23. Refer to the optional aileron hookup on the plans and locate and cut out the aileron servo well. Once you cut thru the balsa and remove it, it is easy to dig out the foam. Z-Poxy in the 1/4" sq. servo mounting rails flush with wing surface.

24. Final sand the wing and prepare it for covering. Set aside until fuselage and tail surfaces are constructed.

## **TAIL GROUP**

1. Sort through the 1/4" x 3/8" sticks and pick out the hardest pieces. Use these for the trailing edge of the stab and the leading edge of the elevator. Lay out the tail group plans and cover them with wax paper.

2. In order to manage the wood, use it in this manner: Start with the stab and elevator outline. Pick out a 1/4" x 3/8" x 36" stick, cut to length and pin down the stab trailing edge. Cut to length and pin down and glue in the trailing edge reinforcement piece. This will leave you with a short piece for the right stab tip. Using another 36" stick cut to length and pin down the leading edge and center reinforcement piece. This will leave you with enough for the left tip of the stab and elevator.

3. Using another 36" piece cut to length and pin down both elevator leading and trailing edges. Pick out another 36" piece, cut to length and pin down the elevator inside end pieces and the right tip. You should have a 36" and approx. 24" piece left for the fin and rudder. Measure carefully and make good square joints for better strength.

4. Fit and glue in the 1/4" x 2-1/2" x 4" sheet stab center section. The 4" dimension is slightly long and will have to be trimmed to fit. Fit and glue in the 3/16" x 1/4" ribs and diagonal braces. One 36" stick has been allowed for this.

5. Cut and glue in the 1/4" sq. hinge backup pieces from the 12" stick.

6. Fit and glue in the 3/16" x 1/4" ribs and diagonal braces in both elevators using a 36" stick. Cut, fit and glue in the control horn supports and the gussets from the 1/4" x 3/4" x 8" piece. Add the 1/4" sq hinge backup pieces to complete the elevators.

7. Now build the fin and rudder. Using the short piece of 1/4" x 3/8", left over from building the elevators, cut to length and pin down the leading edge, trailing edge and tip of the fin. Using a 36" stick, cut to length and pin down the rudder leading, trailing edge, tip and bottom pieces to complete the outline. Fill in the ribs and diagonal braces using a 3/16" x 1/4" x 36" stick. Glue in the 1/4" x 3/4" control horn support and gusset with material left over from the 8" piece. Now add the 1/4" sq. Hinge backup pieces. Locate and glue on the 1/8" x 1/4" x 10-1/2" ply tail post to the fin. Measure carefully and make good square joints for better strength.

8. Locate from the plans and drill the Hinge Point holes in the tail surfaces. As stated in step 21. of the wing construction this can be done simply and accurately with a drill jig.

9. Round off the leading edges, tips and trailing edges. Block sand the top and bottom surfaces and prepare for covering. After final sanding Z-Poxy the fin to the stab making sure it is square. Put the assembly aside until fuselage construction is completed.

## FUSELAGE CONSTRUCTION

1. Push out the fuselage sides **FS1** from the diecut wood and clean up the edges. You will need a LH and RH side so choose the side you want facing out.

2. Mark the locations of **F2** and **F3** inside on each fuselage side. Cut to length and glue in place all the 3/8" tri-stock and 1/4" sq. pieces down the back top side and tailpost. Allow room for **F2** and **F3**. Leave some extra room behind **F3** so the sides can be bent sharply. Also leave room for **F1** which will be installed later.

3. Push out **F2** and **F3** from the diecut wood. Laminate two F2's with 5 min Z-Poxy. When cured clean up and square edges.

4. Lay out fuselage side on a flat surface and Z-Poxy **F2** and **F3** in place. Use a square and make certain they are perpendicular to the side. When cured glue on the other side. Weight it down and pull the tail together briefly to check alignment. Again check to see that **F2** is square with side and that both sides are aligned.

5. Score each side at the aft edge of **F3**. Bend each side inward until they crack. This is to promote a sharp bend allowing a straight side from **F3** to the tail so the turtledeck will fit properly.
6. Next, pull the tail together. It will be necessary to sand off some of the 1/4" sq. at the tail to match the plans. **Tip: Using a thin piece of ply or metal, cement some 100 grit paper on both sides. Holding the two sides in one hand slide the double sided sanding stick in between and work it back and forth while holding a slight amount of pressure on the sides. Sand enough to match the plans and allow TW1 to fit. If done properly you should have a good fit.**
7. Z-Poxy the tail end together making sure there is no twist. Lay the fuselage on a flat surface and check the tail post with a square. Push out two **TW1's** from the diecut wood and laminate. Clean up edges and install with Z-Poxy.
8. Measure and cut the 1/4"sq. cross braces on the upper back of the fuselage. Locate them from the plans. Add the 3/32" sheet to the bottom with the 36" sheet supplied taking care not to displace the aft fuselage sides. Sheet all the way back to the tail post.
9. Place the wing in the saddle on the fuselage. Pin it in proper alignment so that it will not move. Match drill the dowel holes in the wing from **F2** former. Use a long 1/4" drill. Glue in the 1/4" wing-hold-down dowels. They should protude from **W1** no more than 5/16" with rounded ends.
10. Prepare **F1** by laminating three **F1's** together. When cured clean up the edges and layout and drill the engine mount holes. It is much easier to do this before installing, enabling you to use a drill press.
11. Glue in **F1** with Z-Poxy and the 1/4" x 3-3/4" x 9" ply bottom. Use Z-Poxy here too. Add the rest of the 3/8" tri-stock where shown on the plans to complete the front bracing. Pin the fuselage sides to **F1**, three places on each side with the 1/8" dowel supplied. Drill a 1/8" hole, apply glue to a short piece of dowel, drive in flush with fuselage side.
12. Push out the two **FS2's** and **FS3's** from the diecut wood. Clean up the edges and glue them in place between **F2** and **F3** on each side. Locate the **FS3** location from the plans. Cut to length and glue in the two servo rails from the 1/4" x 3/8" x 7-1/2" piece
13. Locate and glue in **HD1**, 1/4" x 1-1/4" x 3-1/2" ply, wing hold-down with Z-Poxy. Add the 1/4" sq. pieces on each end on the bottom side to reinforce it. Make sure it is flush with the top surface of the fuselage. Pin the fuselage sides to **HD1**, two places on each side, with the 1/8" dowel supplied.

14. This completes the fuselage box. Rough sand it rounding off the sharp corners, clean up any excess glue and lay it aside.

## **FITTING THE PLASTIC PARTS**

Now is the time to fit the top plastic parts. The Tank Cover, Wing Cover and Turtledeck. Start with the turtledeck. Notice the mold lines along each side and on the forward end. Using a straightedge and sharp knife, score along the sides and stab notch. Bend the plastic back and forth and it will break along the scored lines. On the forward end it is best to use a drum sander on a Dremel Motor. Clean off the excess material up to the mold line. Make sure the notch on either side the front edge is according to plans.

1. Push out **FT2** former from the diecut wood. Clean up the edges and glue in place with CA glue. This will reinforce the front of the Turtledeck.
2. Pin or tack glue the stab and fin assy. in place. Trial mount the Turtledeck. The front edge should be even with **F3**. It may be necessary to cut down the fin fairing to make it fit properly. This is the only adjustment so do it carefully.
3. Fit the Tank Cover next. Trim to the mold lines as discussed above. Push out **FT1** from the diecut wood, clean up the edges and glue in place where shown on the plans. Use CA glue.
4. Modify the plastic former as shown on the plans. Tack glue to the back surface of the Tank Cover leaving just enough room for the Wing Cover material thickness. Do this carefully for a good fit. Match drill the two 3/16" dowel holes from the plastic former into **FT1**. Now carefully cut the former loose.
5. Next tape the Tank Cover and Turtledeck in place on the fuselage. Trim and cut off the excess material on the Wing Cover to the mold lines. Lay a small piece of wax paper over the rear surface of the Tank Cover. Pin the plastic former in place by pushing two 3/16" dowels thru the holes and wax paper. Make sure it positioned properly before going and further.
6. Spread CA glue along the top edge of the plastic former. Carefully position the Wing Cover over it and hold in place until cured. Remove the Wing Cover and wax paper. Temporarily mount the wing and trial fit the Wing Cover with it. It will be necessary to do some trimming because of building tolerances. Don't forget to add the plastic reinforcement pieces over the Wing Cover cscrew retaining holes. Cut these from scrap plastic. Glue in the two 3/16" dowels, as shown on the plans, when satisfied with the fit at the front edge.
7. Trim off excess material on the canopy to the mold lines and fit it to the Wing Cover. Set aside until painting is complete.

## LANDING GEAR

1. Find the center of each landing gear leg and drill a 5/16" hole 1/4" from each end. Locate and drill a 5/64" hole 5/8" up from the center of the 5/16" hole in each strut.
2. Measure back on the fuselage 4-7/16" from the front surface of **F1**. Using a square draw a line across the fuselage.
3. Find the center of the landing gear mounting surface. Measure 1" out both ways, in the center of the width, center punch and drill the landing gear mounting holes with a #7 drill. (or 3/16").
4. Place the landing gear on the fuselage over the line drawn. Center it with the sides and match drill the holes. **Tip: Drill one hole and install the bolt to hold the gear in place. Now align and drill the other.**
5. Locate the wheel pants and remove the saw flashing from them. Make sure the mating surfaces are flat by sanding them on a flat surface. Mate each half, align and glue together with CA glue.
6. Cut out the wheel openings in each with rounded corners. Here again it is best to use a Dremel Motor with a burring tool and drum sander. Reinforce the inside seam of each pant with a strip of 2 oz glass cloth 1/2" wide. Use thin CA.
7. Push out the two **WH1's** from the diecut sheet and clean up the edges. Glue a **WH1** on the inside of the pant, centered with the wheel opening. Round off the ends to fit the pant flange. Glue a **WH1** on the opposite side of the other pant making a LH and RH pant.
8. Remove the plastic under the slot in **WH1** to form a continuous slot in the wheel pant side the same size as the slot in **WH1**. Now do the other pant.
9. With the landing gear mounted on the fuselage, prop it up to a level flight position. Slide the slot in the pant down over the hex on the axle, holding it against the strut making sure it is bottomed. Rotate the pant until it is level then mark the retaining hole location using the small hole in the strut. Remove the pant, drill and install a #6 "All Threads" insert. The "All Threads" insert is nothing more than a specifically sized plastic tube that will provide a insert and locking feature for the retainer screw. They are ideal for many applications, such as this. Push out both **WH2's** and drill a 5/32" hole in the center of each. Mount the axles on the struts. Slide the wheel pant, against the strut, down to the axle and mark the axle, even with the inside wall of the pant. Now trim off the axle. Mount the wheel pant with a retaining screw and slip a **WH2** over the axle against the outer wheel pant wall and CA in place. Careful not to glue the axle to **WH2**. Now

remove the retaining screw and the wheel pant. Install the other **WH2** on the other pant using the same method.

### **TAILWHEEL MOUNTING**

1. We show the Du-Bro tailwheel bracket no. 376 on the plans. Use the assy instructions on the package to assemble it. Bend the 3/32" dia. strut as shown on the plans. Place the control horn over it for added strength. Mount the bracket to the fuselage with two #4 x 3/8" sht. mtl. screws.

### **ENGINE COWL**

1. The engine cowl is made in two halves. The upper half fits over the lower half by 1/2". Temporarily tape them together and tack glue with CA. Remove the tape and finish gluing.

2. Check the plans for the cutouts in the front. If you are not using a Pitts style muffler as we have shown, you will need a different cutout in the bottom. All of the engine heads will protrude from the cowl; muffler and needlevalve holes will also be required.

3. Mount the engine and measure from the firewall to the back plate of the spinner, then add 5/8". This will be the length of the cowl. Trim off the back edge of the cowl. Temporarily mount on fuselage and locate all the other required holes. Some forward and aft adjustment can be made afterwards when final mounting to the fuselage.

### **FINISHING THE PLASTIC PARTS**

1. We found it best to finish and paint the plastic parts before installing them on the airplane that is, if the trim design you chose is not integral with the lower half of the fuselage. Sand each part with 3-M Scotch Brite or 150 grit paper to get rid of the glaze. Clean with rubbing alcohol and wipe with paper towel. Tack off with a tack rag. Apply primer to fill the minute scratches and imperfections. Sand with 600 paper. Now paint them with your favorite model paint. CA a stick temporarily to the inside of each part to hold it while painting. We recommend the following paints for compatibility with our plastic: 21st Century, Formula U, Perfect Paint, K&B Superpoxy and Hobbypoxy.

2. Once you have completed painting, set all the parts aside.

3. If you intend to install a pilot figure now is the time. The Williams Bros. 2-5/8" Sportsman pilot is cut down somewhat and will fit under the canopy. Glue it in securely.

4. Clean the canopy on the inside with a tack rag to pick up all the dust particles. Temporarily mount the Tank Cover, and turtledeck on the fuselage. Align the Wing Cover and tape it in place. In order to get a good fit be sure the wing is fastened at this time. Position the canopy and tape it temporarily in place. Now apply QC-56 glue around the edges with a glue gun. Be neat. When cured remove the tape and apply glue where the tape was. 1/8" - 3/16" trim tape can be applied over the joint to finish it off.

### **INSTALLING THE AIRBORN GEAR**

1. The prototype Stinger 60 balanced at 30% of the wing with the components located as shown on the plans. If built according to the plans you should be able to mount your airborne components as shown and come close.

2. Mount the three servos on the servo rails with # 2 x 3/8" sht. mtl. screws. Space them as shown on the plans. Makeup two pushrods as shown on the plans. As stated these can be made from 5/16" dowel if necessary but maintain the dimensions shown.

3. Add the 1/8" pieces made from scrap lite ply where the pushrods exit. The elevator push rod requires one on each side of the fuselage. The rudder only on the right side.

4. Install the pushrods and check for binding before gluing the turtledeck in place.

5. Wrap the receiver and battery pack in foam to protect them from vibration and shock. Place the fuel tank in the forward section propping it up with foam to the position shown. Wedge pieces of foam rubber on either side to hold it in place. Install the engine and hookup the throttle servo to the engine carb. as shown on the plans. Install the airborne switch in the fuselage just aft of F2 on the right side.

### **FINAL FINISHING AND ASSEMBLY**

1. Cover the wings, tail surfaces and fuselage with your favorite covering. We used Coverite 21st Century film and painted the plastic with Hobbypoxy. Install the hinges for the control surfaces. Do not use CA glue to hold them in place. It will cause binding or might even glue the hinge tight. We recommend epoxy, white glue, or you might even use Silicon Sealastic. All of them are good for that purpose. Use sparsely to keep from getting in the hinge joint.

2. Z-Poxy the tail surfaces in place. Remove the covering from the gluing surfaces. Place the wing in the saddle, apply glue to the stab, align with wing and hold in place with pins. Push out **FS4** from the diecut wood and install inside on both sides of the Turtledeck as shown on the plans. Glue in place with thin CA glue.
3. Install the Turtledeck on the fuselage. Run a sharp knife along each side of the lower edge cutting through the covering. Lift it off and remove the thin strip of covering on each side. Install it again, making sure of alignment, and apply thin CA all around the edges to hold it in place. Do this carefully and be neat. Make sure **FT2** and **FS4** are glued to the fuselage top securely on each side.
4. Install the Tank Cover, as described above, making sure **FT1** is glued securely to the fuselage sides.
5. Mount the wing and tape or pin it in position. Locate and drill the two wing hold-down holes thru the wing and **HD1** as shown on the plans. Use a #25 drill. Remove the wing and tap the holes in the fuselage using a 10-24 tap. Now drill out the holes in the wing with a #11 drill.
6. Install the aileron servos in the wing and hookup the linkage as shown on the plans.
7. Mount the Wing Cover and locate the retaining screw holes. Drill the holes and install the two #6 "All Threads" inserts on each side. Use thin CA glue to retain them.
8. Mount the cowl and align with the spinner and tape in place. Locate and install three #6 "All Threads" inserts where shown on plans. Cut to length by measuring the space between the fuselage and inside wall of cowl and cover, with covering, the 3/8" dowels to support the cowl on each side. Drill and install a #6 "All Threads" insert in the end of each. Remove the covering in the location where each will be located on the fuselage. Now Z-Poxy both in place. These supports will better support and improve the life of the cowl.
9. Run the receiver antenna out and along the bottom of the fuselage and fasten to the tailwheel strut with a rubber band.
10. Hookup the fuel line from the tank to the engine. It will be necessary to drill a hole in the firewall for them to pass through. Two 1/4" dia holes will do it. Use a good grade of fuel line such as Du-Bro Super Blue Silicone #222. Use pressure if the muffler has a tap.
11. **Do not fly the airplane without the tail struts.** The tail is built extremely light and needs the support of the struts. Without them possible flutter resulting

in loss of tail surfaces could occur thereby ending the life of your airplane and possible personal damage. The strut arrangement we have shown on the plans is more than adequate for their stability

## **FLYING CHECK**

Before flying your Stinger 60, It is a good idea to check over the model to avoid first flight discouragement. Spend some time looking it over. Here are some of the things you can do to insure success.

1. Check the radio for operation. Make sure the pushrods are not binding. And above all that **the servos are moving the control surfaces in the right direction. Especially the aileron and elevators.** Check and make sure the servo output arm screws are in and secured. That clevises are sound and have safety tubing in place.
2. Run the engine, if it is new, and become familiar with its operation. If it is new, run a couple of tanks to give it a slight break-in. Make sure the prop is balanced and the engine mounting bolts are tight.
3. Balance the model with no fuel in the tank. It should balance at the rear location shown on the plans with the nose slightly down. Or, the forward position with nose slightly down
4. You are now ready to fly and enjoy your Stinger 60. We know you will have a great time with it. So, what are you waiting for? **Take it out to the field and wring it out!**

## HARDWARE AND MATERIAL LIST TO FINISH THE STINGER 60

### GENERAL

1. 4 - Cannel radio with four standard servos
2. Engine size - .51 - .75 two cycle, .60 - .90 four cycle
3. Fuel line - medium
4. Propellor - depending on engine size.
5. 3" spinner - Tru-Turn or Du-Bro
6. Fuel tank - Du-Bro 10 - 14 oz
7. Covering, paint and trim - your choice
8. Wheels - Du-Bro 3.00L (3")

### FUSELAGE

1. Engine mount - Hayes KM 70
2. Mounting bolt set - Du-Bro # 130 (engine mounting)
3. #10 -32 x 7/8" bolt (2) (landing gear mounting)
4. #10 Fender Washer (2) (landing gear mounting)
5. #10 - 32 Self looking nut (2)
6. 5/32" Wheel collars (4) Du-Bro #140 (landing gear)
7. Steel axle (2) Du-Bro #248 (landing gear)
8. #6 "All Threads" insert (9) Ohio Superstar (cowl, wheel pants, wing cover)
9. #6 Button head screw (9) Du-Bro #530 (cowl, wheel pants, wing cover)
10. #6 Nylon Washer (7) (cowl, wing cover)
11. 1/4-20 x 1-1/4" nylon bolt (2) (wing hold down)
12. Nylon kwik-link with rod (3) Du-Bro #229 (fuselage pushrods)
13. Dave Brown pushrod system (fuselage pushrods)
14. Engine control flex-cable assembly Du-Bro # 165

### WING

1. Kwik-link with rod (2) Du-Bro #306 (2) (aileron pushrod)
2. Hinge point (10) Robart # 308 (aileron hinges)
3. Control horn (2) Robart #325 (ailerons)

### TAIL ASSEMBLY

1. Control horn (2) Robart #325 (rudder and elevator)
2. Hinge point (10) Robart #308 (rudder and elevator)
3. 3/32" wheel collar (1) Du-Bro #138 (tailwheel retainer)
4. 1-1/4" dia tailwheel (1) Du-Bro #125TW
5. Landing gear straps (8) Du-Bro #158
6. Kwik-Link with rod (4) Du-Bro #229
7. Solder Kwik-Link (4) Du-Bro #603
8. #2 Lock Nut (3) Du-Bro #168
9. #2 X 3/4" screw (3) Du-Bro #311

**MATERIAL LIST for STINGER 60**

**FUSELAGE**

Plastic parts -----

- |                       |                            |
|-----------------------|----------------------------|
| (1) Cowl (two halves) | (1) Turtledeck             |
| (1) Tank Cover        | (2) Wheel Pant (LH and RH) |
| (1) Wing Cover        | (1) Canopy                 |
| (1) Plastic Bulkhead  |                            |

**Diecut Wood Parts - 1/8" Lite Ply**

- (3) F1 firewall
- (2) F2 bulkhead
- (1) F3 bulkhead
- (1) FT1 bulkhead
- (1) FT2 bulkhead
- (2) FS1 fuselage side
- (2) FS2 wing saddle doubler
- (2) FS3 servo mount
- (2) FS4 wing cover hold down
- (2) TW1 tailwheel support
- (2) W2 wing hold down reinf.
- (2) WH1 wheel pant support
- (2) WH2 wheel pant support

**WOOD -----**

- (2) 3/8" tri-stock X 36" fuselage reinf.
- (1) 3/8" tri-stock X 30" fuselage reinf.
- (2) 1/4" sq. x 36" fuselage reinf.
- (1) 1/4" sq. X 18" fuselage reinf.
- (1) 1/4" x 3-3/4" x 9" A/C Ply forward bottom
- (1) HD1 1/4" x 1-1/4" x 3-1/2" A/C Ply fuselage wing hold down
- (1) 1/4" x 3/8" x 7-1/2" ply servo rails
- (1) 3/32" x 3" x 36" fuselage bottom sheeting
- (1) 3/16" dowel x 1-1/2" wing cover hold down
- (1) 3/8" dowel x 2" cowl support

**TAIL MATERIAL ( fin, rudder, stab and elevator)**

- (5) 1/4" x 3/8" x 36" tail outline pieces
- (3) 3/16" x 1/4" x 36" tail ribs
- (1) 3/16" x 1/4" x 18" tail ribs
- (1) 1/4" x 3/4" x 8" control horn support and gussets
- (1) 1/4" x 2-1/2" x 6-1/2" fin base

## LANIER R/C

- (1) 1/4" x 2-1/2" x 4" stab center section
- (1) 1/8" x 1/4" x 11" ply - fin post
- (1) 1/4" sq. x 12" hinge backup

### WING MATERIAL

- (2) foam cores
- (2) 3/8" x 7/8" x 30" leading edge hard pts
- (6) 5/16" sq. x 30" spars and trailing edge
- (5) 3/32" x 3" x 30" leading edge sheeting and center section
- (1) 3/32" x 4" x 30" center section sheeting
- (4) 3/32" x 2" x 30" trailing edge sheeting
- (2) 5/16" x 1-3/8" x 30" ailerons
- (6) 3/32" x 3/8" x 36" wing rib capping
- (1) 3/32" x 3/8" x 24" wing rib capping
- (1) 1/8" x 3" x 30" wing tip and center notch capping
- (1) W1 - 3/16" x 1-7/8" x 18" A/C Ply wing joiner
- (1) W2 - 1/8" x 1-1/4" x 3-1/4" ply diecut - wing hold down reinf.
- (1) 1/4"sq. x 6" spruce wing servo mounting
- (1) 1/8" dowel x 12" firewall and wing hold down pinning
- (1) 1/4" dowel x 6" wing hold down & stab and rudder