Lanier RC
Radical 330 ARF

WARNING

A radio-controlled model is not a toy and is not intended for persons under 16 years old. Keep this kit out of the reach of younger children, as it contains parts that could be dangerous. A radio-controlled model is capable of causing serious bodily injury and property damage. It is the buyer's responsibility to assemble this aircraft correctly and to properly install the motor, radio, and all other equipment. Test and fly the finished model only in the presence and with the assistance of another experienced R/C flyer. The model must always be operated and flown using great care and common sense, as well as in accordance with the Safety Code of the Academy of Model Aeronautics (5151 Memorial Drive, Muncie, IN 47302, 1-800-435-9262). We suggest you join the AMA and become properly insured prior to flying this model. Also, consult with the AMA or your local hobby dealer to find an experienced instructor in your area. Per the Federal Communications Commission, you are required to use only those radio frequencies specified "for Model Aircraft."

LIMITED WARRANTY

Lanier RC has inspected and certified the components of this aircraft. The company urges the buyer to perform his own inspection, prior to assembly, and to immediately request a replacement of any parts he believes to be defective for their intended use. The company warrants replacement of any such components, provided the buyer requests such replacement within a period of 90 days from the date of purchase and provided the defective part is returned, if so requested by the company.

No other warranty, expressed or implied, is made by the company with respect to this kit. The buyer acknowledges and understands that it is his responsibility to carefully assemble the finished flying model airplane and to fly it safely. The buyer hereby assumes full responsibility for the risk and all liability for personal or property damage or injury arising out of the buyer's use of the components of this kit.

Lanier R/C, INC. P.O. Box 458 Oakwood, Ga. 30566 PH 770 532 6401

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 RC 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 90 days, it will replace, at the buyers request, any part 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 there under, 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.

Important Information

Covering coming loose is not COVERED UNDER WARRANTY. Due to temperature changes the plane may develop some wrinkles in the covering that you will need to remove with an iron. Be sure to seal the edges down first so that you do not cause the covering to shrink and leave exposed areas of wood. Please inspect the plane before beginning to assemble to make sure you are happy with it. After assembly has begun you cannot return the kit. If you find a problem before beginning to assemble the plane you must contact us, please do not return it to the dealer.

Congratulations on your purchase of the **Radical 330 ARF**. Every effort has been made to produce a lightweight, straight, easy to assemble aircraft. Because of its oversize control surfaces which are double beveled to allow for extreme throws, great care must be taken in the set-up and flying of this airplane. Quality hardware components have been provided to allow for 3D set-up while maintaining adequate mechanical advantage to eliminate flutter. It is your responsibility as an advanced pilot to fly the aircraft in an intelligent manner. **THROTTLE MANAGEMENT IS A MUST!!!!!!!** Lanier RC has flown the **Radical 330 ARF** through a very rigorous flight-testing schedule and have stressed the airframe beyond all practical parameters without a single failure. Lanier RC will NOT warranty the **Radical 330 ARF** against flutter due to improper set-up or excessive speed maneuvers. having said that, we believe you will find the **Radical 330 ARF** to be one of the most responsive, in-the-grove aircraft on the market. Just remember to use common sense when flying this high performance machine.

We are very proud of the construction of the **Radical 330 ARF** and all of our other ARF aircraft. Each aircraft is jig built to insure a straight true airframe. Every effort is made to build as light an aircraft as possible. As with any professional builder, glue is used sparingly. **Please take a moment during assembly and run a bead of CA or aliphatic resin into the high stress joints that you can reach such as the landing gear plate, servo mounting trays, wing hold down blocks, Firewall, etc**. Also, during the course of shipping from the manufacturer to our facility in the United States, it is not uncommon for the aircraft to experience several changes in climate. This may cause the iron-on covering to develop wrinkles. This is not a fault of the manufacturer. Please take a few minutes with your heating iron and heat gun to iron down the seams and re-shrink the covering where needed. The results will be a beautiful aircraft with a breathtaking finish that you will be proud to display at your flying club.

Before beginning assembly of your **Radical 330 ARF**, we highly recommend that you study this manual in its entirety. You should begin planning your radio installation based on your choice of engine and equipment from the beginning.

Because the Radical 330 ARF is intended for those with some degree of modeling experience, every minute detail will not be covered. This is not a basic trainer. Assembly of this aircraft will be easy for the experienced modeler, and by following the instructions within this manual and using the skills you've gained during your modeling career you will be able to produce a first class aircraft.

BUILDING INSTRUCTIONS

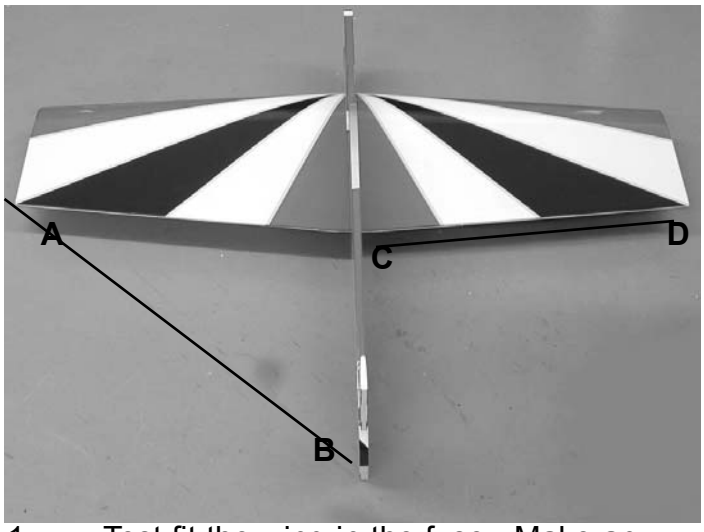
Before starting to build this kit, we urge you to read through these instructions. They contain some important building sequences as well as instructions and warnings concerning the assembly and use of the model.

We expect that you have some building experience to take on this model. However, every minute detail is not covered. This is not a basic trainer. The instructions together with the simplicity of this kit will allow you to produce a first class Radical 330.

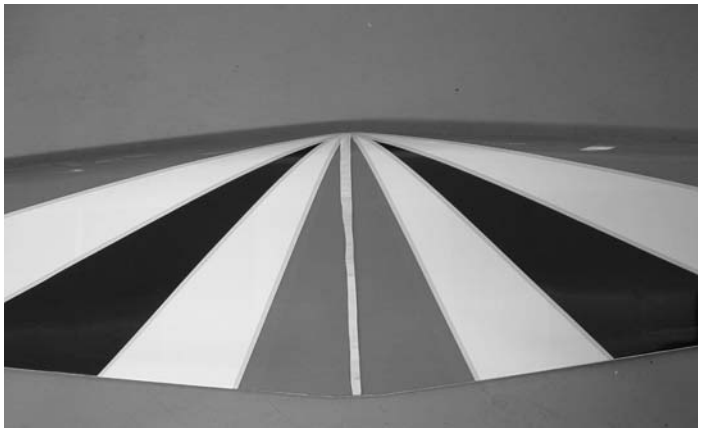
BUILDING SUPPLIES NEEDED

Hobby knife w/ #11 blade
Thin Zap CA
30 Minute Z-poxy
Thread lock
Wire cutters
Pliers
Drill with bits: 1/8", 5/32"
Phillips and standard screwdriver
Small clamps
Masking tape
Tape measure
Washable marker
Paper towels
Rubbing alcohol

See the list at the end of the instruction book for a list of additional R/C equipment you will need to complete the **Radical 330**.

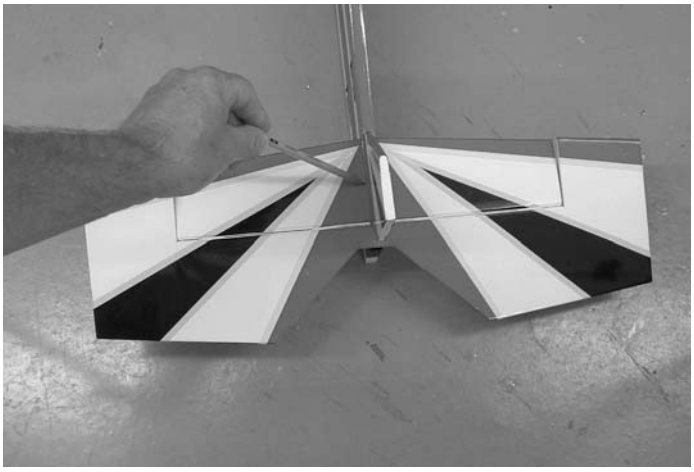


1. Test fit the wing in the fuse. Make any adjustments needed with a sanding block or round file. Try to keep the fit as tight as possible. Use a ruler to measure to make sure distance A - B are same on both sides of the fuselage and C - D are equal on both sides of the fuselage. This is important to make sure the plane tracks straight and predictably.

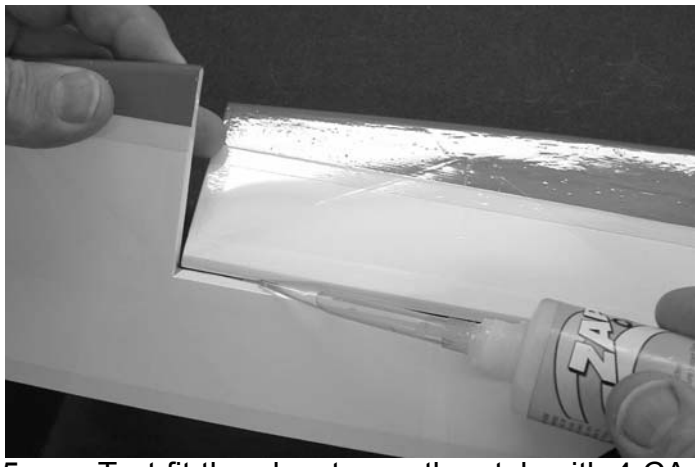


2. Use a washable marker to mark the location of the wing in the fuse on both sides, then remove the wing. Remove the covering from the wing joint with a sharp hobby blade, being careful to only cut the covering and not the balsa.

3. Slide the wing back in the fuse, almost to the wing joint. Coat the bare balsa at the joint with 30 minute z poxy and slide the wing in the rest of the way. Use your marks to realign the wing, then remeasure A to B, and C to D. Clean up any zpoxy that squeezed out with a paper towel and alcohol. Block the entire assembly on your workbench until cured.

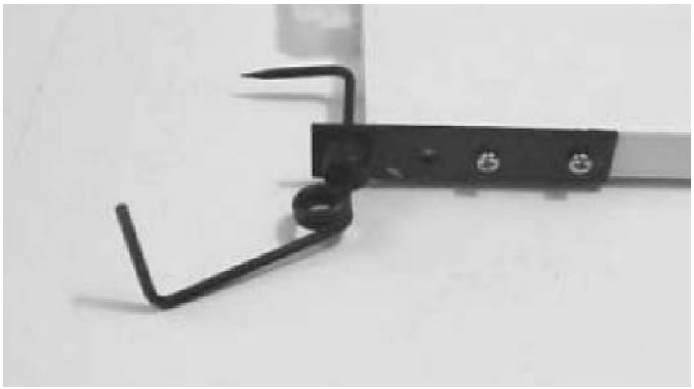


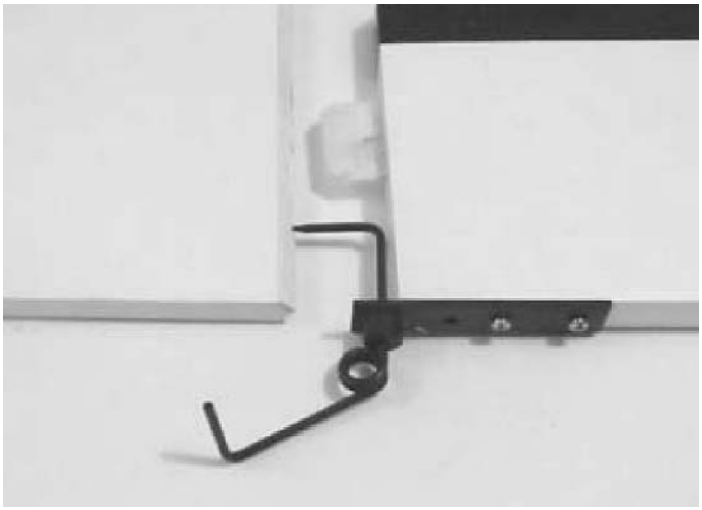
4. Test fit the horizontal stab in the rear of the fuse. Center it the same way you did the wing using a ruler and make sure it square to the wing, then mark and trim the covering from the joint. Glue in place with 30 minute z poxy.



5. Test fit the elevator on the stab with 4 CA hinges, then glue in place with 1 or 2 drops of thin Zap on each side of each hinge. Clean any CA runs with acetone.

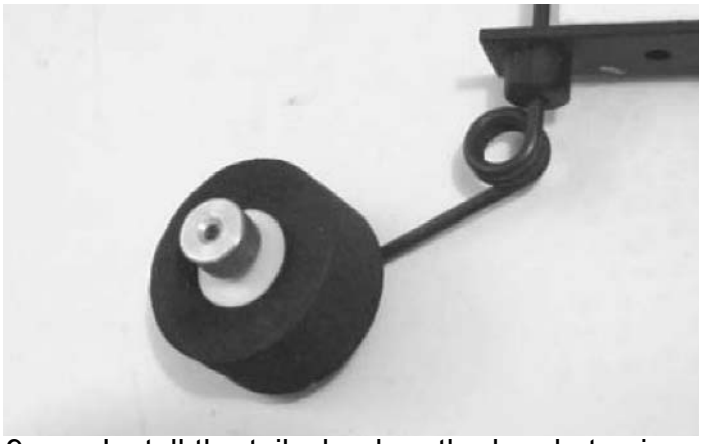
6. Install the tail wheel bracket on the bottom of the fuse with two #4 screws. Align the wire with the back of the fuse.



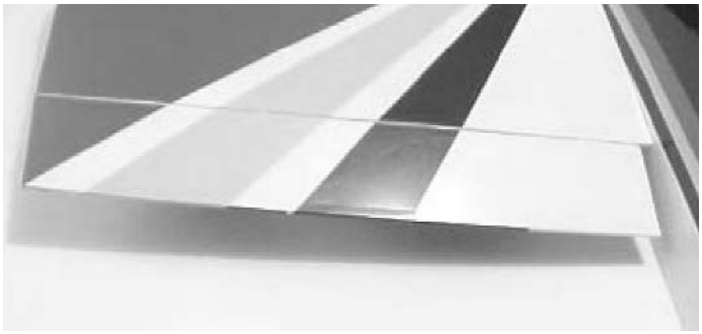


7. Recess the bottom of the tail wheel bracket to accept the steering arm for the wheel.

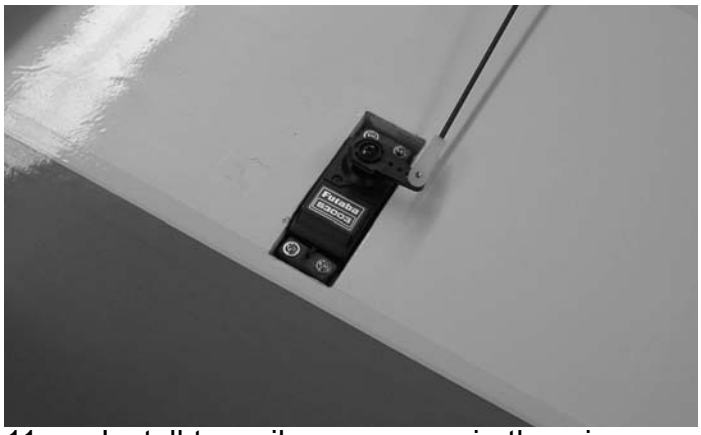
8. Install the rudder on the fuse with 30 minute zpoxy on the tail wheel bracket, then 3 CA hinges and thin CA glue.



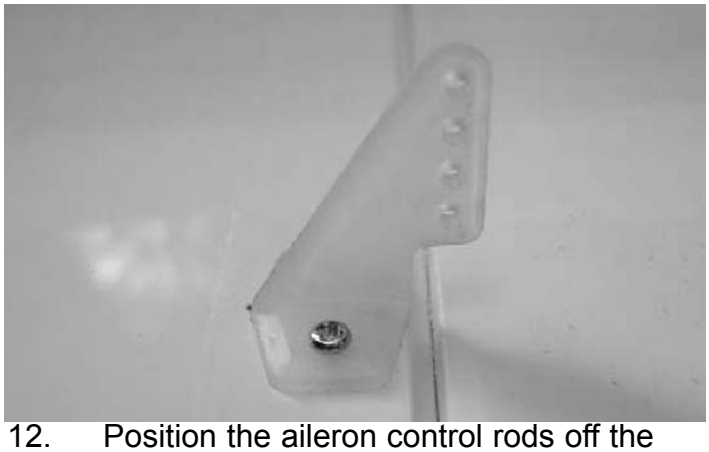
9. Install the tail wheel on the bracket using a small inner diameter wheel collar and set screw on each side of the wheel. Use thread lock on each set screw.



10. Trial fit, then install an aileron on each side of the wing with 4 CA hinges and pink zap. Make sure the wing tip and aileron tip are aligned before you glue.

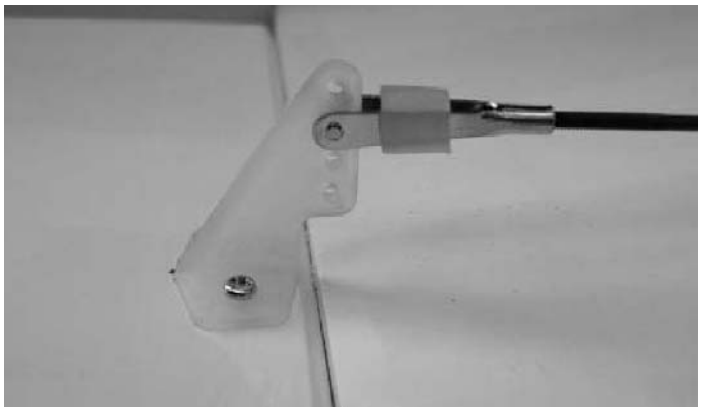


11. Install two aileron servos in the wing. You may need to open the servo trays to accept the size of your servos. Use a hobby blade or razor saw to open the servo trays.



12. Position the aileron control rods off the servos, toward the ailerons, keeping the rods 90 degrees to the ailerons. Mark the position of the aileron control horns, then install them with the #4 machine screws and backing plates.

13. Use a clevis on the threaded end of the control rod and install one on each control horn. Lay the rod across the servo arm, then make an "L" bend at each intersection. Trim each rod to ¼" from the bend, install in the horn, and secure with an "L" keeper. Place a small piece of fuel tubing on each clevis to lock in place.



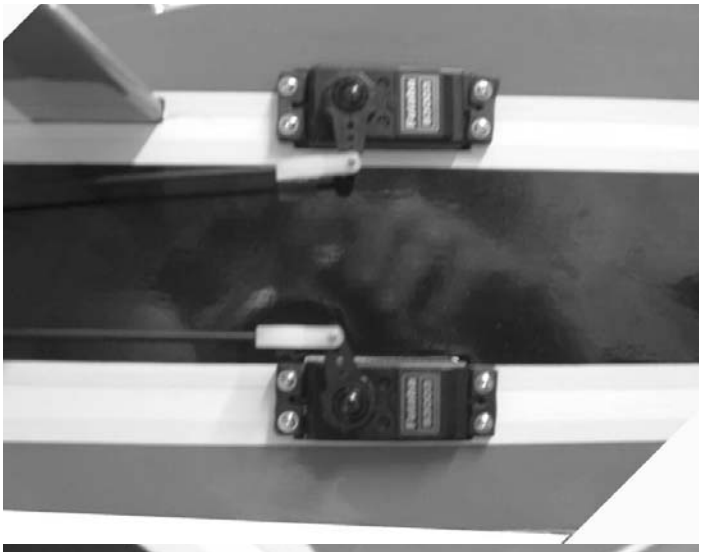
15. Trim 3 arms from a 4 arm servo wheel. Center your aileron servos with your radio, then install the trimmed servo arms on the aileron servos.

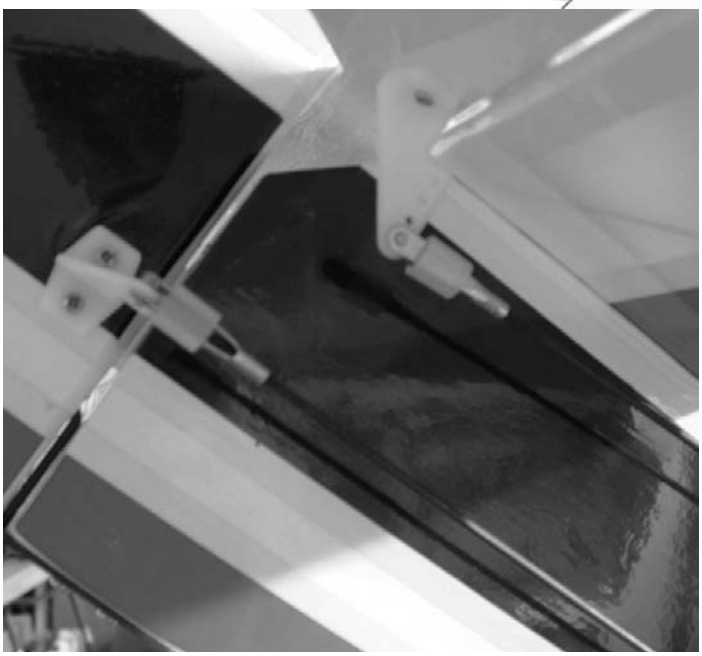
16. Locate the servo positions in the rear of the fuse and remove the covering with a sharp hobby blade.

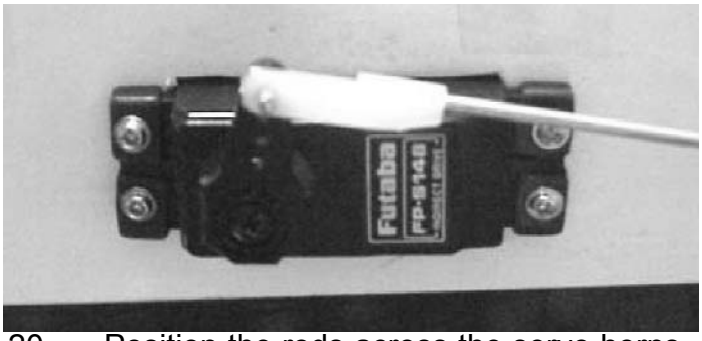
17. Install your rudder and elevator servos in the openings, keeping the servo tops on the right side of the fuse. Center the servos with your radio.

18. Trim two more 4 arm servo wheels and install on the servos, then locate the control horn positions as was done for the ailerons, for the elevator and rudder, trying to keep the rod positions 90 degrees to the control surface.

19. Install the control horns with the small machine screws, then install and clevis and rod on each horn.

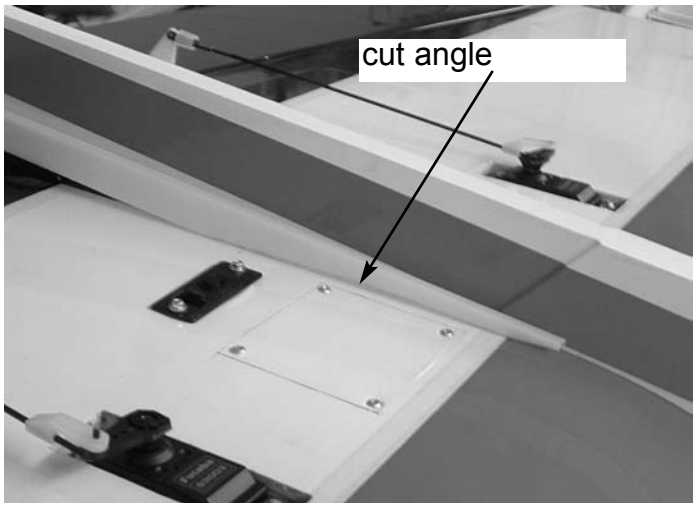




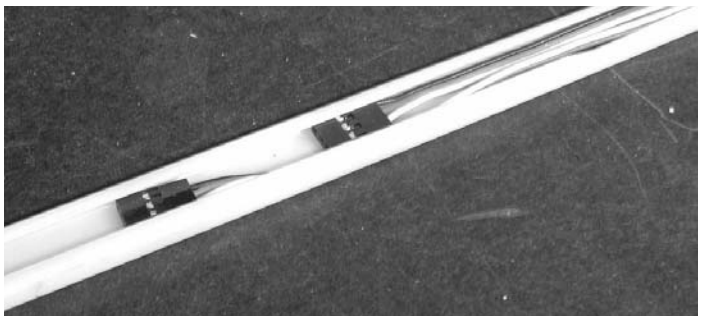


20. Position the rods across the servo horns, mark, make an "L" bend, then trim as before. Secure the rod on the servo wheel with an "L" keeper.

21. Use a sharp hobby blade to cut a small hole against the fuse for the rudder and elevator servo wires to enter the wing.



22. Use the included wire tube , two brackets, and 4 #2 screws to hold the wires down the length of the fuse.



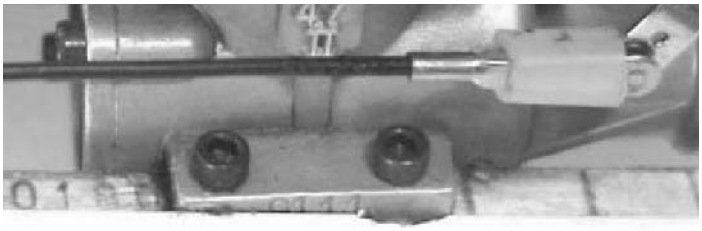
23. Cut the back side out of the rectangular nylon tube making it a u channel open on the back so the wires can be fitted inside. Cut an angle on the end next to the wing so it lays flat against the wing over the entrance hole for the wires into the wing.

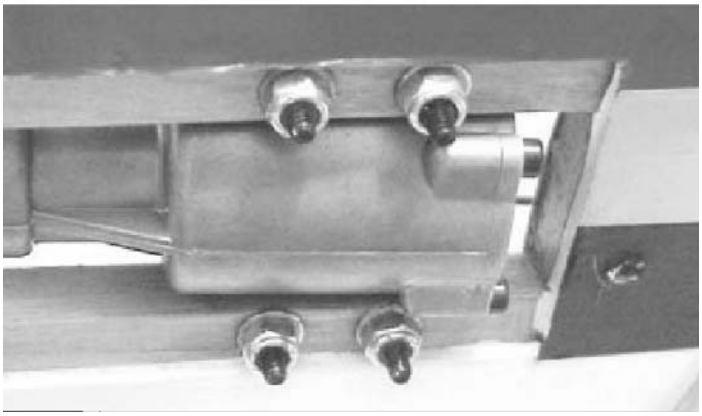
24. Drill for the 6/32 engine mounting bolts.

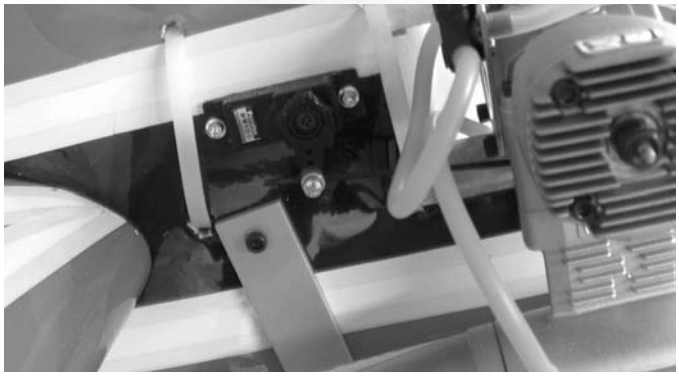
25. Trial fit your engine on the right side of the fuse. You can open the rails up slightly if needed. Slide the engine forward so you have

at least ¼" clearance from the front of the prop hub to the front of the fuse. Mark the location, remove your motor

26. Mount your engine to the fuse with 6-32 x 1" bolts, washers, and lock nuts. There is no need to add any washers under the motor as the right thrust is built into the motor mounts.







27. Prepare and install a servo arm on the throttle servo as was done with the control surfaces. Make sure your servo is at low position and the travel matches up with the travel of the carburetor.

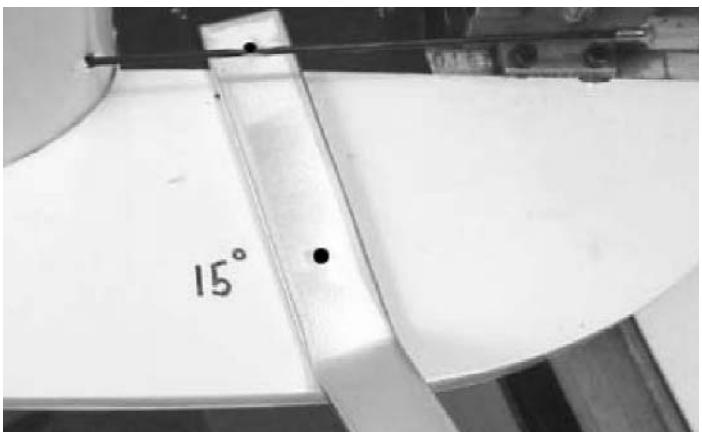
28. Connect a control rod to the servo, with the threaded end at the carb. Use a clevis on the threaded end to mount to the carb.

29. Install an "EZ" connector on the outside position of the servo arm, then adjust and secure the throttle rod in the connector. Adjust the position of the rod and connector to achieve the proper throw on the carburetor.

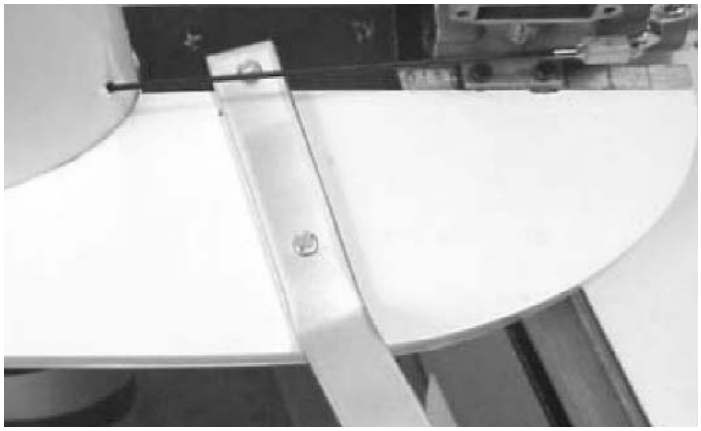
30. Remove the covering from the area just behind the engine with a sharp hobby blade.

31. Secure the servo with the screws supplied.

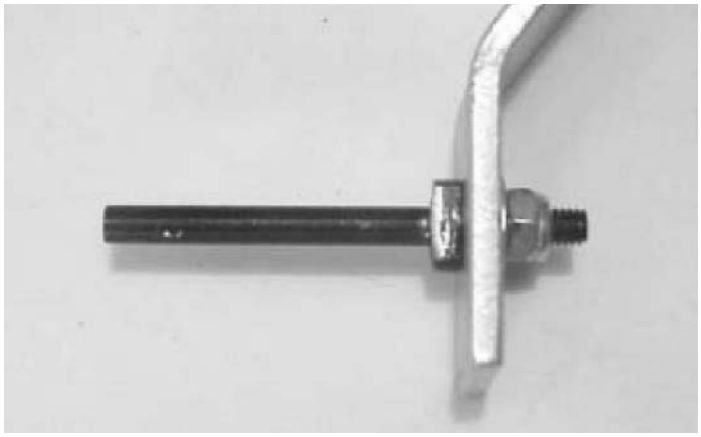
32. Use a servo horn as is described above.



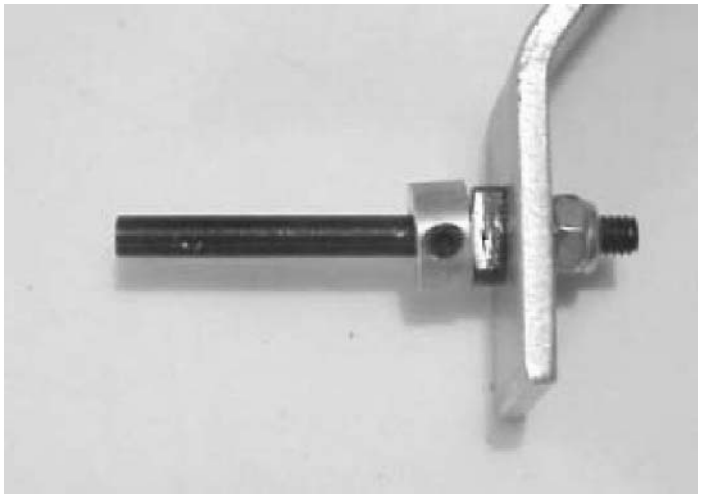
33. Position the landing gear on the side of the fuse with the top of the gear approximately 1" from the LE of wing and the first bend of the gear just above the bottom of the fuse. Angle the gear approximately 15 degrees and mark through the holes.



34. Drill the holes for the gear, then install the gear using the 4mm bolts, washers, and lock nuts.

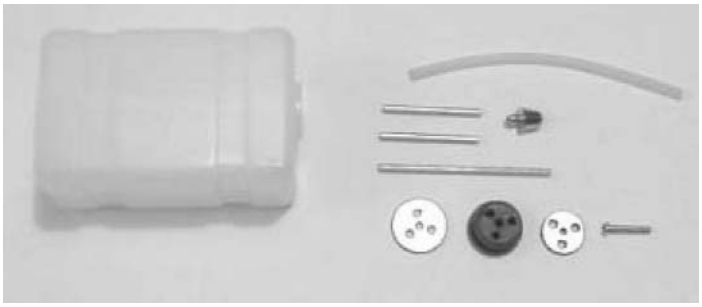


35. Install the axles in the end of the landing gear using the 4mm lock nuts.



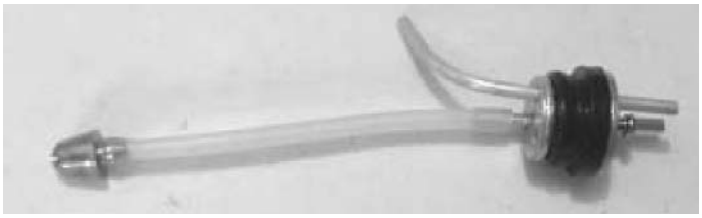
36. Install the first collar and set screw on the axle.

37. Install the large wheel, then the second collar and set screw to secure the wheel. Leave a small amount of space from the wheel hub to allow the wheel to turn freely. Use thread lock on the set screws.



38. Lay out the parts for the fuel tank assembly. Check the tank for any debris inside, then check the fit of the stopper. You may need to remove some flash with a sharp hobby knife.

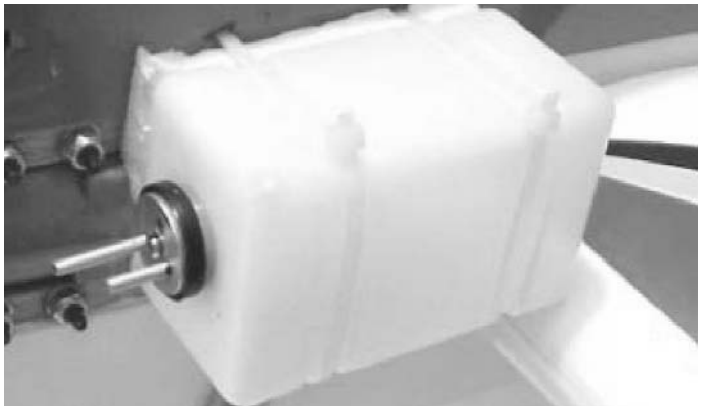
39. Bend the long fuel tube so 1/3 of it is bent up at 45 degrees.



40. Assemble the stopper as shown, with the small washer to the inside of the stopper, then the stopper, and the large washer. Secure with the machine screw. Just start the screw for now.

41. Insert the bent tube through the stopper and one of the shorter tubes. (a 3 tube is supplied if you would like to use a fill line to the tank, remember to cap this line for flight).

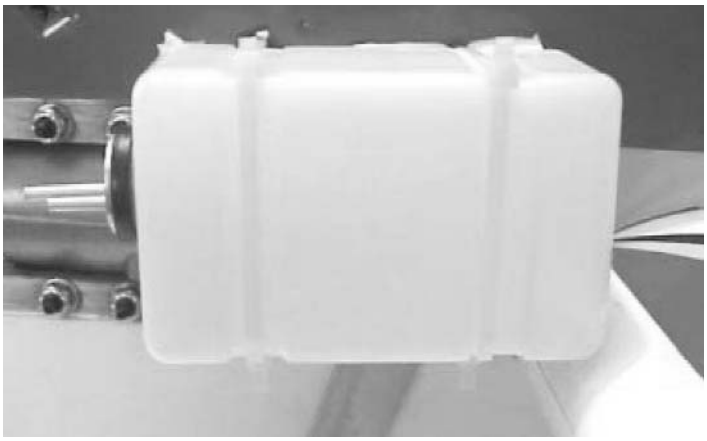
42. Insert the fuel tubing on straight line, then trim to length so the clunk installed on the end does not interfere with the back of the tank, then insert the stopper in the tank and secure



with the screw. DO NOT OVER TIGHTEN THE STOPPER SCREW. It just needs to be tight enough to seal the opening.

The two pieces of balsa 1/4”x5/16”x3-1/8” are used to space the tank out over the back side of the throttle servo

43. Twist the bent line in the tank so it faces the top of the tank.



44. Position your tank on the left side of the fuse, directly behind the motor, with the center of the tank level with the upper engine rail. This height is important for the proper location of the tank to the carburetor.

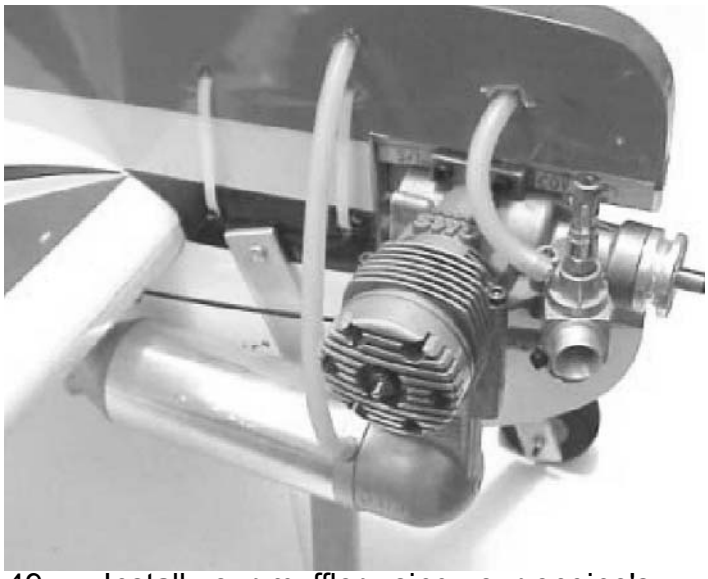
45. Mark the location of the top and bottom indentations of the tank on the side of the fuse with a felt marker, then drill four 3/16" holes.

46. Cut a piece of latex foam the approxi-

mate size of the tank.

47. Secure the tank to the fuse using the included wire ties, then trim the excess with a pair of wire cutters.

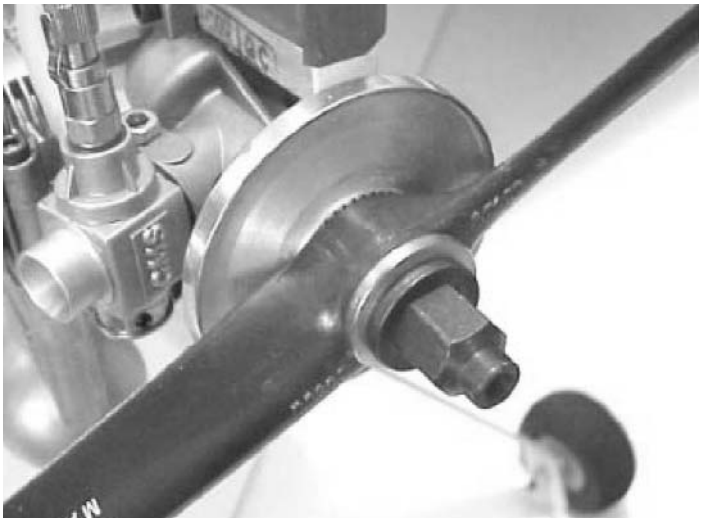
48. Cut two pieces of fuel line with a sharp hobby blade to run from the tank to the engine, you can drill two ¼" holes to pass the fuel line through the fuse if you like. Secure the fuel lines to the tank with wire ties.



49. Install your muffler using your engine's included hardware. Secure your fuel and vent lines on the proper fastener.

50. Install your radio switch in the bottom of the wing, just to the rear of the receiver access hatch. Use a sharp hobby knife to cut through the balsa.

51. Position the radio hatch in the radio opening and temporarily hold in place with masking tape. Drill a pilot hole in each corner, through the plywood corner plates. Install the radio hatch with the #2 screws and a phillips screw driver. Tighten the screws until the just contact the balsa, as to not crush it.



52. Install your spinner back plate, balanced prop, and prop nut. Tighten it securely.

53. Install the spinner cone and tighten just snug.
54. Set the control throws initially to +/- 3/8" for all surfaces. (After flight testing, adjust as needed.)
55. Set the cg to 4-1/4 to 4-3/4 from the leading edge, measured at the fuse side. Keep the cg to the front for the initial flights, then adjust as needed.
56. Double check that all bolts are tight and use locktite where needed, and double check the cg, then charge your planes batteries.
57. Have fun.

ADDITIONAL EQUIPMENT NEEDED TO COMPLETE YOUR RADICAL 330

General

.32 - .46 Size two stroke, or .40 to .63 four stroke R/C engine and muffler

Minimum of 4 channel radio set required

(5) Standard servos - 70 oz servos recommended for high horsepower engines.

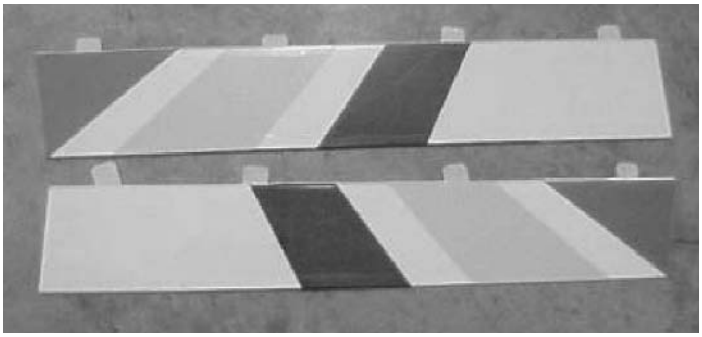
(2) servo extensions

30 minute Z-poxy

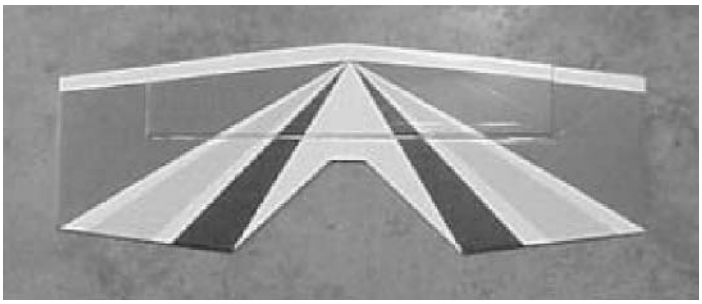
Thin Zap CA (pink)

Dubro #222 Medium fuel tubing

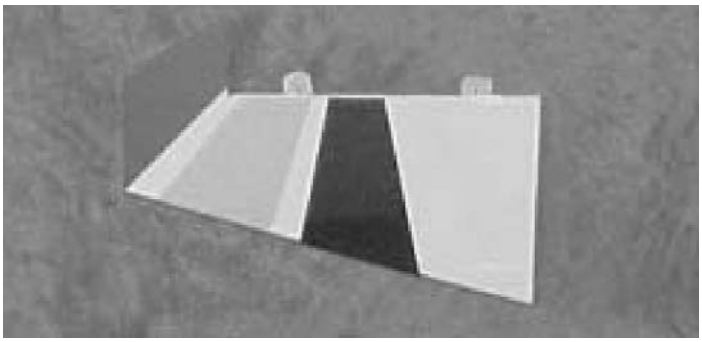
Dubro #514 ½" Foam rubber



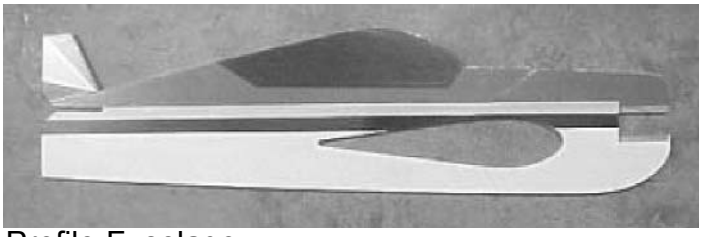
Ailerons and CA hinges



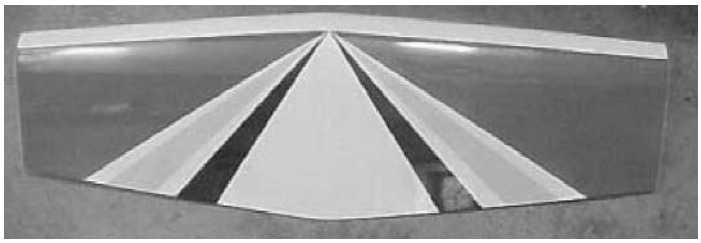
Horizontal Stabilizer, Elevator, and CA hinges



Rudder and CA hinges



Profile Fuselage

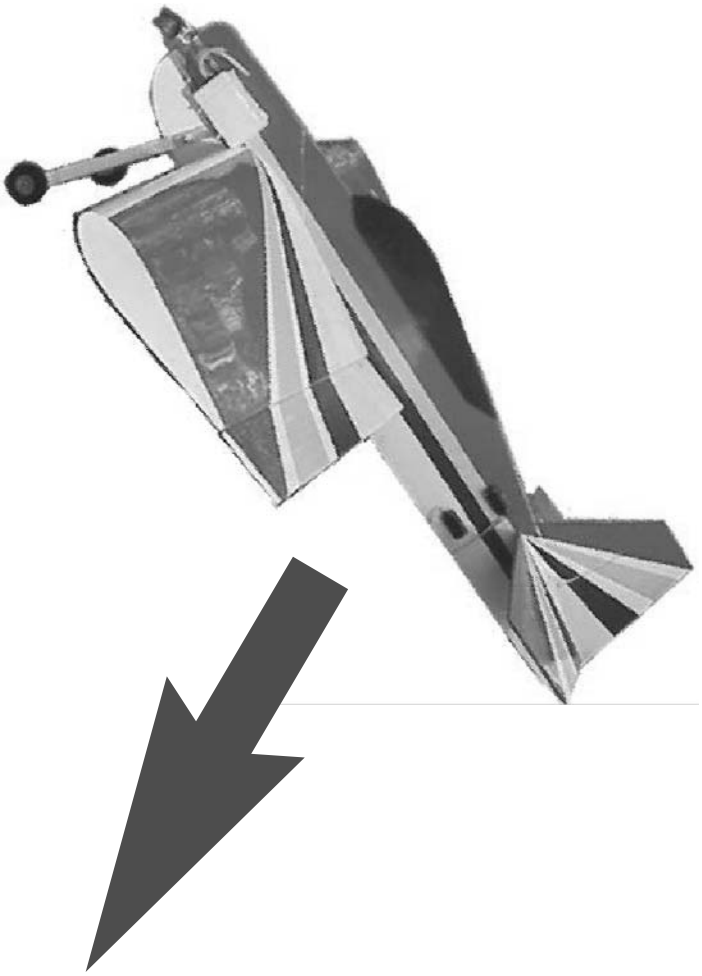


One Piece Wing

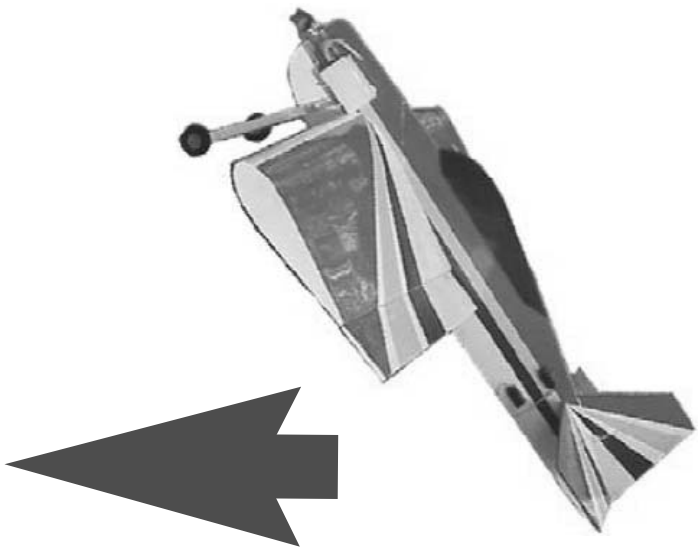
Included Hardware

Radical 330 PARTS LIST

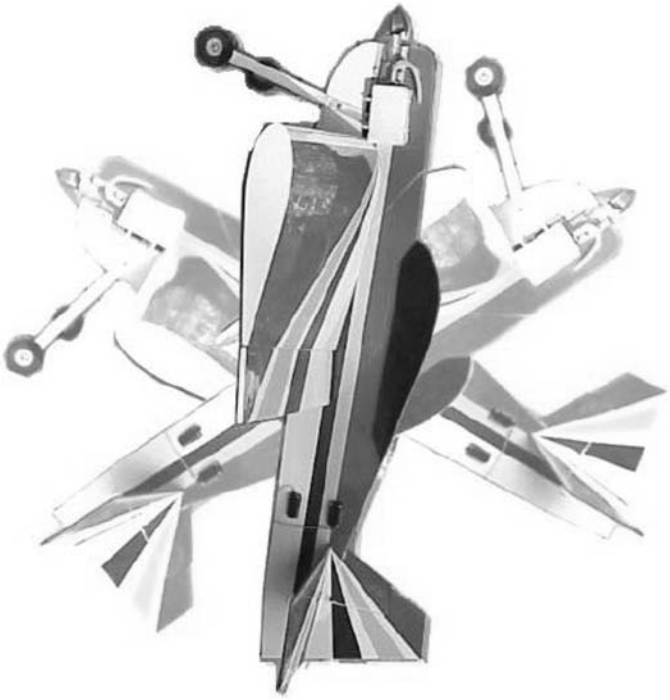
Quantity	Description
1	Profile Fuse
1	Elevator
1	Horizontal stabilizer
1	Wing
2	Aileron
2	Aluminum landing gear
2	Landing gear screws and nuts
8	#2 machine screw
1	Ez connector
4	Control horn
8	#4 control horn screws
4	L bend connectors
5	Clevis
5	Push rod
4	Large wheel collars
2	Wheels
2	Axle nut w/screw
1	Fuel tank
1	Fuel tank hardware
1	Tail wheel bracket
1	Tail wheel
2	#6 screws
2	Small wheel collars
4	Long wire ties
13	CA hinges
1	Wire tube
2	Wire tube brackets
4	#2 screws for tube brackets
1	Decal set



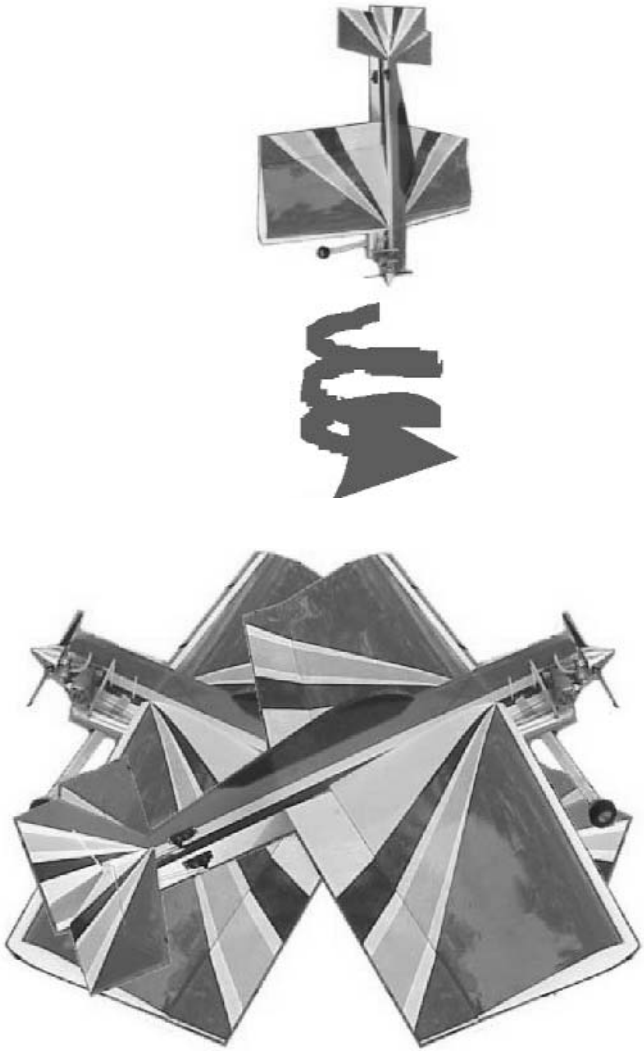
The Elevator
This maneuver has your plane drop vertically in a nose high attitude, depending on wind conditions any where from a 45 degree angle in low wind to almost backwards in higher wind conditions. To perform it, at a high altitude with high rates on, pull your throttle back and feed in the elevator until you have the full high rate applied. Use the rudder to guide the plane, and adjust attitude with minor throttle inputs. You will loose altitude quickly, to recover, apply full power and fly out level. Watch out for getting too low or applying too much rudder, it could cause the plane to snap.



The Harrier
This maneuver has your plane in very slow forward flight in a nose high 45 degree attitude. To perform it, enter the same way as you would an elevator, then feed in power until the plane maintains altitude and starts to fly forward at a nose high attitude. Maintain it by holding up elevator and adjusting power, use the rudder to change direction. Using ailerons may cause the plane to snap and should be avoided. Add power and push the nose back over to recover.



The Waterfall
This maneuver has your plane flipping around the axis of the wing, while dropping. Starting from a high altitude, go to low throttle and gradually pull the nose up to near vertical. Just when the plane is about the stall, give it full down elevator and full power. Make attitude corrections with the rudder and ailerons to keep the plane flipping on axis. Cut the throttle and hold full down elevator as the plane flips around to nose high again, add power to flip it over again. Watch your altitude as to not get too close to the ground. Neutralize the elevator and add power to recover.



The Blender
This is a violent maneuver that starts with a vertical rolling dive that stops the descent as it changes into a flat spin. Start at a good high altitude, go to low throttle and push the nose down into a straight dive. Feed in full left aileron and complete 3 rolls, then immediately move your transmitter sticks to an inverted snap position, down elevator, left aileron, right rudder, all full throw. Now feed in high throttle to flatten the spin and stop the altitude loss. Recover by neutralizing the rudder and ailerons, and holding a little down elevator. After you gain some airspeed you can roll out to upright. Use caution as this is a violent and high G maneuver that will put a great deal of stress on the airframe.