Thunder Tiger

Assembly Manual

Cessna 182

Warranty

This kit is guaranteed to be free from defects in material and workmanship at the date of purchase . It does not cover any damage caused by use or modification. The warranty does not extend beyond the product itself and is limited only to the original cost of the kit. By the act of assembling or controlling this user assembled kit, the user accepts all resulting liability for damage caused by the final product. If the buyer is not prepared to accept this liability, it can be returned new and unused to the place of purchase for a refund.

Notice: Adult Supervision Required

This is not a toy. Assembly and flying of this product requires adult supervision. Read through this book completely and become familiar with the assembly and flight of this airplane. Inspect all parts for completeness and damage. Contact Thunder Tiger authorized agent if you find any problem or need tech support.

JE6810

INTRODUCTION

Congratulations on the purchase of one of our finest D.G.A. EP Park Flyer Series. The Cessna Skylane 182 is a well known civil mono plane in the world. Thunder Tiger replicates this plane to all the R/C hobbyist alike worldwide! It has stayed true to the "Skylane" in its purest form that you can experience this civil plane in any flying field.

CAUTION

Before beginning the assembly read the instructions thoroughly to give an understanding of the sequence of steps and a general awareness of the recommended assembly procedures.
By following these instructions carefully and referring to the corresponding pictures, the assembly of your model will be both enjoyable and rewarding. The result will be a well built D.G. A. park flyer which you will be proud to display.
This Skylane is designed both for beginner and intermediate to advanced pilots. We recommend the beginner to install the rudder control surface instead of aileron control surface. Before you begin, check the entire contents of your kit against the parts drawings to make sure that no parts are missing or damaged. This will also help your to become familiar with each component of your plane. If you find that any of the parts are either missing or damaged, please contact Thunder Tiger authorized distributors for service.

Table of Contents

Introduction. 2
Pre-Assembly Notes. 3
Other Items Required. 3
Tools and Supplies Needed. 3
Parts Drawing. 4
Fuselage. 6
Tail 8
Motor. 9
Landing Gear 11
Radio. 12
Wing Strut. 13
Aileron. 14
Balance. 15
Repair. 16
Radio Movement. 17
Flying. 18

PRE-ASSEMBLY NOTES

1.Please assemble your model according to this instruction manual. Do not attempt to modify or change your model in any way as doing so may adversely change its flying characteristics. Doing so will be out of warranty.

2.For Super Combo version, some assembly steps are finished by factory craftsman. We recommend you to read the manual to familiar with the whole plane as well and just skip the assembled steps.

3.Before you begin please check entire contents of this kit against the parts drawings.
If you find that any part is either missing or damaged, please contact your dealer immediately for replacement. Note: Your dealer cannot accept kits from return if construction has begun.

4. Trail fit each part before gluing it in place. Make sure you are using the correct part and that it fits well before assembling. No amount of glue can make up for a poor-fitting part.

5. Use sharp hobby knife and carefully remove the flashing of the foam if necessary.

Remember we have worked very hard to make this model as easy to assemble as possible while still maintaining our high standard of quality. Your assembly of this model is very important and will determine the final flight capabilities of your model, so use extra care and follow the assembly procedure exactly.

OTHER ITEMS REQUIRED

Radio: You will need at least a 3 channel radio control system with 2 micro servos for you model. Thunder Tiger provides 3CH Single-Stick (8304) and Dual-Stick(8305) radio or 4CH SkyMaster(8417) for your choice.

ESC-10: ACE ESC-10 (P/N ACE8015) with BEC for controlling the power of your model as well as eliminating the need of a separate radio battery. The BEC (Battery Eliminator Circuitry) in this controller will automatically turn off the power to the motor when the battery reaches a factory present discharge level leaving about 10 minutes of flight time for the radio system.

Battery: We recommend the use of a 7-cell 8.4V 600mAh AAA size NiMH battery. (P/N ACE 2924)

Charger: You will need a quick charger to charge your power battery. We recommend our economical DC Quick Field Charger. (P/N ACE 26 26AC/B)

Super Combo Version contains 3CH radio system (either Single-Stick or Dual Stick), or 4CH SkyMaster ESC-10, Battery and Charger as mentioned above.

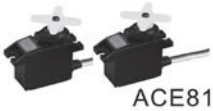
TOOLS AND SUPPLIES NEEDED

Mixing Stick for Epoxy
Medium Grit Sandpaper
Rubbing Alcohol
Paper Towel
Hobby Knife
Ruler
Pen, Pencil or Marker
Phillips Screw Drivers
Curved Scissors
Drill Bit(1/8″, 5/64″)
Sand Paper(200 grit)

ACE8304

ACE8417

ACE8305

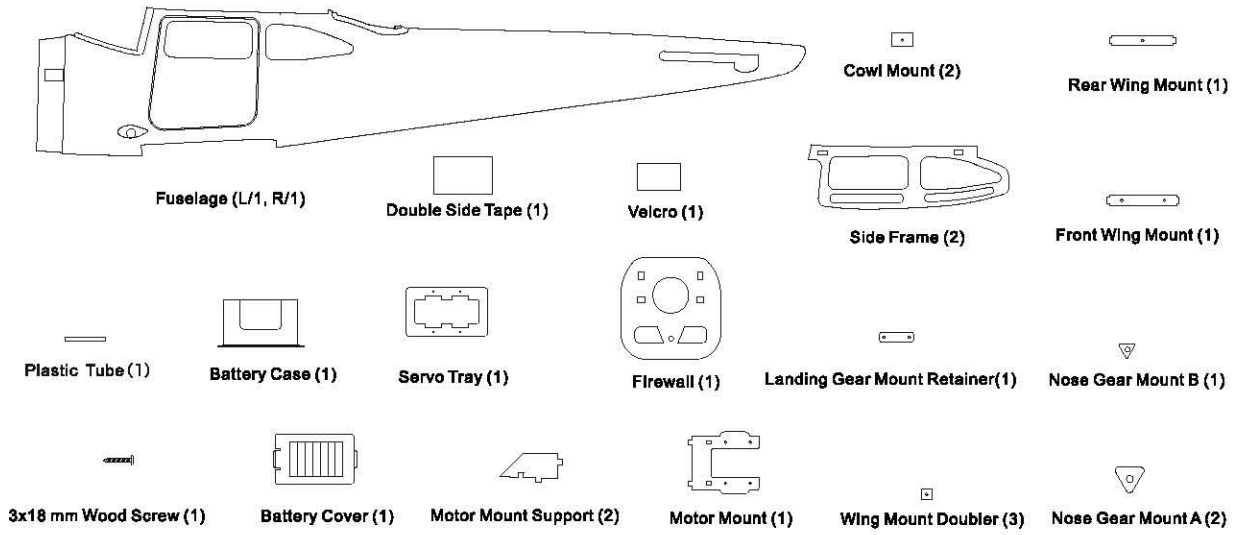


ACE8117

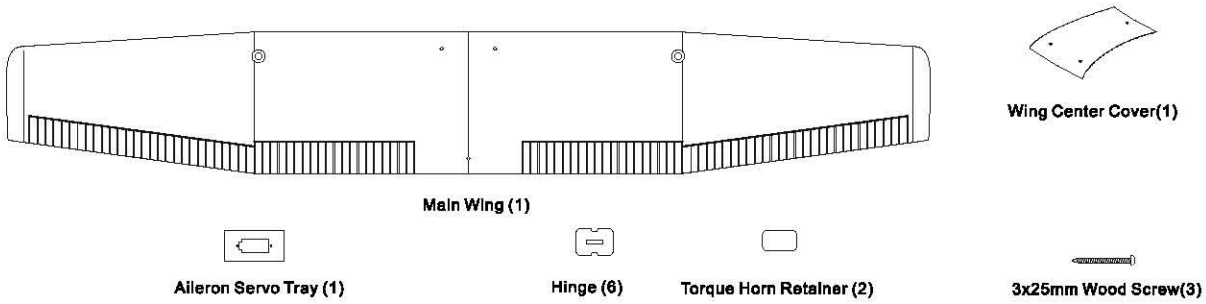
PARTS DRAWING

Open the box and check that you have all the parts as shown below.

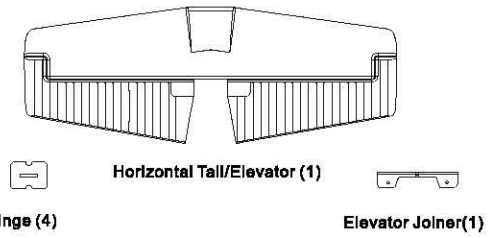
AS6484 Fuselage



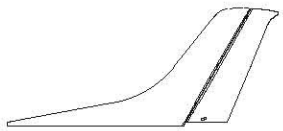
AS6485 Main Wing



AS6486 Horizontal Tail

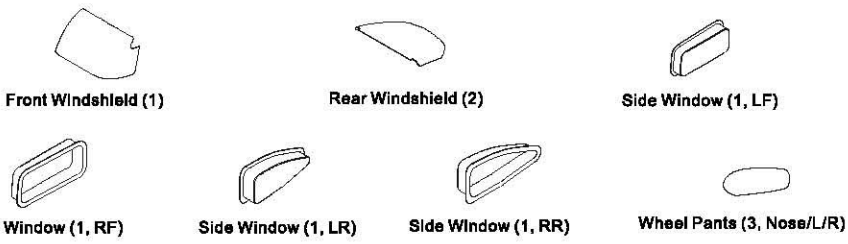


AS6487 Vertical Tail

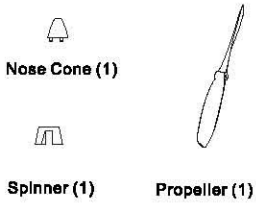


AS6488 Cowl

AS6489 Windshield

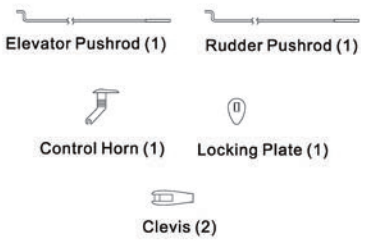


AS6490 Propeller

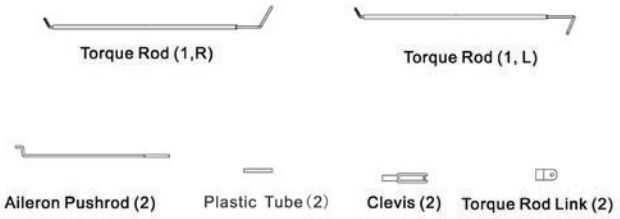


If anything is missing please contact your dealer.

AS6491 Linkage Set

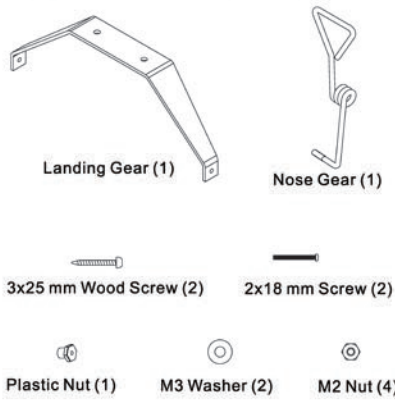


AS6492 Aileron Linkage



AS6493 Wheel

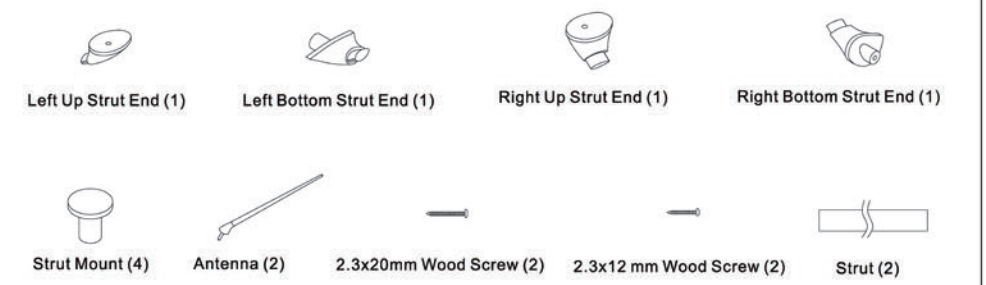
AS6494 Landing Gear



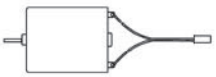
AS6495 Gear Box

AS6372 Drive Shaft

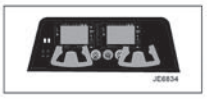
AS6496 Wing Strut



AS6314 Motor

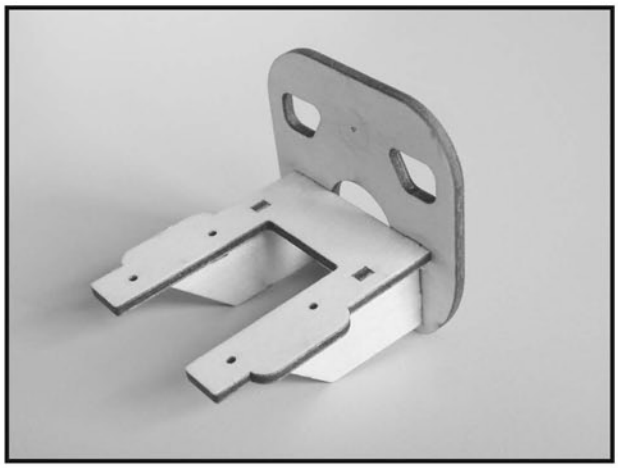


AS6497 Decal

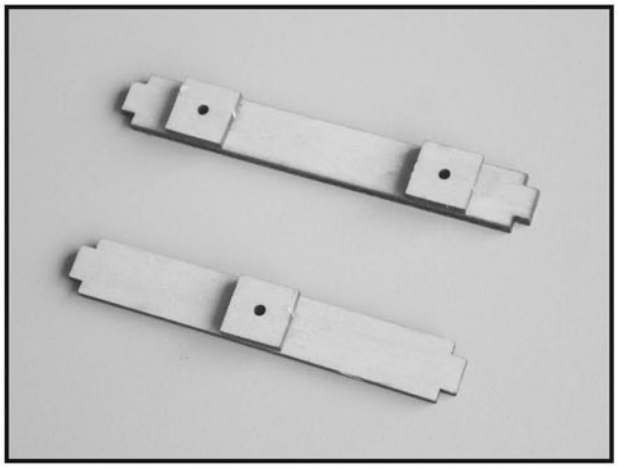


Decal B (1)

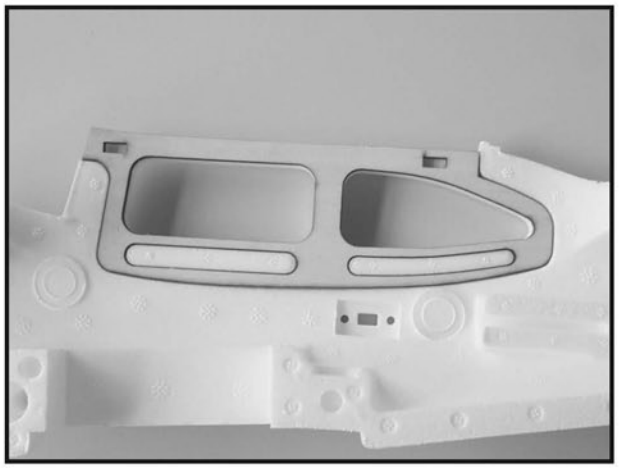
FUSELAGE



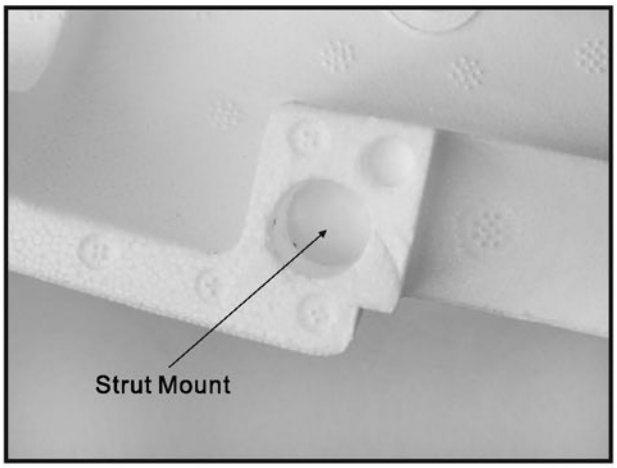
1. Locate firewall, motor mount and mount supports. Epoxy the mount and supports on firewall.



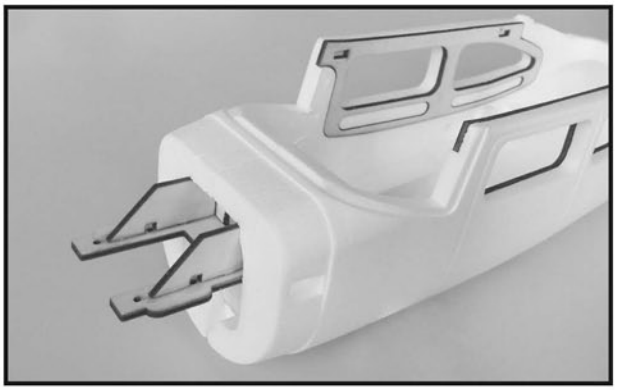
2. Locate the Wing Mounts and Doublers. CA the doublers on wing mounts.



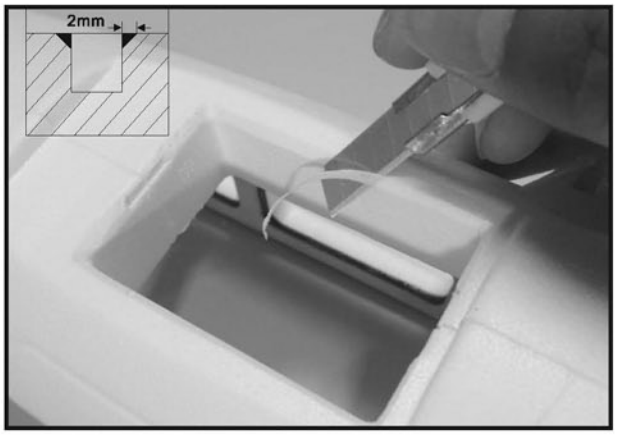
3. Lightly apply epoxy of Side Frame in place.



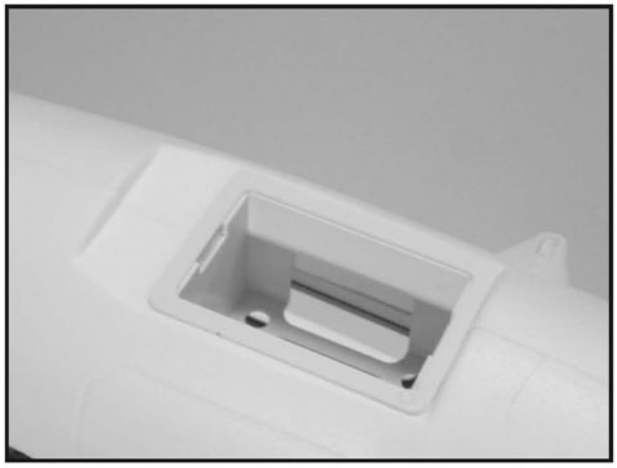
4. Epoxy Strut Mount and press it all the way in. Do the same procedure on the other fuselage half.



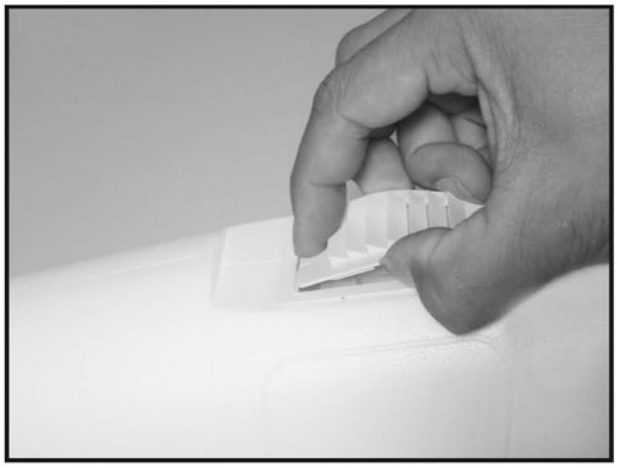
5. Next trial fit the two fuselage halves with firewall. Note the orientation the firewall and make sure two fuselage halves could contact each other closely. Next lightly epoxy two fuselage halves together.
Note: the working time of furnished epoxy is only 3 minutes. If you are not confident to glue in time we would suggest you use longer time of epoxy to glue the fuselage halves together.



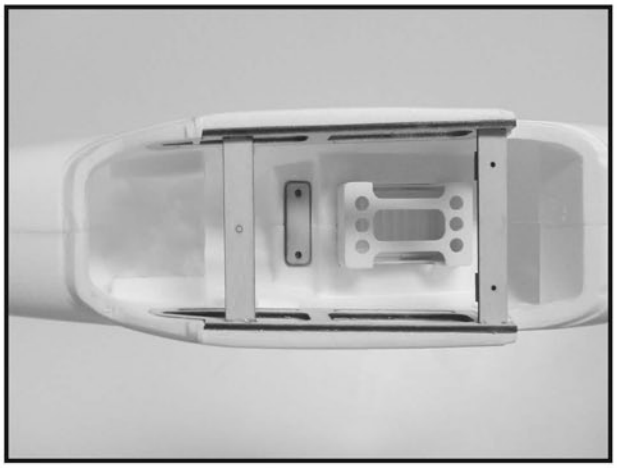
6. Trim the edges of the battery box opening and trial fit the battery box so there is no gap between each other.



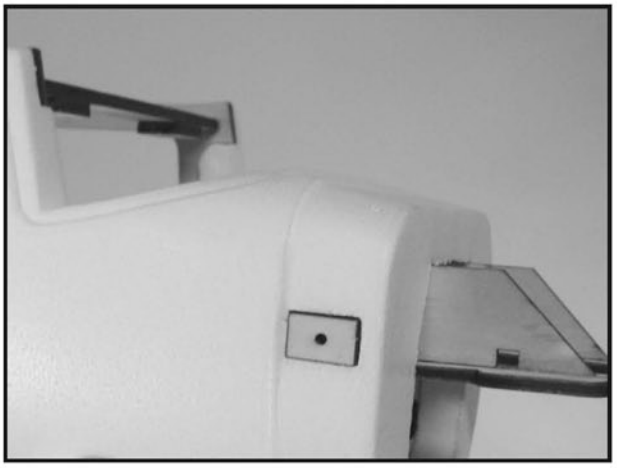
7. Next glue the battery box in place.



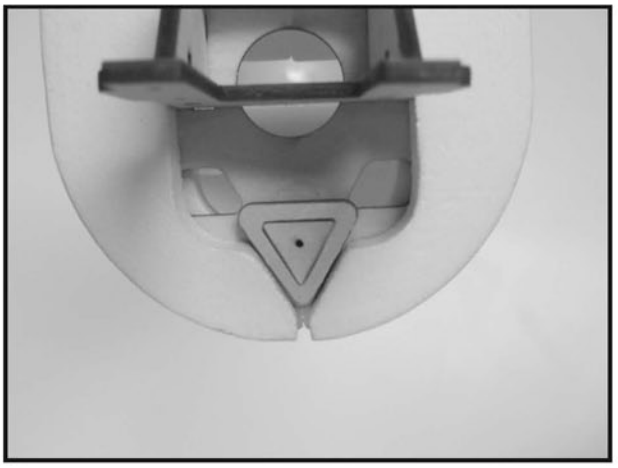
8. Bend the battery cover as shown to snap onto battery box.



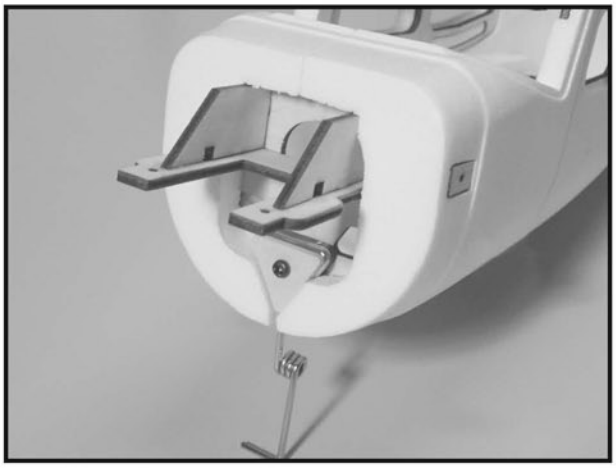
9. Epoxy the landing gear mount and wing mounts.



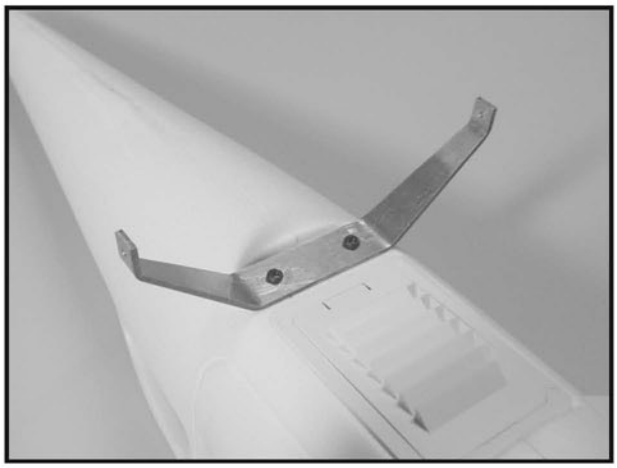
10. Locate the cowling mounts then epoxy the mounts in place.



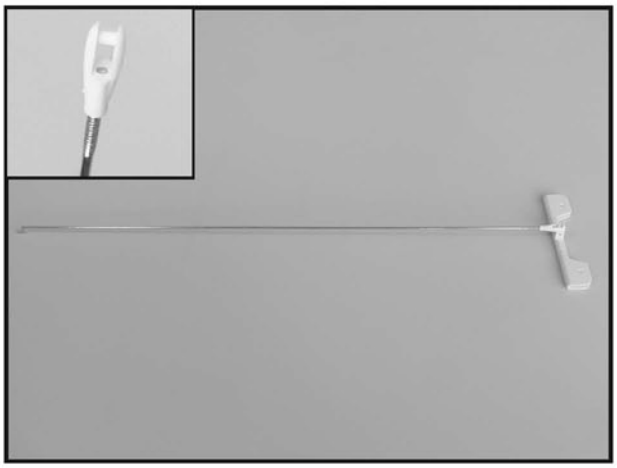
11. Glue Nose Gear Mount A and B together next attach to firewall.



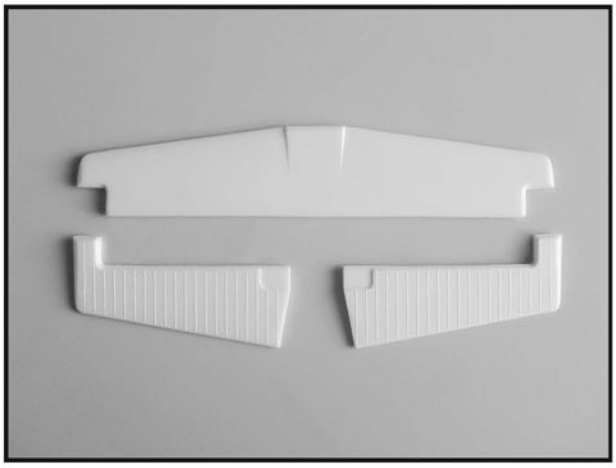
12. Apply enough epoxy and glue the Nose Gear in place with another Nose Gear Mount A. When cures, secure the nose gear assembly with 3x18mm wood screw.



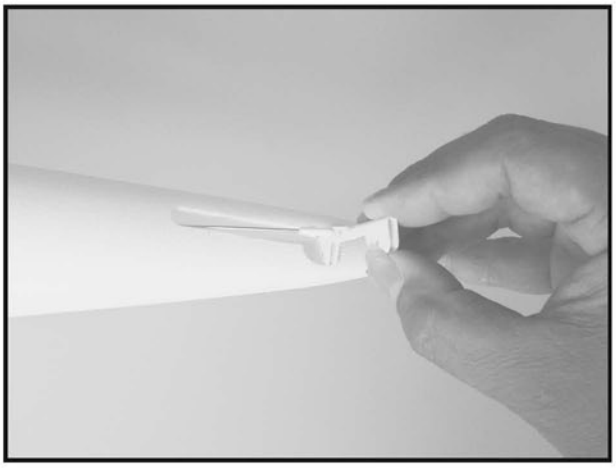
13. Center and secure Landing Gear with two 3x25mm wood screws on landing gear mount in fuselage.



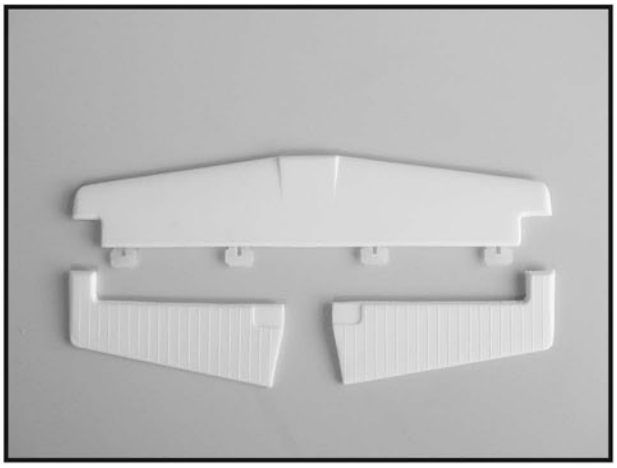
16.Thread the clevis on elevator pushrod (short one). Next snap on the elevator joiner. Note the orientation of the Z- bend and the joiner.



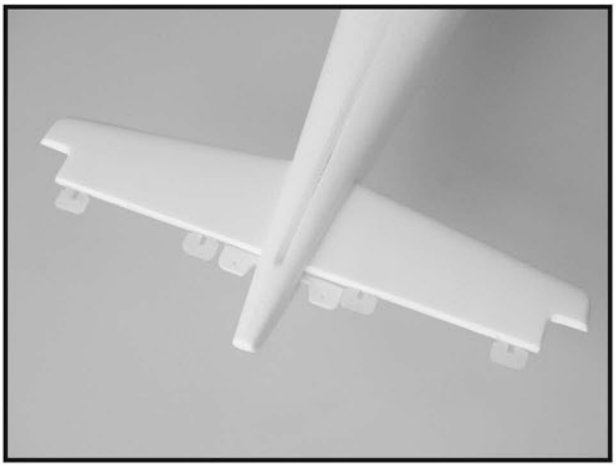
14. Locate the Horizontal Tail and cut elevators away. You may need to trim or sand the hinge lines on tail and elevators.



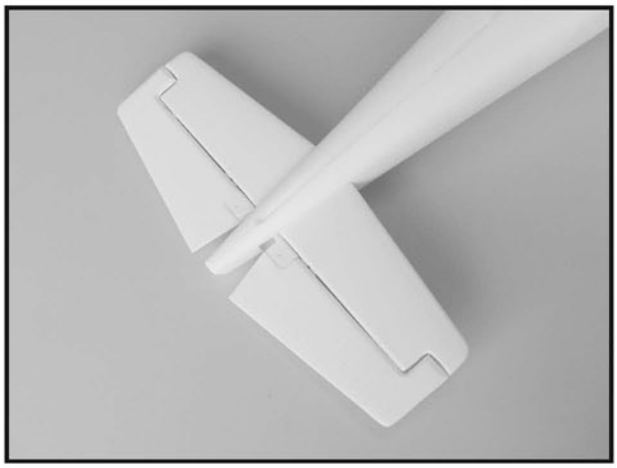
17.Thread the elevator pushrod assembly into fuselage. Go from tail and rotate the joiner as shown for easy access.



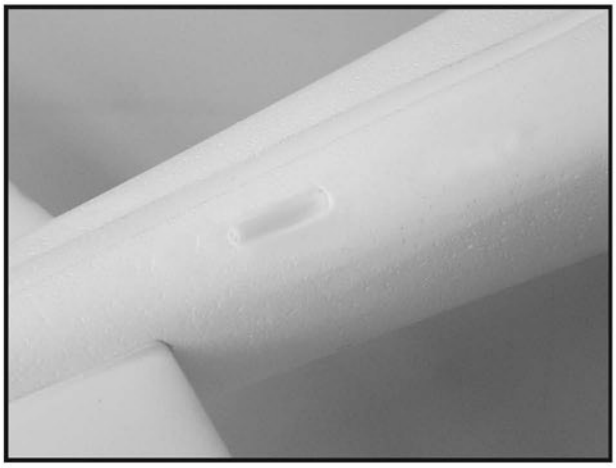
15. Cut hinge slots on tail and elevators. Epoxy the hinges on horizontal tail first , do not attach the elevator at this step.



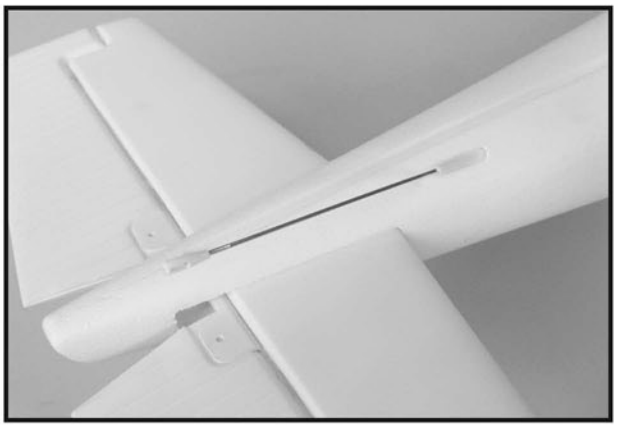
18.Epoxy the horizontal tail in place and make sure it is centered.



19.Epoxy the joiner on one elevator and attach to the horizontal tail. After it cured, epoxy the other elevator.

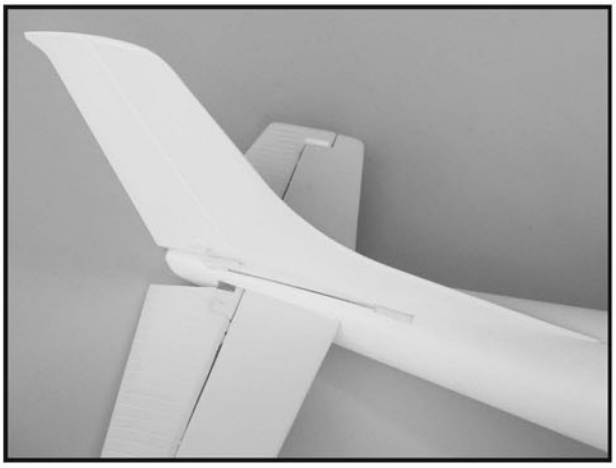


20.Carefully make a 3mm rudder pushrod exit hole at right rear fuselage. Install the furnished plastic tube and make sure the angle is proper from rudder control horn to rudder servo arm.

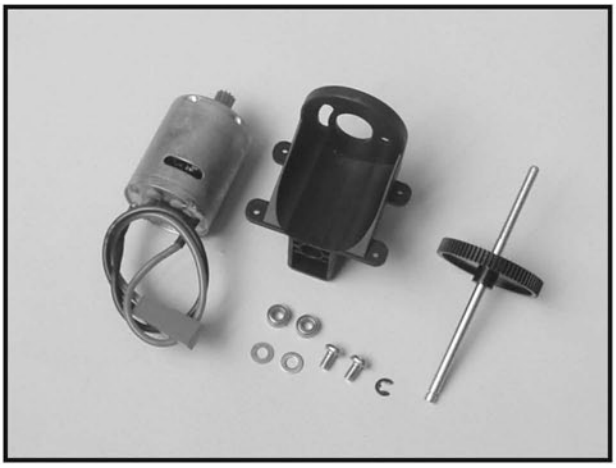


21.Install the rudder pushrod from fuselage and thread the clevis on.

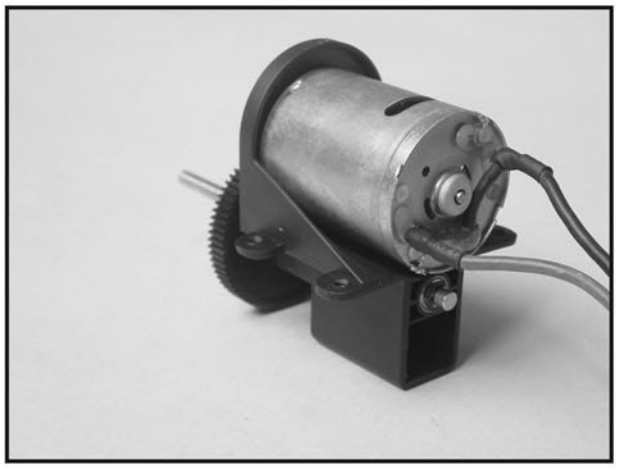
22.Install the rudder control horn. Make sure the orientation of the control horn before you press the backplate,



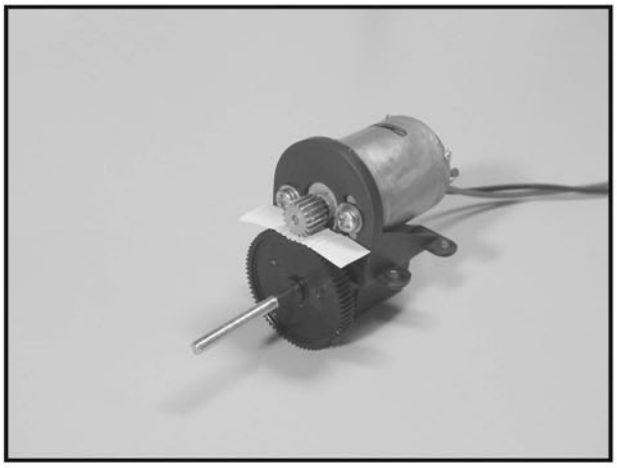
23.Epoxy the Vertical Fin on the fuselage. Make sure the vertical fin is perpendicular to the horizontal tail. Next snap on the rudder pushrod.



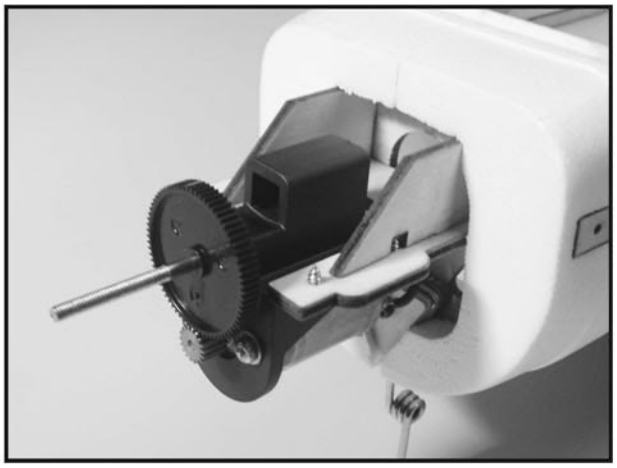
24.Locate the motor, gear motor mount, drive shaft, bearing and e clip, 3x5mm screws and M3 washers.



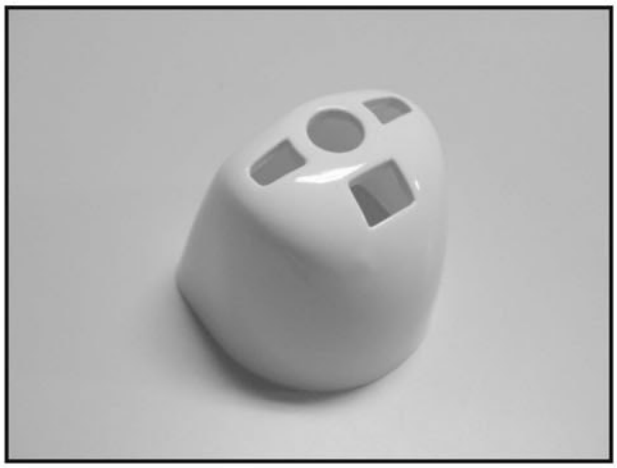
25.Press the bearings all the way in then insert the drive shaft. Snap on the e clip and make sure the e clip is well positioned and drive shaft will not come off.



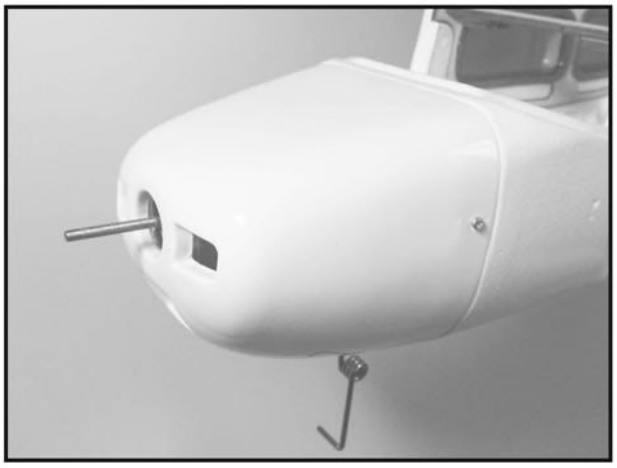
26.To get good gear mesh, use a piece of thin paper and set between the pinion and spur gear. Secure the motor tightly with 3x5mm machine screws and washers. Remove the paper by rotating the gear.



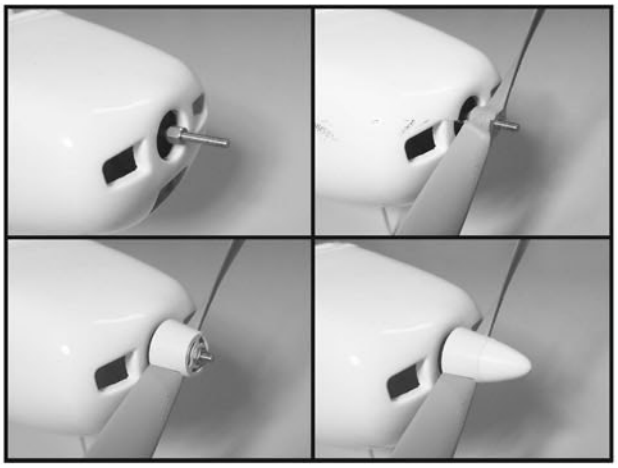
27.Secure the power unit in motor mount with four 2.6x8mm wood screws.



28.Trim along the molded lines of cowling and open all the cooling inlet holes.

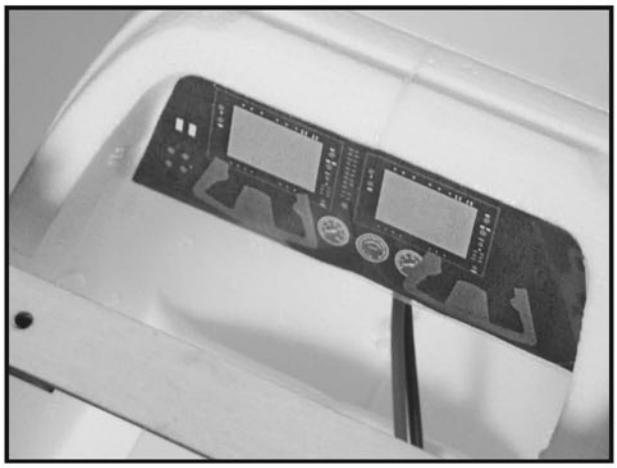


29.Trail fit cowling in place then secure it with two 2x8 mm wood screws on the cowling mount.

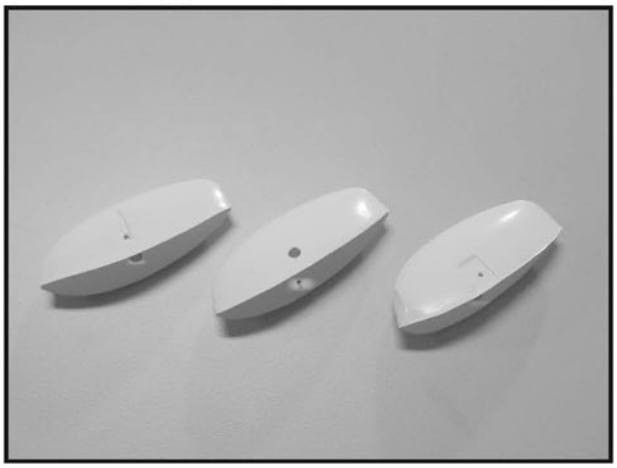


30.Thread the drive nut on the shaft, next attach the propeller. Make sure the propeller is 1/8"(3mm) clearance to the cowling. Secure the spinner with M3 nut, finally install the cone in place.

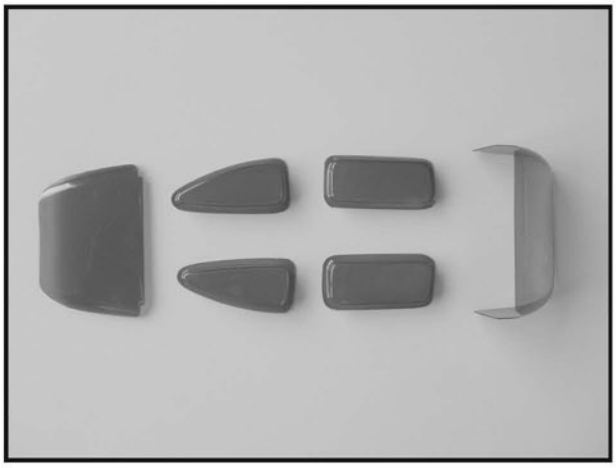
LANDING GEAR



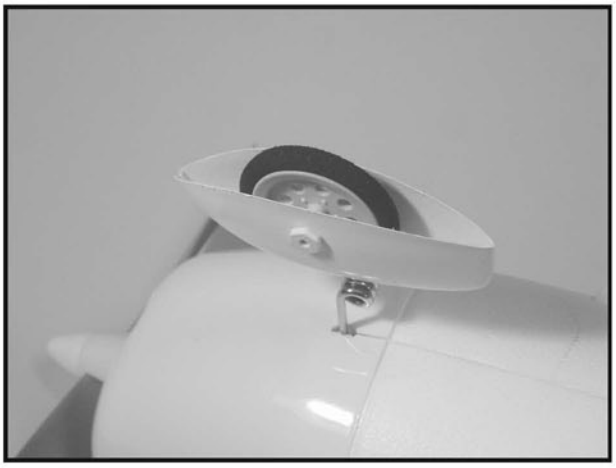
31.Apply instrument panel decal in place as shown.



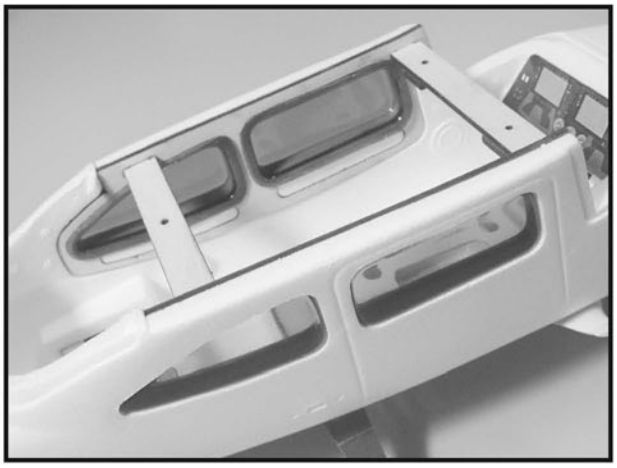
34.Trim the wheel pants along the molded line and drill holes at the molded dots.



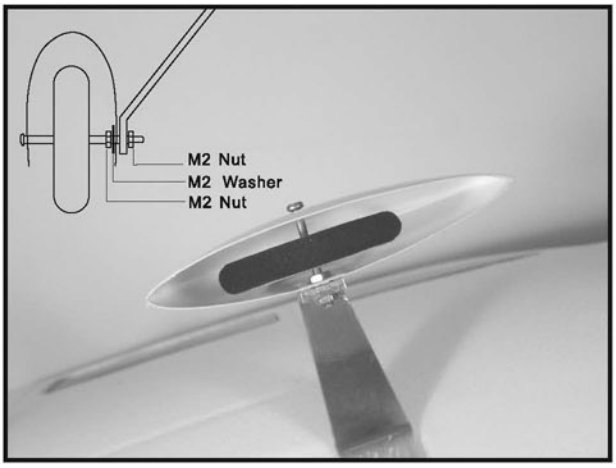
32.Locate windshields, side windows, trim these vacuum parts along the molded lines.



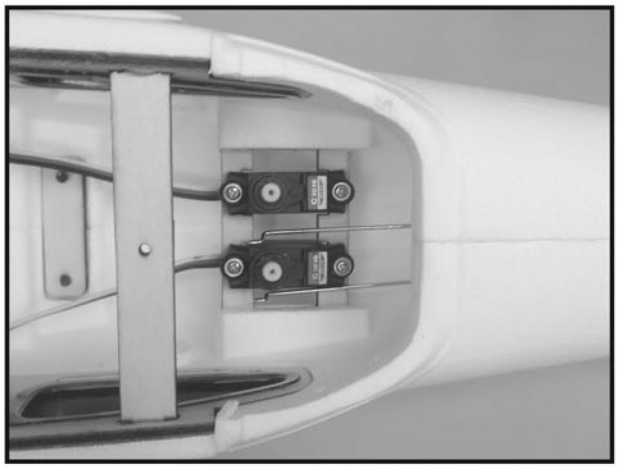
35. Install the nose gear wheel pant and wheel. Attach the plastic nut as shown.



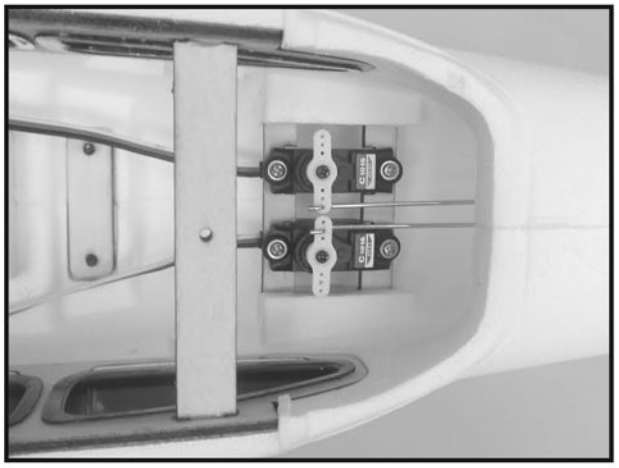
33.Light epoxy the flange of the side windows, then glue them in place.



36. Next secure landing gear wheel pant and wheel with 2x18mm screw, M2 washers and two M2 nuts.

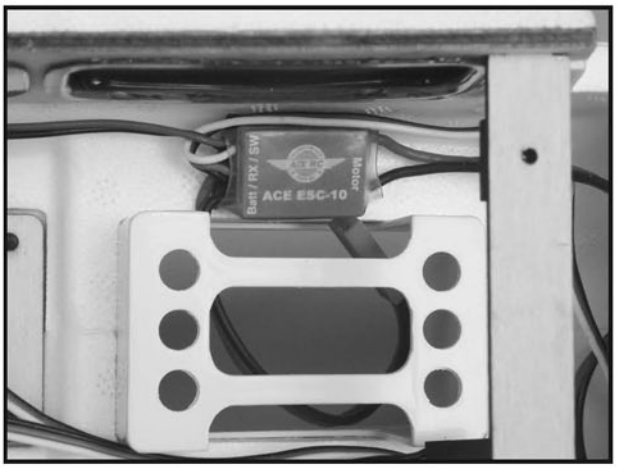


37.Install elevator and rudder servos in servo tray then glue the servo tray in place. The upper one in the photo is rudder servo. Remember install the eyelet and rubber grommets and secure the servo with the wood screws which come with the servo.

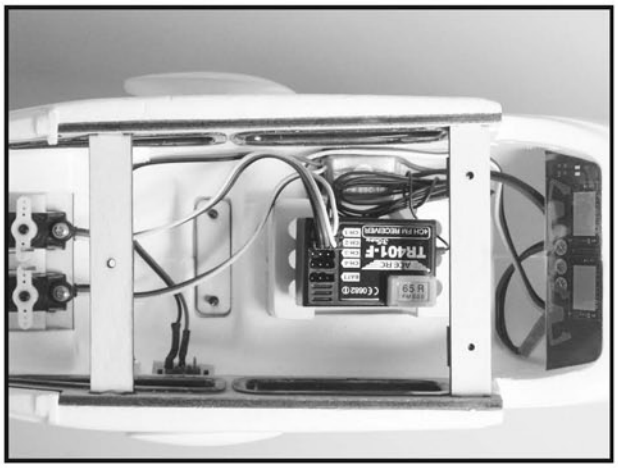


38.Adjust elevator and rudder pushrod rods and attach to the servo arms respectively when they are in neutral position. Note the elevator pushrod links at the second hole and rudder pushrod links at third hole.

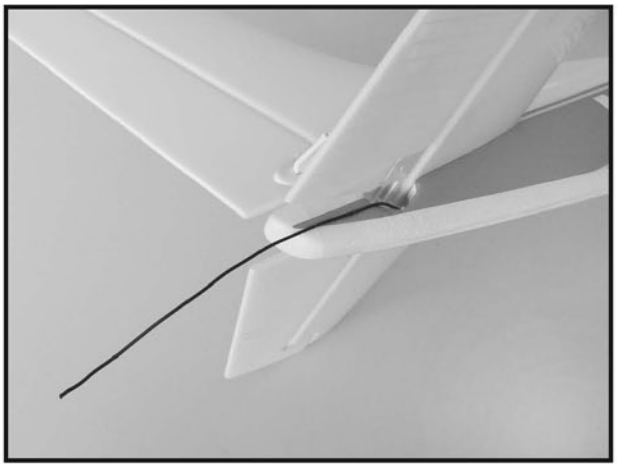
39.Apply fuselage trim tape then install the switch as shown.



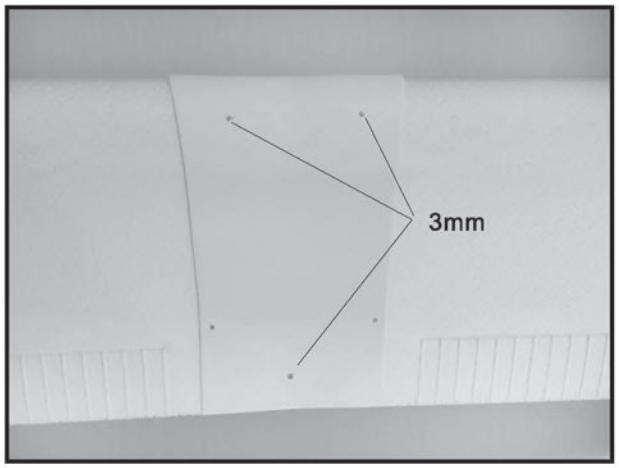
40.Secure the Speed Controller (ESC-10 Shown) in the fuselage with furnished double–side tape.



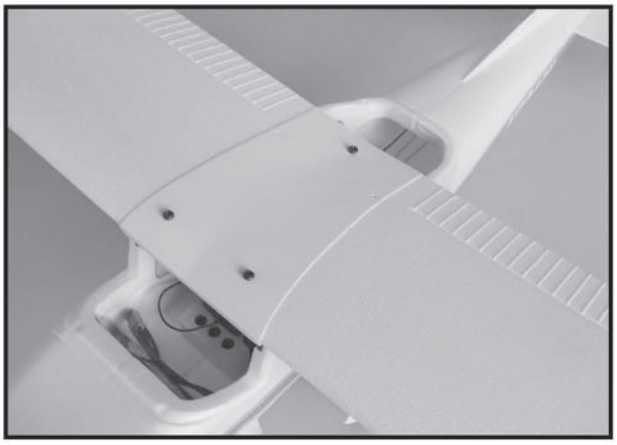
41.Refer to radio manual and properly connect all wires. Next secure the receiver with Velcro in the fuselage.



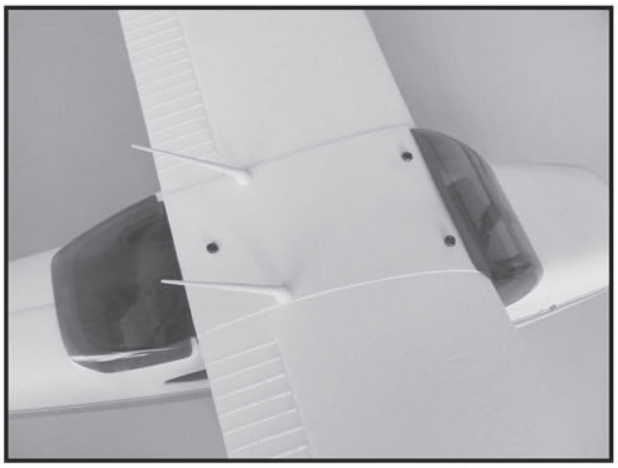
42.Route antenna wire to the tail and tape it on fuselage.



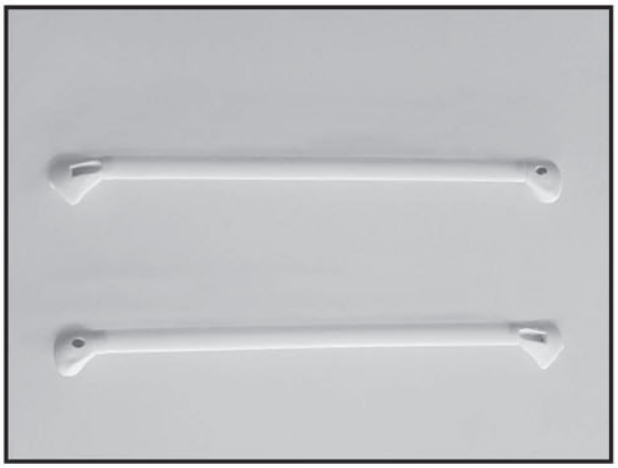
43. Trim the wing cover along the molded lines. Center and glue the wing cover on the wing. Next use the holes on the wing as drill guide then drill the cover from bottom wing.



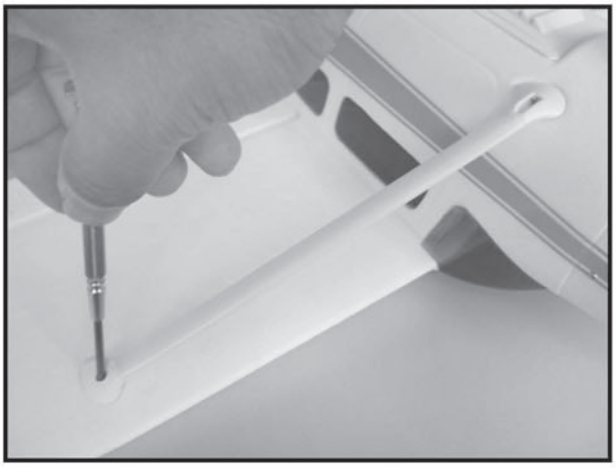
44. Secure the wing on the wing mount of fuselage with three 3x25mm wood screws



45. Drill 2mm antenna hole then epoxy the antenna on the wing. Also epoxy the windshield in place.



46. Epoxy the strut ends on the strut as shown.



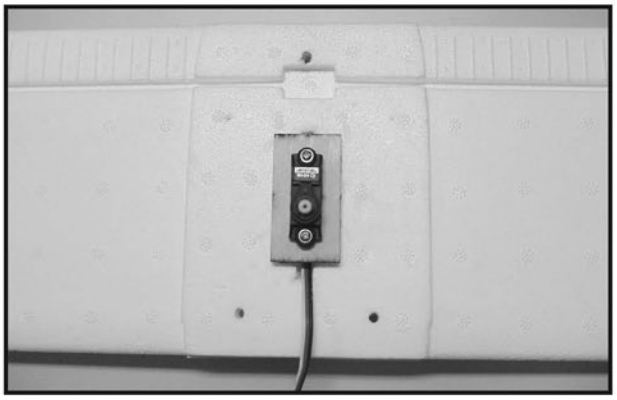
47. Secure the strut in place with 2.3x 20mm(strut to fuselage) and 2.3x12mm screws (strut to wing). Refer the box photos and apply all decals.

48. Refer to box photo then apply all decals.

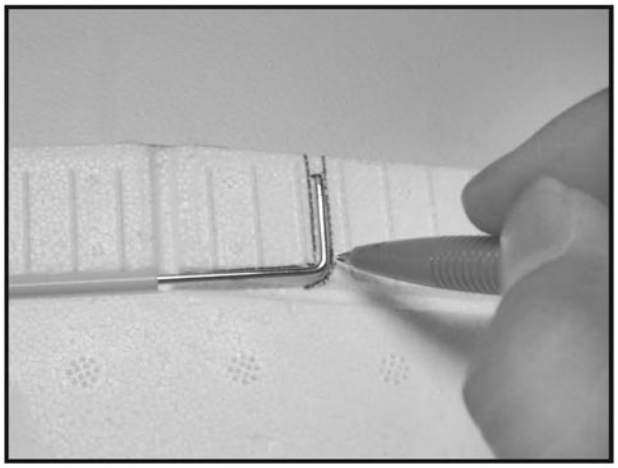
Congratulations! Your done, now your Cessna 182 is almost ready to fly. Please do the operation check of all devices as well as the control throw and balance before you go to fly. All Thunder Tiger staffs hope you enjoy flying your new Cessna 182.

AILERON

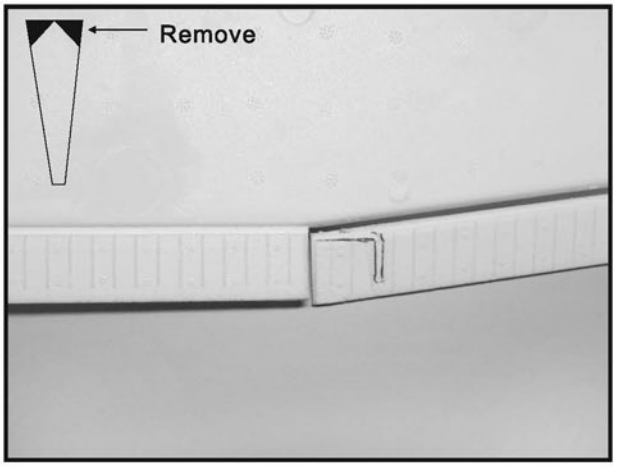
The following is modification of aileron control surface which is recommended for advanced pilot and requires the skill of assembly.



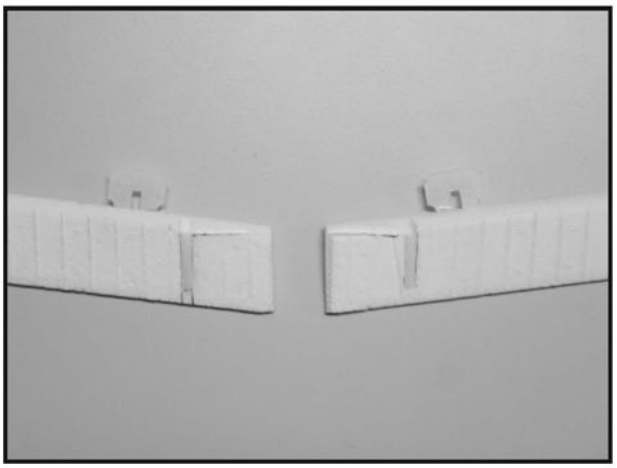
49.Epoxy the aileron servo tray in place and install micro servo on aileron servo tray.



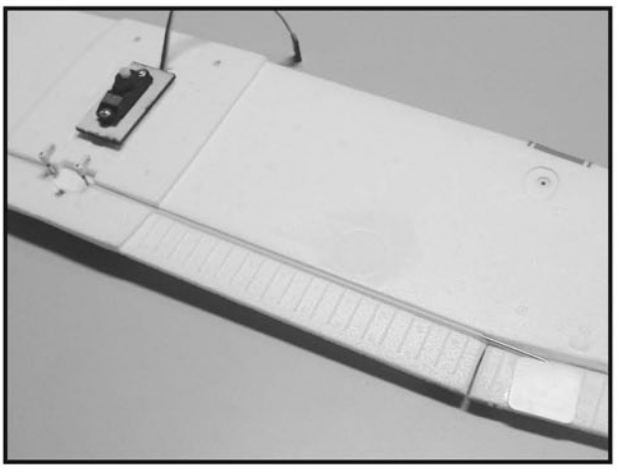
50.Position the aileron torque horn in place, draw the location of torque wire.



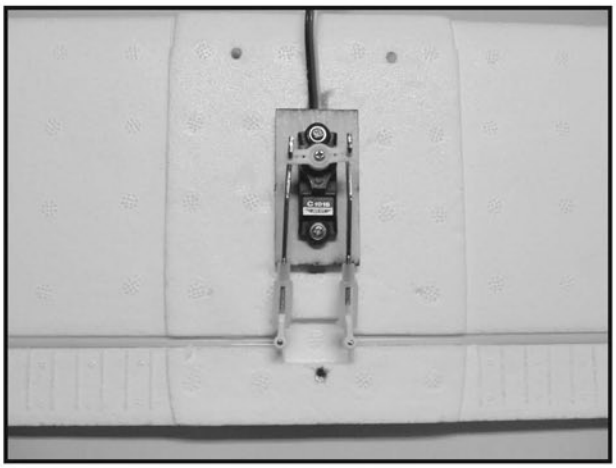
51.Carefully cut off the aileron. Sand the hinge line as figure shown.



52.Cut slot carefully on the torque wire you drew. Next epoxy the plastic tube in place. Do not let any glue goes into the tube. Epoxy three hinges on each aileron.

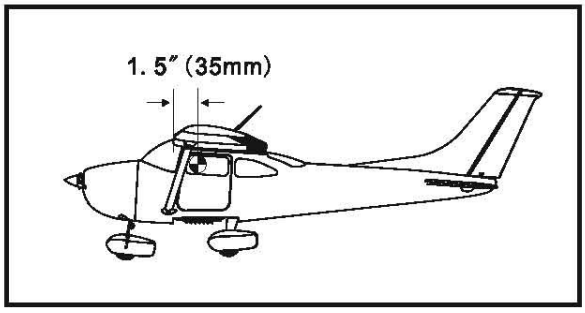


53.Thread the connector onto torque rod. Next epoxy the torque rod and torque rod retainer in place.



54.Locate aileron pushrods and clevises, thread clevis on the pushrod. Connect the Z-bend end of pushrod to the servo horn and snap the clevis on the connector.

BALANCE



It is important to balance the plane to the correct C.G. before you fly. The Balance point is 1.5" (35mm) from the leading edge at the wing root.

Flying

You should have a flight instructor to teach you how to fly the Cessna Skylane. Like a real airplane, you must have an understanding of how to fly the model before launch, or you will probably not be successful. Check at your hobby shop or contact www.modelai-rcraft.org for flying clubs in your area.

Pre-Flight Checklist

Choose a calm day for your first flight. Never fly in winds over 5mph. Also choose an open field with no obstacles or people.

- Full charge the receiver battery.
- Make sure there are no other pilots operation on the same channel (frequency) as you have. If you turn your radio on while the guy is flying with the same frequency then you will cause him to crash.
- Do range check (50 ft. with the antenna collapsed) .

Take-off

■ A proper hand-launch of airplane is necessary for flight. It must be launched into the wind with a firm toss. The airplane must be tossed level. It should never be thrown upward or it will stall and crash.

Flight

■ Let the airplane climb out gradually and gently until it reaches a comfortable cruise altitude at full flight speed. Always keep the airplane upwind of yourself and within a reasonable distance so you can see what it is doing. Remember, when the plane is coming toward to you, when you move the stick to the right , the airplane will roll to left from your point of view. This is the hardest thing to learn. Initially, you can keep your body pointed in the same direction as the airplane and look over your shoulder. That helps.

■ Usually, only small stick movements are required. Try to keep your flying smooth. Use elevator to keep the airplane at the desired altitude. You can turn the plane by bumping small amount of rudder and then return to neutral. After a while, coordinate your turns with the elevator. Feed ing some up elevator to maintain the turn at the same altitude.

■ If the plane tends to roll one way or the other use the trim lever on the control stick to neutralize the flight. Same thing applies if the plane wants to climb or dive.

■ You can expect 5-6 minutes of " power-on" flight. You should always maintain enough altitude so you can set up a landing approach when the auto-cut off device turns the motor off and you begin the glide.

Landing

■ You will have to set up the landing approach before motor cuts-off. Always try to land into the wind. Do not feed in too much up elevator as the plane will stall and may crash.

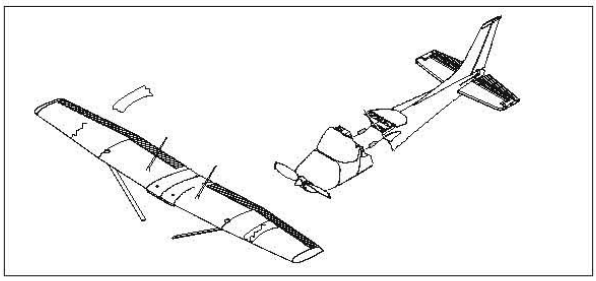
■ Just before touchdown, " flare" the plane by adding up elevator. The plane should slow down even more and come in for gentle landing. Don't add too much elevator too soon!

■ Walk over to the plane and turn off the ESC switch on the plane, then the transmitter switch.

■ Remove the batteries and let them cool off before charging up again.

■ Check over the plane to make sure nothing loosened.

REPAIR



Crash damage is not covered under the warranty!

If damage occurs, use small amount of furnished 5-min Epoxy to repair broken foam. Clear packing tape will hold the parts together; leave it on patch for added strength. Re-balance the plane after you repaired.

IN CASE OF TROUBLE

1.If motor does not run when Throttle Stick is up
  a.Make sure all the wires are well connected.
  b.Check and follow the manufactures' manual of controller.
2.If the radio is erratic(glitches)
  a.Check that the transmitter and receiver antennas are extended to their full length.
  b.Make sure the transmitter batteries are fresh.
  c.Make sure no one else is operation on your channel (frequency) in the immediate vicinity.
3.If the plane does not fly properly
  a.Make sure you are being gentle with the control inputs.
  b.Make sure the plane is balanced properly.
  c.Make sure all the wing and tail surfaces are flat, true, and properly attached and aligned.

If your trouble persists, call authorized dealer for technical help.

CONCLUSION

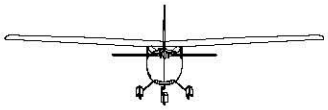
To defeat the laws of gravity and take to the wing is both challenging and thrilling. We hope you enjoy the R/C flight and make it your hobby for a lifetime. Please let Thunder Tiger be your chosen brand, no matter what direction you progress.

THE DIRECTION OF MOVEMENT (RUDDER AND ELEVATOR)

Airplane Movement

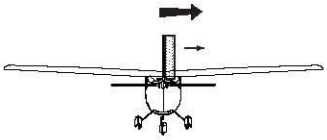
Control Surface

NEUTRAL

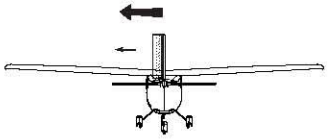


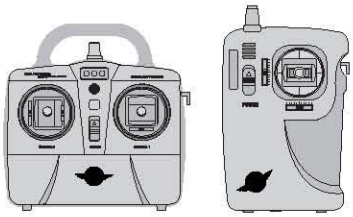
Check the position of rudder and elevator (if these are in neutral).

RIGHT ROLL

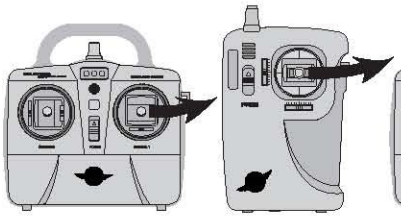


LEFT ROLL

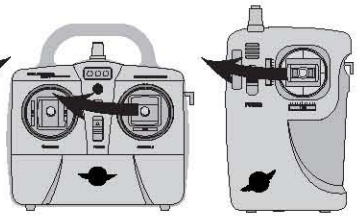




Set the trim in neutral position.

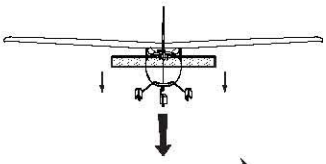


Move the stick to the right.

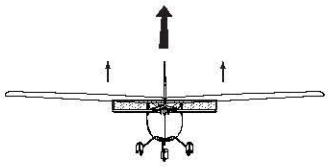


Move the stick to the left.

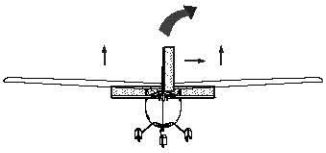
DOWN

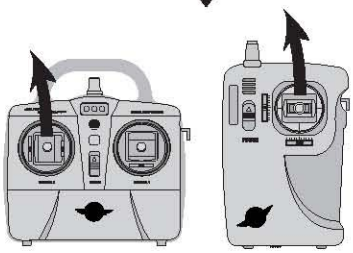


UP

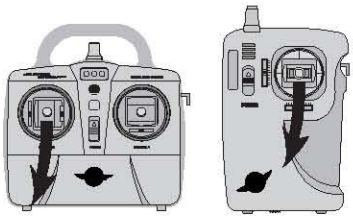


RIGHT ROLL AND UP

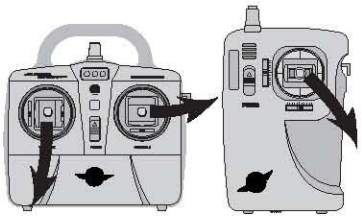




Move the stick up.



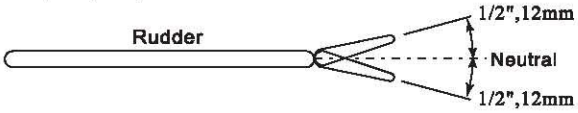
Move the stick down.

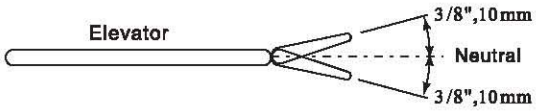


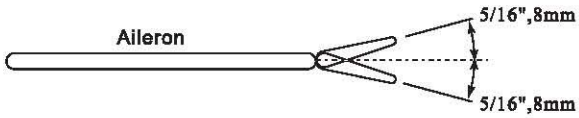
Move the stick down and right.

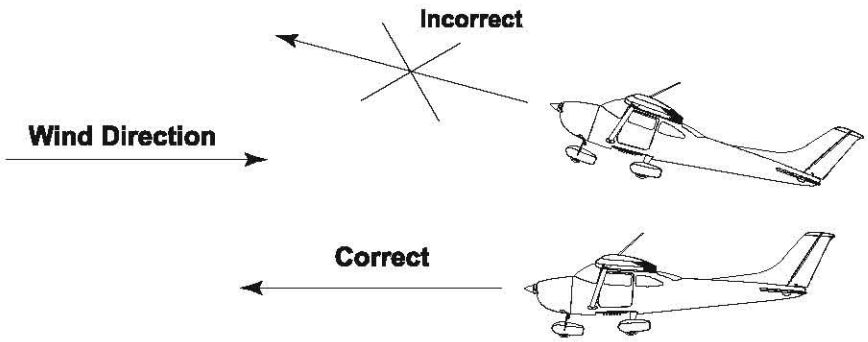
Control Throws

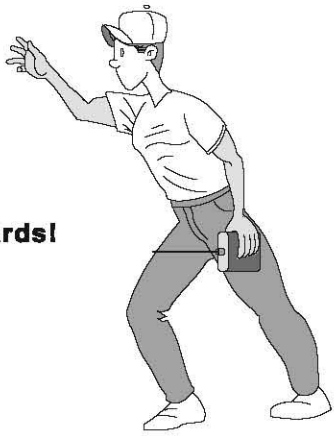
Please set up the control throws as indicated drawing for the starting point. After you familiar with its flying characteristics then these control throw can be tailored to fit your flying style.



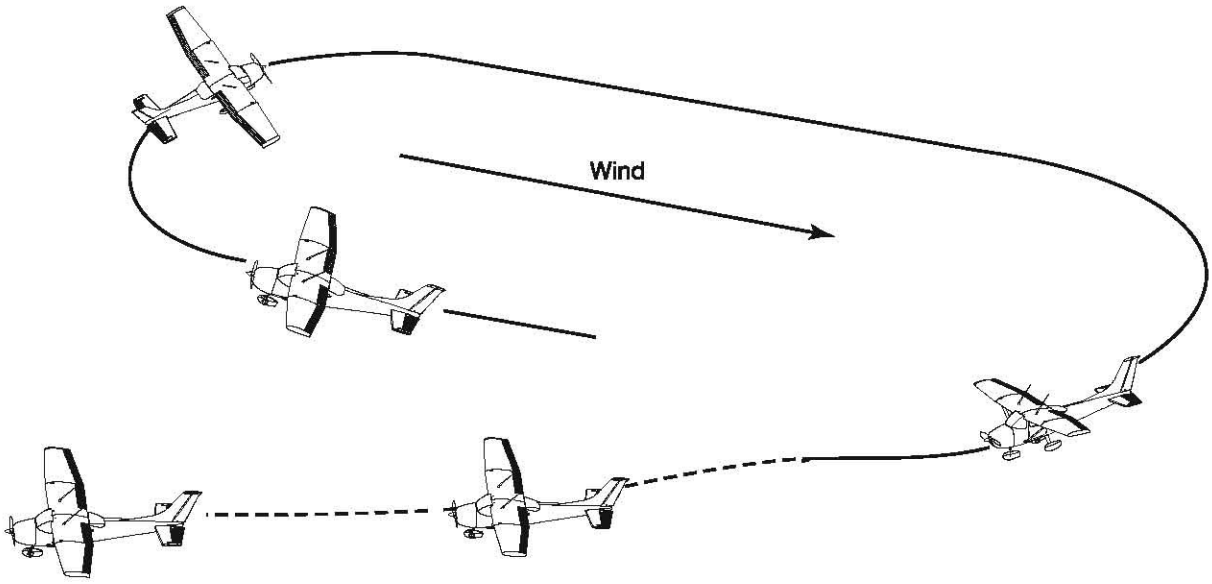


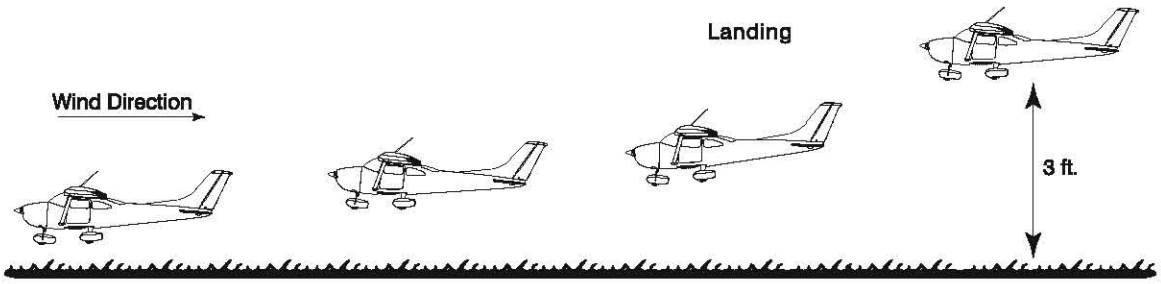






Launch firmly into wind straight and level. Do not throw upwards!





No.4323 Spirit of St. Louis EP

Specifications:

- Wing Span:39 3/8" (1000mm)
- Length:26 1/2" (675mm)
- Wing Area:226sq.in.(14.6dm^2)
- Weight:16.8oz.(470g)
- Motor:370 motor with 2.67:1 gearbox included

No.4321 Mr. Mulligan EP

Specifications:

- Wing Span:39 3/8" (1000mm)
- Length:26 1/2" (675mm)
- Wing Area:217sq.in.(14dm^2)
- Weight:16.5oz.(470g)
- Motor:370 motor with 2.67:1 gearbox included