Instruction Manual

PHOENIX MODEL®

SCANNER

Wingspan : 1444mm (56.85 inches)

Length : 1195mm (47.05 inches)

Weight : 2400gr

Engine : 40 - 46 two stroke / 48 - 53 four stroke

Radio : 4 channel 5 servos

INTRODUCTION

Thank you for choosing the new Scanner ARF by Phoenix Model. The Scanner was designed from the ground up with the intermediate sport flyer in mind. It is a low wing sport aerobatic aircraft that is easy to fly and quick to assemble, yet is capable of aerobatics to please even the best sport pilot. The airframe is conventionally built using balsa, plywood and veneer to make it stronger than the average ARF kit, yet the design allows the aircraft to be built light as well. You will find that most of the work has been done for you already. The pushrods are premade to the correct lengths, the motor mount has been installed and even the hinges are preinstalled and pinned for security. Flying the Scanner is simply a joy too. It's constant cord wings make landing a breeze without the bad habits of other aerobatic planes and it's generous stabilizer area keeps it tracking straight and true.

The Scanner ARF is an easy flying sport airplane, however, it may not be appropriate for some first time modelers. If you have chosen the Scanner ARF as your first airplane, we recommend you seek assistance from an experienced modeler.

We know you'll enjoy flying the Scanner ARF as much as we have enjoyed designing it for you. We encourage you to let us know about your successes. Fill out the consumer feedback survey at the end of the manual, send us a letter or contact us on the Internet. Again, thank you for purchasing the Scanner ARF by Phoenix Model.

ADDITIONAL ITEMS REQUIRED

- 40-53 Two Stroke Engine
- 4 Channel Radio With 4 Servos
- Glow Plug to Suit Engine
- Propeller to suit Engine
- Dubro Protective Foam Rubber
- Global Silicon Fuel Line
- Prather Stick On Weight For Balance

TOOLS AND SUPPLIES NEEDED

- Kwik Bond #2 Thick C/A Glue
- Kwik Bond 30 Minute Epoxy
- Kwik Bond 5 Minute Epoxy
- Hand or Electric Drill
- Assorted Drill Bits
- Modeling Knife
- Straight Edge Ruler
- 2mm Bondhus Ball Driver # 10654

KIT CONTENTS: We have organized the parts as they come out of the box for better identification during assembly. We recommend that you regroup the parts in the same manner. This will ensure you have all of parts required before you begin assembly.

KIT CONTENTS

AIR FRAME ASSEMBLIES

- (2) Wing halves with ailerons
- (1) Fuselage with canopy.
- (1) Horizontal stabilizer with elevator halves
- (1) Vertical stabilizer with rudder
- (1) Instruction manual

MAIN GEAR ASSEMBLY

- (2) Main gear
- (2) 65mm diameter wheels
- (4) Wheel collars
- (4) 3mm x 4mm machine screws
- (4) Nylon plate
- (8) 3mm x 12mm wood screws

NOSE GEAR ASSEMBLY

- (1) Nose gear
- (1) 65mm diameter wheel
- (2) Wheel collar
- (2) 3mm x 4mm machine screw
- (1) Nylon Steering arm

ELEVATOR CONTROL SYSTEM

- (1) Nylon clevises
- (1) Silicon tube
- (1) Nylon snap keeper
- (2) 2mm x 16mm screws
- (1) Nylon control horn w/plate

RUDDER CONTROL SYSTEM

- (1) Nylon clevises
- (1) Silicon tube
- (1) Nylon snap keeper
- (2) 2mm x 16mm screws
- (1) Nylon control horn w/plate

AILERON CONTROL SYSTEM

- (2) 1.7mm x 180mm metal pushrod
- (2) Nylon clevises
- (2) Silicon tube
- (2) Nylon snap keeper
- (2) Nylon control horn
- (8) 2mm x 10mm wood screws
- (4) 2mm x 16mm wood screws

MOTOR MOUNT ASSEMBLY

- (4) 3mm x 20mm wood screws
- (4) Lock washer

FUEL TANK

- (1) Nylon fuel Tank
- (1) Metal clunk
- (1) Pre - assembled stopper w / 2 tube

MISCELLANEOUS ITEMS

- (1) Aluminum dihedral
- (2) Wing screws
- (2) 4mm x 30mm nylon screws
- (2) Metal connector
- (2) 1.7mm x 700mm metal pushrod
- (2) Nylon bushing
- (1) Spinner
- (1) 25mm x 600mm trim tape (white)

ADDITIONAL ITEMS REQUIRED

- 40 two stroke Engine.
- 4 channel Radio with 4 servos.
- Glow plug to suit Engine.
- Propeller to suit Engine.
- Protective foam Rubber.
- Silicone fuel line.
- Stick on weight for balance.

SUGGESTION to avoid scratching your new airplane, do not unwrap the pieces until they are needed for assembly. Cover your workbench with an old towel or brown paper, both to protect the aircraft and to protect the table. Keep a couple of jars or bowls handy to hold the small parts after you open the bags.

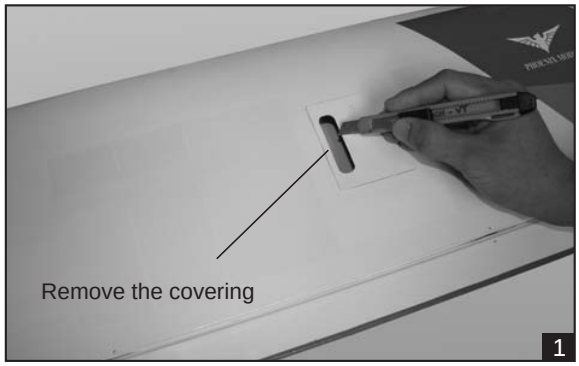
NOTE Please trial fit all the parts. Make sure you have the correct parts and that they fit and are aligned properly before gluing! This will assure proper assembly. Since the Scanner ARF is hand made from natural materials, every plane is unique and minor adjustments may have to be made. However, you should find the fit superior and assembly simple.

WARNING The paint and plastic parts used in this kit are fuel proof,however they are not tolerant of many harsh chemicals including the following: Paint thinner, C/A Glue Accelerator, C/A Glue Debonder and Acetone. Do not let these chemicals come in contact with the colors on the covering and the plastic parts.

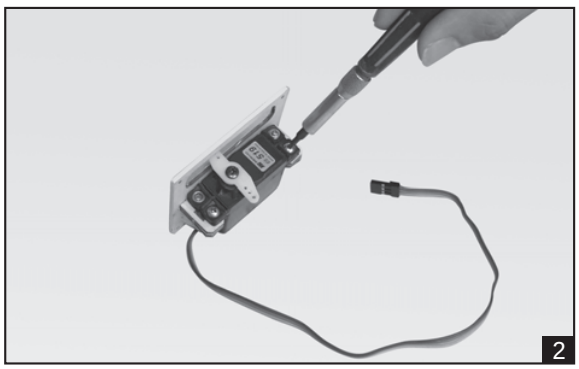
INSTALLING THE AILERON SERVOS

1. Install the rubber grommets and brass eyelets onto the aileron servo.

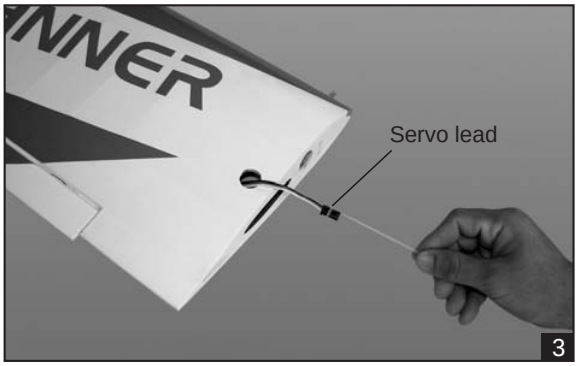
2. Using a modeling knife, remove the covering from over the pre-cut servo arm exit hole on the aileron servo tray / hatch. This hole will allow the servo arm to pass through when installing the aileron pushrods.



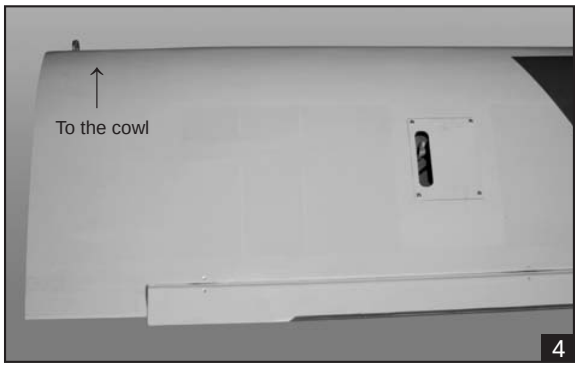
3. Place the servo into the servo tray. Center the servo within the tray and drill 1,6mm pilot holes through the block of wood for each of the four mounting screws provided with the servo.



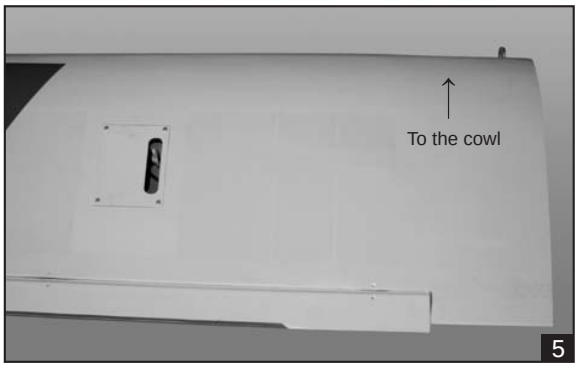
4. Using the thread as a guide and using masking tape, tape the servo lead to the end of the thread: carefully pull the thread out. When you have pulled the servo lead out, remove the masking tape and the servo lead from the thread.



5. Place the aileron servo tray / hatch into the servo box on the bottom of the wing and drill 1,6mm pilot holes through the tray and the servo box for each of the four mounting screws. Secure the servo tray in place using the mounting screws provided (2mm x 12mm).



6. Repeat step # 2 - # 5 to install the second aileron servo in the opposite wing half.

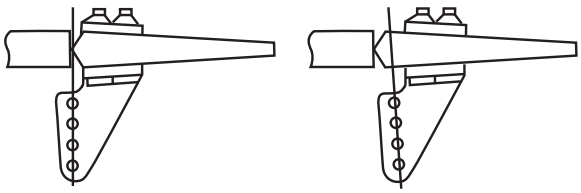


7. Using masking tape, tape the servo leads on to the top of the wing.

INSTALLING THE CONTROL HORNS

1. One aileron control horn in positioned on each aileron. Using a ruler and a pen, locate and mark the location of the control horn. It should be mounted on the bottom side of the aileron at the leading edge, in line with the aileron pushrod.

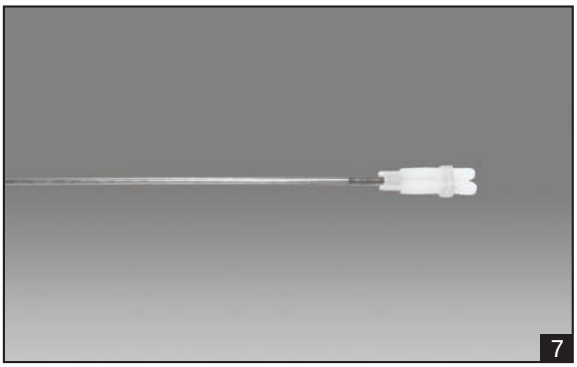
2. Drill two 1.6mm holes through the aileron using the control horn as a guide and screw the control horn in place.



3. Repeat step # 1 - # 2 to install the control horn on the opposite aileron.

INSTALLING THE AILERON LINKAGES

1. Working with the aileron linkage for now, thread one nylon clevis at least 14 turns onto one of the 2mm x 180mm threaded wires.



2. Attach the clevis to the outer hole in the control horn. Install a silicone tube on the clevis.

3. Locate one nylon servo arm, and using wire cutters, remove all but one of the arms. Using a 2mm drill bit, enlarge the third hole out from the center of the arm to accommodate the aileron pushrod wire.

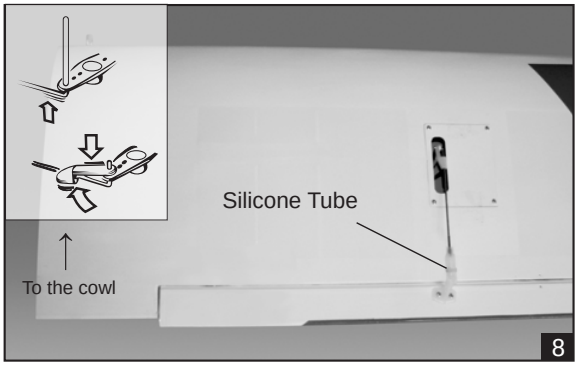
4. Plug the aileron servo into the receiver and center the servo. Install the servo arm onto the servo. The servo arm should be perpendicular to the servo and point toward the middle of the wing.

5. Center the aileron and hold it in place using a couple of pieces of masking tape.

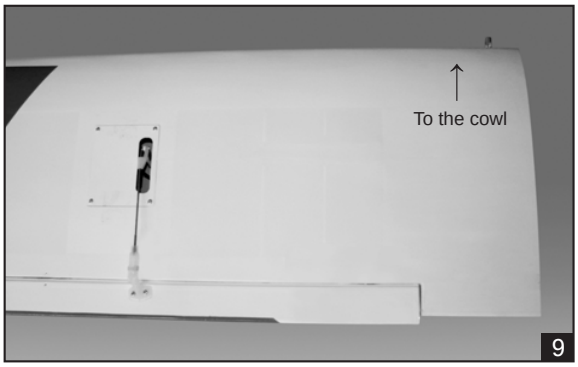
6. With the aileron and aileron servo centered, carefully place a mark on the aileron pushrod wire where it crosses the hole in the servo arm.

7. Using pliers, carefully make a 90 degree bend down at the mark made. Cut off the excess wire, leaving about 4mm beyond the bend.

8. Insert the 90 degree bend down through the hole in the servo arm. Install one nylon snap keeper over the wire to secure it to the arm. Install the servo arm retaining screw and remove the masking tape from the aileron.

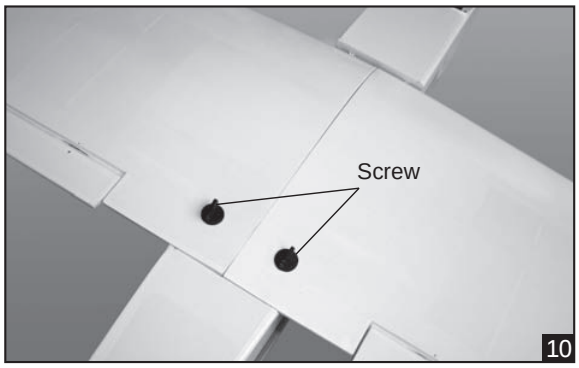


9. Repeat step # 4 - # 8 to install the second aileron linkage. After both linkages are completed, connect both of the aileron servo leads using a Y-harness you have purchased separately.



INSTALLING THE WING TO THE FUSELAGE

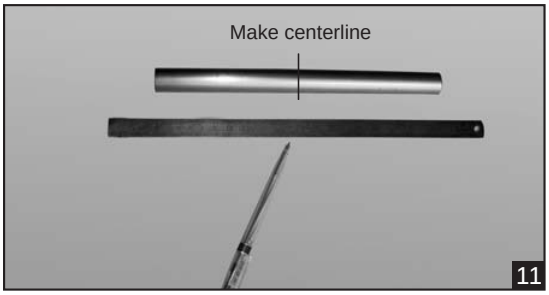
Attach the wings to the joiner tube and using the nylon thumbscrews to secure the wing panels to the fuselage.



WING ASSEMBLY

__Note__ We highly recommend using 30 Minute Epoxy over faster curing epoxies for several reasons. First, slower curing epoxy is stronger. It also providers more working time, allowing the builder to properly align the parts. Using fast cure epoxy when joining the wing halves could result in the glue drying before the wing halves are aligned properly, causing damage to the wing assembly. Also, when joining the wing halves, the entire area of both center ribs need to be joined completely with no gaps existing. Not following these steps carefully, may result in failure of the wing center section during flight.

1) Locate the plywood wing dihedral brace. Using a ruler, locate it's center and place a mark. Draw a vertical line at the mark just made . See ***photo #1 below.***

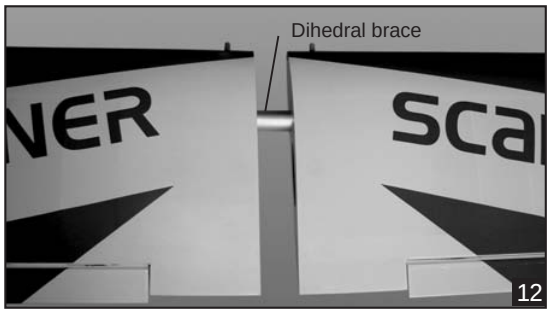


2) Test fit the dihedral brace into each wing half. The brace should slide in easily up to the centerline you drew. If it does not, use 220 grit sandpaper with a sanding block and sand down the edges and ends of the brace until the proper fit is obtained.

__Note__ the dihedral brace is cut in the shape of a "V". This shape gives the wing the correct dihedral angle. Make sure you don't test fit the brace upside down.

3) When satisfied with the fit of the dihedral brace in each wing half, remove the brace .Mix equal amounts of part A and part B 30 minute epoxy. Coat all sides of the dihedral brace box and half of the wing brace with the epoxy. Make sure to cover the top and bottom as well as the sides. Use enough epoxy to fill any gaps.

4) Insert the dihedral brace into one wing half up to the centerline. Wipe off any excess epoxy that may have squeezed out of the joint using paper towels. ***See photo #2 below***



5) Once the epoxy has cured, trial fit both wing halves together.The center gribs should fit flush together with little or no gaps existing. If gaps do exist, use 220 Grit sandpaper and sand down the high spots on the root ribs and the wing joiner until the proper fit is obtainer. The amount of dihedral is built into the wings by angling the root ribs the correct amount. With one wing half flat on the table, the other wing tip should be approximately 2" off of the surface of the table. If this need to be adjusted, you may do so by sanding small amount from the center ribs or dihedral brace.

6) To protect the covering from the epoxy used to glue the wing halves together, carefully apply masking tape around the edge of the root rip on the top and bottom of each wing half. See ***photo #3 below***.

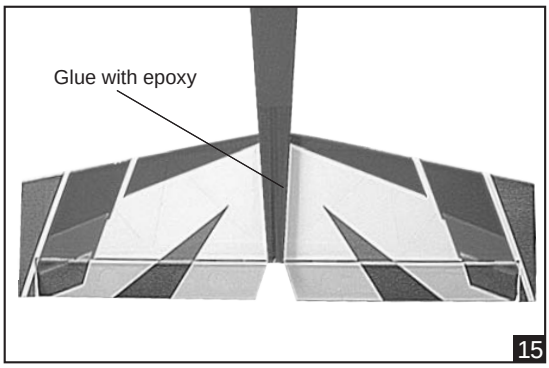
7) Mix a generous amount of 30 minute epoxy. Coat the exposed half of the dihedral brace, the wing joiner box and both root ribs with epoxy. Slide the two wing halves together and carefully align them at the leading and trailing edges. Wipe away any excess epoxy using paper towels. Use masking tape wrapped around the center section to hold the halves in place until the epoxy cures. ***See photo # 4below***.

8) When the epoxy has cured, carefully remove the masking tape from the wing.

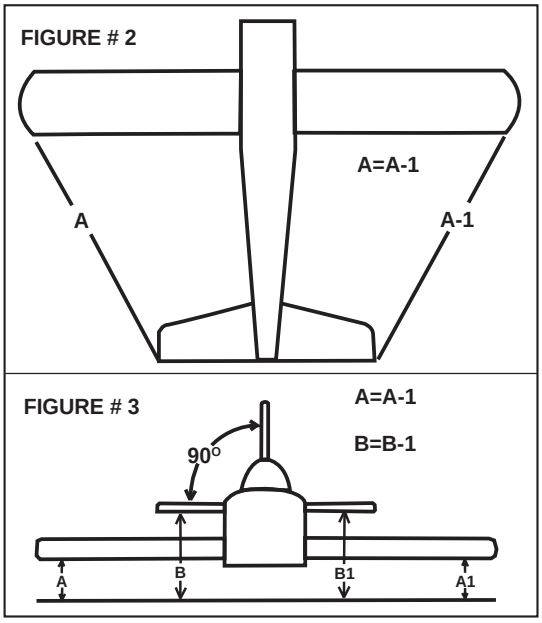
9) Peel off the backing from the self adhesive covering strip used to cover the center section wing joint seam. Apply the strip to the center section of the wing on the bottom first, and the top using the rest of the material.

HORIZONTAL AND VERTICAL STABILIZER INSTALLATION

1) Using your ruler, find the centerline of the horizontal stabilizer, at the trailing edge, and place a mark. Use a triangle and extend this mark, from back to front, across the top and bottom of the stabilizer. Also place a mark at the centerline of the fuselage at the front and rear of the stabilizer mounting area. These mark will be used to line up the stabilizer to the fuselage. ***See photo #9 below***.



2) Bolt the wing to the fuselage. Set the horizontal stabilizer onto the stabilizer mounting platform on the fuselage. To align the horizontal stabilizer with the wing, use ***figure #2 and # 3***. when viewed from the rear, the horizontal stabilizer should be level with the wing. If it is not level, use sandpaper and sand down the high side of the stabilizer mounting platform until the proper alignment is achieved. Measure the distance form each wing tip to each stabilizer tip. These distances should be equal. If they are not, adjust the stabilizer until the measurements are equal.



3) When you are satisfied with the alignment, hold the stabilizer in place with T-pins or masking tape, but do not glue at this time.

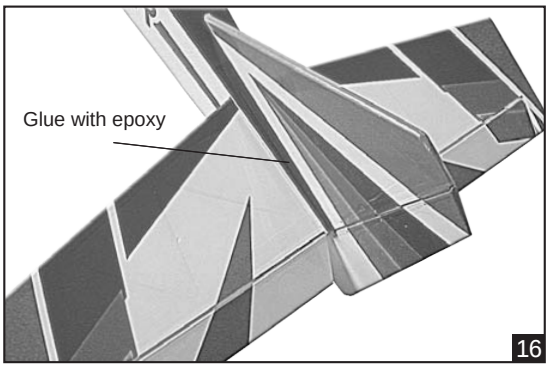
4) On the bottom of the horizontal stabilizer, draw a line where it and the fuselage meet. Do this on both the right and left sides.

5) Remove the horizontal stabilizer. Using the lines you just drew as a guide, carefully remove the covering from between them, using a modeling knife. This is where the horizontal stabilizer will be glued in place.

6) When you are sure that every thing is aligned correctly, glue the horizontal stabilizer in place using 30Minute Epoxy. Double check all of your measurements once more before the epoxy cures. Hold the stabilizer in place with T-pins or masking tape until the epoxy has cured.

7) Slide the vertical stabilizer into the slot in the mounting platform in the top of the fuselage. Mark the shape of the fuselage on the left and right sides of the vertical stabilizer using a felt-tip pen.

8) Now, remove the vertical stabilizer and using a modeling knife, carefully cut just inside the marked lines and remove the film on both sides of the vertical stabilizer. Just as you did with the horizontal stabilizer, make sure you only press hard enough to cut the film, not the balsa vertical stabilizer.



9) Set the vertical stabilizer back in place. Using a triangle, check to ensure that it is 90^0 to the horizontal stabilizer.

10) Once you are sure that everything is aligned correctly, glue the vertical stabilizer in place using 30 Minute Epoxy. Double check all of your measurements once more before the epoxy cures. Hold the stabilizer in place with T-pins until the epoxy has cured.

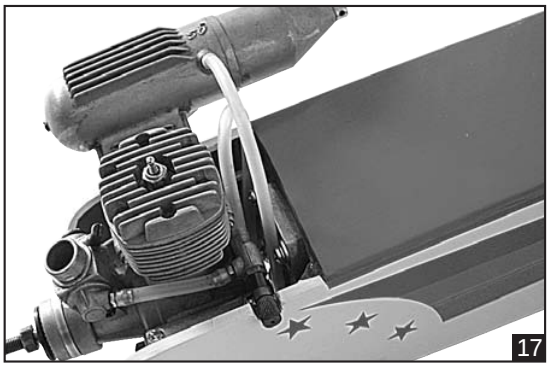
ENGINE MOUNTING

1) Test fit your engine into the engine mount. Because the width of different engines differ, the motor mount may need to be widened to accommodate your engine. You can do this by loosening the motor mount screw and sliding the mounting beams apart. When satisfied with the fit , tighten the mounting screws.

2) Remove the muffler from the engine and set the engine in the mount. Adjust the depth of the engine in the mount. The front of the thrust washer should be 5/16" forward of the front edge of the fuselage sides. This will allow clearance for the propeller.

3) Once satisfied with the fit of the engine, mark the position of the four engine mounting holes onto the mount. Remove the engine and drill out the mounting holes using a 7/64" drill bit. Drill one hole at a time, checking the alignment after each hole is drilled.

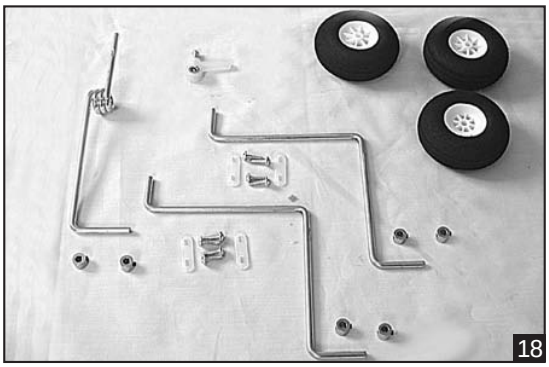
4) When reinstalling the engine into the motor mount, connect the carburetor arm to the preinstalled throttle pushrod. The Z-Bend fits into the lower hole in the throttle arm. Mount the engine using the four3*25mm flat head wood screws. ***See photo #11 below***.



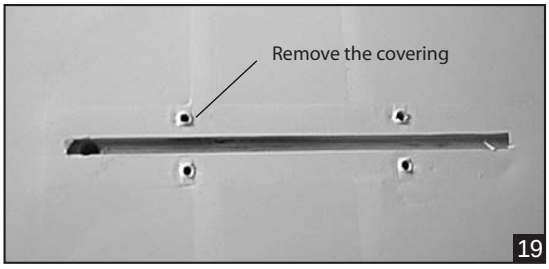
5) Mount the muffler to the engine using the mounting bolts provided with your engine.

LANDING GEAR INSTALLATION

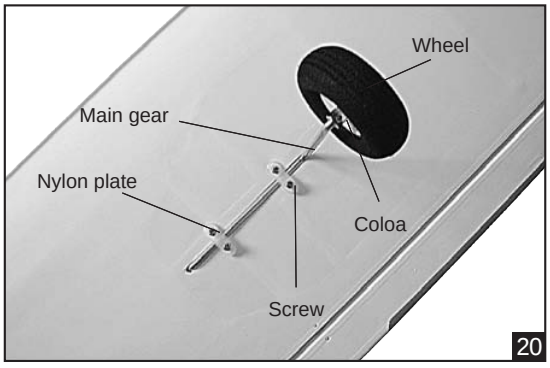
1) Locate the two main landing gear wires, one nose gear wire, four nylon mounting straps eight 3*12mm Phillips head sheet metal screws, three wheels, six wheel collars w/set screws, and one nylon steering arm with set screw. ***See photo #12 below***.



2) There are two hardwood landing gear blocks with one precut channel in each block in the bottom of the wing. Locate the two landing gear blocks on the bottom of the wing and using a modeling knife, remove the covering from over the precut channels. ***See photo #13 below***.



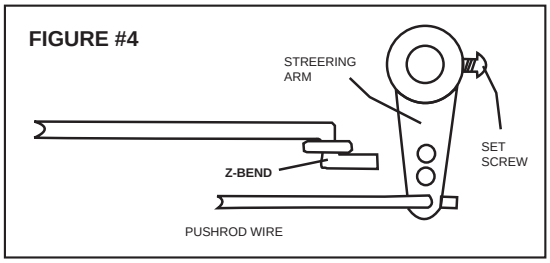
3) Test fit the two main gear wires into the channels. When satisfied with the fit, secure the wires in place using the four nylon straps and eight 3*12mm sheet metal screws. If you look closely at the wing surface surrounding the channel for the wire, you will notice that there are already four pilot holes drilled to accommodate the screws for the straps. Mount the straps at these locations. ***See photo # 14 below.***



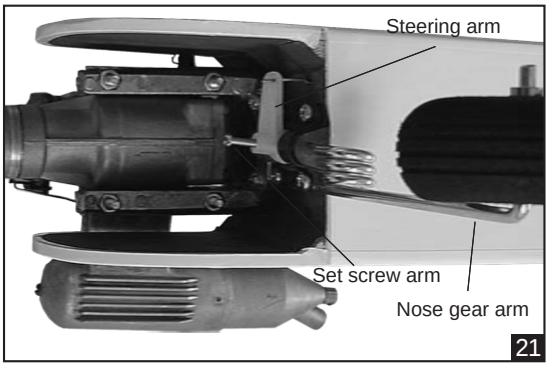
4) Install two of the wheels onto the axles using the four wheel collars and set screws provided. The wheels should be centered on the axles with a wheel collar on each side, holding them in place. Tighten the set screws on the collars to secure them in place.The wheels should rotate freely. You should apply a small drop of lock-Tite thread lock to each set screw to prevent them from coming loose.

5) Remove the hatch cover from the bottom front of the fuselage. Working with the preinstalled nylon steering housing, position it so the end of it is flush with the front of the firewall. When satisfied with the fit, glue the housing to the firewall from the inside of the fuselage using 5 Minute Epoxy.

6) The preinstalled wire steering pushrod has a factory made Z-Bend on the front end of it. Connect the nylon steering arm to this pushrod. The pushrod should be installed in the outermost hole in the steering arm. ***See figure # 4 below***.



7) Locate the nose gear wire. Slide the nose gear wire up through the lower portion of the nose gear block, then through the nylon steering arm, then through the upper portion of the nose gear block. The top of the nose gear wire should be flush with the top of the nose gear bracket. ***See photo # 15 below***.

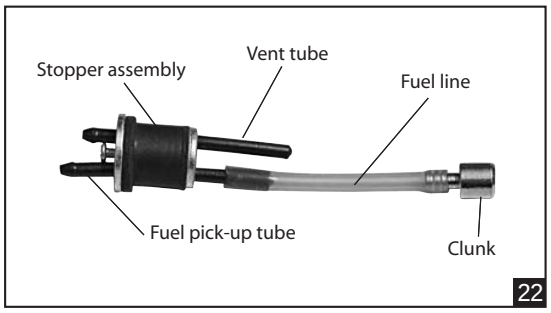


8) With the nose gear wire straight, angle the nylon steering arm about 30^0 forward of the fire-wall and tighten the set screw. Angling the arm forward like this will allow room for the arm to move back for more adequate steering.

9) Install the remaining wheel onto the axle using the two wheel collars and set screws provided. The wheel should be centered on the axle with a wheel collar on each side, holding it in place. Tighten the set screws on the collars to secure them in place. The wheel should rotate freely. You should apply a small drop of Lock_tite thread lock to each set screw to prevent them from coming loose.

FUEL TANK ASSEMBLY

1) Locate the plastic molded fuel tank, preassembled stopper assembly, weighted pick-up and a length of fuel line about 2-1/2 " long (not included). For steps # 2-4, ***refer to photo #16 below***.



2) Attach the weighted pick-up, more com-momly referred to as the "clunk", to one end of the silicon fuel line.

3) Slide the other end of the silicon fuel line onto the end of one of the tubes coming out of the rear of the stopper assembly. This will be your fuel pickup line. When mounted the clunk should rest 3/8" from the rear of the tank and should move freely within the tank. The silicon tubing should be trimmed to fit.

4) Using your Fingers, gently bend the second tube upwards. This will become the muffler pressure tube. When inside the tank, it should rest just within the bubble in the top of the tank's roof.

5) Push the stopper assembly into the opening in the tank. Adjust the assembly until the muffler pressure tube is resting in the top of the bubble in the tank, but not touching the bubble. The fuel pick-up should also be 3/8" from the back of the tank. When satisfied with the fit, insert the long machine screw through the center hole in the stopper. Tighten the screw to expand the stopper and seal the tank opening. Tighten the stopper only enough to make a good seal. If you over-tighten the stopper, you may accidentally crack the front of the tank.

6) Mix up a batch of 30 Minute Epoxy and using an small pain brush, completely coat the inside of the fuel tank compartment in the forward section of the fuselage. This will seal the wood from any fuel that might accidentally leak from the tank.

7) When the epoxy has cured, connect two lengths of fuel line to the plastic tubes coming out of the tank. Keep track which one is for the fuel pick-up and which one is for the muffler pressure.

8) Run the tubes through the hole in the firewall and slide the tank assembly into place. The tank should rest at the top of the compartment and be up against the back of the firewall. Make sure there are no kinks in the fuel tubing and that the bubble in the tank is towards the top of the airplane.

9) Use pieces of the foam provided to hold the tank in place. Be careful the tank or the foam doesn't interfere with the pushrods.

10) Connect the fuel pick-up line to the carburetor fuel inlet nipple and the muffler pressure line to the pressure nipple on your engine's muffler.

SPINNER INSTALLATION

1) Locate the molded plastic spinner, two 3*12mm Phillips head sheet metal screws and the Propeller to suit your engine (not included).

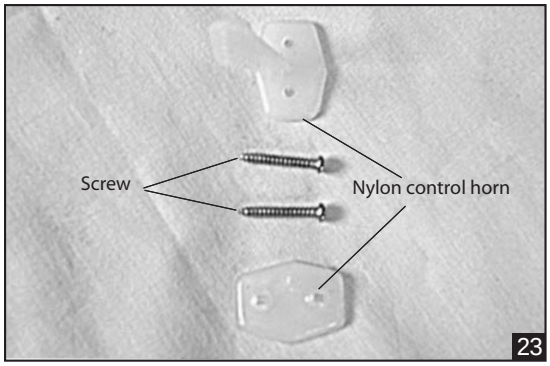
2) Most .40 size displacement engines use a 1/4'' diameter crankshaft. You may need to enlarge the hole in the spinner backplate and the propeller to fit the crankshaft. If you do, enlarge the holes using a prop reamer or a 1/4"size drill bit.

3) Slide the backplate, then the propeller onto the engine and secure in place with the prop washer and nut included with your engine.

4) Install the spinner cone onto the spinner backlate using the two 3*12mm Phillips head sheet metal screws. You will need to trim the openings in the spinner cone to clear the propeller. Trim the opening using a sharp modeling knife until the spinner cone clears the propeller. It is important that no part of the spinner cone touches the propeller.

CONTROL HORN INSTALLATION

1) Locate the parts that make up the elevator and rudder control horns. This includes four 2*12mm Phillips head machine screws, two plate of nylon control horns,two nylon control horns. ***See photo # 17 below***.



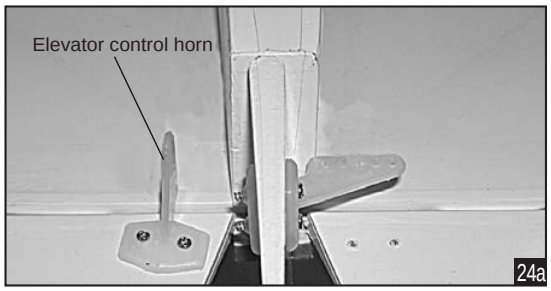
2) The control horn of elevator should be mounted on the bottom, right side of the elevator at the leading edge, ***in line with the elevator pushrod.***

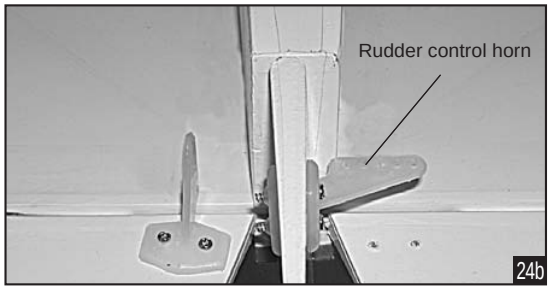
Drill two 1,6mm holes through the elevator using the control horn as a guide and screw the control horn in place.

The control horn of rudder should be mounted on the left side of the rudder at the leading edge, ***in line with the rudder pushrod.***

Drill two 1,6mm holes through the ruuder using the control horn as a guide and screw the control horn in place.

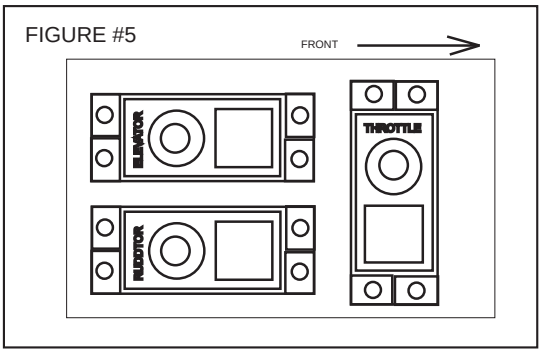
See photo # 18a and #18b below.





SERVO INSTALLATION

1) Locate the three servos you will be using for the rudder, elevator and throttle. Use the hardware provided with the servos of your radio system to mount them in the servo tray. Position the servo with the output shafts as shown. ***See figure #5 below.***

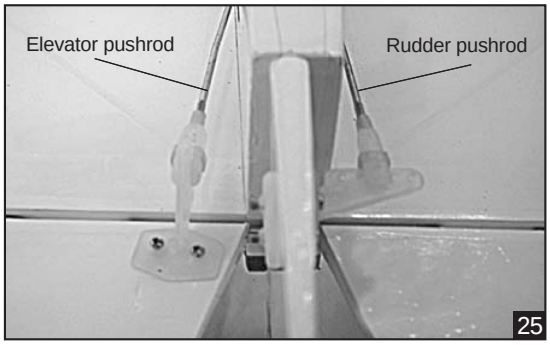


2) Using a modeling knife, remove the covering from over the two precut pushrod slots, one on each side of the fuselage, under the rear half of the horizontal stabilizer.

3) Install the elevator pushrod by threading string down through the pushrod exit slot on the right side of the fuselage and into the servo compartment.

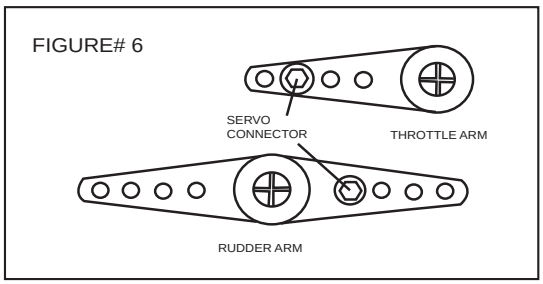
4) Tie the string onto the threaded end of the elevator pushrod and carefully pull the pushrod through the fuselage and out the exit slot.

5) Thread one nylon clevis on to the pushrod at least 1/4 ". Attach the clevis to the elevator control horn. Some bends in the wire will be necessary eliminate any binding. ***See photo #19 below***.



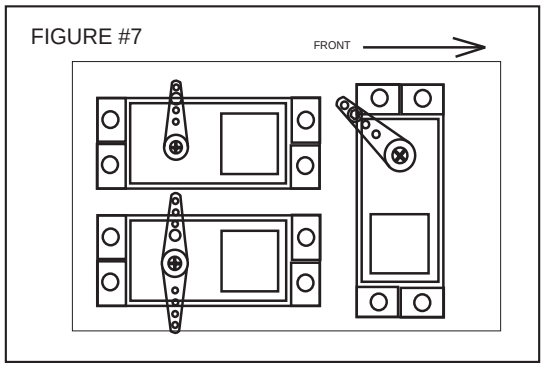
6) Repeat steps 3-5 above for the rudder pushrod. The rudder pushrod. Will exit out the left side of the fuselage. ***See photo #19 above***.

7) Install an adjustable servo connector in the hole closest to the center of the rudder servo arm. You need to use a "dual type" servo arm. Install an adjustable servo connector 3-4 holes out from the center of the servo arm. Install the connector using the same technique as with the ailerons. Do not permanently attach the adjustable servo connector for the throttle as it may need to be moved late. ***See figure # 6 below.***



8) Connect the servo to your radio's receiver and turn on the system. Set the trim tabs on the transmitter to neutral and center the servo arms. The elevator and rudder servo arms should be perpendicular to the servos. For the throttle, we suggest setting the throttle trim tab and the throttle stick to the lowest setting which will be used to shut off the engine. Also mount the servo arm about 45^0 back from perpendicular. ***See photo # 7 below.***

FIGURE #7



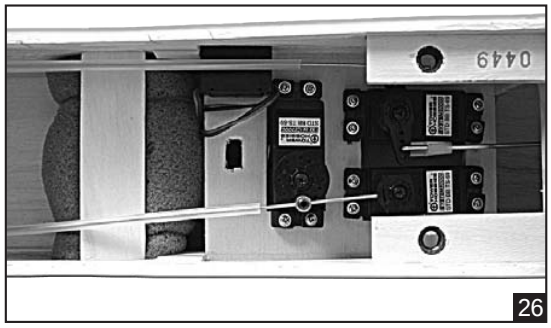
9) One at a time, hold the pushrods in position over the respective servo to check for proper servo direction. If any servo turns in the wrong direction, switch your radio's reversing switches as necessary to achieve the correct direction.

10) Slide the throttle pushrod wire through the adjustable servo connector on the throttle servo arm. Pull the carburator barrel to the fully closed position. Tighten the set screw in the connector.

11) Move the throttle stick and trim tab to the full throttle position. The carburetor barrel should be opened fully. If it is not, move the adjustable servo connector on the servo arm out one hole. If the servo moves too far, and the pushrod binds, move the adjustable servo connector in one hole on the servo arm. You should adjust the linkage so full forward stick and trim should be idle. Full back stick and full back trim should close the carburetor barrel, which in use will stop the engine.

12) When satisfied with the pushrod assembly cut off the excess wire and permanently attach the adjustable servo connector to the servo arm.

13) Glue one of the 1/2" *1/2"*1/4" pieces of wood between the fuselage side and the throttle pushrod housing to help hold the housing in place and prevent it from flexing. ***See photo # 20 below.***



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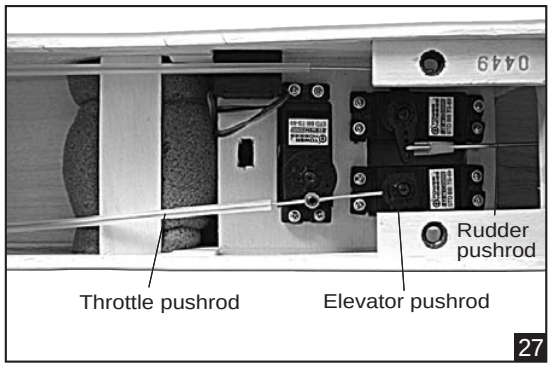
14) Insert the nosegear pushrod wire through the adjustable servo connector on the rudder servo arm. Hold the nose gear assembly in the neutral position and tighten the set screw in the servo connector. Roll the airplane on the ground to ensure it rolls straight. If not, adjust the pushrod wire. When satisfied, cut off the excess wire.

15) Glue the second of the two 1/2" *1/2"*1/4" pieces of wood between the fuselage side and the steering pushrod housing to help hold the housing in place and prevent it from flexing. Use the same technique as with the throttle. ***See photo # 20 above.***

16) With the elevator in neutral, mark where the pushrod wire crosses the servo arm. Place a Z-bend in the wire at the mark made. Attach the servo arm to the wire and cut off the excess wire.

17) Repeat step # 16 for the rudder pushrod. Notice the position of the servo arm on the servo. ***See photo # 21 below.***



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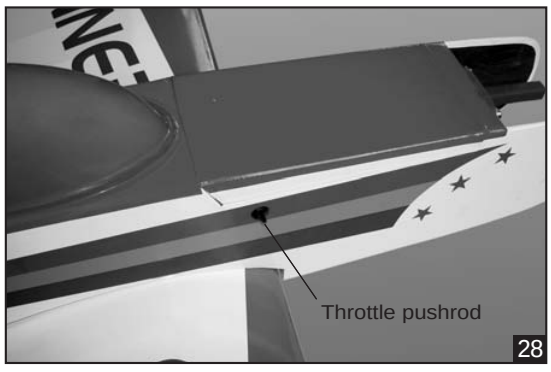

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RECEIVER & BATTERY INSTALLATION

1) The battery should be wrapped in foam and mounted under the fuel tank to add in balancing. We used a 500mah flat pack. The receiver should be wrapped in foam and mounted just behind the fuel tank.

2) Uncoil the receiver antenna completely and drill a 1/16" hole in the side of the fuselage, opposite the muffler, for the antenna to exit. Secure the end of the antenna to the top the vertical fin using a rubber band or similar method.

3) Install the switch on the side of the fuselage opposite the muffler. Use the faceplate of the switch as a pattern for drilling the holes and the cutout for the switch itself.

BALANCING

1) It is critical that your airplane be balanced correctly. Improper balance will cause your plane to lose control and crash. The center of gravity is located 2-1/2" back from the leading edge of the wing at the fuselage sides. This location is recommended for initial test flying and trimming. There is a 3/8" margin forward and aft, but it is not recommended that the center of gravity be located any further back than 2-7/8". Balance the Scanner with the fuel tank empty.

2) Using a couple of pieces of masking tape or a pen, make a mark on each side of the top of the wing 2-1/2" back from the leading edge.

3) Turn the Scanner upside down and place your fingers on the marks on top of the wing and carefully lift the plane.

4) If the nose of the plane falls, the plane is nose heavy. To correct this, try moving your battery pack back. It that is not enough change, add a little lead weight to the tail. If the tail of the plane falls, double check that you have mounted the battery pack under the fuel tank. If the airplane is still tail heavy add lead weight to the firewall or even better, use a sufficient heavy hub under the spinner.

CONTROL THROWS

High rate	Low rate
Ailerons: 1/2" up & down	3/8" up & down
Elevator: 5/8"up & down	3/8" up & down
Rudde: 1" right & left	1/2"right & left

** ***Note***** Both the center of gravity and the control throws are a good starting place for initial test flying and may be changed to your particular tastes and flying styles once you have become familiar with the Scanner. We do recommend initially flying the airplane using the ***LOW RATE*** settings. Too much throw can force the plane into a high speed stall, so remember, "More it not better".

FLIGHT PREPARATION

1) Check the operation and direction of the elevator, rudder, ailerons and throttle.

A) Plug in your radio system per the manufacturer's instructions and turn everything on.

B) Check the elevator first. Pull back on the elevator stick. The elevator should go up. If it does not, flip the servo revesing switch on your transmitter to change the direction.

C) Check the rudder. Looking from behind the airplane, move the rudder stick to the right. The rudder should move to the right. The nose wheel should move t the right as well. If it does not, flip the servo reversing switch on your transmitter to change the direction.

D) Check the throttle. Moving the throttle stick forward should open the carburetor barrel. If it does not, flip the servo reversing switch on your transmitter to change the direction.

E) From behind the airplane, look at the aileron on the right wing. Move the aileron stick to the right. The aileron should move up and the other aileron should move down. If it does not, flip the servo reversing switch on your transmitter to change the direction.

2) Check Control Surface Throw.

A) The rudder should move 1/2" left and 1/2" right from center.

B) The elevator should move 3/8" up and 3/8" down from center.

C) The aileron should move 3/8" up and 3/8" down from center. If they move too far, move the adjustable horn away from the aileron a few turns. Do the opposite if there is not enough throw. It is important that both ailerons move the same amount, both up and down.

D) Once the control throws and movements are set, tubing must be added to the clevises to ensure they do not release in the air. Cut 1/4" lengths of fuel tubing and slide one over each clevis prior to attaching it to the control horn. This will ensure the clevis will not release in flight.

PRE-FLIGHT CHECK

1) Completely charge your transmitter and receiver batteries before your first day of flying.

2) Check every bolt and every glue join in your Scanner to ensure everything is tight and well bonded.

3) Check that the tubes used for clevis retainers are in place.

4) Double check the balance of the airplane. Do this before filling the tank with fuel.

5) Check the control surfaces. All should move in the correct direction and not bind in any way.

6) Check the receiver antenna. It should be fully extended and not still coiled up in the fuselage.

FLYING THE SCANNER

If you are unfamiliar with flying low wing sport aircraft, please seek out an experienced pilot to help you with the first few flights of the airplane. The design of the Scanner allows the airplane to fly smoothly and stable, yet perform good aerobatics as well. Landings are smooth and predictable, but because this is not a primary trainer, its stall speed is higher and power should be used to bring it in for landings and slow speed flight. It does not have the self-recovery characteristics of a primary R/C trainer, so again, if you don't feel comfortable for the first flight have someone with more experience help you get it in the air.

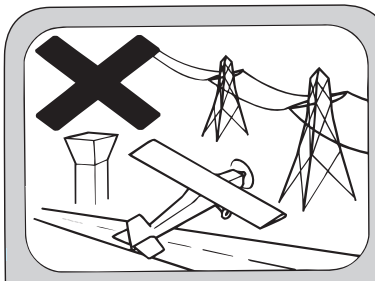
Although this model has good low speed characteristics with power on, you should always build up as much speed as your runway will permit before lifting off, as this will give you a safety margin in case the engine quits after take off.

It is important that the plane rolls out on the ground until sufficient airspeed is achieved. Pulling the Scanner off the ground too soon could result in a stall and crash. Allow the airplane to pick up speed and gently lift off and climb out gradually. We recommend that you take it easy with your Scanner for the first several flights, gradually getting acquainted with the air plane and allowing your engine to fully break-in. Add and practice one maneuver at a time, learning how the airplane be haves in each. For smooth flying and normal maneuvers, we recommend using the low rate settings described earlier, Hight rate may be required for more crisp aerobatics.Before your first landing, practice landing approaches in the air. This will get you familiar with the stall characteristics of the Scanner.

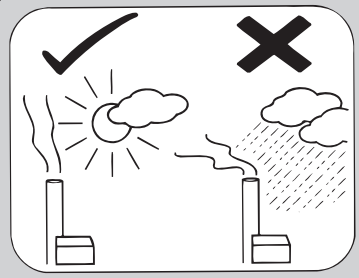
When it's time to land, fly a normal landing pattern and approach decreasing power to about one-quarter. It is important that when power is reduced and flying speed has diminished, do not make high angle turns onto the final approach. Too hight an angle of bank with too litter power can cause the airplane to stall. When you turn final, reduce power to just a few clicks over idle. When you are a few feet off the ground, reduce power to idle and let the airplane settle onto the runway. Land slightly faster than the stall speed and on the main wheels, as this is the easiest way to land the Scanner and will reduce the risk of stalling the airplane.

I/C FLIGHT WARNINGS

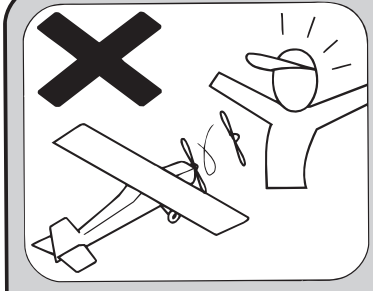
Always operate in open areas, away from factories, hospitals, schools, buildings and houses etc. **NEVER** fly your aircraft close to people or built up areas.



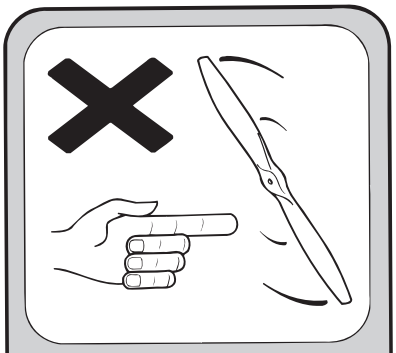
NEVER fly near power lines, aerials or other dangerous areas including airports, motorways etc.



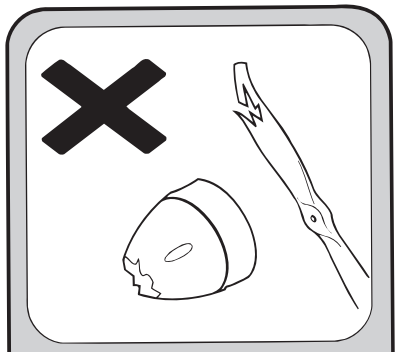
NEVER fly in wet conditions or on windy or stormy days.



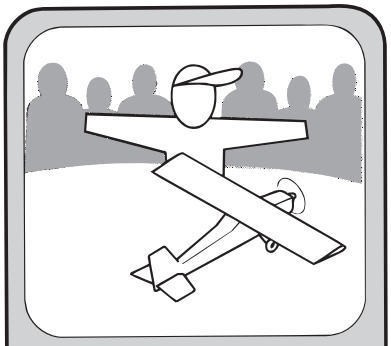
ALWAYS adjust the engine from behind the propeller, and do not allow any part of your body to be in line with the propeller.



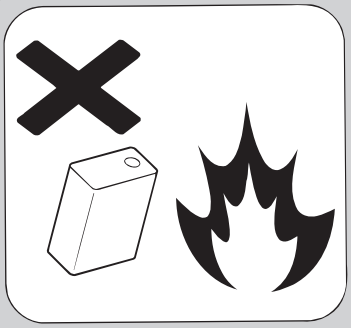
THE PROPELLER IS DANGEROUS Keep fingers, clothing (ties, shirt sleeves, scarves) or any other loose objects that could be caught or drawn in, away from the propeller. Take care at **ALL** times.



NEVER use damaged or deformed propellers or spinners.

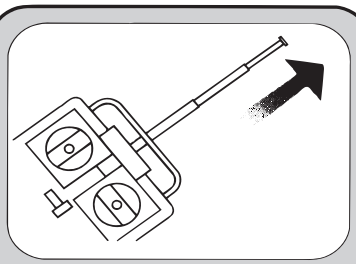


Keep all onlookers (especially small children and animals) well back from the area of operation. This is a flying aircraft, which will cause serious injury in case of impact with a person or animal.

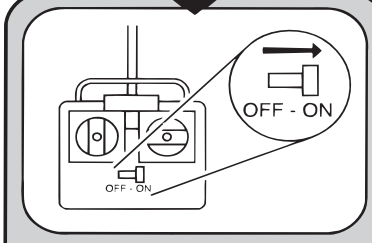


DO NOT dispose of empty fuel containers on a fire, this can lead to an explosion.

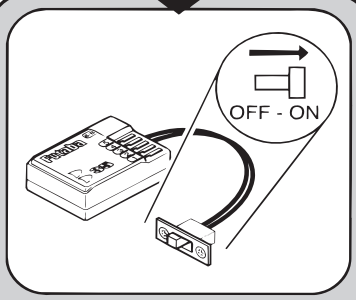
I/C FLIGHT GUIDELINES



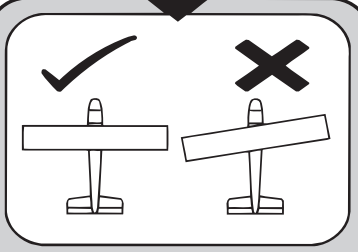
When ready to fly, first extend the transmitter aerial.



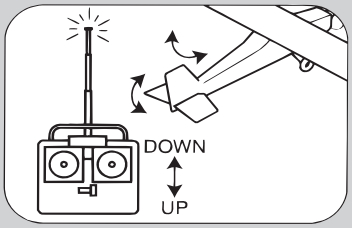
Switch on the transmitter.



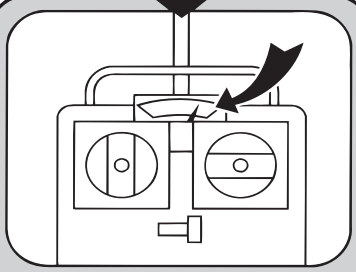
Switch on the receiver.



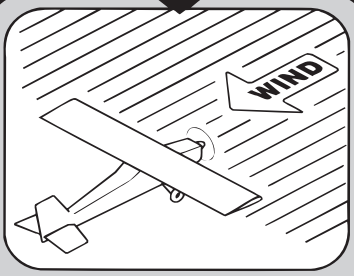
Check that the wings are correctly fitted to the fuselage.



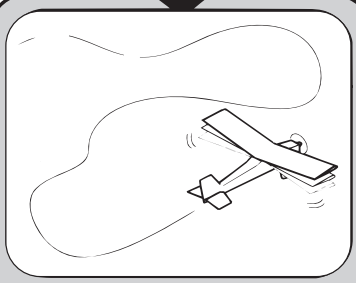
Operate the control sticks on the transmitter and check that the control surfaces move freely and in the CORRECT directions.



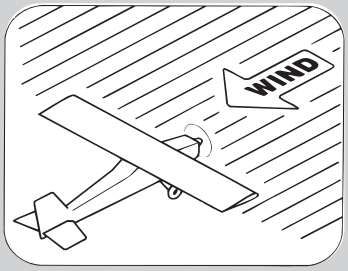
Check that the transmitter batteries have adequate power.



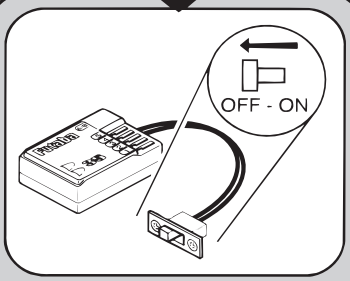
ALWAYS take off into the wind.



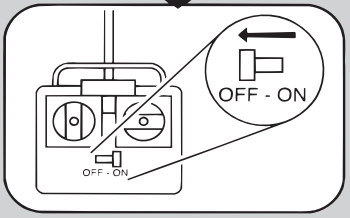
If the model does not respond correctly to the controls, land it as soon as possible and correct the fault.



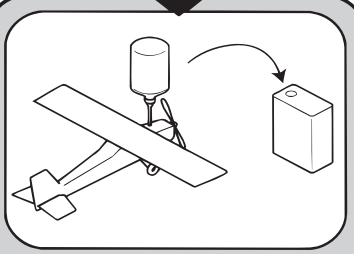
ALWAYS land the model INTO the wind, this ensures that the model lands at the slowest possible speed.



Switch off the receiver.



Switch off the transmitter.



Empty the fuel tank after flying, fuel left in the tank can cause corrosion and lead to engine problems.

Made in Vietnam