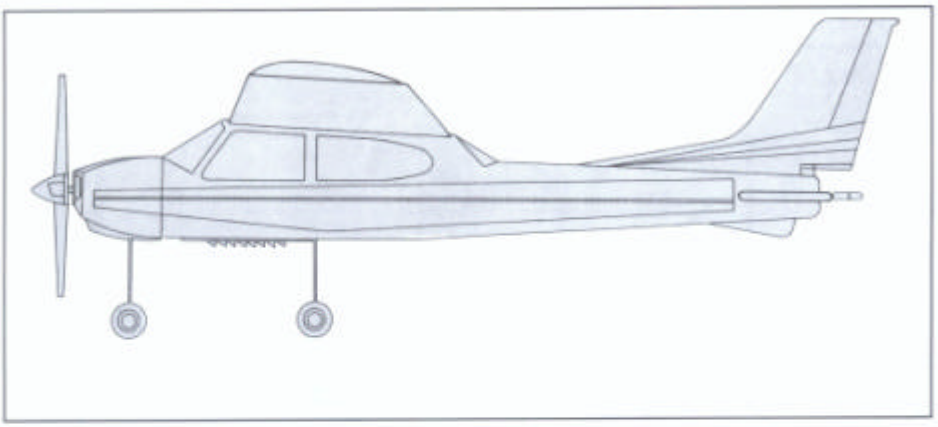
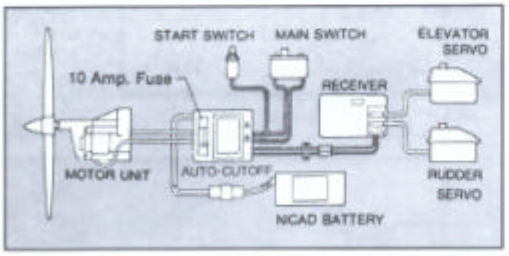
AVIATOR.

The ideal first electric-powered Radio Control aircraft for the beginner pilot.





SPECIFICATIONS

Fuselage Length	27.9 in
Wing Span	34 in.
Approximate Weight	25.06 oz.
Wing Area	1.45 sq.ft
Wing Loading	17.28 oz./sq.ft
Maximum Static Thrust	9.69 oz.
Maximum Rotation	7,200 rpm
Motor Run Time	5 Minutes
Battery	8.4v 600 mAh
Propeller	7.2 × 6.5 in
Gear Ratio	2.66:1

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

The radio system is tuned to a specific frequency channel in the 72 MHz band. The crystals in both the transmitter and receiver are NOT to be changed. Attempting to do so is both a violation of FCC (Federal Communications Commission) law and a sure way to render the radio unusable! Contact our service center if you think there may be a problem with your radio or should you need to change the frequency.

Note: You alone are responsible for your safety and the safety of other people when operating your Air Strike. Follow these safety guidelines at all times!

1. Never fly near buildings, houses, cars or busy roads. Never, ever fly near overhead electric wires. Do not fly around people who are unaware that you're flying a model airplane, and never fly over people's heads.
2. Fly only in calm wind conditions. Any wind over 10 MPH will make it difficult to control your aircraft.
3. Make certain that you have adequate room to safely fly the airplane (an area the size of two football fields is minimum.)
4. Be sure that the transmitter and receiver are both turned off and the battery pack is disconnected when not flying.
5. If you are flying at an "official" R/C flying field, **NEVER, EVER** turn on your transmitter before checking with other pilots about the frequencies (radio channels) in use.
6. Always turn the transmitter on first before turning on the receiver. Only push the red start button after you're certain that the radio is operating properly and you're ready to fly!

Having trouble?

Should you over control your airplane or lose orientation, it's possible that you'll find yourself in a downward spiral dive. Should this occur, remain calm and simply release the sticks! The plane should stop turning by itself, and will exit the spiral dive with the nose pointed down. Feed in some up elevator to level the aircraft and climb to a safe altitude. **If you see that you're going to crash, immediately cut the power.** Doing so will minimize the damage to the aircraft.

WARNING:

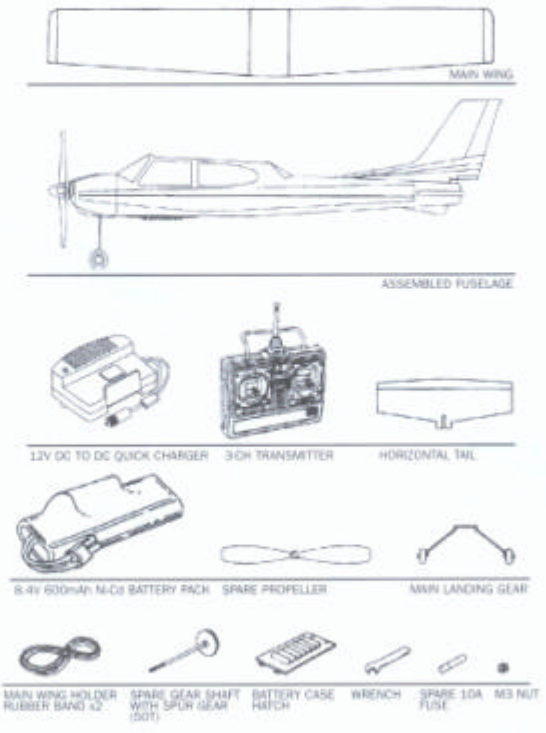
The spinning propeller on this aircraft can be dangerous! Use extreme care when testing your airplane. Do not allow your hands, fingers or any article of clothing to get near the propeller. This model is designed to be flown only in calm conditions (wind speed of 10 MPH or less). Attempting to fly your aircraft in winds above 10 MPH will result in a crash!!!!!

With proper assembly, and by following this instruction manual, your flying success is almost certain! Read through this entire manual to familiarize yourself with the assembly sequence and operation of your Aviator. First of all, let's review the components of the Aviator to ensure that it's complete before beginning final assembly.

Kit contents:

- Fuselage with motor, gearbox, radio and vertical fin installed
- Horizontal stabilizer with elevator
- Main landing gear with wheels attached
- Battery charger
- Battery pack
- 3 channel radio transmitter
- Extra parts (extra propellers, 2 rubber bands for wing hold-down, spare fuse, extra gear shaft, prop wrench, white PVC tape strip and instruction manual)

Make sure that all parts are included in your Aviator.



Items required to complete your Aviator :
8 "AA" alkaline batteries
Clear cellophane tape (Scotch® tape)
Felt tip marker or pencil

WARNING:

The spinning propeller on this aircraft can be dangerous! Use extreme care when testing your airplane. Do not allow your hands, fingers or any article of clothing to get near the propeller. This model is designed to be flown only in calm conditions (wind speed of 10 MPH or less). Attempting to fly your aircraft in winds above 10 MPH will result in a crash!!!!!

Step 1: Assemble the wing

a. Locate the main wing. Remove the backing material from the double-sided tape located on top of the wing center section. Now, unfold the wing so that the plastic center section is securely adhered to both main wing panels. Cut 4 strips of clear tape to a length of 7"(177mm). Apply the tape strips to the wing where the center section ends, with the tape strip half on the center section and half on the foam wing surface. Apply the tape to the bottom of the wing first, then the top. **See Figure 1.**

b. Locate the strip of white PVC reinforcing tape included with your kit. This will be applied to the **bottom** of the wing. Remove the backing from the PVC tape, and stick the tape to the center section of the wing as shown in **Figure 2.** Leave an air gap between the tape and the "hump" in the center of the wing, and be certain that there is an equal length of tape on each wing panel. Press the tape down firmly to the wing surface. This tape will help to reinforce the wing against excessive flight loads.

Figure 1

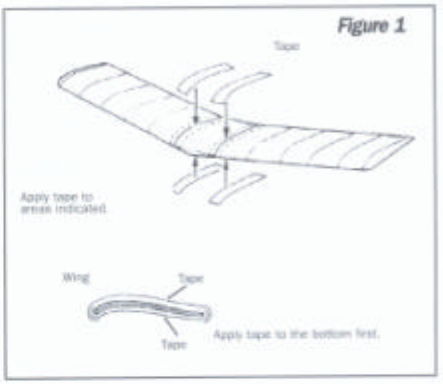
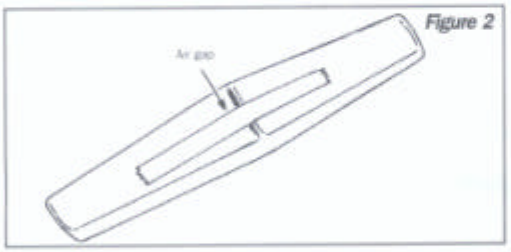


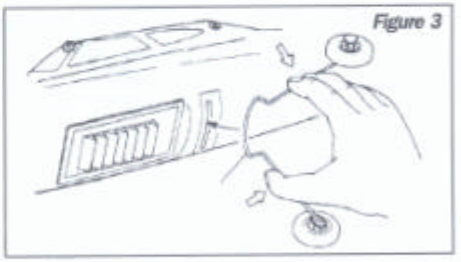
Figure 2



Step 2: Assemble the landing gear

Grip the landing gear as shown in **Figure 3.** Squeeze the main landing gear wires together slightly, and insert into the slot on the bottom of the fuselage behind the battery door. After inserting the landing gear, release the pressure on the gear legs so that the gear "snap" into position and are held captive in the fuselage.

Figure 3



Step 3: Assemble the tail surfaces

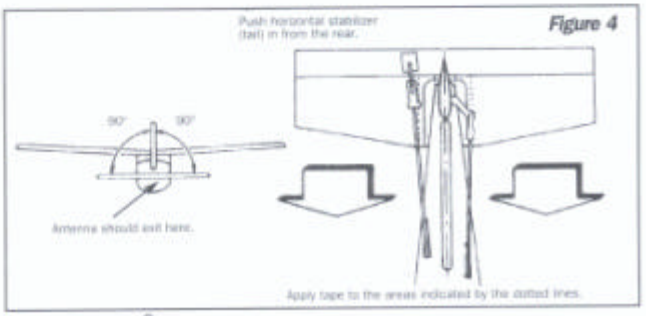
a. Locate the horizontal stabilizer from the kit. Carefully push the horizontal stabilizer into the slot located at the rear of the fuselage. Route the antenna underneath the horizontal stabilizer so it exits at the rear of the fuselage.

b. Check the position of the stabilizer to make certain that the vertical fin and horizontal stabilizer are aligned perfectly at 90 degree angles as shown in **Figure 4.** Put two strips of clear tape along the bottom of the fuselage where it meets the stabilizer, making sure to not place tape over the moveable portion of the stabilizer (elevator).

HINT: Instead of using tape, you can also use several drops of white glue (such as Elmer's®) to secure the stabilizer to the fuselage.

c. Snap the plastic control links in place on the rudder and elevator control surfaces. They will be adjusted later.

Figure 4



Step 4: Attach the wing to the fuselage

a. Set the wing on the fuselage. Carefully align the wing center section on the saddle area of the fuselage. If you're not sure which is the front of the wing versus the back of the wing, look at the pictures on the box.

b. Locate the two large rubber bands. Hook the first one over the left rear post on the fuselage, loop it around the right front post, and secure it to the right rear post. Repeat this step for the opposite sides. Refer to **Figure 5** for the proper method of attaching the rubber bands.

c. Once you are certain that the wing is perfectly centered on the fuselage, make two sets of alignment marks (using a pencil or felt tip marker) where the leading and trailing edge of the wing contact the fuselage. These marks will make it easier for you to align the wing when preparing your Aviator for flight.

Figure 5

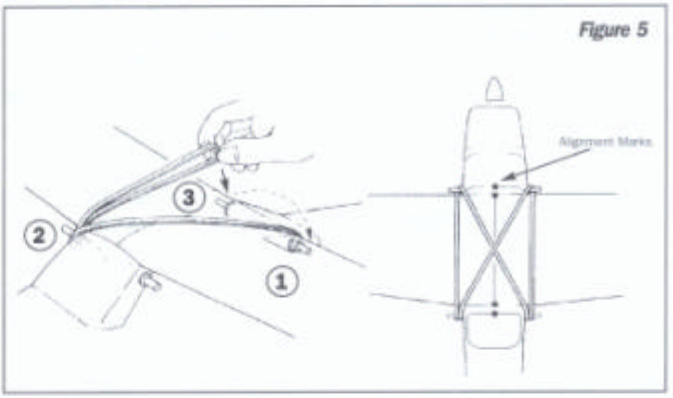
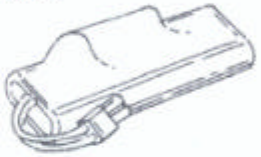


Figure 6



About the battery pack and quick charger included with the Aviator

The battery pack included with the Aviator (see ***Figure 6***) is made up of nickel-cadmium rechargeable cells. These are very different from regular dry cell batteries! With proper care and charging methods, these packs can be charged and used hundreds of times before needing replacement.

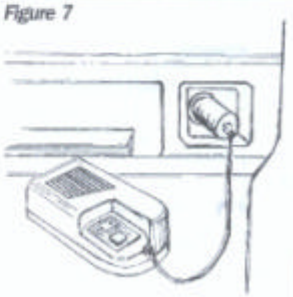
CAUTION:

READ THIS SECTION BEFORE CHARGING YOUR BATTERY PACK FOR THE FIRST TIME!

- Always handle the battery pack carefully.
- Never cut the battery lead wires
- Do not insert any metal objects into the battery plug, as a direct short (and quite possibly a fire) will result.
- Always remove the battery pack from the Aviator after each flight. Do not store the battery pack inside the aircraft.
- Never allow the battery pack to get wet. Should the battery ever come in contact with any moisture, dry it carefully before attempting to use it again. Moisture can cause a short-circuit and severe damage.
- Keep the battery away from heat or fire, never leave the battery pack in direct sunlight.
- Never leave a battery unattended when it is connected to the charger.
- DO NOT PLACE THE CHARGER OR BATTERY PACK ON A CAR SEAT. CHARGE THE BATTERY PACK OUTSIDE THE AUTOMOBILE OR ON THE FLOOR OF THE AUTOMOBILE. PLACE THE BATTERY PACK AND CHARGER ON A HEAT-RESISTANT MAT (SUCH AS AN OVEN MIT, ETC.)
- Dispose of nickel-cadmium batteries properly. Never place them in a fire!

The battery charger (see **Figure 7**) operates from a 12 volt DC (direct current) source (an automobile cigarette lighter socket), and uses a peak-detection circuit to accurately peak-charge the battery for the best possible charge. This charger is designed specifically for the battery pack in the Aviator , and will not charge any other type of battery pack! Attempting to charge a battery other than the type included with the Aviator will result in damage to both the charger and the battery. Use only a 12 volt DC source to power the charger, and do not open or tamper with the circuitry inside the charger.

Figure 7

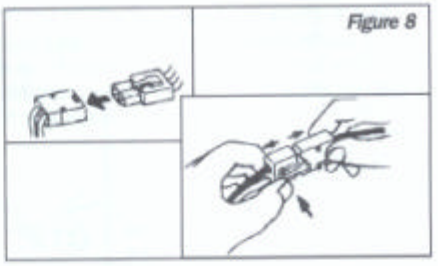


It is normal for nickel-cadmium battery packs to become warm during the charging process, and you can also expect the pack to be warm after each flight. Always allow a warm battery to cool prior to recharging, and **never** attempt to charge a battery pack that is too warm to hold in your hand.

Always disconnect the charger from the cigarette lighter socket when the charging process is complete. Failure to do so may drain the battery in the automobile.

When connecting or unplugging the battery pack, hold it by the connectors. Never pull on the wires (see **Figure 8**).

Figure 8



How to charge the battery pack in your Aviator

Plug the charger into the cigarette lighter socket.
The green **POWER** light will illuminate to indicate that the charger and battery pack are properly connected. The light will flash if the battery is not properly connected to the charger.

When connecting a battery pack that contains a partial charge, the charger automatically begins a "discharge" cycle first, which allows the pack to drain all of its energy prior to being recharged. This cycle will be indicated by the red **DISCHARGE** light. When the discharge cycle is complete, the charger will automatically switch to the "charge" mode and the yellow **CHARGE** light will begin to blink. At the same time, the **POWER** light will flash from dim to bright. When the yellow **CHARGE** light and the green **POWER** light illuminate (without flashing), the charge cycle is completed and you're ready to go! (A complete charge cycle takes around 20-25 minutes).

Note: A partially charged battery pack can still be charged by simply pressing the red button immediately after connecting the battery pack to the charger (and the charger to the lighter socket) since the charger has a peak-detection circuit that automatically stops the charger when the battery has fully charged. It's a good idea, however, to totally discharge the pack before each re-charge.

About the radio system included with the Air Strike (Figure 9):

This aircraft uses a 3 channel R/C (radio control) system. The stick on the left side of the transmitter operates the motor. With the stick all the way in the "down" position, the motor is off. Power increases as the stick is moved up, all the way to full power when the stick is fully "up".

The right stick controls the elevator (up and down) and the rudder (right and left).

There is a battery LED light located at the center top of the transmitter face. Green indicates adequate battery power, red means that the transmitter batteries are low and require replacing. Never attempt to fly when the LED light is red!

The radio system is tuned to a specific frequency channel in the 72 MHz band. The crystals in both the transmitter and receiver are NOT to be changed. Attempting to do so is both a violation of FCC (Federal Communications Commission) law and a sure way to render the radio unusable! Contact our service center if you think there may be a problem with your radio or should you need to change the frequency.

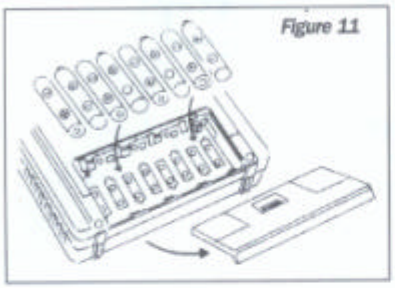
There is an auto-cutoff feature in the aircraft that allows both the radio system and the motor to be powered from the same battery pack. When the battery pack starts to run low, it will automatically shut off the motor, while leaving enough reserve power for the radio (about 3-4 minutes) to glide in for a safe landing.

Figure 9

Safety Start Switch (Figure 10)

You'll notice a red button located on the underside of the fuselage next to the on/off switch. This button must be depressed before power is supplied to the motor. This safety switch is used so that radio interference or problems can be seen without the motor starting unexpectedly.

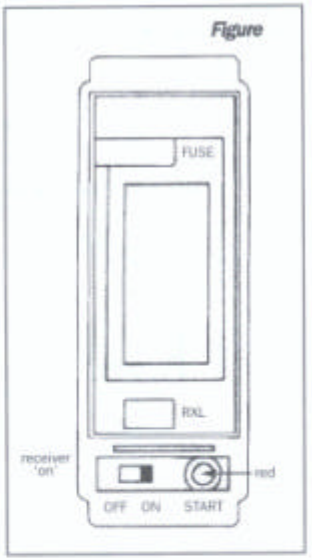
Note: Always turn the transmitter on first before turning on the receiver. Only push the red start button after you're certain that the radio is operating properly and you're ready to fly!

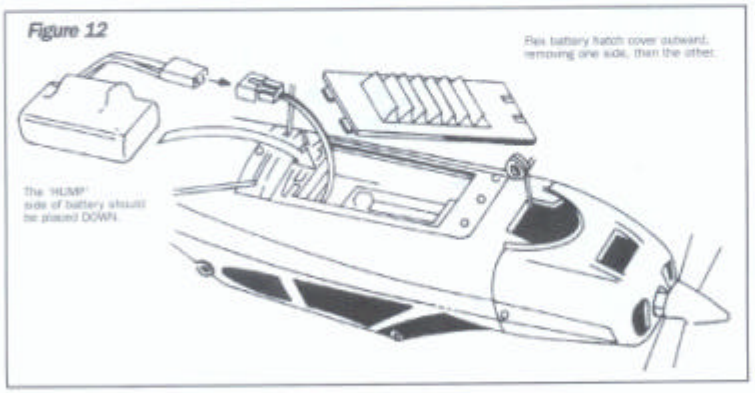


Step 5: Installing the batteries and getting ready to fly

a. Be sure that both the transmitter and receiver switches are in the "off" position.

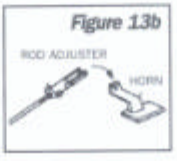
b. Install 8 fresh "AA" alkaline dry cells in the transmitter as shown in **Figure 11**. Turn on the transmitter to make sure the LED light glows green. Fresh batteries will provide about 2 hours of power to the transmitter. When the LED light glows red, immediately install fresh batteries. Failure to do so will result in loss of control and (most likely) a crash.

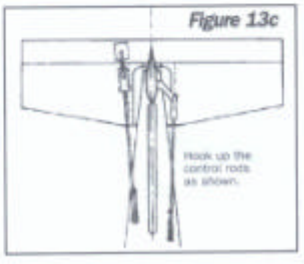




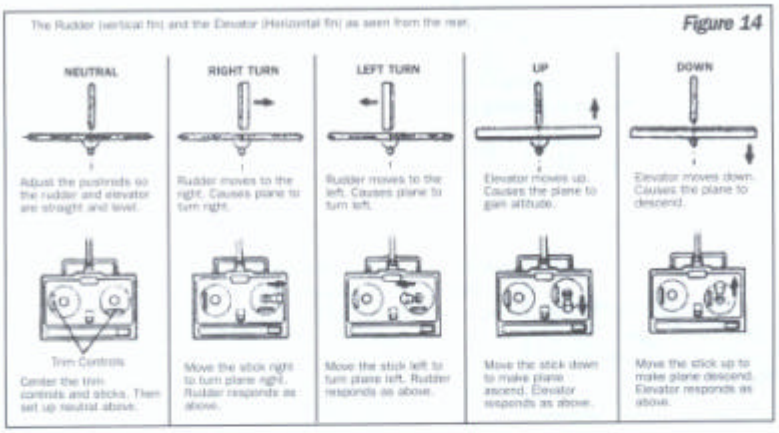
c. Charge the on-board battery pack as previously instructed. Insert the charged battery as shown in **Figure 12.** Neatly fold the battery wires between the pack and the side of the case. Once the battery is inserted, snap on the hatch by carefully inserting one end of the hatch and then flexing the cover slightly until it snaps in on the opposite end. Cut two small pieces of tape and seal the edges of the battery hatch. This will ensure that the hatch stays on even during rough landings.

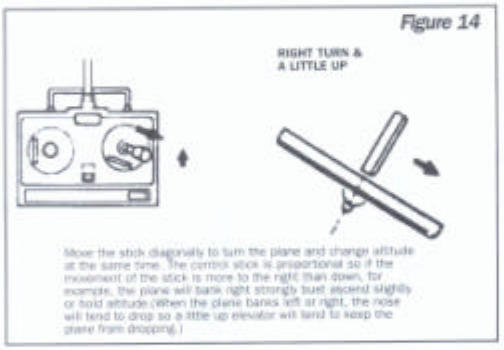
d. Set the transmitter trim adjustment levers (located beside the stick assemblies) to their center positions. Turn on the transmitter, then the receiver. **DO NOT PUSH THE RED START BUTTON AT THIS TIME!** Adjust the control links (clevis) at the end of the elevator and rudder pushrod so that when inserted into the control horns, both the rudder and elevator control surfaces are level (neutral). See **Figures 13A, 13B and 13C.**



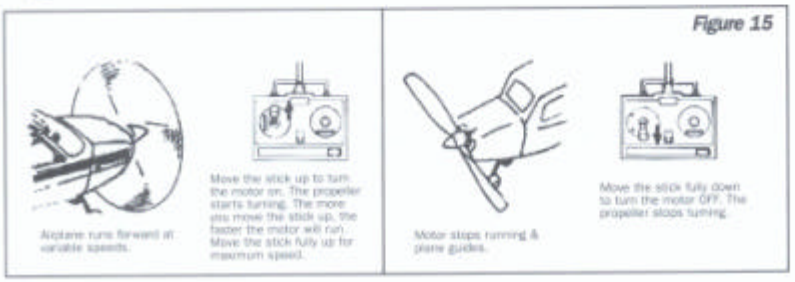


e. At this time, move the rudder and elevator control stick to see how the controls operate on the Aviator . Note that you can operate rudder and elevator at the same time for smooth, controlled flight. (See **Figure 14** for reference)





f. After making certain that both the transmitter and receiver switches are on, put the throttle stick (left stick) in the "off" position (all the way down). Press the red start button. Firmly grasp the aircraft fuselage underneath and behind the wing, and slowly move the throttle up to full to make certain the propeller and gear box are operating properly. Move the throttle up and down a few times to get a feel for how it works. When satisfied, turn off the receiver (first), then the transmitter. (See **Figure 15** for reference).



Important Safety Notes

Avoid flying in congested areas.

Don't fly if the wind is more than just rustling tree leaves.

Buildings and trees cause air turbulence.

Unplug the battery when not flying.

Check with the other pilots to make sure they aren't flying on your channel.

Note: You alone are responsible for your safety and the safety of other people when operating your Aviator . Follow these safety guidelines at all times!

1. Never fly near buildings, houses, cars or busy roads. Never, ever fly near overhead electric wires. Do not fly around people who are unaware that you're flying a model airplane, and never fly over people's heads.
2. Fly only in calm wind conditions. Any wind over 10 MPH will make it difficult to control your aircraft.
3. Make certain that you have adequate room to safely fly the airplane (an area the size of two football fields is minimum.)
4. Be sure that the transmitter and receiver are both turned off and the battery pack is disconnected when not flying.
5. If you are flying at an "official" R/C flying field, **NEVER, EVER** turn on your transmitter before checking with other pilots about the frequencies (radio channels) in use.

Step 6: Flying your aircraft

READ THIS SECTION COMPLETELY BEFORE ATTEMPTING TO FLY YOUR AIRPLANE!

It's strongly recommended that you obtain help from a qualified R/C pilot before attempting to "solo" with your Aviator . The absolute best way to learn is to join an R/C club. Clubs have good, safe flying fields and many have organized programs to teach and encourage newcomers to the hobby.

Perform these pre-flight checks before each and every flight:

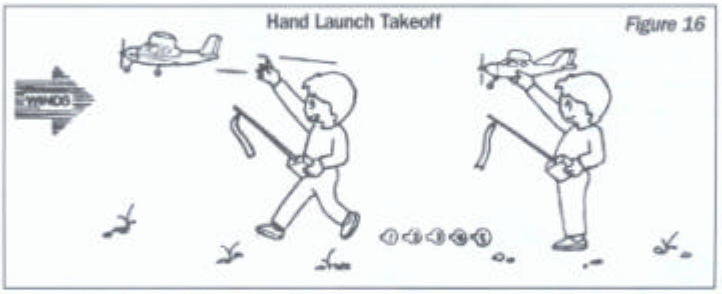
- Is the wing attached securely to the fuselage with two rubber bands and aligned properly?
- Is the transmitter LED light glowing green?
- Is the receiver switch off before installing the charged battery pack?
- Do the rudder and elevator work properly after turning on (first) the transmitter and the receiver?

Hand Launch Take off:

Launch the Aviator by hand for the first several flights until you are comfortable controlling the aircraft. Do not attempt ROG (rise off the ground) take offs until you have mastered successful flights and landings.

1. Face directly into the wind. Turn on the transmitter, then the receiver. Grip the fuselage underneath and slightly behind the wing. Press the red start button.
2. Move the throttle stick up to full power.
3. Step forward quickly four or five steps, keeping the wings as level as possible with the aircraft pointed into the wind. You'll feel the airplane actually try to rise up out of your hand. Give the plane a firm, level toss forward as you walk (in a smooth motion). **Do not throw the airplane!** Release the airplane straight and level with the ground, **do not** release it with the nose pointed upward. The plane will begin to climb upon release. (See **Figure 16**)

Hand Launch Takeoff *Figure 16*



Keep your stick movements smooth, not abrupt or "jerky". The aircraft will actually fly all by itself if left alone, and small movements of the stick are all that is needed to control the Aviator . In fact, moving the rudder/elevator stick all the way in any direction will cause the aircraft to become unstable, so remember.....**smooooooth!**

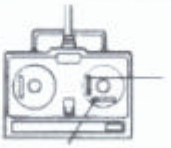
After launch, allow the aircraft to fly directly away from you and gain altitude prior to making your first turn. If the aircraft turns, climbs or dives with no control input, correct the flight path by gently moving the stick in the appropriate direction. (See **Figure 17**).

Figure 17

Trimming for Straight and Level Flight

If the airplane tends to turn left or right on its own during the flight, it can be trimmed to fly straight using the rudder trim adjustment on the transmitter. Use the elevator trim to correct climb or descent during powered flight. If the amount of trim control is not enough to correct excessive turning or climbing, land the plane and adjust the required control rod on the airplane.

Motor speed can also be used to adjust plane climb or descent. Full motor power will cause the plane to climb. Low motor power will cause the plane to descend.



If the airplane turns right with stick at neutral, move trim to left.
Do the opposite if the plane is turning left.

If the airplane climbs too steeply with stick at neutral, move elevator trim upwards. Do the opposite if the plane is descending too steeply.

Turning the aircraft

Turning the Aviator is yours with coordinated input of both rudder and elevator. The rudder makes the aircraft yaw (bank) in the direction you wish to turn. When the aircraft banks, the nose will drop, so small amounts of up elevator will be needed to keep the aircraft at a constant altitude while turning. As the aircraft turns to the new heading that you desire, a small application of opposite rudder will level the wings and return the aircraft to straight and level flight. You'll find it easier for your first flights to turn by making two 90 degree turns instead of one 180 degree turn. Turn 90 degrees,fly straight for awhile, then make another 90 degree turn. Do not attempt to make a complete circle, as it's easy to become disoriented.

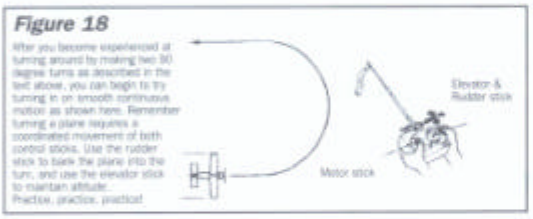
Start the turn by feeding in a small amount of rudder in the direction you wish to turn. As the airplane turns and the nose drops, gently feed in just enough up elevator to keep the nose level. Bring the rudder back to neutral as the aircraft completes the turn. When on the desired heading, feed in just a bit of opposite rudder to level the wings and return the elevator to neutral to keep the aircraft from climbing excessively.

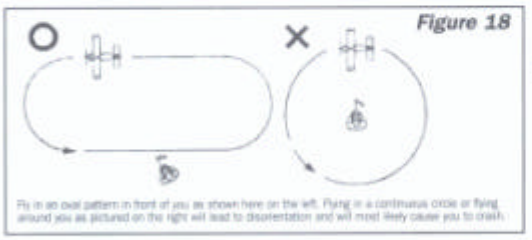
You will find your first flights easier if you face the direction in which your aircraft is flying. This way, you can always orient yourself as if you're in the pilot's seat, even if it means looking back over your shoulder at the plane. If the airplane is flying directly at you, the control direction is "reversed". That is, right rudder stick results in a turn toward your left when the aircraft is flying toward you. Turning with the plane and always facing the same direction will greatly help you learn how to fly in a shorter period of time.

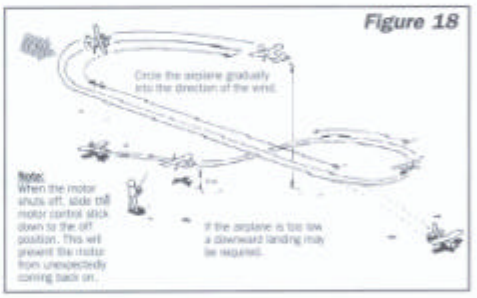
During the first flight, execute gentle climbing circles in front of you. Keeping the aircraft in front of you (not overhead) is very important and crucial to successful first flights. Fly the airplane at a comfortable altitude and wait for the motor to cut off. Always think where you want the airplane to go, and where you want it to be next. Anticipate where you want the aircraft to be prior to bringing the aircraft in for a safe landing.

Landing

When the motor stops, you'll notice that the nose drops slightly. This is normal under reduced or zero power. Do not immediately give up elevator! Using rudder, steer the aircraft towards a landing pattern (see **Figure 18**).







Always set up landings into the wind, and use very small amounts of up elevator during turns. You want to keep the nose of the plane in a gentle dive to maintain forward airspeed when the motor is off. At an altitude of about 3 feet, gently pull back on the elevator to "flare" the aircraft before touchdown.

If you're too far away to land safely on the desired landing area, don't panic! Simply land the plane smoothly into the wind. You will not damage the aircraft severely as long as you take care to land gently!

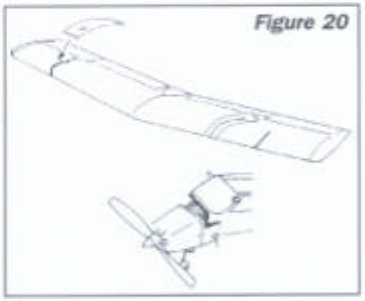
Having trouble?
Should you over control your airplane or lose orientation, it's possible that you'll find yourself in a downward spiral dive. Should this occur, remain calm and simply release the sticks! The plane should stop turning by itself, and will exit the spiral dive with the nose pointed down. Feed in some up elevator to level the aircraft and climb to a safe altitude. **If you see that you're going to crash, immediately cut the power.** Doing so will minimize the damage to the aircraft.

ROG Take offs
The Aviator is capable of taking off from the ground. Keep in mind that ROG take offs use up a lot of battery power and shorten your flight time. Therefore, continue to hand launch if maximum flying time is important.
The most important thing to remember about lifting off from the ground is to gently apply up elevator after the airplane has reached sufficient flying speed. Excessive elevator input will cause the aircraft to "stall" and fall out of the air, as will trying to lift off before sufficient airspeed is built up.
Begin by placing the airplane on a smooth asphalt or concrete surface. Push the aircraft by hand and watch to make sure that it rolls straight. If the airplane pulls to the right or left, adjust the nose wheel so that it rolls straight down the runway. Once the aircraft rolls straight, you're ready to attempt a ground take off.Switch on the motor, and advance the throttle to full power. Keep the airplane straight on the runway by using small rudder inputs. Allow it to pick up speed for about 35 feet, and then gently add a small amount of up elevator. Continue to gain altitude in a shallow climb, and you're on your way! (See **Figure 19**).

Figure 19

Making Repairs
If the wings or tail surfaces should crack or break, they can be repaired using 5 minute epoxy glue. If the crack is small, the part can also be fixed using a strong clear packaging tape. (see **Figure 20**)

Figure 20



Most damage to the nose section can be repaired using epoxy glue, making sure that the firewall and gearbox have the same thrust angles as before. See **Figure 21** for the proper thrust angles required for the Aviator to fly properly.

Figure 21

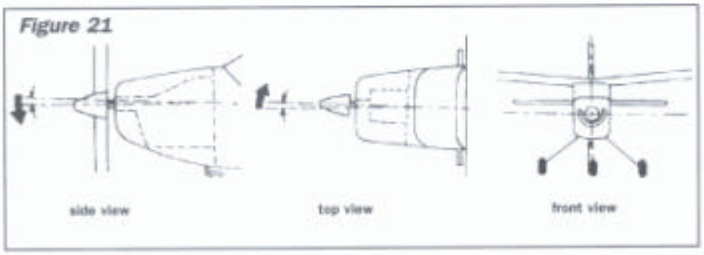
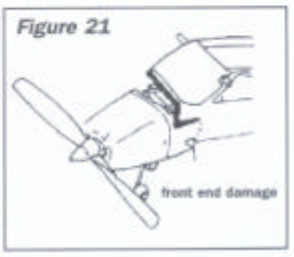


Figure 21



Should the propeller hit the ground while the motor is running (as in a crash), it's possible that the fuse will blow in order to protect the radio system in the aircraft. To replace the fuse, turn off all switches, remove the battery pack from the airplane and replace the fuse with the spare that's included with the Aviator. Be careful, as the area inside the battery box may be hot from the battery pack releasing energy during flight.

Repairing the Gear Reduction Unit

If you notice the propeller on your aircraft wobbling or vibrating excessively (as in **Figure 22**) or you notice a loud grinding noise coming from the gearbox, it usually means that the gear shaft is bent and needs to be replaced (an extra is included with your Air Strike). Following **Figure 23**, disassemble the front of the aircraft and replace the gear shaft.

Figure 22

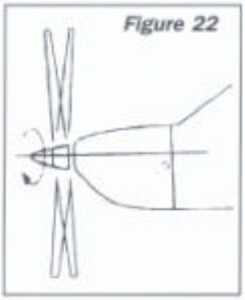
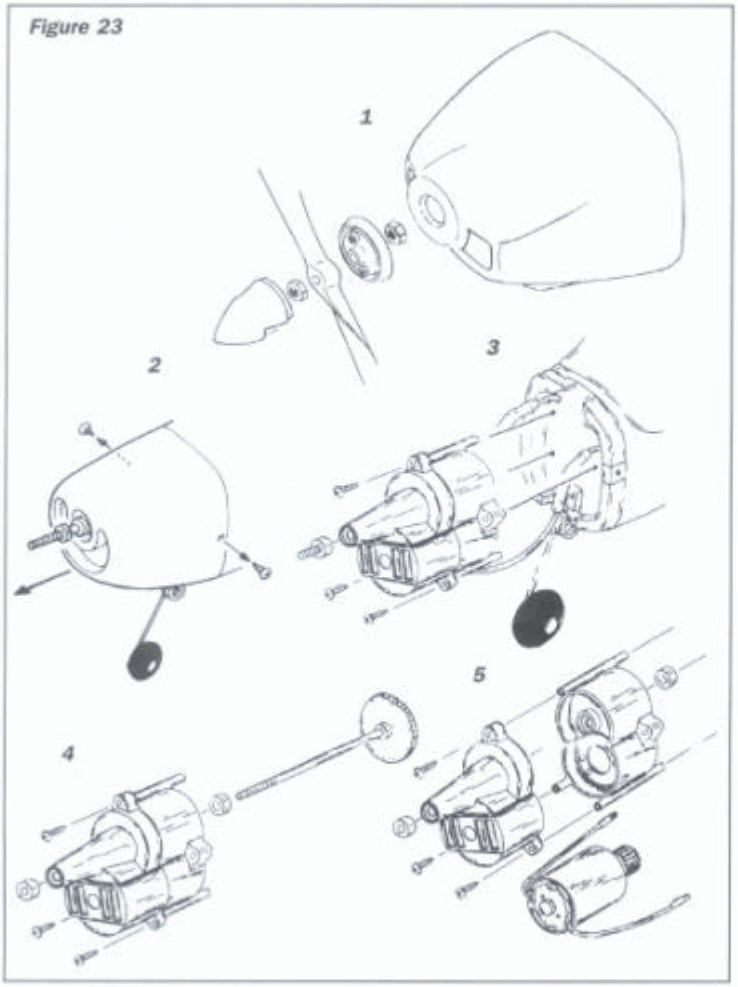


Figure 23



Installing a new propeller

When it's time to replace the propeller, be very careful to install the new propeller in the proper direction! Many airplanes are returned to our service department with the customer saying "there is not enough power to fly". Upon inspection, the only problem with the aircraft is the propeller was installed backwards!

When looking at the propeller hub (center), you'll note that one side has a "hex" shape, and one side has perfectly round hole.

- The "hex" side of the prop goes against the spinner backplate (toward the tail of the aircraft).
- The "round hole" side of the prop faces the front of the aircraft. This is the side against which you tighten the prop nut.

Aviator Trouble Shooting Guide

problem	*possible cause*	*solution*
Motor/propeller does not move after start button is pressed/ throttle moved.	Battery not fully charged. Battery not connected properly.	Charge the battery again following the instructions. Make certain the battery connection is secure.
Motor/prop move when the start button is pressed, but stop when the button is released.	Fuse is blown. Battery not fully charged.	Replace the fuse with the spare included with your kit. Charge the battery again following the instructions.
Motor runs but the propeller does not turn.	Pinion gear is loose on the motor shaft. Propeller nut is loose. Spur gear is loose on the propeller shaft.	Remove gearbox and replace pinion. Remove spinner and tighten the prop nut. Remove gearbox and check the gears.
Motor starts as soon as the battery is connected.	Is something holding down the start button?	Remove finger or other obstruction from button.
Motor runs only for a short time before turning off.	Battery not fully charged.	Charge the battery again following the instructions.
Rudder/Elevator move erratically with no input from the transmitter.	Transmitter batteries are low. Transmitter antenna is not fully extended. Receiver antenna is not properly extended. Transmitter is too close to the aircraft. Battery is not fully charged. Another radio is operating on the same channel.	Install fresh "AA" batteries. Extend antenna fully. Extend antenna fully. Move transmitter antenna away from the aircraft. Charge the battery again following the instructions. Wait until the channel is clear or the other radio is off.
After launch, the plane does not fly straight or crashes.	You are improperly launching the aircraft. Are the rudder and elevator properly trimmed? Is the tail securely mounted to the fuselage? Battery not fully charged. Using too much "up" elevator.	Review instructions for launching the aircraft. Make sure the rudder/elevator are set at neutral trim. Use clear tape to secure the tail to the fuselage. Charge the battery again following the instructions. Use less up elevator at launch.
Aircraft does not fly straight, but turns left or right.	Is the rudder set at neutral? Is the wing properly aligned on the fuselage? Is the elevator aligned and set properly? Using too much rudder input.	Re-check the trim (adjust the control links if needed). Review the instructions on how to align the wing. Check and align the horizontal stabilizer. Use small, gentle control inputs.
Aircraft pitches violently up or down during flight.	Too much up or down elevator movement.	Use small, gentle control inputs.
Aircraft loses altitude rapidly during turn.	Too much rudder input being used. Not enough elevator being used during turns.	Use small, gentle control inputs. After applying rudder (to turn), apply up elevator to maintain altitude.