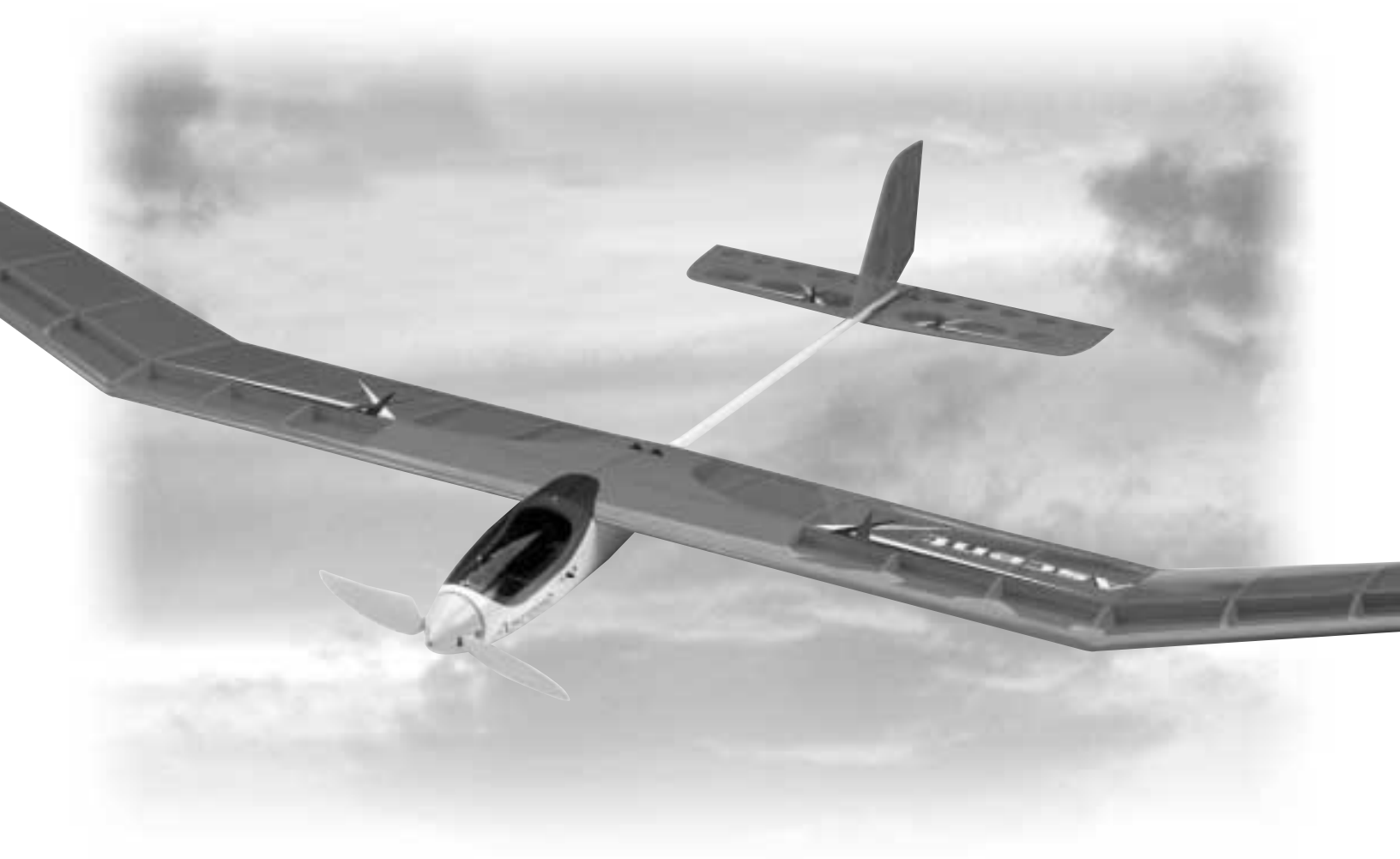
E-flite™

Ascent™

ELECTRIC PARK GLIDER ARF

Instruction Manual



- Almost-Ready-to-Fly
- Speed 400 motor w/folding propeller included
- Lightweight fiberglass fuse w/bolt-on wing

Specifications

Wingspan	54 in (1384 mm)
Length	32 3/8 in (822 mm)
Wing Area	331 sq in (21.4 dm^2)
Flying Weight	19.5 oz (552.8 g)
Radio	3-channel w/2 sub-micro servos
Battery	7- or 8-cell 500–800mAh
Electronic Speed Control	15–20 amps

Table of Contents

Introduction

Thank you for purchasing the Ascent electric park glider. E-flite's Ascent offers the modeler an ARF (almost-ready-to-fly) electric park glider that is pre-built to a high level of craftsmanship. It is unique in that it comes with the electric motor and folding propeller installed, complete with preassembled wiring harness, saving a significant amount of construction time.

The precovered and trimmed Ascent is a high-quality speed 400-power park glider that can be flight ready in just a few evenings. The world of electric-powered park gliders is extremely challenging and rewarding. It is your skill and knowledge of the surrounding atmosphere, combined with the design capabilities of your model, that will result in your ability to defy the laws of gravity and produce flights of unbelievable distance and duration.

With the electric motor, you can climb 300–500 feet (thermal hunting altitude) several times, resulting in flight times of up to an hour or more as you soar from thermal to thermal. We have included sections on "Thermal Soaring" and "Flight Trimming for Performance and Conditions" to help you achieve the most enjoyment from your Ascent. We believe you will have many enjoyable hours of challenging and rewarding flight. Happy thermal hunting!

Warning

An R/C aircraft is not a toy! If misused, it can cause serious bodily harm and damage to property. Fly only in open areas, preferably AMA (Academy of Model Aeronautics) approved flying sites, following all instructions included with your radio. Always assume the electric motor can come on at any time so use extreme caution.

Before beginning assembly of your Ascent, we strongly suggest that you read through this instruction manual so you can become familiar with the parts and the assembly sequence. Assemble the kit according to the sequence provided in the instruction manual. Do not attempt to modify or change the kit design as doing so could adversely change the models flying characteristics.

Seek Assistance

If you are new to R/C we suggest you find an experienced pilot to check out your aircraft and help you with the first few flights. This will help prevent damage to your model and will speed up the learning process making your R/C experience all the more enjoyable. You can contact local R/C clubs or your dealer to obtain the names of experienced R/C pilots who would be willing to help you with your first few flights.

Although this is an ARF (Almost-Ready-to-Fly) kit, it does have some construction features that can be challenging to the less experienced modeler. If you encounter difficulty in any construction sequence, please feel free to contact one of our technicians—we stand ready to provide any assistance we can concerning the construction of your E-flite Ascent ARF. Contact us at:

Horizon Hobby, Inc.
4105 Fieldstone Road
Champaign, IL 61822
(217) 355-9511
www.horizonhobby.com

Radio Equipment Required

- 3-channel radio system
- 7- or 8-cell battery pack
- Micro Receiver (JRPR610)
- Sub-Micro Servos (2) (JRPS241)
- 20-Amp Mini ESC w/Brake (EFLA105)

Recommended JR System
J-Line™ Quattro Lite System (JRPF404)
(Quattro transmitter, JR R610M Receiver and
2 each JR 241 Sub-Micro Servos)

AirPac™ Micro (JRPF640)
(JR R610M receiver and 2 each
JR 241 sub-micro servos)

JRPF404

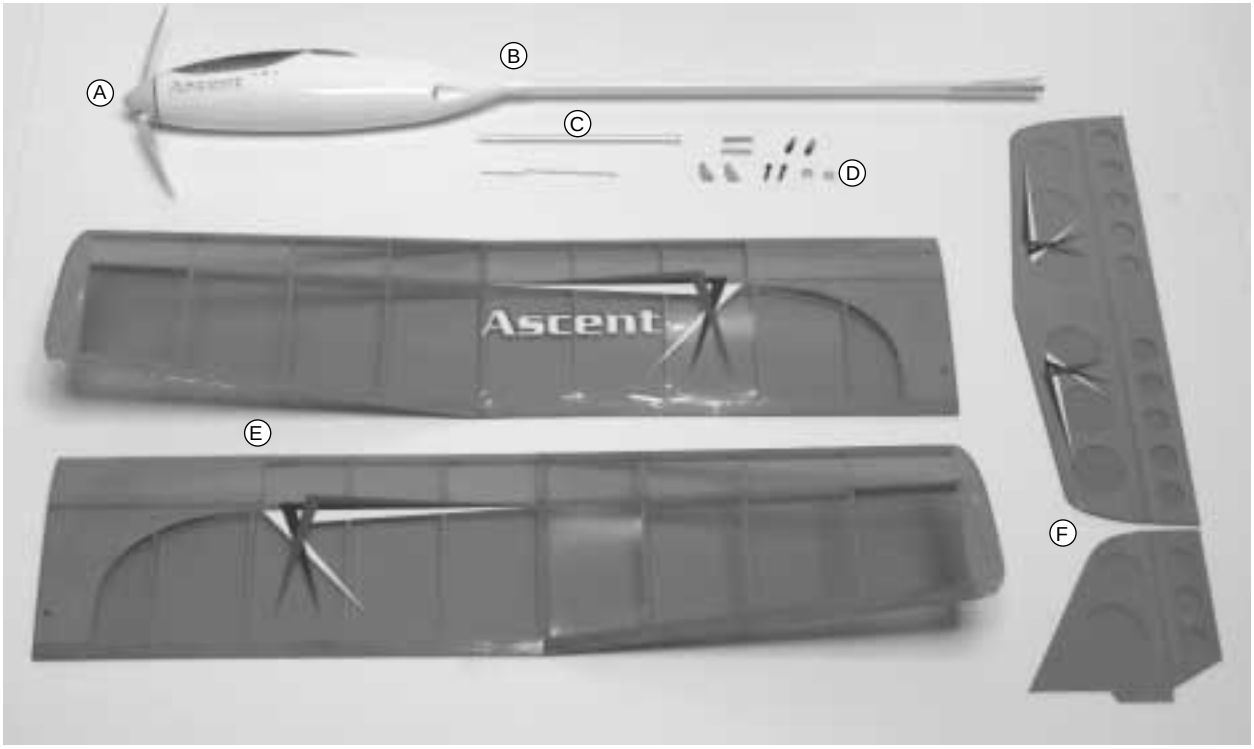
Additional Required Equipment

7- or 8-cell Ni-Cd battery pack 500–800mAh
Battery charger

Required Tools and Adhesives (not included in the kit)

Hobby knife
Phillips screwdriver
Hex Driver: 3/32"
Drill
Drill Bit: 1/16"
Sandpaper (medium)
Felt-tipped pen/pencil
Ruler
Double-sided foam tape or Velcro®
Masking tape

Kit Contents



Ⓐ Folding Propeller, 7 x 3 (EFL1079)
Ⓑ Fuselage with Tail Boom (EFL1077)
Ⓒ Wing Joiner Tube
Ⓓ Hardware
Ⓔ Main Wing Set (EFL1076—includes item C)
Ⓕ Tail Set (EFL1080)

Section 1: Mounting the Wing

Parts Needed

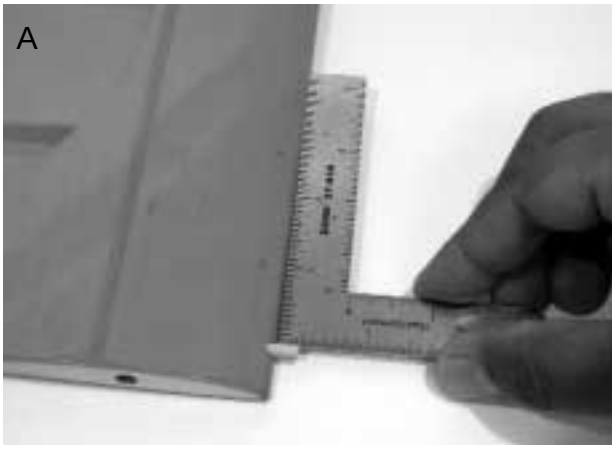
Ascent fuselage
Right and left wing panel
Aluminum wing tube
Wing dowels (2)
4-40 x 1/2" hex screws (2)
4-40 washers (2)

Tools and Adhesives Needed

Hobby knife
Hex Driver: 3/32"
6-minute epoxy
Rubbing alcohol
Paper towels
Felt-tipped pen/pencil

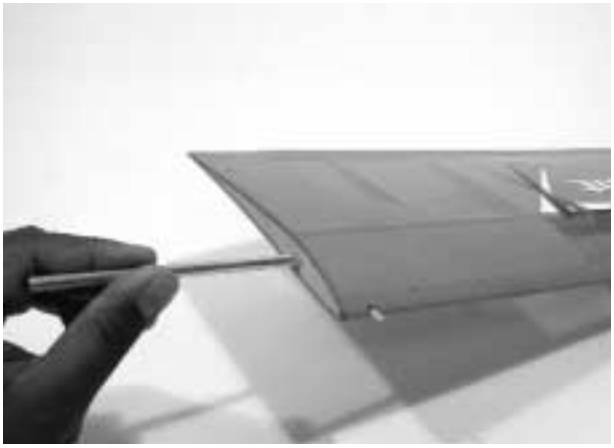
Step 1. Locate the right and left wing panels and the two 1" wing dowels. Test fit the dowels into the predrilled holes in the leading edge of each wing.

Step 2. Insert the dowels until there is 1/4" extending past the leading edge of the wing. Mark the dowel where it enters the leading edge. Remove the dowels from the wing.



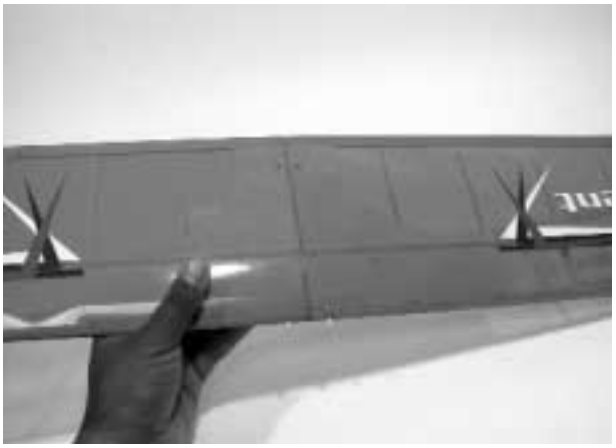
Step 3. Using approximately 1/2 ounce of 6-minute epoxy, glue the dowels into the leading edge of the wing. Be sure to get plenty of epoxy into the hole in the leading edge. Use the marks made in the previous step to reposition the wing dowels. Wipe away any excess epoxy using rubbing alcohol and paper towels. Allow the epoxy to cure before moving on to Step 4.

Step 4. Locate the aluminum wing tube and slide it into the hole in the wing root of one wing panel as shown. The tube should slide in approximately half of its length.



Step 5. Slide the other wing panel onto the wing tube, joining the wing halves.

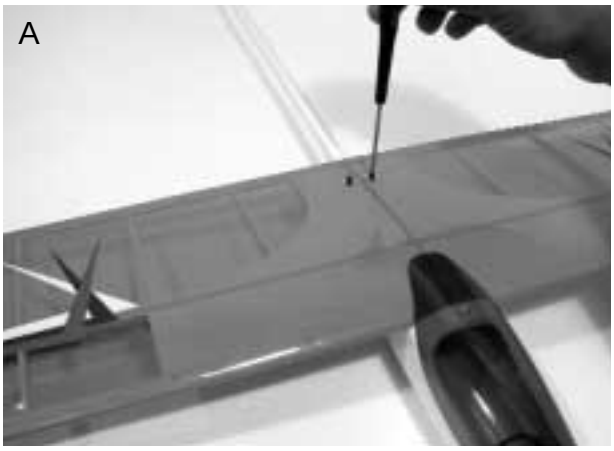
Note: The wing of the Ascent™ is not glued together. The wing panels separate to allow for ease of transportation.



Step 6. To mount the wing to the fuselage, slide the wing dowels into the predrilled holes in the forward portion of the wing saddle just behind the canopy.

Step 7. Secure the wing to the fuselage with the 4-40 x 1/2" wing mounting hex screws and 4-40 washers provided. Use a 3/32" hex driver to tighten the wing screws.

Note: Remove the wing for now. You will need to re-install it during the alignment of the horizontal stabilizer.



Section 2: Installing the Horizontal and Vertical Tail Surfaces

Parts Needed

Fuselage assembly
Wing assembly
Horizontal stabilizer w/elevator
Vertical stabilizer w/rudder
Tail boom skid

Tools and Adhesives Needed

Hobby knife
Ruler/tape measure
30-minute epoxy
Rubbing alcohol
Paper towels
Masking tape
Felt-tipped pen/pencil
Sandpaper (medium)

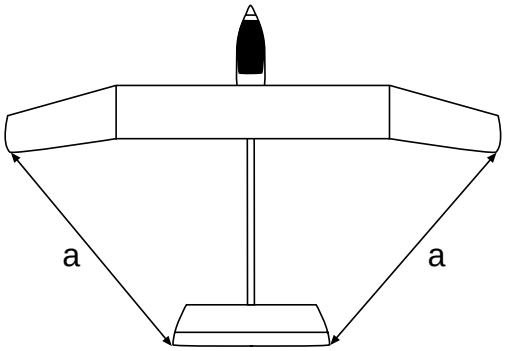
Step 1. Locate the horizontal stabilizer with the elevator attached. With the decals facing up, mark the center of the stabilizer at the hinge line as shown. Also mark the center of the tail boom inside below the fin slot with a felt-tipped pen.

A

B

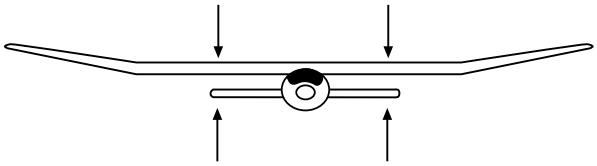
Step 2. Place the horizontal stabilizer on the balsa wood saddle under the tail boom and align the two marks made in Step 1. The trailing edge of the tail boom should align with the hinge line, allowing the elevator to move up and down. Use masking tape to hold the horizontal stab to the boom.

Step 3. Mount the wing to the fuselage and use a long ruler to measure the distance from the wing tip to the tip of the horizontal stabilizers as shown in the illustration below. Carefully adjust the horizontal stabilizer until the measurement (a) is equal on both sides. Make sure to keep the marks on the trailing edge of the stabilizer and tail boom aligned.

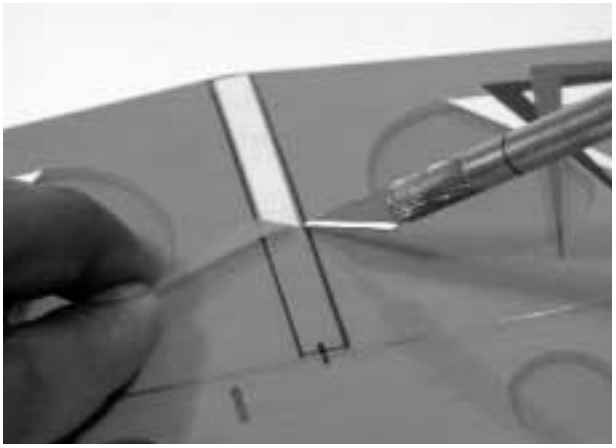


Step 4. Use a felt-tipped pen and mark the stabilizer on both sides of the tail boom.

Step 5. With the horizontal stabilizer still attached, make sure it is parallel to the main wing as shown in the illustration below. If needed, make adjustments by sanding the stab saddle until the wing and stab are aligned parallel to each other.

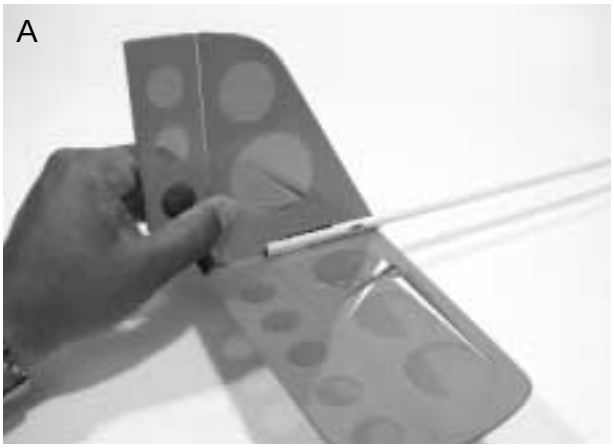


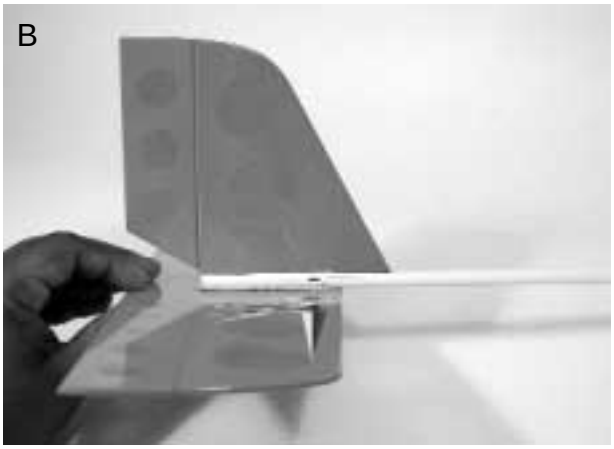
Step 6. Remove the horizontal stabilizer from the tail boom. Carefully remove the covering 1/16" inside the lines drawn in Step 4 using a sharp hobby knife. Use caution and only cut through the covering and not into the stabilizer itself, as doing so will weaken the structure.



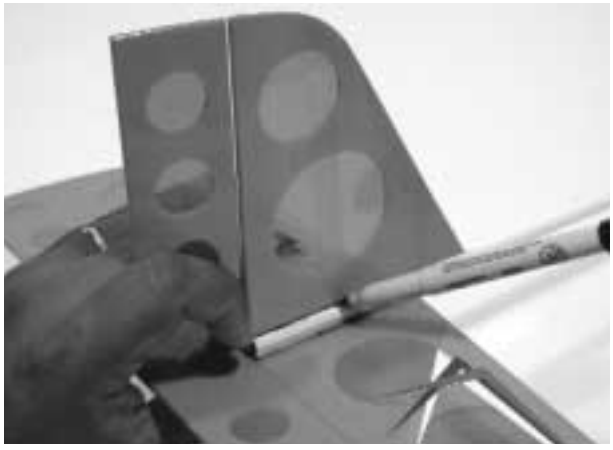
Step 7. Using 30-minute epoxy, glue the horizontal stabilizer to the tail boom. Use the lines drawn in Step 4 to realign the stabilizer. Wipe away excess epoxy using rubbing alcohol and a paper towel. Re-check the alignment with the main wing and allow the epoxy to cure before proceeding to Step 8.

Step 8. Slide the vertical fin and rudder assembly into the slot at the rear of the tail boom. The hinge line should be even with the back of the tail boom as shown. Also check that there is no gap between the fin and tail boom.

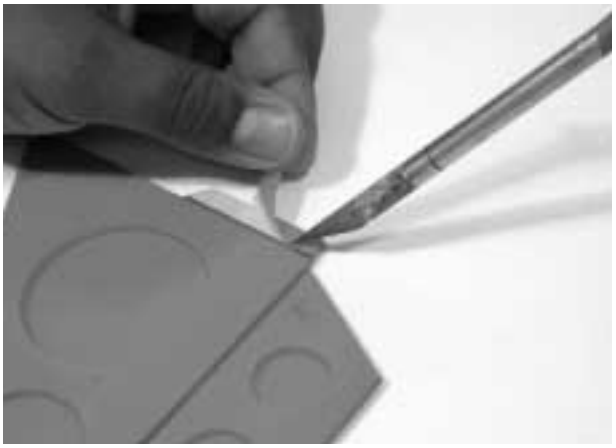




Step 9. Using a felt-tipped pen, mark the rear portion of the fin and the forward portion of the boom.

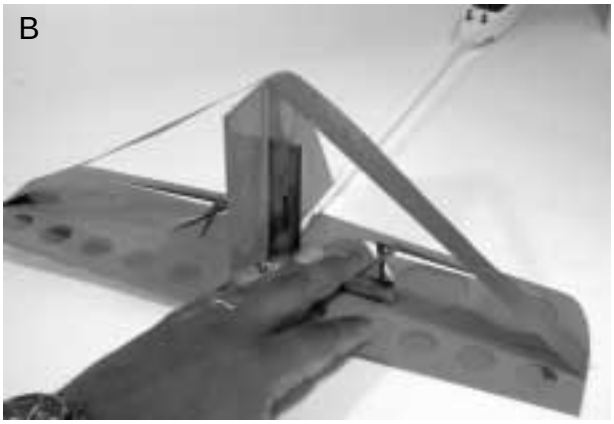


Step 10. Remove the fin from the boom. Using a sharp hobby knife, remove the covering from the fin tab just inside the lines drawn in the previous step.



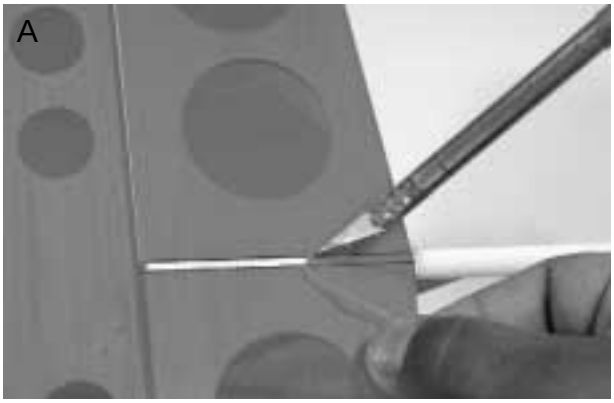
Step 11. Carefully sand the tail boom inside the lines drawn in Step 9 to remove the paint. Use masking tape to protect the boom from the sandpaper.

Step 12. Using 30-minute epoxy, glue the vertical fin in place. Make sure to get adequate epoxy inside the bottom portion of the boom where the fin's tab makes contact. Use masking tape to hold the fin in place while the epoxy cures. Make sure the fin is positioned 90 degrees to the horizontal stabilizer.



Step 13. Once the epoxy has cured, locate the boom skid and mark its position on the bottom of the boom. The skid should be placed in line with the vertical fin 90 degrees to the horizontal stabilizer.

Step 14. Trim the covering just inside the lines drawn in the previous step and glue the skid in place using 6-minute epoxy.



Section 3: Installing the Elevator and Rudder Servos

Parts Needed

Fuselage assembly
Sub-Micro Servos (2) (JRPS241)

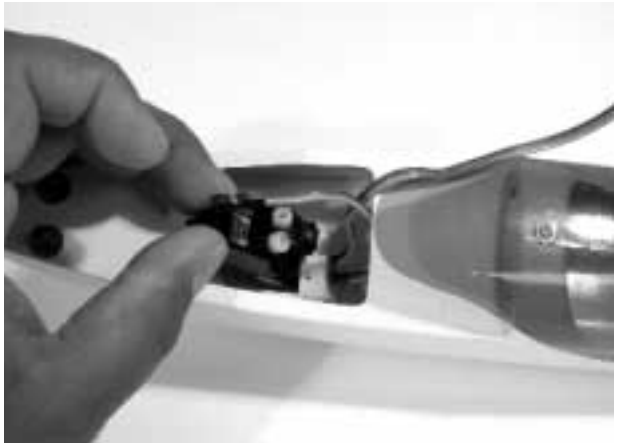
Tools and Adhesives Needed

Phillips head screwdriver

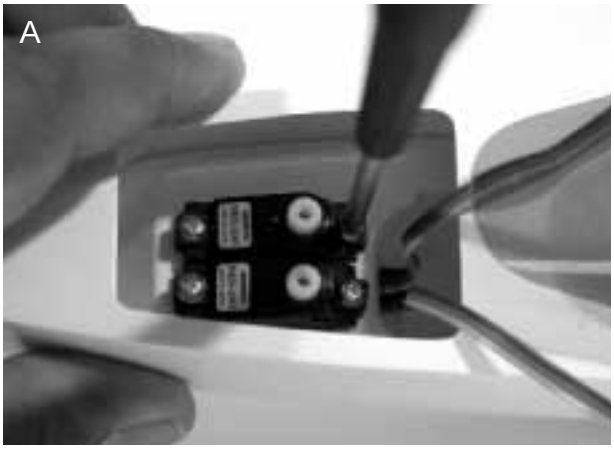
Step 1. Install the mounting hardware (grommets & eyelets) supplied with your servos. Also remove the servo arms at this time.

Step 2. Install the servos into the preinstalled servo tray in the fuselage. Position the servos as shown with the output shaft towards the nose of the plane. Be sure to feed the servo leads through the hole at the forward portion of the tray.

Note: The elevator servo is mounted on the left, and the rudder servo is mounted on the right.



Step 3. Secure the servos in place using the mounting screws supplied with the servos.



Section 4: Installing the Elevator and Rudder Control Horns and Linkages

Parts Needed

Fuselage assembly
Plywood control horns
Quick connects (2)
Control wires (2)

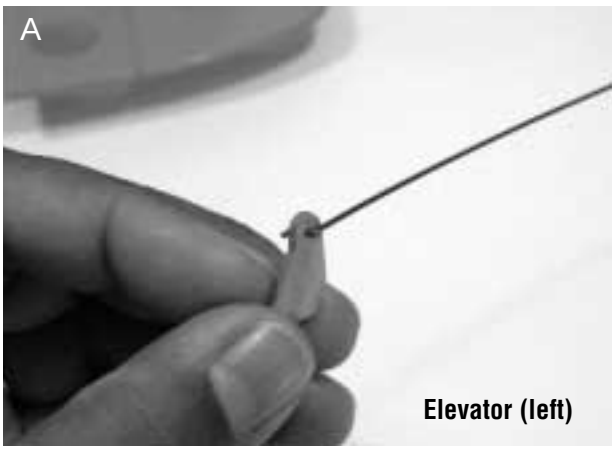
Tools and Adhesives needed

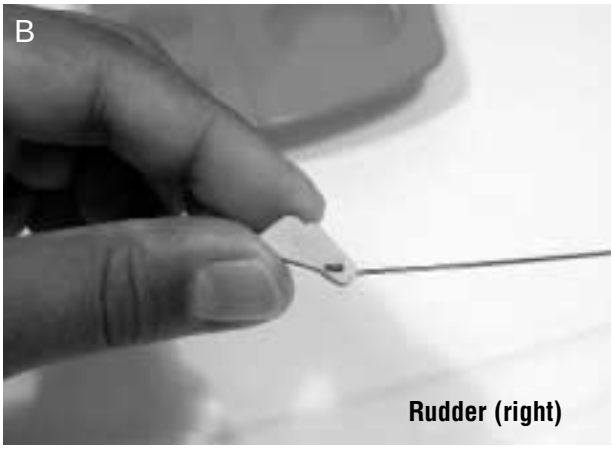
Hobby knife
Pliers
Phillips screwdriver
Medium CA

Step 1. Locate the precut slot in the elevator and rudder. Carefully remove the covering over the slot using a sharp hobby knife.

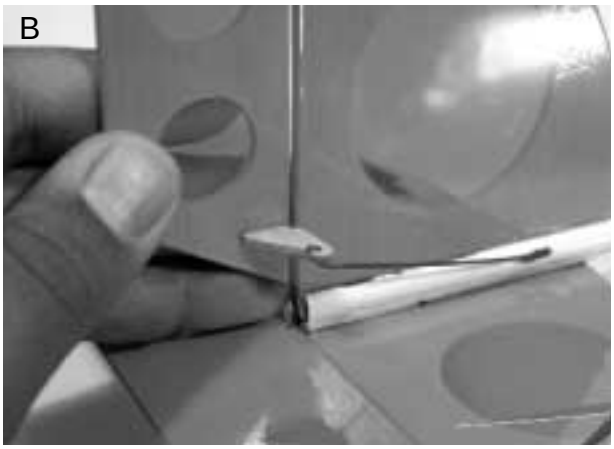
Step 2. Remove the elevator and rudder control wires from the fuselage. Locate the two plywood control horns and install them onto the Z-bends as shown.

Note: You must install the control horns onto the wires and insert the wires back into the tail boom before gluing the control horns to the elevator and rudder.





Step 3. Carefully slide the elevator and rudder control wires back into their respective housing in the boom. Glue the control horns into the control surfaces using medium CA. Make sure to glue the horn in at 90 degrees to the control surface.



Step 4. Locate the short servo control arm include with your servos. Install an easy connector onto the servo control arms as shown. Clip off the servo arms that are not used.

Step 5. With the elevator and rudder centered and the servos at their neutral position, slide the easy connectors onto the control wires and secure the servo arms to the servos. The servo arm should be 90 degrees to the control wire.

Note: It may be necessary to cut the control wires to allow the easy connectors to slide on.

Step 6. Tighten the setscrews on the easy connectors, securing the wires to the servo arms. Final adjustments will be made when setting up the control throws in Section 6.

Section 5: Installing the Speed Control and Receiver

Parts Needed

Fuselage assembly
20-Amp Mini ESC w/Brake (EFLA105)
Micro Receiver (JRPR610)

Tools and Adhesives Needed

Drill
Drill Bit: 1/16"
Phillips screwdriver
Clear tape
Double-sided foam tape

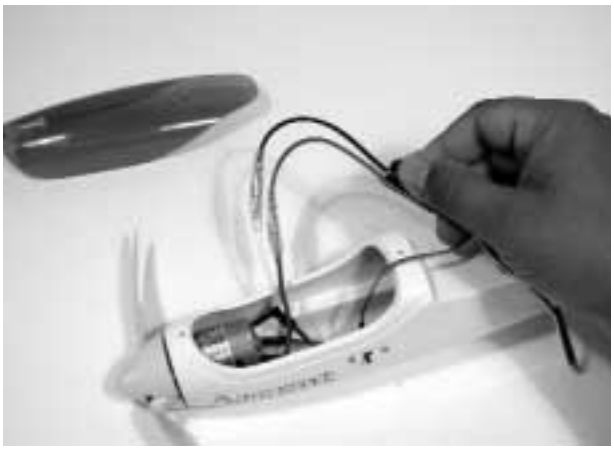
This section describes the installation of the E-flite™ Mini 20-Amp Electronic Speed Control (EFLA105). If using a different electronic speed control please read and follow the manufacturers installation instructions included with your unit.

Step 1. Remove the canopy from the fuselage using a small Phillips screwdriver.

Step 2. Locate the switch in the fuselage at a position that will not interfere with removing and installing the battery. Cut a slot for the switch to come through the fuselage. Use the switch as a guide to drill 1/16 pilot holes for the mounting screws.

Step 3. Mount the switch using a Phillips screwdriver and the screws provided with the speed control.

Step 4. Connect the bullet connectors on the speed control to the motor. Refer to the instructions included with your speed control.



Step 5. Plug the speed control into the throttle channel of the receiver. Connect the elevator and rudder servos into the appropriate channel of your receiver.

Step 6. Run the receiver antenna out of the fuselage through one of the air exits and secure the antenna wire to the boom with clear tape.

Step 7. Secure the receiver to the fuselage with double-sided foam tape.

Section 6: Balancing the Control Throw Recommendations

Parts Needed

Assembled Ascent™ Park Glider
Flight pack installed

Tools and Adhesives Needed

Masking tape
Felt-tipped pen/pencil
Lead "Stick-on" weights (optional)

You will need to balance your model after you've completed assembly and have installed the receiver, battery and servos. The balancing of your Ascent is an important step that must not be omitted. The center of gravity (CG) of your Ascent should be 2 ⅜" behind the leading edge of the wing at the fuselage. Shift the motor battery fully forward to balance the model if it is tail heavy or add weight to the nose. If the model is nose-heavy, you can shift the position of the receiver battery location in an attempt to balance the model, or add weight to the tail boom. Note that adding weight is the last option.

Step 1. To balance the model, it should be fully assembled with the battery installed and ready to fly.

Step 2. Place a strip of masking tape on either side of the wings lower surface, next to the fuselage. Mark the location of the CG 2 ⅜" from the leading edge on the bottom of the wing on both sides of the fuselage.

Step 3. Pick up the plane from a level position using one finger under the wing on each mark. Shift the battery location or add lead weight until the plane remains level when you pick it up.

Control Throws

The following control throws offer a good place to start with your first flights. We recommend only one rate setting for the Ascent, as you become more familiar with the handling of you model you may wish to add a second rate setting to suit your flying style.

Recommended Control Throws:
Elevator 1/2" up 1/2" down
Rudder 3/4" right and left

Section 7: Preflight Checks

Perform these preflight checks on your Ascent park glider before each flying session. Correct any issues before attempting to fly your plane.

- Check the elevator and rudder for security
- Check the servos for security
- Make sure the control wires are secured to the control horns and to the servo arms
- Check to make sure the wing mounting screws are tight and the wing is securely mounted to the fuselage
- Inspect the motor and speed control wiring for chaffing and damage
- Perform a range check of your radio control system following the radio manufacturers instructions
- Ensure that the elevator and rudder are moving in the correct directions

Section 8: Glide Test

We strongly recommend that before you fly your new Ascent, you first perform a test glide. Pick a flat spot that has soft, tall grass and is free from obstructions. You first want to check out the Ascent's performance but also check your performance as a pilot. It also allows you to make corrections to any building or control defects that may have been overlooked. The test glide should be done with an assistant on a calm day.

> **Hint:** A good time during the day is very early in the morning or at dusk when the wind is calm. You want to be able to concentrate on what the model is doing, and have time to think about what you're doing. We will assume you have an assistant during the following steps.

Step 1. Range check your radio system and check the control throws. Make sure the control surfaces move in the proper direction.

Step 2. Have the assistant hold the Ascent under the wing near the CG and run forward until they can sense the wing developing lift. Don't release the glider yet. See if the model wants to lift. If not, add a bit of up elevator trim and try again.

Step 3. This step may take some practice on the part of your assistant. What you want them to do now is run forward, but a bit faster, with the nose of the plane pointed at the horizon with the wings level (not nose down or nose up). Then thrust the Ascent forward in a line straight toward the horizon and release it.

Step 4. When the assistant releases the model, watch it carefully. A properly trimmed aircraft will fly straight gliding to a smooth landing about 50 feet away. If the Ascent pitches nose down, the CG is too far back and you have a nose-heavy condition. Remove some weight from the nose. If the Ascent pitches nose up sharply, and stalls, you have a tail-heavy condition (the CG is too far forward), and you need to remove weight from the tail or move the battery and receiver further forward.

Step 5. Turns to the left or right after launch can be adjusted through use of right or left rudder trim.

> **Important:** Make any trim adjustments in small increments. Large changes can result in abrupt turns resulting in tip stalls and loss of control.

Step 6. If you have to make large trim adjustments on your transmitter, you may have other problems, such as warps. Check the wings, elevator, and rudder to make sure there are no warps in the airframe. Make sure the wings are aligned and mounted properly on the fuselage. When you have the Ascent trimmed and the CG adjusted so it glides properly in a "hands off" manner, return you transmitter trim switches to their neutral position, then make the appropriate mechanical linkage corrections to return the control surfaces to their test glide positions.

Step 7. After you have made the necessary corrections, glide test the model again to make sure it is trimmed properly with the transmitter trims in neutral.

Step 8. You are now ready to launch under power. Apply power and have your assistant run forwards as before. Gently throw the Ascent at a point on the horizon. Let the aircraft gain speed before attempting to make any abrupt changes in direction. Remember to make small control inputs; you do not want to stall close to the ground. Use a slight bit of up elevator and allow the Ascent to make a gentle climb to 200–300 feet. You can then shut down the motor and go hunting for thermals.

Section 9: Thermal Soaring

A key component to soaring is the air mass the park glider flies in. Also, there is an energy source producing lift, either a warm air thermal (thermal lift), or the wind rising as it meets an obstacle such as a hill or a line of mountains (ridge lift). We will limit our discussion to describing thermal soaring.

We will be using the electric motor to launch our park glider to altitude. Once at altitude we shut down the motor and the park glider will soar, eventually to return to earth until we use the motor to climb again. How then does a park glider stay aloft for long periods of time and travel long distances? Some force has to provide sufficient lift to overcome gravity when the motor is not used.

One such force is the thermal. The thermal is simply a column of rising warm air. Warm air is lighter (less dense) than cooler air and thus rises. The term "differential heating" is used to describe the generation of thermals. Descending cool air is known as "sink."

Balloonists to launch and fly their hot air balloons use the principle of warm vs. cool air. They create and trap warm air inside the balloon envelope, and the warm air displaces the cool air, causing the balloon to inflate and rise until air begins to cool inside the envelope. The balloonist simply uses a propane heater to warm the air again and the balloon rises again or maintains its altitude.

Nature generates thermals by the sun heating darker ground or objects more that lighter colored surfaces. The dark object absorbs the sun's heat becoming warm and thus warming the air above it.

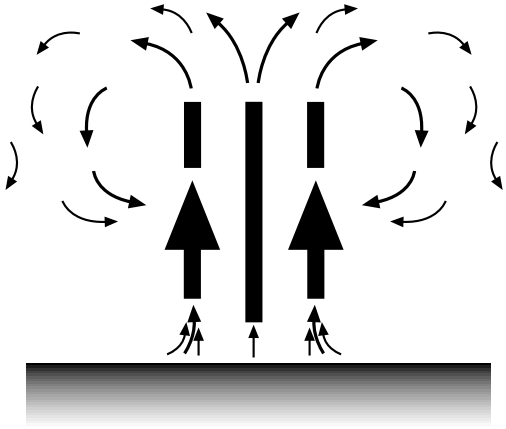
For a thermal to be formed, the sun (or a heat source, such as a hot metal roof, factory, etc.,) will heat the ground or surrounding air in one location faster or warmer than the surrounding air. The warm ground will warm the air above it and cause the air to begin to rise. Rising warm air can take on the form of a column or a funnel. Usually the part of the thermal near the ground is small and expands outward as it rises in altitude.

Since the warming of air is usually a much smaller area than the total area, the thermal updraft will be faster than the cooler downdraft motion of air. This cooler downdraft of air is referred to as "sink" and causes glider flights to be of a much shorter duration as the lift generated by the wing is overcome by the downward motion of the air.

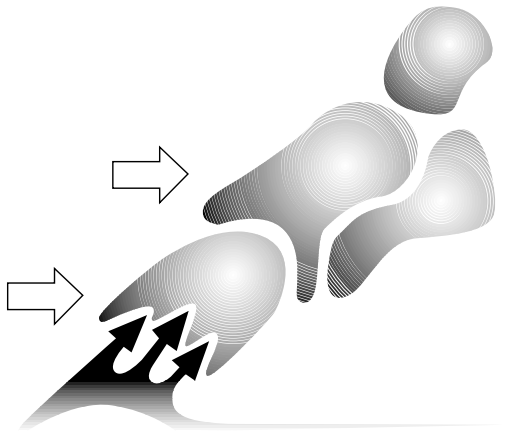
To stay aloft one's task is to move from one thermal to another, utilizing the lift created by rising warm air. In level flight, a glider continuously descends in relation to the surrounding air. The only way to sustain flight in a glider beyond the sink time in still air (without a motor) is to fly in an air mass that is rising at a rate greater than the sink rate of the glider.

Thermals usually cannot be seen. (An exception is a "dust devil—a small thermal that has picked up dust making it visible.) One can sometimes "feel" the presence of a thermal. A breath of air in an otherwise calm spot indicates the presence of a thermal. A shift in the wind (in a light breeze) probably indicates airflow into a thermal. And one can watch for the graceful soaring of birds, such as hawks and eagles to locate the presence of thermals.

Sometimes the wind will cause the thermal to bend or break causing a warm air bubble that slowly travels downwind as it rises. Thermals can vary in strength, rising at speeds of a few hundred to over a thousand feet per minute.



Thermal Forms (Column)

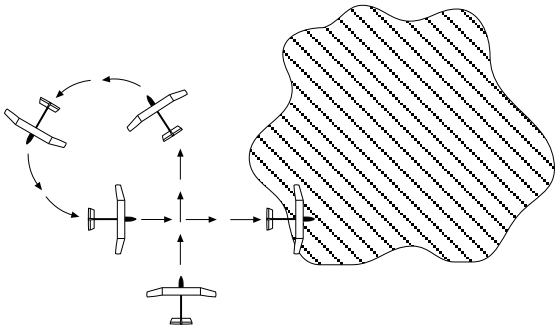


Thermal Forms (Bubble)

As you are flying your Ascent™, watch it carefully. If you were in a full-size glider, you would be able to feel the "bump" of entering a thermal. Now you must depend on signs the glider gives as it approaches or enters a thermal.

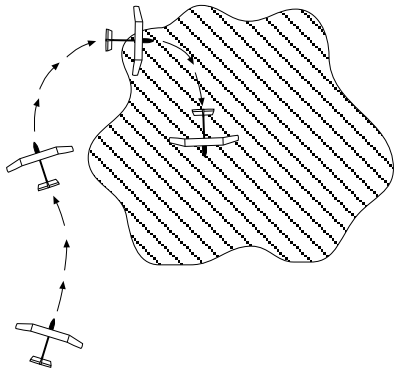
When the Ascent flies near a thermal that is rising, the wing closest to the thermal will also try to rise, causing the aircraft to "rock" slightly. The nearness of a thermal will cause the glider to "turn away" without any control input from the pilot.

There are several ways of entering a thermal. One is to continue the thermal induced turn for 270 degrees. If the thermal is on your right, turn left for 270 degrees and enter at a right angle to the original flight path.



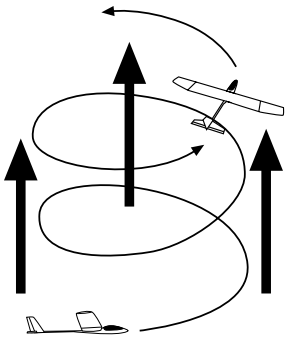
270° Turn Into a Thermal

The second method is to make a wide 180-degree turn back into the thermal.



180° Turn Into a Thermal

Once in the thermal, you will need to try to stay in the center of the lift. Slow down by increasing the up elevator "trim" until the park glider is just above stall (minimum sink) speed. Make easy banking turns to find the area of highest lift (thermal core). When you have found the core of lift, tighten the turns to stay within the core of highest lift.



Flying in the Core of a Thermal

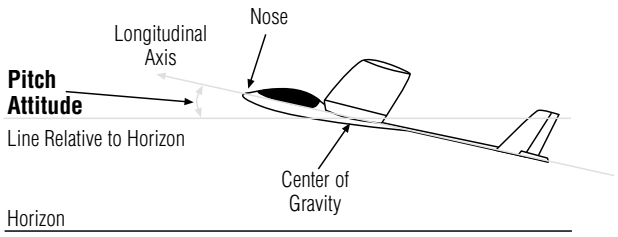
As you gain experience, you will find it easier to locate thermals and track their progress.

Section 10: In-Flight Adjustments for Performance and Conditions

- Pitch Attitude
- Minimum Sink Speed
- Maximum Lift/Drag (L/D) Speed
- Best Penetration Speed

Once the fundamentals of launch, trim, and control of the Ascent™ are learned, it's time to consider getting the most out of the it's ability to perform. To do that, one must learn how to trim your Ascent for maximum performance, whatever the current conditions are at the time. The key to trimming for maximum performance is to become knowledgeable of three key speeds: minimum sink, maximum lift/drag (L/D), and best penetration. These three speeds are what we call airspeeds, not ground speeds (the aircraft's speed across the ground). Thus the airspeed of the plane is relative to the air mass surrounding it.

Pitch Attitude
To determine the Ascent's airspeed, you will have to watch carefully for its pitch attitude. Pitch attitude can best be described as the amount (degree) the nose of the aircraft is above or below a line relative to the horizon. The angle of attack term is used to describe the angle between the chord (width) of the wing and the direction the wing moves through the air.



Minimum Sink Speed
In our discussion of thermals, we know sink is the cooler air moving downward to replace the warm air that is rising. Minimum sink speed is the speed at which a park glider loses altitude most slowly. As the term then implies, minimum sink speed gives the glider the maximum amount of time aloft from a given altitude. This is the speed to fly at when you are circling in thermals, or whenever you need the maximum lift the glider can produce. The pitch attitude will appear to be more nose-up.

To determine what this speed is for your Ascent, fly it at a slow speed, slowing down until it just stalls, then, trim it to fly at a speed just above where it begins to stall. Observe the pitch attitude at this speed. You will need to practice flying at this speed without stalling so you can come back to it whenever you want to when you are in a thermal or trying to maintain maximum lift.

Maximum Lift/Drag (L/D) Speed
This is the speed at which you can fly the maximum distance for a given altitude. It's used when you move from one thermal to another, or when you need to cover the maximum distance over ground. This will be a moderately faster airspeed than the minimum sink speed. You will have to experiment by starting from the minimum sink speed and add small amounts of down trim to increase speed slightly. This is the speed the Ascent performs the best for duration, and the speed at which you will do most of your flying. It will take practice until you are familiar with the Ascent's attitude at this speed. Remember you will be flying slightly faster, at a lower pitch attitude as compared to minimum sink speed.

Best Penetration Speed
This is the speed at which the Ascent EP will travel forward against the wind or a thermal, as far and as quickly as possible. This speed will vary with the conditions, such as windy situations or very strong thermals. You will want to use this speed to escape from very strong lift (or sink). This speed has a more pronounced nose down appearance, which will vary with the conditions encountered. It will also not be a consistent attitude, but vary with the strength and direction of the lift/sink or wind.

Once you have learned to launch and control your Ascent in a consistent manner, you will want to then proceed with practicing these three speeds. Remember these are trim speeds, so you will be using your trim lever to obtain them. For maximum performance, remember to use trim sparingly, don't depend on the stick, as you will only impart small movements that result in drag and battery drain.

Practice smooth control inputs and use the trim lever. (Remember you trimmed the Ascent in the first flights, and then set the mechanical linkages to reflect the trim imparted. You then set your trim levers back to neutral. Now you know why we performed that procedure, to allow you to use the trim lever for in-flight trim to better control flight performance.)

There are other things that can be done to bring the performance level of your Ascent to its absolute best. However, they should not be attempted until you have become proficient in the launch, control, and trim of your model.

The more you learn how to trim your Ascent for optimum performance, the more fun you can have chasing thermals!

AMA SAFETY CODE

Model Flying MUST be in accordance with this Code in order for AMA Liability Protection to apply.

General

1. I will not fly my model aircraft in sanctioned events, air shows, or model flying demonstrations until it has been proven to be airworthy by having been previously, successfully flight-tested.
2. I will not fly my model higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right-of-way and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.
3. Where established, I will abide by the safety rules for the flying site I use, and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.
4. At all flying sites a straight or curved line(s) must be established in front of which all flying takes place with the other side for spectators. Only personnel involved with flying the aircraft are allowed in front of the flight line. Flying over the spectator side of the line is prohibited, unless beyond the control of the pilot(s). In any case, the maximum permissible takeoff weight of the models with fuel is 55 pounds.
5. At air shows or model flying demonstrations a single straight line must be established, one side of which is for flying, with the other side for spectators. Only those persons accredited by the contest director or other appropriate official as necessary for flight operations or as having duties or functions relating to the conduct of the show or demonstration are to be permitted on the flying side of the line. The only exceptions which may be permitted to the single straight line requirements, under special circumstances involving consideration of site conditions and model size, weight, speed, and power, must be jointly approved by the AMA President and the Executive Director.
6. Under all circumstances, if my model weighs more than 20 pounds, I will fly it in accordance with paragraph 5 of this section of the AMA Safety Code.
7. I will not fly my model unless it is identified with my name and address or AMA number, on or in the model.

   Note: This does not apply to models being flown indoors.
8. I will not operate models with metal-bladed propellers or with gaseous boosts, in which gases other than air enter their internal combustion engine(s); nor will I operate models with extremely hazardous fuels such as those containing tetranitromethane or hydrazine.
9. I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind) including, but not limited to, rockets, explosive bombs dropped from models, smoke bombs, all explosive gases (such as hydrogen filled balloons), ground mounted devices launching a projectile. The only exceptions permitted are rockets flown in accordance with the National Model Rocketry Safety Code or those permanently attached (as per JATO use); also those items authorized for Air Show Team use as defined by AST Advisory Committee (document available from AMA HQ). In any case, models using rocket motors as a primary means of propulsion are limited to a maximum weight of 3.3 pounds and a G series motor. A model aircraft is defined as an aircraft with or without engine, not able to carry a human being.
10. I will not consume alcoholic beverages prior to, nor during, participation in any model operations.

Radio Control

1. I will have completed a successful radio equipment ground range check before the first flight of a new or repaired model.
2. I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.
3. I will perform my initial turn after takeoff away from the pit or spectator areas, and I will not thereafter fly over pit or spectator areas, unless beyond my control.
4. I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission. (Only properly licensed Amateurs are authorized to operate equipment on Amateur Band frequencies.)
5. Separation of less than three miles between flying sites is only acceptable if testing has been accomplished to determine that no interference potential exists or a frequency sharing arrangement between the clubs and/or individuals involved is developed. Written confirmation of either of these two alternatives, signed by a club officer of both clubs, or individual AMA members from both clubs shall be provided to AMA Headquarters.
6. For Combat, distance between flight line and spectator line will be 500 feet per cubic inch of engine displacement. (example: .40 engine = 200 feet)
7. An RC racing event, whether or not an AMA Rule Book event, is one in which model aircraft compete in flight over a prescribed course with the objective of finishing the course faster to determine the winner.

A. In every organized racing event in which contestants, callers and officials are on the course:
   1. All officials, callers and contestants must properly wear helmets that are OSHA, DOT, ANSI, SNELL or NOCSAE approved or comparable standard while on the racecourse.
   2. All officials will be off the course except for the starter and their assistant.
   3. "On the course" is defined to mean any area beyond the pilot/staging area where actual flying takes place.

B. I will not fly my model aircraft in any organized racing event which does not comply with paragraph A above or which allows models over 20 pounds unless that competition event is AMA sanctioned.

C. Distance from the pylon to the nearest spectator (line) will be in accordance with the current Competition Regulations under the RC Pylon Racing section for the specific event pending two or three pylon course layout.

8. R/C Night Flying is limited to low-performance models (less than 100 mph). The models must be equipped with a lighting system that clearly defines the aircraft's attitude at all times.

Notes

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