

GENTLE LADY

ARF

The **Gentle Lady ARF** sailplane was designed to be a gentle trainer for the beginning R/C modeler, yet to possess competition capability in the hands of the experienced glider pilot. As a very efficient machine, she reacts quickly to rising air (called lift, or thermals). To stay in the thermal, she can circle very tightly without falling off. The model has good penetration into the wind and can really “cruise” when desired. Before starting to build, read through these instructions and familiarize yourself with this booklet.

The **Gentle Lady ARF** can be flown a number of ways: hand tow, high-start, slope soar, or power. The simplest method is hand tow, which resembles towing a kite into the air. High-start is a combination of elastic cord and tow line. When stretched, the high-start will gently tow the model up to an altitude of several hundred feet from which a flight of three minutes or more in dead air (no Thermals) can be obtained. A variation of the high-start is the more expensive powered winch, popular with glider clubs. If you live near unobstructed hills or ridges, slope soaring is easily possible, so long as you have a suitable landing area. Hand launching the model off the upwind side of the slope, directly into the wind, will enable you, with practice, to soar back and forth along the slope in the rising air for as long as the wind remains. Finally, the use of power is an excellent option, and we include a firewall and instructions on typical installations.

WARNING

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

CARL GOLDBERG PRODUCTS, LTD.

Items needed to complete this kit. Necessary Tools and Supplies.

- 1 Radio Guidance system(2 channel minimum required)
- 1 2oz. bottle CA glue
- 1 CA accelerator
- 1 30 minute epoxy
- 1 Box #64 Rubber bands.
- 1 1/4 x 8 x 12" CGP Foam Padding
- CGP Scuff Guard (To Protect Bottom From Scratching)

- Roll of waxed Paper
- Modeling Knife and Single Edge Razor Blade
- Pins
- Electric Drill
- 1/16" Drill Bit
- Small Screwdriver
- Masking Tape
- Flexible Straight-Edge
- 30-60 Degree x 6" Triangle
- Pencil

For Engine Power

Engine, Propeller, Mounting Screws, and Washers

Selecting Radio Control Equipment

Radio sets are battery powered with either dry cells or the more reliable, rechargeable nickel-cadmium (ni-cad) batteries. Although ni-cad powered units are more expensive, the cost of routinely replacing worn out batteries may be much higher in the long run. Many of the radio systems now available feature "servo reversing" switches which allow you to reverse the response of the servo. This simplifies radio installation and is worth considering. Exponential or dual rates are popular features which, if used properly, can help smooth out the flight of a sensitive model. Your local hobby dealer should be able to help you select the proper radio for your needs and skill level. And be sure to get a system designed for aircraft, as only certain frequencies are available for model aircraft.

The Gentle Lady Arf is covered in Oracover.

White 10
Cadmium Yellow 33
Orange 60
Dark Blue 52
Ferrari Red 23

Limited Warranty

Carl Goldberg Products takes pride in the care and attention given to the manufacture of components for its model airplane kits. The company warrants replacement of any materials found to be defective for their intended use, **prior to their use in construction of the aircraft**, provided the buyers requests such replacement within a 90 day period from the date of purchase and provided the defective part is returned, if so requested by the company.

No other warranty, expressed or implied, is made by the company with respect to this kit. The buyer hereby assumes full responsibility for the risk and all liability for personal or property damage or injury arising out of the buyer's use of the components of this kit.

Using This Instruction Manual

Before you start gluing take some time to look through this entire instruction booklet. It is designed to guide you through the construction process step by step, so build in the order given in this book. Radio selection and installation, covering, and balancing and flying the model are all covered.

Like a full-size airplane, the Gentle Lady is built from basic structures (stabilizer, fin, wing, etc.), which are then assembled into the complete airplane.

Special procedures or comments will usually be explained before a step, so you will be prepared. If a step begins with a statement like "Note," "Warning," or "Important," it is a good idea to read through the step before doing it.

A check-off box appears at the beginning of each step. Check these boxes as you build, so you can tell at a glance what steps you have completed.

Some of the instructions deal with general procedures. Boxes are not needed for these sections.

Preparing For Assembly

You will need a area approximately 18" x 36" in order to build the **Gentle Lady ARF**. Place a sheet of waxed paper or plastic kitchen wrap over the work area to prevent CA from sticking to your table.

Construction Tips

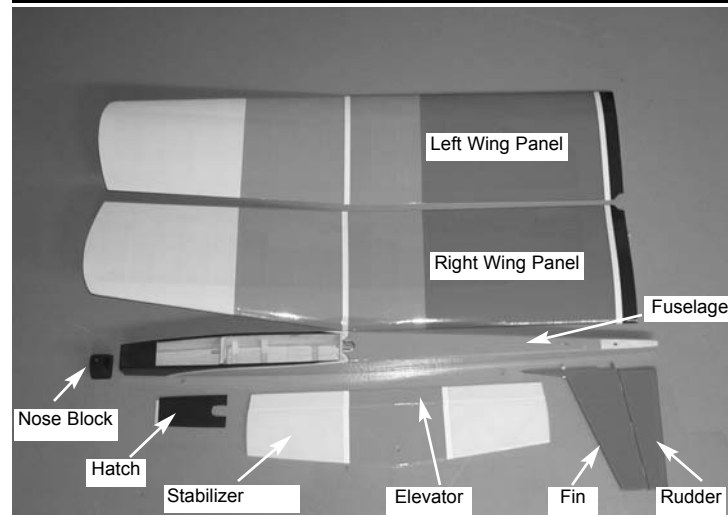
If you have never assembled a built-up model before, the following tips will prove helpful.

IMPORTANT: ALWAYS READ A FEW STEPS AHEAD. This will alert you to coming instructions and will help you plan accordingly.

You may find it convenient to empty all of the small parts from the hardware bags into a common container, such as a margarine tub. This will help you find items quickly.

When drilling any 1/16" holes in balsa, you may find it easier to twist the drill between your thumb and index finger. This procedure allows more control in positioning the drill on the center mark.

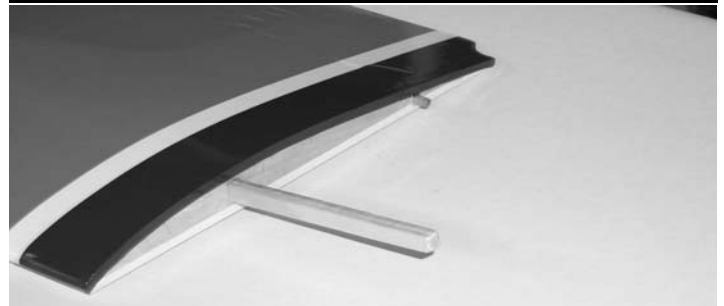
Parts Identification



Additional Items included in the kit:

- (2) Control Horns
- (2) Control Horn Bases
- (4) 2-56 x 1/2" Pan Head Screw
- (2) Wire
- (2) Snap Links
- (2) Snap Link Retainers
- (2) Pushrod Connectors
- (1) Wood wing Joiner

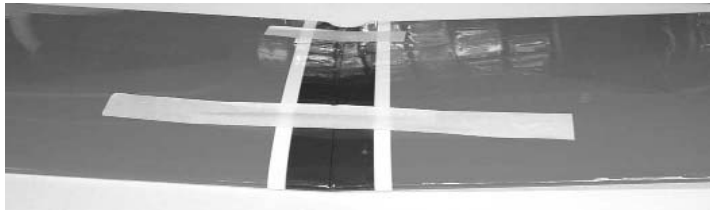
Wing Assembly



1. Collect the following parts:
 - (1) Left wing panel
 - (1) Right wing panel
 - (1) Wing Joiner
2. Holding the wing joiner with the angle cut facing up, insert them into the joiner pockets in both wing halves. The joiners should fit easily in the pockets and the wing halves should meet in the middle, with the wing dihedral forming a broad "V".
3. Working on a protected surface, and with a paper towel handy for cleaning fingers, **THOROUGHLY** mix 1-2 large (soup) spoons each from bottle A and bottle B of epoxy. (Use equal amount of each part and mix with a stick in a plastic or paper cup, or on a sheet of waxed paper.)

- Spread the epoxy in the joiner pockets and in the dowel hole and spread a thin layer of epoxy along one side of the entire center joint area. **Immediately proceed to the next step.**

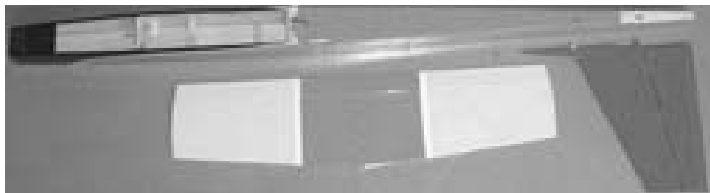
- Working rapidly, so that the epoxy does not set before you are finished, slide the wing joiner into one wing pocket.
- Then slide the wing halves together until they are touching. Make sure the rear dowel slides into the dowel hole.



- With masking tape, tape the wing halves together at the trailing edge and close to the leading edge, as shown. This will help keep the wing from twisting.
 - Place additional tape at several locations across the center seam of the wing, so that the halves stay firmly together while the epoxy sets.
 - Allow the epoxy to dry thoroughly.

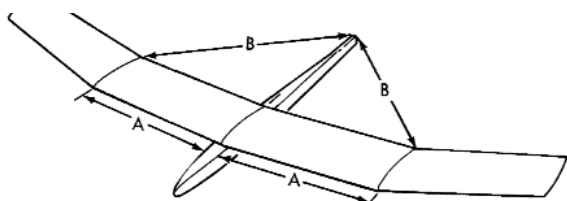
Note: Both outer wing tips should be 6-3/8" off the table top.

Stab Assembly

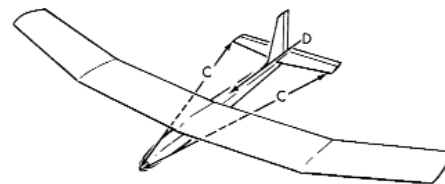


- Collect the following parts:

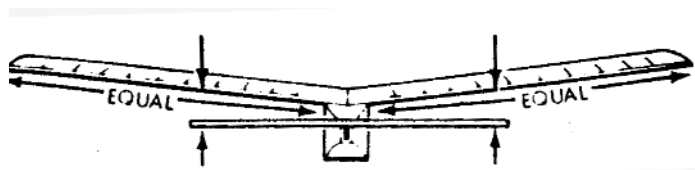
- (1) Fuselage
- (1) Stabilizer
- (1) Fin
- (1) Control Horn
- (2) Screws



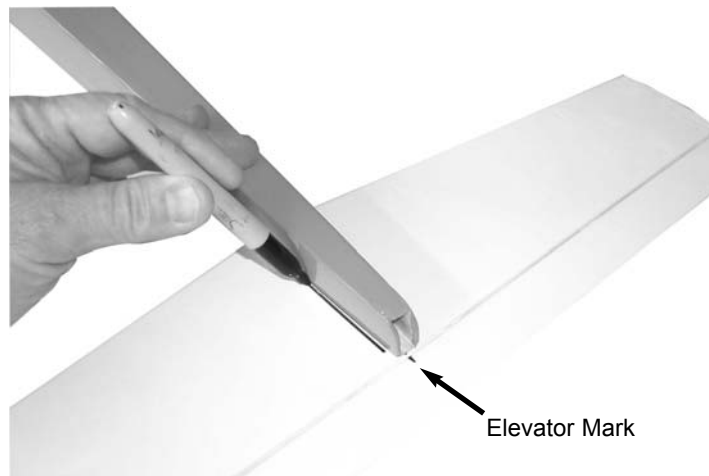
- Mount the wing on the fuselage using the rubber bands provided
 - Measure carefully from the fuse sides out to the polyhedral breaks (arrows 'A') to be sure that the wing is centered.
- Now measure from the polyhedral to the back end of the fuselage (arrow 'B') to make sure wing is square to the fuselage.
 - Mark the wing and the fuselage with matching line-up points.



- Trial fit the stab in place on the fuselage. Place a piece of masking tape across the fuselage in front of where the stab mounts.
 - Measure across the fuselage and mark the center.
- Place two strips of masking tape along the edge of the stab, next to the both outer stab tips and above the hinge line.
 - Using a T-square or triangle, draw a line from the front center point of the stab to the rear hinge line.
 - Measure 9-1/2" out ("B") from each side of the centerline and make a mark on the masking tape.
- Measure from the marks on the stab to the polyhedral breaks on the wing adjust as necessary to line up with wing.
 - Mark the stab and fuse with matching line-up points.



- Make sure the stab is level (parallel) with the wing and insert paper strip shims, if necessary.



- When satisfied with the alignment of the stab, temporarily tape securely in place.
 - Turn over the plane and mark the area on the bottom of the stab where it rests on the fuse.

- Remove the stab from the fuse and, working 1/4" inside the drawn lines, carefully remove the covering from the bottom of the stab. BE CAREFUL TO AVOID CUTTING THE WOOD
 - Mark the center of the elevator and remove the elevator from the stab
- 9.
- Spread epoxy on both the bottom of the stab and the stab platform of the fuse.
 - Replace the stab on the platform and, after again checking the alignment of the stab to the wing, allow the epoxy to dry thoroughly.



- 4.
- Place the control horn on the bottom of the elevator over the center mark you made.
 - Mark the screw hole locations.
 - Drill the holes for the control horn.
 - Using two machine screws, secure the control horn to the elevator.

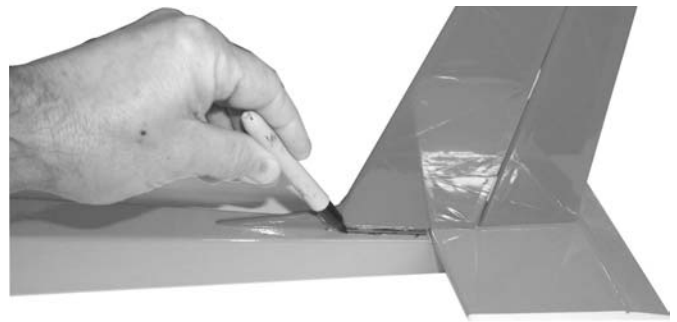
Fin Assembly

- 1.
- Collect the following items:
 - (1) Fin
 - (1) fuselage
 - (1) Control Horn
 - (2) Screws

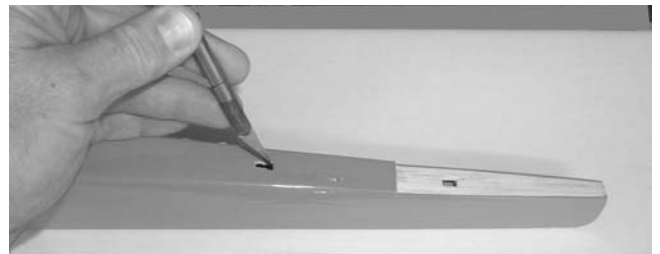


- 4.
- With the rudder sitting on the fin, as shown, place the horn on the bottom of the rudder.
 - Mark the holes.
 - Drill the holes for the control horn.
 - Again using two machine screws, secure the control horn to the rudder.

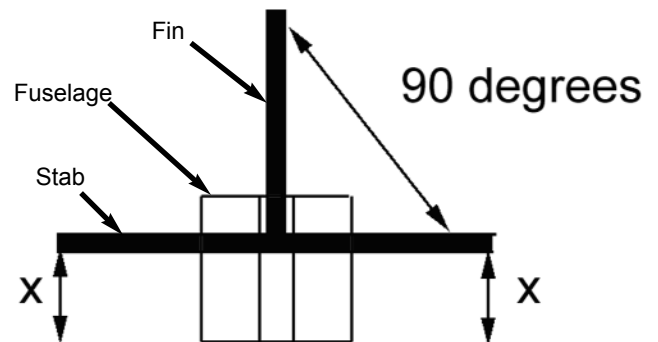
- Remove the rudder from the fin and set to the side.



- 2.
- Slide the fin mounting posts into the top of the stab.
 - Check the fit. The fin should fit easily into each slot and should stand upright by itself. Enlarge the holes, if necessary.
- 3.
- As shown above, mark where the fin touches the fuselage.



- **TAKING CARE NOT TO CUT INTO THE WOOD STRUCTURE UNDERNEATH**, and working inside the drawn lines, carefully remove the covering where the fin mounts on the fuse and stab.

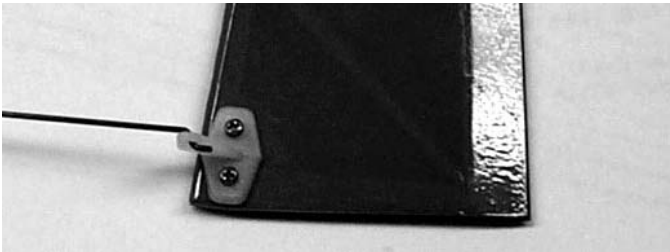


- 5.
- Remount the fin on the fuse and, using a 90° triangle, make sure the fin is perpendicular to the stab.
 - When satisfied with the fit, remove fin and mix up a couple of spoonfuls of epoxy.
 - Apply a **THIN**, even coat of epoxy on the bottom of the fin and along both sides of the fin mounting posts. Avoid too much glue, which will squeeze out from underneath the fin.
 - Mount the fin on the fuse and place the triangle against the fin to make sure it is perpendicular.

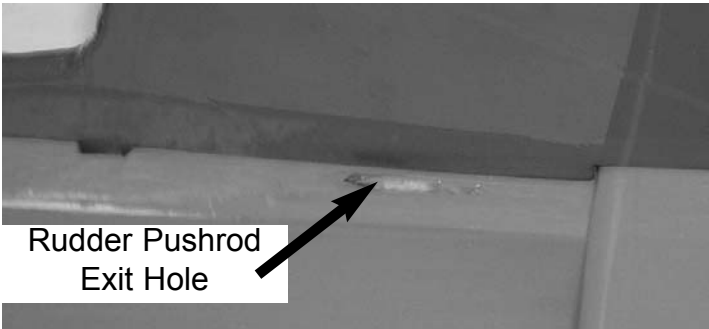
- Use masking tape to secure the fin and triangle in position until the epoxy is thoroughly dry. Make sure not to glue the triangle!

Mounting Rudder and Elevator

- Collect the following items:
 - (1) Rudder with control horn
 - (1) fuselage
 - (1) Elevator with control horn
 - (2) long wire with "Z" bends
 - (7) Hinges



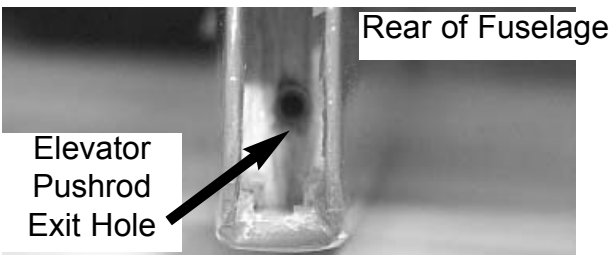
- Remount the the hinges back into the rudder. Place one of the long wires onto the control horn using the "Z" bend.



- Insert the wire into the hole on the top of the fuselage and slide the wire down into the tube.
- Insert the hinges into the slots of the fin.

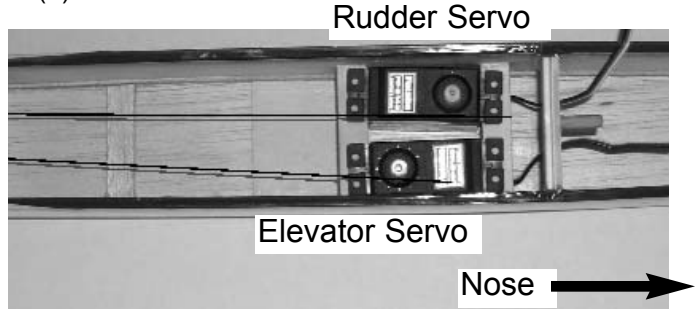
Hint: Place a pin in the center of the hinge so that the hinge will insert half way into the fin and the rudder.

 - When satisfied with the fit then place one drop of **thin** CA glue on each side of all the hinges. Remove the pins and set aside for about 10 minutes.
 - Repeat this process for the elevator. **DO NOT FORGET THE WIRE.**

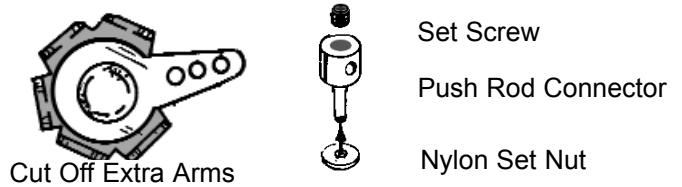


Installing the Radio

- Collect the following items:
 - (2) Servos with screws(Supplied with Radio)
 - (2) Servo Arms
 - (1) fuselage
 - (2) Pushrod connector
 - (2) Nylon Snap Nut
 - (2) Set Screws



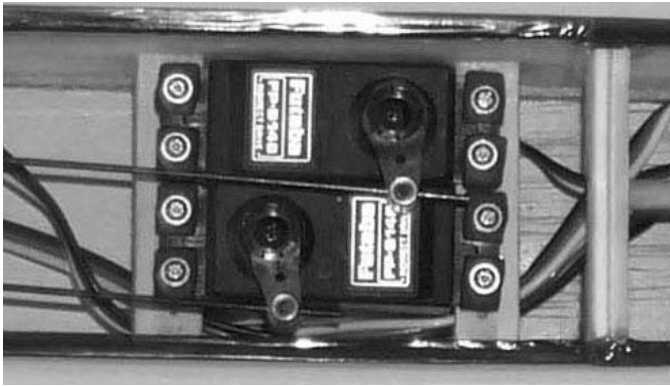
- Mount your servos as shown above.



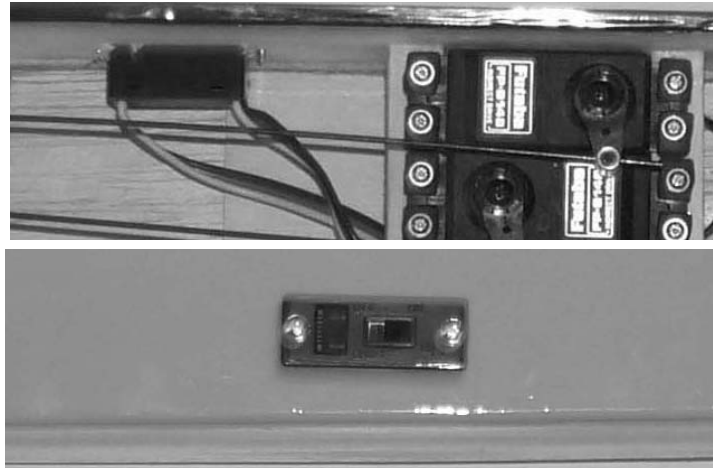
- Insert the Pushrod connector through the hole on the servo arm and install the snap nut on the bottom as shown above.
- Slide the rudder pushrod wire through the hole and mount the servo arm on the rudder servo.

Hint: Do not screw the servo arm on the servo at this time.

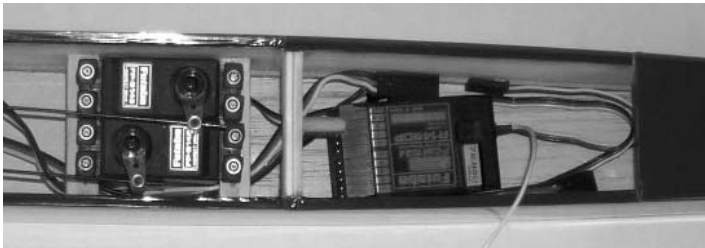
 - Repeat steps 2 and 3 for the elevator servo arm.
- Place tape on both the elevator and the rudder to hold them both straight and level to the fin and stabilizer.



- Making sure that the servo arms are as shown above. Insert the set screw into the top of the pushrod connector and tighten onto wire.

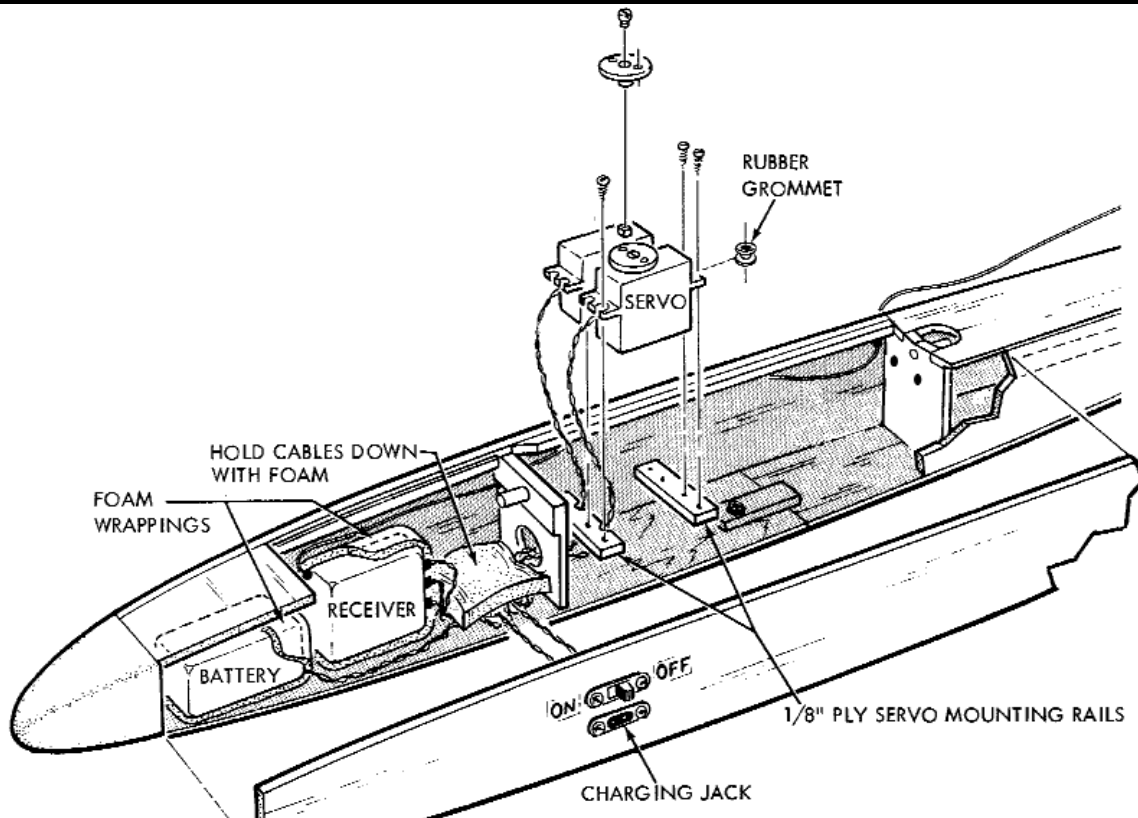


7. □ Carefully cut through the side of the fuselage and mount your receiver switch as shown.
- Plug the switch into the receiver as shown in your radio instructions.
- Wrap the receiver and the battery pack in foam and place in the nose. Plug the battery into the switch.
- Take off the servo arms from that top of the servos then remove the masking tape from the rudder and the elevator. Turn on the radio and let the servos move to center. Re-mount the servo arms so that the elevator and rudder are stright. Screw the servo arms into the servos.



5. □ Take the wires from both of the servos and insert them through the front fromer hole.
6. □ Place the receiver in the front of the servos. Plug the servos into the receiver as shown in your radio instructions.

Radio Installation Cut Away View

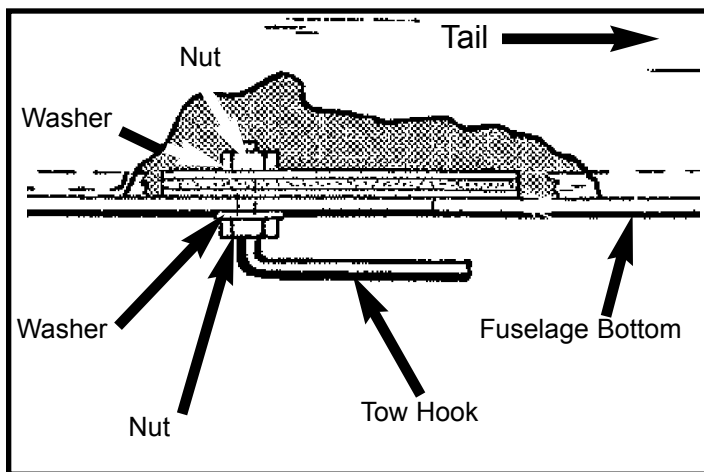
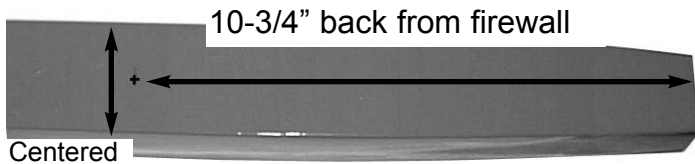


Optional Engine or Tow Hook installation

Now is the time to decide if you are going to fly the Gentle Lady ARF with a glow engine (.049 to .061) or with a Hi Start tow line. Either method will work well with the Gentle Lady.

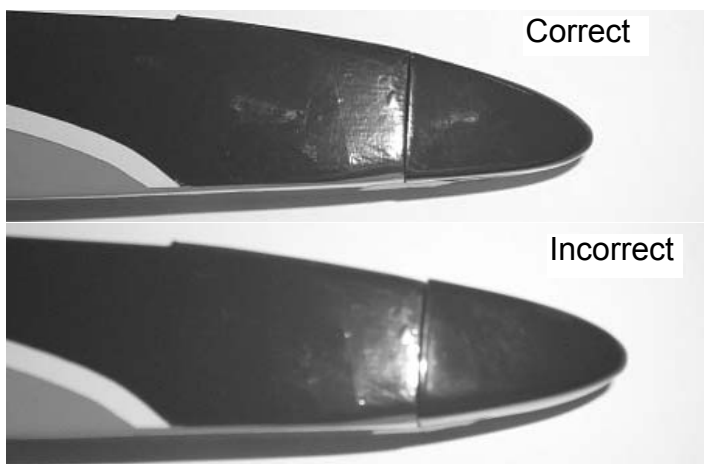
Tow Hook Installation

- Measure back from the firewall 10-3/4" and make a mark.
 - Measure across the width of the fuselage at that mark and find the center of the fuselage.
 - Drill a 1/8" hole at the mark in the center of the fuselage.



- Install the tow hook like shown above

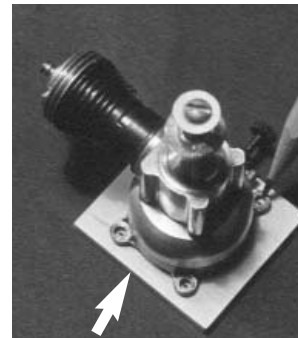
Mounting Nose Cone



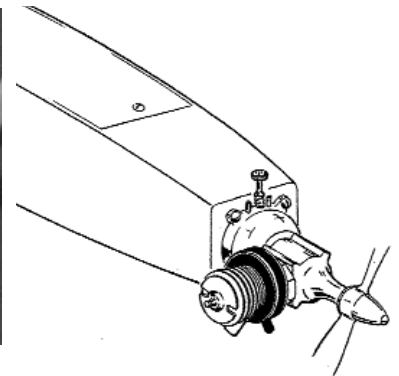
- Glue the nose cone on the front of the fuselage. Make sure the you mount the nose cone on the correct way.

Engine Installation

Hint: Paint the firewall before you mount your engine using fuel proof paint. You can also coat the firewall with CA glue. This will help prevent fuel from soaking into the wood while the engine is running.



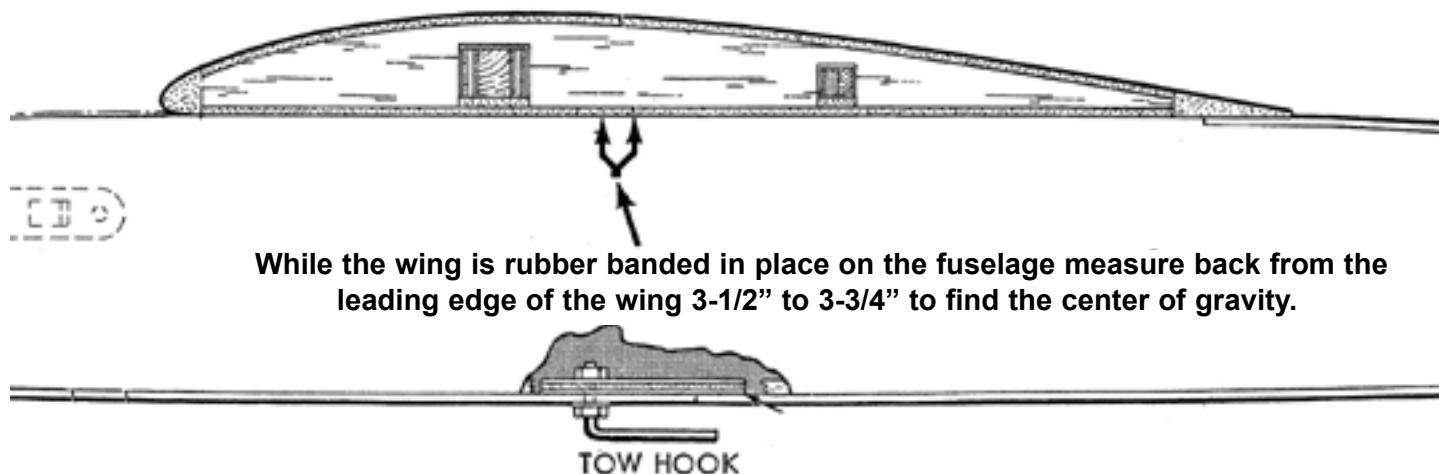
Firewall Doubler



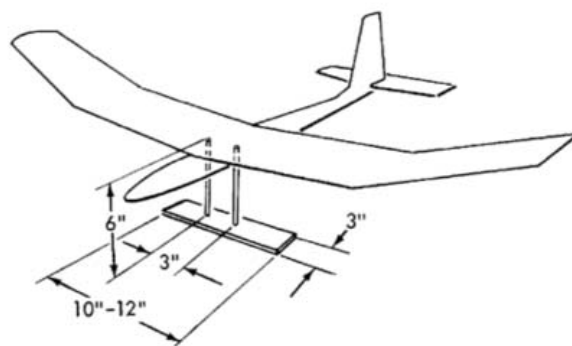
- Center the engine on the firewall doubler
 - Mark engine hole mounting locations.
 - mix up some epoxy and place some onto the firewall doubler.
 - Hold the firewall onto the fuselage with masking tape till the epoxy has dried.
- When the epoxy dries drill 1/16" holes at the marks for the engine mounting.
 - Screw the engine to the firewall.

Make sure you read your engine instructions to know what fuel and propeller is recommended for you engine.

BALANCING (Center of Gravity)



With everything installed, mount the wing and carefully check the Center of Gravity (CG). One way is to perch the model on the thumb and forefinger of your left hand (if you're right handed), while steadying the model with the other. A much better way is to use a balancing set-up, which can be made with a couple of 1/4" dowels with rounded tops, spaced just enough apart to clear the fuse. Mark the desired CG on the underside of the wing, and then set the model on the dowels at that location. Add weight if necessary for balance. The least weight is needed when added as far forward or back as possible.



DO NOT attempt to fly the model with the CG EVEN SLIGHTLY BEHIND the rearmost recommended position.

RADIO CHECK

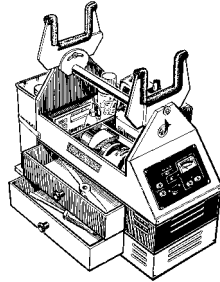
Before going to the field to fly, with batteries fully charged, turn on receiver and transmitter and actuate all controls many times until you are satisfied with all functions.

Prior to the beginning of each day's flying, make a range check of your equipment in accordance with the manufacturer's instructions in general, with antenna

collapsed, you should have at least 100 feet range on the ground. To check this, set the model facing away from you, turn on both the transmitter and receiver switches, and walk away while transmitting signals. Watch to see that no signals are missed until you are at least 100 feet away. Do not attempt any flights unless the equipment works perfectly. **Be careful not to use your transmitter when someone else on the field is flying or testing on the same frequency.**

Learning To Fly

Flying R/C is both fun and challenging. As with other portions of this book, the following section is meant to introduce you to the basics. Read carefully before taking your model out to the field and attempting first flights. And remember, becoming an R/C pilot takes time and patience, but the rewards are well worth the effort.



Equipment Checklist

- Flight batteries, fully charged
- Radio transmitter
- Tools for tightening any parts that can vibrate and loosen
- Extra #64 rubber bands
- Bottle of **Super Jet™**

CHECK YOUR EQUIPMENT

Prior to going to the flying field, with radio batteries fully charged, turn on both receiver (Rx) and transmitter (Tx) and actuate all controls many times until you are satisfied with all functions.

Before beginning each day's flying, make a range check of your equipment in accordance with the manufacturer's instructions. In general, with transmitter

antenna collapsed to 6"-8", you should have an at least 100 foot range on the ground. To check this, turn on both the transmitter and the receiver switches, set the model heading away from you, and walk away while transmitting signals to move the control surfaces. Watch to see that no signals are missed until you are at least 100 feet away. Only if the equipment works perfectly should any flights be attempted. Again, **be careful to not use your transmitter when anyone else at the field is flying or testing on the same frequency!**

After the range check, stand behind the model and make sure the control responses are correct. Moving the control stick to the right should give right rudder (on a 3-channel set-up). Moving the stick back or down on the Tx should move the elevator up, and vice versa. Finally, make sure that everything on your aircraft is neatly and firmly in place—motor fastened down, servos snugged down, receiver and battery wrapped in foam rubber, etc. The receiver antenna must be extended, not coiled up inside the model. Nothing should be loose, or unfinished, or unchecked.

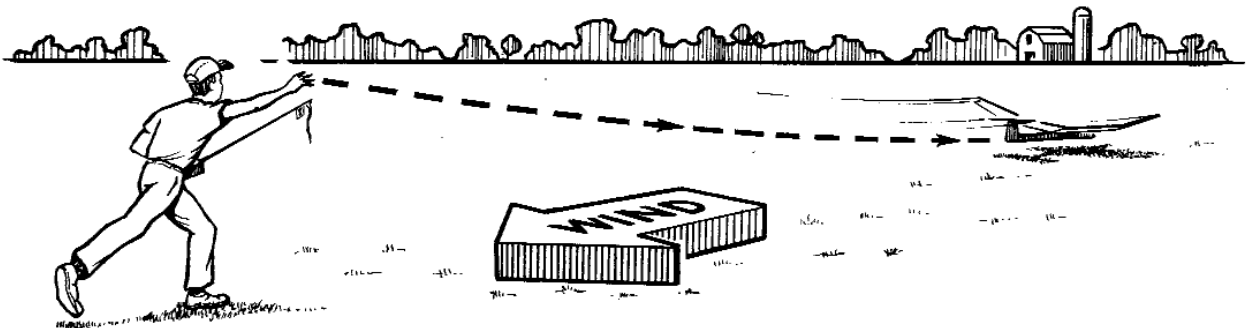
With transmitter and receiver switched on, hand launch the model directly into the wind. Gently correct the flight path as necessary. If any adjustments are needed to maintain straight and level flight, get experienced help to move the clevises.

In flight control, most of the beginner's trouble comes from over-controlling or holding a signal too long. It is better to operate your transmitter slowly and smoothly.

A troublesome tendency is letting the model get downwind. New flyers should try to keep the model upwind at all times prior to the landing approach.

If you are a novice, seek the help of an experienced flyer. Do not hesitate to ask one of the better flyers at the field for help. Usually, they are glad to spend a little time to get somebody started right, and they very likely were helped in the same manner themselves.

An experienced R/C flight instructor is strongly recommended for learning how to fly.



WHERE TO FLY

Fly only in areas sanctioned for R/C and known to be free of radio interference. Ask your hobby dealer or other modelers if there is an R/C flying field that is used by a local R/C club. This is the ideal place to fly. If you don't know of an R/C club nearby, contact the Academy of Model Aeronautics (AMA), at the address on the front of this booklet, for information on a club in your area. Remember: R/C flying fields need to have rules to help prevent accidents, so ask about them before you turn on any of your equipment! **DO NOT TEST your transmitter in the parking lot or anywhere nearby until you are sure no one else is using your radio frequency. This could cause another flyer to crash and make you very unpopular!**

If there is no club or other R/C flying site available, locate a square area (preferably a grassy field), at least **four or five football fields long**, which is free of power lines, trees, poles, houses, busy streets and other obstructions. It must be at least three miles away from any areas where other R/C models, such as boats or cars, are operated. It should also have a relatively smooth surface, as it will take practice to learn precision landings. If you find a suitable location, turn your receiver on for 2 or 3 minutes to check that no one in the vicinity is operating an R/C device which could affect your receiver and cause your plane to crash.

THERMAL FLYING

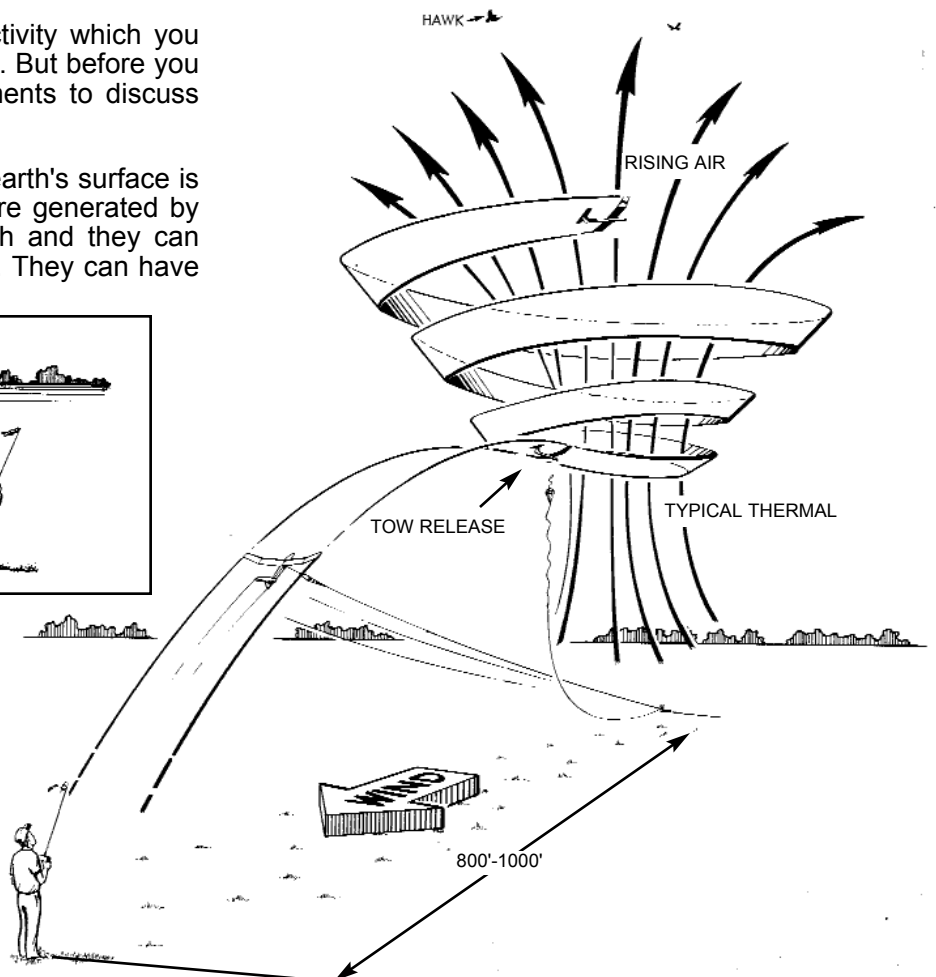
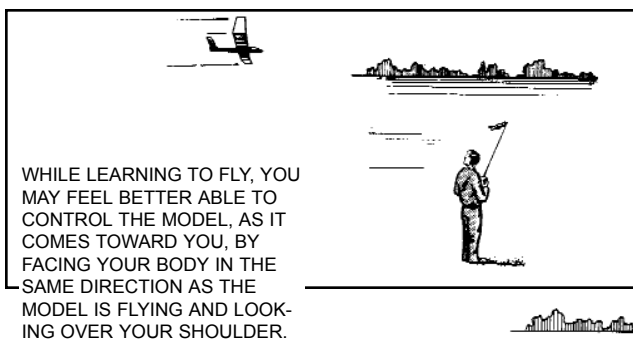
Thermal soaring is a very popular activity which you can enjoy with your **Gentle Lady ARF**. But before you start launching, let's take a few moments to discuss what a thermal is and how to use it.

A column of warm air rising from the earth's surface is known as a thermal. Such columns are generated by the sun's uneven heating of the earth and they can reach altitudes in excess of 4000 feet. They can have

a diameter of as much as 1000 feet. Thermals tend to originate at fixed locations, such as plowed fields, parking lots, or paved road - anywhere that the temperature of the surface is likely to vary from the temperature of surrounding areas. Thermals are also known to be cyclic and, depending on the conditions, can be generated fairly regularly. It is appears that the time between the hours of 10:00 a.m. and 2:00 p.m., when the sun is at its highest angle, are the most productive. Keep all of this in mind while flying at your particular flying site.

Thermals can achieve very fast rates of climb. Coupling this fact with the potentially large diameter, it is easy to see how one might find it difficult to escape the clutches of a real "boomer."

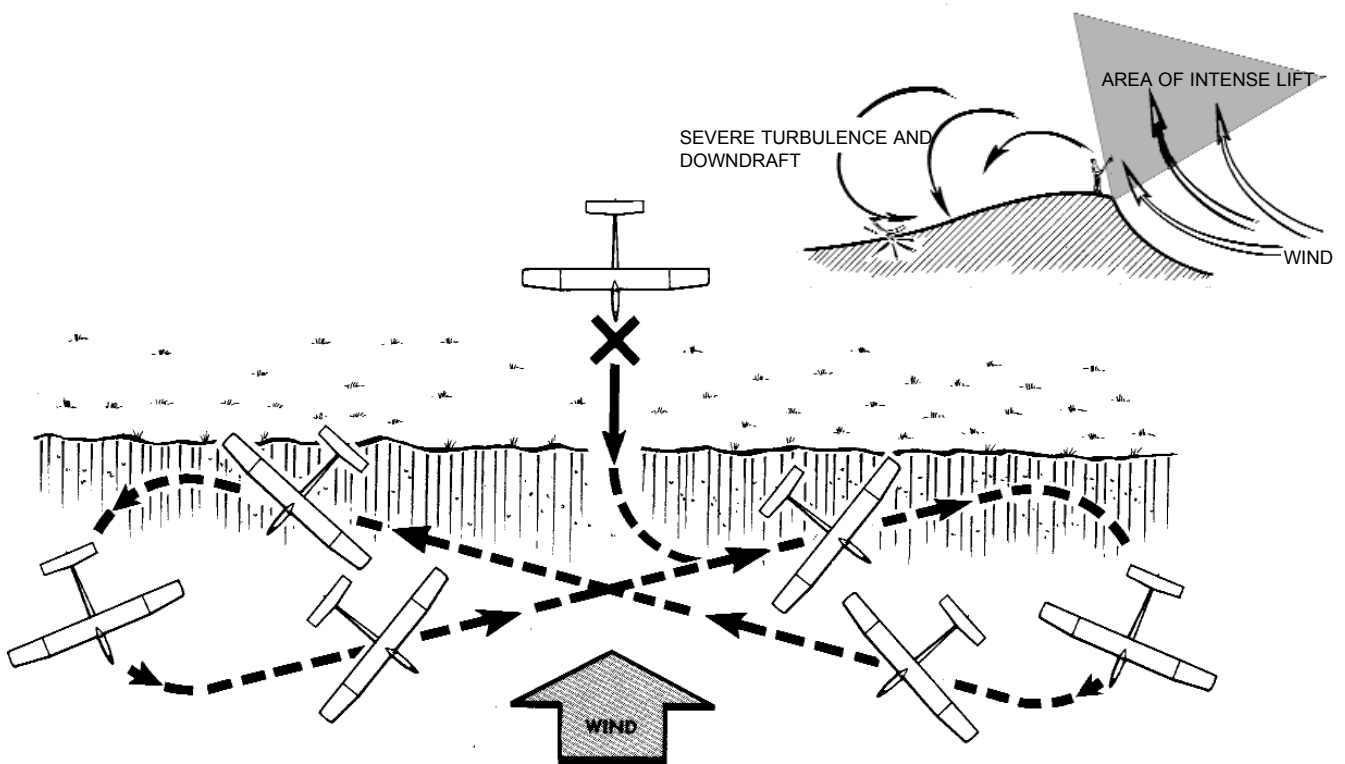
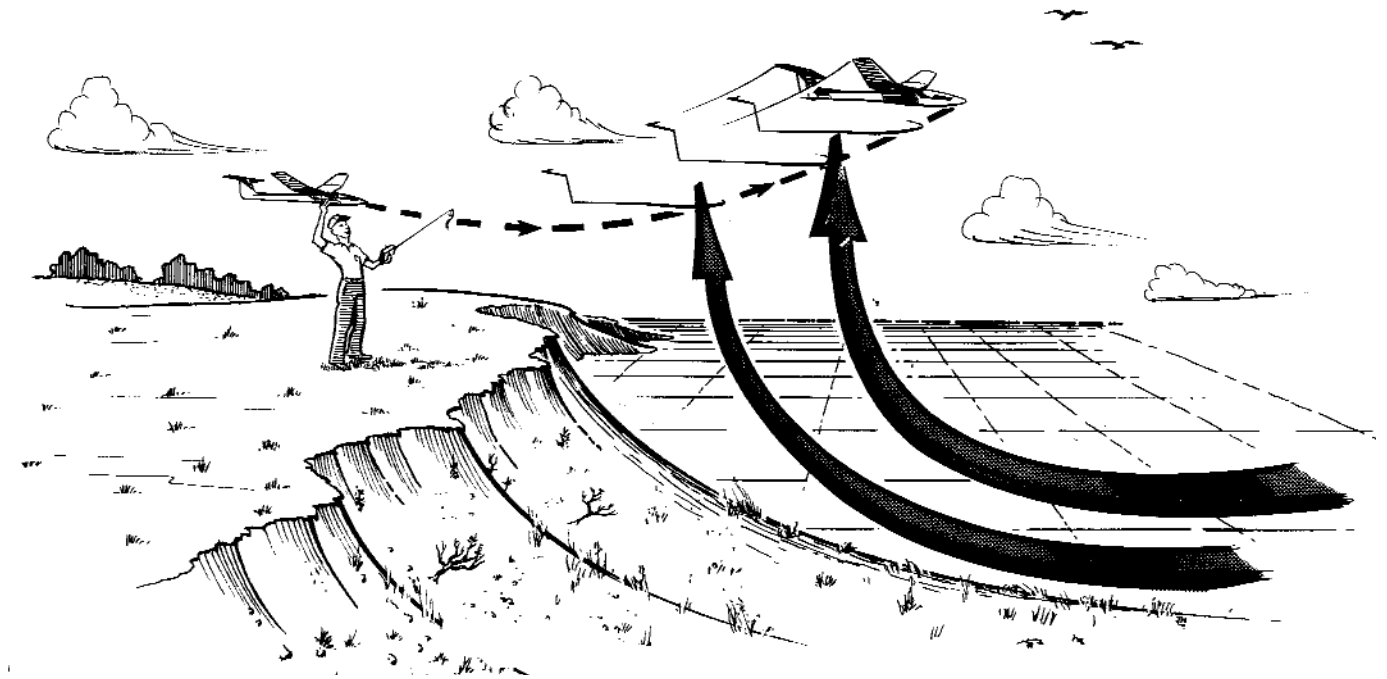
The strategy for thermal flying is basic. Launch your **Gentle Lady ARF** via a high-start, winch, or hand-tow and start searching for a thermal in areas likely to be a good thermal generator. Watch your model for signs of vertical movement or buoyancy. Keep flying in this area, using a series of large flat turns to find where the thermal is the strongest. Once you've located the center, circle tighter to keep your model in the fastest rate of climb. If there is any wind, drift downwind with the thermal, but since you will be climbing and going downwind simultaneously, don't get carried away! With luck and a good battery pack, you can stay up for hours, using new thermals to extend your flight time. When you've had enough, simply point the nose upwind and slightly down and fly out of the thermal.



SLOPE FLYING

Slope soaring is a nice divergence from thermal flying. For a slope to be effective, the wind should, for the most part, blow directly into the face of the slope. Wind velocity is not as critical, but there should be some wind. Also, it is not necessary to be atop Mt. Everest to have slope effect. You can get some pretty good effects from areas that may surprise you, so it pays to try out even a small elevation in your area.

With the wind in your face, throw your model down the slope into the wind. Once it is out into the slope lift, the model will rise and seem to maintain a consistent altitude. Fly back and forth parallel to the face of the slope, always making turns away from the slope face. This will ensure that your model will not be blown behind the slope, where the air is very turbulent and may cause the plane to crash.

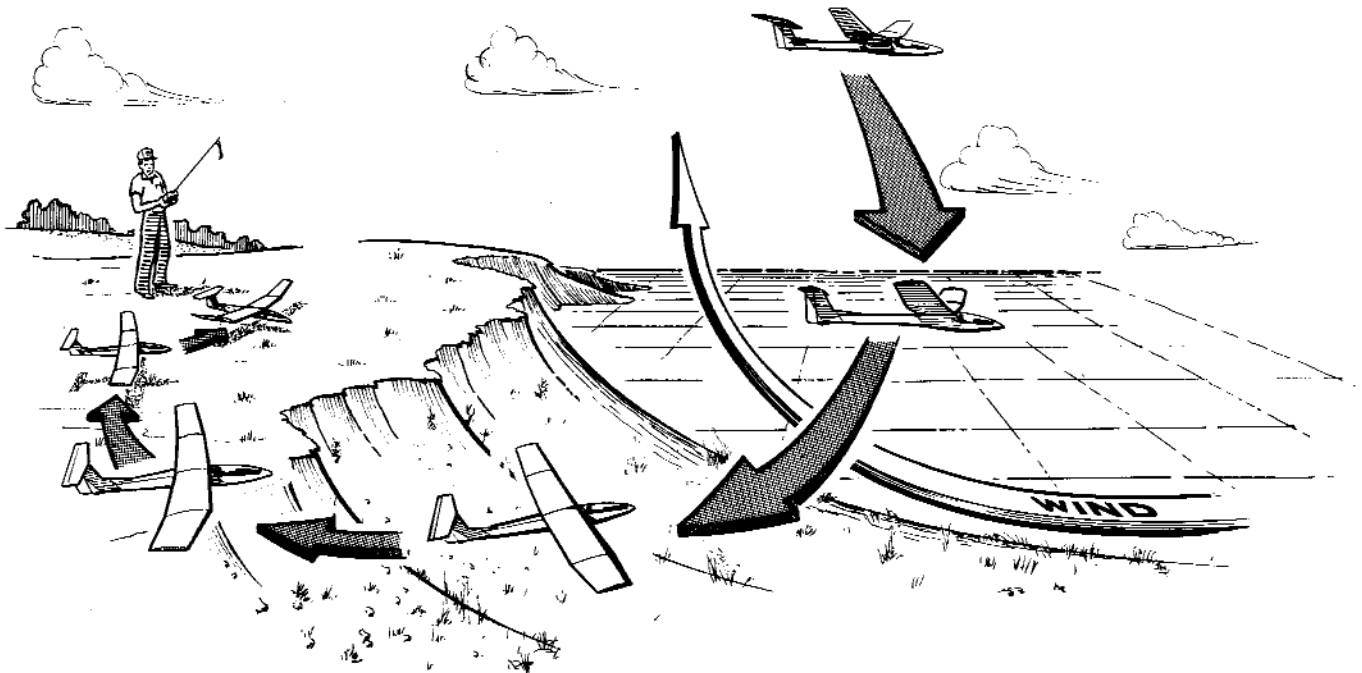


GENERAL FLYING TIPS & LANDINGS

While flying your pattern, try to maintain shall turns. Remember that the wind will tend to blow your plane further downwind. To compensate for the the wind, make upwind (flying into the wind) turns shallow and downwind turns a little steeper. It is more difficult to fly a model when it is downwind and if a mistake is made, it will be more difficult to fly back to the field.

You may wish to add ballast to your model for better wind penetration. If so, add the weight (perhaps starting with 6-8 ounces) at the center of gravity, making sure the weight is securely attached inside the model. Loose ballanst can destroy a modle in rough conditions.

Landings can be a little tricky at first, but with experience can be mastered. Make your approach from either side, keeping the nose of the model parallel to the wind. Bring the model gently up to the slope. When it is hovering 1 to 2 feet from the ground, apply down elevator to slow the model down and land. This is a little different than a normal type of landing, where you let the model float onto the ground.



Will the real EAGLE ARF please stand up?



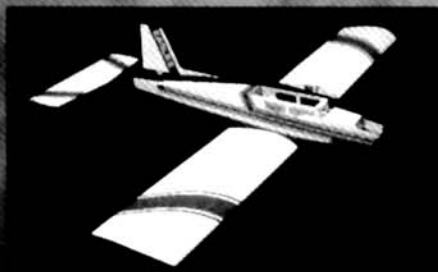
Even we have trouble telling which of these planes is the ARF! After all, it's got the same great features as the Eagle 2 kit - quality construction, first class hardware, and terrific flight characteristics.

A Superb Trainer

Tens of thousands of new pilots have earned their wings on the Goldberg Eagle. Its outstanding design and aerodynamics provide super stability, smooth ground handling and take-offs, enhanced climb-to-glide transitions, and slow-as-a-walk landings. You know just what to expect from an Eagle - and this ARF version doesn't disappoint. It just gets you to the field quicker.

A Top Quality Package

This ARF is in a class by itself. We've included the American-made hardware that



comes in our kit, plus the other top-quality essentials: a pre-assembled Sullivan fuel tank, DuBro wheels, and of course, CGM protective foam rubber and a CGM spinner. There's even a clear windshield, side windows and a model pilot for added realism. What's more, the Eagle ARF is covered in UltraCote®, the tough, non-sag, premium covering material favored by so many top modelers. We even tell you how to customize the trim scheme, so the Eagle you bring to the field can be yours alone.

Easy to Assemble. Easy to Fix

We've done all the hard work, so you can get out to the field sooner. The Eagle ARF's five main parts are carefully constructed of top-quality woods. And with the pre-built pushrods, easy engine-mount system and Goldberg's famed step-by-step instructions, you'll be in the air in no time.

A flight mishap? You'll have plenty of repair options - buildable wing kits, or pre-built replacement parts are both available. And with UltraCote® covering, patching is a breeze.

Now you can have the best of both worlds in a single trainer - the Goldberg Eagle and an ARF. Nesting at your local hobby dealer.

**CARL GOLDBERG
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1-800-6FLYING www.goldbergmodels.com

The Eagle 2 ARF. From Carl Goldberg Models.

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