Eagle 400

WARNING

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 assemble this aircraft 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."

LIMITED WARRANTY

Carl Goldberg Products, Ltd. has inspected and certified the components of this aircraft. The company urges the buyer to perform his own inspection, prior to assembly, and to immediately request a replacement of any parts he believes to be defective for their intended use. The company warrants replacement of any such components, provided the buyer requests such replacement within a period of 90 days 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 acknowledges and understands that it is his responsibility to carefully assemble the finished flying model airplane and to fly it safely. 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.

CARL GOLDBERG PRODUCTS, LTD.

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USING THIS INSTRUCTION MANUAL

Before you begin assembling your **Eagle 400 ARF**, take some time to read through this entire instruction book. It is designed to take you step-by-step through the process and to give you added information on motor and radio selection and set-up, balancing your aircraft, and flying your model. The time you spend will speed the assembly process and help you avoid problems.

PREPARING FOR ASSEMBLY

You will need a work area of approximately 24 x 48" which has been covered to protect it from adhesive, as well as cuts and other damage. Many people cover their work area with a sheet of dry wall (sheet rock) and/or waxed paper to prevent CA Glue and Epoxy from ruining the work surface.

CONSTRUCTION TIPS

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

Using the Parts Identification section, familiarize yourself with the various items included in your kit box.

Do not hesitate to ask questions. Your local hobby dealer and area flyers will most likely be happy to help, as they want you to have a successful flying experience.

You may also receive technical assistance from Carl Goldberg Products, Ltd. via e-mail (questions@carlgoldberg-products.com) or by telephone 1-678-450-0085.

ADHESIVES & GLUING TECHNIQUES

CA adhesives are specially formulated to firmly glue the plywood, hardwood, and balsa used in your model and to withstand the vibration and stresses of high performance flight. However, there are times, such as when you are installing the stabilizer and fin on the fuselage and want more set-up time for careful alignment and positioning, then you should use epoxy. Occasionally, you also will want to use thin CA, which "wicks" into the surrounding areas. Aliphatic resin glue or similar water-based glues can also be used, but they will add to the assembly time because they dry so much more slowly than CA glue. Remember, when ever using any CA, you must be careful to read instructions thoroughly, as you will have only seconds for positioning of parts. Be sure to trial fit parts together before gluing. Also, never use watery THIN type CA glue for gluing plywood and hardwood parts. Thin CA's do not adequately bond these areas.

CAUTION

Some people may experience an allergic reaction when exposed to fumes from CA glue or epoxy. As with paints, thinners, and solvents, it is always important to use glues only where there is adequate ventilation to carry fumes away. A fan is recommended. Also, special care must be taken when using CA, as it will bond skin as well as other surfaces. Before using any CA, carefully read all label precautions. When using CA, protective eye-wear and care in keeping the glue away from the face is highly recommended. If CA does happen to get into the eye, hold lid open and flush with water only. Seek immediate medical attention.

COVERING

The Eagle 400 ARF is covered in a premium polyester film chosen by many of the world's top flyers for its beauty, toughness, and ease of application and repair. It is not uncommon for ARF's to develop a few wrinkles in transit. If this is true of your model, the situation is easily corrected. Before you begin putting the pieces together, run around the edge of the seams first then over the surface of each section with an iron (either specially designed for airplane use or the more cumbersome household iron). Apply the heat (set at about 350° F), following along with a soft cloth and pressing down on the covering as you go around. This will more firmly set the covering adhesive into the wood and keep your aircraft covering tight and smooth in the future. Once you have ironed the seams stay away from them with the heat or the covering will slide when you try to shrink the middle. If this happens the wrinkles will not come out of the covering.

One of the great advantages of polyester film is that it can be applied over itself without causing gas bubbles. This allows you to repair your aircraft, as well as to customize it in a number of ways. If, due to a flight mishap, you get a hole or similar covering damage, simply trim away the ragged edges and then apply a patch, following the directions that come with your covering , which is available at your hobby dealer.

The Eagle 400 covering can be matched using

Oracover White 870

Oracover Midnight Blue 885

ITEMS NEEDED TO COMPLETE THIS AIRCRAFT

- ☐ 1 RADIO GUIDANCE SYSTEM (4 CHANNEL MINIMUM REQUIRED WITH 3 SERVOS)
- ☐ 1 6” AILERON SERVO EXTENSION WIRE
- ☐ 1 ELECTRONIC SPEED CONTROL (ELECTRIC FLY C-20 FROM GREAT PLANES SUGGESTED)
- ☐ 1 NIMH 7C 650AAA BATTERY (2 OR 3 CELL 1500 MAH LI-PO BATTERY SUGGESTED)
- ☐ 2 MINI- PUSHROD CONNECTORS
- ☐ 1 CA ACCELERATOR
- ☐ 1 1 OZ. BOTTLE CA MEDIUM GLUE
- ☐ 1 1/2 OZ. BOTTLE CA THIN GLUE
- ☐ 1 5 MINUET EPOXY
- ☐ 1 1/4” FOAM RUBBER

TOOLS AND SUPPLIES FOR ASSEMBLY.

- ☐ MODELING OR UTILITY KNIFE
- ☐ WORK SURFACE (24" X48")
- ☐ SMALL STANDARD & PHILLIPS SCREW-DRIVERS
- ☐ MASKING TAPE
- ☐ NEEDLE NOSE PLIERS
- ☐ 24” RULER
- ☐ FLEXIBLE STRAIGHT-EDGE
- ☐ 30-60-90° x 6" TRIANGLE
- ☐ SOFT PENCIL
- ☐ A FEW STRAIGHT OR "T" PINS
- ☐ WIRE CUTTER (DYKES)
- ☐ OPTIONAL HEAT GUN/COVERING IRON
- ☐ ACID BRUSH
- ☐ 5 FT. LENGTH OF STRING

Caution:

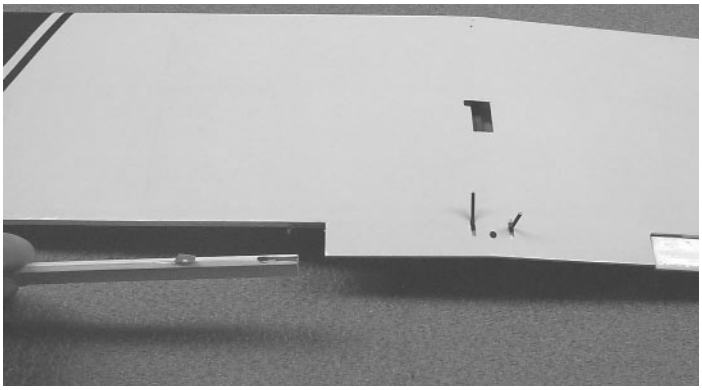
Before starting, carefully go over all high stress areas with an epoxy or wood glue to confirm all areas are well glued.

Wing

Installing Ailerons

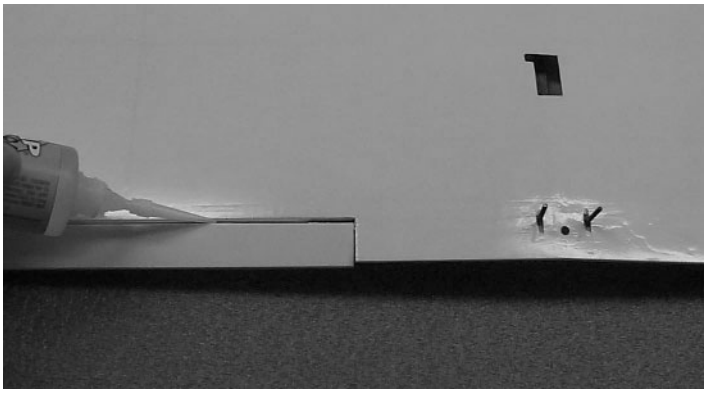
1. ☐ Collect the following parts:

(1) Wing
(2) Ailerons (Left & Right)
(6) Mini CA hinges



1. ☐ Locate the pre-cut aileron hinge slots in both sides of the wing. Using a hobby knife (#11 blade), slide the blade into each slot to make sure it is cleanly cut.

☐ Repeat this process with the ailerons, making sure all hinge slots are clean.

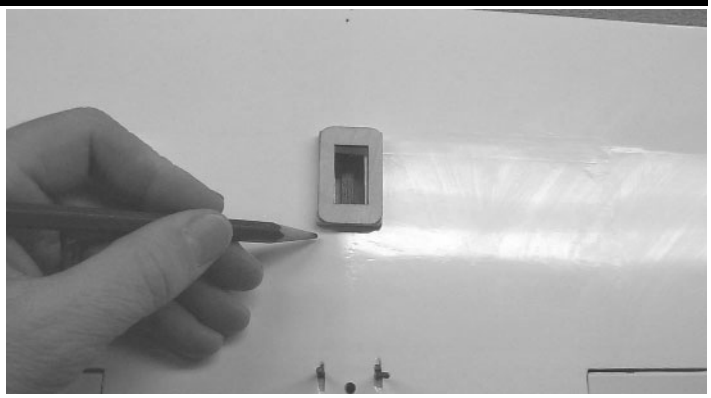


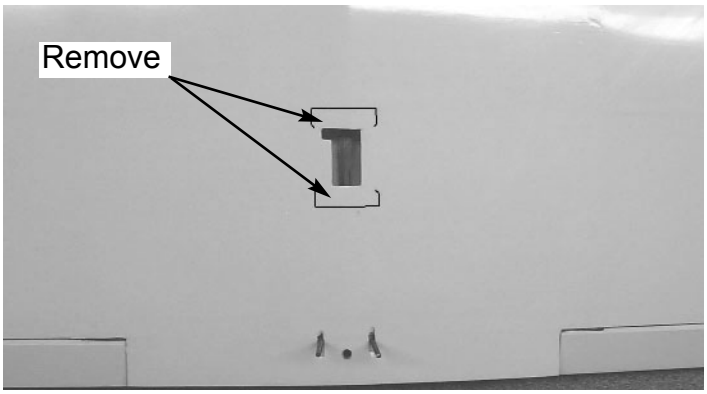
2. ☐ Place a drop of white glue on the aileron torque wire coming out of the wing were the aileron attaches. Then insert the mini CA hinges half way into the wing and the ailerons. (Use a pin inserted into the middle of the hinge to help keep the hinge in the middle.)

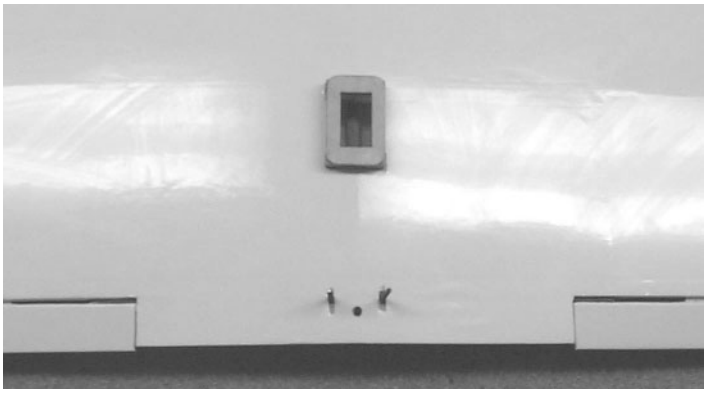
☐ Make sure that the aileron is tight against the wing and even with the wing tip.

☐ Using thin CA glue, place one drop on all three hinges top and bottom.

☐ Repeat these steps for the next aileron.







3. ☐ Locate the pre-assembled aileron servo tray. Hold the tray over the hole in the bottom of the wing.

☐ Mark where the sticks on the bottom of the tray rest on the wing.

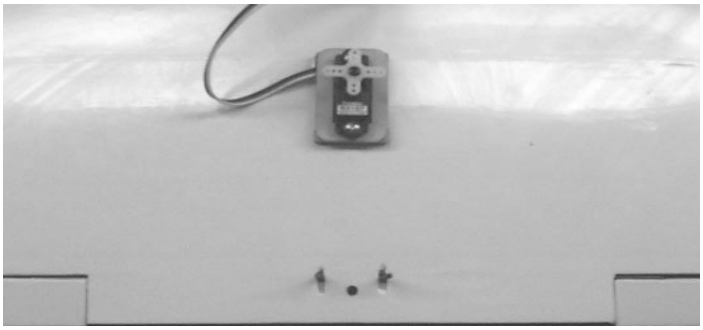
☐ Remove the covering from the wing were the sticks will rest. (Do Not Cut into the Wood!)

☐ Glue the tray into place.

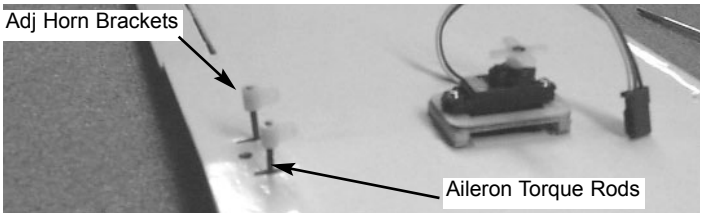
Aileron Servo

1. ☐ Collect the following parts:

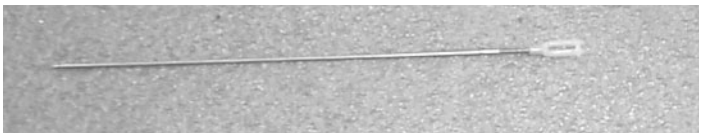
(1) Wing
(1) Servo with hardware
(2) Aileron pushrod
(2) Mini snap Links
(2) Keepers
(2) Adjustable horn brackets



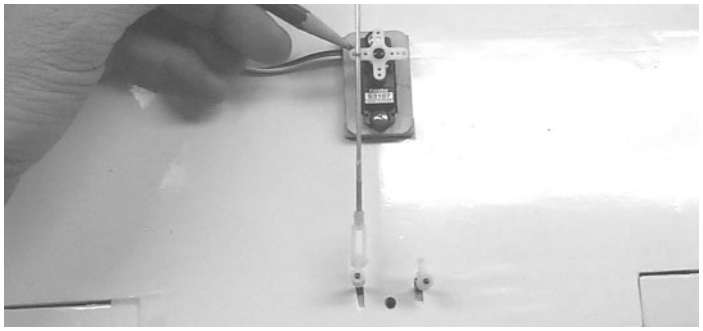
2. ☐ Follow the instructions that came with your radio, and mount the aileron servo.



☐ Thread the adjustable brackets on to each of the threaded rods that are sticking out of the wing.

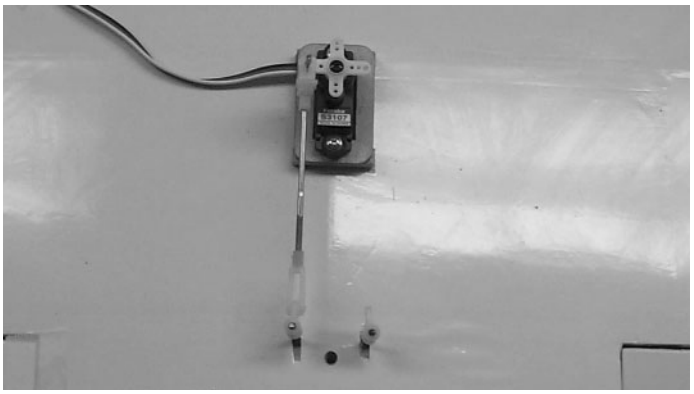


☐ Thread a snap link onto each of the threaded rods.



3. ☐ Open the snap link and mount it to the adjustable horn bracket.

☐ Mark where the pushrod meets the outer hole on your servo.



4. ☐ Bend the push rod wire at the mark and insert the pushrod wire through the bottom of the servo arm. (You may have to drill the servo arm for the wire to fit through).

☐ place a snap-r-keeper onto the wire and clip it to the pushrod.

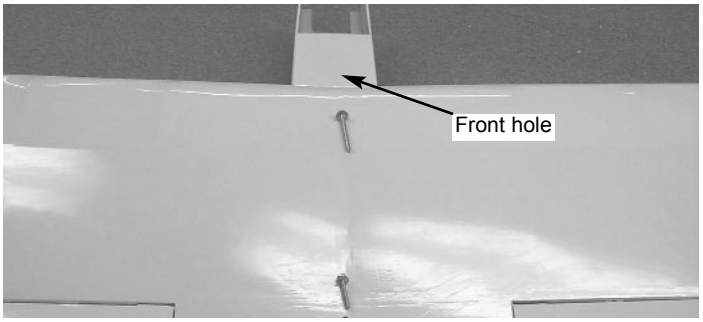
☐ Repeat for the next aileron.

Fuselage

Stabilizer

1. ☐ Collect the following parts:

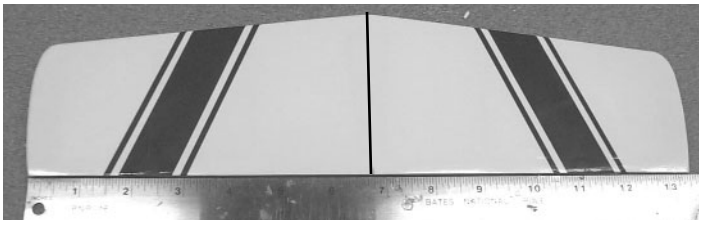
(1) Fuselage
(1) Stabilizer & Elevator
(1) wing with mounting screws and washers



2. ☐ Locate the holes in the center of the wing for the wing bolts. Remove the covering over these holes.

☐ Mount the wing to the fuselage using the long bolt and washer for the front of the wing, and the short bolt and washer for the rear of the wing

☐ Make sure that the wing is perpendicular to the fuselage by measuring from both wing tips to the rear of the fuselage, the measurement should be approximately the same.

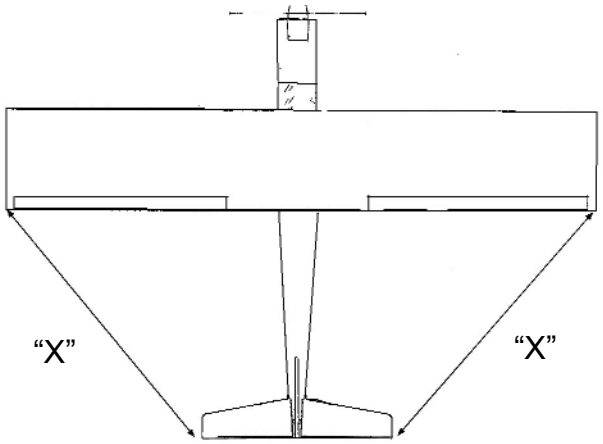


3. ☐ Find the center of the stabilizer, by measuring the length of the trailing edge when the elevator is removed.

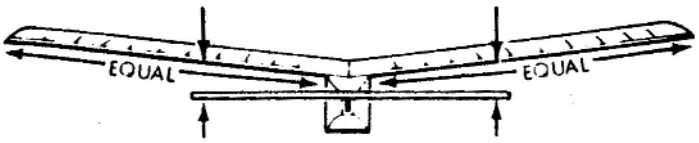
☐ Stand the stabilizer up on its edge and using a right triangle draw a center line up from the trailing edge to the leading edge.

☐ Find the center of the fuselage in front of where the stabilizer sits.

☐ Place the stabilizer on the fuselage using the mark you just made.



4. ☐ Measure from the end of the wing to the tip of the stab. This measurement should be the same for both sides.



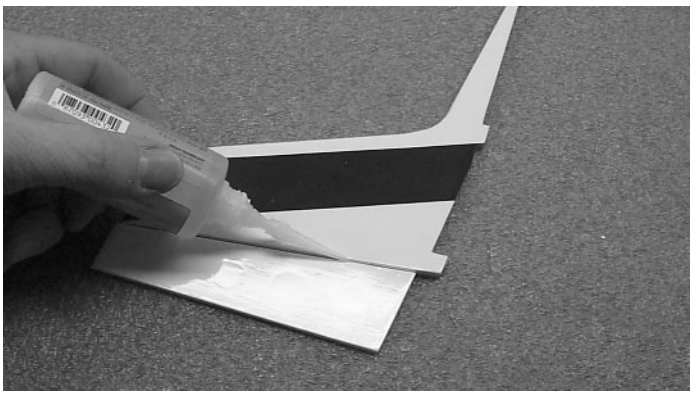
☐ Look down the length of the fuselage and check that the stabilizer is parallel to the wing. If it is not then shim the low side till they are parallel.

☐ When satisfied then glue the stabilizer in place using 5 minuet epoxy. Make sure the stabilizer remains both perpendicular and parallel to the wing and fuselage while the epoxy dries.

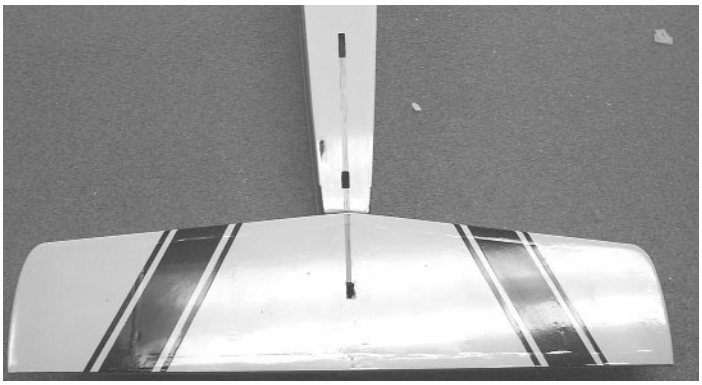
Fin

1. ☐ Collect the following parts:

(1) Fuselage
(1) Fin



2. ☐ Glue the rudder onto the fin using thin CA.

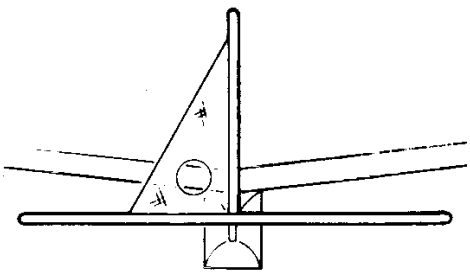


3. ☐ Remove the covering over the holes in the fuselage top and the fin.

☐ Place the fin on the fuselage using the holes you just made.

☐ Mark using a pencil the out line where the fin rest on the fuselage top and on the fin.

☐ Being very careful not to cut the wood, remove the covering where the fin will rest.



4. ☐ Place the fin back onto the fuselage and make sure that there is no gap between the fuselage top and the fin.

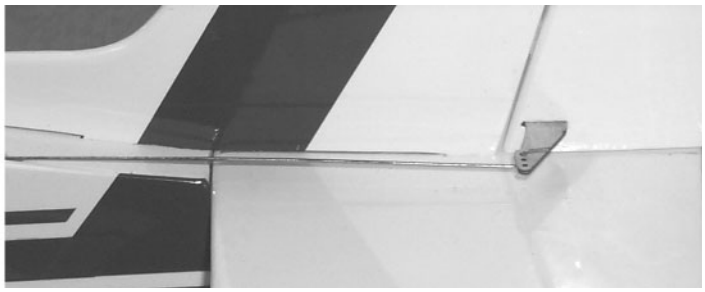
☐ Place a 90 degree triangle on the top of the stabilizer up against the fin.

☐ When you are satisfied with the fit, epoxy the fin to the top of the fuselage and stabilizer.

Rudder Control Horn

1. ☐ Collect the following parts:

(1) Fuselage
(1) .031 x 19” wire
(1) Small wood control arm



2. ☐ Remove the covering over the slot in the bottom of the rudder. (Hint: uncover only the left side of the slot like shown above.)

☐ Make a “Z” bend in one end of the wire .

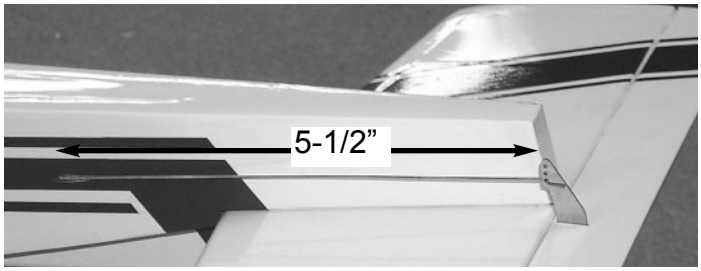
☐ Slide the wire into the hole that is on the top, left side of the fuselage 1-1/2” in front of the stabilizer.

☐ Place the “Z” bend through the middle control horn hole and glue the control horn into the slot in the rudder.

Elevator & Control horn

1. ☐ Collect the following parts:

(1) Fuselage
(1) .031 x 19” wire
(1) Small wood control arm
(1) Elevator



Notice: The plane is up side down in this photo!

2. ☐ Find the slot in the elevator for the control horn.

☐ Find the elevator pushrod exit hole on the side of the fuselage (5-1/2” from the rear) opposite side from the rudder pushrod exit hole.

☐ Insert the elevator with the hinges into the stabilizer so that the slot is on the same side as the elevator pushrod exit hole.

☐ When you are satisfied with the fit, using thin CA glue the elevator into the stabilizer

☐ Make a “Z” bend in one end of the pushrod wire .

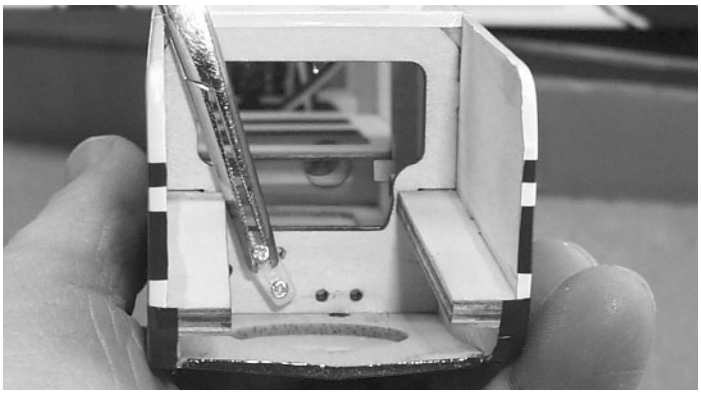
☐ Slide the wire into the elevator pushrod exit hole in the side of the fuselage.

☐ Place the “Z” bend on the control horn and glue the control horn into the slot in the elevator.

Landing Gear

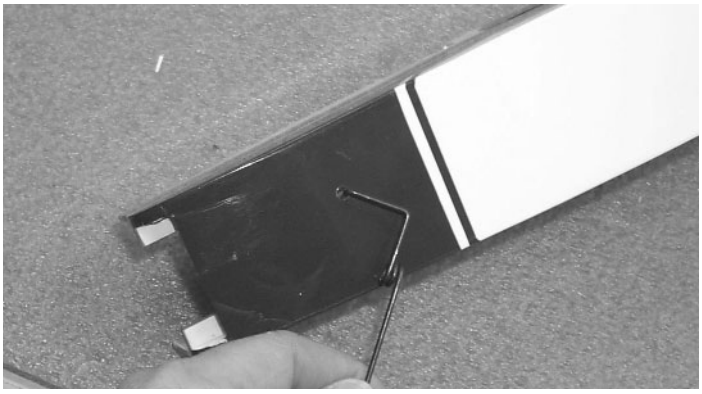
1. ☐ Collect the following parts:

(1) Fuselage
(1) Nose Gear Wire
(2) Nose Gear Straps
(4) #2 x 5/16” Screws
(1) Main Landing Gear Wire
(1) Wood Landing Gear Holder

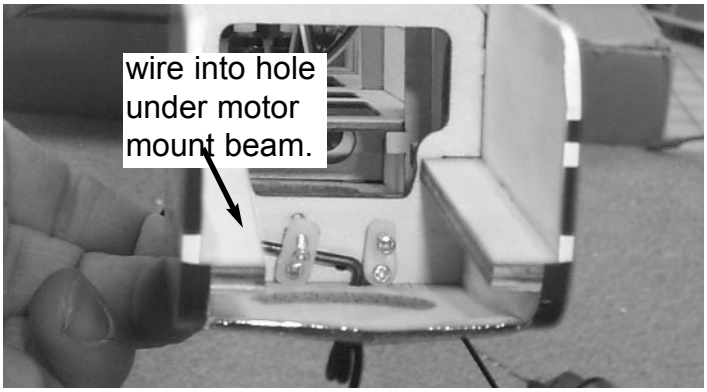


2. ☐ Insert the #2 x 5/16” screws into each of the holes in both nose gear straps .

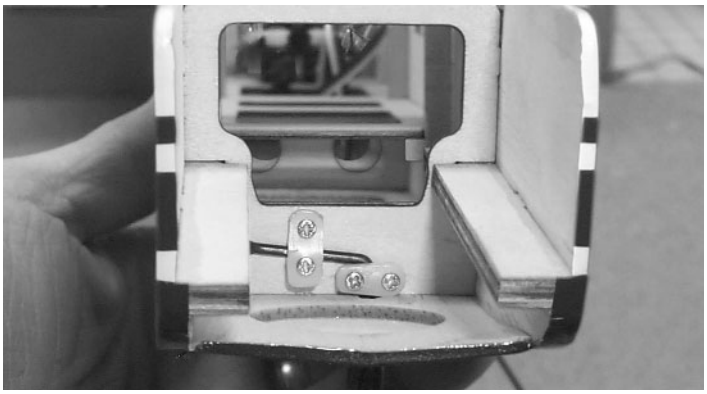
☐ Screw one side of both straps in to the holes in the firewall.



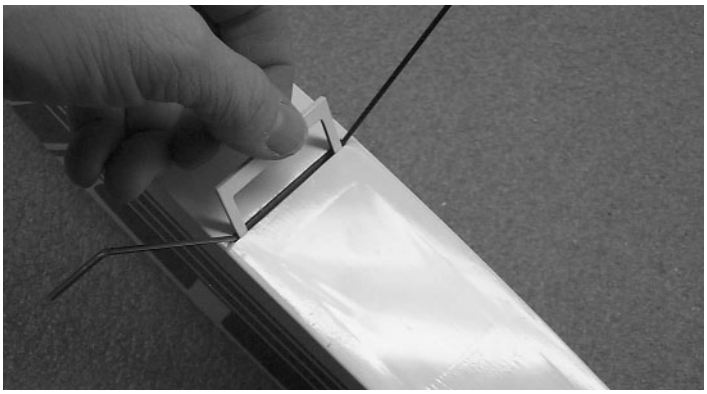
3. ☐ Insert the nose gear wire through the hole in the bottom of the fuselage.



☐ Place the nose gear wire in the center of each strap and insert the end into the far hole under the motor mount beam.



☐ Tighten the remaining screws.



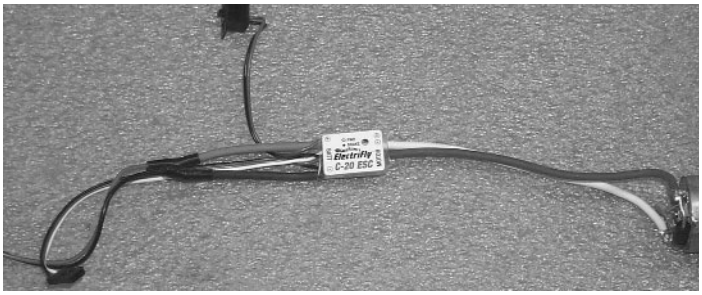
4. ☐ Insert the main landing gear wire into the bottom of the fuselage after cutting a slit in the covering.

☐ Slide the wood holder into the slot and press down till it is even with the bottom of the fuselage. Glue in place.

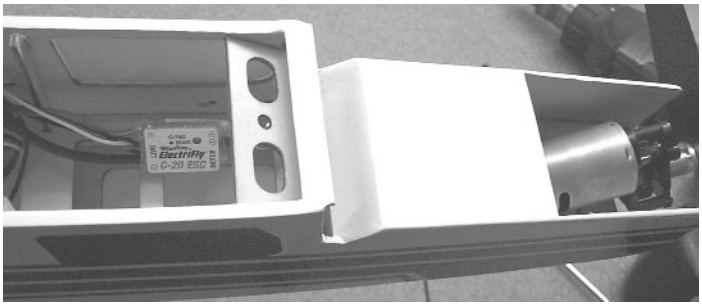
Installing Motor & ESC

1. ☐ Collect the following parts:

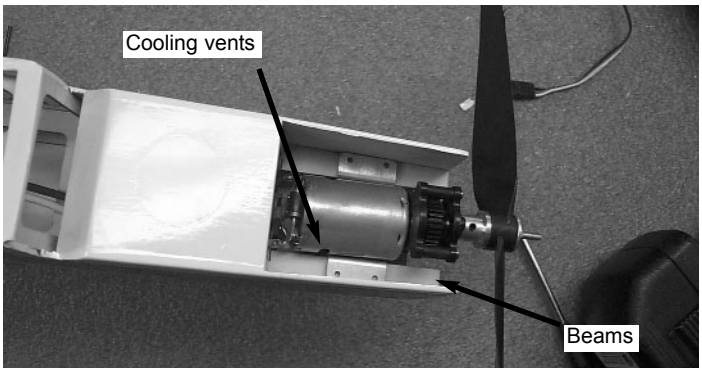
(1) Fuselage
(1) Motor with Gear Drive
(1) Electronic Speed Control (Not Included)
(2) Motor Mount Brackets
(4) #2 x 5/16 Screws



2. ☐ Solder your speed control onto the motor, by following the instructions that came with your speed controller.



☐ Insert the speed control and motor assembly through the front of the fuselage and into the main cabin of the fuselage.



3. ☐ Place one half of the motor mount under the motor.

☐ Slide the motor towards the firewall till the back of the propeller is approximately 1/2" away from the front from the fuselage.

☐ Check to see that the motor cooling vents are not blocked by the bottom motor mount. Slide the mount forward or backwards till the vent is not blocked.

☐ Mark the hole locations on the motor mount beams and drill using a 1/16" bit.

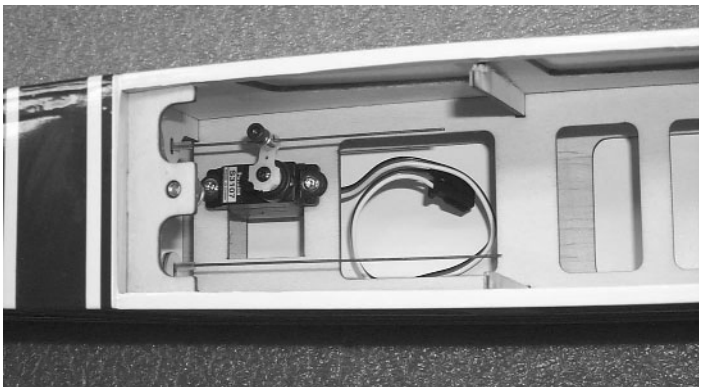
☐ Place the top mount over the motor and screw both mounts and the motor to the beams.

☐ Keep the gear drive "up" and centered.

Radio Installation

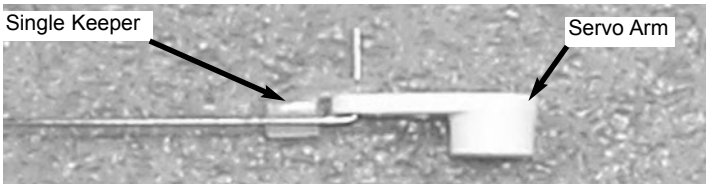
1. ☐ Collect the following parts:

(1) Fuselage
(2) Micro Servos with Hardware (Not Included)
(1) Micro Receiver (Not Included)
(1) 6” Servo Extension wire (Not Included)
(2) Single keeper
OPTIONAL:
(2) Mini- Pushrod Connectors



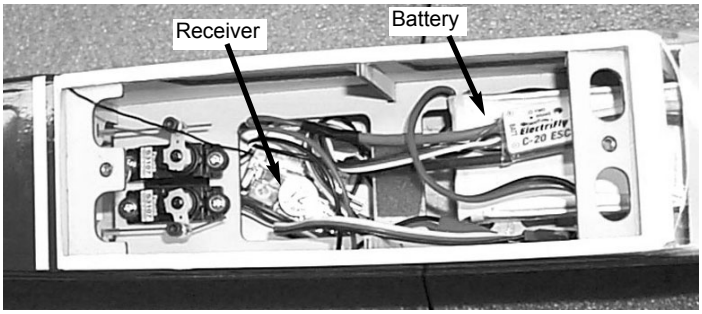
2. ☐ Screw the rudder servo into place using the hardware that came with the servo.

☐ Connect the pushrod wire to the servo arm using optional mini-pushrod connector, or using a felt marker, mark were the wire crosses the servo arm hole.



☐ Bend the pushrod wire 90 degrees at the mark, and slide the pushrod wire through the servo arm hole from the bottom.

☐ Hold the pushrod wire on to the servo arm by using a single keeper.



3. ☐ Install the elevator servo the same way you did the rudder servo.

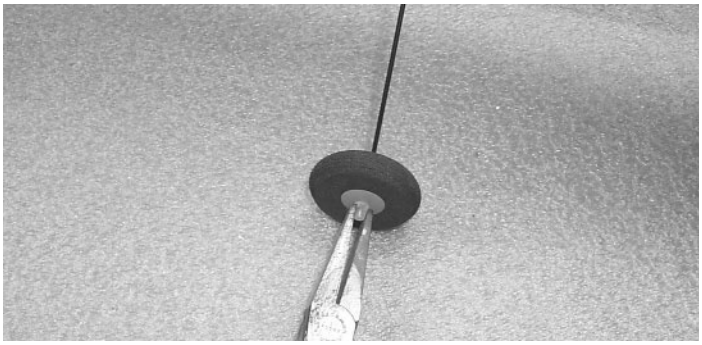
☐ Connect your servos to the receiver and place the receiver in the hole in front of the servos.

☐ Place your battery in front of the receiver. Use velcro or foam to help hold the battery in place.

Installing wheels

1. ☐ Collect the following parts:

(1) Fuselage
(3) Wheels
(3) Plastic wheel retainers



☐ Slide each of the wheels onto the landing gear wire.

☐ Using pliers push the wheel retainers onto the wire.

Balancing

Your model should balance at 2-1/4” to 2-1/2” back from the leading edge of the wing.

Start with the controls movements at the following:

Ailerons	1/4” up and down
Elevator	1/4” up and down
Rudder	1/4” up and down

You might want to change these throws after you are comfortable flying the Eagle 400.