

# DECATHLON ARF



Aerobatic flying just doesn't get any better than this Decathlon ARF. Its clean lines, long tail moment, and superb wing design will reward you with the maneuvers you love - knife edge, split S, lumcevac, torque rolls, snaps, and ground-hugging inverted flight. What's more, we've engineered this ARF to get you into the air with a minimum of fuss. So take a few minutes to carefully read the introductory material and then get to work. You'll soon be out at the field with a classic aerobatic champion!

## **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 ([www.modelaircraft.org](http://www.modelaircraft.org)). 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 one year 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.**

P.O. Box 818 Oakwood GA 30566 Phone #678-450-0085 Fax # 770-532-2163 [www.carlgoldbergproducts.com](http://www.carlgoldbergproducts.com)

## ITEMS NEEDED TO COMPLETE THIS AIRCRAFT

- 1 RADIO GUIDANCE SYSTEM (4 CHANNEL MINIMUM REQUIRED WITH 5 SERVOS)
- 2 12" AILERON SERVO EXTENSION WIRES
- 1 Y-HARNESS
- 1 ENGINE .61-.75 2-CYCLE, .70-.91 4-CYCLE AND MUFFLER
- 1 CA ACCELERATOR
- 1 2 OZ. BOTTLE CA MEDIUM GLUE
- 1 1/2 OZ. BOTTLE CA THIN GLUE
- 1 20 MINUET EPOXY
- 1 1/4" FOAM RUBBER

### OPTIONAL:

- 1 1/6 PILOT FIGURE
- 1 SWITCH HARNESS

**NOTE: The Decathlon ARF covering matches Cub Yellow(#884), Midnight Blue(#885) and White (#870) UltraCote®.**

UltraCote® is a registered trademark of Horizon Hobby Distributors

## TOOLS AND SUPPLIES FOR ASSEMBLY.

- MODELING OR UTILITY KNIFE
- WORK SURFACE (24" X70")
- ELECTRIC DRILL
- 1/16", 3/32", 1/8", 3/16", 5/32", 1/4", 5/64" 7/32" DRILL BITS
- SMALL STANDARD & PHILLIPS SCREW-DRIVERS
- MASKING TAPE
- NEEDLE NOSE PLIERS
- MOTO TOOL
- 24" RULER
- FLEXIBLE STRAIGHT-EDGE
- 30-60-90° x 6" TRIANGLE
- SOFT PENCIL
- A FEW STRAIGHT OR "T" PINS
- ADJUSTABLE WRENCH
- WIRE CUTTER (DYKES)
- OPTIONAL HEAT GUN/COVERING IRON
- ACID BRUSH
- ELECTRICAL TAPE
- SOLDERING IRON, FLUX, SOLDER
- PIECE OF MEDIUM SANDPAPER
- 5 FT. LENGTH OF STRING

# INTRODUCTION

## USING THIS INSTRUCTION MANUAL

Before you begin assembling your **DECATHLON 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 engine 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 70" 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.

As you work, **CHECK OFF EACH STEP** in the box provided, so that you are sure you do not forget anything.

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@carlgoldbergproducts.com](mailto:questions@carlgoldbergproducts.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, whenever 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.

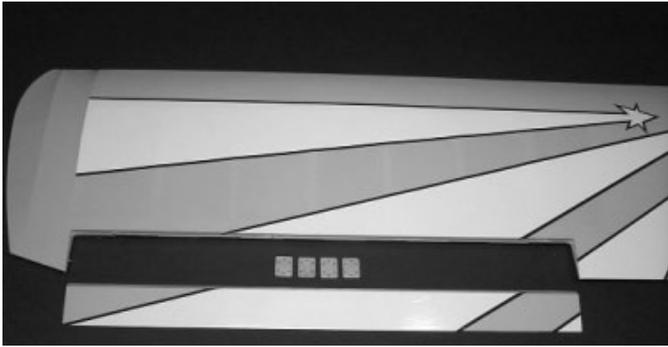
## COVERING

The DECATHLON 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 over the surface of each section with an iron (either specially designed for airplane use or the more cumbersome household iron) or use a modeling heat gun. 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.

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.

# WING ASSEMBLY

## AILERON INSTALLATION

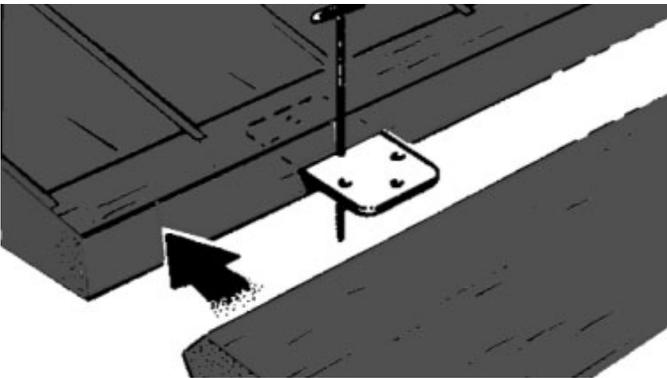


1.  Collect the following parts:

- (1) Left wing
- (1) Right wing
- (1) Left aileron
- (1) Right aileron
- (8) Jet hinge

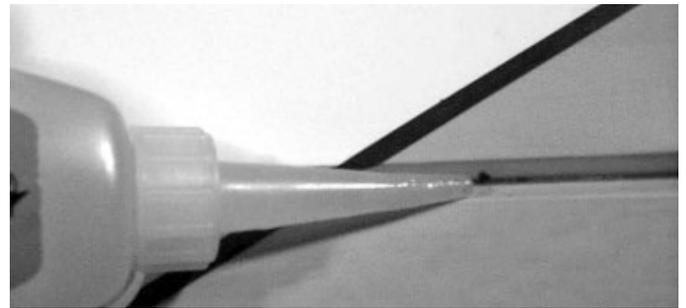


2.  Locate the pre-cut aileron hinge slots in both wing halves. Using a hobby knife (#11 blade), slide the blade into each slot to make sure it is cleanly cut.
  - Repeat this process with the ailerons, making sure all hinge slots are clean.



3.  Place a straight pin into the center of each of the four JET™ hinges.
  - Slide each hinge into the hinge slots on one of the wing halves. The pin will prevent the hinges from going further than halfway into the wing.

4.  Select the aileron for the wing on which you are working and insert the exposed half of each hinge into the aileron slots.
  - Slide the aileron toward the wing until no gap remains between the aileron and the wing.
5.  Carefully check the alignment of the aileron. It should be centered, with about 1/32" on either end.
  - When satisfied with the alignment, remove the straight pins, being sure to keep the aileron tight to the wing. You may wish to apply a few pieces of masking tape to keep the pieces in place.



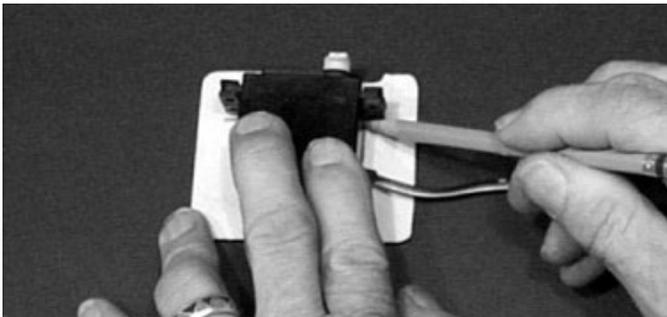
6.  Keeping the aileron and wing in position, apply 3 or 4 drops of thin CA glue to the small exposed area of each hinge.
  - Turn the assembly over and again apply 3 or 4 drops of thin CA glue to the exposed hinge surfaces.
  - Allow to dry for 10 minutes before flexing the aileron.
7.  Repeat the above steps for the other half of the wing.

## AILERON SERVO INSTALLATION

**Note:** The following pictures may not exactly match the hardware you are using. Always check the radio manufacturer's instructions when installing radio equipment.



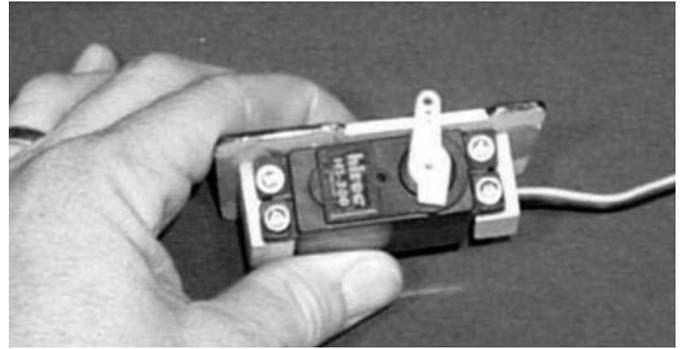
1.  Collect the following items:
  - (1) Aileron servo door
  - (2) 3/8 x 3/4" Servo mounting block
  - (4) Servo mounting screw (supplied with radio)
  - (4) #2 Washer
  - (4) #2 x 3/8" Screw
  - (1) Servo with rubber grommet



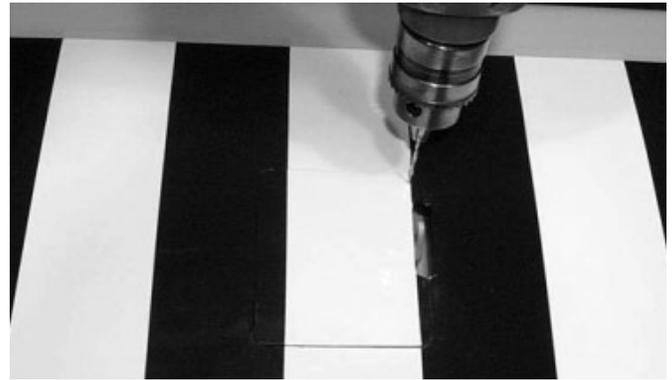
2.  With the servo door upside down on the work surface, place the servo on top of the door with the servo arm post centered vertically and horizontally with the servo door notch.
  - Mark the location of the servo, as shown.



3.  Remove the servo from the door.
  - Spread epoxy on the servo mounting blocks and, making sure the wood grain on both mounting blocks runs vertically, glue the blocks in place along the marks just made.

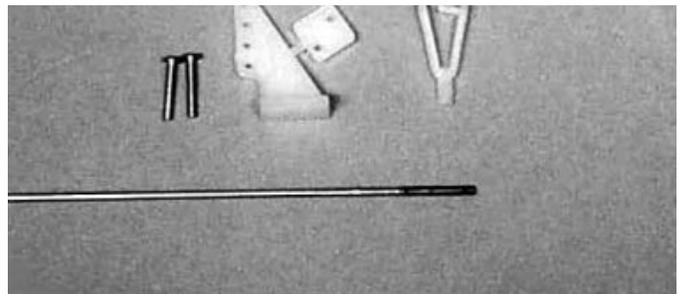


- When the epoxy is dry, drill 1/16" holes into the servo blocks and, using the screws supplied with the radio, mount the servo onto the blocks.

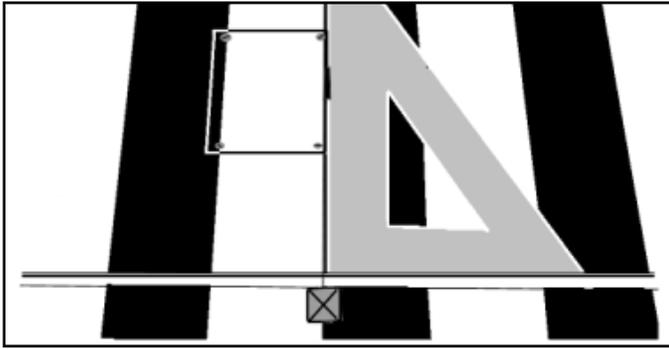


4.  Place the servo door on the wing and drill a 1/16" hole on each corner.
  - Using the #2 x 3/8" screw and #2 washer supplied with this kit, screw the door to the mounting plate.
5.  Repeat the above steps for the second aileron servo.

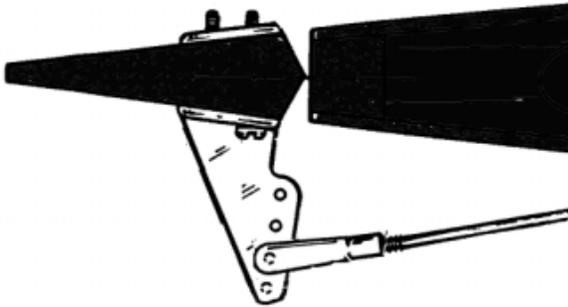
## AILERON CONTROL HORN INSTALLATION



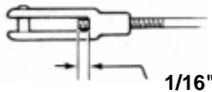
1.  Collect the following items
  - (2) Large control horn with back plate
  - (4) 2-56 x 3/4" screw
  - (2) 1/16 x 7" threaded wire
  - (2) Snap link
  - (1) Nylon snap nut (molded 6-up)



2.  With the aileron servo door in place, make a mark at a 90° degree angle to the trailing edge and in line with the servo arm.



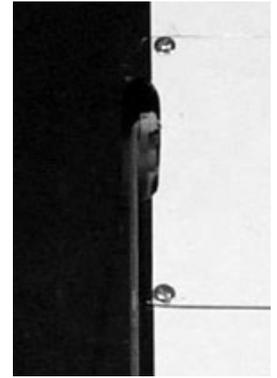
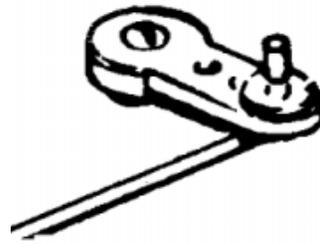
3.  Position the control horn so that the snap link holes are on the mark just made and right next to the hinge line, as shown.
4.  Using a 5/64" drill bit, make a pilot hole in each screw location.
  - Mount the control horn with the 2-56 x 3/4" screws.



5.  Thread the 1/16 x 7" rod onto the snap link. Make sure the rod shows in the center of the snap link.
  - Place the snap link in the second hole from the top on the control horn.

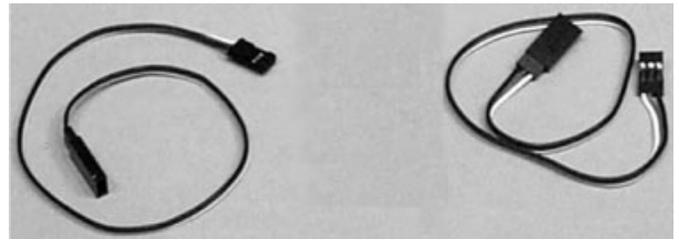


6.  Making sure the aileron is in neutral (level) position, mark where the wire meets the hole on the servo arm.
  - Remove the wire and cut it about 1/2" beyond the mark.



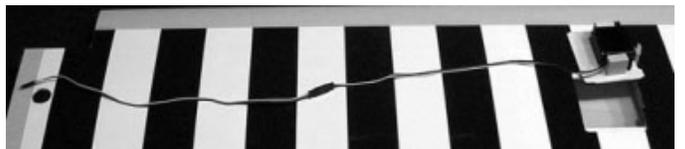
- Make a 90° bend (or a "z" bend, if preferred) in the wire and insert the wire in the servo arm.
- Secure the wire with a snap nut and then put a drop of CA glue™ on the snap nut to make sure it stays in place. **Do not glue the snap nut to the servo arm.**

### SERVO EXTENSION INSTALLATION



1.  Gather the following items:
  - (2) 12" Extension wires
  - (1) Right and left wing halves
2.  Remove the servo door and plug one 12" extension wire into the servo.
  - If the extension is not long enough to reach to the center of the wing, add an additional extension to each extension wire for correct length.

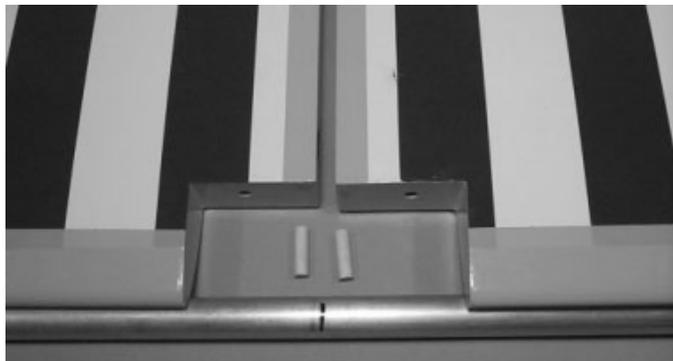
**IMPORTANT!** To ensure that any connections located inside the wing will not come loose, either when the wires are pulled, or during flying, **always tape them securely together with electrical tape.**



3.  Making sure to use the correct servo for the opening, attach the servo wire to the 12" extension and securely tape the connection.
  - Push the extension wire into the tube in the wing until it comes out the hole near the center of the wing.
4.  Grasping the extension in the hole, **SLOWLY** pull until the end of the 12" extension comes out of the hole.

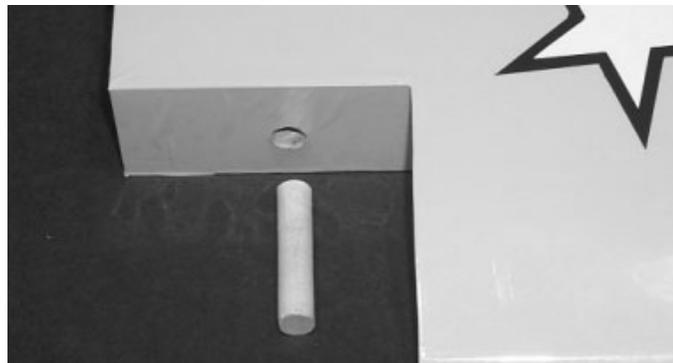
- Tape the extension securely to the wing, so that it will not slide back in while you are working. Screw the servo door onto the wing.
5.  Repeat these steps for the other half of the wing, so that both servo extensions are exiting the holes near the center of the wing.

## MOUNTING WING TO FUSELAGE

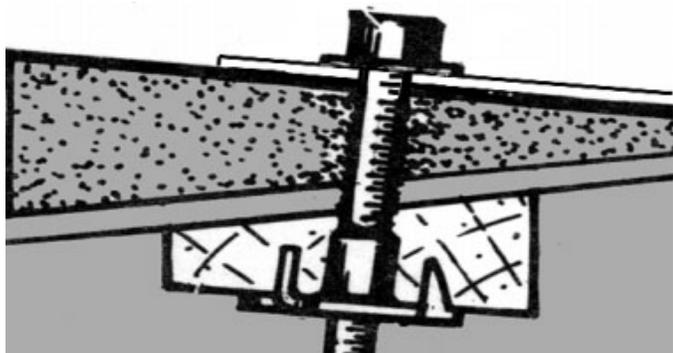


1.  Collect the following items:
- (1) Right wing
  - (1) Left wing
  - (2) 5/16 x 1-1/2" dowel
  - (1) 7/8" x 21-3/4" aluminum tube

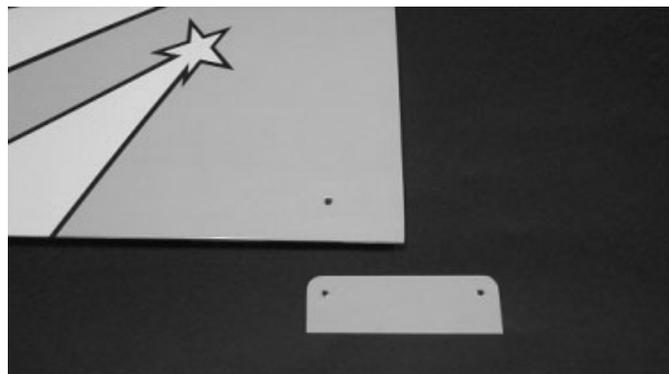
NOTE: If the covering on your wing has loosened in transit, refer to the covering section of the "INTRODUCTION" before continuing.



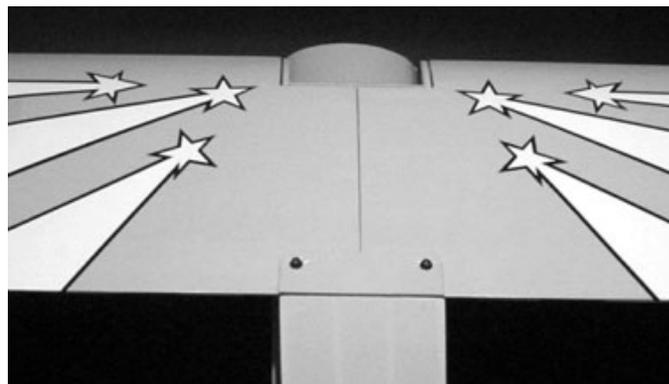
2.  Using epoxy, mount the 5/16 x 1-3/4" dowels into the holes in the notch of the leading edge of the wing. Make sure to leave about 1/2" of dowel sticking out of the front of the wing. You may wish to slightly taper the exposed dowel ends for ease of insertion into the fuse holes.



3.  Insert a 8-32 blind nut into each hole in the wing mounting block, with the teeth pointing upward into the blocks.
- Temporarily insert a 8-32 x 1" screw with a washer into each hole on the other side of the mounting block and draw the blind nut teeth up into the wood.
  - When the blind nuts are firmly seated in the wing mount blocks, remove the screws.

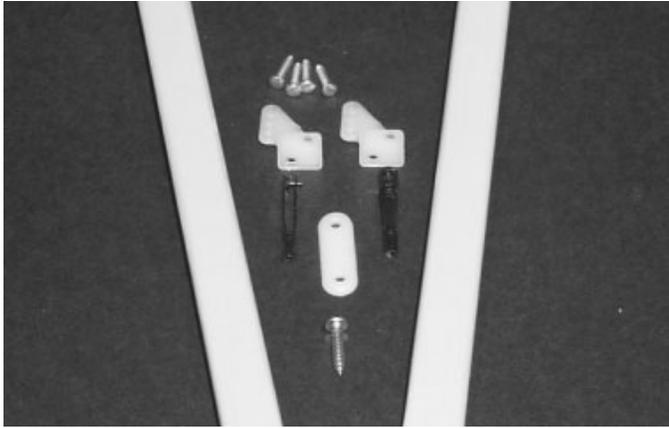


4.  Gently prodding the covering, locate the hole next to the center of the of the wing, close to the trailing edge.
- Carefully remove the covering **OVER THE HOLE** in the wing on both the top and the bottom.
  - Next, locate the holes in the wing bolt plate and again, carefully remove the covering **over the holes**.
  - Do the same to the other wing panel.

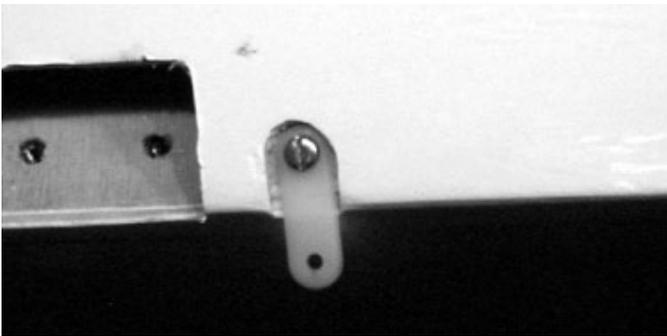


5.  Insert the aluminum tube into one wing half and push the tube into the wing until it stops. Then insert the other wing half onto the tube and slide the wing halves together.
- Tilt the leading edge of the wing down into the fuselage and insert both dowels in the holes that are in the front of the fuselage
  - Insert a 8-32 screw with a washer into each hole in the wing bolt pad and then insert each screw into the holes near the trailing edge of the wing.
  - Tighten both screws down until they are tight.

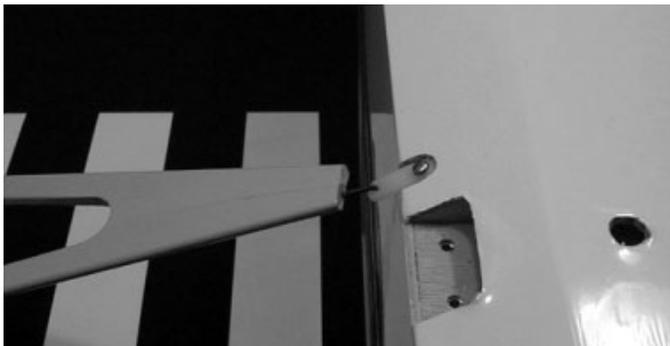
## WING STRUT INSTALLATION



1.  Collect the following parts:
  - (2) Wing strut
  - (1) Wing/fuse assembly
  - (4) Small control horn
  - (8) #2 x 1/2" Pan head screw
  - (4) Metal clevis
  - (2) Nylon straps 7/8" long
  - (2) #4 x 1/2" Pan head screw

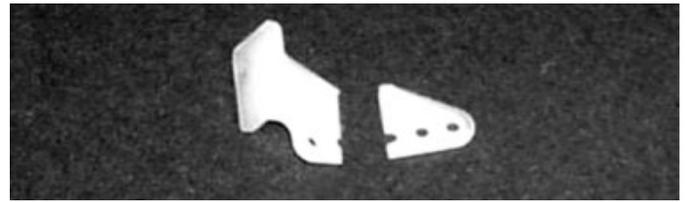


2.  Place the 7/8" long nylon strap into the notch behind the landing gear cut out.
  - Mark the hole location and drill a hole using a 3/32" drill bit.
3.  Mount the strap onto the fuselage using a #4 x 1/2" pan head screw.
  - Repeat for the other side of the fuselage.

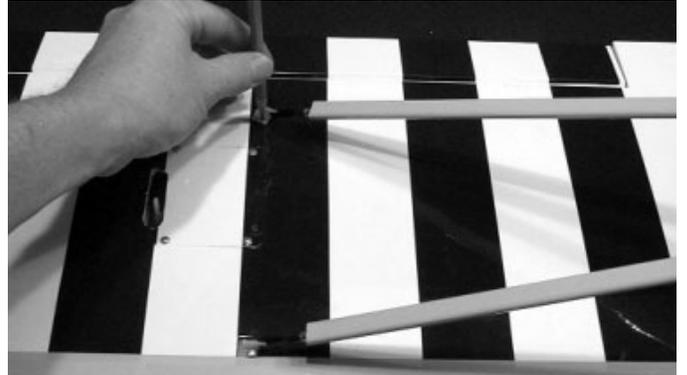


4.  Place the wing strut onto the nylon strap.

**NOTE:**The short front of the strut should be parallel with the front of the wing. In the above photo the short side is in front.



5.  Modify the small control horns by cutting, as shown above.



6.  Thread the metal clevis onto the threaded wires at the outer end of the strut until the wire protrudes into the center of the clevis.
  - Install the modified control horns onto the clevis at the end of the strut.
  - Mark the modified control horn hole locations onto the wing.

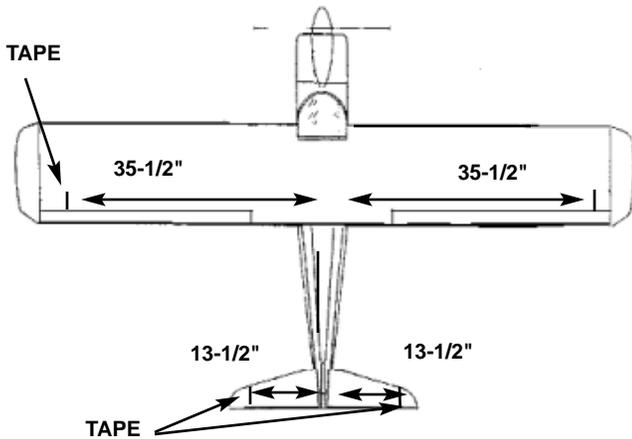
**NOTE:**Keep the front strut parallel to the leading edge of the wing.

7.  Drill the control horn holes, using a 1/16" drill.
  - Screw the modified control horns to the wing, using #2 x 1/2" pan head screws.
  - Repeat these steps for the other strut.
8.  Remove both struts when completed.

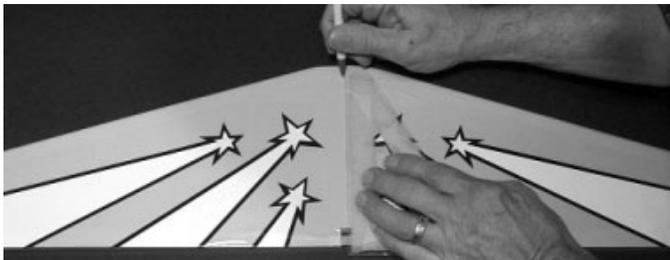
# TAIL ASSEMBLY

## STAB INSTALLATION

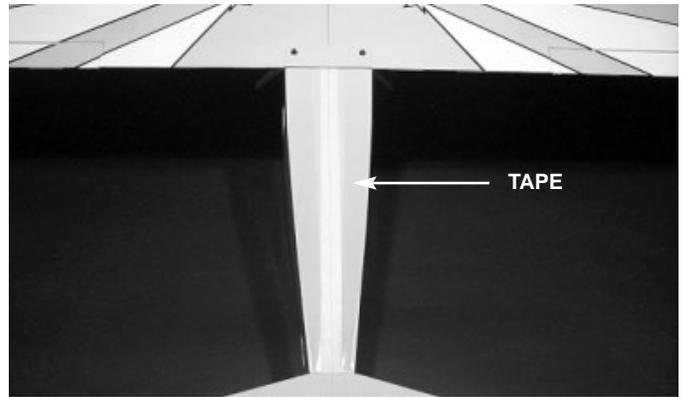
- Collect the following parts:
  - Stabilizer
  - Wing/fuse assembly



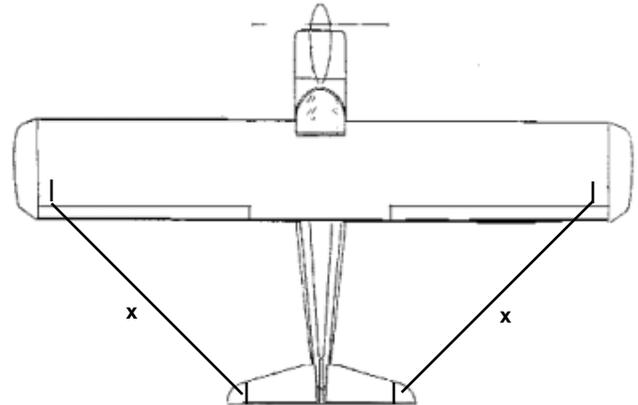
- Place a piece of masking tape on each wing tip, just above the aileron hinge line, as shown above.
  - Measuring out from the center joint of the wing, make a mark on the tape at 35-1/2". Repeat for the other side of the wing.
- Place two strips of masking tape along the edge of the stab, next to the outer stab tips and above the hinge line.
  - Measure the total length of the stab along the hinge line and locate the centerline with a mark.
  - Measure 13-1/2" out from the centerline and make a mark on the masking tape on both the left and the right side of the stabilizer.



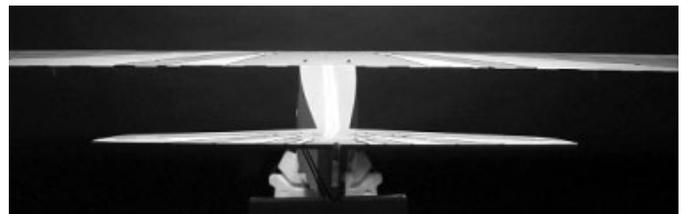
- From the center point on the stab, draw a vertical line up to the top of the stab.
  - Place masking tape on the top of the fuse, just in front of the stab.
  - Measure and mark the centerpoint on the tape.



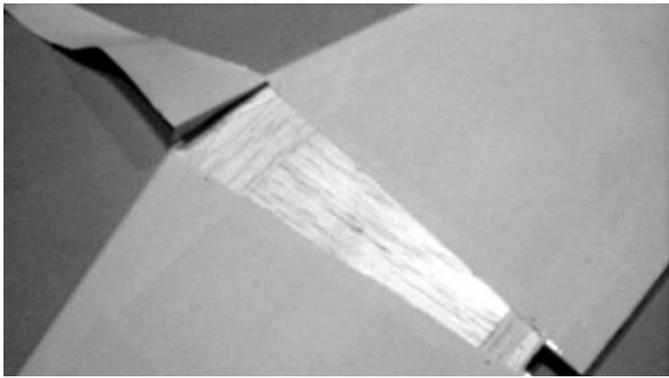
- Mark a centerline on the fuselage, just behind the wing.
- Place a piece of masking tape along the top of the fuselage, as shown, and draw a line from the center mark in front of the stab up to the center mark below the wing.



- Place the stab on the platform with the center of the stab lined up with the centerpoint on the fuse.
  - Measuring from the mark on each wing tip to the mark on the stab tip, make sure the distance "X" on the right side is the same as the distance on the left side.

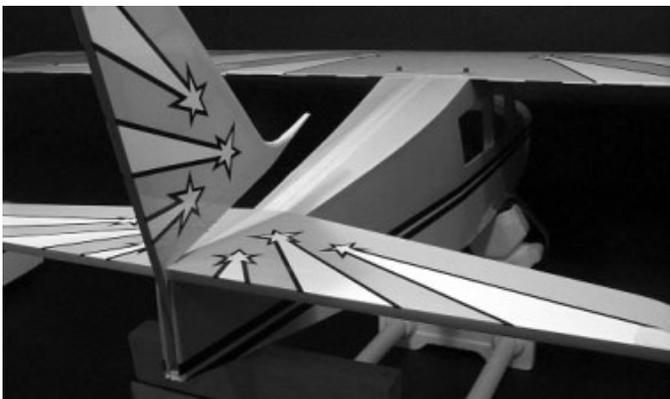


- Check to see that the stab is level (parallel) with the wing. If necessary, insert paper strip shims to achieve proper alignment.

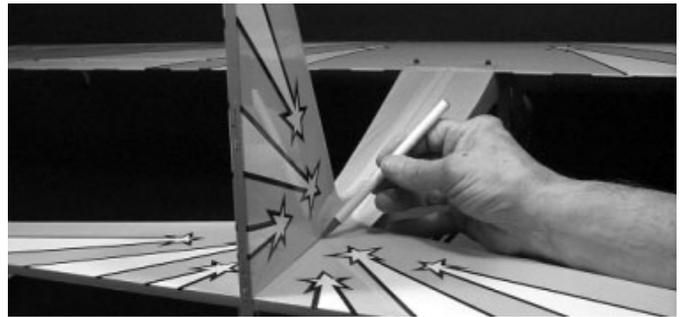


8.  When satisfied with the alignment of the stab, temporarily tape it securely in place.
  - Mark the area on the bottom of the stab where it rests on the fuse.
  - Remove the stab from the fuse and, working 1/4" inside the drawn lines, carefully remove the covering from the bottom of the stab. **BE CAREFUL TO AVOID CUTTING THE WOOD.**
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.

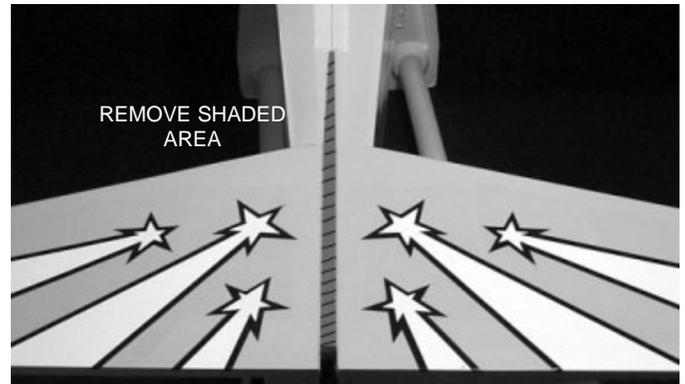
## FIN INSTALLATION



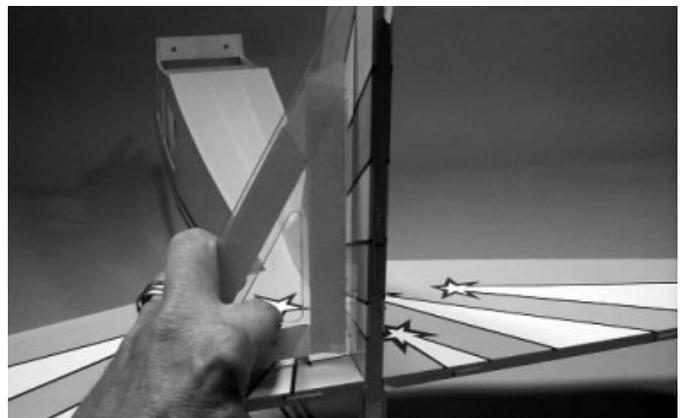
1.  Slide the fin mounting post into the rear of the fuselage.
  - Check the fit. The fin should fit easily into the slot at the rear of the fuselage and the notch in the rear of the stab. The fin should stand upright by itself. Enlarge the notch, if necessary.



4.  When satisfied with the fit, mark the location of the fin on the fuse and stab by drawing a line on both sides of the fin, as shown.

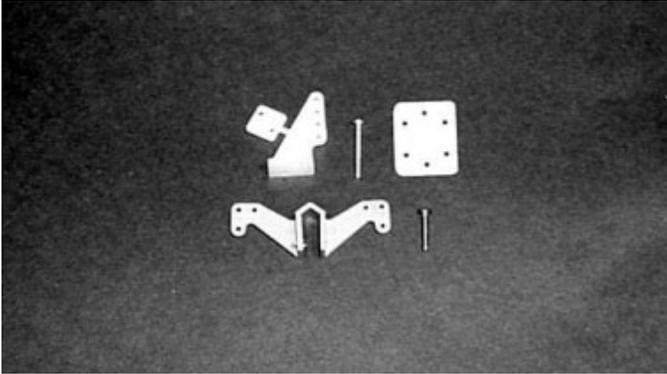


- TAKING CARE NOT TO CUT INTO THE WOOD STRUCTURE UNDERNEATH**, and working inside the drawn lines, carefully remove the covering where the fin mounts on the fuse and stab.



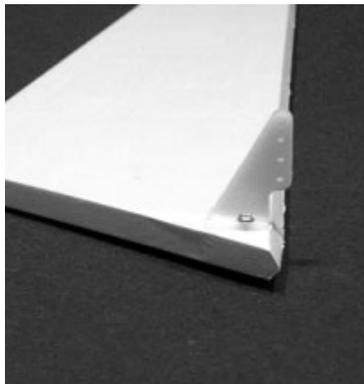
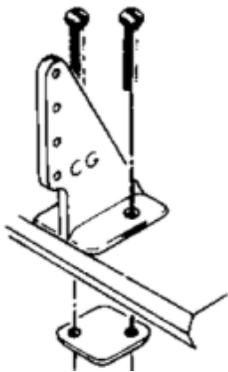
5.  Remount the fin on the fuse and, using a 90° triangle, make sure the fin is perpendicular to the stab.
  - When satisfied with the fit, remove fin and mix up a couple of spoonfuls of epoxy.
  - Apply a **THIN**, even coat of epoxy on the bottom of the fin and along both sides of the fin mounting 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!

## RUDDER & ELEVATOR CONTROL HORN INSTALLATION

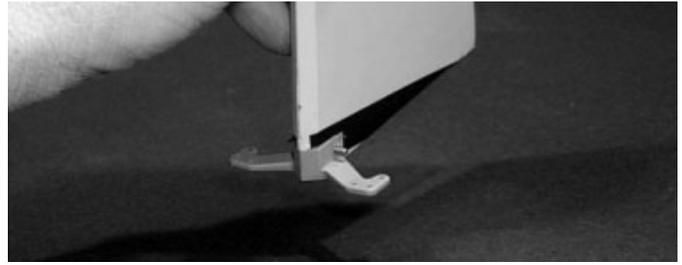


**NOTE:** The double-sided control horn may be found in the tailwheel assembly package.

1.  Collect the following items:
  - (1) Rudder
  - (1) Elevator
  - (2) Control horn
  - (4) 2-56 x 3/4" machine screw
  - (1) Double sided control horn
  - (1) 2-56 x 1/2" philups head screw
2.  Measuring from the fuselage side, make a mark on the elevator hinge line 5/8" from the fuse.



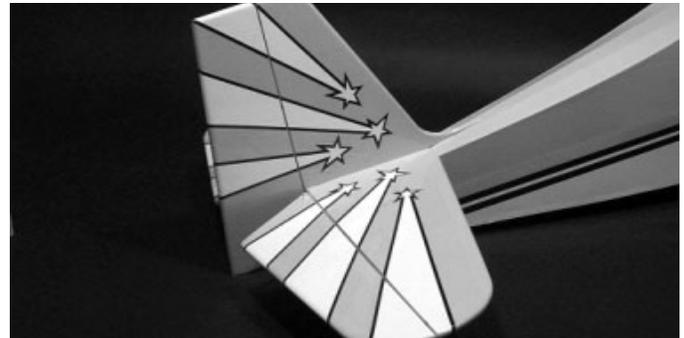
3.  Place the center of the control horn on the mark and the hinge line and mark the location of the screw holes on the elevator.
  - Using a 5/64" drill bit, drill the holes through the elevator.
  - Using two 2-56 x 3/4" screws, screw the control horn and the backplate tightly to the elevator.
  - Repete these steps for the other elevator.



4.  Place the control horn in the rudder notch, as shown. The control horn must be even with the hinge line. When you are satisfied with the fit, mark the location of the screw hole and drill, using a 3/32" bit.
  - Mount the control horn, using the 2-56 x 3/4" phillips head screw.

## RUDDER & ELEVATOR INSTALLATION

1.  Collect the following items.
  - (1) Fuselage/Tail Assembly
  - (2) Elevators
  - (1) Rudder
  - (12) Jet hinges

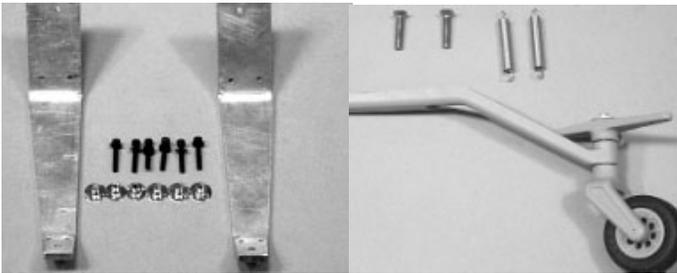


2.  Take four hinges and, as with the aileron hinge installation, insert the hinge into the elevator, using straight pins to ensure the hinge stays centered between the stabilizer and the elevator.
  - Slide the exposed side of the hinge into the slots in the stab until the pins touch both the stab and the elevator.
3.  Remove the pins in each hinge and, keeping the elevator/stab assembly in position, apply 3 or 4 drops of thin CA to each hinge, on both the top and bottom sides of the stab.
  - Allow ten minutes for the CA to cure before flexing the elevator. Then install the second elevator.
4.  When the elevators have cured, install the hinges and mount the rudder, using the same techniques used for the other hinged surfaces.

**NOTE:** Before gluing, make sure the top of the rudder is even with the top of the fin.

# FUSELAGE ASSEMBLY

## LANDING GEAR INSTALLATION



NOTE: The tailwheel might be different than shown in your kit.

1.  Collect the following parts:
  - (2) Landing gear
  - (6) 6-32 x 1/2" Socket Head Screw
  - (6) #6 Washer
  - (6) 6-32 Blind Nut
  - (1) Tail wheel
  - (2) 4-40 x 1/2" Phillips head screw
  - (2) Springs

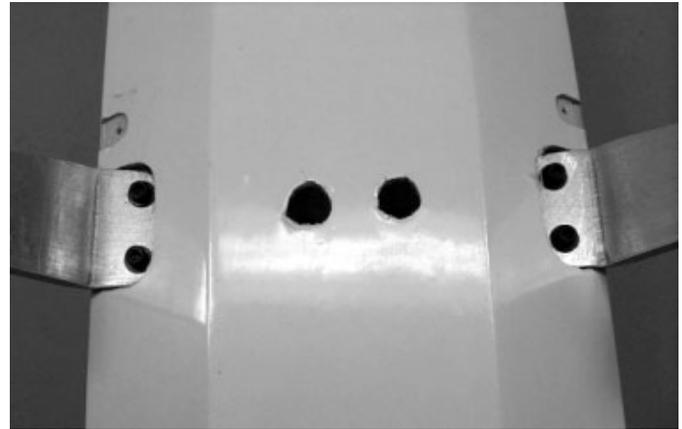


2.  Locate the three holes under the covering on the bottom rear of the fuselage. Remove the covering from all three holes.

NOTE: The hole nearest to the nose of the model is the exit hole for the receiver antenna. The other two holes are for the tailwheel assembly.



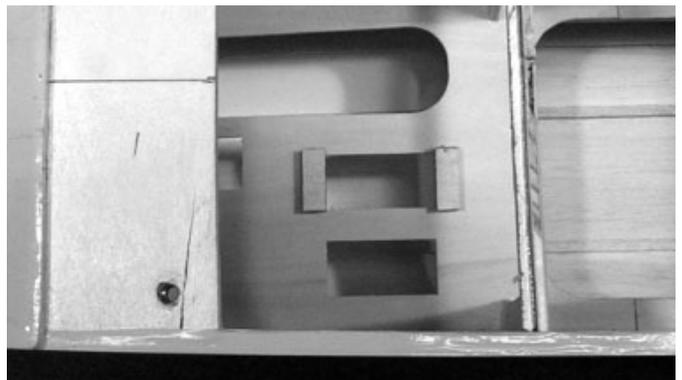
3.  Mount the tailwheel using the 4-40 x 1/2" phillips head screws, as shown above. Hook the springs between the rudder control horn and the tailwheel bellcrank. It may be necessary to open the end of the springs in order to connect them to the control horns and the bellcrank.



4.  Working on one landing gear leg at a time, place the gear in the bottom of the fuselage, as shown.
  - Align the holes in the landing gear and the fuselage.
5.  Insert a 6-32 x 1/2" socket head screw with a washer into each hole
  - With the screws and the washers through the gear, reach inside the fuselage and thread on a 6-32 blind nut.
6.  First place a blindnut on each of the screws, and then tighten down each of them.
  - Repeat for the other side of the landing gear.

## SERVO INSTALLATION

1.  Collect the following items:
  - (2) 1/4 x 3/8 x 1" servo block
  - (3) Radio servo
  - (12) Servo mounting screw



2.  Test fit to make sure the servos fit snugly in the servo tray. Shim or sand, if necessary to achieve correct fit.
3.  Glue the servo blocks at each end of the middle servo hole.

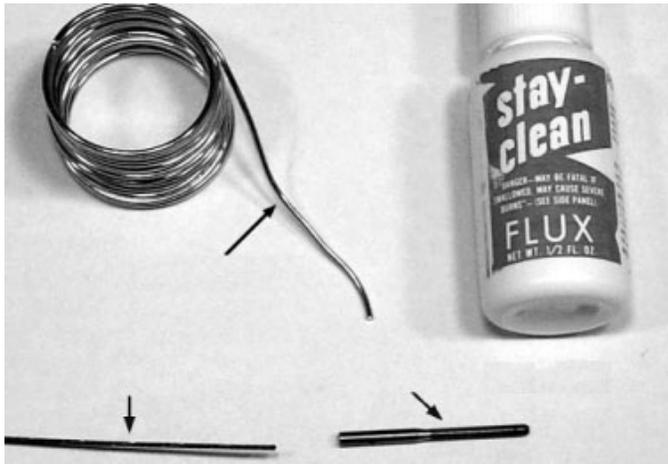


4.  Mount the servos as shown above.

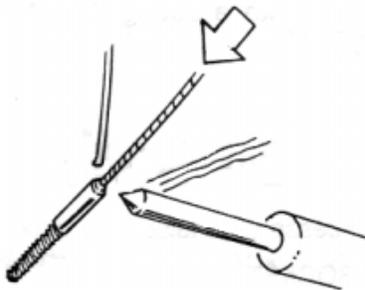
## RUDDER CABLE INSTALLATION

1.  Collect the following items:

- (2) 34" stranded cable
- (4) 1/16 threaded couplers
- (4) Snap-links
- (2) 1/8 x 24" nylon tubing



**Note:** To make mounting the rear servo easier, drill a small hole in the wing mounting block.



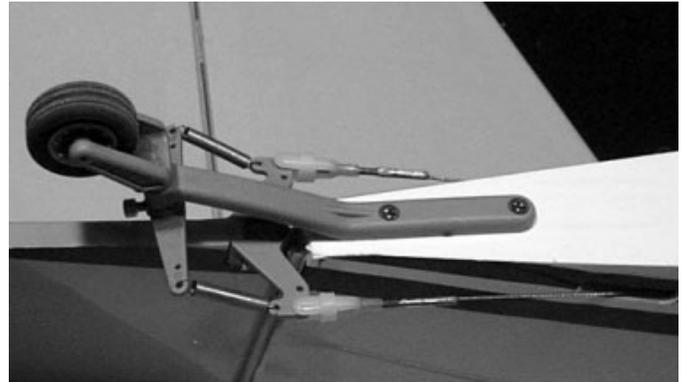
2.  Using flux and silver solder, solder a threaded coupler onto the end of the cable.
3.  From the coupler end, and including the coupler itself, measure 23 inches and mark the cable. Then cut it with a wire cutter.

- Now, making sure the cable is all the way into another threaded coupler, solder it to the cut end. The total length of the finished cable should be 24".
- Repeat the above steps to make a second cable to the same length.
- Wash the soldered coupler/cable assembly with soap and water.

4.  Install the cables by using the guide tubing and threading them through the fuselage, as was done with the elevator pushrod.



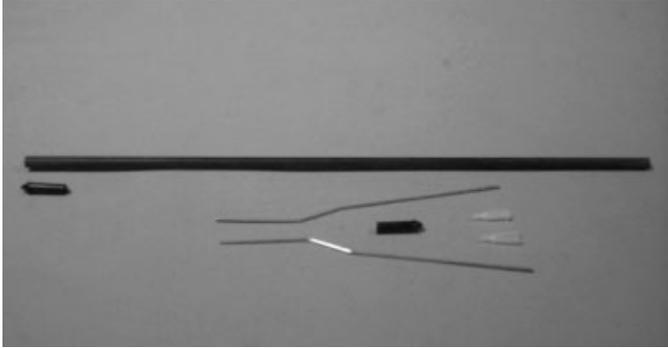
5.  Place a snap link on each end of each cable.



6.  Connect two snap links to the center servo, as shown, and the other two snap links to the rudder control horn.

- When the cables are connected test the tightness by moving the rudder by hand. The rudder should have very little movement without moving the servo.

## ELEVATOR PUSHROD INSTALLATION



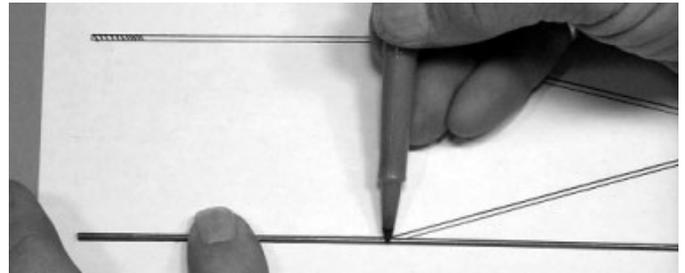
- Collect the following items:
  - (2) .072 x 10" threaded wire
  - (1) .063 x 6-3/8" wire
  - (3) Nylon snap link
  - (1) Single-hole pushrod plug
  - (1) Double-hole pushrod plug
  - (1) 36" fiberglass pushrod tube
  - (2) 1/8 x 24" nylon guide tube
  - (1) Elevator Wire drawing (Last page in booklet)



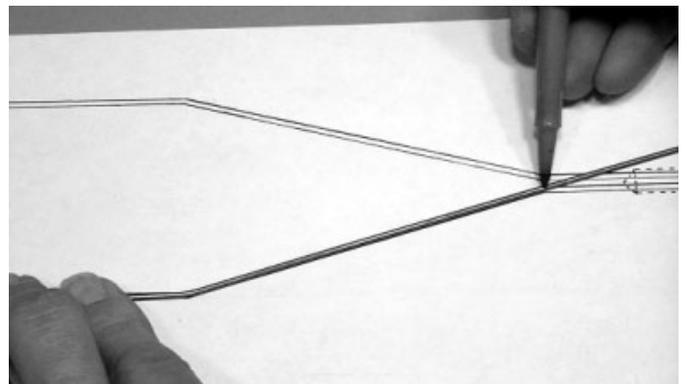
- Using a fine-tooth saw or modeling knife, cut the fiberglass pushrod to a length of 17-3/4." This may be accomplished by rolling the tube under the blade.
- Measure 1" back from one end of the pushrod and drill a 5/64" hole completely through both sides. This hole will hold the elevator wires.
- Measure 1" from the other end of the pushrod and drill a 5/64" hole **HALFWAY THROUGH** the pushrod. **TAKE CARE TO DRILL ONLY THROUGH ONE SIDE.**



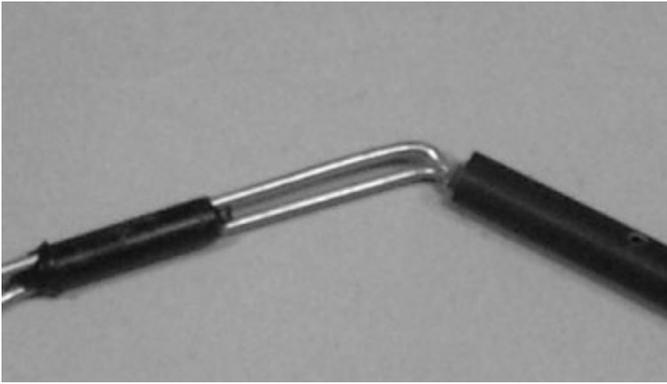
- Using the 5/64" drill, and holding a pushrod plug, as shown, drill out the center of the plug to form a tube. Repeat for the other plug.



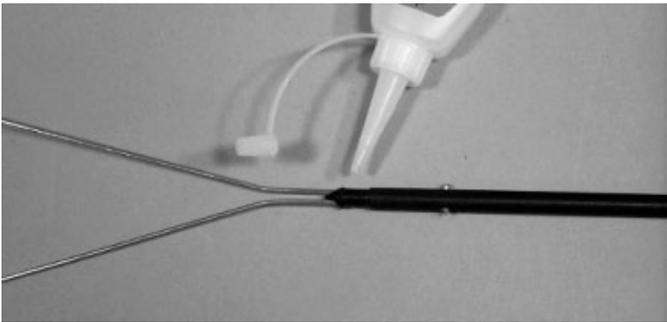
- Using the Elevator Wire Drawing, place a threaded 10" wire over Drawing #1, as shown.
  - Starting at the threaded end, measure back to the first bend and mark the wire. Then, carefully bend the wire to match the drawing.



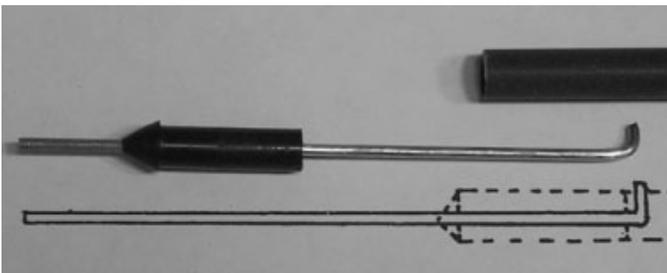
- Mark the second bend and then bend the wire accordingly.
  - Repeat this process for a second threaded wire.



8.  With the pointed end of the plug facing the threaded end of the wire, slide the double-hole plug onto the non-threaded end of the wires.
- Measure 2-3/8" down from the second bend and make a 90° bend. Then, cut the wire after the bend, so that it will fit in the pushrod.



9.  Insert the two wires into the double-hole end of the pushrod until the bent ends slide into the holes.
- Slide the plug as far as it will go down into the pushrod. Then, use medium CA to glue the plug to the pushrod.



10.  Using Drawing #2 as a template, mark the location of the bend on the third threaded wire.
11.  Place the single-hole plug onto the wire and then bend the wire, as shown.
- Referring to the drawing, cut the wire after the bend and slide the end of the wire into the single-hole end of the pushrod.

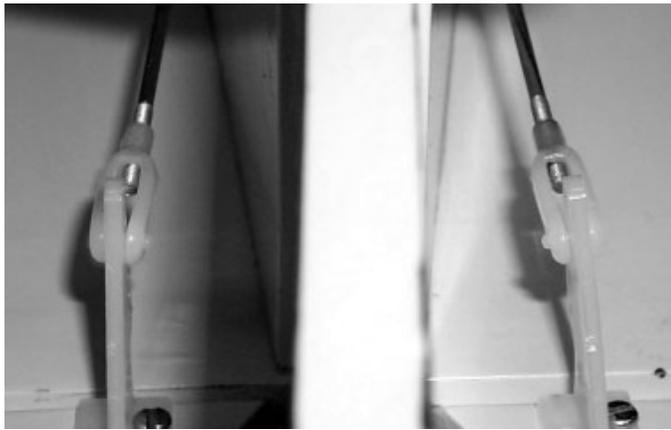
12.  When the bent tip is exiting the hole in the pushrod and the plug tightly meets the pushrod, apply CA glue to the joint.



13.  Insert both of the nylon guide tubes into the exit holes located closest to the stab on each side of the model.



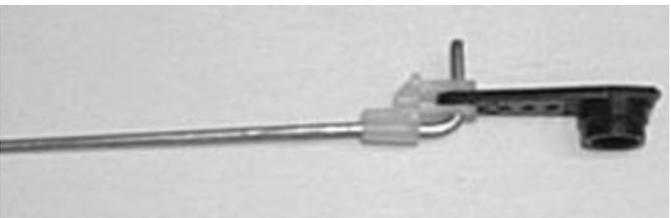
14.  When the nylon tubes have been pushed through the fuselage, insert the two wires from the end of the pushrod into the tubes.
- At this time place snap-r-keeper on the servo end of the pushrod. Push the snap-r-keeper towards the fiberglass pushrod. You will mount the keeper to the servo arm later.
- Then, slide the pushrod back down through the fuselage, allowing the nylon tubes to guide the way until the two ends of the pushrod come out of the exit holes on either side of the airplane.



15.  Once the wire has exited the fuselage, remove the nylon tubing from the end of the wires.

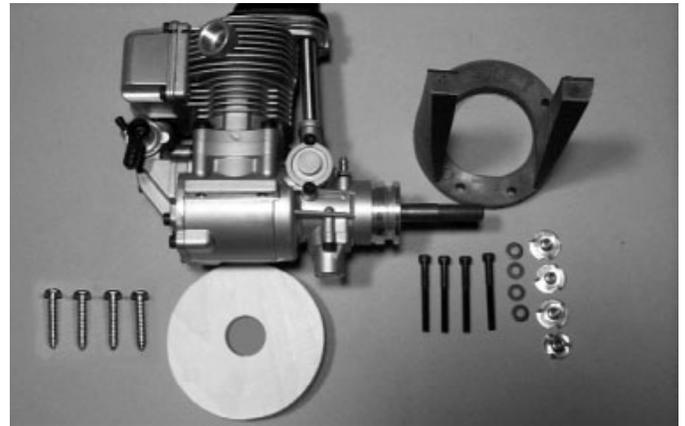


16.  Thread the snap-links onto each of the wires, until the wire shows in the middle of the snap-link.
17.  Connect the snap-link to the second hole of control horn.



18.  While keeping the elevator level with the stab, mark where the pushrod wire meets the servo arm hole.
- Bend the the pushrod up and cut off the end of the wire leaving 1/2" up.
- Slide the snap-r-keeper towards the servo and snap onto the wire and around the servo arm.

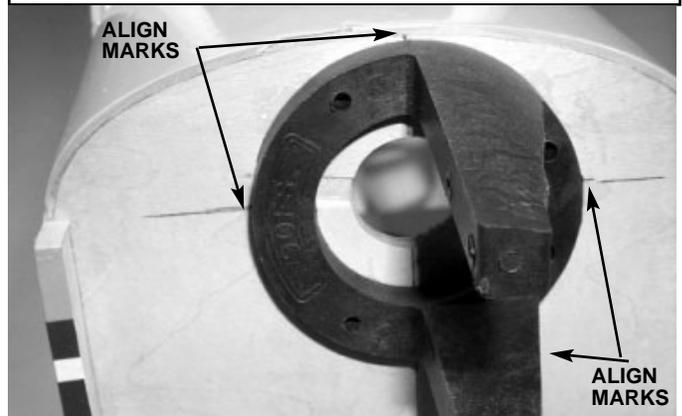
## Motor Mount/Engine Installation



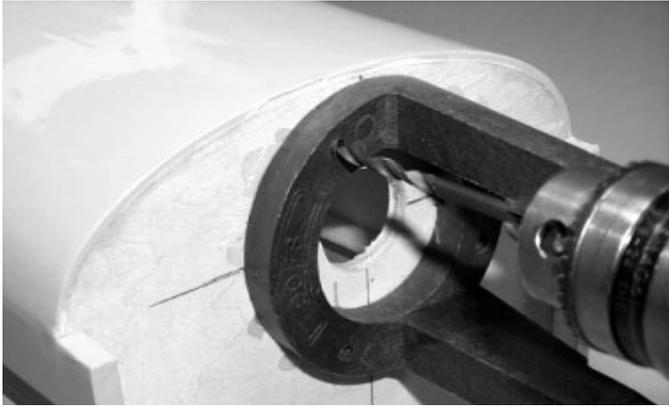
- 1 Collect the following items:

- (1) Engine
- (1) Motor Mount
- (4) 6-32 x 1-1/2" socket head screw
- (4) 6-32 Blind nut
- (4) #6 Washer
- (4) #8 x 1" Pan head screw
- (3) 1/4" x 2-3/4" Plywood spacer

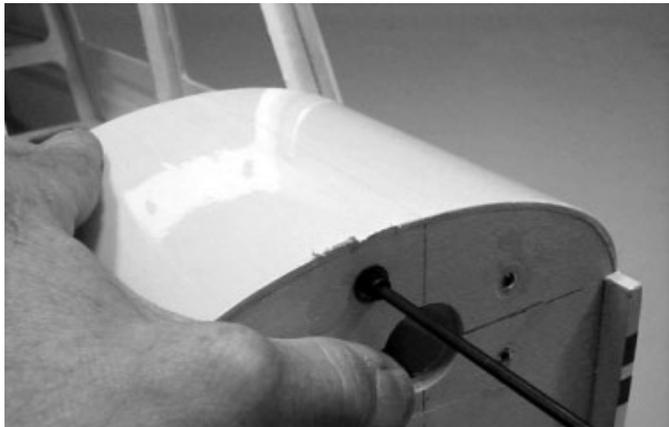
**REMEMBER**, the following pictures and instructions may vary slightly, depending on the equipment you are using.



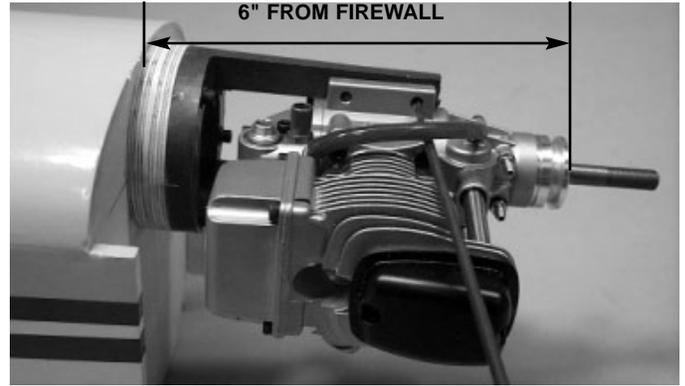
2.  Using the alignment marks, center the motor mount on the firewall and tack glue.



3.  Drill a pilot hole through the motor mount, using a 1/8" drill bit.
- Remove the motor mount and re-drill the holes, using a 5/32" drill bit.



4.  Install the motor mount blind nuts into the the back of the firewall with the 6-32 x 3/4" socket head screw and the #6 washer.
5.  Slide the engine onto the motor mount and measure to see if the rear of the motor mount and the prop drive washer on the engine can be spaced 6" apart. If not, keep adding the 1/4" x 2-1/2 plywood spacers until you have a 6" or greater distance.
6.  On the engine spacers, mark the motor mount hole locations and drill the holes using a 5/32" drill.
  - Using the 6-32 x 1-1/2" socket head screws and a #6 washers, install the motor mount onto the firewall.
  - Check to see that all of the alignment marks on the motor mount match the marks on the firewall.
  - You may wish to put thread lock on the motor mount screws at this time.

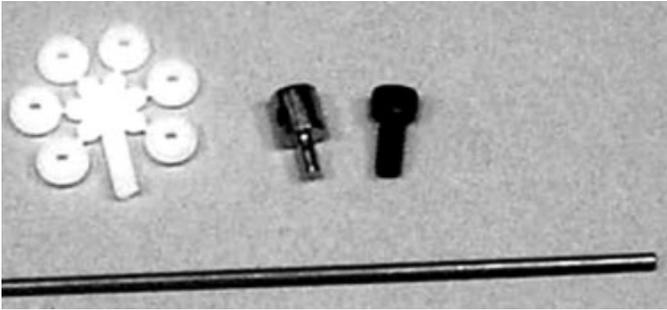


7.  Place the engine on the motor mount, making sure the propeller drive plate is 6" away from the firewall.
  - Using the drill, lightly mark the locations of the engine mounting holes.
  - Set the engine aside and, using the drill, finish drilling the holes.
  - Replace the engine on the motor mount and install the engine.



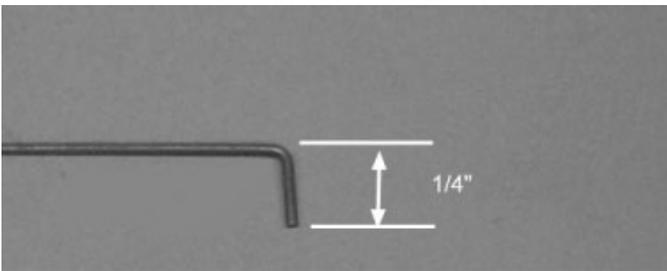
8.  Make a mark on the firewall straight back from the engine throttle. Drill a 1/8" hole at the mark. This hole will be used later for the throttle pushrod.

## THROTTLE PUSHROD INSTALLATION

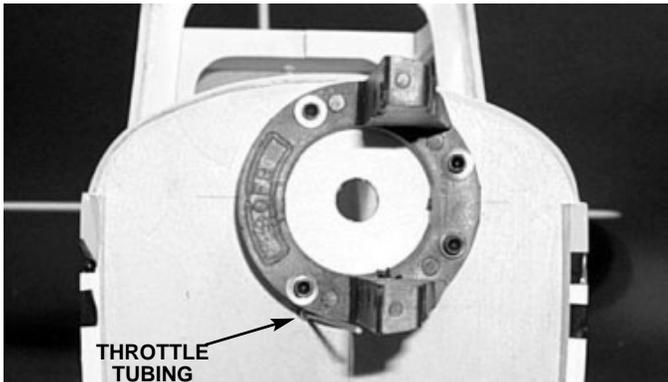


1.  Collect the following items:
  - (1) .063 x 16-3/4" wire
  - (1) 1/8 x 24" nylon guide tubing
  - (1) Snap nut wheel
  - (1) Pushrod connector
  - (1) 1/8" x 3/4" x 3/4" plywood tubing support
  - (1) 4-40 x 1/4" socket head screw

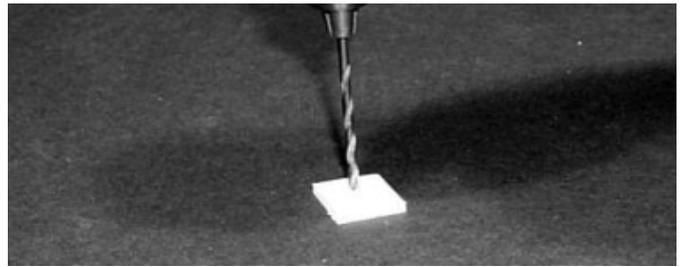
**NOTE:** The following photos and instructions are for mounting a 4-cycle engine. Other engines might require different steps for installations.



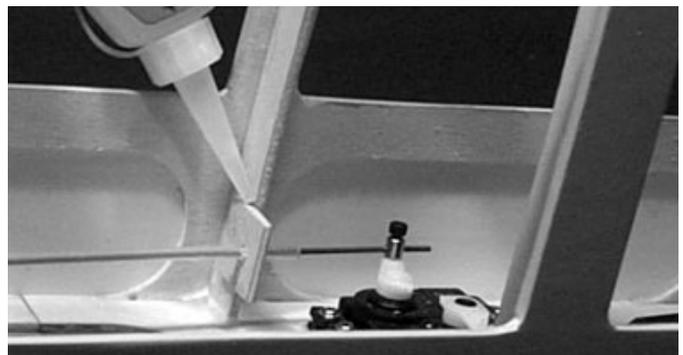
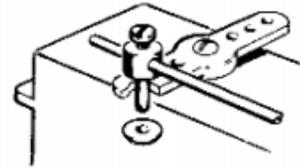
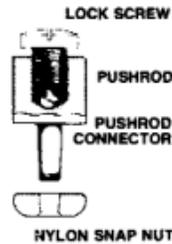
2.  Mark 1/4" from the end of the .063 wire and make a 90° bend.
3.  Cut off a piece of nylon guide tube 12-1/2" long.



4.  Insert the tubing into the hole that you drilled for the throttle tubing. Push the tubing in to the fuselage till only 1/8" is sticking out of the front of the firewall.



5.  Drill a 1/8" hole into the plywood pushrod support.
  - slide the pushrod support on to the end of the tubing.



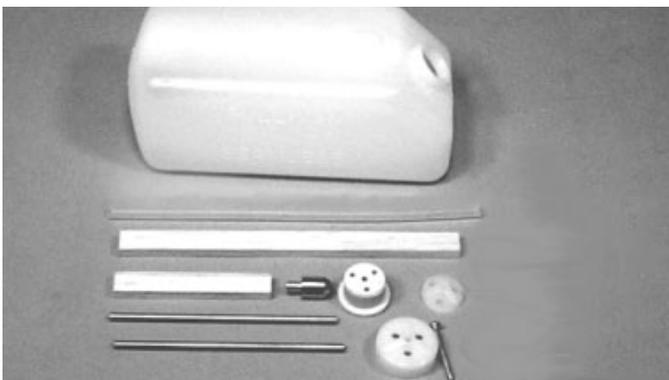
6.  Install a pushrod connector onto the throttle servo arm (see above)
  - Mount the servo arm onto the servo like shown in the photo above.
  - Insert the .063 wire into the tubing starting at the firewall.
7.  Push the wire into the tubing and guide the wire into the hole of the pushrod connector.
  - Check that the pushrod moves without binding. When satisfied then glue support to former.
  - Glue the pushrod tubing to the firewall and the tubing support at this time.

Remove the throttle pushrod wire from the tubing.



8.  Holding the engine in your hand, take the bent end of the .063 wire and place it on the throttle arm of the engine. Then, slide the other end of the wire into the guide tube. Make sure the throttle wire goes through the tubing in the fuselage and over the top of the throttle servo.
  9.  Place the throttle wire through the hole in the pushrod connector on the servo arm.
- NOTE:** It may be necessary to bend the wire to prevent any binding.
10.  Twist the servo until the arm is pointing towards the engine and then push the wire forward until it stops moving.
    - Tighten the setscrew on top of the pushrod connector. Final adjustment can be made later, when the radio is installed.

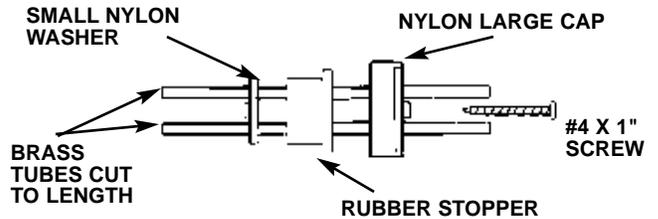
## FUEL TANK INSTALLATION



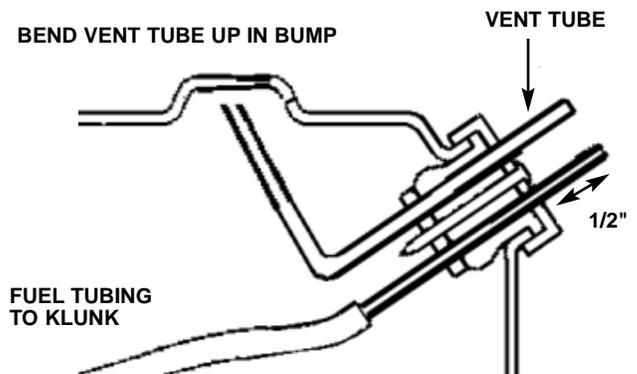
1.  Collect the following items:
  - (1) Fuel tank
  - (2) Brass tube
  - (1) Large nylon cap
  - (1) Small nylon washer
  - (1) Rubber stopper
  - (1) #4 x 1" screw
  - (1) 3/16" x 1/2" x 7-3/4" balsa stop
  - (1) Fuel tank klunk

- (1) 20" fuel tubing
- (1) 6" length of fuel tubing
- (1) foam latex sheet(Not Included)

**CAUTION!** The white neprene stopper and the fuel tubing provided with this kit are **FOR GLOW FUEL ONLY; DO NOT USE THESE PARTS FOR GASOLINE.**

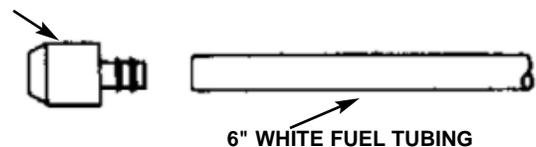


2.  Insert both brass tubes through the wide end of the rubber stopper. Leave 1/2" extending out the front of the tank.
  - Place the small nylon washer on both tubes, as shown, making sure that one of the tubes extends 1" past the washer. This tube will be for the klunk pickup.
  - Cut tube as necessary.

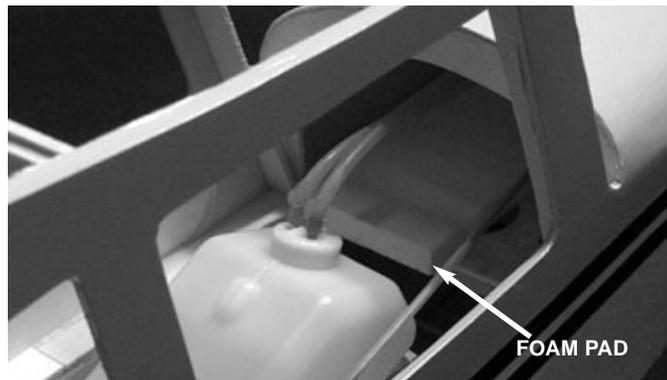
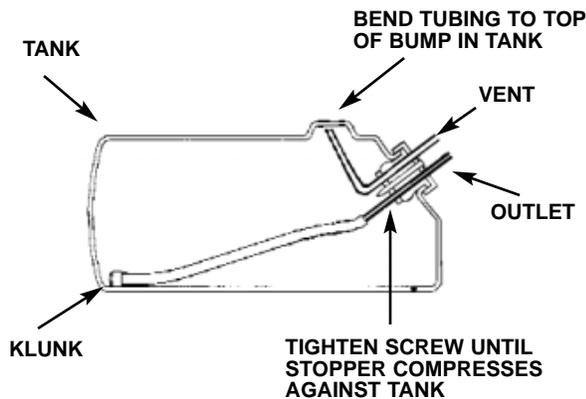


3.  Bend the other tube, at the angle shown, until it nearly reaches to the fuel tank wall. This is the vent/overflow tube.
4.  Insert the stopper assembly into the fuel tank until the vent tube is up inside the "bubble" in the fuel tank wall. Remove the assembly and trim the vent tube, if necessary.

FUEL TANK KLUNK

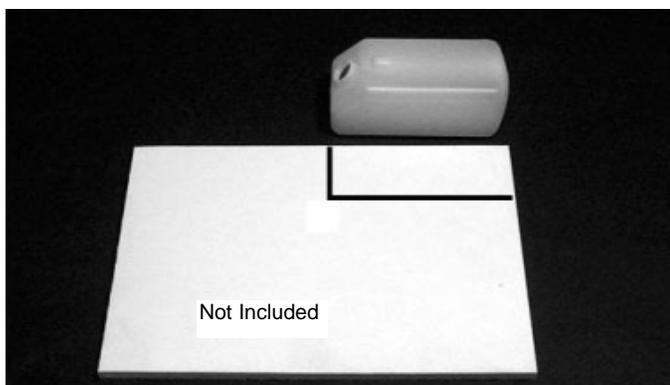


5.  Install the klunk on the white fuel tubing.
  - Mount the other end of the fuel tubing onto the brass outlet tube in the stopper.



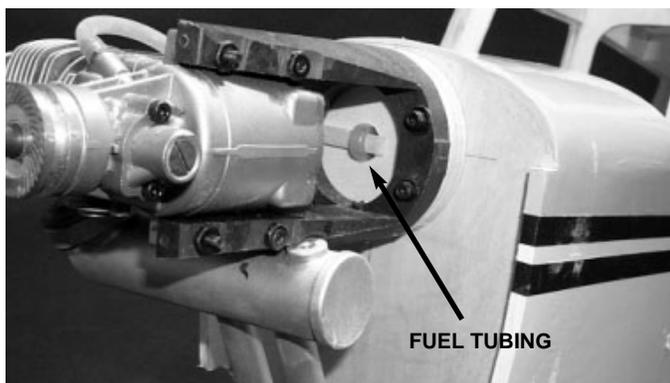
6.  Again place the stopper assembly into the fuel tank. If the klunk is touching the back wall of the tank, trim it as needed.
7.  Place the large nylon cap onto the two brass tubes.
  - When satisfied with the fit of the entire stopper assembly, tighten the #4 x 1" screw into the center of the stopper. Take care to not over-tighten the screw.

10.  Place the foam pad into the front of the fuselage underneath the fuel tank.
  - Put the fuel tubing onto the fuel tank bass tubes. **HINT:** Keep track which tubing is on the vent tube of the fuel tank.



8.  Cut a 2-1/2" x 5" fuel tank pad out of the foam  
**Not included in the kit.**

11.  With the fuel line, pull the fuel tank up into the fuselage till it stops at the firewall.
  - Cut the 3/16" x 1/2" x 7-3/4" balsa stick to fit across the fuselage. This keeps the tank from moving back.
  - When satisfied with the fit glue in place to the side of the fuselage.
  - Take the piece of stick that was left over from above and glue it to the stick to keep the tank from sliding sideways.
  - Cut the fuel lines to fit to the engine.



9.  Fold the 20" fuel tubing in half and insert it through the hole in the middle of the motor mount.

**HINT:** insert a short stick or screw through the loop to stop the fuel line from falling through the firewall.

## COWL INSTALLATION

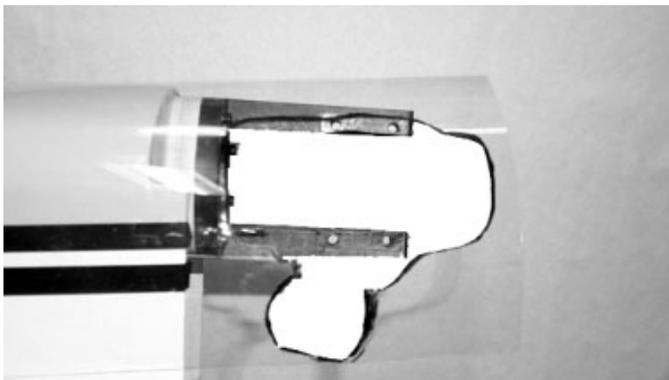
### 1. Collect the following items:

- (1) Fiberglass cowl
- (4) #4 x 3/8 sheet metal screws
- (4) #4 washers
- (1) 4 x 12" clear plastic

Note: The engine shown is a YS 91 using a Slimline muffler (pitts style). The engine that you use may be different.



- 2.  Place the piece of clear plastic over the top of the engine. The end of the plastic should extend just past the cylinder head.
- 3.  Mark where the engine contacts the plastic.
  - Remove the plastic and, using the moto tool, cut out the engine area until the plastic fits over the top of the motor and lies flat on the fuse side. Then, tape the edges of the plastic to one side of the fuselage.



- 4.  Lift up the untaped side of the plastic and remove the engine.
- 5.  Slide the cowl under the plastic.

**CAUTION! WHEN CUTTING THE COWL, ALWAYS WEAR PROTECTIVE EYE GEAR AND A LONG-SLEEVE SHIRT. CHANGE CLOTHES AND WASH AFTER CUTTING.**



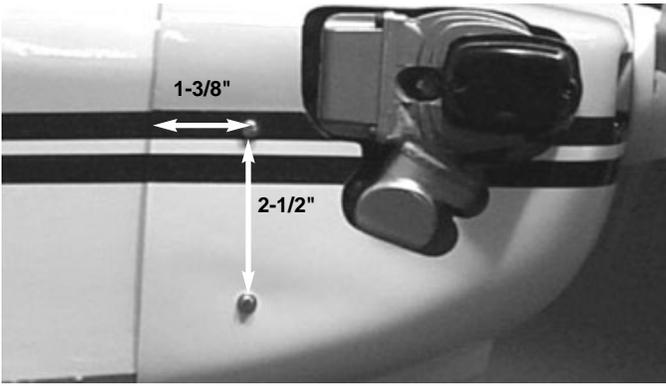
- 6.  Securely tape the cowl to the fuselage, making sure that the cowl is 5-15/16" away from the firewall. Once taped, measure the cowl again to make certain its position has not shifted.
  - Trace the cut out on the clear plastic to the cowl.



- 7.  Remove the cowl and, with a moto tool, slowly remove the fiberglass INSIDE the cutout outline. Work slowly and carefully, until the cowl matches the clear plastic piece.
  - Remember, if the fiberglass is damaged during this process, it can be repaired only with epoxy glue.

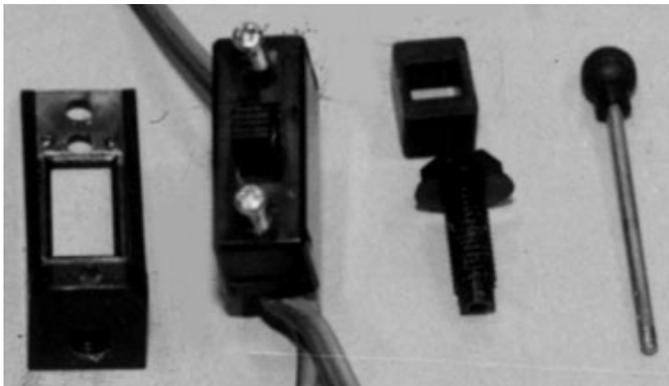
**NOTE:** You may wish to make a cutout in the front of the cowl, at the point where the engine prop washer sticks out, that is large enough to allow the engine to vibrate without touching the cowl.

- 8.  Remount the engine and remove any fiberglass on the cowl that interferes with the engine. Go slow and remove only a little fiberglass at a time.

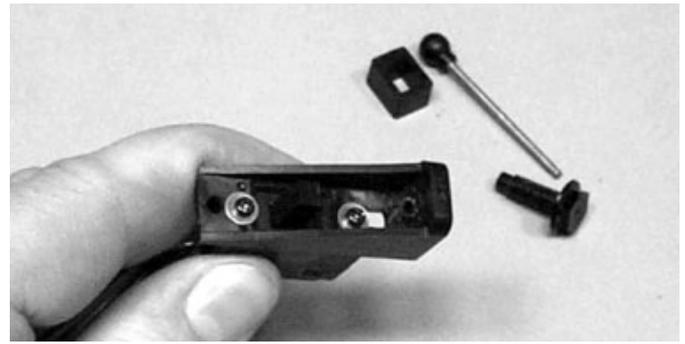


9.  Place the cowl on to the fuselage and install the spinner and prop.
  - Keeping the cowl 1/16" back from the rear of the spinner, hold the cowl onto the fuselage till the strips on the sides of the fuselage are even.
  - Tape the cowl in place so that it can not move.
10.  From the end of the cowl, measure foreword on the top stripe 1-3/8".make a pencil mark there.
  - measure down from the first mark 2-1/2" and make another mark.
11.  Measure and mark the other side of the cowl just like you did above
  - Making sure that the cowl is still straight and has a 1/16" gap between the spinner, drill a 1/16" hole on each of the marks.
  - Pull the cowl away from the fuselage sides and redrill the cowl holes with a 3/32" drill.
  - Screw the cowl onto the fuselage using a #4 x 3/8" sheet metal screw and a #4 washer.

### RADIO SWITCH INSTALLATION



1.  Collect the following items:
  - (1) Radio switch
  - (1) Switch mount
  - (1) Switch mount bolt
  - (1) Switch cap
  - (1) Switch push-pull
  - (2) #2 washer



2.  If your radio has a switch cover, remove both the screw and the cover from the top of the switch.
  - Using the screw just removed, as well as a #2 washer, assemble the switch mount as shown.
3.  The switch mount has one slotted hole on one side and two holes on the other side. Mount the switch so that it will move back and forth. It will be possible to feel and hear the click.
  - Locate the switch on the left side of the fuse, keeping it out of the engine exhaust.

### RECEIVER AND BATTERY INSTALLATION



1.  Insert the Y-harness in the aileron plug in the receiver and then wrap both the receiver and the battery in foam. Secure with rubber bands.



2.  Plug the switch into both the battery and the receiver.
  - Next, plug the elevator, rudder, and throttle servo wires into the receiver.
- 22 3.  Place the battery and the receiver into the

compartment in front of the servos. Remember to keep the antenna and the Y-harness outside of the compartment so that the aileron servo wire can be easily plugged into the receiver.

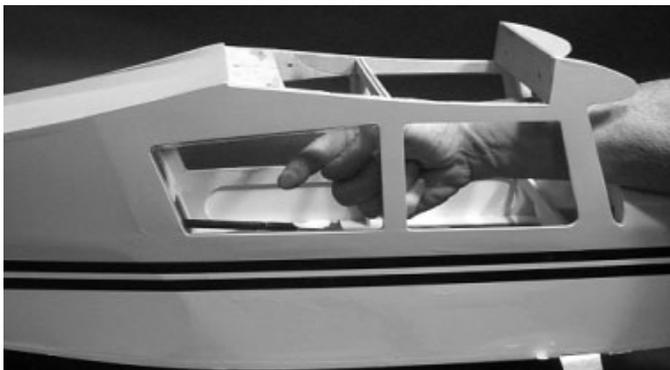
- Take the 3/16 x 1/2 x 7-3/4 balsa stick and glue over top of the receiver and battery to hold them in place.
- 4.  Insert the receiver antenna into the pre-installed tube in the left side of the rear cabin former and slide the antenna down the tube until it exits out the hole at the rear of the fuselage, just in front of the tailwheel.
- Attach the antenna to the tailwheel using a rubber band.
- 5.  Turn on the receiver and transmitter and put all control surfaces in neutral position. Then insert the center screw into each of the servos.

**CAUTION:** Make sure all servo arms are tightened onto the servos.

## WINDOW INSTALLATION

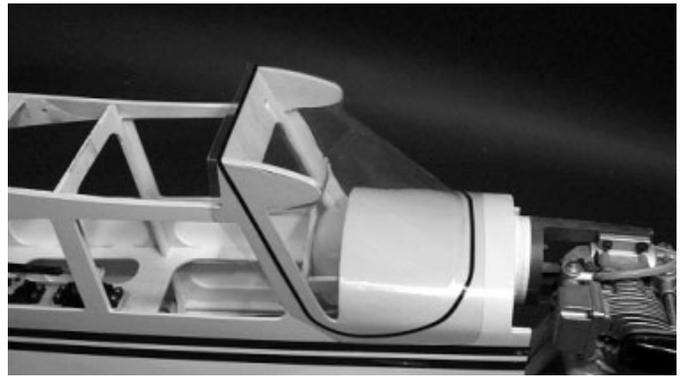
1.  Collect the following items:

- (1) Windshield
- (1) Fuselage
- (2) Front side windows
- (2) Rear side windows



1.  Glue the side windows starting at the rear then the front. Glue the windows in place with CA glue.

**Caution:** Use the glue sparingly and keep fingers clean.



2.  Place the front windshield onto the fuselage, as shown. Push the windshield into place and draw a cut line around the windshield leaving at least 1/4" gluing edge around the outside.

Remove the windshield and cut along the line you just drew.

Remount the windshield and check for fit. Make sure the wing will not bind when being mounted to the fuselage.

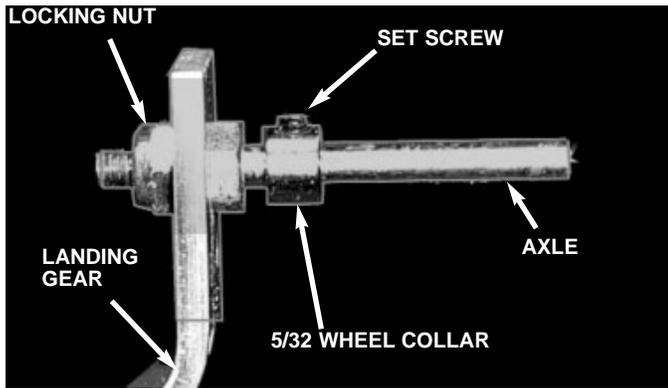
When satisfied with the fit, **using a glue that is intended for canopies and windshields**, glue the windshield in place.

**Caution:** Use the glue sparingly and keep fingers clean.

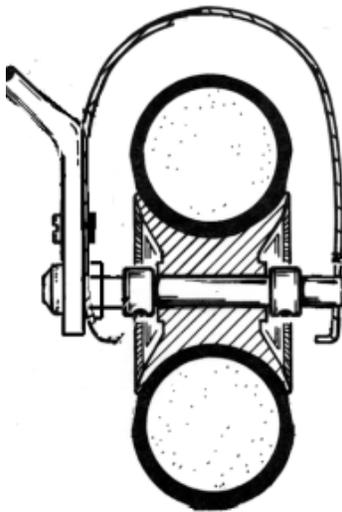
## WHEEL & WHEEL PANT INSTALLATION



1.  Collect the following items:
  - (2) 3" wheel
  - (2) Axle
  - (2) Axle locking nut
  - (4) 5/32" wheel collar
  - (4) 6-32 x 1/8" set screw
  - (2) Wheel pant (right and left)
  - (4) 4-40 Blind nut
  - (4) 4-40 x 1/2" Socket head screw



2.  Insert the threaded part of the axle through both sides of the landing gear and tighten the locking nut on each axle.
- Thread the 6-32 x 1/8" set screw into each of the four 5/32" wheel collars and place one wheel collar onto each axle.



3.  Slide the wheel pant over the axle and up against the landing gear. Make a mark on the wheel pant where it hits the axle.

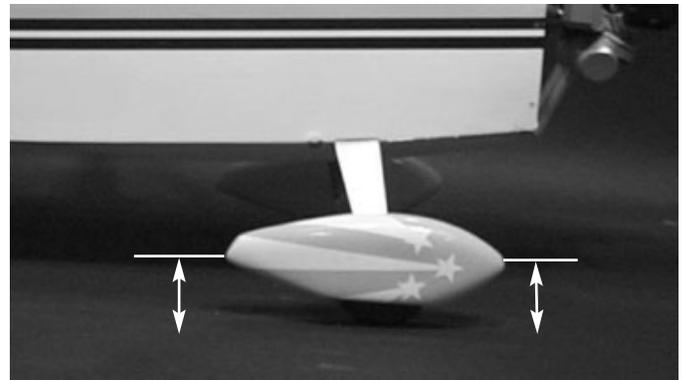
**NOTE:** There are several ways to mount wheel pants. Following are two different methods.

4.  Place the wheel pant against the back of the axle, next to the landing gear. Make a mark on the axle where the outside of the axle hits the wheel pant.
- Check to make sure that the wheel and both the inside and outside wheel collars will fit on the axle. If the fit is right, cut the axle at the point of the mark.

Alternatively, mark the wheel pant where the axle strikes the wheel pant and drill a 5/32" hole at that location on the outside of the wheel pant. Let the axle exit from inside the wheel pant through this hole. This will help support the wheel pant when flying off a grass or rough field.



5.  When satisfied with the fit of all the components, mount the wheelpant, wheels and the remaining (outside) wheel collars onto the axle.
- Turn the aircraft right-side up and level the stabilizer.



6.  Make sure the wheel pant is horizontal to the tabletop by measuring from the center of the front part tip and the center of the back part tip, as shown above.
- When the wheel pant is level, mark the location of the landing gear holes on to the back of the wheel pant.
- Remove the wheel pant and drill a 7/64" hole at the marks.
- Insert a 4-40 blind nut inside the wheel pant in each of the holes.
7.  Re-mount the wheel pant and insert a 4-40 x 1/2" socket head bolt through the back of the landing gear in each of the holes and tighten down the screw.
- Repeat the above steps for the other wheel pant.

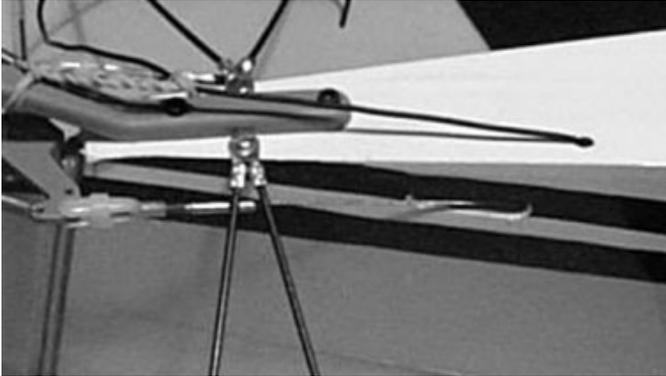
Note: Place thread lock on the screws at this time.

# FINISHING TOUCHES

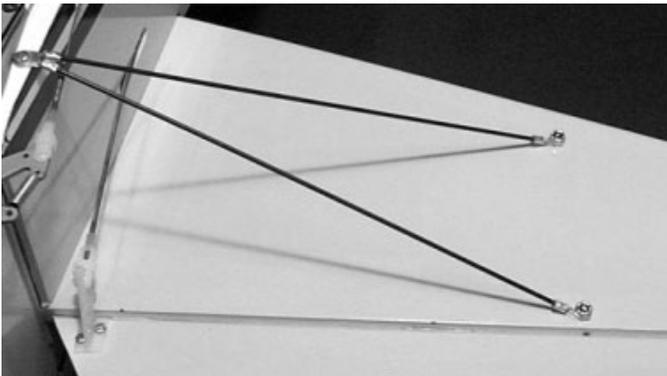
## TAIL BRACING WIRE INSTALLATION

1.  Collect the following items:

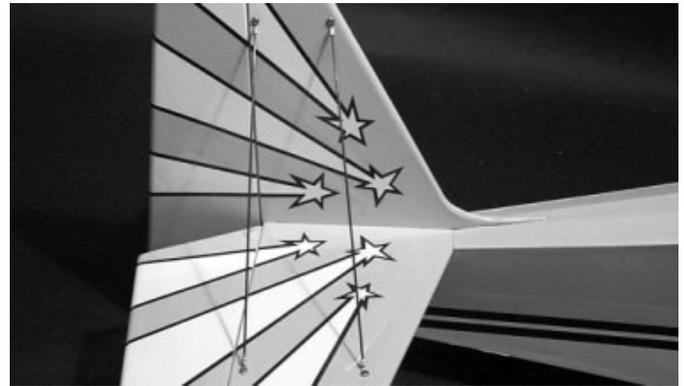
- (4) .063 x 8-1/2" wire with eyelets
- (4) .063 x 10-7/8" wire with eyelets
- (2) #4 x 3/8" sheet metal screw
- (6) 4-40 x 1/2" pan head screw
- (6) 4-40 locking nut



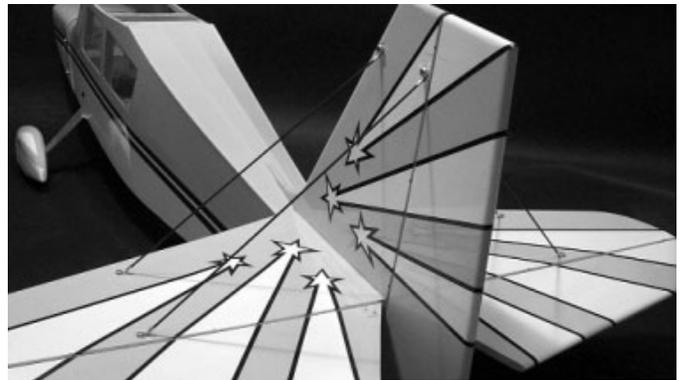
2.  Turn the fuselage over and measure from the back of the fuselage forward 1-1/4" and make a mark.
- Drill a 1/16" hole on the mark
  - Take two .063 x 8-1/2" wire and place a #4 x 3/8" screw into one end of each wire.
  - insert the screw into the hole in the fuselage.



3.  Bend the front wire down to the stab and mark the hole location for the front wire 3/4" back from the leading edge.
- Bend the rear wire down to the stab and mark the hole location 5/16" from the trailing edge.
  - Drill an 1/8" hole on both marks.
  - Insert a 4-40 x 1/2" pan head screw through the eyelet on each wire. Then insert the screw into the hole in the stab. Do not put a nut on at this time.
  - Repeat the above steps for the other side of the stab.



4.  Turn the fuselage right side up and insert the 10-7/8" wire on to the screws on the stab.
- Install the 4-40 locking nuts on the screws but do not tighten.
  - Bend the front wire towards the fin and mark the hole location for the front wire 5/16" back from the leading edge.
  - Bend the rear wire towards the fin and mark the hole location 5/16" from the trailing edge.
  - Drill 1/8" hole on both marks.
  - insert a 4-40 x 1/2" pan head screw through the eyelet on each wire. Then insert the screws into the holes in the fin.
5.  insert a 10-7/8" wire onto the screws in the fin and the stab then install the 4-40 locking nuts on the screws.
- Tighten all locking nuts till the eyelets are just dimpling the wood.

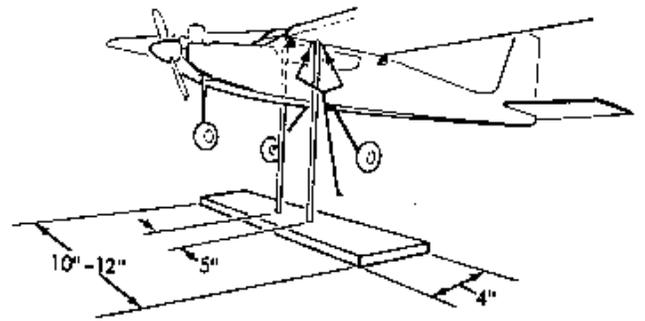
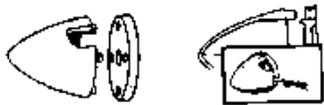


## PROPELLER AND SPINNER INSTALLATION

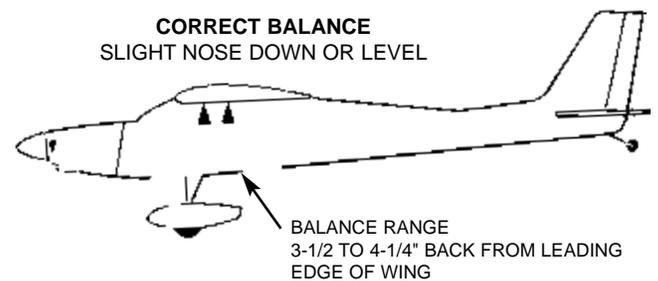
The propeller size must be matched to the engine. For example, a .35 may use a 9" diameter prop while a .45 can use a 10" prop. Follow the engine manufacturer's recommendation for correct propeller sizes or speak to a knowledgeable dealer. It's wise to buy a few spare props, as everyone breaks them occasionally, and particularly often when learning to fly.

Balancing your propeller helps to protect your radio from the damaging effects of vibration. There are good, easy to use prop balancers on the market. We recommend sanding the heavy blade on the curved face, out near the tip, rather than on the flat face. Try to maintain the normal airfoil curvature. Avoid scratches which may cause the prop to break. **Never carve or cut a prop near the hub for any reason** (such as to fit a spinner).

It is equally important to get a correctly sized spinner. The CGP 4-pin spinner is a rugged precision-molded spinner which does not require any special mounting nuts or screws. **Although a spinner helps reduce the chance of injury from a rotating prop, extreme caution always must be used when the engine is running.**



Place the fully assembled aircraft on a model balancing stand, as shown above. You can make this simple set-up with a couple of  $\frac{1}{4}$ " dowels with rounded tops, spaced 5" apart. Alternatively, lift the model under the wing near the fuselage by your finger tips. (You may wish to get help from a friend if using the latter method.)



Referring to the recommended balance range for your model, move the position of the plane on the balance stand until the model is level or the nose slightly down.

If the is tail heavy, shift the R/C equipment away from the heavy end of the model and recheck until the model will balance within the acceptable range.

If shifting the R/C gear still doesn't balance the model, add weight to the far end of the nose or tail, respectively, until the model is correctly balanced. The least weight is needed when added as far back or forward as possible. Fasten the weight permanently in place.

## BALANCING THE MODEL

**IMPORTANT: NEVER NEGLECT THIS STEP WITH ANY AIRPLANE.** If you try to fly a plane with the balance point behind the recommended range, you run the risk of having an unstable aircraft and the **strong likelihood of a crash. TAKE THE TIME TO PROPERLY BALANCE YOUR MODEL!**

# FLYING YOUR DECATHLON ARF

## SETTING CONTROL SURFACE TRAVELS

### SETTINGS

	<u>Gentle</u>	<u>Aerobatic</u>
AILERON:	3/8"	7/16"
ELEVATOR:	1-1/4"	1-5/8"
RUDDER:	3/4"	1-1/2"

When beginning to fly your **Decathlon**, we encourage you to start out with the gentle settings, regardless of your flying ability. Then, after you have become familiar with the aircraft, move to the aerobatic settings.

**NOTE:** Always use the furthest hole on all control surfaces and adjust at the servo for proper throw. Do not use the transmitter adjustment to set up the control travels. The transmitter should be used only for fine tuning. have become familiar with the aircraft, move to the aerobatic settings.

**NOTE:** Always use the furthest hole on all control surfaces and adjust at the servo for proper throw. Do not use the transmitter adjustment to set up the control travels. The transmitter should be used only for fine tuning.

## FIELD KIT CHECKLIST

- Fully-charged flight batteries
- Radio transmitter
- 1 ½ volt starting battery & glo-plug clip
- Fuel bulb or pump
- Tools for tightening any parts that can vibrate and loosen
- Paper toweling for clean up
- Extra props and an extra spinner
- Prop wrench
- Bottle of CA glue

### CGP Super Tote



## PRE-FLIGHT ACTIVITIES

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. 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 aileron movement up. Moving the stick back or down on the Tx should move the elevator up, and vice versa.

Check also to see that your wheels operate properly. Your throttle should open to permit full power when the stick or tab is moved forward or up. 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, tank properly supported, etc. Prop and spinner must be tight. The receiver antenna must be extended, not coiled up inside the model. Nothing should be loose, or unfinished, or unchecked.

With everything ready, the engine should be started and broken in for a least a tank or two at no more than moderate speed. While the engine is running, make sure the control surfaces do not jitter or move until you command them and that the throttle also responds properly to your command.

## TAKE-OFFS & LANDINGS

Though the **Decathlon** is not difficult to control during take-off and landing, it is important to avoid over-control. Make small smooth corrections until you become familiar with the feel of your model. When taking off, you will need to add a bit of right rudder. Wait until there is plenty of airspeed and gently rotate (about 1/8-1/4 up elevator), keeping the wing level.

On landings, you will find that the **Decathlon** glides

better than most planes. For the best landings, approach the runway at high idle and go to low idle about one foot above the ground, flaring to a 3-point landing as you gently touch down.

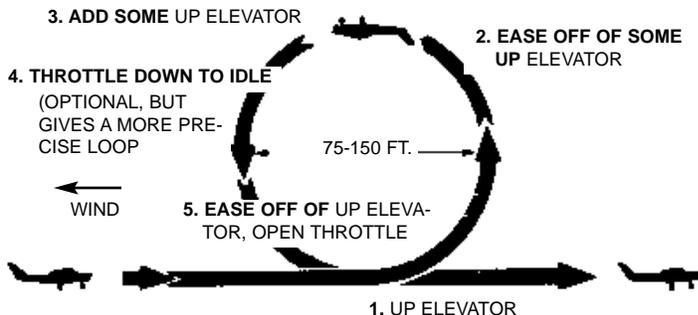
## BEGINNING AEROBATICS

Almost all maneuvers are a combination of loops and rolls, so if you can do these two things, you're off to a good start! We highly recommend the book **Flight Training Course, Volume II**, published by **R/C Modeler Magazine**. Some of the following is taken from this manual, with the gracious permission of the magazine.

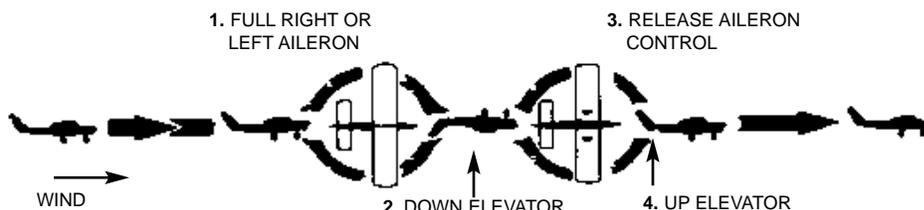
Above all, remember that top gun aerobatics are the result of practice. The crisp, graceful movements come from the pilot's willingness to do and do it again. Don't give up; practice really does make perfect!

*Which side is up?* Learning to recognize which side is up may sound foolish, but many a plane has bitten the dust because the pilot lost track of the plane's position. Other than learning to recognize the plane's silhouette at different angles and attitudes, the best insurance is to force yourself to concentrate on each thing that you do, i.e. making a left turn. If your mind strays and you forget what you're doing, coming back to it can cause a few new grey hairs!

**THE LOOP.** This is a good first stunt. The model starts flying straight and level into the wind, then pulls up into a smooth, round loop. The up and down portion should be straight, without the plane falling off to the right or left, and the speed should be constant. As the plane finishes the loop, it pulls out straight and level, at the same heading and altitude as when it entered the maneuver.



**THE HORIZONTAL ROLL.** *Important! Always remember that, when the plane is inverted, the elevator works backwards.* Therefore, when the plane is inverted, you give **down elevator**. Also, be sure to fly high enough to give a good margin for error, as your early attempts will probably end up in a 30° dive. We also recommend you practice with the plane in front of you, rather than overhead.

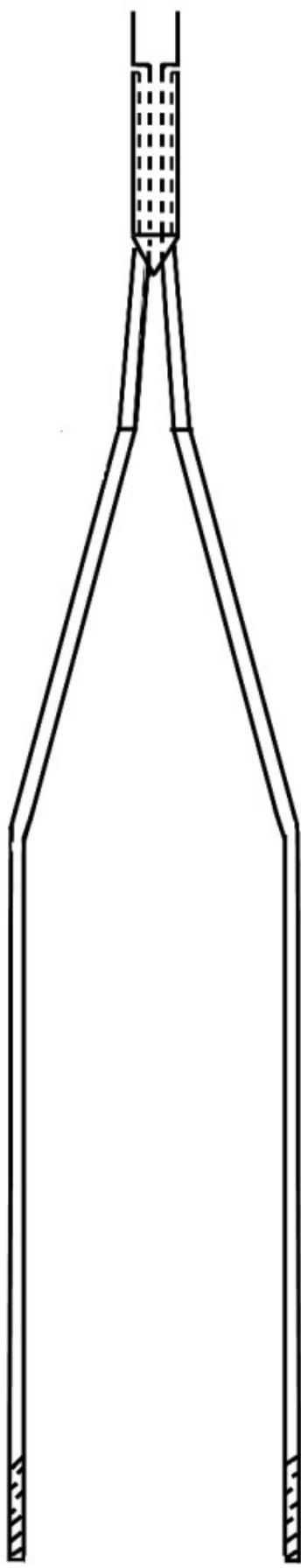


For your next aerobatic ARF, try the Ultimate Bipe.

THE ULTIMATE 10-300 ARF  
 Wingspan: 54"  
 Wing Area: 980 Sq."  
 Length: 58-1/2"  
 Flying Weight: 7.5 to 8.5 lbs.  
 Power: .60 2-cycle  
           .90-1.20 4-cycle



Kit includes fiberglass cowling wheel pants, plus canopy, molded cockpit insert, glass-filled nylon engine mounts, wheels, and 16-oz. fuel tank.



# Decathlon Elevator Drawing