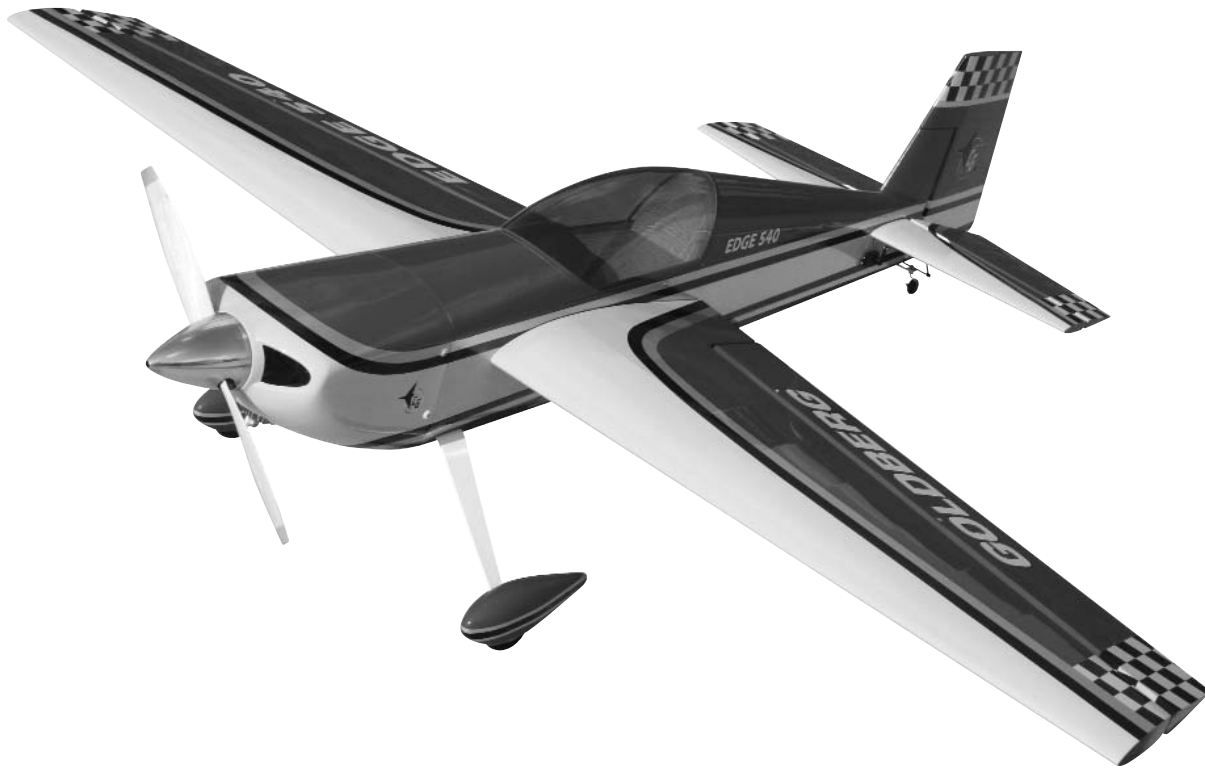


77" Edge 540 ARF



INSTRUCTIONS

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). 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 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.

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CARL GOLDBERG PRODUCTS, LTD. TM

P.O. Box 818 Oakwood GA 30566 Phone #678-450-0085 Fax # 770-532-2163 www.carlgoldbergproducts.com

Congratulations on your purchase of the **77" Edge 540 ARF**. Every effort has been made to produce a lightweight, straight, easy to assemble aircraft. Because of its oversize control surfaces which are double beveled to allow for extreme throws, great care must be taken in the set-up and flying of this airplane. Quality hardware components have been provided to allow for 3D set-up while maintaining adequate mechanical advantage to eliminate flutter. It is your responsibility as an advanced pilot to fly the aircraft in an intelligent manner. **THROTTLE MANAGEMENT IS A MUST!!!!!!** Carl Goldberg Products has flown the **77" Edge 540 ARF** through a very rigorous flight-testing schedule and have stressed the airframe beyond all practical parameters without a single failure. **Carl Goldberg Products** will NOT warranty the **77" Edge 540 ARF** against flutter due to improper set-up or excessive speed maneuvers. Having said that, we believe you will find the **77" Edge 540 ARF** to be one of the most responsive, in-the-grove aircraft on the market. Just remember to use common sense when flying this high performance machine.

We are very proud of the construction of the **77" Edge 540 ARF** and all of our other ARF aircraft. Each aircraft is jig built to insure a straight true airframe. Every effort is made to build as light an aircraft as possible. As with any professional builder, glue is used sparingly. **Please take a moment during assembly and run a bead of CA or aliphatic resin into the high stress joints that you can reach such as the landing gear plate, servo mounting trays, wing hold down blocks, Firewall, etc.** Also, during the course of shipping from the manufacturer to our facility in the United States, it is not uncommon for the aircraft to experience several changes in climate. This may cause the iron-on covering to develop wrinkles. This is not a fault of the manufacturer. Please take a few minutes with your heating iron and heat gun to iron down the seams and re-shrink the covering where needed. The results will be a beautiful aircraft with a breathtaking finish that you will be proud to display at your flying club.

Before beginning assembly of your **77" Edge 540 ARF**, we highly recommend that you study this manual in its entirety. You should begin planning your radio installation based on your choice of engine and equipment from the beginning.

Because the 77" Edge 540 ARF is intended for those with some degree of modeling experience, every minute detail will not be covered. This is not a basic trainer. Assembly of this aircraft will be easy for the experienced modeler, and by following the instructions within this manual and using the skills you've gained during your modeling career you will be able to produce a first class aircraft.

Building supplies needed

Hobby knife w/#11 blades
Thin CA
Medium CA
Canopy glue
30 minute epoxy
Thread lock
Diagonal wire cutters
Pliers
Assorted drill bits
Various sized screwdrivers(both Phillips and standard head)
Tape measure
Dry-erase marker
Paper towels
Rubbing alcohol
Electrical tape
4-40 Tap & Die Set
3/32, 7/64, 9/64 & 3mm Allen wrench
Wax Paper
3-1 Oil

Note:

Thread lock must be used where ever any machine bolts are threading into any type of nuts. If you do not use thread lock the bolts could become loose and fall out in flight.

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.

CONSTRUCTION TIPS

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

COVERING

The **77" Edge 540 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.

ITEMS NEEDED TO COMPLETE THIS AIRCRAFT

- ☐ 24" FUEL LINE
- ☐ ENGINE ..1.20 TO 2.4
- ☐ 1 RADIO GUIDANCE SYSTEM ☐
- ☐ 2 12" AILERON SERVO EXTENSION WIRES
- ☐ 3 11" SERVO Y-CONNECTORS
- ☐ 1 CA ACCELERATOR
- ☐ 1 2 OZ. BOTTLE CA MEDIUM GLUE
- ☐ 1 1/2 OZ. BOTTLE CA THIN GLUE
- ☐ 1 30 MINUET EPOXY
- ☐ 1 1/2" FOAM RUBBER
- ☐ 1 3-1/2" SPINNER

OPTIONAL:

- ☐ 1 PILOT FIGURE
- ☐ SERVO ARM EXTENSIONS

NOTE: The 77" Edge 540 ARF covering closely matches Ultra Coat:

Bright Yellow #872

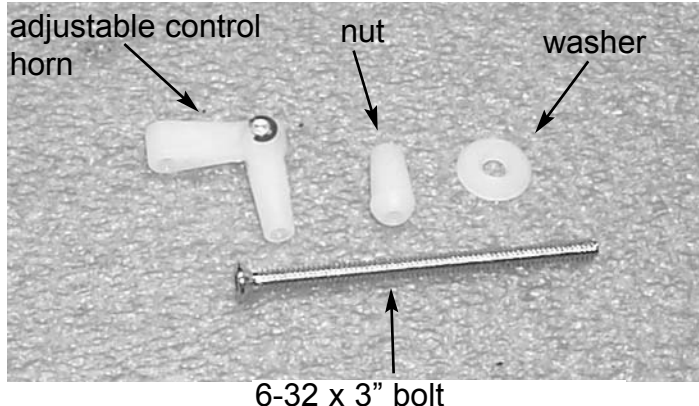
True Red #866

Sliver #881

Black #874

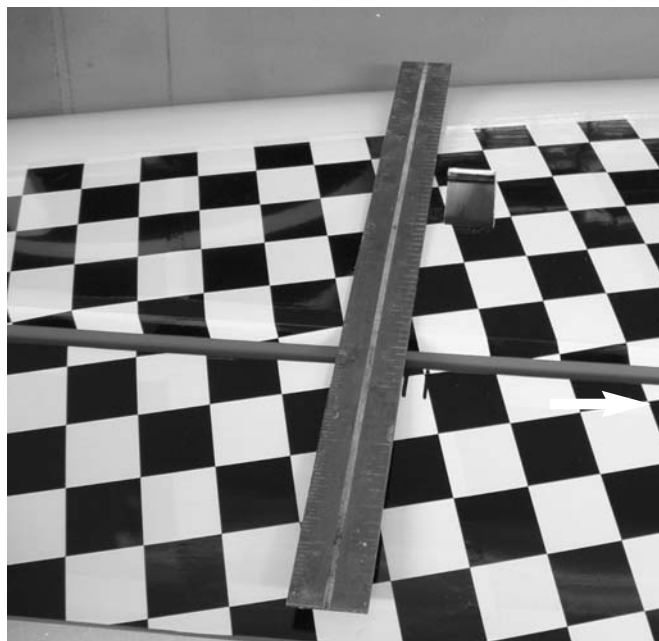
WING ASSEMBLY

CONTROL HORN PART NAMES

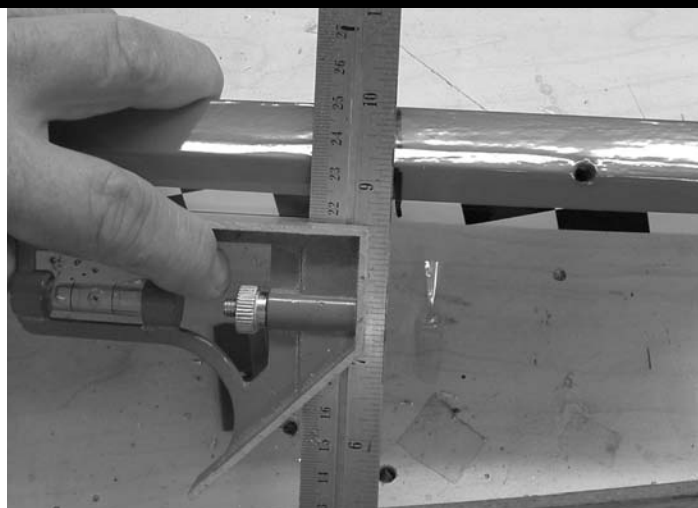


AILERON CONTROL HORN INSTALLATION

1. ☐ Collect the following items
(4) 4-40 x 3" socket head bolt
(4) Nylon Adjustable Control horns
(4) Nylon Nut
(4) Nylon Cup Washer

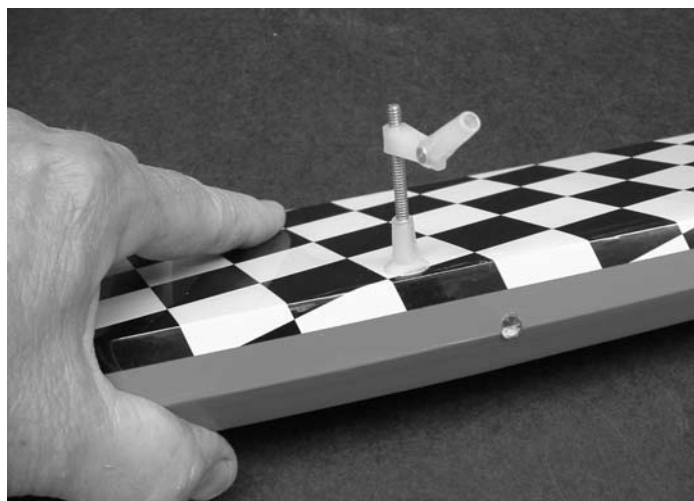


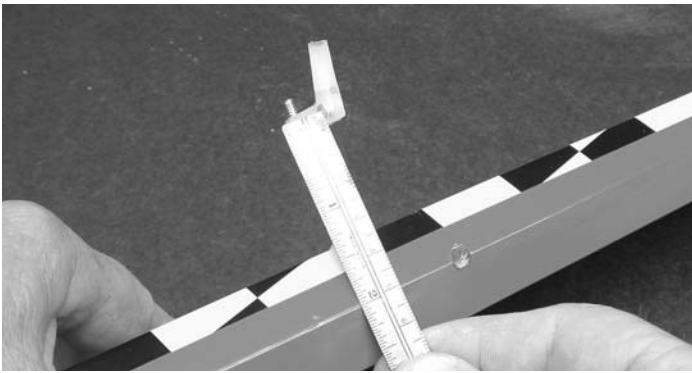
2. ☐ With the aileron servo in place, make a mark on the aileron at a 90° degree angle to the trailing edge and in line with the servo. Look for the control horn hard point under the covering. This is the location for the control horn.



- ☐ Transfer the mark from the bottom of the
- ☐ aileron to the top side.

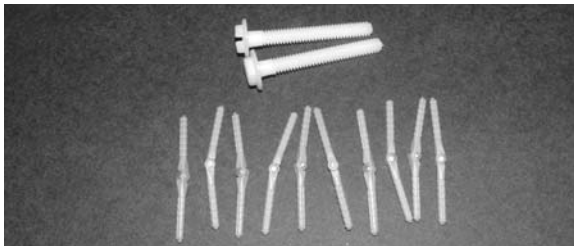
3. ☐ Using a 1/8" drill, drill half way through the aileron hole from both top and bottom till the drill passes through the aileron.
 - ☐ Insert the 6-32 x 3" bolt into the top of the aileron.
 - ☐ Thread the bolt all the way till the head is flush with the top of the aileron.
4. ☐ On the bottom of the aileron, place first the cup washer then the nylon nut onto the 6-32 bolt.
 - ☐ Using a screwdriver tighten the nylon nut all the way down till it rest in the cup washer and is tight to the aileron.
 - ☐ Thread the nylon adjustable control horn onto the bolt. **(Note: Thread the side that you can see the cut threads in the nylon onto the bolt)**





5. ☐ It is important when two servos are to the same aileron that both control horns are equal length.
 - ☐ Measure from the center of the hinge line to the top of the nylon control horn bracket and adjust both to be equal.

AILERON INSTALLATION



1. ☐ Collect the following parts:
 - (1) Left wing
 - (1) Right wing
 - (1) Left aileron
 - (1) Right aileron
 - (10) hinges
 - (2) 1/4-20 nylon wing bolts
2. ☐ Trial fit the hinges into the holes on both the aileron and wing.
 - ☐ If necessary use a 7/32" drill in each hole 1/8" deep to allow the shoulder of the hinge to go in
 - ☐ Make sure all hinges insert half way.



3. ☐ Place 1 drop of oil on each of the hinge joints at the center. This is to keep the hinges loose and prevent epoxy from sticking at the joint.

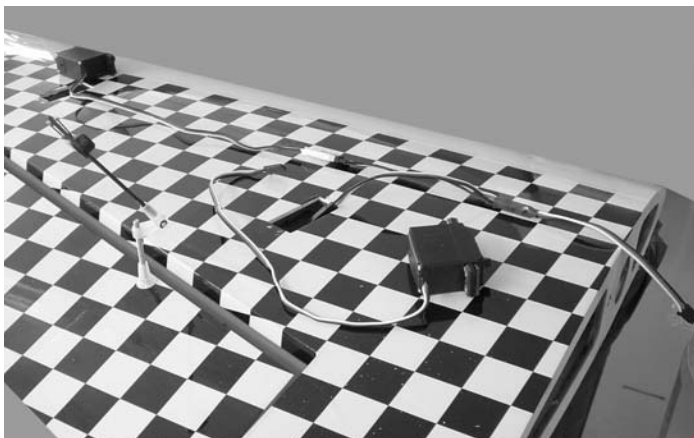
Caution: Do not get any oil on the length of the hinge or it will not glue into the surface.



4. ☐ Select the aileron for the wing half on which you are working.
 - ☐ Mix up a liberal amount of 30 minute epoxy.
 - ☐ Using a piece of wire or a toothpick, work some epoxy into each hole on the wing and aileron.
 - ☐ Working with 1 hinge at a time, place a dab of epoxy and insert the hinge half way into one of the aileron holes.
 - ☐ Repeat for each of the other hinges for that aileron.
5. ☐ Working quickly, place some epoxy on the second half of each hinge and insert the aileron into the wing.
 - ☐ Slide the aileron toward the wing until no gap remains between the aileron and the wing.
 - ☐ When satisfied with the alignment, flex the aileron up and down to confirm that the hinges are working freely. remove any excess epoxy.
 - ☐ Apply a few strips of masking tape to keep the pieces in place.
 - ☐ Allow to dry before flexing the aileron.
6. ☐ Repeat the above steps for the other half of the wing.

AILERON SERVO INSTALLATION

1. ☐ Collect the following parts:
 - (1) Left wing
 - (1) Right wing
 - (4) Servos
 - (2) Servo "Y" Harness



2. ☐ Attach the outboard servo to one side of the Y-connector. Insert the Y-connector into the outboard hole and guide down the wing to the inboard servo hole. Pull the other side of the y-connector through the hole and connect the other servo. Continue pulling the y-connector to the center of the wing.
- ☐ Screw the two servos into place with the output arms forward, using the hardware supplied with the radio.

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.**



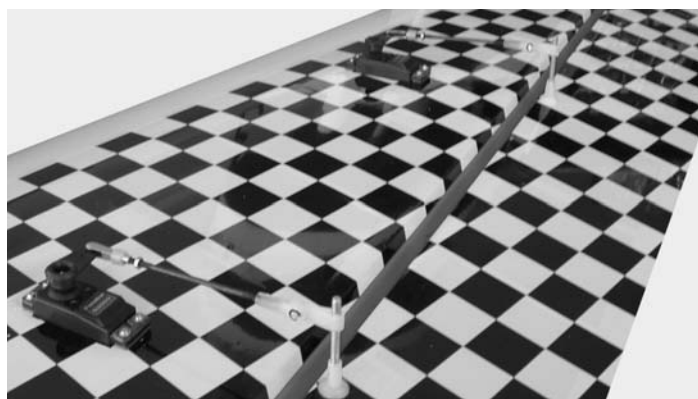
3. ☐ Tape the end of the plug to the root rib.
- ☐ Repeat for the other wing half.

Aileron Servos Pushrods

1. ☐ COLLECT THE FOLLOWING ITEMS:
 - (4) 4-40 X 3-1/8" PUSHRODS THREADED BOTH ENDS
 - (4) 4-40 CLEVIS
 - (4) SILICONE CLEVIS RETAINERS
 - (4) 4-40 nuts

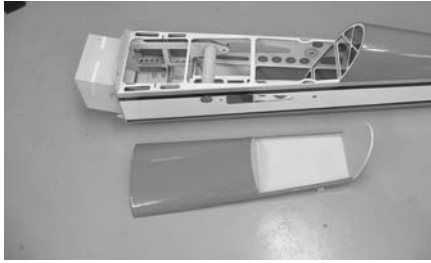


2. ☐ Screw the 4-40 x 3-1/8" pushrod into the nylon control horn fitting on the aileron.
- ☐ Slide the silicone clevis retainer over the end of the clevis.
- ☐ Screw the nut then the clevis on the other end of the pushrod.
- ☐ Center the servo with the radio, make sure the aileron is centered and adjust the clevis to fit on the servo output arm.
- ☐ After final adjustment, tighten nut against clevis and put thread lock on nut.



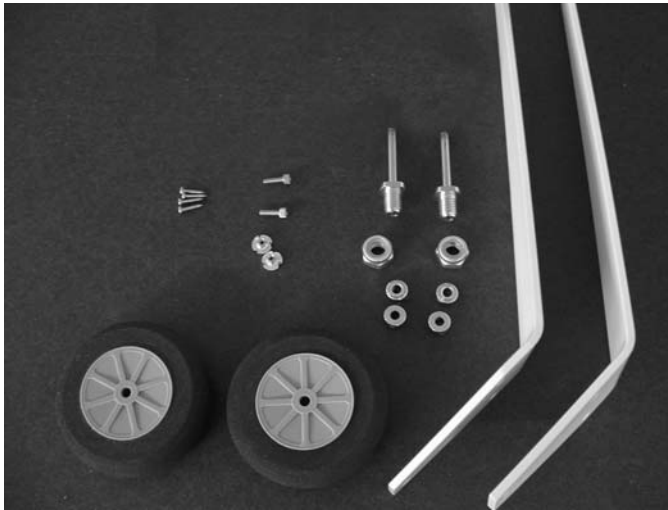
3. ☐ Repeat for the other three servos

FUSELAGE HATCH



The top front half of the fuselage is a hatch. Remove the 4-40 socket head bolts on the side of the fuselage to disengage the hatch.

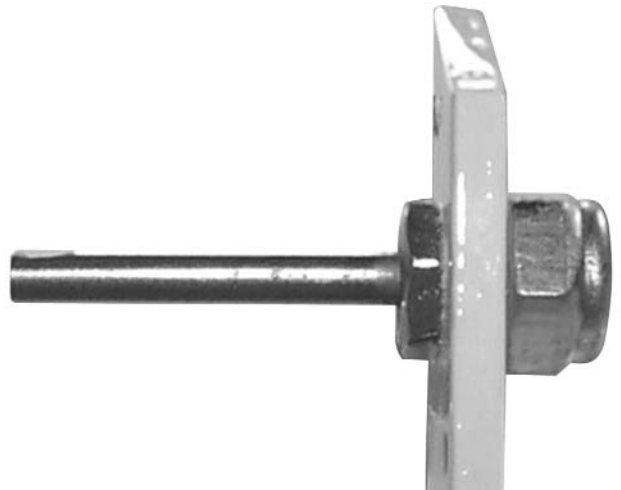
WHEEL AND WHEEL PANTS



1. Collect the following items:
 - (2) 5-32 x 1-1/4" Axle with Locking Nut
 - (4) 5/32 Wheel Collars
 - (6) 6-32 x 1" Cap Screws
 - (2) 4-40 Blind Nuts
 - (2) 4-40 x 1/2" Button Head Screws
 - (2) 3-1/4" Wheels
 - (2) Landing gear legs



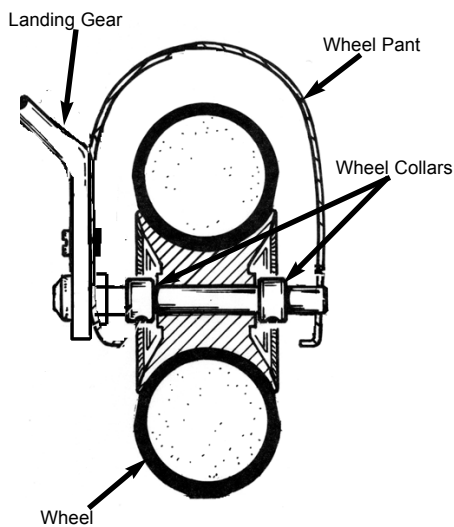
2. ☐ Insert the gear legs through the slots in the fuselage side.
 - ☐ Use the six 6-32 x 1" bolts to secure the gear. The blind nuts are already installed in the fuselage.
 - ☐ Be sure and use thread lock on the bolts.



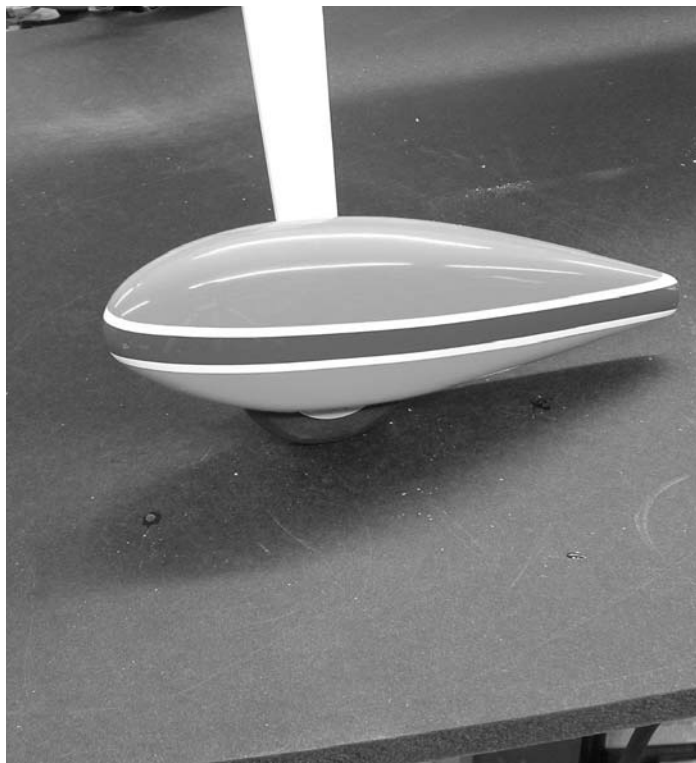
3. ☐ Mount the axle to the landing gears.



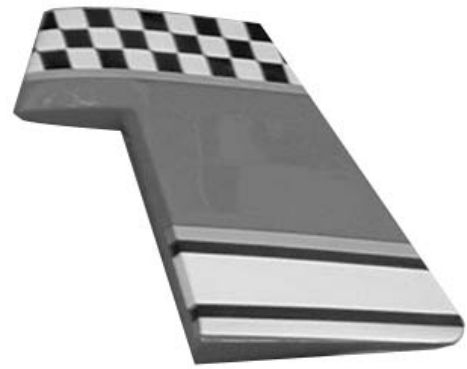
4. ☐ Install the blind nut in the wheel pant using the 4-40 bolt to pull it into the hole.



5. ☐ Mount the wheel pant on the landing gear along with the wheel collars and wheels.
 - ☐ Center the wheel on the axle.
 - ☐ Use the 4-40 x 1/2" bolt to hold the wheel pant to the gear. Be sure to use lock-lock on the bolts.



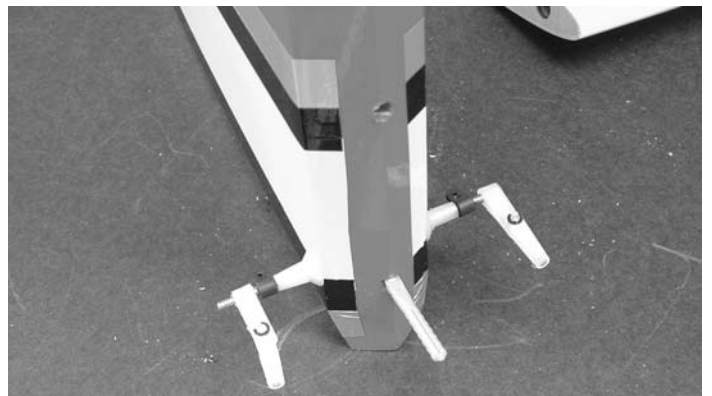
HINGING RUDDER



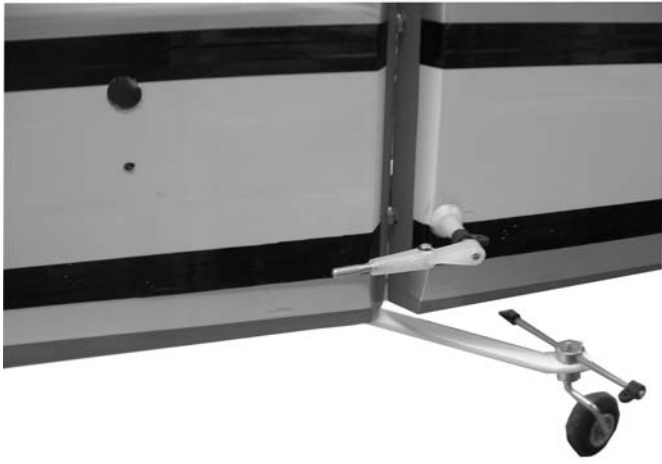
1. ☐ Locate the rudder and four hinges
 - ☐ Trial fit the hinges to make sure they all go up to the hinge pin in rudder and fin.



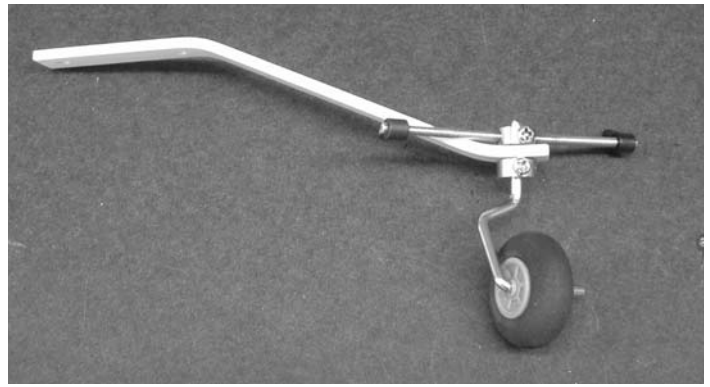
2. ☐ Trial fit the rudder in place on the fin. Make sure the hinge line is tight and the counter balance does not rub on the top of the fin.
 - ☐ Insert a piece of wire into the outlet hole for the rudder cable (holes are just below the elevator servo cutout) and make a mark on the rudder in line with the outlet hole.



3. ☐ Transfer the mark to the other side of the rudder
 - ☐ Drill a 9/64" hole at the location marked. Drill half way from each side until the hole is completely through.

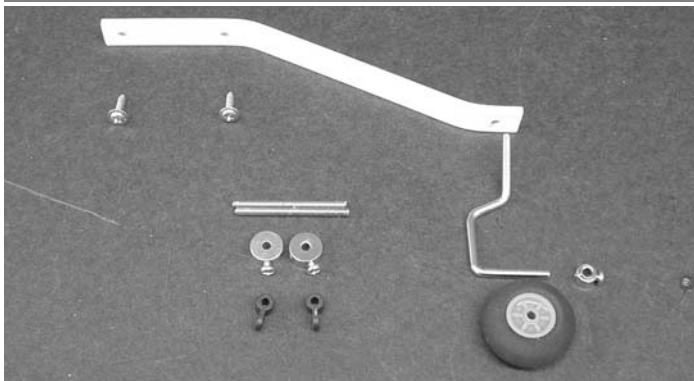


4. ☐ Install the 6-32 x 3-1/2" threaded rod in the hole with a nylon washer and nylon nut on each side
 - ☐ Thread the nylon fitting for the tail wheel steering on each end first, then the control horn fitting.
5. ☐ Mix some 30 minute epoxy and apply some in the holes in the rudder and fin using a tooth pick or piece of wire.
 - ☐ Apply a drop of oil to each hinge. Put a dab of glue on the end of each hinge and install.
 - ☐ Fit the rudder in place and work back and forth several times to rotate the hinges in place.
 - ☐ Use tape to hold the rudder in place till the glue dries.



2. ☐ One of the bracket collars has two holes threaded into it, one on each side. This one is the top one.
 - ☐ Put the bottom bracket collar on the axle and insert it through the spring bracket.
 - ☐ Put the top collar bracket on top and tightened the two set screws.
3. ☐ Screw one of the two threaded rods on each side of the top bracket collar.
 - ☐ Screw the nylon horn fittings on each end of the threaded rod.
4. ☐ Put the tail wheel on the axle and retain with the wheel collar.

Tail Wheel Bracket Installation

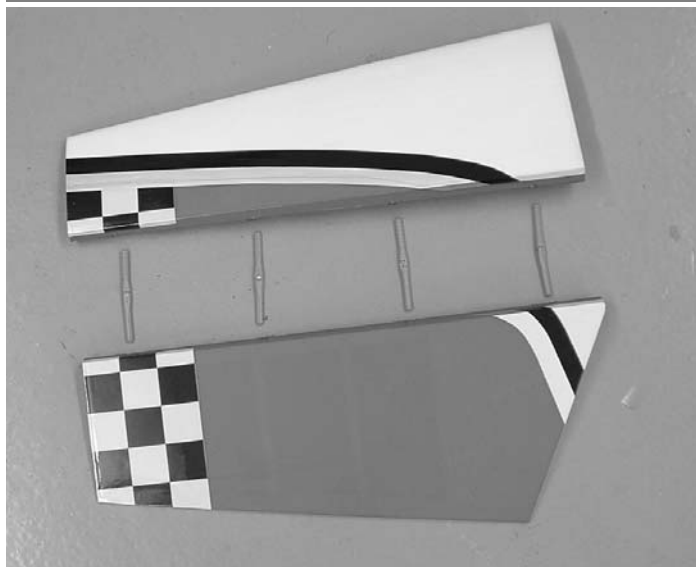


1. Collect the following parts:
 - (1) Tail wheel spring bracket
 - (1) Tail wheel axle
 - (1) 1" rubber tail wheel
 - (1) 1/8" wheel collar
 - (2) bracket collars
 - (2) nylon horn brackets
 - (2) 3mm screws
 - (2) 2mm x 1" threaded rods



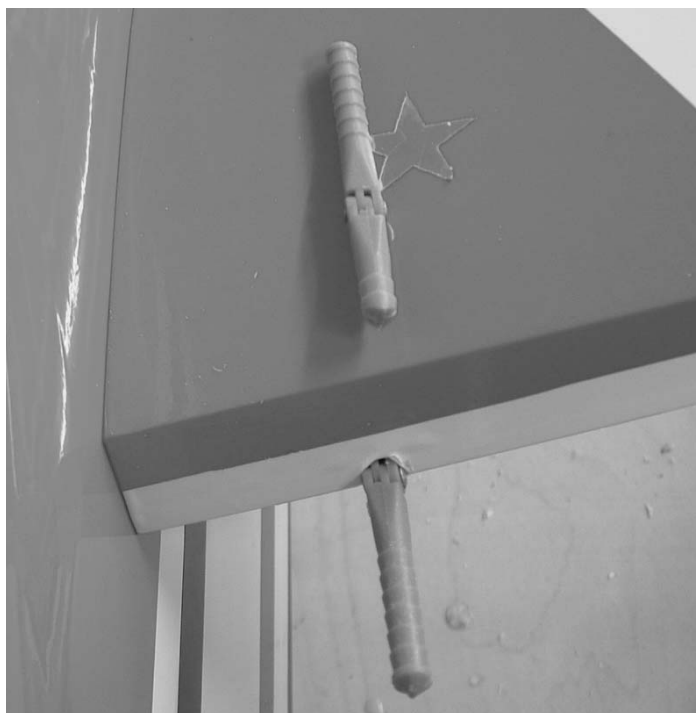
5. ☐ Mount the tail wheel assembly on the rear of the fuselage using the two 3mm screws.
 - ☐ Drill a 1/16" pilot hole at each spot.
 - ☐ Make sure to put the bracket far enough forward to allow the rear screw to go into the hardwood plate and not just the balsa wood of the fin post.

Stabilizer and Elevator Installation

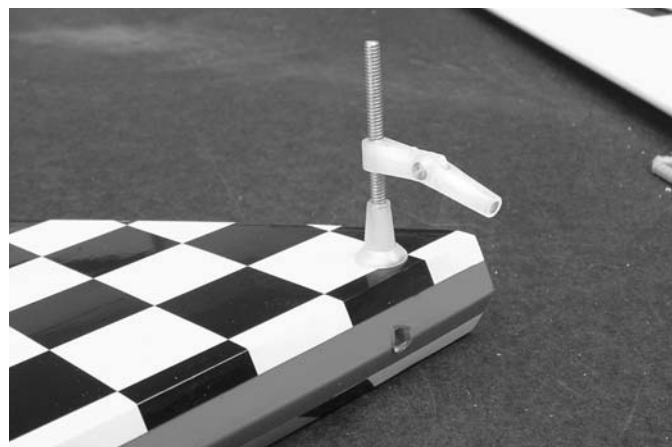


1. Collect the following parts:

- (2) stab halves
- (2) elevator halves
- (8) hinges
- (2) 6-32 x 3-1/2" control horn bolts
- (2) nylon nuts
- (2) nylon washers
- (2) adjustable control horns



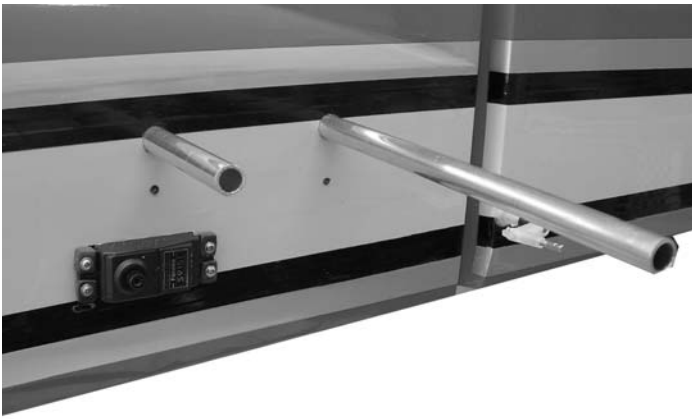
2. ☐ The two inboard hinges will have to be cut off 1/2" because of the rear aluminum tube.
- ☐ Trial fit the elevators to the stab and make sure all hinges will go in half way.



3. ☐ Make a mark 1/4" inboard from the center of the stab and 1/8" back from the top of the bevel. Transfer this mark to the other side of the stab.
- ☐ Using a 1/8" drill, drill the hole for the control horn.
4. ☐ Install the 6-32 x 3-1/2" bolt, nylon washer, nylon nut, and tighten down.
- ☐ Install the pushrod fitting on the end.
- ☐ Repeat for the other elevator.
5. ☐ Hinge the elevators in place using the same method we did on the ailerons and rudder.



6. ☐ It is easier to mount the elevator servos now before mounting the stab.
- ☐ Connect a 12" extension to each servo and mount in the holes with the output arm forward.



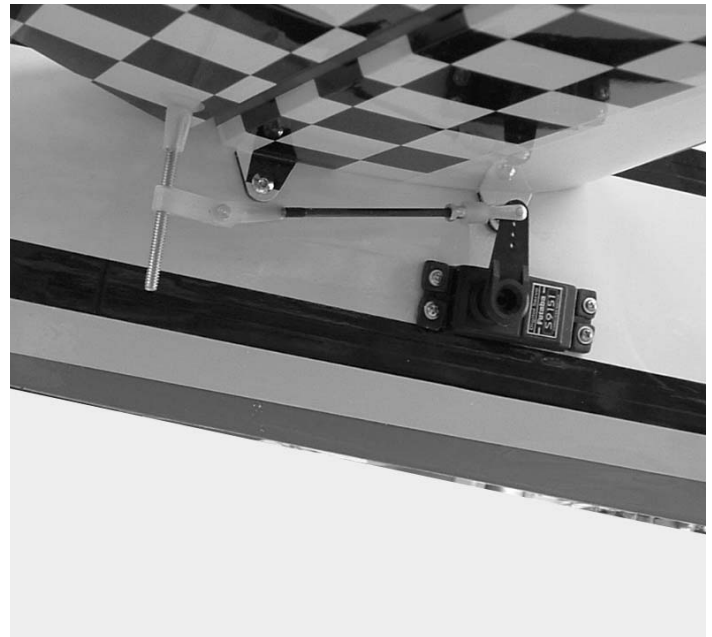
7. ☐ Insert the aluminum tubes in the fuselage.
- ☐ The long one goes in the rear.



8. ☐ Bolt the stab in place using two 4-40 x 1/2" screws on each side.
- ☐ **Use thread lock on the bolts.**

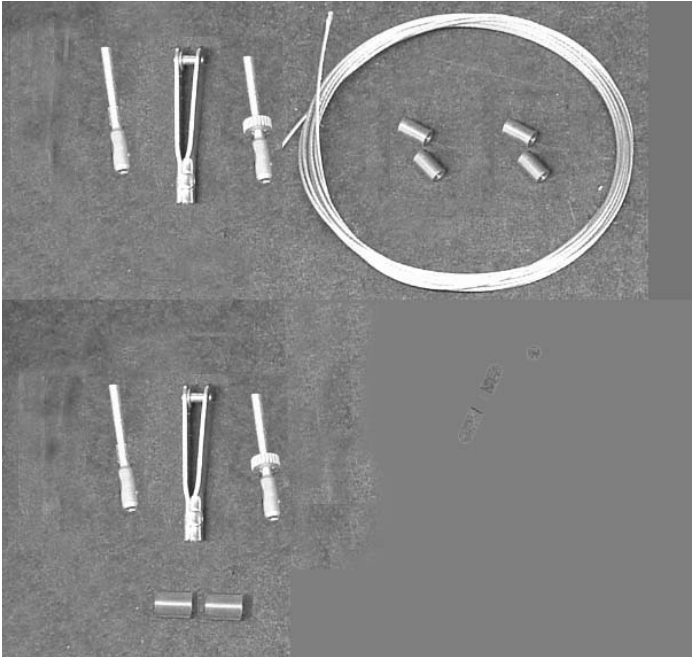
Elevator Pushrods

1. COLLECT THE FOLLOWING ITEMS:
 - (2) 4-40 X 3-1/8" PUSHRODS THREADED BOTH ENDS.
 - (2) 4-40 NUTS
 - (2) 4-40 CLEVIS
 - (2) SILICONE CLEVIS KEEPERS



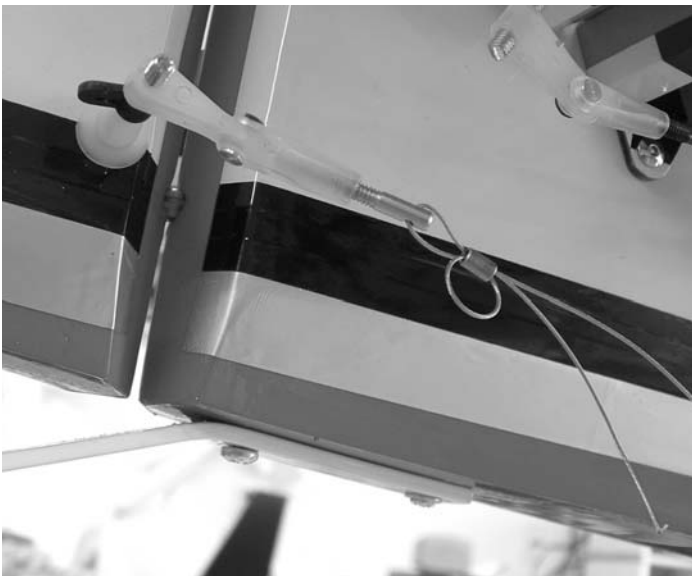
2. ☐ To get the proper throw you will need a 1-1/4" servo arm.
- ☐ The adjustable horn should be screwed 1" up the screw on the horn.
3. ☐ Screw the control rod into the nylon horn and screw the 4-40 nut then the clevis on the other end.
- ☐ Slide the silicone keeper on the clevis before installing it.
- ☐ Center the servo with the radio and adjust the pushrod and clevis till the elevator is neutral.
- ☐ Repeat for the other servo.
4. ☐ Make sure both elevators are aligned even with each other.
- ☐ Tighten the 4-40 nut down against the clevis and put a drop of thread lock on both.
- ☐ The excess control bolt can be cut flush with the bottom of the horn bracket.
5. ☐ Repeat for the other servo.

Rudder Servo Installation



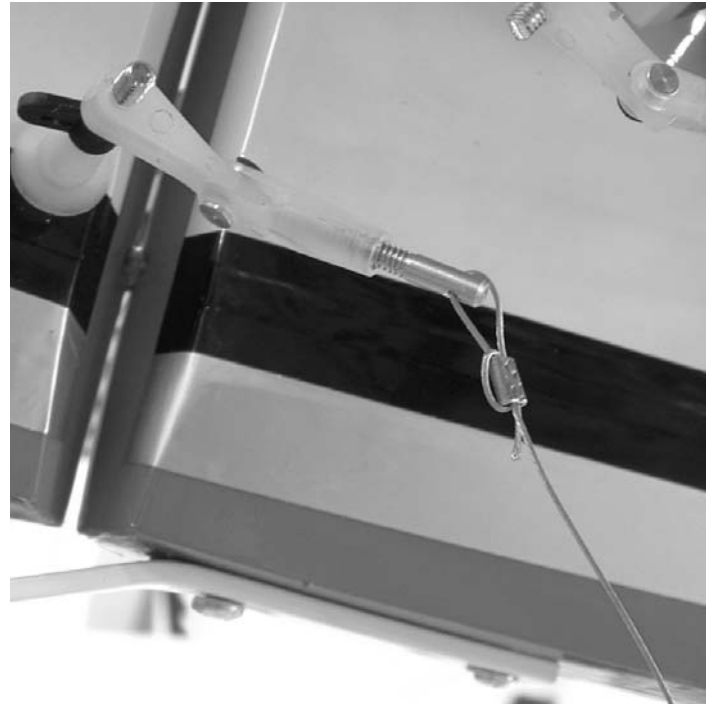
1. Collect the following parts:

- (2) 4-40 clevis
- (2) silicon clevis keepers
- (2) rigging couplers with nuts
- (2) rigging couplers without nuts
- (4) brass cable swages
- (6-1/2') braided cable

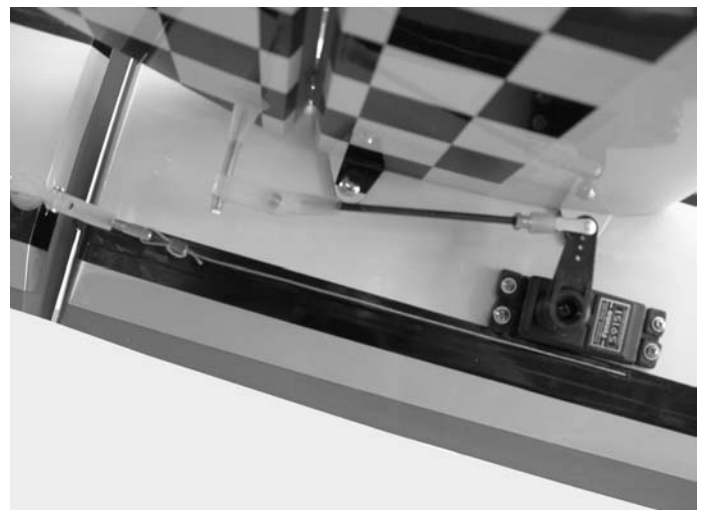


2. ☐ Screw one of the rigging couplers without a nut into the control horn on the rudder.
- ☐ Cut the braided cable into two equal lengths.

2. ☐ Take the end of the braided cable and thread through one of the brass cable swages, then through one of the rigging couplers.
- ☐ Loop the cable back through the cable swage.
- ☐ Take the end and loop it back around the cable swage and go through the swage again.



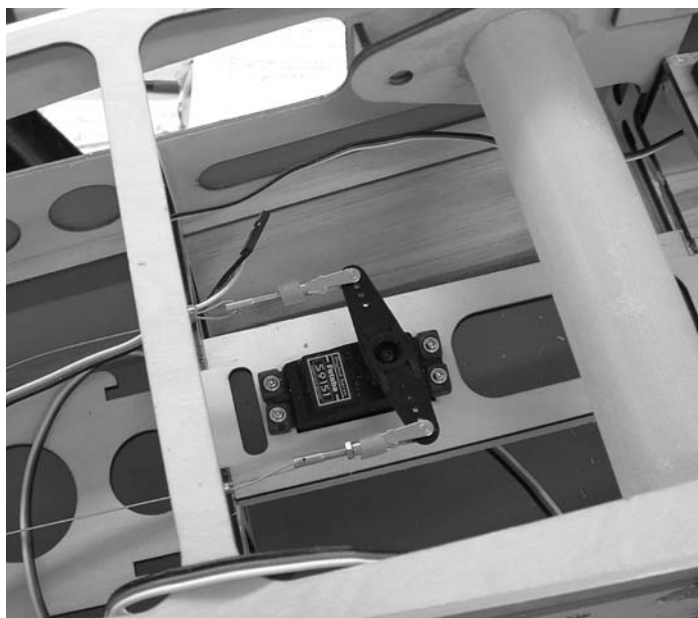
3. ☐ Pull the cable tight and crimp the swage.
- ☐ Repeat for the other side.



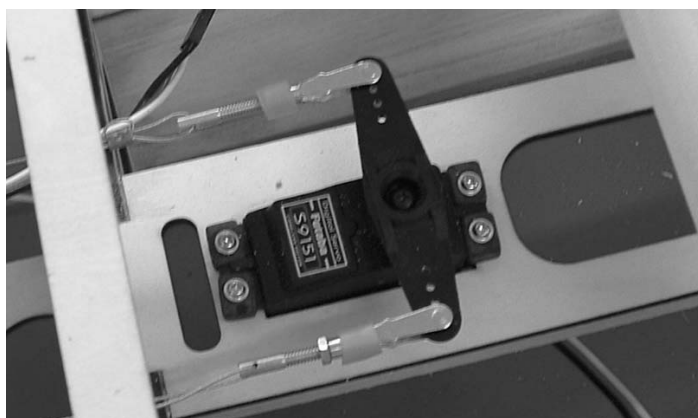
4. ☐ Thread the cables through the holes in the fuselage side located just under the elevator servo.



5. ☐ Slide the silicone keeper on the clevis and screw the rigging coupler with the jam nut into the clevis.
- ☐ Leave room for adjustment, you will need to tighten the cables.



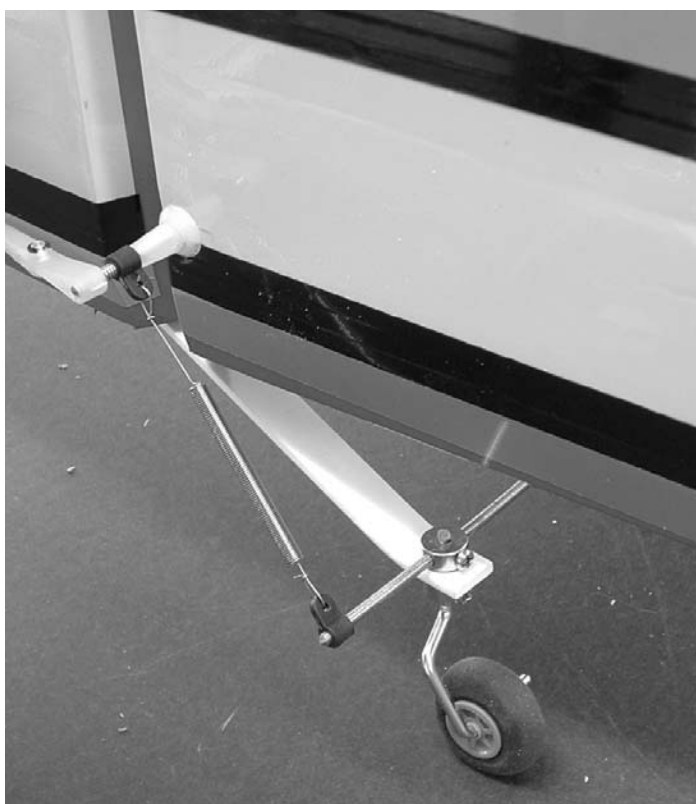
6. ☐ Mount the rudder servo in the hole provided in the servo tray.
- ☐ You will need a double sided heavy duty servo arm on your rudder servo.



7. ☐ Connect the two clevises to the output arm on your servo.

8. ☐ Tape the rudder in the neutral position.
- ☐ Make sure the rudder servo is centered.
- ☐ Thread each cable through one of the swages, through the rigging coupler and back through the swage.
- ☐ Pull both cables tight, loop through the swage again, and crimp.
9. ☐ Adjust the cables tight using the clevis, then tighten the lock nut on the rigging coupler against the clevis.

Tail Wheel Springs



1. ☐ Loop the straight end of the spring through the pushrod connector on the rudder horn.
- ☐ Use about 1/2 the length of the straight wire and bend around and wrap.
- ☐ Repeat for the other side.
2. ☐ Take the other end of each spring and loop through the pushrod connector on the tail wheel tiller arm.
- ☐ Make sure rudder is straight and tailwheel is straight.
- ☐ Pull just a little tension on the springs and bend and wrap the ends.

ENGINE INSTALLATION

The Motor you choose may have a different type installation as show. We show an O.S. 1.6 motor, this motor has more than enough power to make this plane perform to its limits.

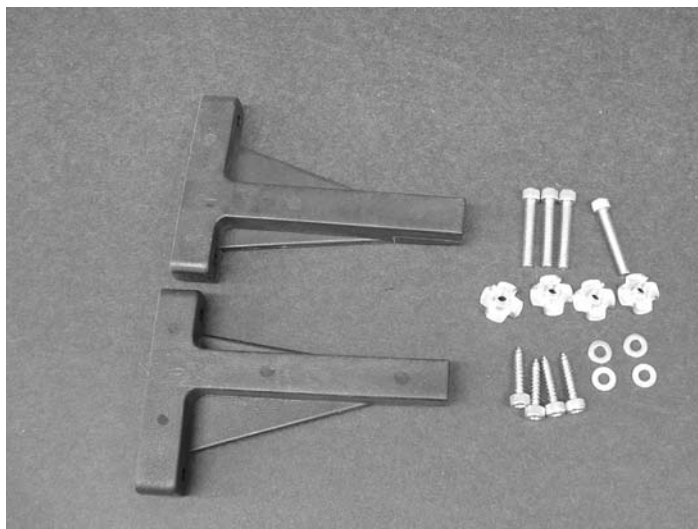
If you choose this powerful motor then you must make sure that you go over all high stress joints with white glue or a epoxy.

Because of the size of propellers used in these type of engines any kind of prop strike on the ground, or any other type of object, can cause structural damage that might not be easily visible. When a accident occurs you must check for damage thought out the plane before flying. This damage can cause airframe failure at any time, so inspections must be thorough.

We will not warranty any structural failures do to neglect or accidents.

Caution:

Always use thead lock on any bolt that is threading into metal threads.



1. Locate the following items:
 - (2) nylon motor mounts
 - (4) 3mm x 25mm bolts
 - (4) 3mm t-nuts
 - (4) 3mm flat washers
 - (4) 3mm x 20mm self tapping screws



1.
 - ☐ You will find both the horizontal and vertical lines marked on the firewall.
 - ☐ The vertical line is off set to compensate for the 2 degrees right thrust.
 - ☐ Mark your motor mount location from these marks.
 - ☐ The front of the cowl is 5-13/16" from the fire-wall.

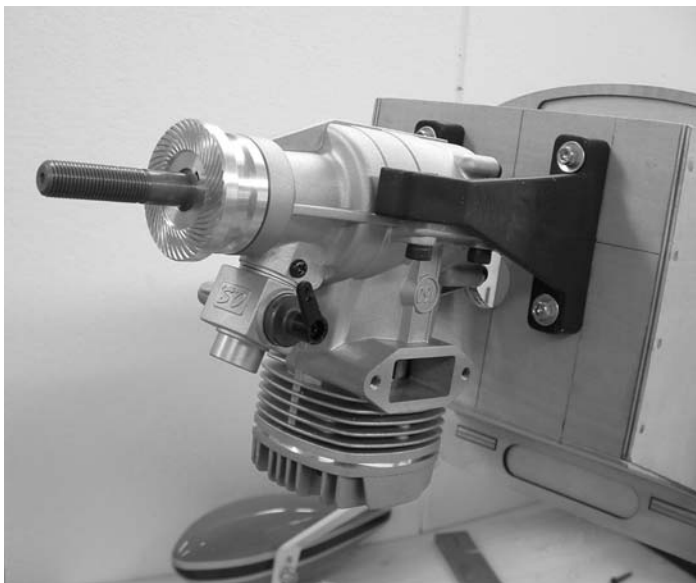


2.
 - ☐ Clamp the motor to the motor mounts and sit flat on the table.
 - ☐ Put a piece of scrap wood in the prop position.
 - ☐ Measure from the table to piece of wood and adjust motor until you have 6" on both sides.

Note: If you use a such as the Goldberg you will have to allow more clearance, if your spinner is flush with thrust washer 6" will be fine.

3. ☐ Mark the location of the mounting holes on the mounts.
- ☐ Remove the engine and drill a 1/8" hole at each location.
- ☐ Mount the engine to the mounts using the four 3mm x 20mm self tapping screws.

Caution: Be careful and don't over tighten the screws, they will break if over torqued.



3. ☐ Position the engine on the firewall centered on the marks.
- ☐ Mark the location of the holes on the firewall.
- ☐ Drill a 25/64" hole at the four locations.



4. ☐ Using the 3mm mounting bolt and washer pull the blind nuts into the firewall.

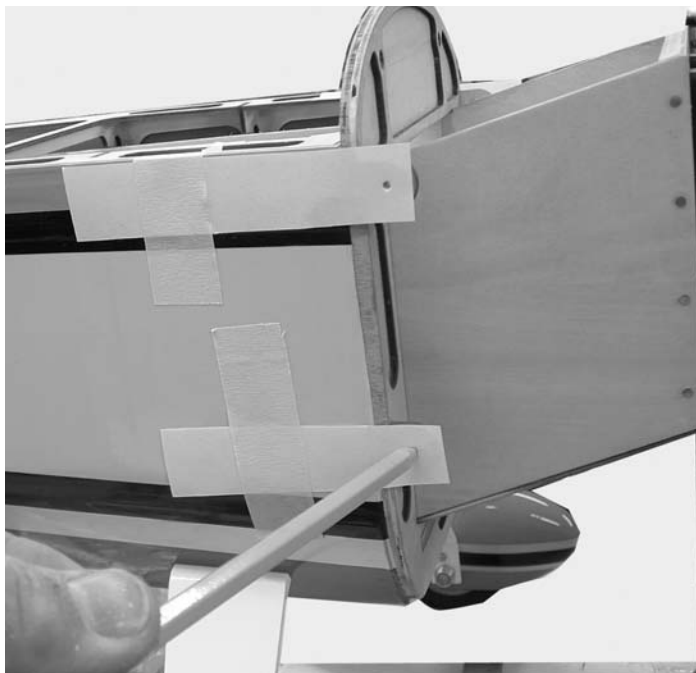
5. ☐ Mount the engine using the four 3mm x 25mm screws and flat washers.

Be sure and use thread lock on the bolts.

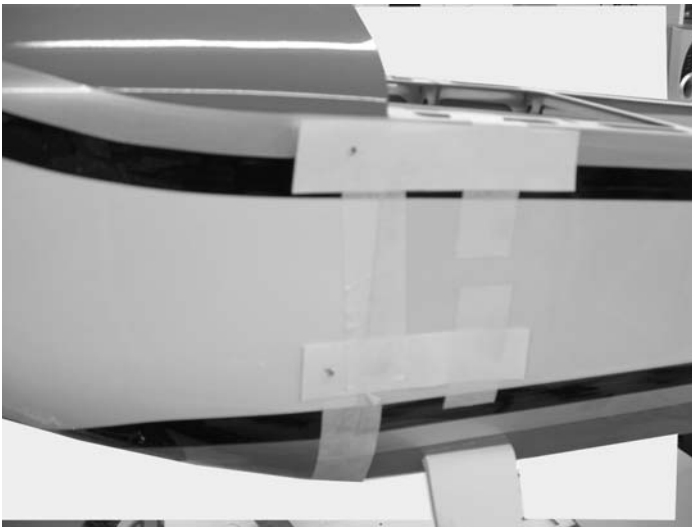
Cowl Mounting

1. Collect the following items:

- (1) cowl
- (4) 4-40 x 1/2" screws
- (4) nylon cup washers.



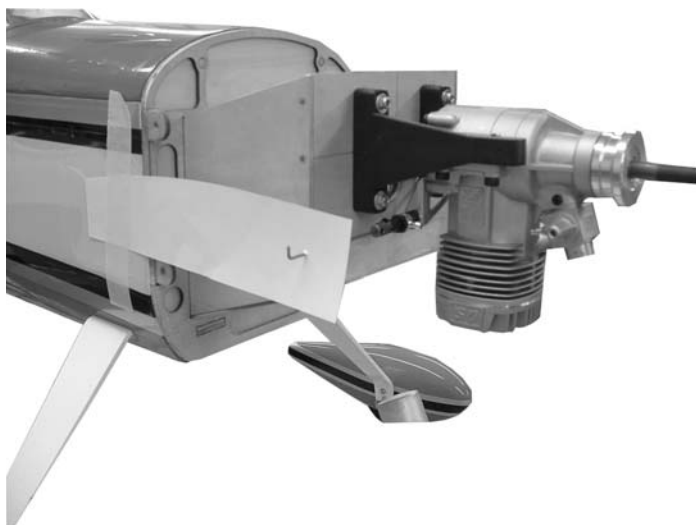
2. ☐ Take four strips of paper and tape to the side of the fuselage where they extend over the cowl mounting tabs.
- ☐ Use a pencil and transfer the location of the mounting holes to the paper.
- ☐ Do this on both sides.



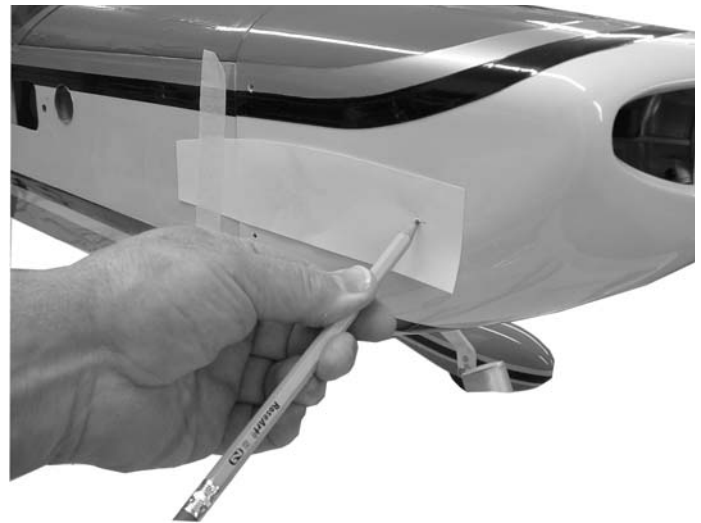
3. ☐ Mount the cowl in position and hold in place using masking tape.

Note: You will have to make a cut out for the engine head on the bottom of the cowl.

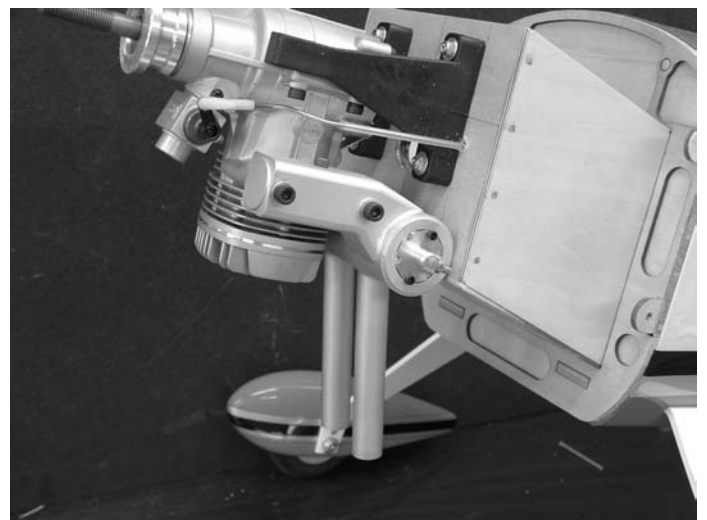
- ☐ Slide the cowl on till the engine touches and reach through the opening in the front of the cowl and mark the location of the hole.
 - ☐ Start small and make the hole larger as you continue to check the fit. The cowl should have about 1/2" clearance on all sides.
4. ☐ When the cowl is aligned properly, stripes on sides are aligned.
- ☐ transfer the location of the mounting holes from the paper to the cowl.
 - ☐ Remove the cowl and drill a 1/8" hole at the four locations.



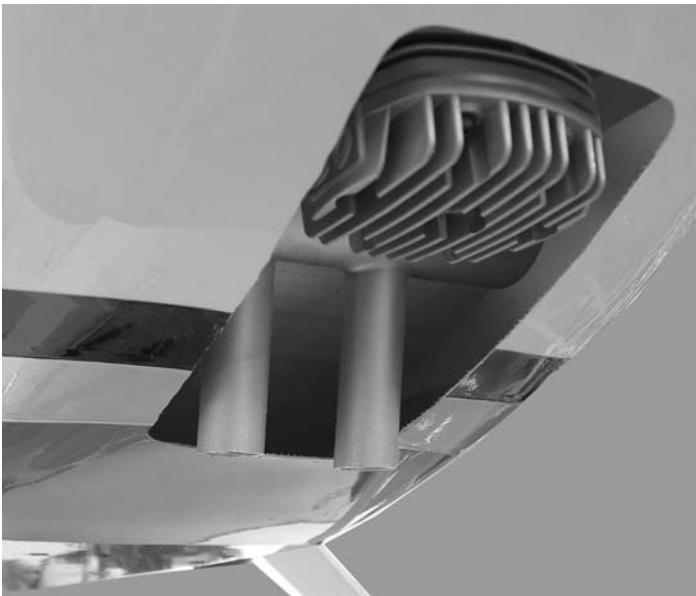
5. ☐ To locate the needle valve outlet hole, tape a piece of paper to the side of the fuselage with the needle valve extension through the paper.



6. ☐ Remove the needle valve, reinstall the cowl using the bolts and transfer the hole location to the cowl.
- ☐ Remove the cowl and drill a 1/4" hole at the location you marked.
 - ☐ After the cowl is install you can insert the needle valve through the hole.



7. ☐ To locate the muffler exit, install the muffler, cut a piece of paper to fit around it leaving about 1/2" clearance and tape to the side of the fuselage.

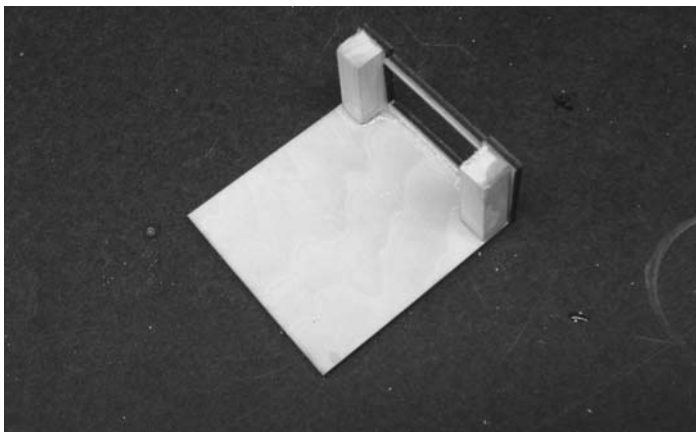


8. ☐ Reinstall the cowl and transfer the hole location to the cowl.
- ☐ The pipes can be cut just below the cowl and the cowl will go on and off without removing the muffler.

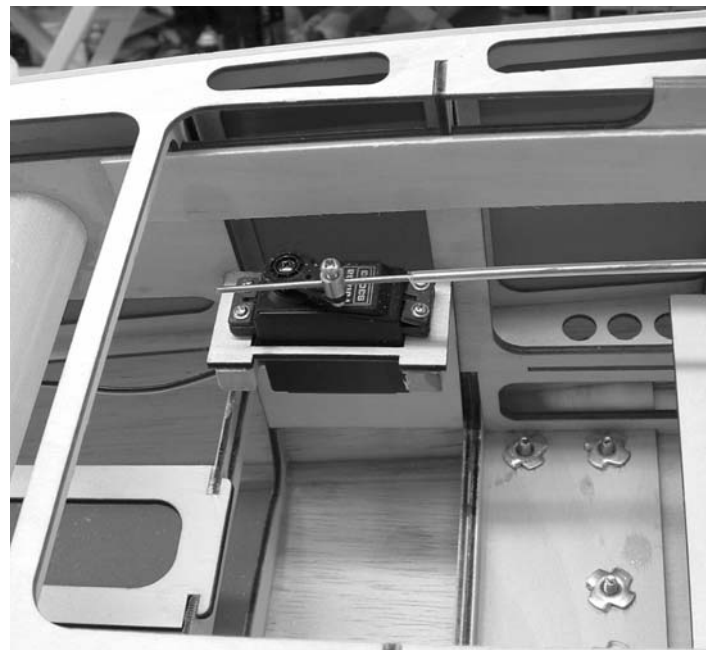
Throttle Servo Installation

1. Collect the following items:

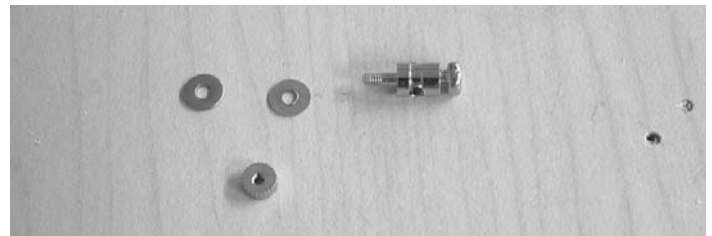
- (1) 2-56 x 18" throttle pushrod
- (1) 5/32" nylon tube
- (1) nylon snap link
- (1) e-z pushrod connector.
- (1) laser cut servo mount
- (2) 3/8" x 3/4" spruce blocks



2. ☐ Glue the servo mount with cutout to the top of the plate in the notch provided.
- ☐ Glue the two 3/8" square rails to the bottom side of the servo mount plate..



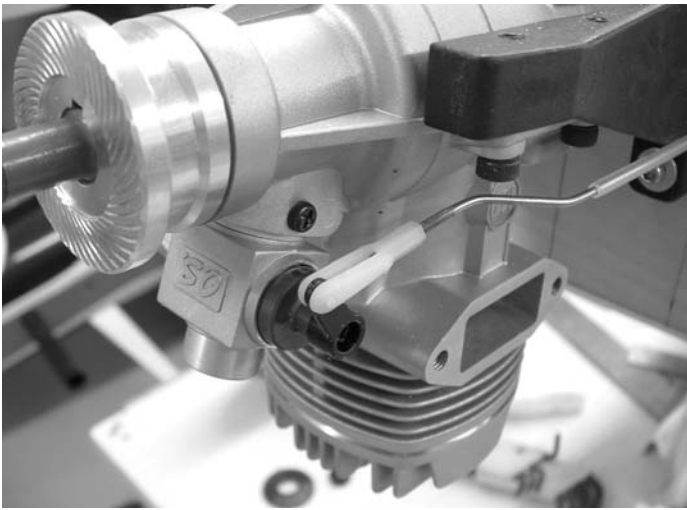
3. ☐ Mount the servo in the tray using the hardware supplied with the radio.
- ☐ Glue the servo mount to the fuselage side on the same side as the throttle arm on your engine.
- ☐ Glue in at a height that will match your throttle arm.



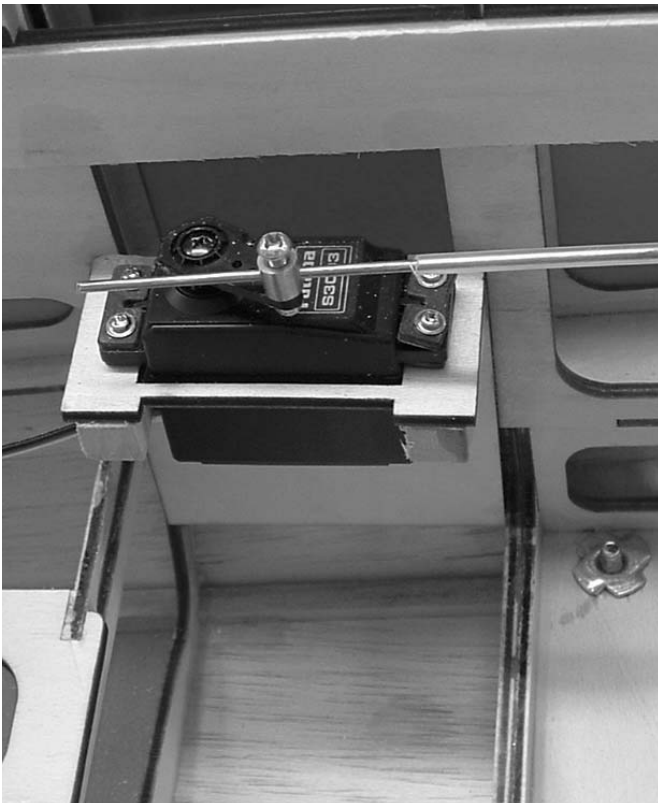
4. ☐ Locate the ez-connector and remove the nut.



5. ☐ Attach the ez-connector to your servo arm.
- ☐ Put a drop of CA on the nut to make sure it does not come loose.



6. ☐ Drill a 5/32" hole in line with your throttle arm. It may be necessary to make an offset bend in the throttle rod to make it align with the arm.
- ☐ Screw the nylon snap link on the pushrod.
- ☐ Insert pushrod in the nylon tube and install in the hole you drilled.



7. ☐ Insert the pushrod into the ez-connector and attach servo arm to servo.
- ☐ Move the throttle servo to full throttle, move engine throttle arm to full throttle and tighten the screw on top of ez-connector.
- ☐ Cut off excess pushrod.

Fuel Tank Installation

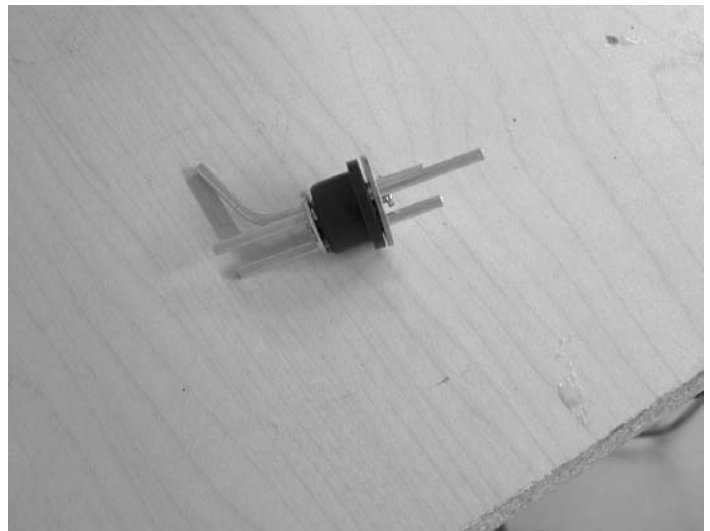
1. Collect the following items:

- (1) fuel tank
- (1) cap assembly
- (1) clunk
- (1) pick up tube
- (3) aluminum tubes



2. ☐ Insert the three aluminum tubes into the cap assembly.

There should be two short tubes that extend out the front and back of the cap about 1/2" to 5/8". The third line is the vent and should be bent at an angle so it touches the top of the tank when installed.

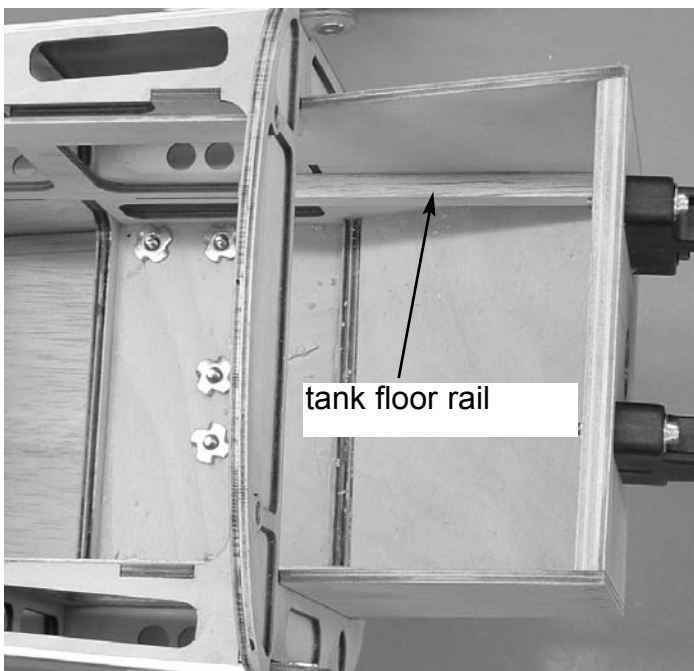




3. ☐ Attach the fuel pickup line to one of the straight tubes.
- ☐ Attach the clunk to the other end.
- ☐ Fit assembly into the tank and adjust the length of the pickup line so the clunk is about 1/4" off the bottom of the tank when held vertically.
4. ☐ When adjusted properly, tighten the screw

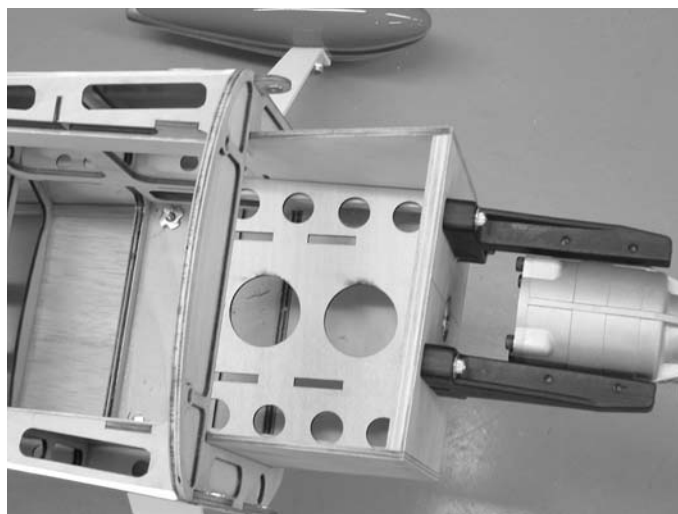
Be careful and don't over tighten as you can split the tank.

- ☐ Mark the lines so you can identify the vent, fill-line and pickup line when ready to attach to engine.



5. ☐ Locate the two 3/8" square balsa tank floor support rails and the tank floor.
- ☐ Insert the tank cap into the hole in the firewall and mark the location of the tank along the top edge.

- ☐ Measure down from the line and allow for the thickness of the tank floor and glue the 3/8" square balsa to each side of the fuselage.

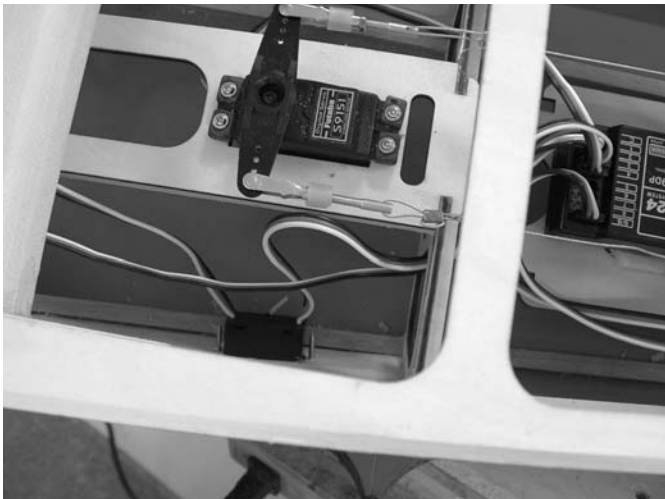


6. ☐ Glue the tank support floor in place on top of the 3/8" square rails.
7. ☐ Install the tank with the cap through the hole in the firewall and sitting in the cradle in the rear.
- ☐ Put a thin piece of foam under the tank in the rear cradle and hold tank in place with velcro straps.
- ☐ Install fuel tubing (not supplied) between the fuel pickup line and the carb.
- ☐ Route the fill line and vent tube out the bottom of the cowl.
- ☐ The fill line will have to be plugged, the vent line must be left open.

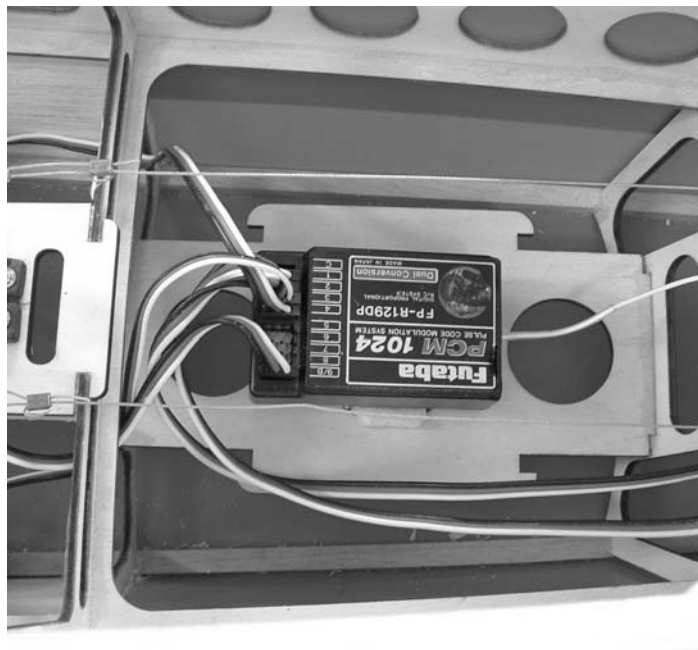


8. ☐ If you use a gas motor or motor with a pump, the tank floor can be installed in the rear most position which will put the tank closer to the CG.

Receiver and Switch Installation



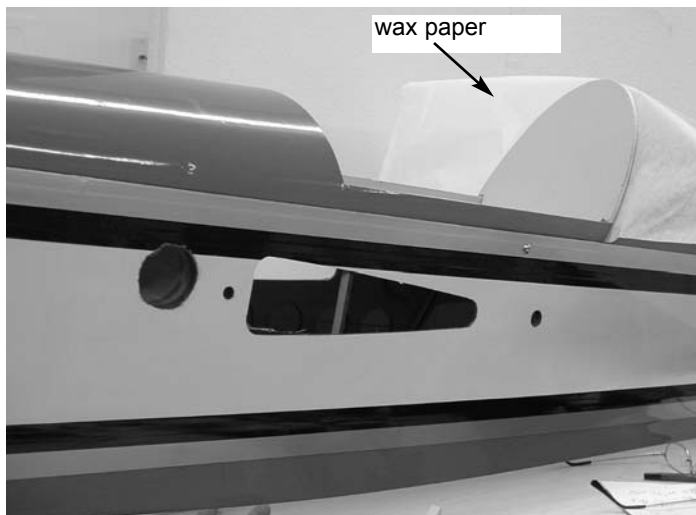
1. ☐ Switch mount positions are provided on both sides of the fuselage, either can be used.



2. ☐ A mount for the receiver is provided just behind the servo tray and under the rudder cables.

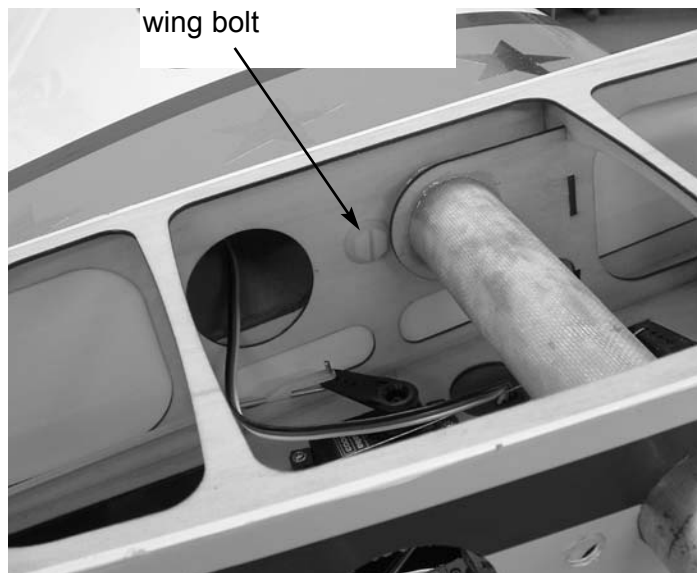


Canopy Mounting.



Caution: Do not glue the canopy to the hatch without the hatch mounted to the fuselage. You can warp it and it will not fit back on the fuselage.

1. ☐ Mount the hatch to the fuselage using the two 4-40 x 1/2" screws.
 - ☐ Put a piece of wax paper between the turtledeck and canopy bulkhead to prevent glue from getting in the seam.
2. ☐ Put a bead of canopy glue around the edge of the canopy on the inside and fit into place.
 - ☐ Make sure canopy is properly positioned and hold in place with masking tape till glue dries.
 - ☐ Most canopy glues can be cleaned up with water while still wet. Remove any smudges with a damp cloth.



2. ☐ Trial fit the wing tube into each wing panel. If very tight try a little wax on the wing tube work it in and out till it frees up.
 - ☐ Fit both wings in place and hold in place with the 1/4-20 nylon bolts.

Note: The bolts are sent full length, you will probably want to cut them down to about 3/4" to 1" to make them easier to install.

3. ☐ Install the battery pack according to where you need the weight to make the CG correct.
 - ☐ With all equipment installed, check the CG.

The CG should be 4-1/2" to 4-3/4" behind the leading edge of the wing at the fuselage side.

Control Throws and CG

Ailerons	Low Rate	3/4" each direction
	High Rate	1-1/2" each direction
Elevators	Low Rate	1-1/4" each direction
	High Rate	3" each direction
Rudder	Low Rate	2" each direction
	High Rate	4" each direction
CG Location	4-1/2" to 4-3/4" behind the leading edge of the wing next to the fuselage side.	