

# Yak 54



Aerobatic flying just doesn't get any better than this Yak54. The classic lines of a world class aerobatic plane coupled with the radial cowl, add excitement to 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 (5151 Memorial Drive, Muncie, IN 47302, 1-800-435-9262). We suggest you join the AMA and become properly insured prior to flying this model. Also, consult with the AMA or your local hobby dealer to find an experienced instructor in your area. Per the Federal Communications Commission, you are required to use only those radio frequencies specified "for Model Aircraft."

## **LIMITED WARRANTY**

Carl Goldberg Products, Ltd. has inspected and certified the components of this aircraft. The company urges the buyer to perform his own inspection, prior to assembly, and to immediately request a replacement of any parts he believes to be defective for their intended use. The company warrants replacement of any such components, provided the buyer requests such replacement within a period of 90 days from the date of purchase and provided the defective part is returned, if so requested by the company.

No other warranty, expressed or implied, is made by the company with respect to this kit. The buyer acknowledges and understands that it is his responsibility to carefully assemble the finished flying model airplane and to fly it safely. The buyer hereby assumes full responsibility for the risk and all liability for personal or property damage or injury arising out of the buyer's use of the components of this kit.

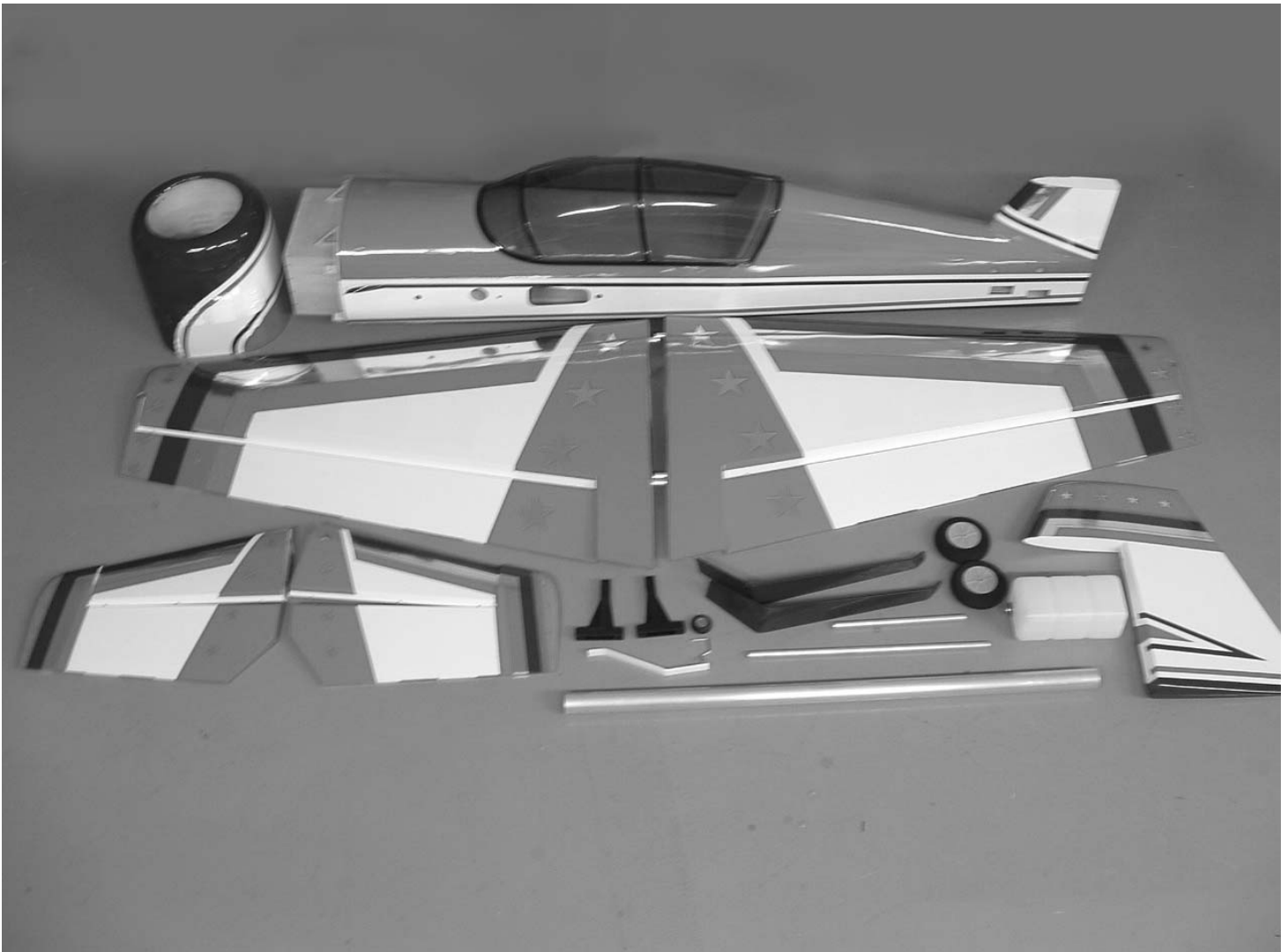
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# **CARL GOLDBERG PRODUCTS, LTD.**

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**Cowl**  
**Fuselage**  
**Clear canopy**  
**Left wing panel with aileron**  
**Right wing panel with aileron**  
**Stab half left**  
**Stab half right**  
**Elevator left**  
**Elevator right**  
**Motor mounts**  
**Tail wheel bracket**  
**Main gear**  
**Wheels**  
**Stab spars(aluminum tubes)**  
**Wing tube (aluminum tube)**  
**Fuel tank**  
**Rudder**

Before you begin assembling your **Yak 54 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. by telephone 1-678-450-0085.

## ADHESIVES & GLUING TECHNIQUES

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

## CAUTION

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

## COVERING

The Yak 54 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.

## Important Information

Covering coming loose is not COVERED UNDER WARRANTY. Due to temperature changes the plane may develop some wrinkles in the covering that you will need to remove with an iron. Be sure to seal the edges down first so that you do not cause the covering to shrink and leave exposed areas of wood. Please inspect the plane before beginning to assemble to make sure you are happy with it. After assembly has begun you cannot return the kit. If you find a problem before beginning to assemble the plane you must contact us, please do not return it to the dealer.

#### ITEMS NEEDED TO COMPLETE THIS AIRCRAFT

- ☐ 1 RADIO GUIDANCE SYSTEM (4 CHANNEL MINIMUM REQUIRED WITH 8 SERVOS)
- ☐ 2 12" AILERON SERVO EXTENSION WIRES
- ☐ 2 24" ELEVATOR SERVO EXTENSION WIRES
- ☐ 3 Y-HARNESS
- ☐ 1 ENGINE and PROP
- ☐ 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 1/5 PILOT FIGURE
- 1 SPINNER 2-1/2" to 3-1/2"

**NOTE: The Yak ARF covering matches Midnight blue #885, Flame red #883, and White #870.**

#### 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
- ☐ PIECE OF MEDIUM SANDPAPER
- ☐ 5 FT. LENGTH OF STRING

## Caution:

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

# WING ASSEMBLY

## AILERON INSTALLATION



1. ☐ Collect the following parts:
  - (1) Left wing
  - (1) Right wing
  - (1) Left aileron
  - (1) Right aileron
  - (10) pin hinges



2. ☐ Start with one wing panel. Locate the ailerons and trial fit them on the wing. Make sure all the hinges are aligned.
  - ☐ Now locate the other aileron and wing panel and fit the aileron. When you are satisfied with the fit, remove the ailerons and lay them behind the wing in the correct position. The pin style hinges work best if installed in both wing and aileron at the same time. Apply a drop of oil in the hinge. Use 30 minute epoxy to glue them in.

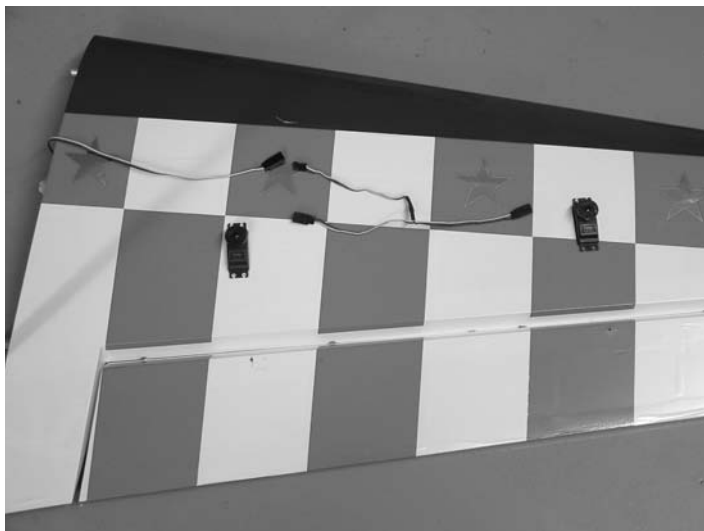
**Note: A syringe works great, if you have one**

- ☐ use a 1/8" dowel or piece of 3/32" wire to get the epoxy into the holes. With glue in the holes, push the hinges in wing up to the pin. Apply glue in the holes on the aileron and slide aileron into place. Work the aileron up and down several times and the pin hinges will rotate into position. Make sure you have a tight fit between the wing trailing edge and aileron leading edge.

Set aside to dry and install the other aileron.

## 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:
  - (4) Servo mounting screw (supplied with radio)
  - (1) Servo with rubber grommet (supplied with radio)
  - (2) Servo extensions 12"
  - (2) y-connectors

**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.**

2. ☐ Making sure to use the correct servo for the opening, attach the servo wire to the y-connector and securely tape the connection.
  - ☐ Push the y-connector wire into the wing until it comes out the other servo hole near the center of the wing.
3. ☐ Connect the other servo and the 12" extension to the end of the y-connector.

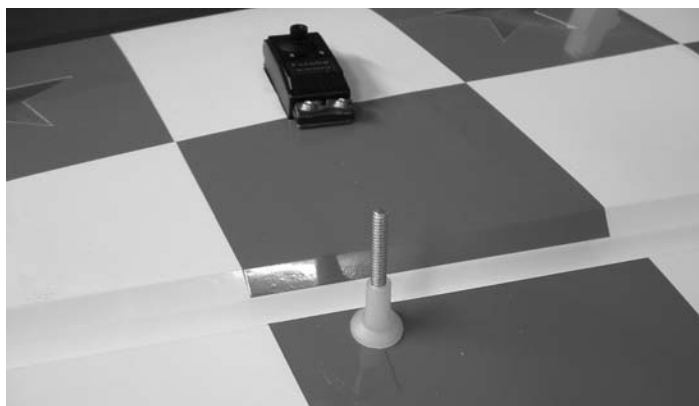
Install the servo with the output arm forward.
4. ☐ Grasping the extension in the hole, **SLOWLY** pull until the end of the extension comes out of the hole at the center of the wing..
  - ☐ Tape the extension securely to the wing, so that it will not slide back in while you are working.

## AILERON CONTROL HORN INSTALLATION



1. ☐ Collect the following items

- (4) Nylon clevis assemblies
- (4) nylon ball nuts
- (4) 6-32 x 3" Bolt
- (4) nylon washers
- (4) 4-40 x 4" pushrods
- (4) 4-40 clevis
- (4) clevis keepers

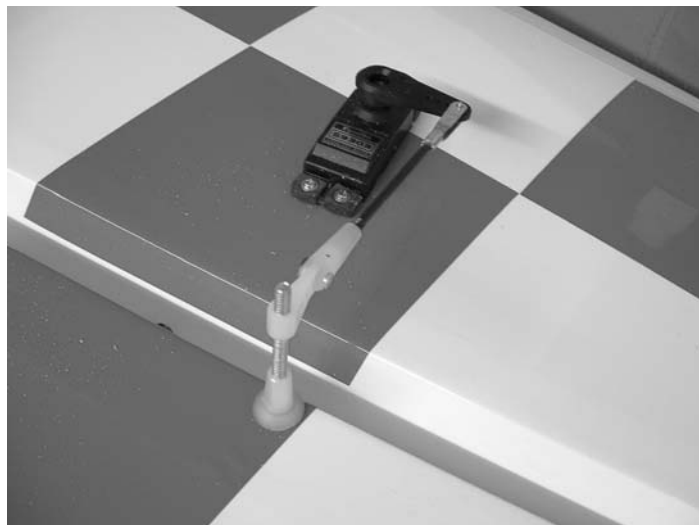


2. ☐ With the aileron servo in place, make a mark at a 90° degree angle to the trailing edge and in line with the servo arm.
3. ☐ Use the mark to locate the hard point installed in the aileron( dowel with hole in middle).

4. ☐ Using a 9/64" drill bit, open the hole in the aileron through to the top side.

HINT: Drill the hole from the bottom half way. Then drill down to the hole from the top of the aileron.

5. ☐ Insert the 6-32 x 3" screw from the top through the aileron.
- ☐ Place the nylon washer and the nylon ball nut on the bolt and tighten.
  - ☐ Screw the adjustable clevis assemble on the bolt.



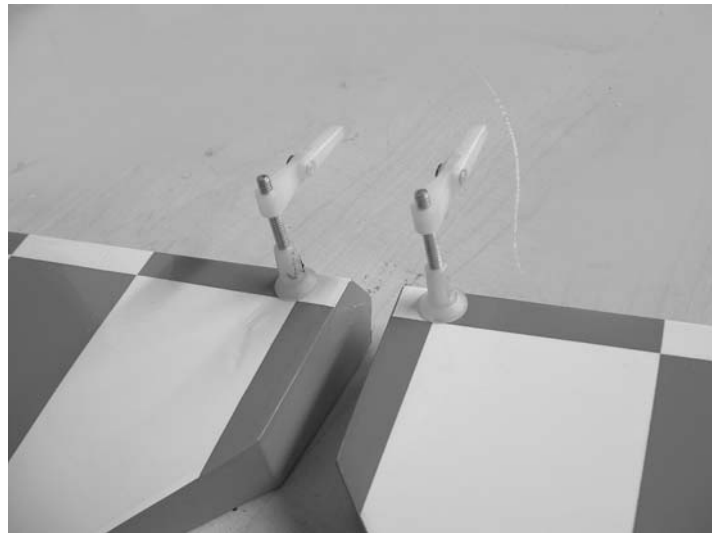
6. ☐ Thread on to one end of a 4-40 x 4" pushrod a nut and clevis.
- ☐ Mount the pushrod onto the nylon clevis assemble on the aileron.
  - ☐ With the servo centered, connect the pushrod to the control horn.
  - ☐ With one servo connected and the radio on, connect the other servo pushrod making sure that there is no pressure on the other servo.
  - ☐ Install the clevis keepers.
  - ☐ Repeat the above steps for the other two aileron servos.



## Tail Construction.

- ☐ Collect the following items

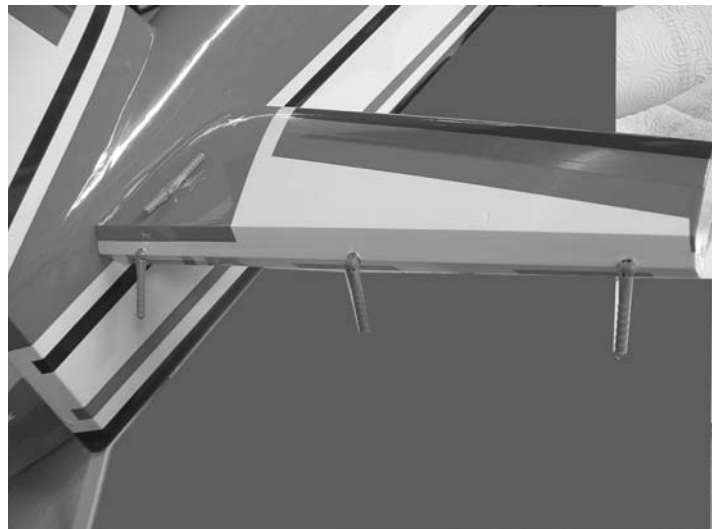
- (1) Stab
- (1) Fuselage
- (1) Stab halves
- (6) pin style hinges
- (4) 4-40 x 1/2" bolts
- (2) aluminum stab tube
- (2) 6-32 x 3" bolts (control horns)
- (2) nylon ball washers
- (2) nylon ball nuts
- (2) nylon clevis assemblies



- 3. ☐ Install the control horns on the elevators in the same manner as you did the ailerons.



- 4. ☐ Because of the location of the stab tube, the inboard elevator hinge will have to be cut off at the end of the second serration, cut off 1/2". Make sure hinge will go into stab up the hinge pin.



- 1. ☐ Install the two aluminum stab tubes in the fuselage with the longer one in the rear.

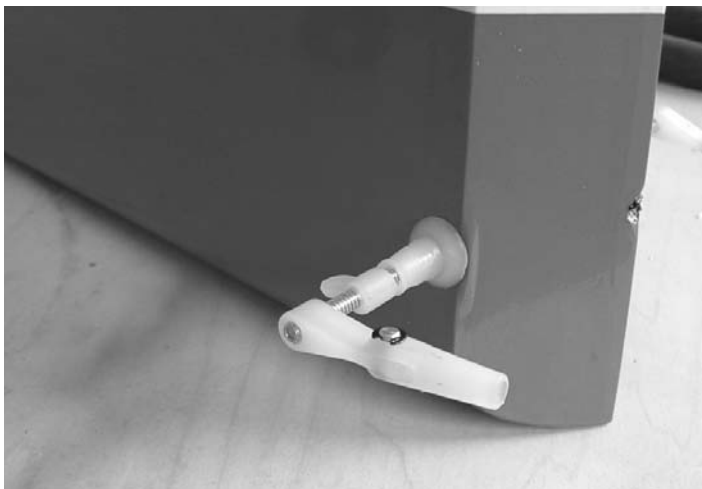


- 2. ☐ Slide the stab half onto the tubes and tightly against the fuselage side. Install the two 4-40 x 1/2" bolts into the mounting tabs on the bottom of fuselage. Blind nuts are pre-mounted in the fuselage. Be sure to use lock-tite on the bolts. Repeat for the other stab half.

5. ☐ Install the other two hinges. Trial fit the elevators in place making sure they will fit tightly against the trailing edge of the stab and work smoothly.
- ☐ When satisfied with the fit, remove elevator and apply epoxy in the holes the same as with the ailerons. Work the elevators up and down several times and set aside to dry..

## Rudder Installation

1. ☐ Collect the following items:
  - (1) Rudder
  - (1) 6-32 x 4" threaded rod
  - (2) nylon ball washers
  - (2) nylon ball nuts
  - (2) nylon clevis assemblies
  - (2) nylon pushrod connectors
  - (3) Pin style hinges
1. ☐ Insert the three hinges in the fin until the hinge pin is on the hinge line. Fit the rudder in place on the hinges.
2. ☐ Locate the exit hole in the side of the fuselage for the rudder pull-pull cable. Using a straight edge, mark the location of the control horn on the rudder in line with the hole
3. ☐ Drill a 9/64" hole at the location you just marked. Drill half way from each side as you did on the ailerons.



4. ☐ Install the 4" threaded rod with a ball washer and ball nut on each side. Center the bolt in the rudder. Install the nylon pushrod connector for the tail wheel steering springs and then the nylon clevis assemblies. Repeat for the other side.

5. ☐ Trial fit the rudder in place making sure the hinge line is tight against the fin. When satisfied with the fit glue the hinges in place using the same procedure you did with the ailerons.

## Landing Gear Installation

1. ☐ Collect the following items.
  - (2) Landing gear legs
  - (6) 6-32X3/4" Socket head screws
  - (6) #6 flat washers
  - (2) Wheel pants, one left one right
  - (2) 4mm axels with lock nuts
  - (4) 4mm wheel collars
  - (2) 3-1/4" wheels
  - (2) 4-40 x t-nuts
  - (2) 4-40 x 1/2" socket head bolts



2. ☐ Slide gear leg into slot on side of fuselage and install retaining bolts through the gear legs from the inside of the fuselage. Be sure to use thread lock on the bolts. The blind nut are already installed.







3. ☐ Install each axel using the locking nut. Be careful not to over tighten the nut, it looks like a large bolt but it has been drilled out for the axel and can be broken if too much torque is applied.

6. ☐ Block the tail of the plane up so that the fuselage is sitting level. Put the wheel inside the pant and slide both on the axel together.
- ☐ While holding the wheel pant level, mark the location of the mounting bolt by using a 1/8" drill and inserting it through the predrilled hole on the landing gear leg



4. ☐ Install one wheel collar on each axel with 3/16" between the collar and the axel nut. This will space the wheel in the center of the wheel pant.



7. ☐ Remove the wheel pant and drill a 5/32" hole at the location you marked. Insert the blind nut on the inside and pull it tight using the 4-40 mounting bolt. Lock in place with CA glue being careful not to get it in the threads.

5. ☐ The wheel pants have the 1/2" hole predrilled in each pant. The 1/8" hole for the mounting bolt must be drilled.



8. ☐ Reinstall the wheel and wheel pant and retain with the other 4mm wheel collar. Align the wheel pant on the gear leg with the hole you drilled for the blind nut. Install the 4-40 x 1/2" socket head screw.

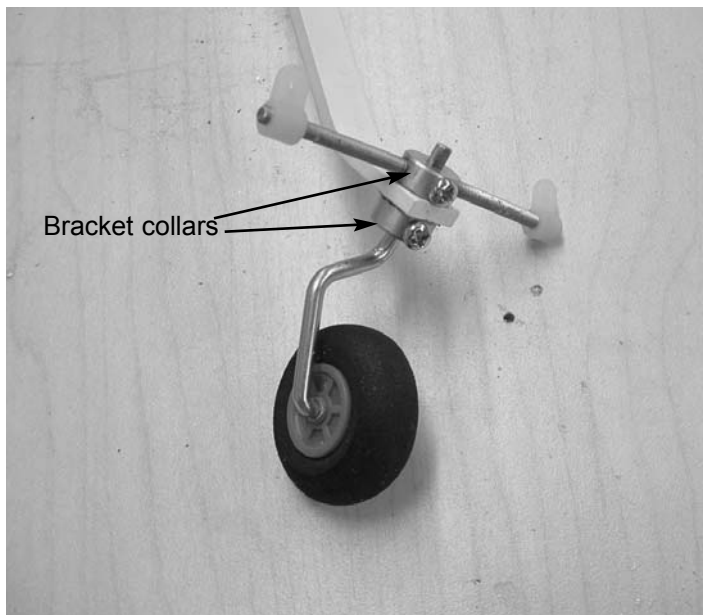
**Don't forget to use locktite to make sure it does not come loose.**

- ☐ Repeat for other wheel pant.

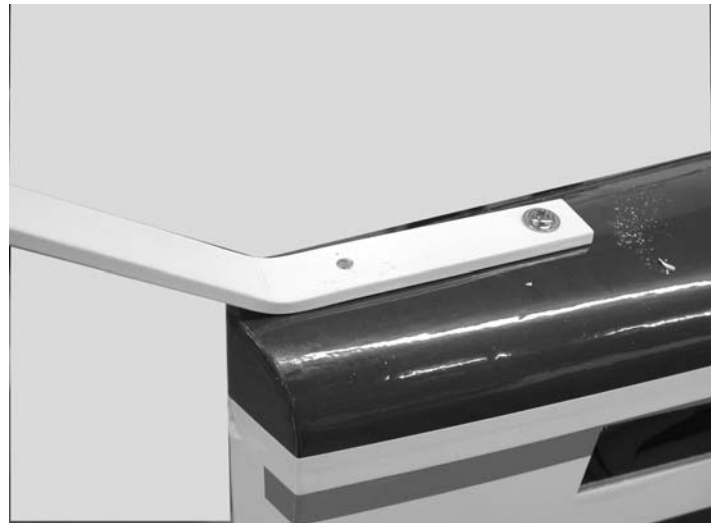
### Tail wheel Mounting

1. \* Collect the following parts:

- (1) tail wheel bracket
- (1) tail wheel
- (1) 1/8" wheel collars
- (2) tail wheel springs
- (2) 3mm x 1/2" sheet metal screws\
- (2) bracket collars
- (2) nylon horn brackets-
- (2) 3mm x 1-1/2" threaded rod



2. ☐ Build up the tail wheel assembly by putting the tail wheel on the axel and retaining with the 1/8" wheel collar. Install the bracket collar (without holes on each side) on the shaft.
- ☐ Insert the shaft through the mounting bracket and install the bracket collar. Screw the threaded rods into the bracket on each side. Make sure the tiller arms are square to the tail wheel and tighten the screw. Use locktite on the screw.
- ☐ Install the nylon horn brackets on each end of the threaded rod.



3. ☐ Install the tail wheel bracket on the fuselage by drilling a .050 hole at each locations and mounting with the two 3mm x 1/2" screws.



4. ☐ Install the tail wheel springs between the rudder horn bracket and tail wheel horn bracket.

## Elevator Servos

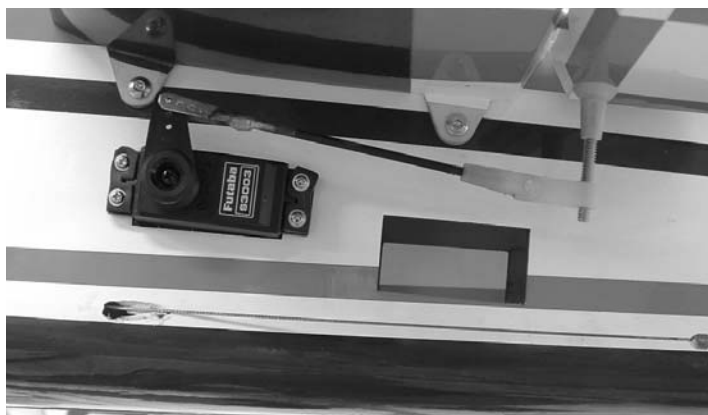
1. ☐ Collect the following parts:
  - (2) 4-40 x 2-3/4" threaded pushrods
  - (2) metal clevis
  - (2) 4-40 nuts
  - (2) clevis retainers



4. ☐ Thread the 2-3/4" pushrod into the clevis assembly on the rudder horn. Install the nut and metal clevis on the other end and attach to servo. arm. Install the clevis keeper. Repeat for the other elevator servo.

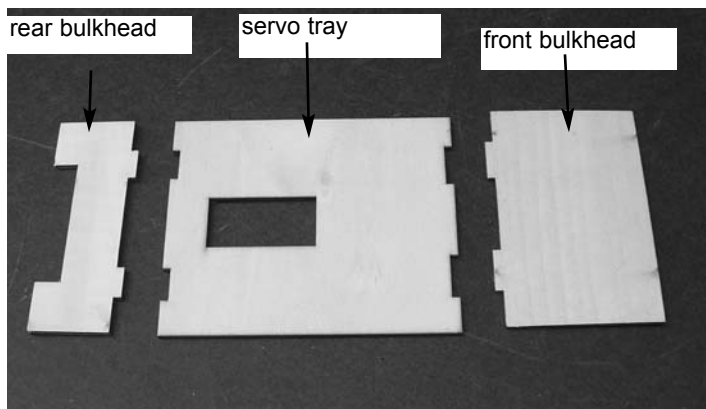


2. ☐ Install the elevator servos in the fuselage side with the output arm forward.



3. ☐ Be sure and use the forward hole for the elevators. There is an optional rudder servo hole. Do not remove covering from this opening if using the pull-pull rudder servo setup. The rudder servo can be mounted in the tail if a heavy motor is used and weight is need in the rear. The 1.2 to 1.6 two and four stroke motors are not heavy enough to mount the servos in the tail.

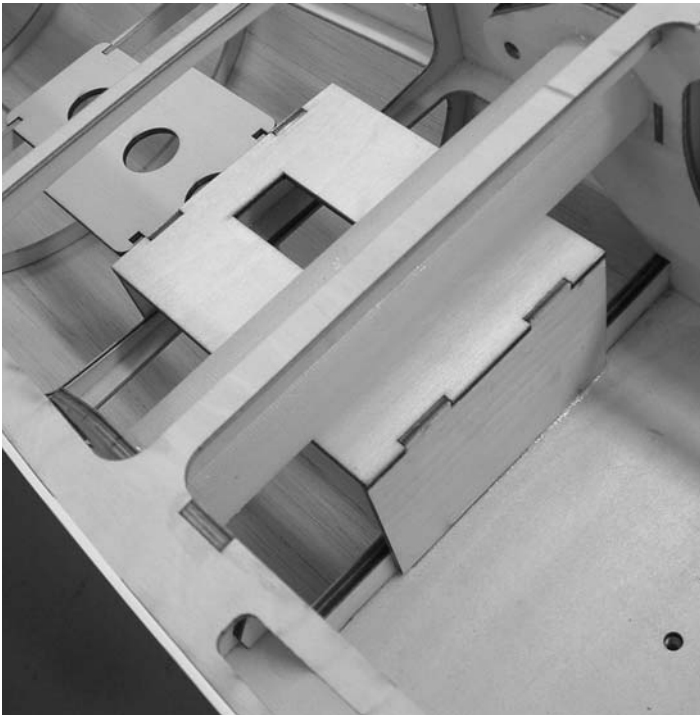
## Rudder Servo Tray Installation



1. Locate the servo tray, front bulkhead, and rear bulkhead.



2. Epoxy the rear bulkhead in place with the notch on the bottom fitting over the receiver tray and flush against the bulkhead.



3. Epoxy the servo tray to the rear bulkhead making sure the servo cutout is to the rear of the wing tube.

4. Epoxy the front bulkhead in place sitting on the cockpit floor and back against the bulkhead.

5. If you are using a large motor you may want to install a piece of tri-stock (not included) along the front side of the servo tray and the bottom of the wing tube. This will add strength to the servo tray.

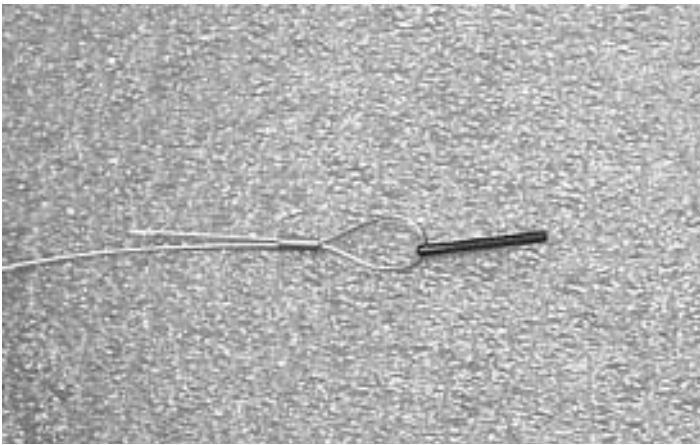
## Rudder Servo

1. \* Collect the following parts:

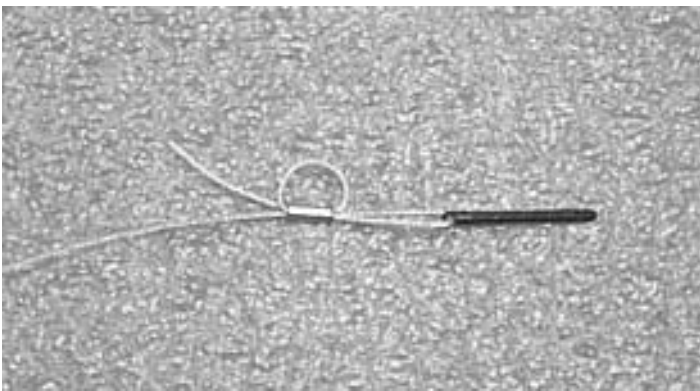
- (2) braided steel cable
- (2) metal clevis
- (2) 4-40 nuts
- (2) clevis retainers
- (4) threaded cable couplers
- (4) cable swages



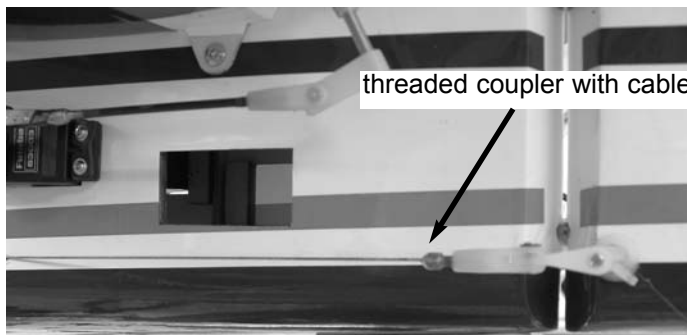
2. ☐ Mount the rudder servo in the tray supplied just behind the wing tube.



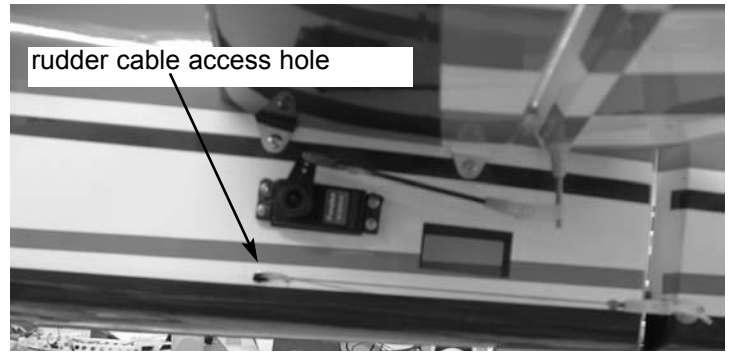
2. ☐ Thread the cable through one of the swages then through the hole in the end of the threaded coupler and back through the swage.



3. ☐ Loop the cable back through the swage then crimp the swage with a pair of pliers.



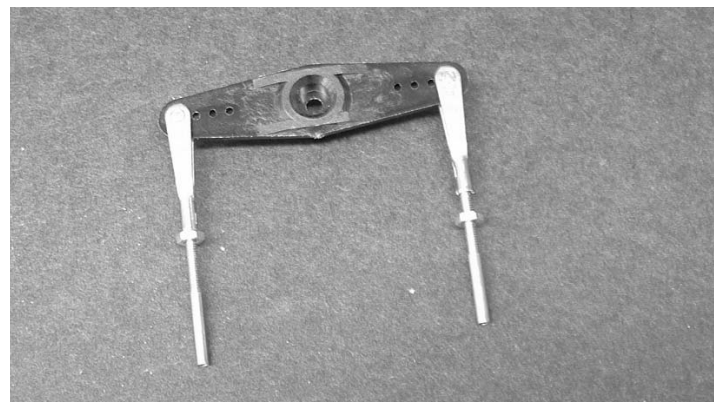
4. ☐ Screw the threaded coupler with cable attached into the nylon clevis assembly on the rudder horn.



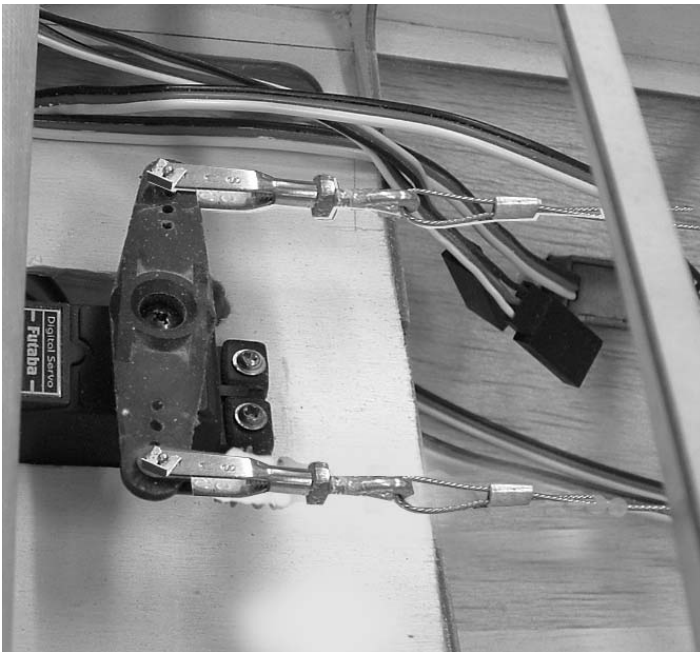
5. ☐ Thread the cable into the access hole in the side of the fuselage.  
☐ Repeat for the other cable.



6. ☐ Take the other two threaded couplers and install a nut and clevis on each.

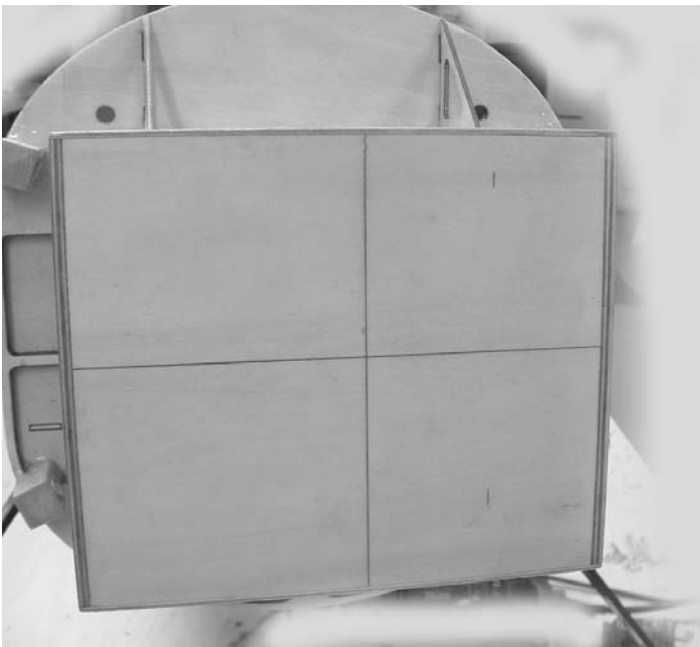


7. ☐ Install the two clevis assemblies on a double control arm.  
☐ Center the servo and attach the control arm. Tape the rudder in place centered.



8. ☐ Pull the rudder cables to the servo and thread a swage on each. Fit cable through hole in threaded coupler and back through the swage. Do both cables at the same time and pull both tight before crimping swage. Make sure servo is centered and rudder is centered. Pull both cables tight and crimp swage.

## Engine Installation

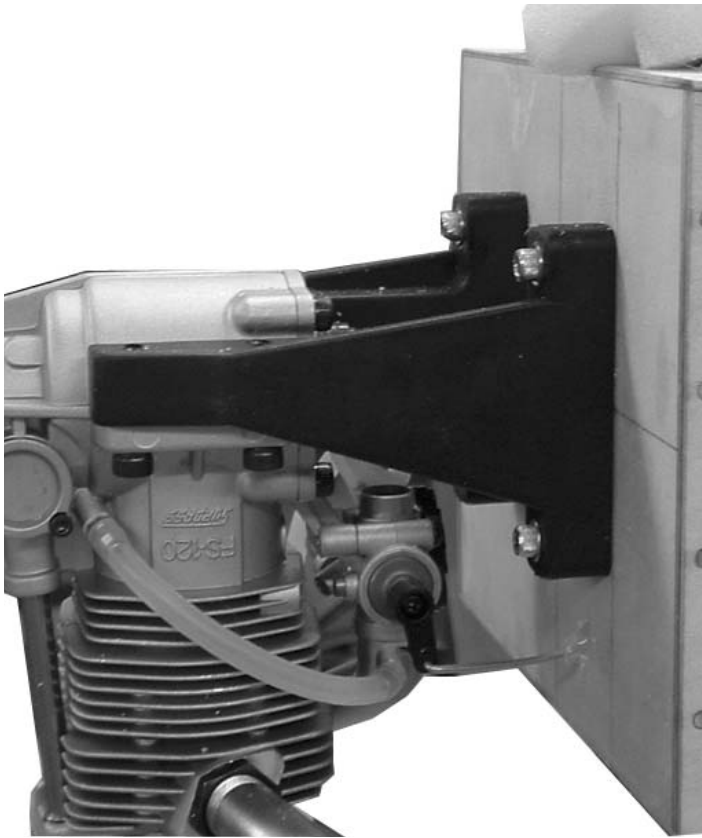


1. ☐ Collect the following items:
  - (2) Motor mounts
  - (4) 4 mm bolts
  - (4) 4mm blind nuts
  - (4) flat washers
  - (4) 3.5mm x18mm screws

2. ☐ Draw a line across the firewall in the center. Draw a line down the firewall offset 3/16" to the left side of the plane. The 3/16" will compensate for the 2 degrees of right thrust built into the firewall. Note: The firewall will have a 1" hole in the center not shown on the photo.



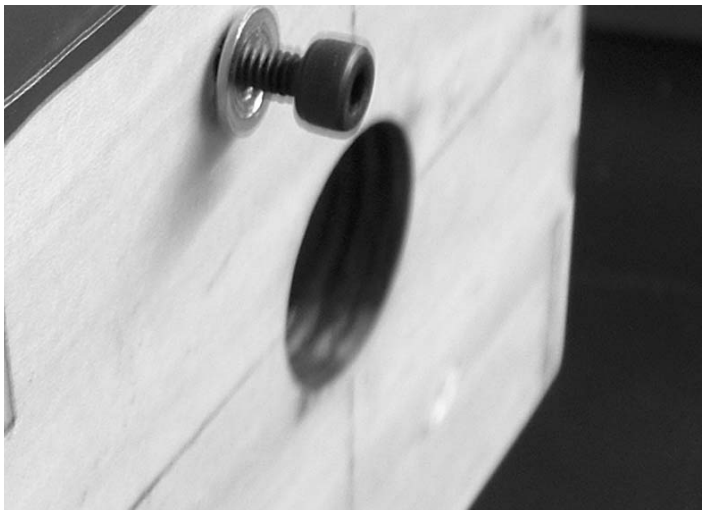
3. ☐ Clamp your motor between the beams of the two mounts and set flat on the work bench.
  - ☐ Make sure the motor is square to the table and both mounts sit flat.
  - ☐ Put a scrap piece of wood in the prop mount and measure both sides to make sure it is square. The distance from the table to the front of the thrust washer (scrap wood ) will have to be at least 6-1/4" to clear the front of the cowl. If you cannot get this much by moving the engine to the front of the mounts, you will have to shim the mounts out. Our OS 1.20 fit all the way to the end of the mounts.
4. ☐ With the motor clamped in place, mark the location of the mounting holes. Drill a 1/8" hole and screw the motor in place using the 3.5mm screws. Be careful and don't over torque the screws or they will break.



7. ☐ Bolt the engine in place being sure to use lock-tite on all the screws.



5. ☐ With the motor on the mounts, center the mounts on the two line you drew on the fire-wall.
- ☐ Mark the location of the holes and drill a .160 diameter hole at each location.
- ☐ Open the hole up with a .200 diameter drill (the shoulder of the blind nut is .200)

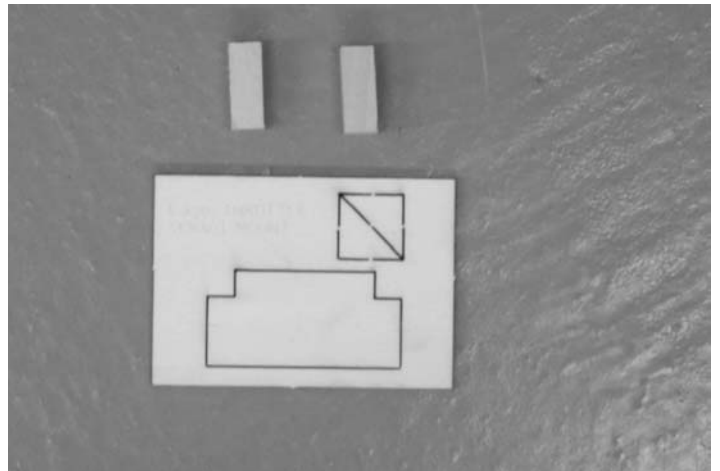


6. ☐ Seat the blind nut by using one of the 4mm bolts and a flat washer without the mounts. Pull the blind nut firmly into the firewall using the screw. Repeat for the other 3 screws.

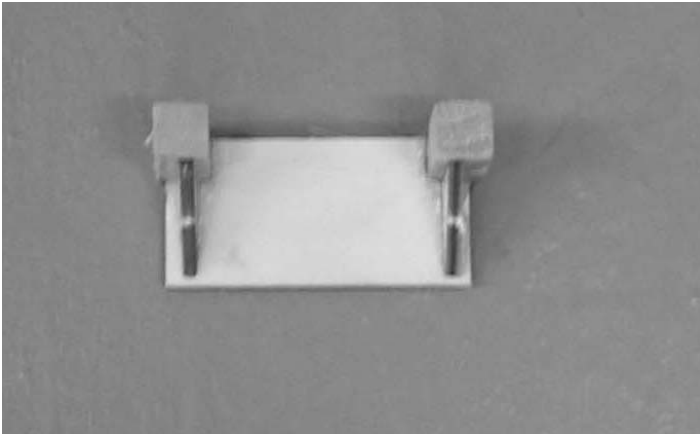
8. ☐ Drill a 9/64" hole in line with the throttle output arm on your engine and insert the nylon tube for the throttle pushrod.

## Throttle Servo

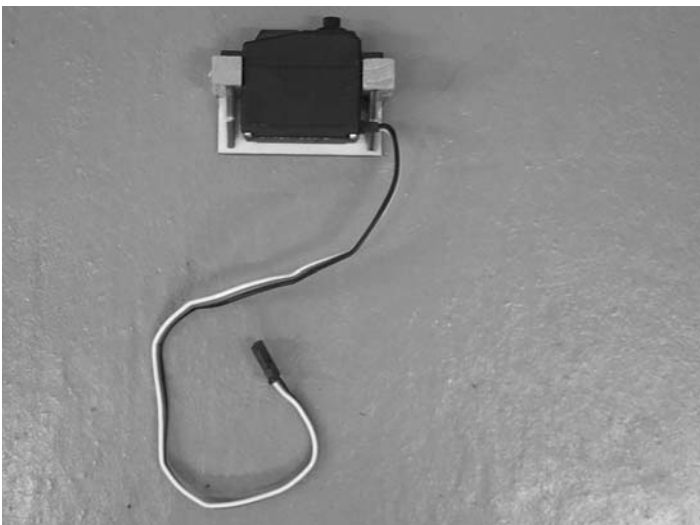
1. ☐ Collect the following items:
- (1) e-z servo connector
  - (1) Laser cut plywood mount
  - (1) 2-56 threaded one end pushrod
  - (1) 2-56 clevis
  - (1) clevis retainer







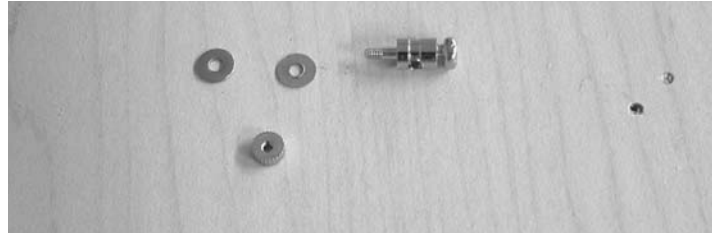
2. ☐ Assemble the throttle servo mount by gluing the 3/8" square rails in the corners of the 1/8" plate and gluing the triangle gussets under the rails.



3. ☐ Mount the servo to the mount using the hardware supplied with the servo.



4. ☐ The throttle servo mount can now be mounted in a position to match your engine.



5. ☐ Locate the e-z pushrod connector and install on your servo arm.

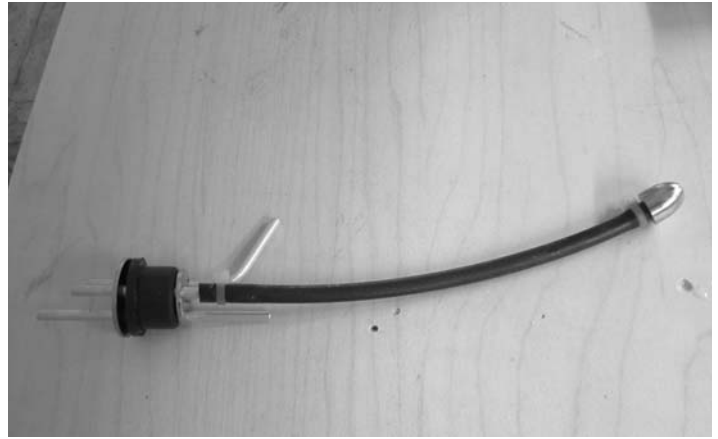


6. ☐ Thread the 2-56 clevis on the pushrod and insert into the plastic tube. Connect the clevis to the throttle arm on the motor. Connect the other end of the pushrod to the e-z connector on the throttle servo and adjust.



## Fuel Tank

1. ☐ Collect the following items
  - (1) fuel tank
  - (1) rubber tank stopper
  - (1) clunk
  - (1) 3mm x 25mm screw
  - (1) cap washer large
  - (1) cap washer small
  - (2) 3mm x 40mm brass tube
  - (1) 3mm x 60mm brass tube



4. ☐ Install the 4mm silicone tube to the short brass tube and install the clunk to the other end of the silicone tube. This is the fuel pickup and must be free to "flop" around in the tank so it can pick up fuel in any attitude.

**(note: If you use gasoline you must use neoprene fuel line, glow fuel use silicone fuel line.)**



2. ☐ Insert the 3mm screw through the center hole in the large washer, through the center hole in the rubber washer against the large side, and screw the small washer on the back side.

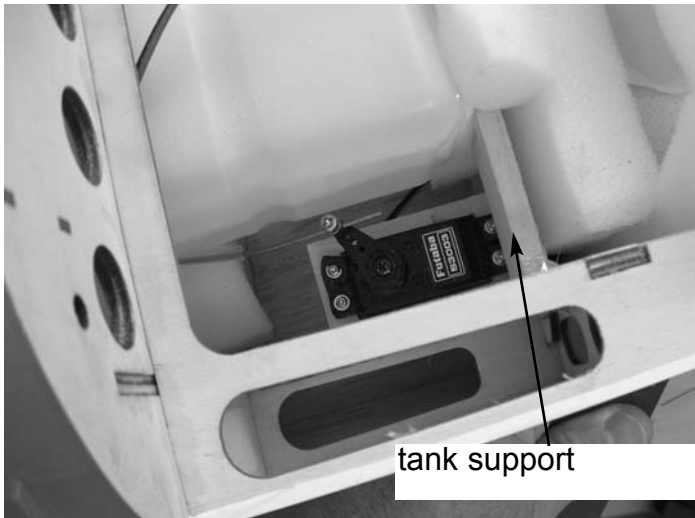


3. ☐ Insert the brass tubes through three of the holes. They should be arranged so as the long one will be on the right side of the plane and the short one on the left side.
  - ☐ The tubes should extend out the front of the cap 5/8". Bend the long tube up at about a 20 degree angle. This should be adjusted so the end of the tube almost touches the top of the tank when installed.

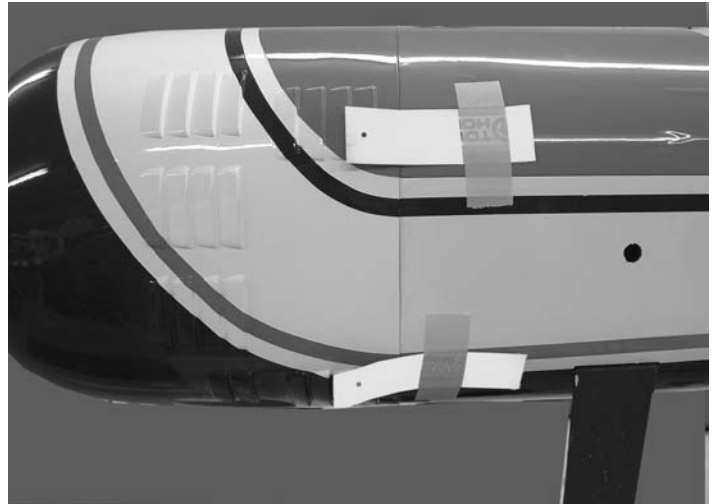


5. ☐ Install the assembly into the tank so the vent tube is turned up to the top of the tank. Tighten the screw to expand the rubber cap.

**Don't over tighten or you could split the tank.**



2. ☐ Cut two pieces of scrap paper about 1": wide and 6" long and tape to the side of the fuselage so the end of the paper is over the mounting hole for the cowl.
- ☐ Mark the location of the holes in the paper.

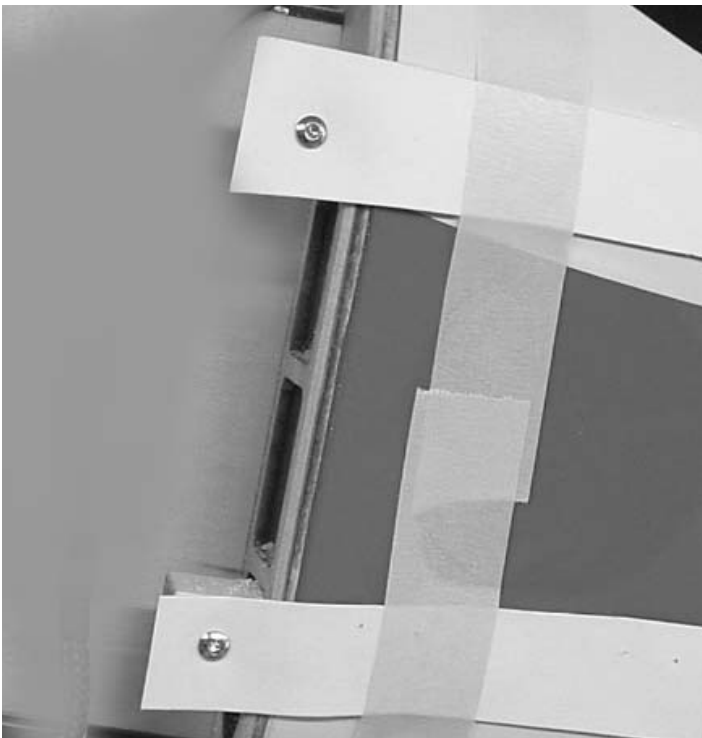


6. ☐ Install the tank with the cap in the hole in the firewall. A tank support is provided to hold the tank in place. Locate the 1/4" x 3/4" x 7-1/2" piece of plywood and glue across the fuselage behind the tank to hold the tank in place. It will fit just above the throttle servo .

## Cowl Mounting

1. \* Collect the following items:
  - (1)Cowl
  - (4) 4-40 x 1/2" bolts
  - (4) #4 flat washers
  - (1) silicone tubing 1/4" long

3. ☐ Fit the cowl in place under the pieces of paper making sure the stripes line up and cowl is straight. Use masking tape to hold the cowl in place.
- ☐ Transfer the holes from the paper to the cowl. Drill a 7/32" hole at the four locations. The blind nuts are pre-installed in the mounting blocks. Fit the 1/4" long pieces of silicone tubing in the holes and insert the 4-40 x1/2" screws with a flat washer on top. The silicone tubing will act as a grommet and protect the fiberglass.





6. ☐ When mounting the cowl for flight, use locktite on all the bolts.

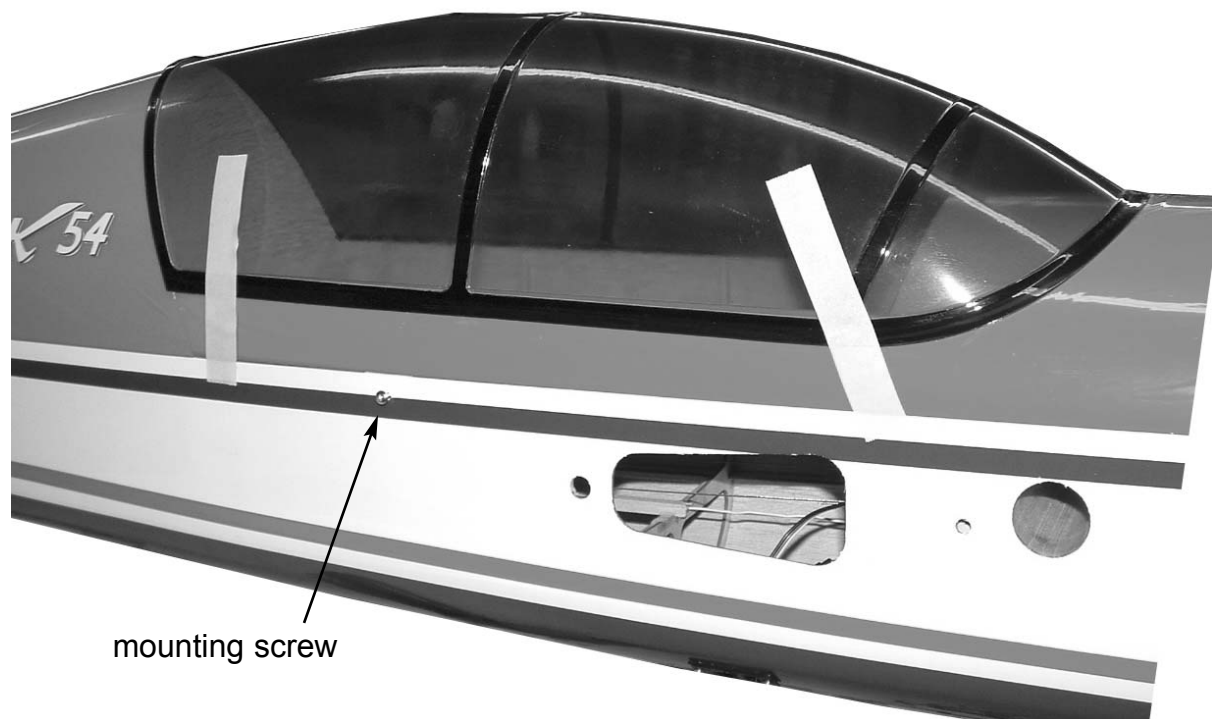
4. ☐ Remove the cowl and mount the muffler on the engine. Use another piece of paper and cut to fit around the muffler. Mark the location of the paper on the fuselage so you can relocate it after the cowl is reinstall..



5. ☐ Reinstall the cowl and fit the paper in place on the fuselage and mark the location of the hole for the muffler. Repeat for the other holes in the cowl.



## Canopy and Hatch Mounting

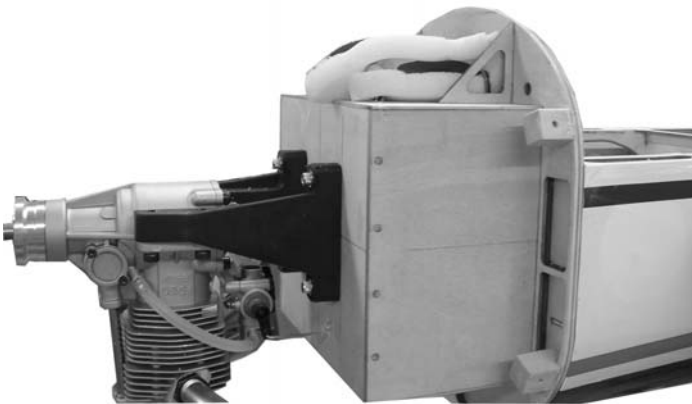


1. ☐ Collect the following items:  
 (1) Hatch  
 (1) Canopy  
 (2) 4-40 screws

2. ☐ Fit the hatch in place with the dowels in front and the tabs in the rear.
3. ☐ Use the two 4-40 screws through the side of the fuselage to hold in place.

4. ☐ Install pilot and cockpit detail if desired (not included).
5. ☐ Glue the canopy in place using Zap canopy glue. Do not glue the canopy in place without the hatch cover mounted on fuselage and screwed in place. It is easy to distort the hatch and it will not fit properly if not mounted while gluing the canopy on.

## Switch and Battery Mounting



1. ☐ The prototype balanced with an OS 1.2 four stroke with no added weight by putting the battery pack on top of the motor box under the cowl.



2. ☐ The switch can be mounted in the balsa sheeting under the wing on either side.

## Balance and Control Throw

### CG Balancing

Balancing the Yak is very important, you might need to use weight depending on the servos and engine that you use. Start out with the balance point at 6-1/4". This balance point is a safe place for you to fly the Yak at. As you get comfortable you can move the CG back further. The further you move the CG the more wild the aerobatics will become, **BUT** the more unstable the Yak will become

### Throws

We have provided two sets of throws. Use the lower throws on the first flights then work your way up to the higher throws. Do not use the higher throws till you are ready.

#### LOW

Elevator 1" UP& Down  
Ailerons 3/4" Up & Down  
Rudder 1-1/2" Right & Left

#### HIGH

All you can get  
All you can get  
All you can get

When you have gotten comfortable flying the YAK slowly increase the throws while still staying within your flying ability.

## Flutter Problems

Any model with large control surfaces such as the Yak can experience flutter. It is your responsibility to make sure all linkage is in good order and very tight. Servos must be in good shape with control arm that are not worn. You must fly the plane in a manner that does not cause it to over speed , you must use throttle management. Flutter is not covered under warranty.