

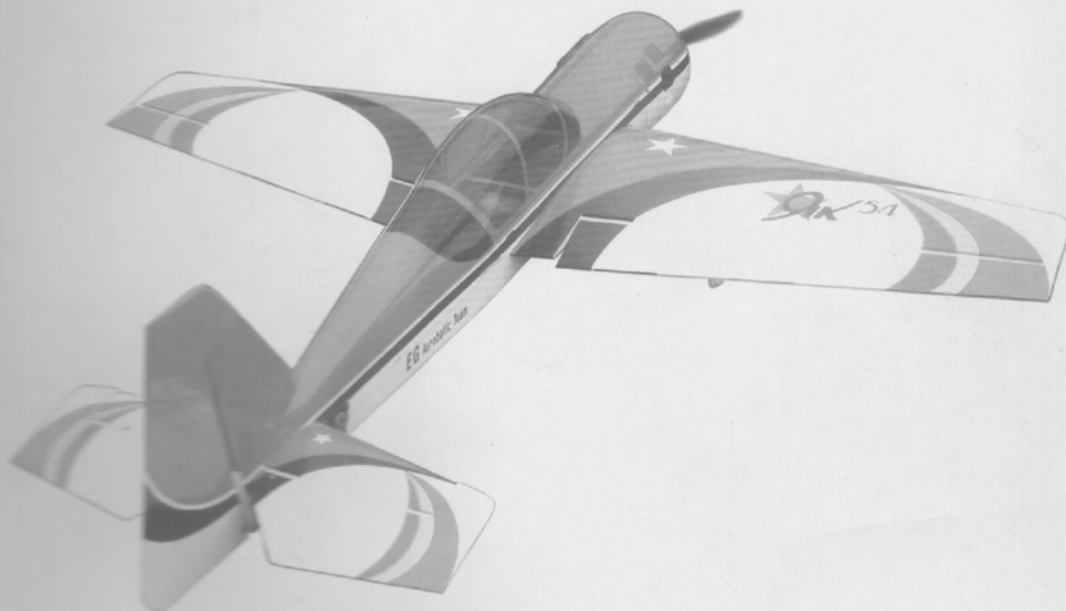
Sep 2007

Gasoline/ Nitro/ Electric powered

25% scale series

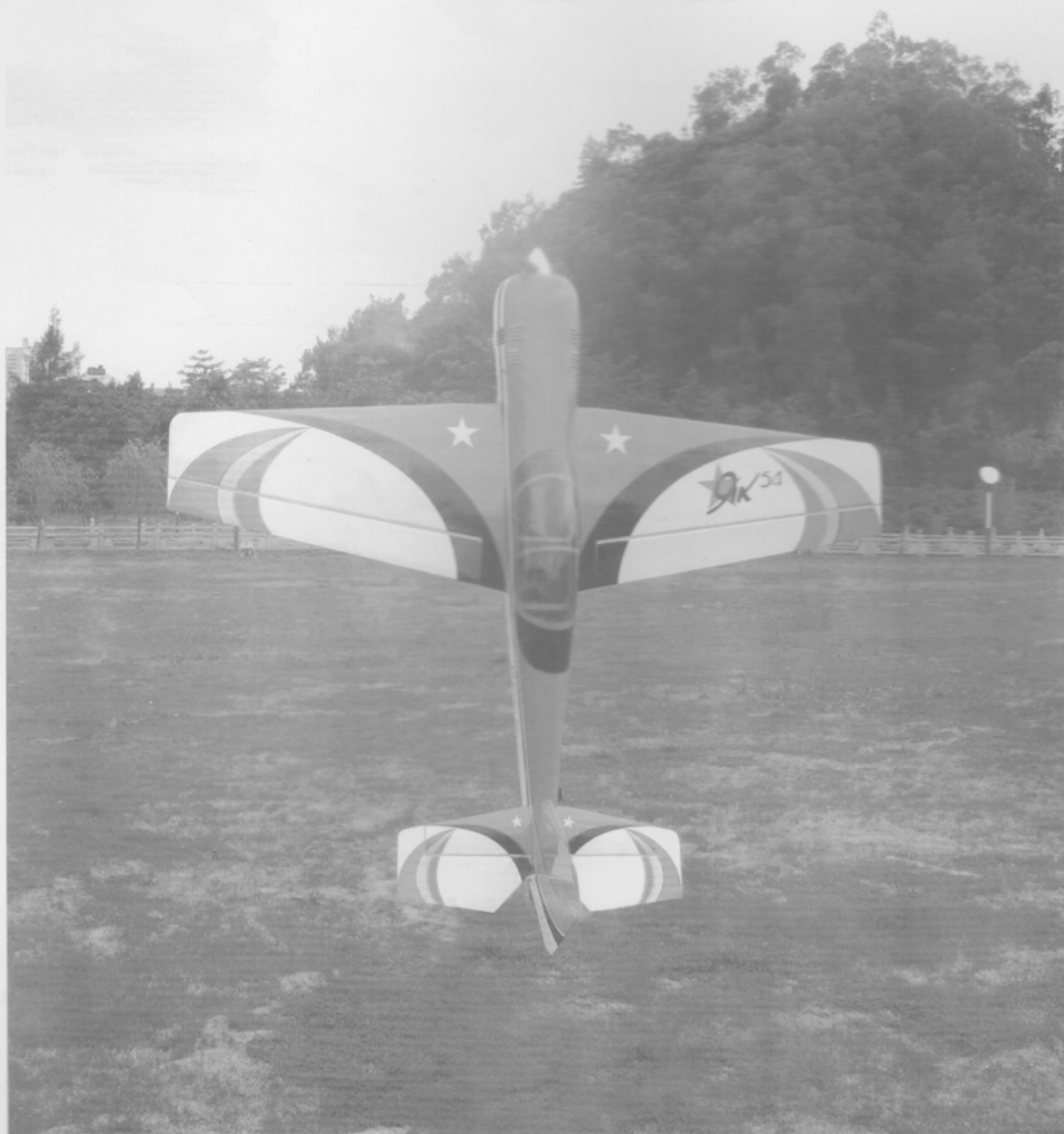
YAK54 SU26M SU31 EXTRA330L

..... ALMOST-READY-TO-FLY



Assembly Manual

Congratulations on your purchasing of this excellent almost-ready-to-fly R/C model! This ARF adopts the latest 3D design features and emphasizes high performance, light weight and fun. The plane is designed by professional engineers and built by skilled craftsmen. Many of the parts are already pre-installed for you!



Cautions: This R/C model is not a toy!

1. The RC aircraft is not a toy! If misused, it can cause serious bodily harm and damage to property. Fly it only in open area, following all instructions including your Radio and Engine.
2. As this product is designed for high performance, incorrect installation would affect the flying performance. Please ask for instructions from an experienced modeler if you couldn't assemble it by yourself.
3. Because the package contains some small parts, please keep the children away while assembling them.
4. For safety reasons, please consider every possible accident when operating this model airplane and follow your club/country rules.
5. This model is designed for 20 to 30CC Gasoline engine and Nitro engine, please use the recommended engine or equivalent electric motor.
6. Please read this manual carefully before assembly. Refer to it often during assembly and do not deviate from the established construction methods.

Features:

- Light weight construction
- High structural strength
- Super quality
- Easy installation
- Complete accessories
- High performance hardware including:
 - Ball linkage control system
 - PU wheels
 - Anodized Aluminum landing gear
- PVC canopy assembly
- Latest structure
- Two pieces of removable wings and stabilizers
- Excellent aerobatics and 3D performance
- Fully symmetrical aerofoil tail wing

Specification

YAK54-70in (20-30cc)

Wing span: 70"(1780mm)
Length: 67"(1700mm)
Wing area: 960sq in(62sq dm)
Flying Weight: 8.6-10lbs(3900-4500g)

SU26M-68in(20-30cc)

Wing span: 68"(1730mm)
Length: 65-1/2"(1660mm)
Wing area: 945sq in(61sq dm)
Flying Weight: 8.6-10lbs(3900-4500g)

SU31-68in(20-30cc)

Wing span: 68"(1730mm)
Length: 65-1/2"(1660mm)
Wing area: 945sq in(61sq dm)
Flying Weight: 8.6-10lbs(3900-4500g)

EXTRA330L-68in (20-30cc)

Wing span: 68"(1730mm)
Length: 64"(1630mm)
Wing area: 915sq in(59sq dm)
Flying Weight: 8.6-10lbs(3900-4500g)

Additional Required Equipment(not included in the kit)

Radio Equipment

- 6-channel radio system
- 1 standard servo for throttle
- 4-5 hi-torque servos

Recommended

- JR systems
- JR 9X or JR 9XII
- JR PCM 10X
- Futaba systems
- Futaba 9CHPS
- 12ZAP
- 14MZA

Recommended engines:

- Two stroke engine: .90-1.20
- Four stroke engine: 1.20
- Gasoline: 20-30CC

Other Items Needed

- Propeller APC 16x8 18x10
- Spinner (2.5"-3")
- Servo Extensions
- Long servo arms

Additional Required tools and adhesives Tools

- Adjustable wrench (small)
- 4-40 Tap
- Canopy scissors
- Drill (drill press preferred)
- Drill bit: 1mm-6mm set
- Drum sander
- Cut off wheel
- Flat blade screwdriver w/short handle
- Hex wrench
- Foam: 6mm
- Hex wrench
- Hobby knife
- Masking tape
- Philips screwdriver (small)
- Razor saw
- Scissors
- Square
- Syringes
- Tap handle
- Toothpicks
- Velcro straps

Adhesives

- 5-minute epoxy
- 30-minute epoxy
- Medium CA Glue
- Thread lock

Other Required Items

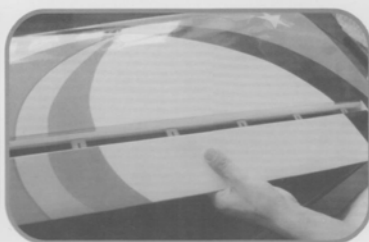
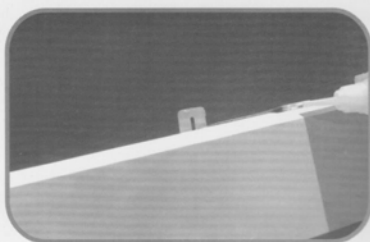
- Epoxy brushes
- Felt-tipped pen or pencil
- Measuring device (e.g. ruler, tape measure)
- Mixing sticks for epoxy
- Paper towels
- Petroleum jelly
- Rubbing alcohol
- Sanding bar
- Sandpaper (coarse)
- Covering iron
- Dental floss or string

Before starting Assembly

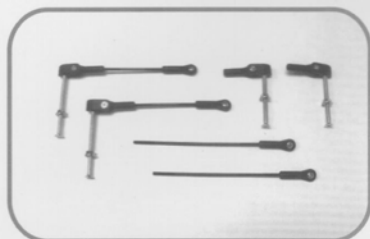
Before beginning the assembly of these models, closely inspect the fuselage, wing panels, rudder, and stabilizer. If you find any part damaged or missing, please contact the local dealer.

If you find any wrinkles in the covering, use a heat gun or covering iron to smooth them.

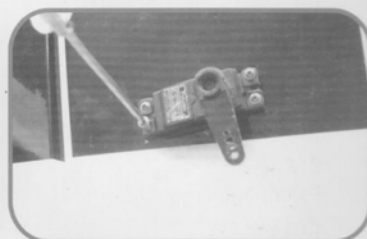
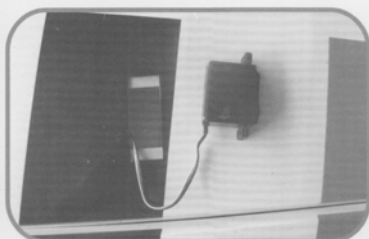
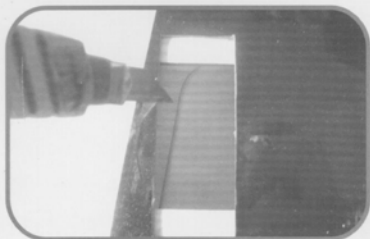
I. Wing Assembly



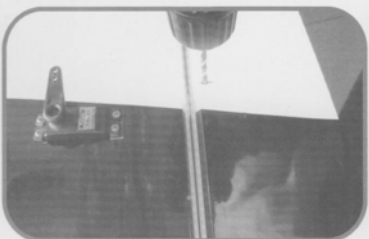
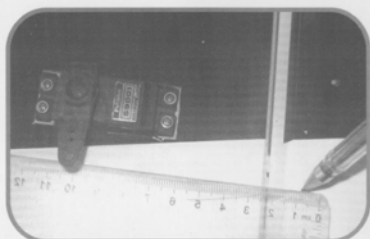
- Glue the hinges into the aileron. make sure all hinges are centered between the wing and aileron.
- Insert the hinges into the hinge slots in the wing. Move the control surface up and down to ensure its flexibility, and adjust the gap between the wings and the ailerons. Secure the hinges with CA glue.



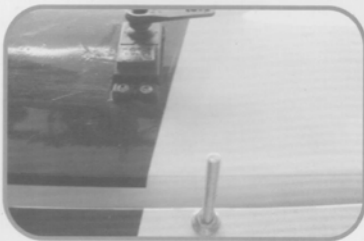
- High performance accessories-Ball Linkage Control System.



- Use a hobby knife to remove the covering over the servo opening.
- Install the servo arm onto the servo.
- Connect the servo with a 12" servo extension.
- Use the string to pull the servo lead through the wing. Then install the servo.

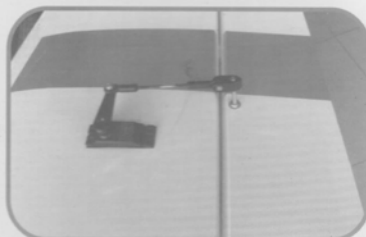
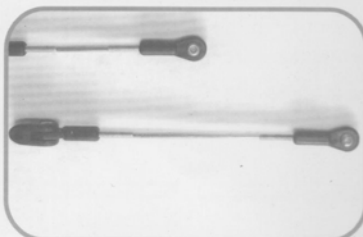
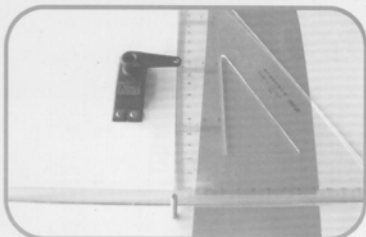


- Adjust the center section of the servo.
- With a ruler measure the position on the control surface for installing the horn. And drill a hole which diameter should be 3.7mm.



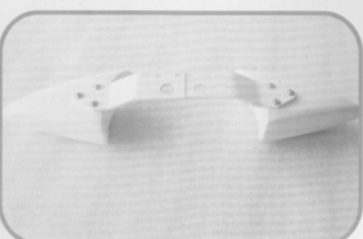
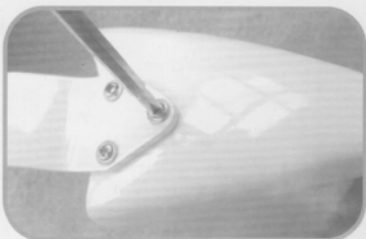
- Let the bolt go through the hole. fix the nut and bolt firmly.

NOTE: When you install the nut of control horn, please use some thread lock.

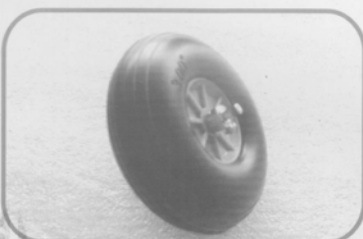
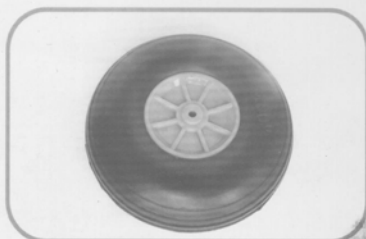


- Measure the linkage length and adjust linkage rod to an appropriate length.
- Install the linkage rod and make sure it's firm and flexible.

II. Main landing Gear Installation



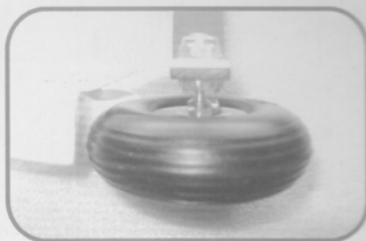
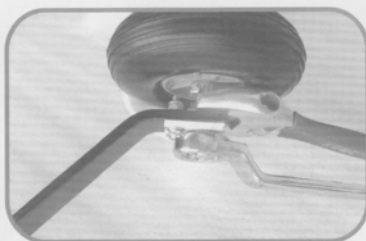
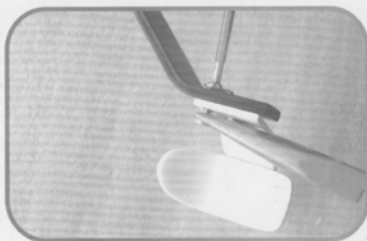
- Install the wheel pant with 3 self-type screws(Just for Yak54 and SU26M/SU31).



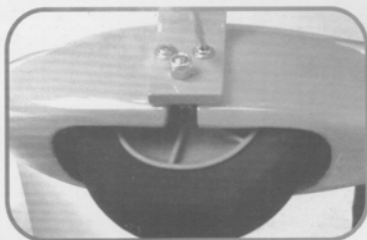
- Insert the wheel axle through the center hole of the wheel.

- Install two wheel collars, ensure that the wheel rolls freely.
- When the wheel and wheel pant are installed completely, you can adjust these two wheel collars to let the wheel be in the center of the wheel pant.

Note: Use thread locking compound when installing all nuts and bolts during assembly.



- Use two bolts and lock nuts to fix the wheel pant first.
- Then Insert the axle through the hole in the landing gear, and attach the axle for the main landing gear firmly with the locknut.



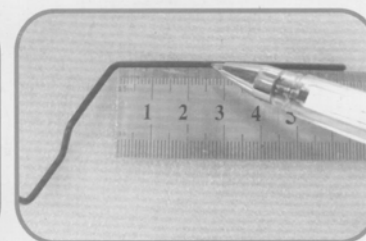
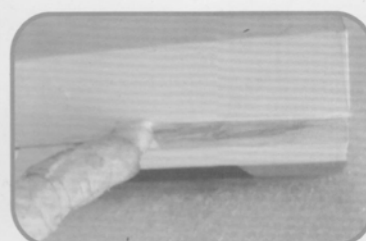
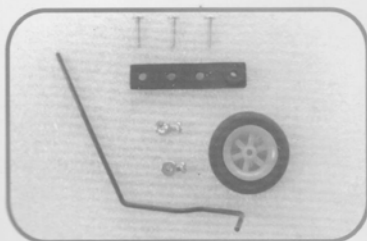
- If you assembly a Extra, you must install the axle first, and then install the wheel pant with two bolts. making sure the wheel is in the center of the wheel pant.



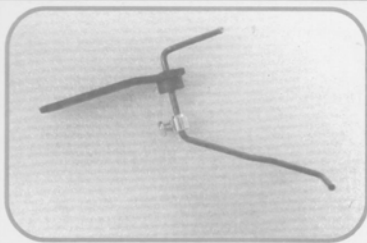
- Insert the main landing gear into the slot, which is in the both sides of the fuselage.
- Insert the blots through the landing gear and rotate them into the blind nuts firmly, which have been installed in the landing gear plate.

III. Tail surfaces Installation

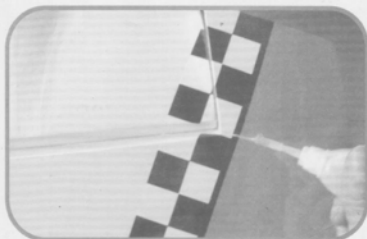
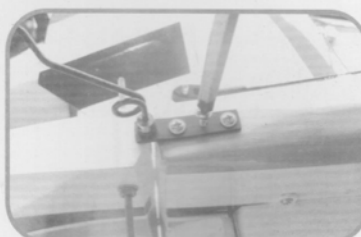
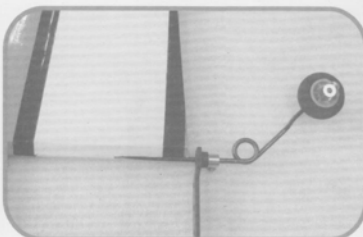
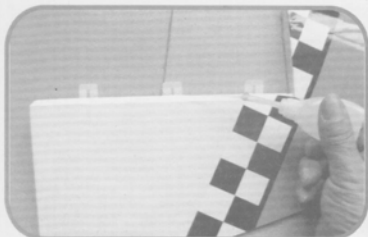
● Rudder&Tail wheel



- Measure the location of hole that you need to drill on the rudder. The location is for bending tail landing gear.
- Drill a hole that fit for the tail landing gear. And make a slot which both the width and the depth are 2.5mm on the rudder.



- Let the wire through the tail landing gear mount and wheel collar.
- Measure and bend the wire to 90 degrees.



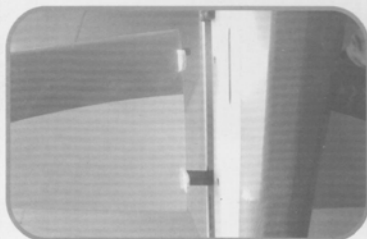
- Glue the hinge into the rudder.
- Install the tail wheel and insert the wire into the hole.

- Insert the hinge into the hinge slots. At the same time, install the tail landing gear onto the bottom of the tail.
- Secure it with glue.

● Horizontal tail

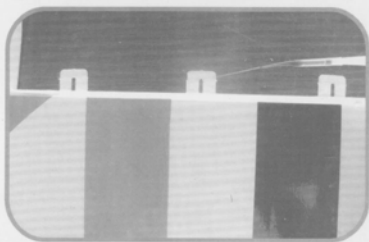


- First, you need to prepare one or two servos will be use for elevator.
- If you decide to use one servo, you must put the elevator connector into the slot before installing horizontal stabilizer.
- We advise you to use one servo, it can save some weight.

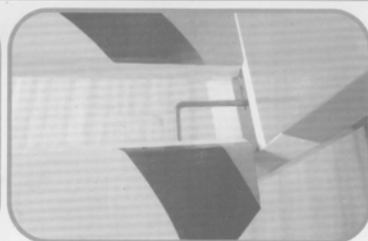
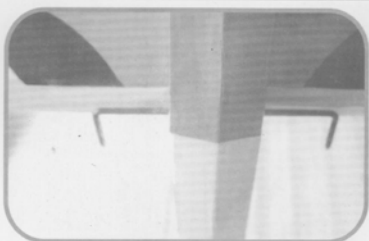


- Install the horizontal stabilizer, then insert the stabilizer tube.

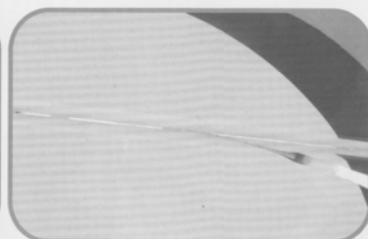
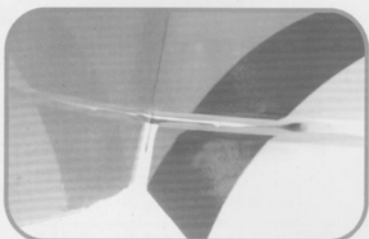
- Slide each stabilizer half onto the tube. Make sure the anti-rotation pins are fully seated.
- Install four bolts (two per side). Don't forget using "thread lock" on the screws before install, to keep them from vibrating free during flight.



- Slide the hinges into the factory pre-cut hinge slots in the elevator and then apply thin CA to secure stabilizer.



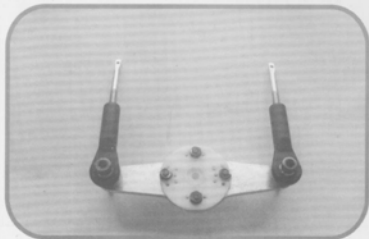
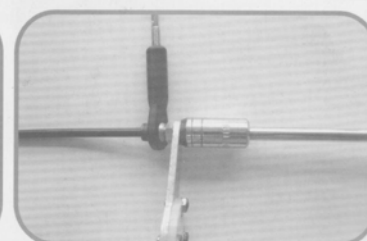
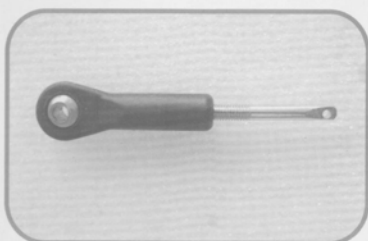
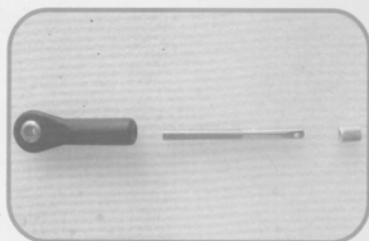
- Insert the elevators connector for the elevator halves. Each hinge must be inserted to their respective hinge slot in the stabilizer. Secure the elevator connector prior to gluing the hinges.
- Adjust the gap between the two elevators and the horizontal stabilizer. Move the elevators up and down to obtain sufficient deflection.



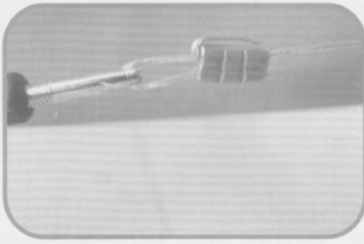
- Once you are satisfied with the deflection, secure the control surface with CA glue.

Note: If you plan to use two servos to control the left and right elevators respectively, it is unnecessary for you to use elevator connector again, which can make sure the stabilizer assemblies are removable.

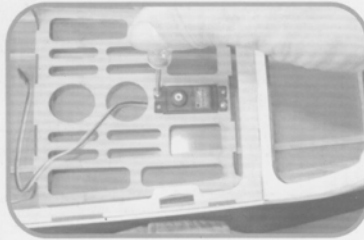
● Rudder Servo Installation



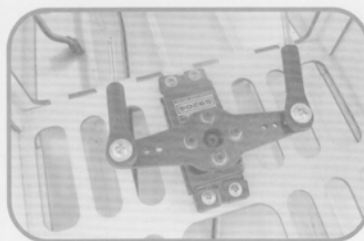
- Prepare four cable linkage ends. Thread the cable connector halfway to fit into the ball link.
- Prepare the rudder servo arm, we advise you to use long servo arm(dual,high performance, made of carbon fiber or aluminum) which can attach two ball links, then use the screws and lock nuts to install them.



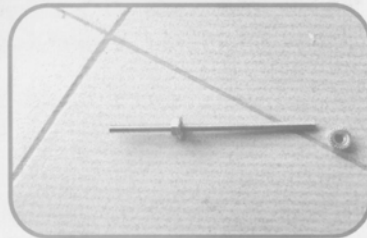
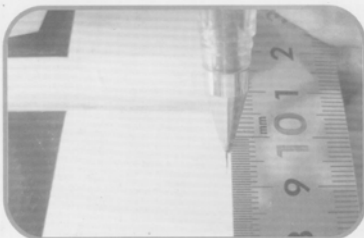
- Cut the cable into two equal pieces, which need to be passed through the crimp and linkage rod, then back through the crimp twice and complete the job by a crimping tool.



- Adjust the center position of the servo, then install it onto the servo mount by using screws and rubber blankets.



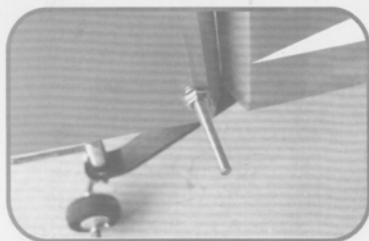
- Place the servo arm onto the servo and fix it firmly with screw.



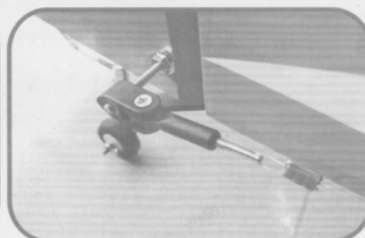
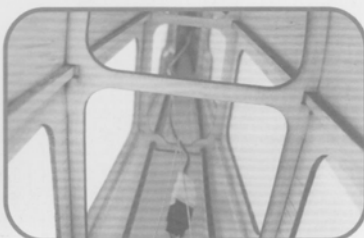
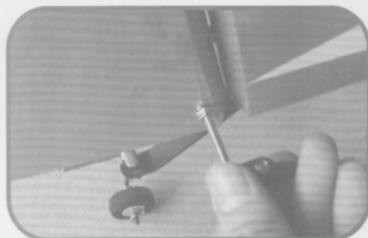
- Measure and mark your horn bolt location.
- Drill a vertical 3.7mm holes for the M4 bolts in the rudder.



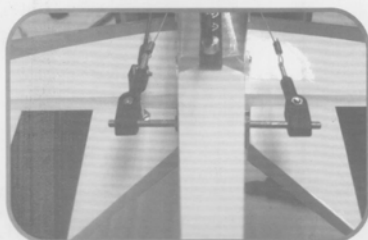
- Thread the M4 bolt into the hole in the rudder and epoxy in place.
- Use thread locking compound on the bolt base to ensure the bolt does not try to back out during flight.



- Position the bolt it is centered in the rudder.
- Thread the flange nuts onto the bolt from both side of the rudder.

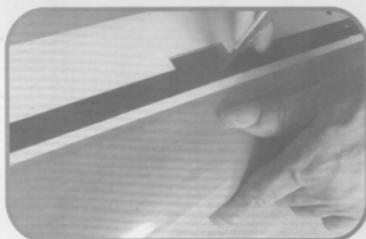


- Screw the ball link onto the bolt and make sure the both sides distance are equal, which from the rudder surface to the top of the link.
- Pass the cable out of the fuselage through the slot. You can use a wire to lead the cable.



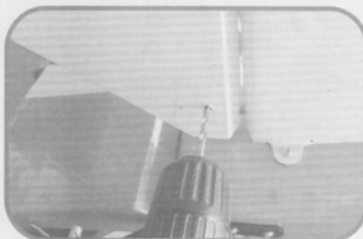
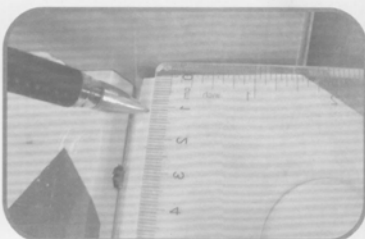
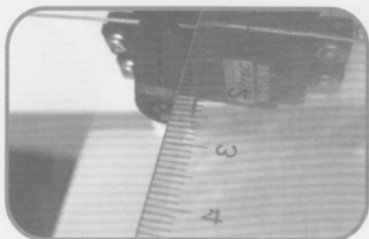
- Let the servo arm and rudder are at the center section, connect the cable and ball link as before.

● Elevator Servos Installation

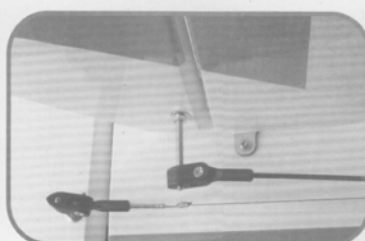


- Remove the covering from the bottom of the fuselage as it is shown.

- Connect elevator servo with a 18" or 24" servo extension, either tie the servo leads together, using a commercially available connector, or use unwaxed dental floss to secure the extensions to prevent them from coming loose during flight.
- Place the servo into the servo hatch. And Install the servo firmly with the screws.



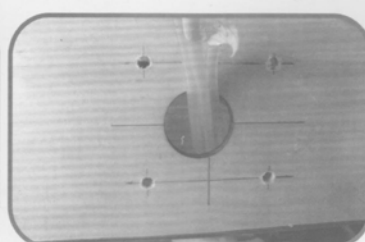
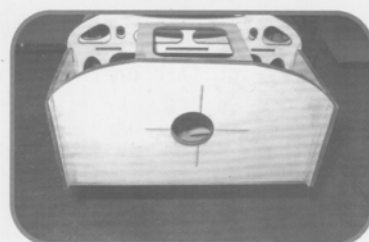
- Follow the same way as rudder control horn installation to install the elevator control system.
- Measure to find and mark your horn bolt location.



- Drill the hole and install the control horn .
- Connect the control horn and servo arm with ball linkage system.

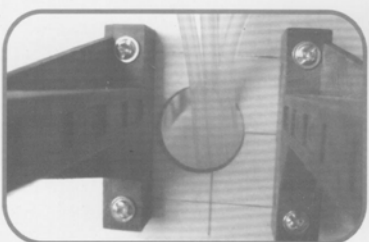
IV. Engine Installation

● Engine



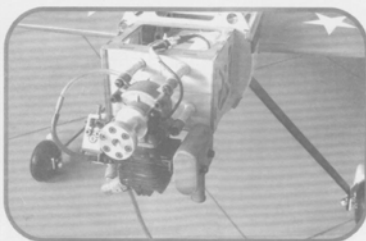
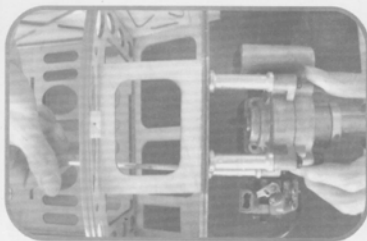
- Align the engine mount to the centerline of the firewall. Locate the installation holes for engine mount.

- Drill the installation holes on the firewall. If you intend to install nitro engine, you need to install the blind nut or lock nut on the back of the firewall and then install the engine mount on the firewall with screws.



- Measure the length of the cowling and decide where to install the engine. Let the propeller drive washer come out 5-10mm from the cowling in the front.

- Drill holes on the engine mount and firmly fasten the screws on the mount.



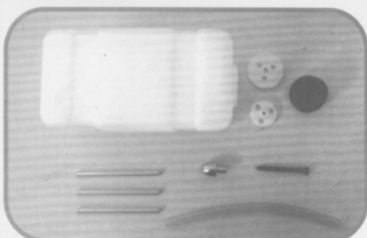
- If you are installing a gasoline engine (use SPE-26CC), drill holes in the firewall and then fasten the supplied screws from the back of the firewall. Make sure the engine is fixed firmly and then

"thread lock" glue on the bolts. Then fix the ignition and connect to engine.



- Install the throttle servo. Decide the length and the location of the throttle linkage rod according to the position of the servo arm and the engine throttle arm. Install the linkage rod.

● Fuel Tank Installation



1. Required Parts:

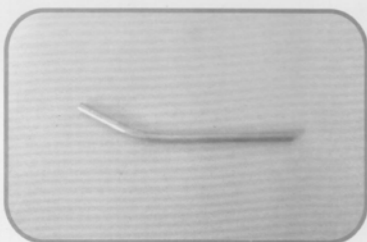
- < Clunk (fuel pickup)
- < Caps (2)
- < Fuel pickup tubing
- < Fuel tank
- < Rubber stopper
- < M3 x 30 screw
- < Metal tubes (3)

2. Required Tools and Adhesives:

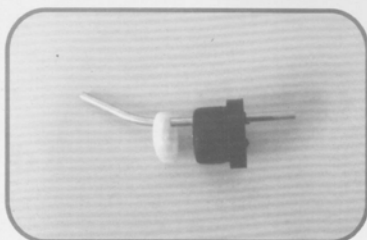
- < Hobby knife
- < Foam: 1/4"
- < Phillips screwdriver (small)

Note: The stopper provided with the model has three holes. The holes are for the fuel pickup, fill and vent lines. You can use two holes: One for the fuel pickup and one for the fuel vent. Only open the third hole if you are going to use a separate fill line.

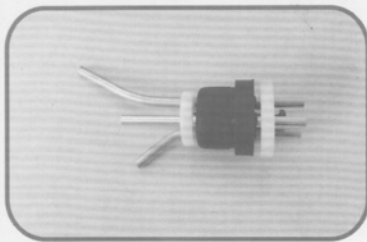
Note for gas engines: The stopper is OK for both gas and glow, the inside fuel tubing supplied is for gas and glow. If a gasoline engine is used, you must choose the fuel tubing Tygon for all lines.



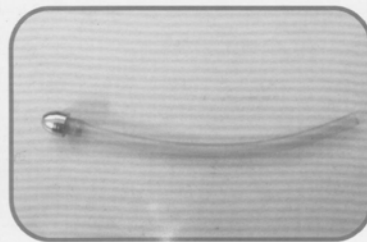
3. Bend two fuel tubes carefully to a 45-degree angle using your fingers. These will be the fuel tank fill and vent tubes. Use carefully not to kink the tube while bending.



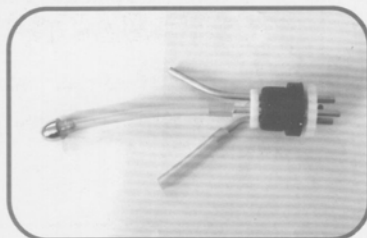
4. Locate the rubber stopper. Insert the three metal fuel tubes into the holes in the stopper so that an equal amount of tube extends from each side of the stopper. The straight tube will be the fuel tank pickup that provides fuel to the engine.



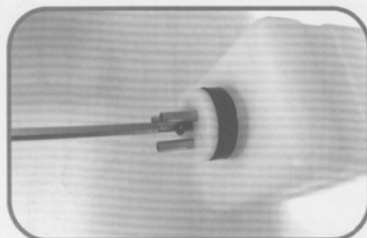
5. Slide the smaller cap over the tube on the smaller end of the rubber stopper. This end will be inserted into the fuel tank. The larger cap is placed on the side of the rubber stopper that makes the cap. Loosely install the M3 x 30 screws through the center of the stopper.



6. Locate the clear piece of Tygon or silicone fuel tubing and the fuel tank clunk. Cut the tubing to appropriate length. Install the clunk onto one end of the tygon or silicone tubing. Slide the tubing (end opposite the clunk) onto the fuel tank pickup tube (straight tube) in the stopper.

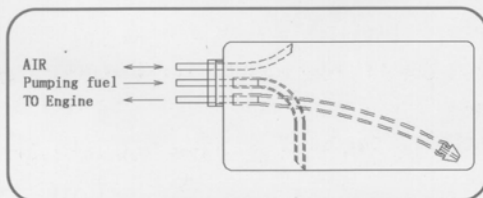


7. Slide a tubing onto the metal tube that has been bent.

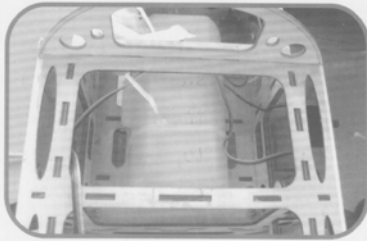


8. Carefully insert the stopper assembly into the fuel tank. Note the position of the vent tube; it must be up at the top portion of the fuel tank to function properly. Also, it may be necessary to shorten the length of the fuel pickup tubing to make sure the clunk does not rub against the back of the fuel tank. You should be able to turn the tank to any attitude, and the clunk will fall to the lowest point (all directions except for having the stopper facing down).

Note the position of the fill tube; it must be down at the bottom portion of the fuel tank, then you can pick up fuel when you end your flying.



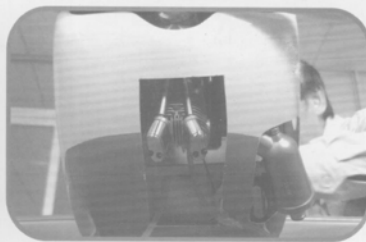
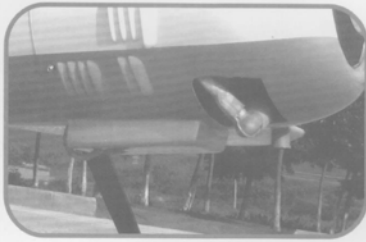
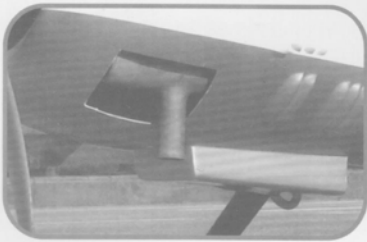
9. Tighten the M3 x 20 screw carefully-do not overly tighten. This allows the rubber stopper to form a seal by being slightly compressed, thus sealing the fuel tank opening.



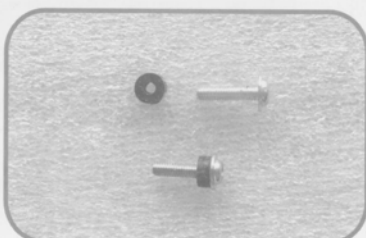
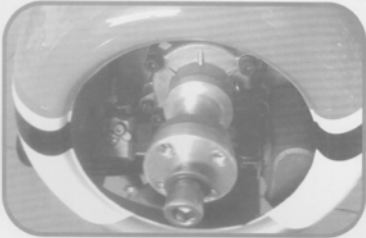
- Assemble and check the fuel tank to ensure there are no leaks before installing it. Make sure you connect the three inlet/outlet tubes correctly when connecting the fuel lines.
- Bind the fuel tank with nylon strips.

- Connect the outlet fuel line with the engine, get a stopper to plug up the pumping line, fix the line of air under the bottom of engine mount.

● Cowling Installation



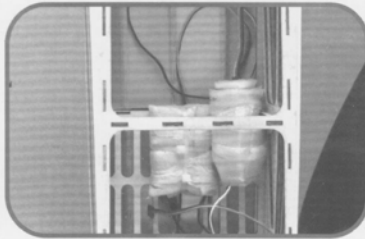
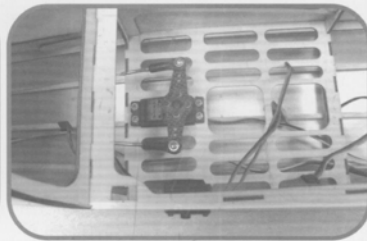
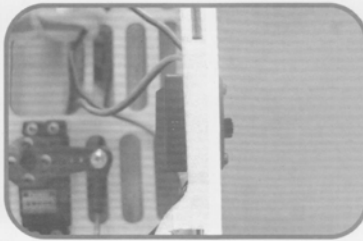
- Cut out the necessary holes in the cowling to accommodate your engine. Keep in mind that you may need to relieve the lower portion of the cowling in order to provide adequate air flow for the engine.



- Fit the cowling and drill holes to accommodate the cowling screws.
- Use the rubber blankets can abate the shake, let the cowling fix more firmly.

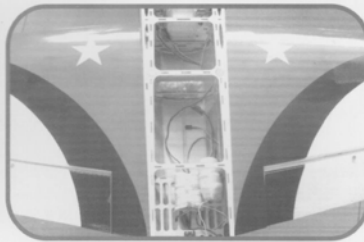
- Insert the bolts through the cowling and rotate them into the blind nuts, which have been installed in the cowling mounting plate.
- Install a suitable propeller and spinner on the engine according to the suggestions from the engine manufacturer.

V. Radio Installstion



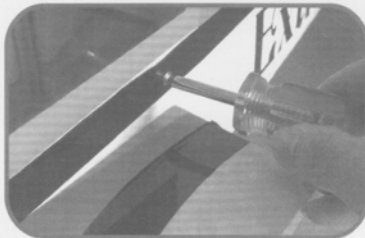
- Mount the receiver switch (and Ignition switch, if you use a gasoline engine) in a convenient location in the side of the fuselage.
- Wrap the receiver battery and receiver in foam. Attach the receiver and battery to the battery tray by using Velcro straps.

VI. Mounting the wing onto the fuselage



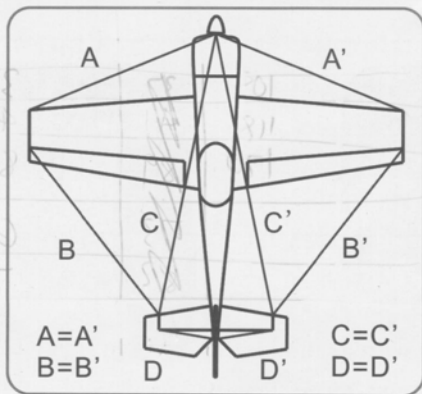
- Use the wing tube to attach the wing.
- Install the nylon retaining screws from the inside of the fuselage.
- Place the hatch, check the CG, adjust the CG at the right location by moving the battery pack.
- Connect the receiver, servos and power etc.

Note: Tighten the screws only by hand and not to be over tight.

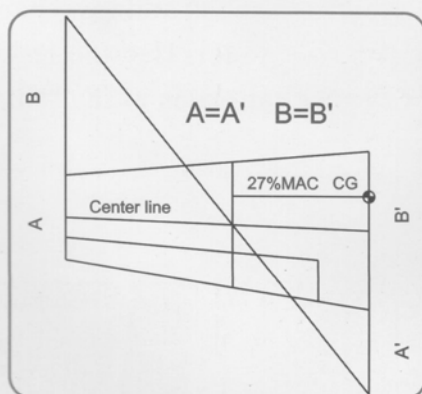


- Use two screws to secure the hatch firmly.

Note: the magnet can't lock the hatch in place completely.



Adjust the aircraft and make sure both of the sides are symmetric, like the diagram show.



Measure the CG from the leading edge of wing root rib, Adjust the battery pack location. For CG proper position should be at 25-30%MAC. This recommendation balance point is for your first flights. The CG can be moved around later to fit your personal taste.

PLANE:	Extra330L	Yak54	SU26M	SU31
27%MAC	<u>124mm</u>	<u>135mm</u>	<u>127mm</u>	<u>127mm</u>
CG location:	4-7/8inch	5-1/3inch	5inch	5inch

1. Check every angle and adjust them to correct position.
2. Check all parts and make sure the installation is firm and reliable.
3. Add some weight in either of wingtip to balance the left and right wings.

Power on to trim your plane.

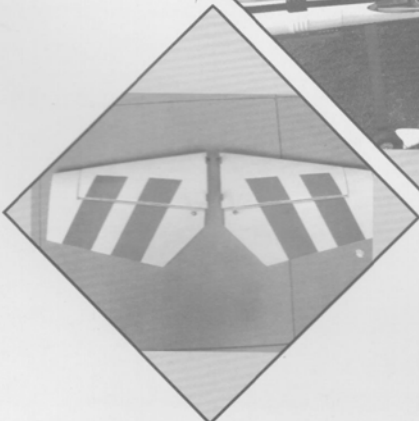
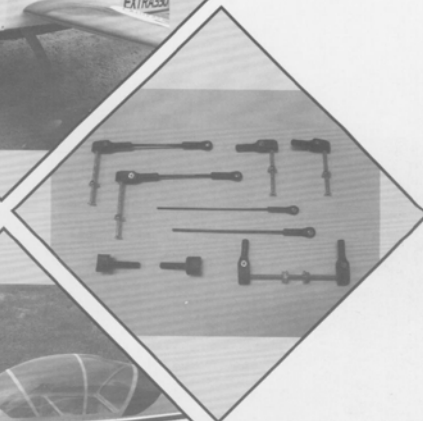
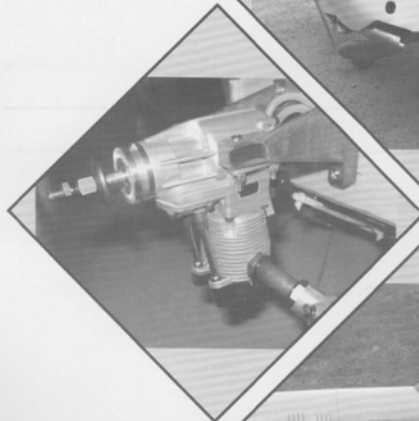
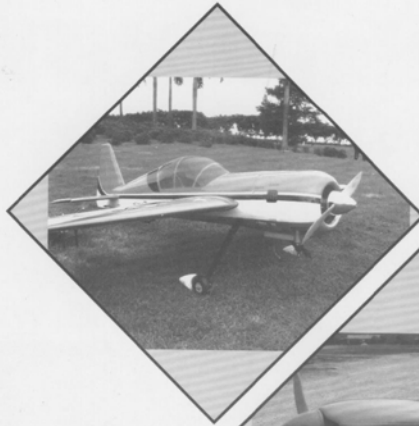
1. Range check the radio (test whether the Engine/Motor is running or not).
2. Ensure that the servos and control surfaces move smoothly and are in the correct direction.
3. Adjust the servo throw. The chart below is the recommended throws for the first flight. You can adjust the servo arms and control horn length later to fit your flying style.

Control Throws :

		Throws	Exp	
Common flying	Surface			
	Aileron	20 degrees 105	25%	36
	Elevator	20 degrees 118	25%	40
	Rudder	30 degrees 170	30%	85
3D flying	Aileron	40 degrees	45%	67
	Elevator	40 degrees	45%	76
	Rudder	45 degrees	45%	120

Trail run the Engine/Motor to check its stability at high speed and low speed to ensure there are no problems with vibration on the model. Use the radio to move the control surface, make sure the voltage of radio battery is at the range of manufacturer prescription. Once everything is right... ..

Good luck & Have fun!



EXTRA330L

