



ULTRA-JET

MS:159

ASSEMBLY MANUAL

"Graphics and specifications may change without notice".



Specifications:

Wing span -----61.8in (157cm).
Wing area -----1100.5sq.in (71.0sq dm).
Weight -----6.6-7.5lbs (3.0-3.4kg).
Length -----59.1in (150cm).
Engine ----- 0.61-0.95cu.in ----2-stroke.
Radio -----6 channels with 6 servos.
Electric conversion :optional

INTRODUCTION.

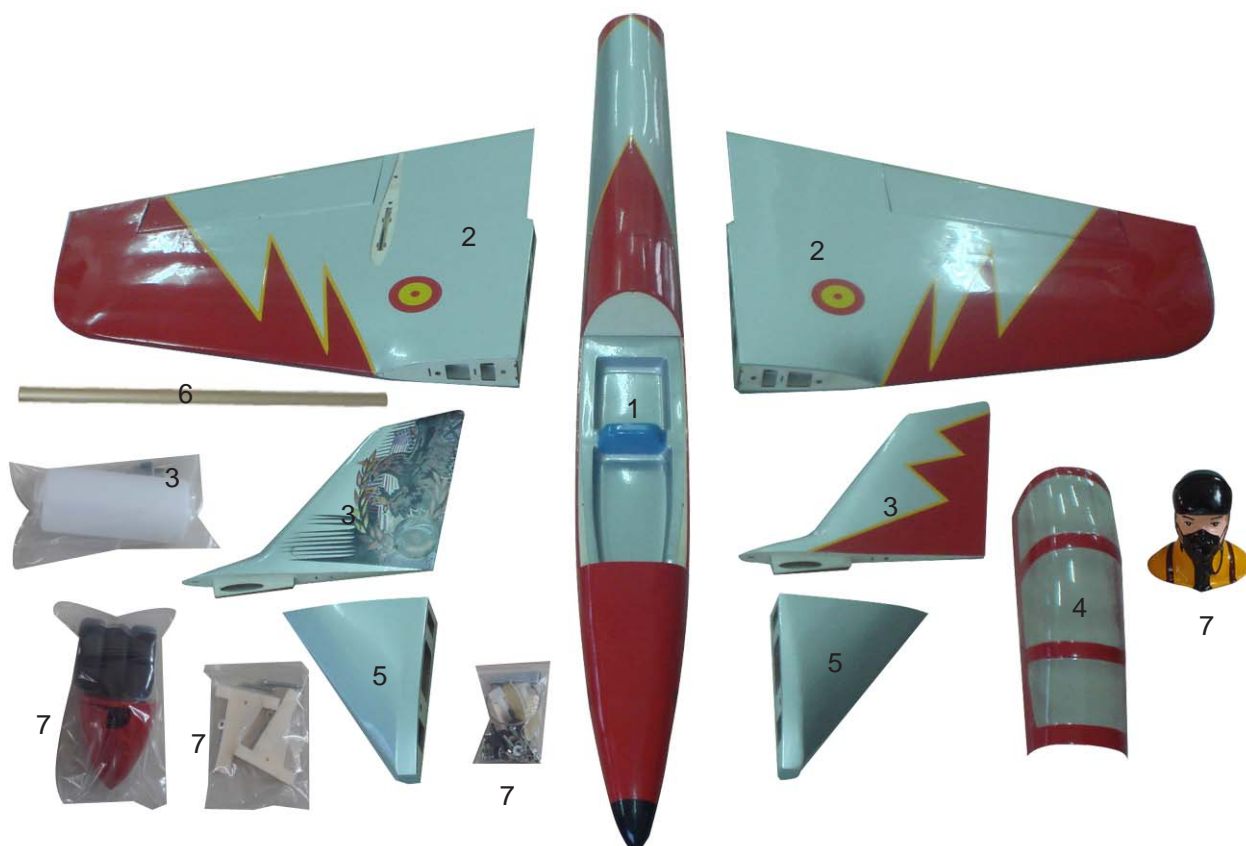
Thank you for choosing the **ULTRA JET** ARTF by SEAGULL MODELS COMPANY LTD. The **ULTRA JET** was designed with the intermediate/advanced sport flyer in mind. It is a not semi scale airplane which is easy to fly and quick to assemble. The airframe is conventionally built using balsa, plywood to make it stronger than the average ARTF, yet the design allows the aeroplane to be kept light. You will find that most of the work has been done for you already. The motor mount not fitted and the hinges are pre-installed. Flying the **ULTRA JET** is simply a joy.

This instruction manual is designed to help you build a great flying aeroplane. Please read this manual thoroughly before starting assembly of your **ULTRA JET**. Use the parts listing below to identify all parts.

WARNING.

Please be aware that this aeroplane is not a toy and if it is assembled or used incorrectly it will cause injury to people or property. WHEN YOU FLY THIS AEROPLANE YOU ASSUME ALL RISK & RESPONSIBILITY.

If you are inexperienced with basic R/C flight we strongly recommend you contact your R/C supplier and join your local R/C Model Flying Club. R/C Model Flying Clubs offer a variety of training procedures designed to help the new pilot on his way to successful R/C flight. They will also be able to advise on any insurance and safety regulations that may apply.

KIT CONTENTS

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- 1 Fuselage
- 2 Wing Set
- 3 Vertical Fins
- 4 Canopy
- 5 Leading Edge Extension
- 6 Aluminum Wing Tube
- 7 Hardware bag included

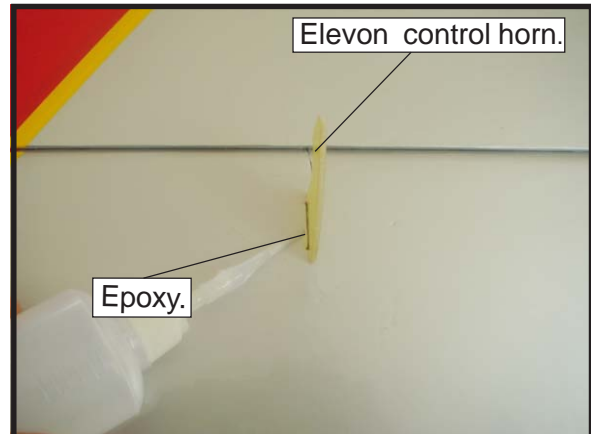
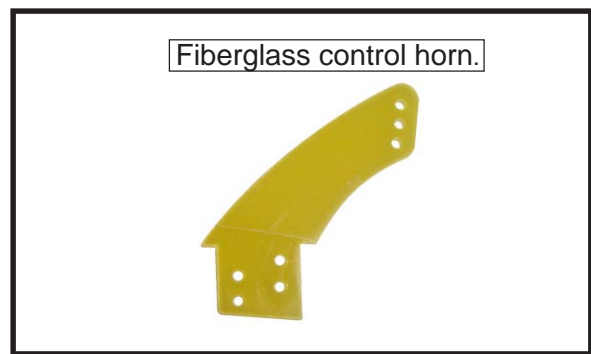
ADDITIONAL ITEMS REQUIRED.

- ☐ 0.61-0.95 2-stroke.
- ☐ Computer radio with 6 servos.
- ☐ Glow plug to suit engine.
- ☐ Pusher propeller to suit engine.
- ☐ Protective foam rubber for radio system.

TOOLS & SUPPLIES NEEDED.

- ☐ Thick cyanoacrylate glue.
- ☐ 30 minute epoxy.
- ☐ 5 minute epoxy.
- ☐ Hand or electric drill.
- ☐ Assorted drill bits.
- ☐ Modelling knife.
- ☐ Straight edge ruler.
- ☐ 2mm ball driver.
- ☐ Phillips head screwdriver.
- ☐ 220 grit sandpaper.
- ☐ 90° square or builder's triangle.
- ☐ Wire cutters.
- ☐ Masking tape & T-pins.
- ☐ Thread-lock.
- ☐ Paper towels.

INSTALL ELEVON CONTROL HORN.

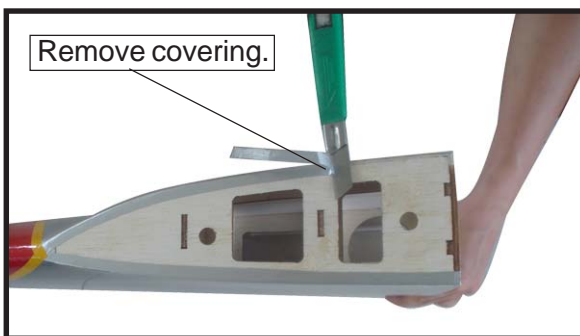
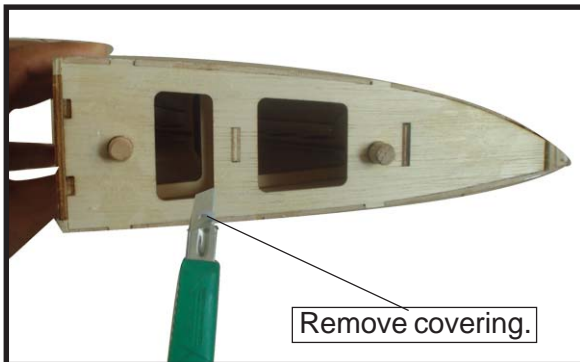


INSTALL LEADING EDGE EXTENSION

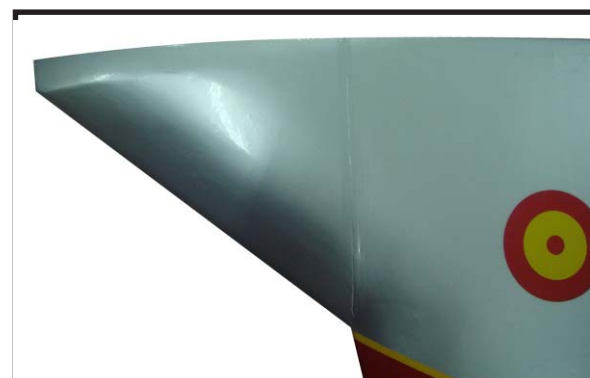
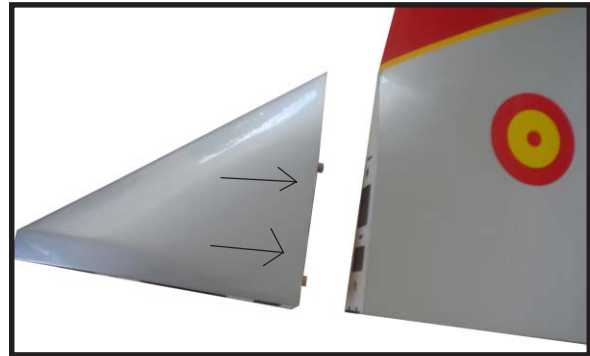
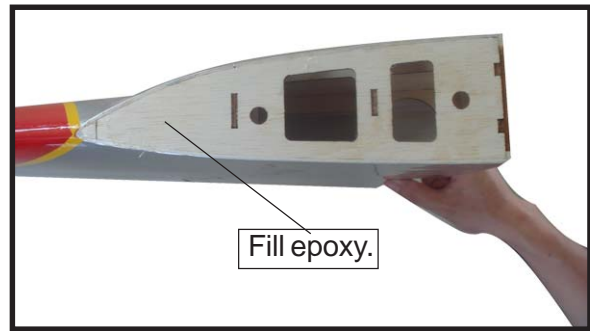
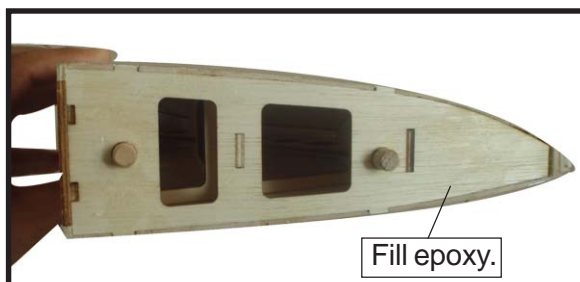




1) Attach the Leading Edge Extension to the wing. Use a hobby knife to remove the covering at the Leading Edge Extension and wing end.

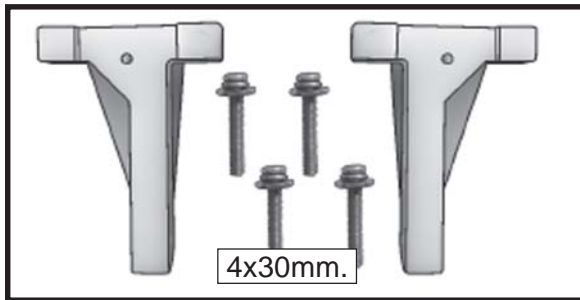


2) Apply epoxy to the surface of the Wing and Leading Edge Extension and hole them together until the epoxy had set.

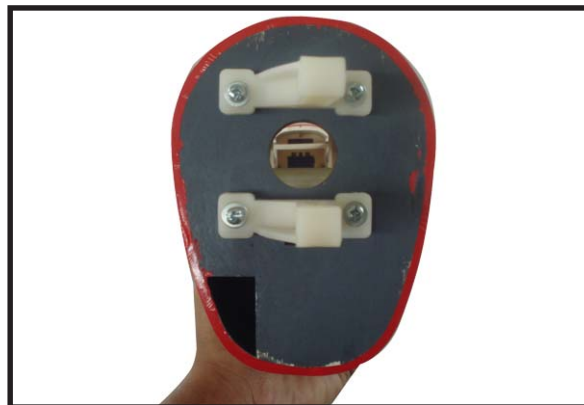


ENGINE MOUNT INSTALLATION.

1) Locate the items necessary to install the engine mount included with your model.



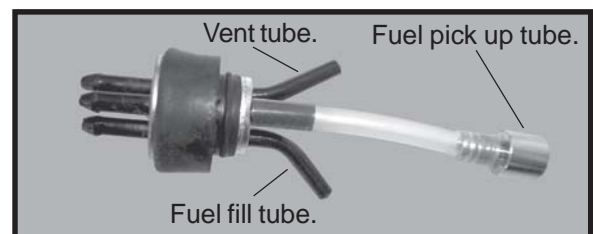
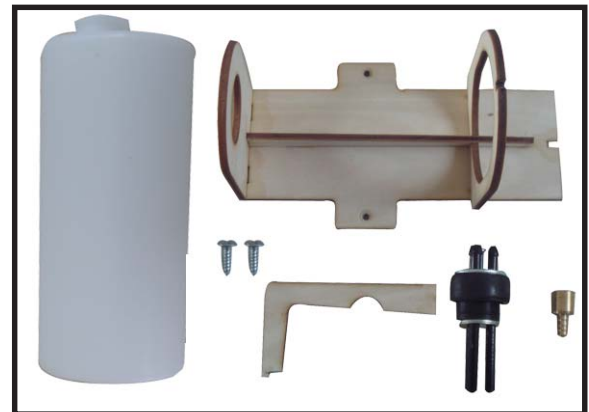
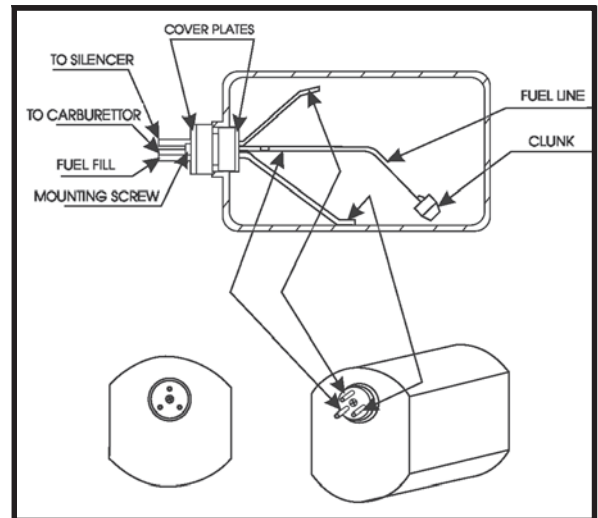
2) Use four 4x30mm head bolts and four 4mm washers to attach the engine mount rails to the firewall. Tighten the screws. Make sure to use threadlock on the screws to help prevent them from vibrating loose.



INSTALLING THE STOPPER ASSEMBLY.

1) Using a modeling knife, carefully cut off the rear portion of one of the 3 nylon tubes leaving 1/2" protruding from the rear of the stopper. This will be the fuel pick up tube.

2) Using a modeling knife, cut one length of silicon fuel line. Connect one end of the line to the weighted fuel pick up and the other end to the nylon pick up tube.



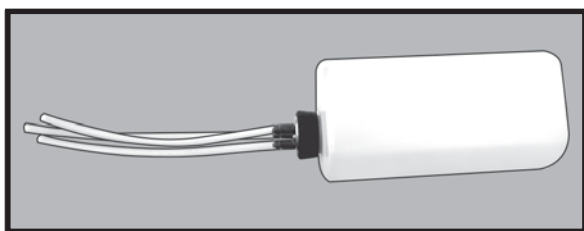
3) Carefully bend the second nylon tube up at a 45° angle. This tube is the vent tube.

❑ 4) Test fit the stopper assembly into the tank. It may be necessary to remove some of the flashing around the tank opening using a modeling knife. If flashing is present, make sure none falls into the tank.

❑ 5) With the stopper assembly in place, the weighted pick-up should rest away from the rear of the tank and move freely inside the tank. The top of the vent tube should rest just below the top of the tank. It should not touch the top of the tank.

❑ 6) When satisfied with the alignment of the stopper assembly tighten the 3 x 20mm machine screw until the rubber stopper expands and seals the tank opening. Do not overtighten the assembly as this could cause the tank to split.

FUEL TANK INSTALLATION.

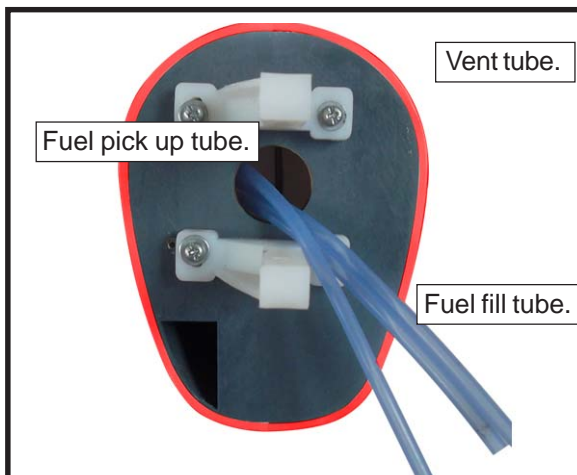
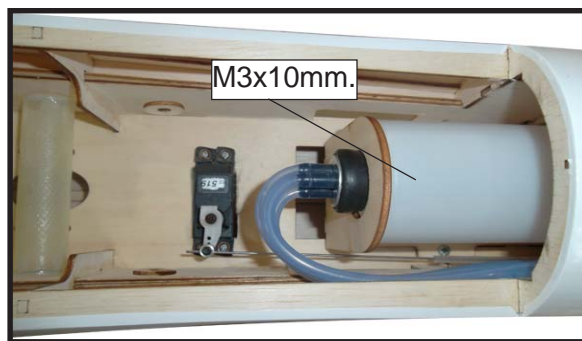


⚠ *You should mark which tube is the vent and which is the fuel pickup when you attach fuel tubing to the tubes in the stopper. Once the tank is installed inside the fuselage, it may be difficult to determine which is which.*

❑ 7) Slide the fuel tank into the fuselage. Guide the lines from the tank through the hole in the firewall.

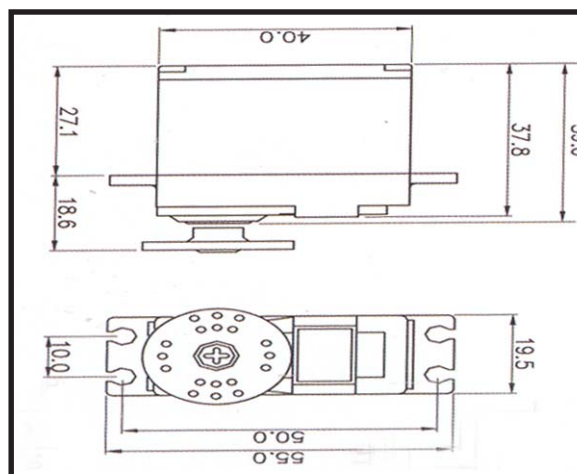


❑ 8) Use plywood template to hold in place the fuel tank with C/A glue to secure the fuel tank inside the fuselage.



⚠ **Blow through one of the lines to ensure the fuel lines have not become kinked inside the fuel tank compartment. Air should flow through easily.**

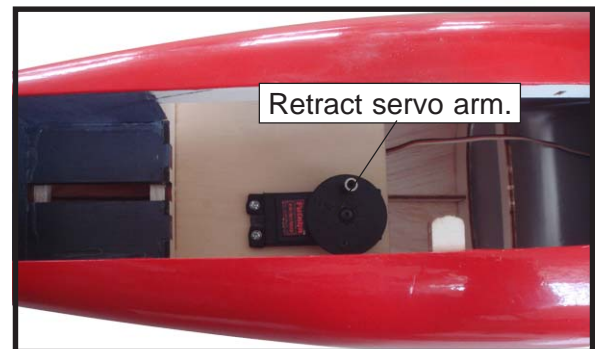
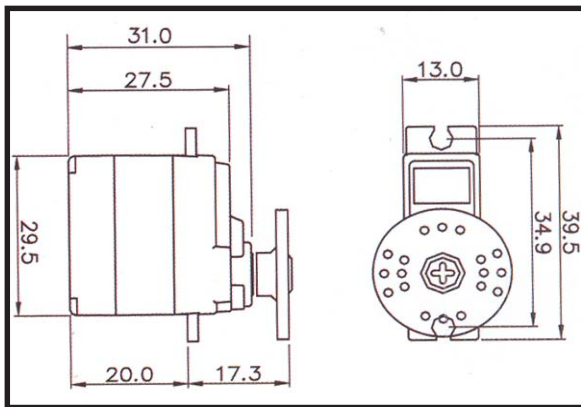
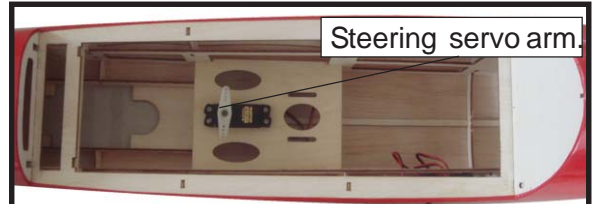
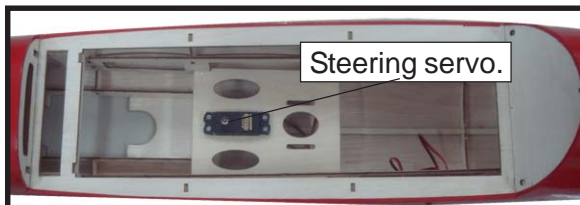
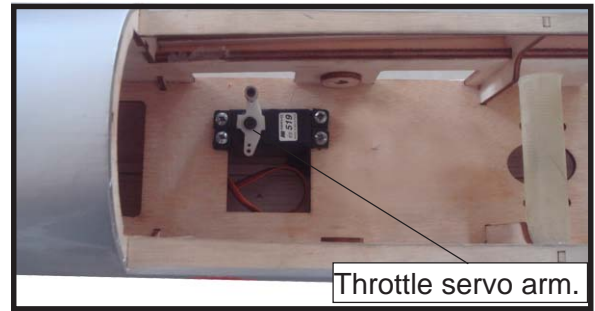
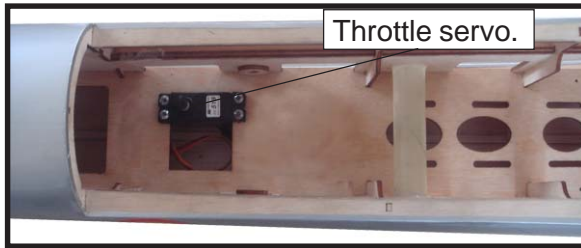
INSTALLING THE FUSELAGE SERVOS.



⚠ ***Because the size of servos differ, you may need to adjust the size of the precut opening in the mount. The notch in the sides of the mount allow the servo lead to pass through.***

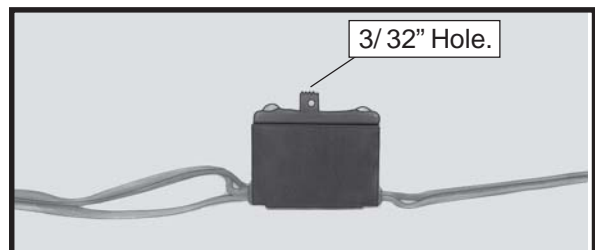
❑ 1) Install the rubber grommets and brass collets onto the throttle servo. Test fit the servo into the throttle servo mount.

- 2) Secure the servos with the screws provided with your radio system.



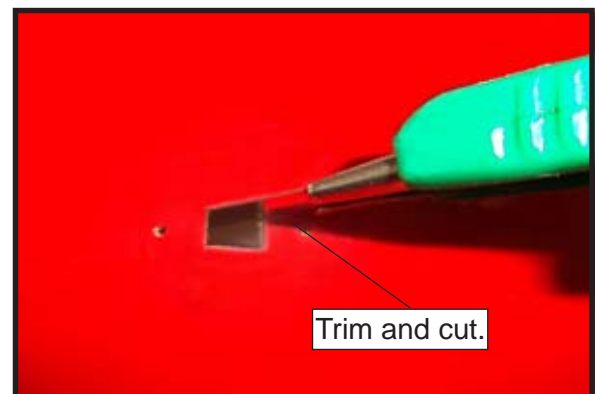
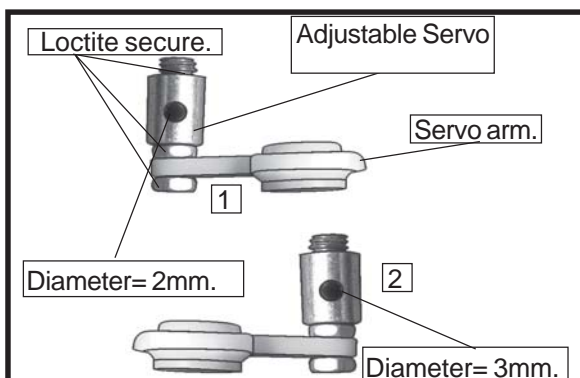
INSTALLING THE SWITCH.

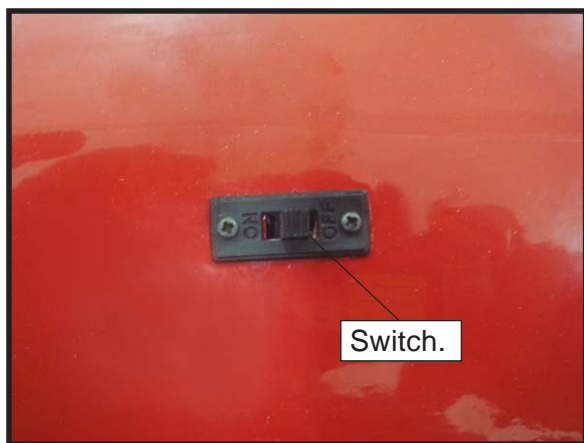
Install the switch into the precut hole in the side, in the fuselage.



THROTTLE SERVO ARM INSTALLATION.

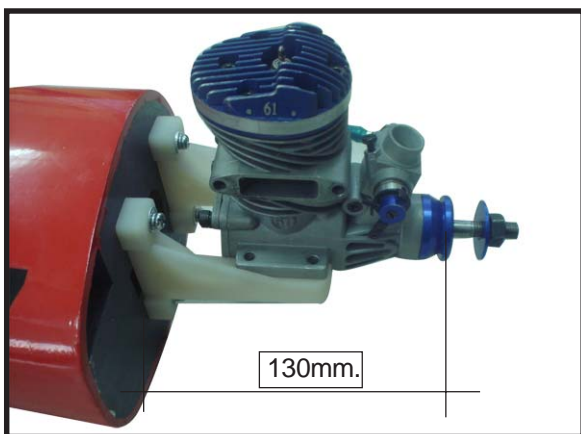
Install adjustable servo connector in the servo arm as same as picture below:



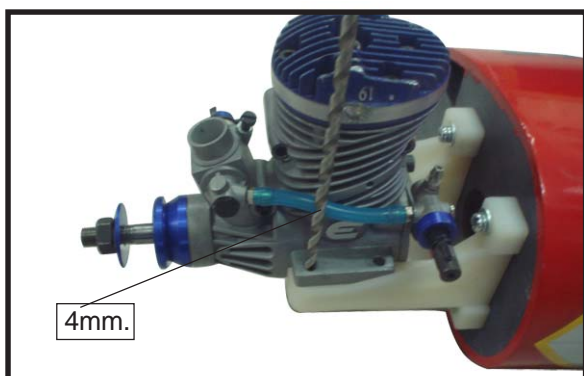


MOUNTING THE ENGINE.

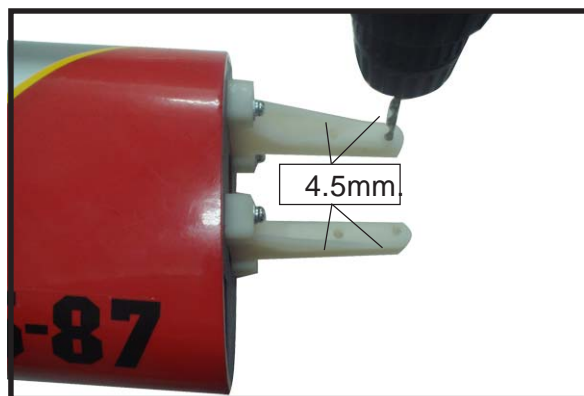
- 1) Position the engine with the drive washer (130mm) forward of the firewall as shown.



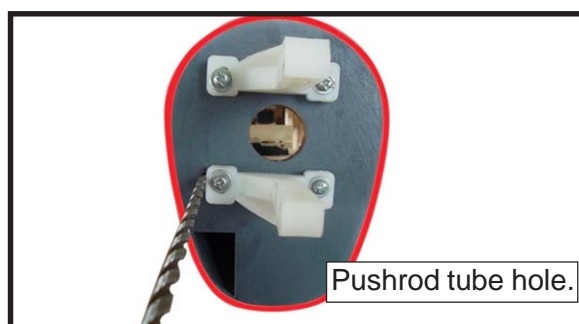
- 2) Use a pin drill and 4mm drill bit to drill a small indentation in the mount for the engine mounting screw.



- 3) Use a drill to drill the four holes in the engine mount rails.



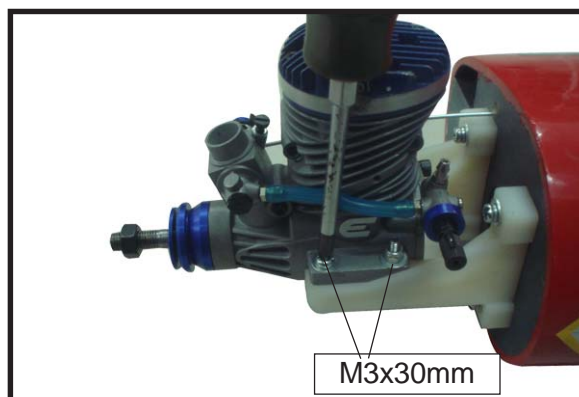
- 4) On the fire wall has drill a hole in the firewall for the throttle pushrod the location for the throttle pushrod tube (pre-drill).

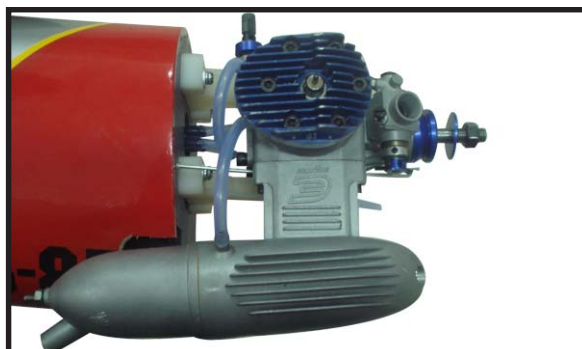
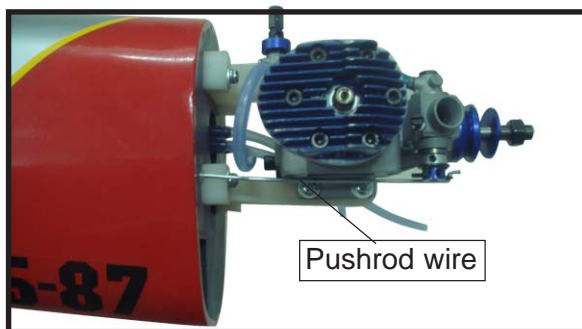


- 5) Slide the pushrod tube in the firewall and guide it through the fuel tank mount. Use medium C/A to glue the tube to the firewall and the fuel tank mount.

- 6) Connect the Z-bend in the 450mm throttle pushrod to the outer hole of the carburetor arm.

- 7) Slide the throttle pushrod wire into the tube. Position the engine between the mounts. Use four M3x30mm machine screws to secure the engine to the mount as shown.





8) Reinstall the servo horn by sliding the connector over the pushrod wire. Center the throttle stick and trim and install the servo horn perpendicular to the servo center line.

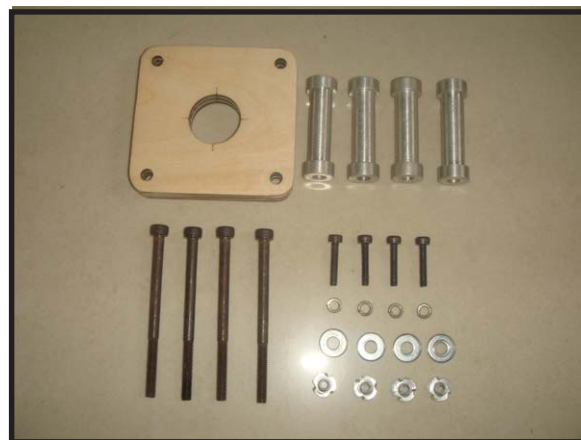


9) Move the throttle stick to the closed position and move the carburetor to closed. Use a 1.5mm hex wrench to tighten the screw that secures the throttle pushrod wire. Make sure to use threadlock on the screw so it does not vibrate loose.



ELECTRIC POWER CONVERSION.

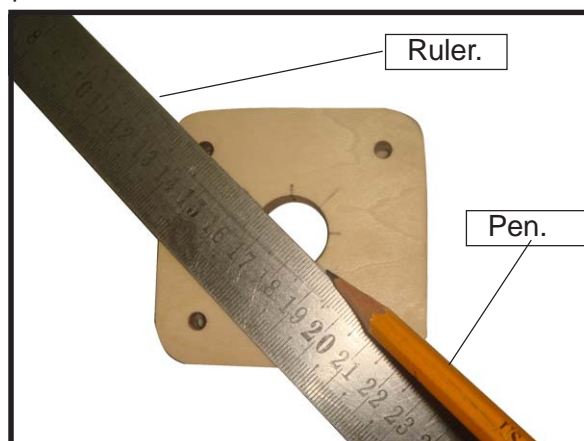
1) Locate the items necessary to install the electric power conversion included with your model.

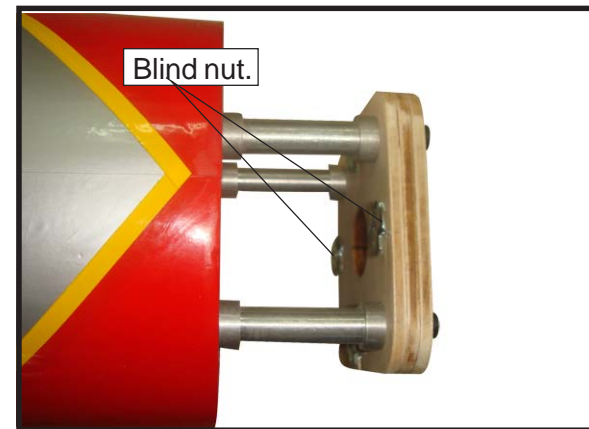
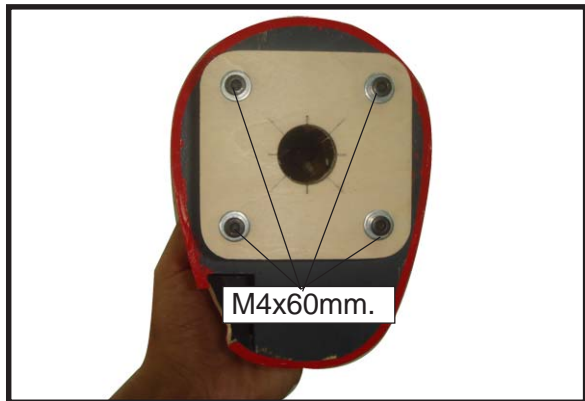
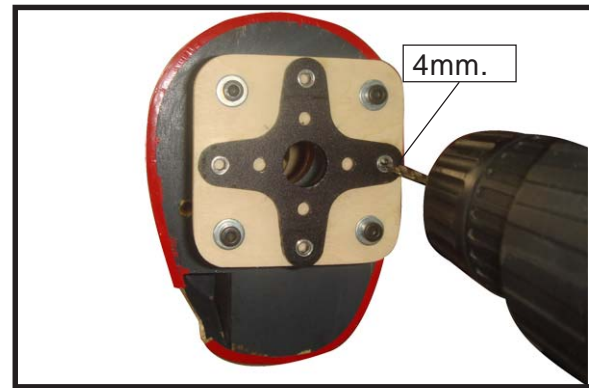
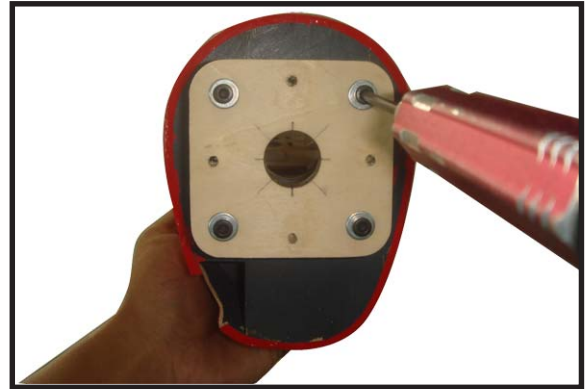
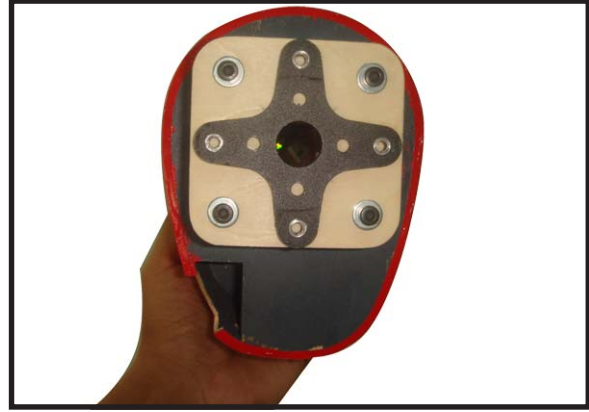
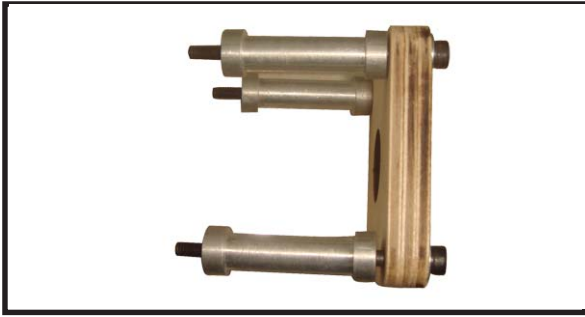


Recommendation EP parts as shown (not included with your model)

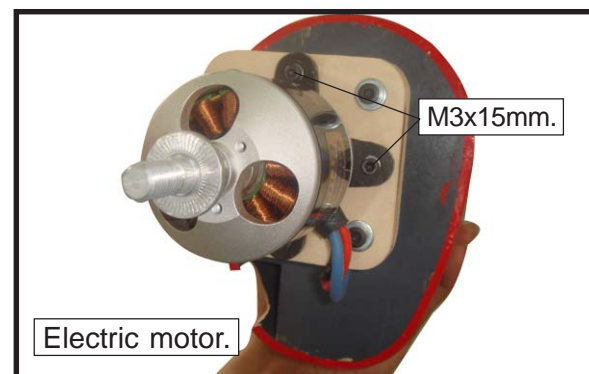
- **Model size: .61-75 size models**
- **Motor: 50mm 310 rev per volt**
- **Propeller: 13x10 ~ 14x10**
- **ESC: 60A**
- **Lipo Batteries: 8 cell 3200mA**

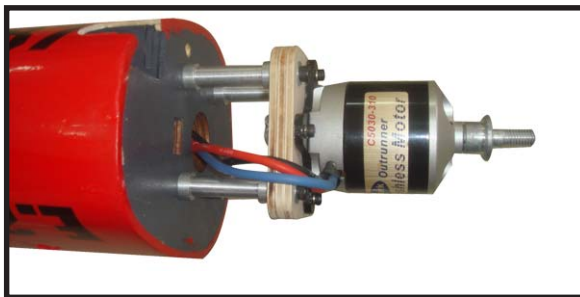
2) Attach the draw cross lines on the sub firewall to locate the centred mounting position of your electric motor box to the firewall suitable with the cross lines drawn on the electric motor box and firewall. Using epoxy and balsa stick to secure the motor box to the firewall. Please see pictures below.



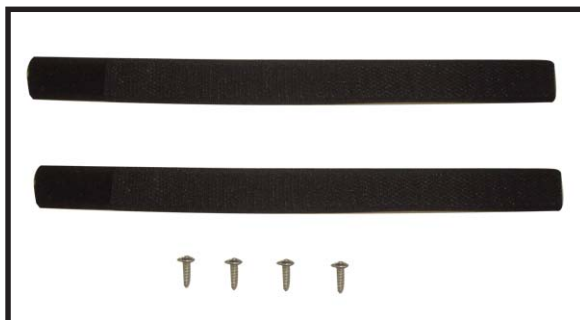


3) Attach the motor to the front of the electric motor box using four 3mm blind nut, four M3x15mm hex head bolts to secure the motor. Please see picture shown.

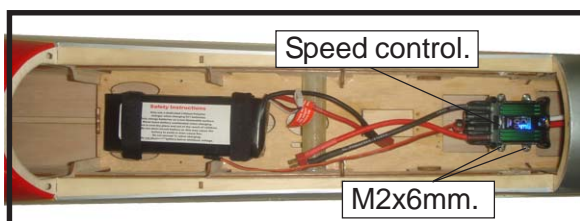




4) Locate the plywood battery tray to the fuselage. Tighten the screws using machine screws M3x15mm to secure the tray in position.




5) Attach the speed control to the side of the motor box using two-sided tape and tie wraps. Connect the appropriate leads from the speed control to the motor. Make sure the leads will not interfere with the operation of the motor.



INSTALLING THE SPINNER.

Install the spinner backplate, propeller and spinner cone.

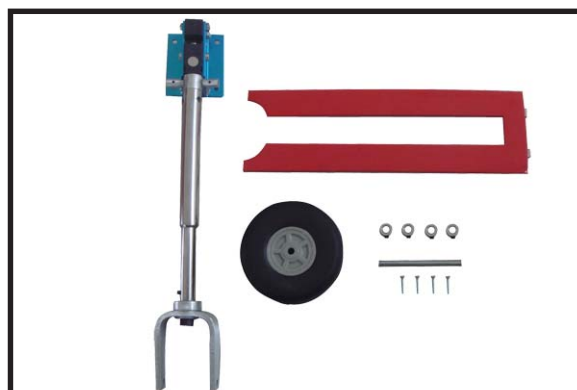


 The propeller should not touch any part of the spinner cone. If it does, use a sharp modeling knife and carefully trim away the spinner cone where the propeller comes in contact with it.

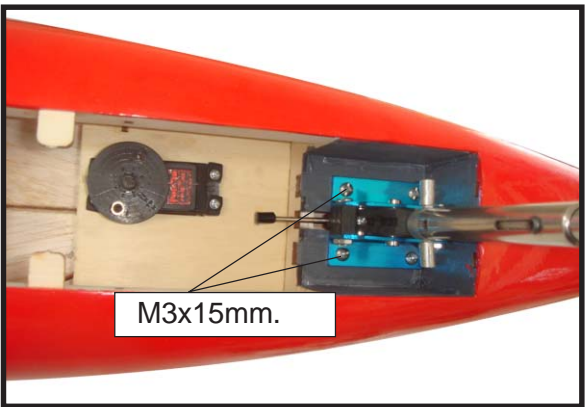
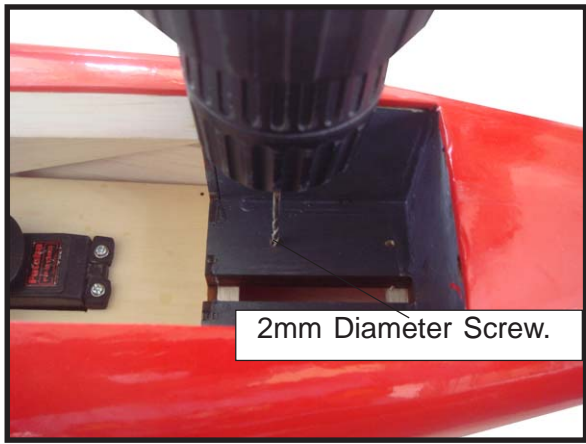
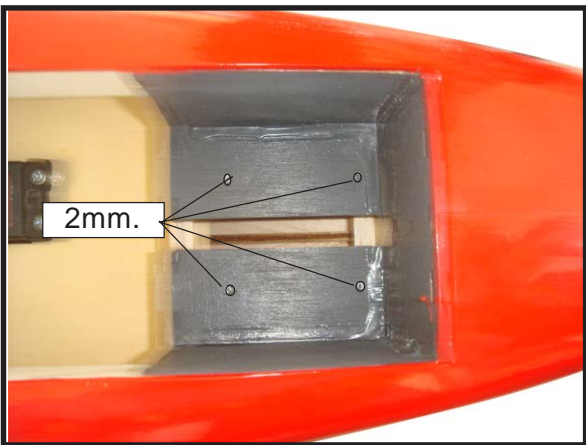
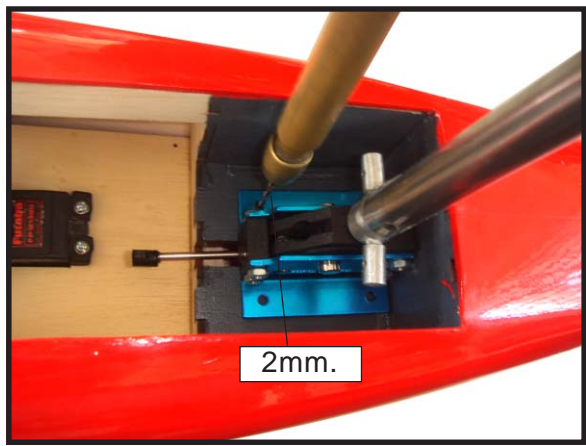


INSTALLING NOSE RETRACTABLE LANDING GEAR .

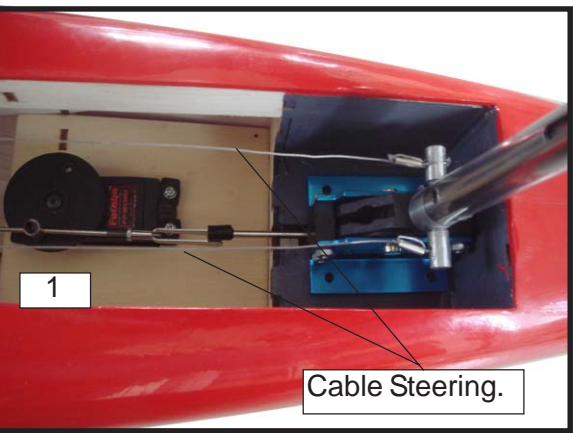
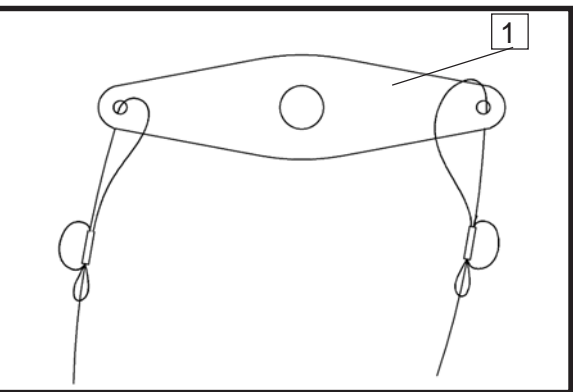
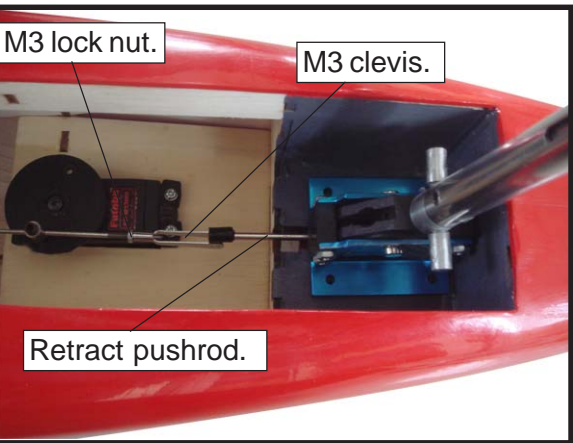
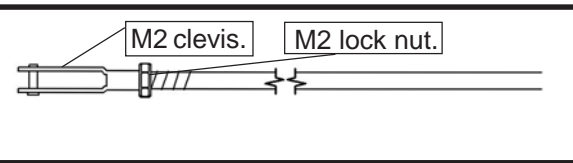
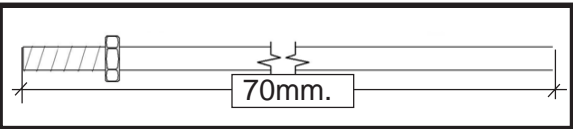
Locate the items necessary to install the Retractable landing gear as shown.

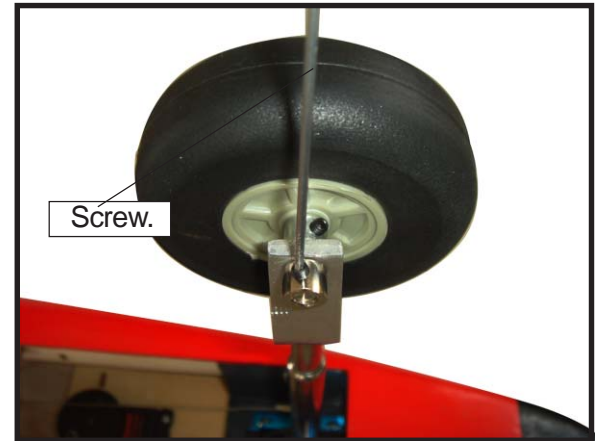
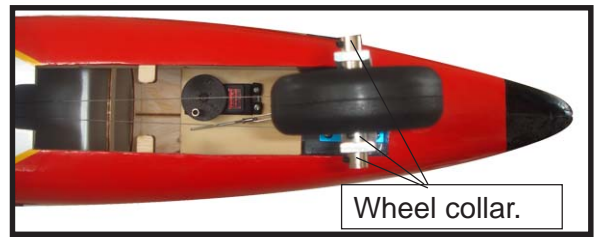
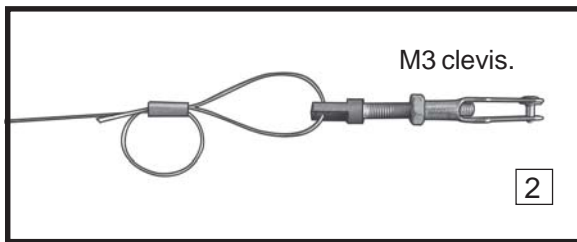


1) Install Retractable landing gear..

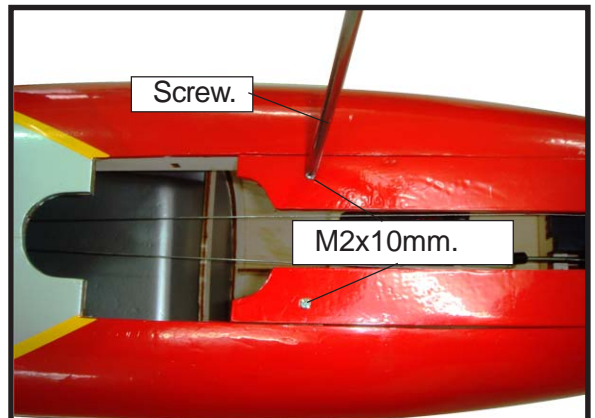
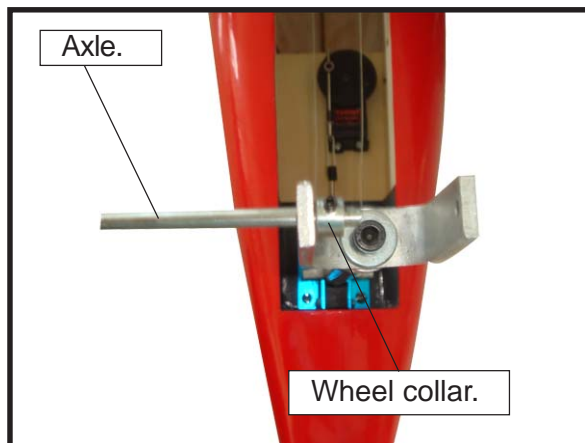
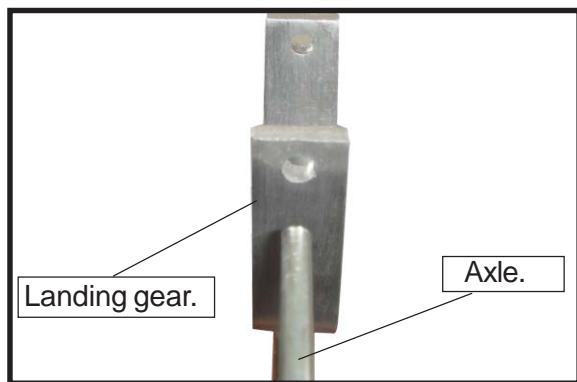


2) Install Pushrod.

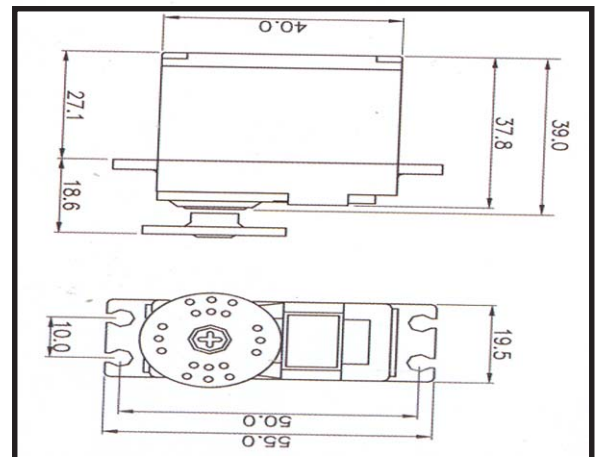
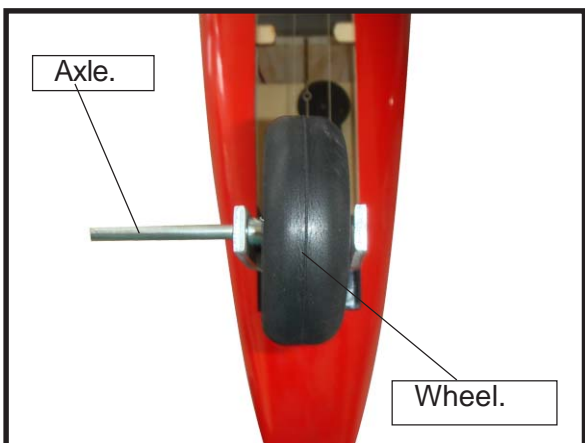


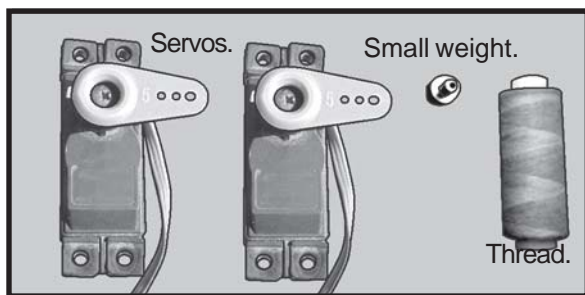


3) Install Wheel.



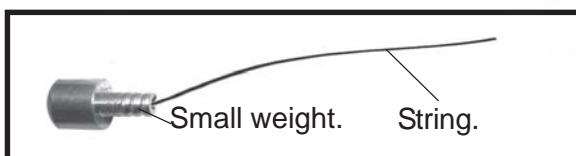
INSTALLING THE AILERON



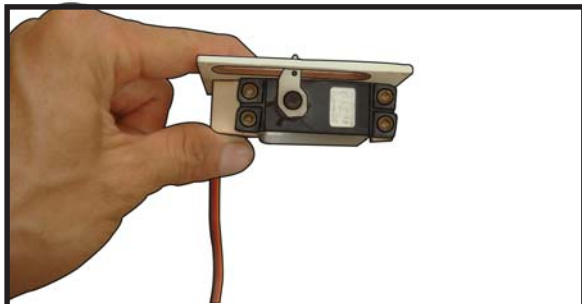


Because the size of servos differ, you may need to adjust the size of the precut opening in the mount. The notch in the sides of the mount allow the servo lead to pass through.

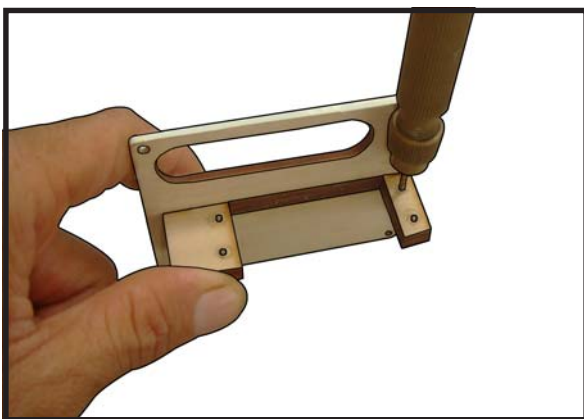
1) Using a small weight (Weighted fuel pick-up works well) and string, feed the string through the wing as indicated.



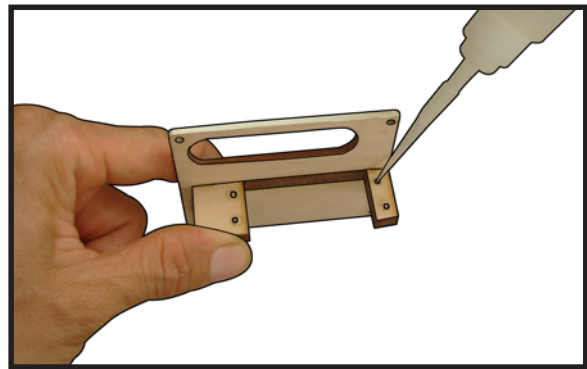
2) Place the servo between the mounting blocks and space it from the hatch. Use a pencil to mark the mounting hole locations on the blocks.



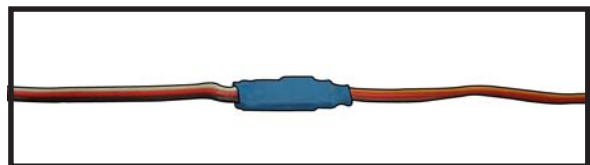
3) Use drill bit in a pin vise to drill the mounting holes in the blocks.



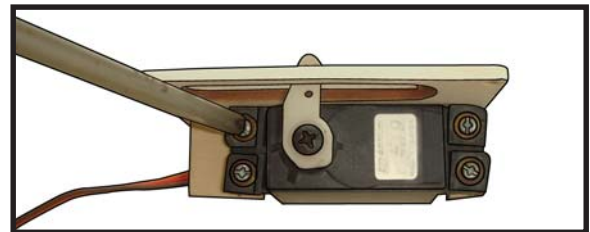
4) Apply 2-3 drops of thin C/A to each of the mounting holes. Allow the C/A to cure without using accelerator.



5) Use dental floss to secure the connection so they cannot become unplugged.

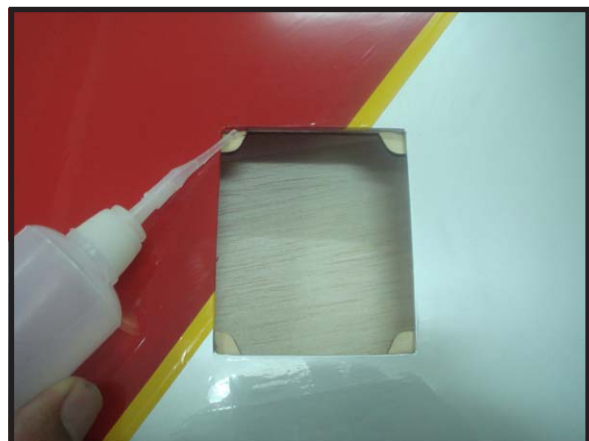


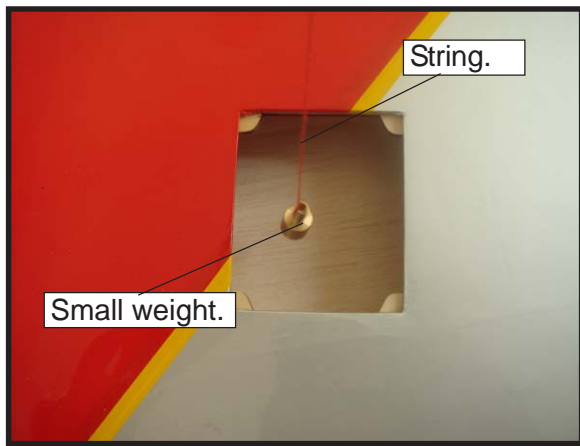
6) Secure the servo to the aileron hatch using Phillips screwdriver and the screws provided with the servo.



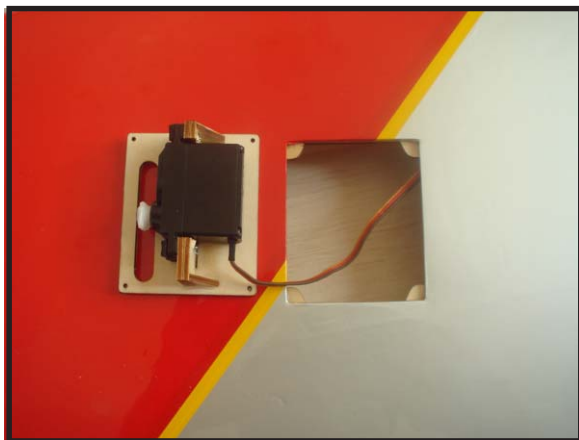
7) Apply 1-2 drops of thin C/A to each of the mounting tabs. Allow the C/A to cure without using accelerator.

8) A string has been provided in the wing to pull the aileron lead through to the wing root. Remove the string from the wing at the servo location and use the tape to attach it to the servo extension lead. Pull the lead through the wing and remove the string.

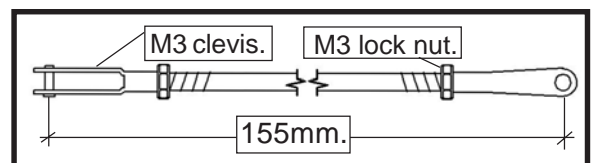
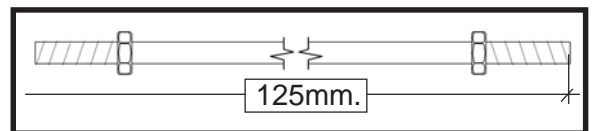


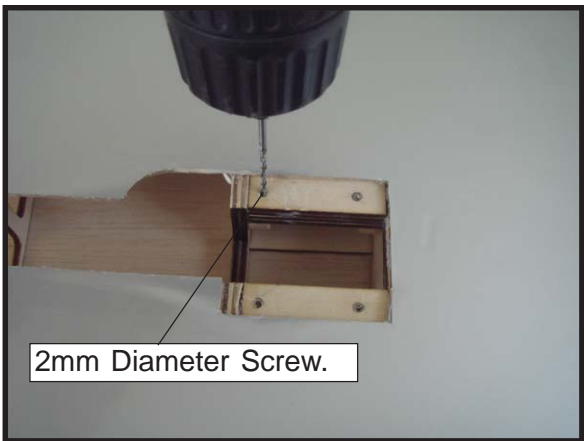
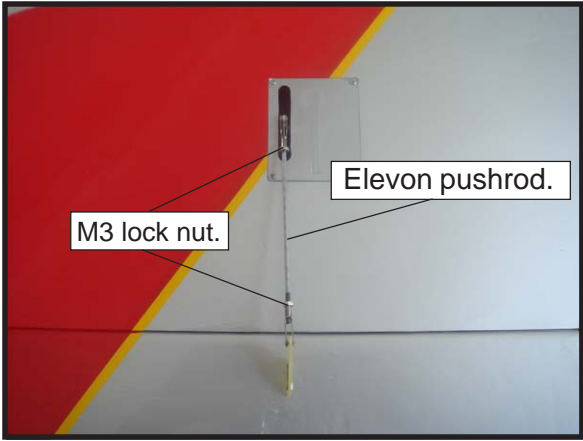


9) Set the elevon hatch in place and use a Phillips screw driver to install it with four wood screws.

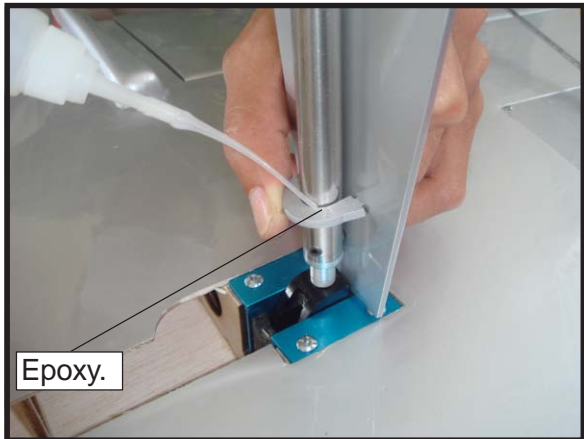
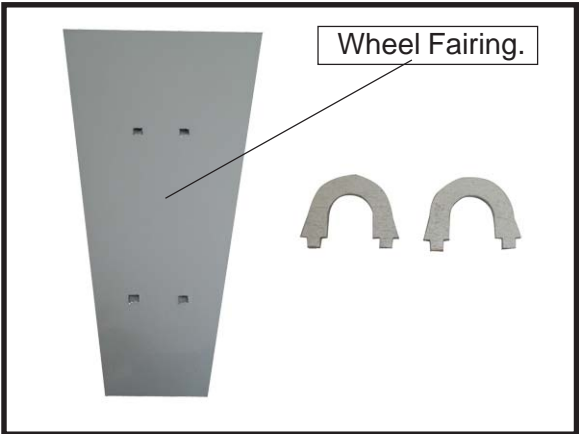
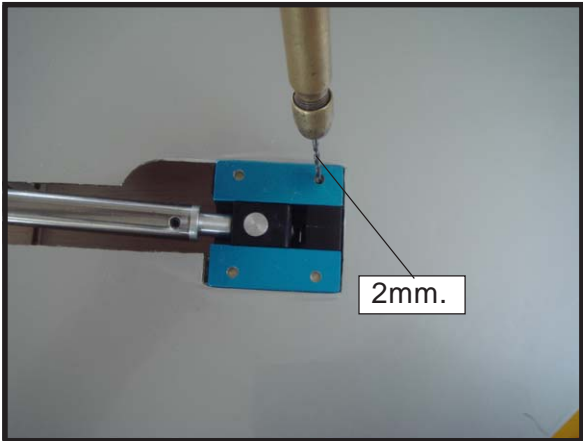
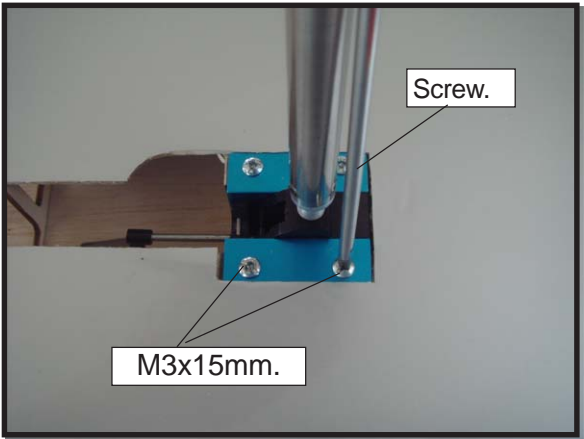
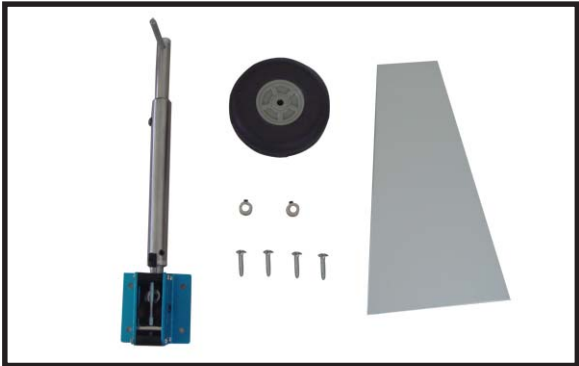


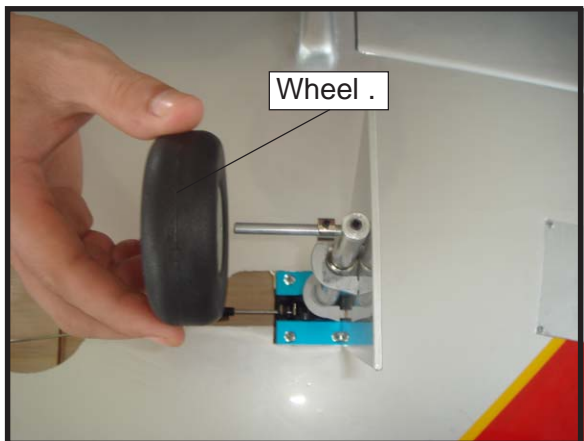
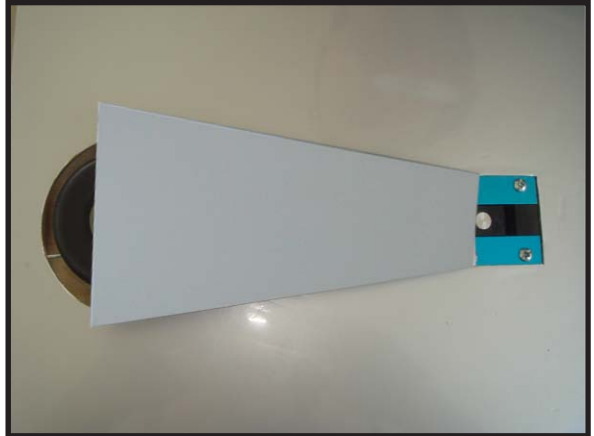
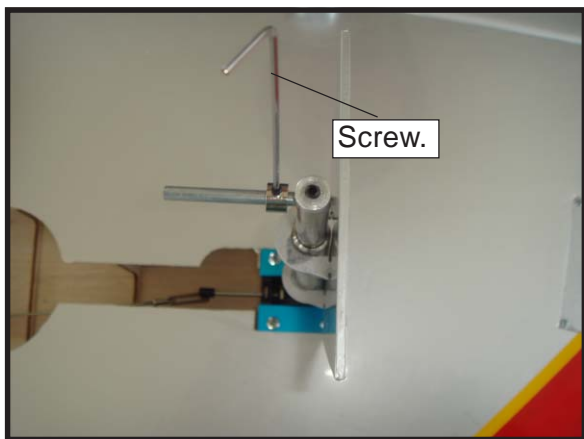
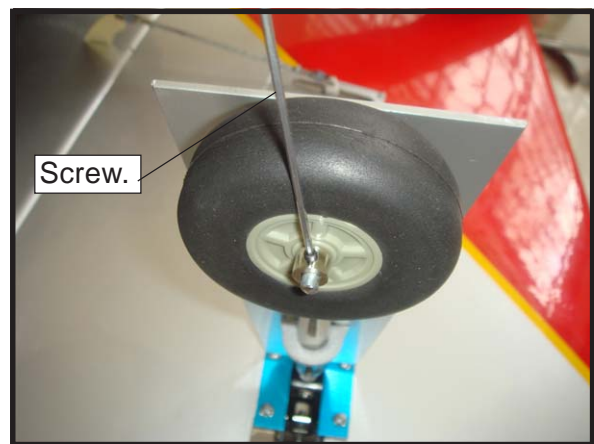
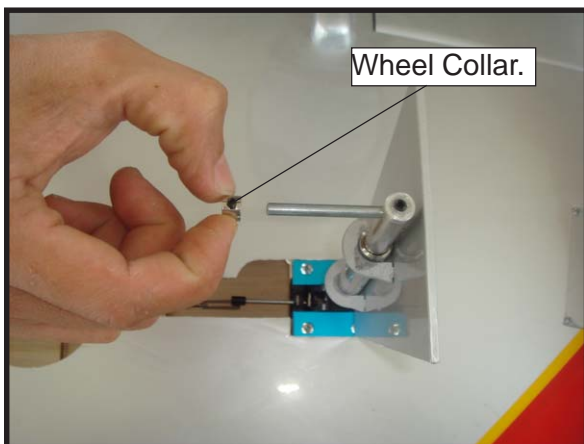
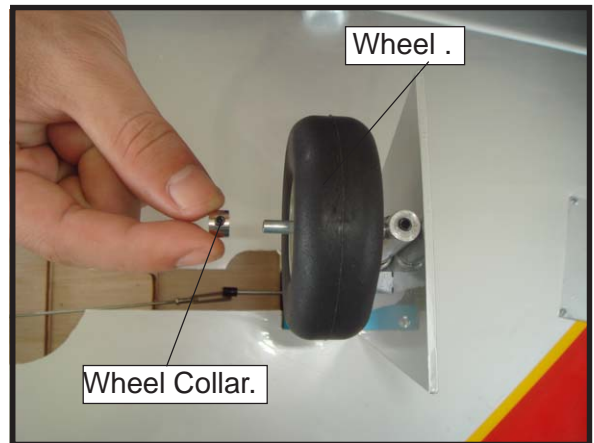
ELEVON PUSHROD HORN INSTALLATION.





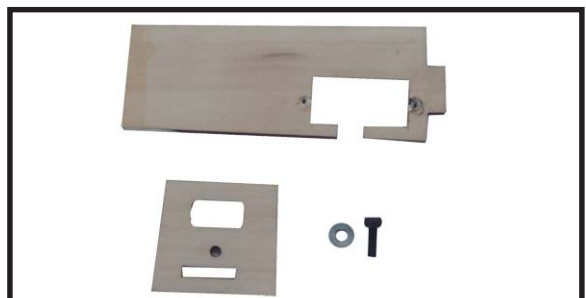
INSTALLING RETRACTABLE LANDING GEAR .

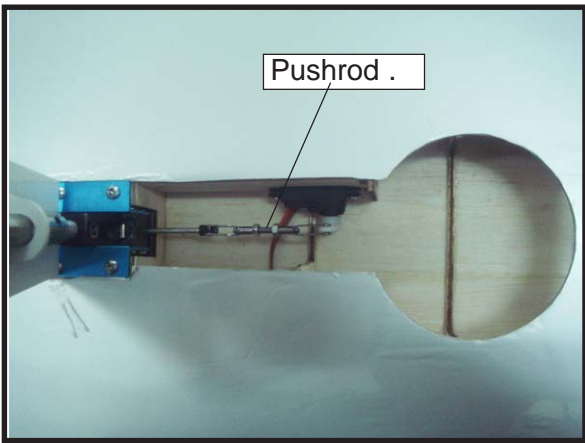
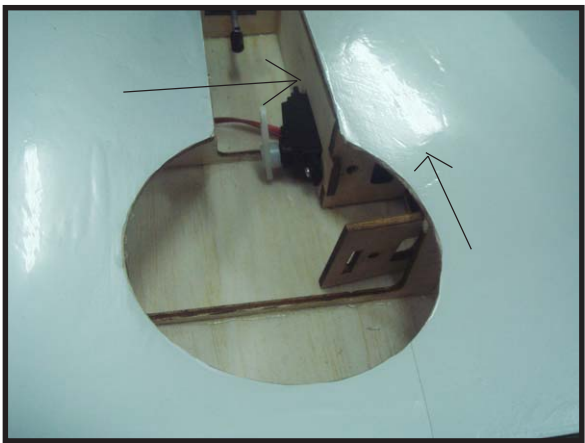
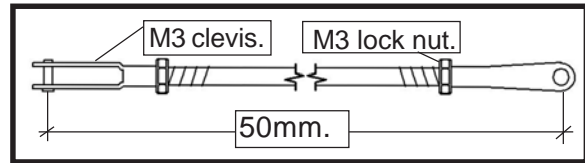
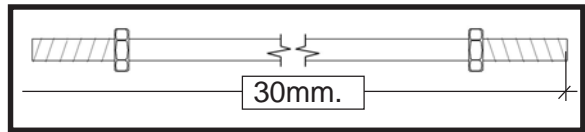
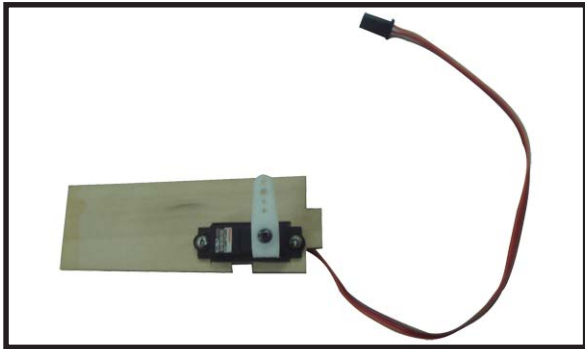
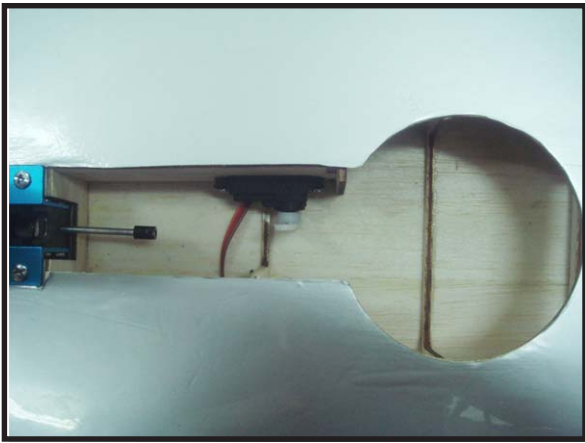
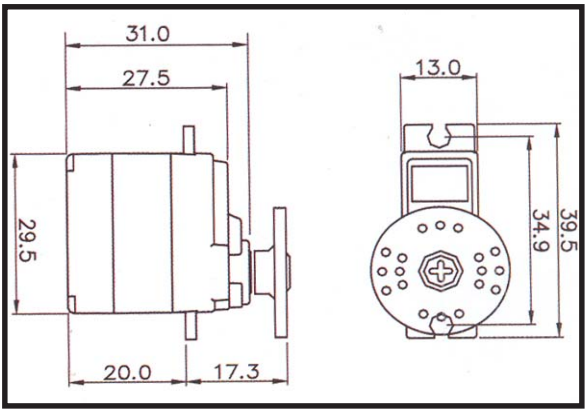




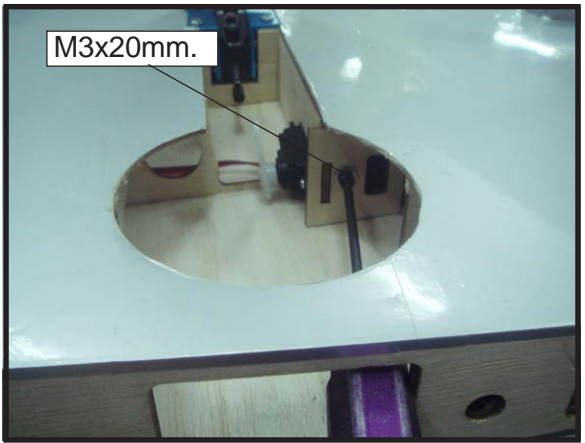
RETRACTABLE LANDING GEAR PUSHROD INSTALLATION

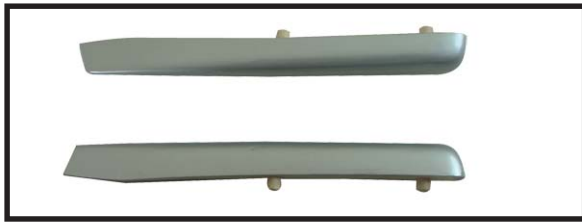
- 1) Locate items necessary to install landing gear pushrod .



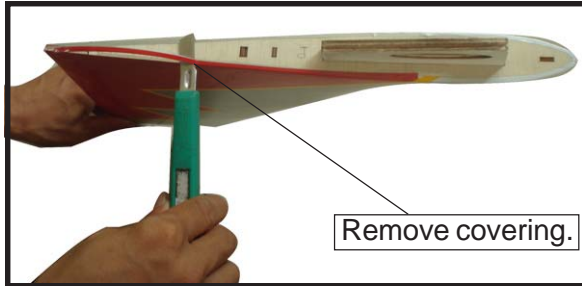


ATTACHMENT TAIL - WING.

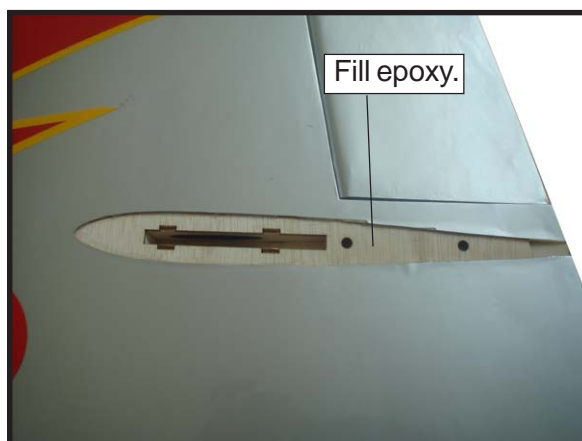




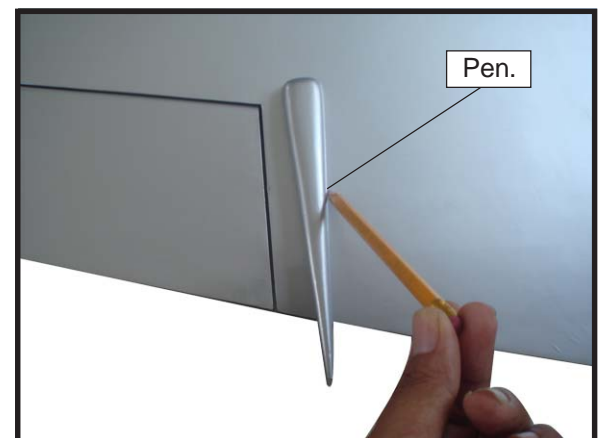
1) Attach the tail to the wing. Use a hobby knife to remove the covering at the tail and wing end.



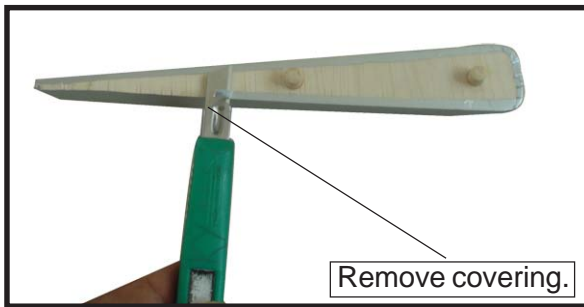
2) Apply the epoxy to the surface of both tail and wing end. The tail is held in position and install it to the wing end. Please see pictures shown.




□ 3) With the tail held firmly in place, use a pen and draw lines onto the tail where it and the wing sides meet. Do this on both the right and left sides and top and bottom of the tail.

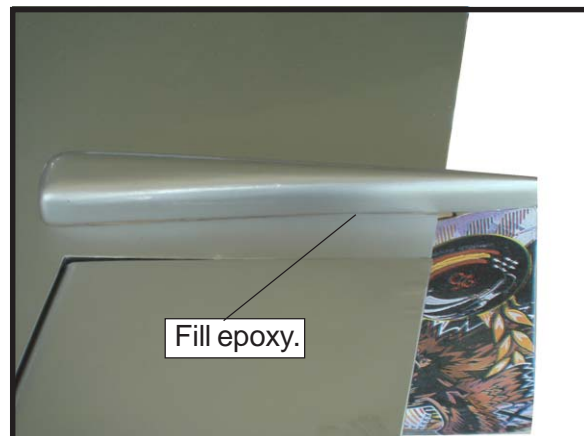
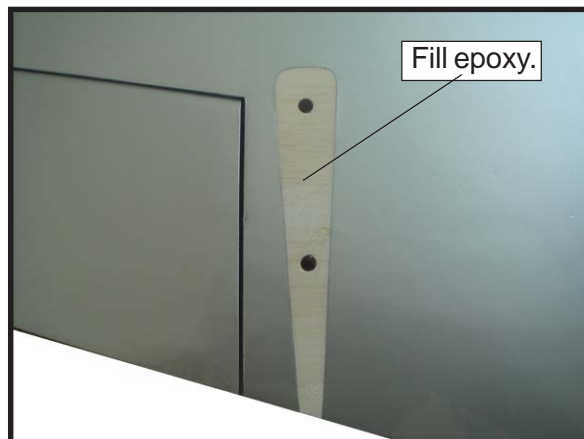
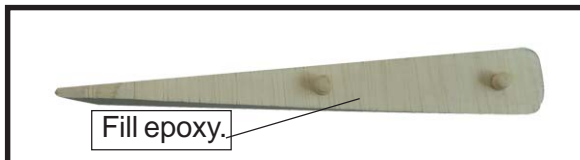


□ 4) Remove the tail and wing. Using the lines you just drew as a guide, carefully remove the covering from between them using a modeling knife.



 When cutting through the covering to remove it, cut with only enough pressure to only cut through the covering itself. Cutting into the balsa structure may weaken it.

5) Apply the epoxy to the surface of both tail and wing end. The tail is held in position and install it to the wing end. Please see pictures shown.



INSTALLATION PILOT AND CANOPY.

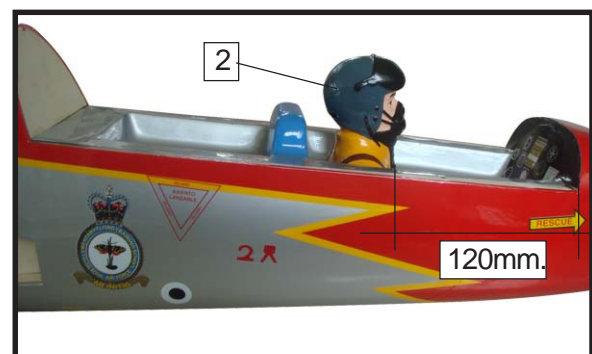
1) Locate items necessary to install pilot, and canopy.

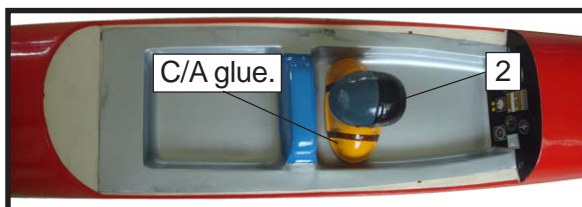


2) A scale pilot is included with this ARF. The Seagull Pilot included fitting well to the cockpit. (or you can order others scale pilot figures made by Seagull factory. They are available at Seagull distributors.)

If you are going to install a pilot figure, please use a sanding bar to sand the base of the figure so that it is flat.

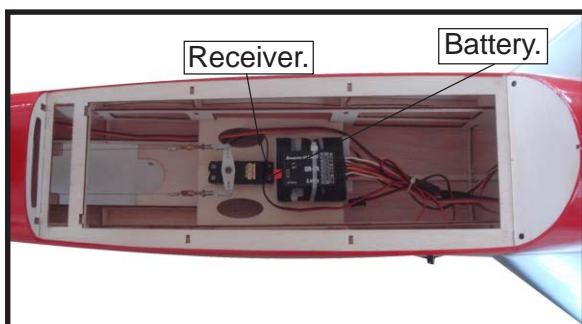
3) Position the pilot figure on the canopy floor as show. Locate the oval shaped on the canopy floor and remove the covering. Use epoxy to glue this into the base of the pilot figure and glue the cockpit panel in place with C/A glue, please see pictures as shown.





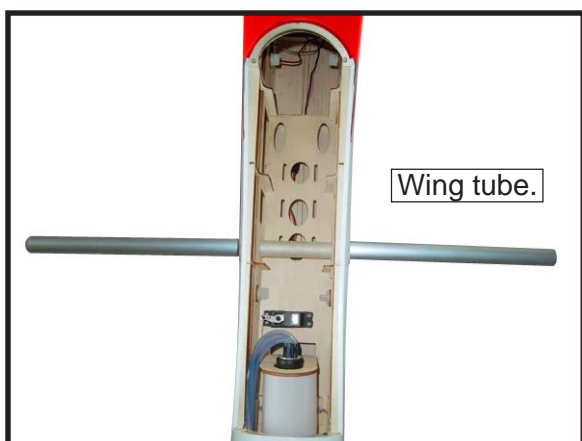
INSTALLING RECEIVER AND BATTERY.

- ☐ 1) Plug the five servo leads and the switch lead into the receiver. Plug the battery pack lead into the switch also.
- ☐ 2) Wrap the receiver and battery pack in the protective foam rubber to protect them from vibration.
- ☐ 3) Route the antenna in the antenna tube inside the fuselage and secure it to the bottom of fuselage using a plastic tape.

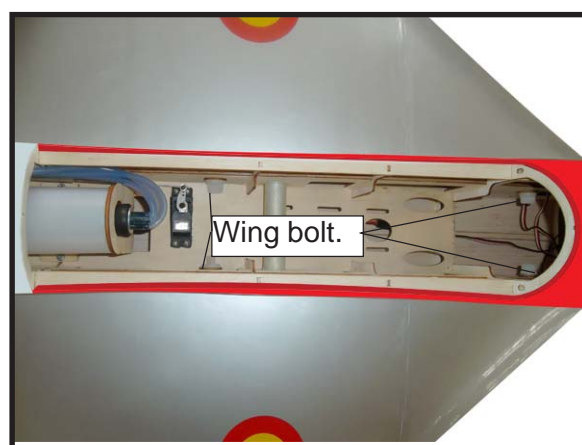


ATTACHMENT WING-FUSELAGE.

Attach the aluminium tube into fuselage.



Insert two wing panels as pictures below.



BALANCING.

- ☐ 1) It is critical that your airplane be balanced correctly. Improper balance will cause your plane to lose control and crash. THE CENTER OF GRAVITY IS LOCATED **250 MM** BACK FROM THE LEADING EDGE OF THE WING AT THE WING ROOT.

❑ 2) Mount the wing to the fuselage. Using a couple of pieces of masking tape, place them on the top side of the wing **250mm** back from the leading edge of the wing at the wing root.

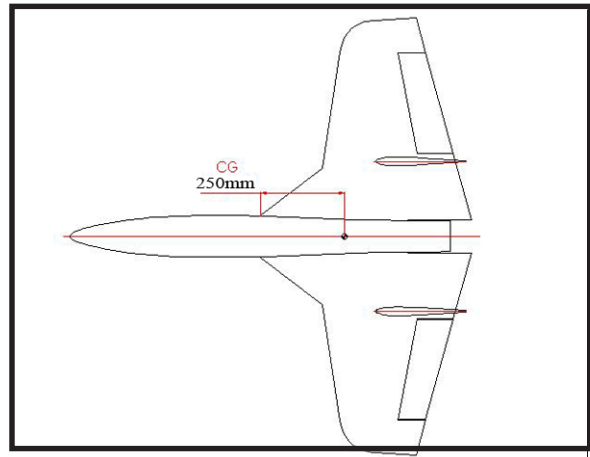
❑ 3) Turn the airplane upside down. Place your fingers on the masking tape and carefully lift the plane .

Accurately mark the balance point on the top of the wing on both sides of the fuselage. The balance point is located **250 mm** back from the leading edge of the wing at the wing root. This is the balance point at which your model should balance for your first flights. Later, you may wish to experiment by shifting the balance up to 10mm forward or back to change the flying characteristics. Moving the balance forward may improve the smoothness and arrow- like tracking, but it may then require more speed for take off and make it more difficult to slow down for landing. Moving the balance aft makes the model more agile with a lighter and snappier "feel". In any case, please start at the location we recommend .

With the wing attached to the fuselage, all parts of the model installed (ready to fly), and empty fuel tanks, hold the model at the marked balance point with the stabilizer level.

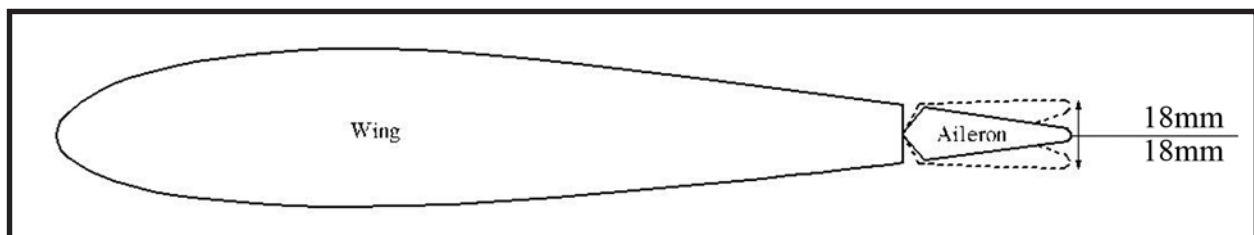
Lift the model. If the tail drops when you lift, the model is "tail heavy" and you must add weight* to the nose. If the nose drops, it is "nose heavy" and you must add weight* to the tail to balance.

*If possible, first attempt to balance the model by changing the position of the receiver battery and receiver. If you are unable to obtain good balance by doing so, then it will be necessary to add weight to the nose or tail to achieve the proper balance point.



CONTROL THROWS.

Ailerons: 18mm - 18mm up.
18mm - 18mm down.



FLIGHT PREPARATION.

Check the operation and direction of the elevator, rudder, ailerons and throttle.

☐ A) Plug in your radio system per the manufacturer's instructions and turn everything on.

☐ B) Check the elevator first. Pull back on the elevator stick. The elevon halves should move up. If it they do not, flip the servo reversing switch on your transmitter to change the direction.

☐ C) Check the nose steering rudder. Looking from behind the airplane, move the rudder stick to the right. The nose wheel rudder should move to the right. If it does not, flip the servo reversing switch on your transmitter to change the direction.

☐ D) Check the throttle. Moving the throttle stick forward should open the carburetor barrel. If it does not, flip the servo reversing switch on your transmitter to change the direction.

☐ E) From behind the airplane, look at the elevon on the right wing half. Move the aileron stick to the right. The right elevon should move up and the other elevon should move down. If it does not, flip the servo reversing switch on your transmitter to change the direction.

PREFLIGHT CHECK.

☐ 1) Completely charge your transmitter and receiver batteries before your first day of flying.

☐ 2) Check every bolt and every glue joint in the **ULTRA JET** to ensure that everything is tight and well bonded.

☐ 3) Double check the balance of the airplane. Do this with the fuel tank empty.

☐ 4) Check the control surfaces. All should move in the correct direction and not bind in any way.

☐ 5) If your radio transmitter is equipped with dual rate switches double check that they are on the low rate setting for your first few flights.

☐ 6) Check to ensure the control surfaces are moving the proper amount for both low and high rate settings.

☐ 7) Check the receiver antenna. It should be fully extended and not coiled up inside the fuselage.

☐ 8) Properly balance the propeller. An out of balance propeller will cause excessive vibration which could lead to engine and/or airframe failure.

We wish you many safe and enjoyable flights with your ULTRA JET.