

Curtiss P-40N Warhawk



Code: SEA250

“ Graphics and specifications may change without notice ”.



(SEA250P)

Specifications:

- Wingspan-----80 in (203.2 cm).
- Wing area-----1094.3 sq.in (70.6 sq.dm).
- Weight-----19.8-21.2 lbs (9.0-9.6 kg).
- Length-----63.6 in (161.5 cm).
- Engine-----38-61cc
- Motor size-----Power 360
- Radio-----8 channels with 8 servos.
- Electric Power Conversion Optional.



(SEA250S)

INTRODUCTION.

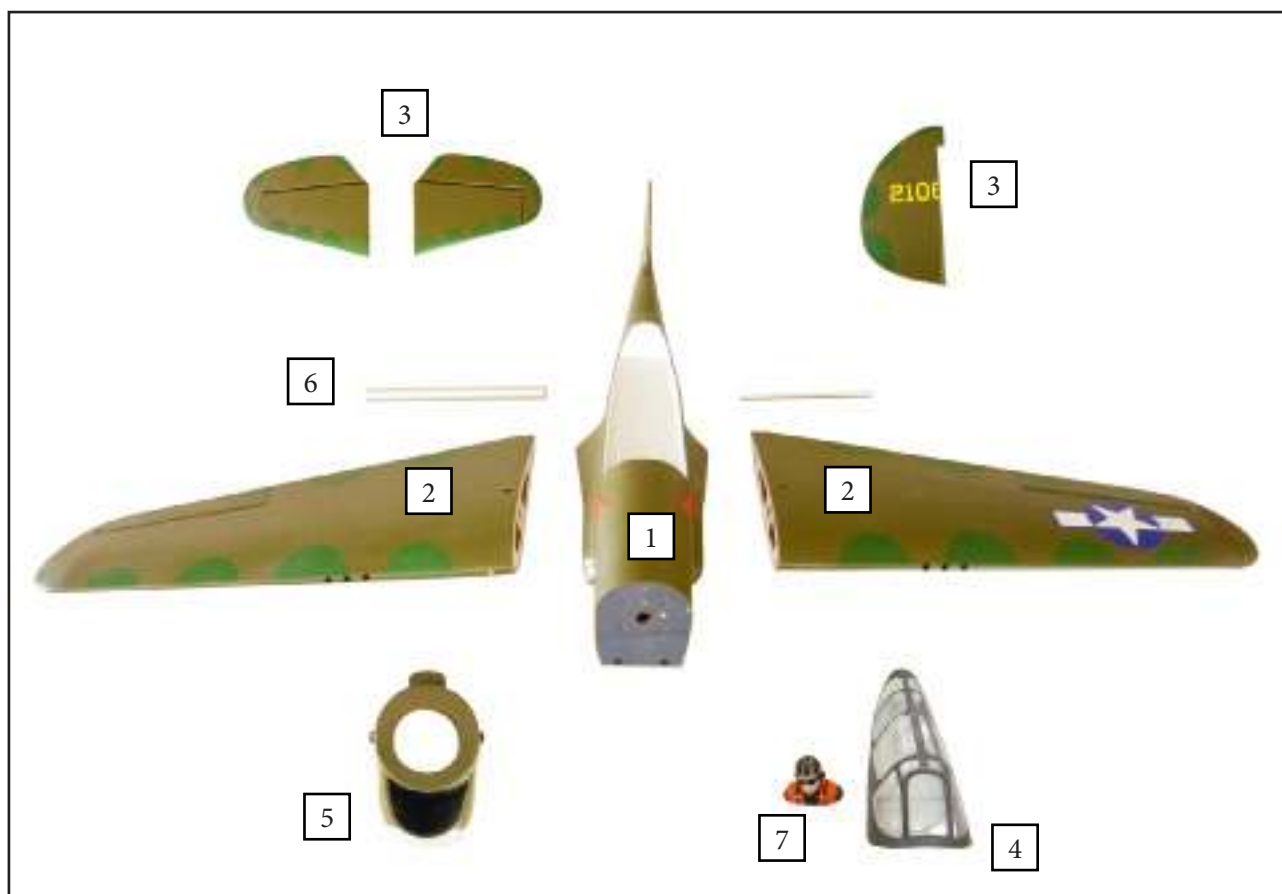
Thank you for choosing the **CURTISS P-40N WARHAWK** ARF by **SG MODELS**. The **CURTISS P-40N WARHAWK** was designed with the intermediate/advanced sport flyer in mind. It is a semi scale airplane which is easy to fly and quick to assemble. The airframe is conventionally built using balsa, plywood to make it stronger than the average ARF, 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 has been fitted and the hinges are pre-installed. Flying the **CURTISS P-40N WARHAWK** 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 **CURTISS P-40N WARHAWK**. Use the parts listing below to indentify all parts.

WARNING.

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

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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SEA25001 Fuselage
SEA25002 Wing set
SEA25003 Tail set
SEA25004 Canopy
SEA25005 Cowling
SEA25006 Aluminium tube
SEA25007 Pilot

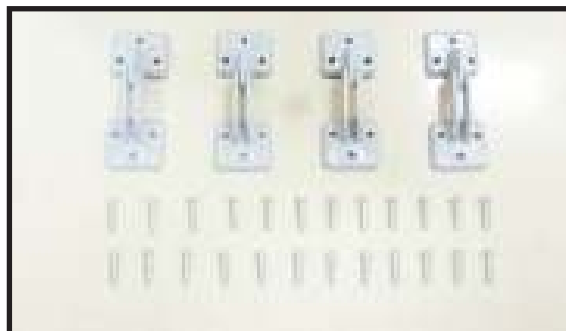
ADDITIONAL ITEMS REQUIRED.

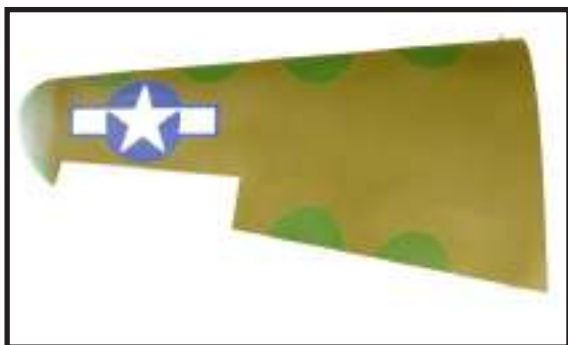
- 33cc-38cc gasoline engine.
- Power 160
- Computer radio with 10 servos.
- Glow plug to suit engine.
- Propeller to suit engine.
- Protective foam rubber for radio system.

TOOLS & SUPPLIES NEEDED.

- Thin cyanoacrylate glue.
- Medium 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.

HINGING THE FLAP.





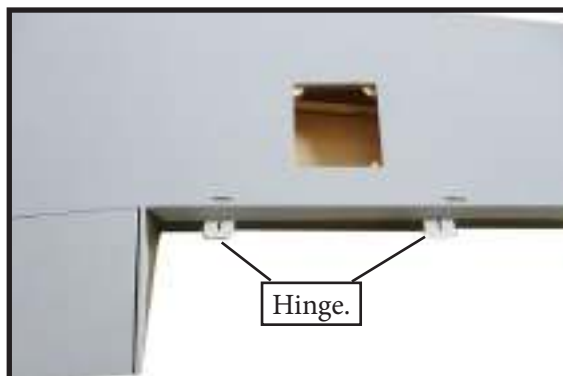
HINGING THE AILERON.

Note : *The control surfaces, including the ailerons, elevators, and rudder, are prehinged with hinges installed, but the hinges are not glued in place. It is imperative that you properly adhere the hinges in place per the steps that follow using a high-quality thin C/A glue.*

1) Carefully remove the aileron from one of the wing panels. Note the position of the hinges.



2) Remove each hinge from the wing panel and aileron and place a T-pin in the center of each hinge. Slide each hinge into the wing panel until the T-pin is snug against the wing panel. This will help ensure an equal amount of hinge is on either side of the hinge line when the aileron is mounted to the aileron.



3) Slide the wing panel on the aileron until there is only a slight gap. The hinge is now centered on the wing panel and aileron. Remove the T-pins and snug the aileron against the wing panel. A gap of 1/64" or less should be maintained between the wing panel and aileron.

4) Deflect the aileron and completely saturate each hinge with thin C/A glue. The ailerons front surface should lightly contact the wing during this procedure. Ideally, when the hinges are glued in place, a 1/64" gap or less will be maintained throughout the length of the aileron to the wing panel hinge line.

NOTE : **The hinge is constructed of a special material that allows the C/A to wick or penetrate and distribute throughout the hinge, securely bonding it to the wood structure of the wing panel and aileron.**

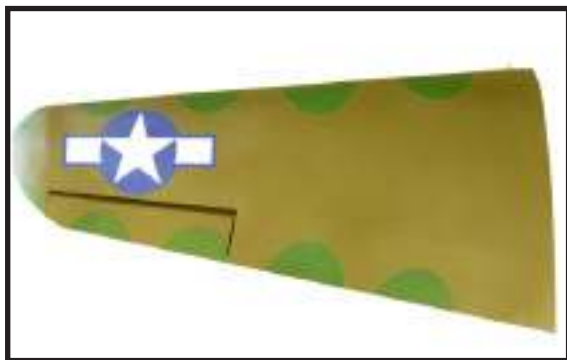


5) Turn the wing panel over and deflect the aileron in the opposite direction from the opposite side. Apply thin C/A glue to each hinge, making sure that the C/A penetrates into both the aileron and wing panel.

6) Using C/A remover/debonder and a paper towel, remove any excess C/A glue that may have accumulated on the wing or in the aileron hinge area.

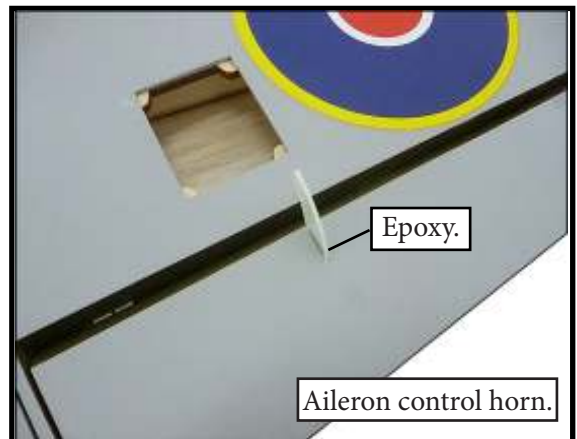
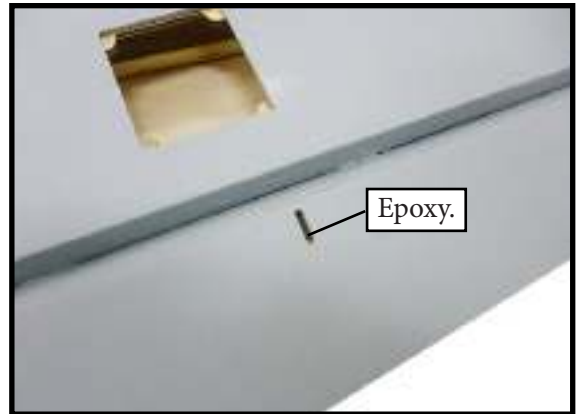
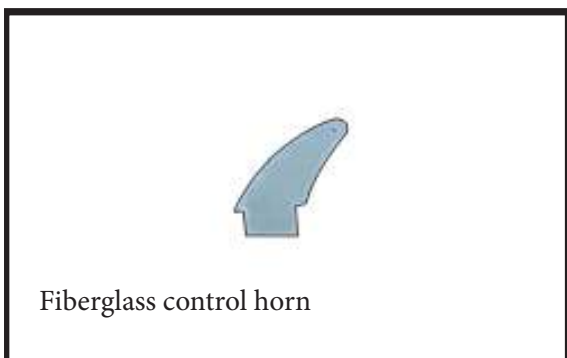
7) Repeat this process with the other wing panel, securely hinging the aileron in place.

8) After both ailerons are securely hinged, firmly grasp the wing panel and aileron to make sure the hinges are securely glued and cannot be pulled out. Do this by carefully applying medium pressure, trying to separate the aileron from the wing panel. Use caution not to crush the wing structure.



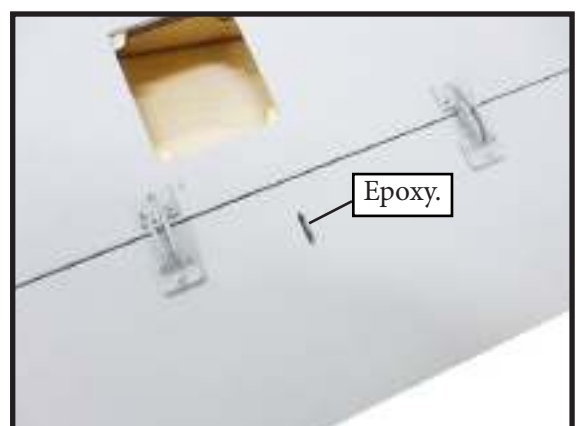
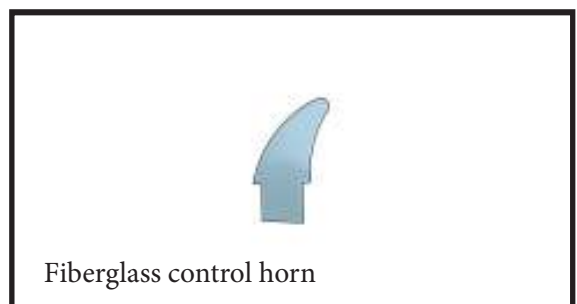
Note : Work the aileron up and down several times to “work in” the hinges and check for proper movement.

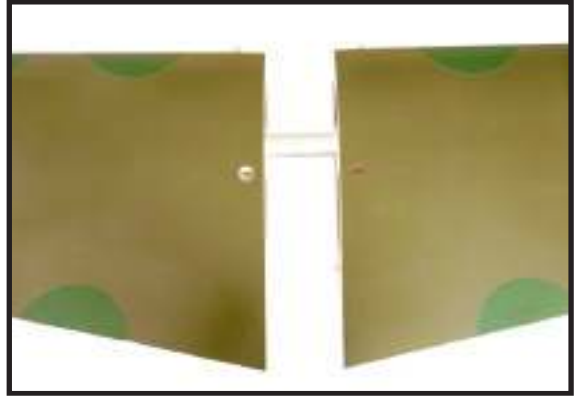
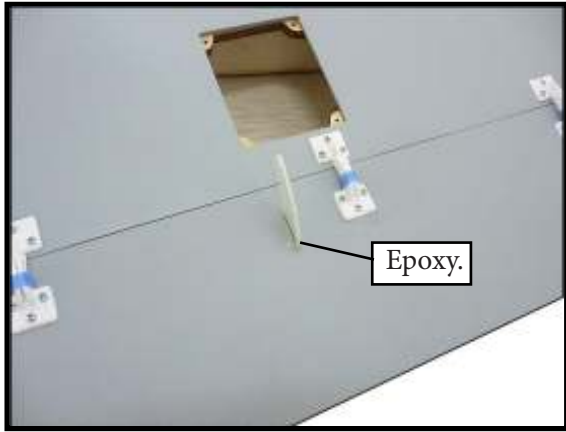
INSTALL THE AILERONS CONTROL HORN.



INSTALL FLAP CONTROL HORN.

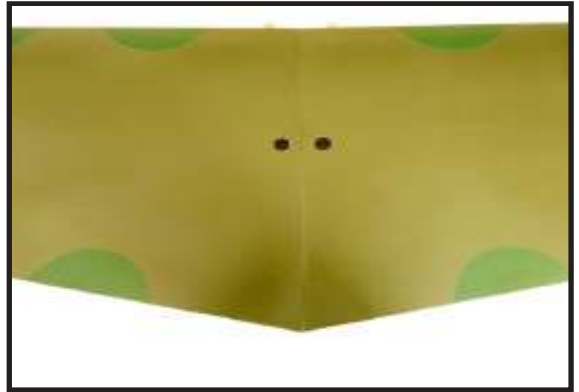
Install the flap control horn using the same method as same as the aileron control horns.



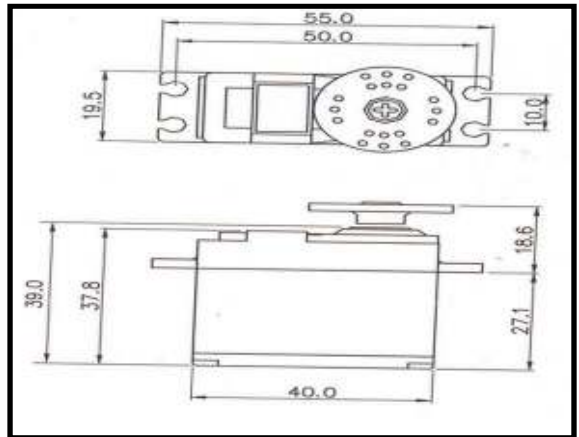
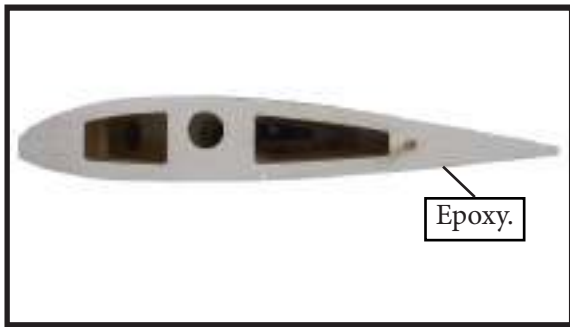


WING ASSEMBLY.

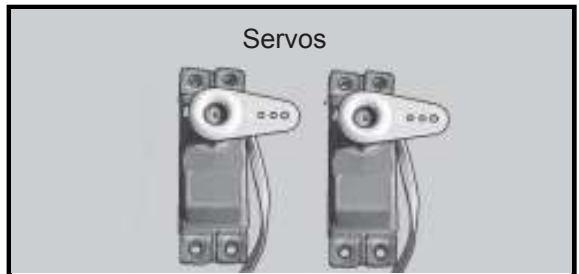
Please see below pictures.




INSTALLING THE AILERON SERVOS.



Attach the aluminum tube into wing.

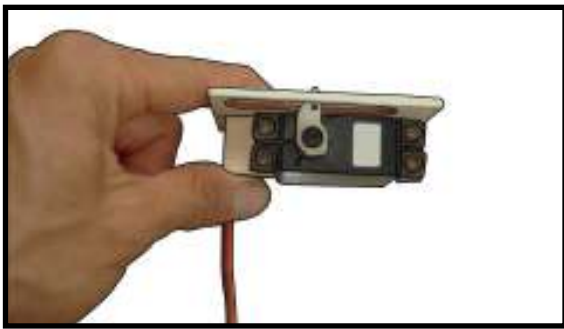


Minimum servo spec.
Torque : 110 oz-in (7.9 kg-cm) @ 4.8V;
 131 oz-in (9.4 kg-cm) @ 6.0V

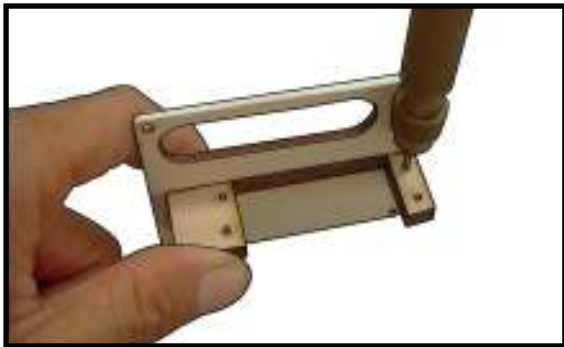
 Because the size of servos differ, you may need to adjust the size of the precut opening in the mount. The notch in the sides of the mount allow the servo lead to pass through.

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

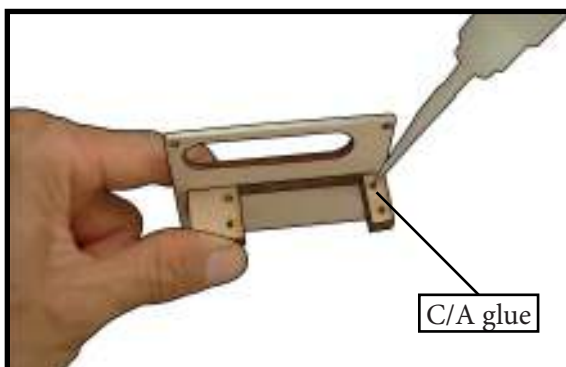
2) Place the servo between the mounting blocks and space it from the hatch. Use a pencil to mark the mounting hole locations on the blocks.



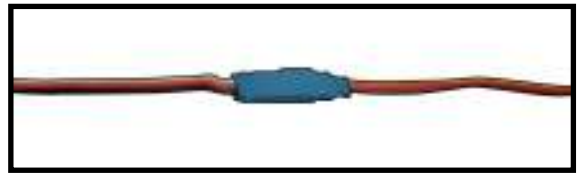
3) Use drill bit in a pin vise to drill the mounting holes in the blocks.



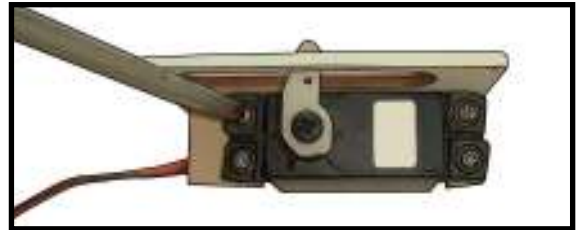
4) Apply 2-3 drops of thin C/A to each of the mounting holes. Allow the C/A to cure without using accelerator.



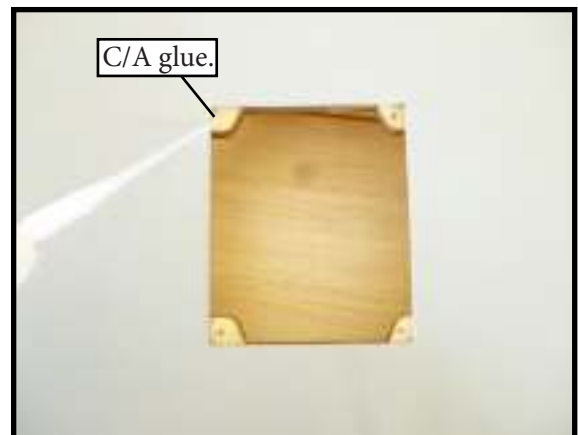
5) Use dental floss to secure the connection so they cannot become unplugged.



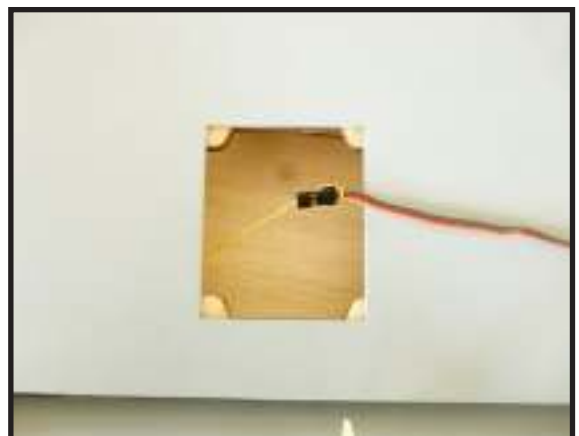
6) Secure the servo to the aileron hatch using Phillips screwdriver and the screws provided with the servo.

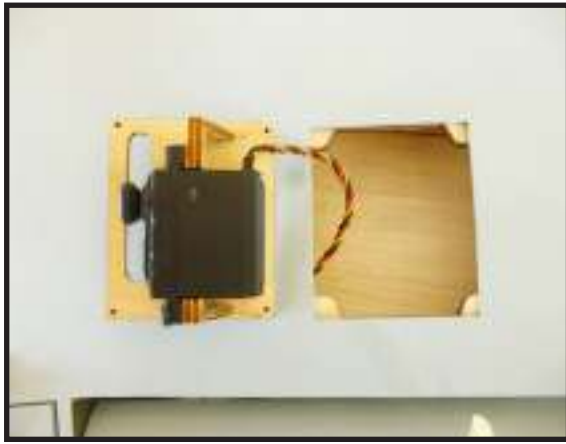


7) Apply 1-2 drops of thin C/A to each of the mounting tabs. Allow the C/A to cure without using accelerator.



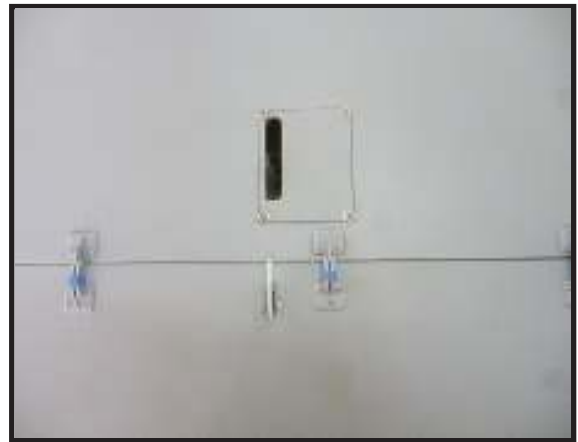
8) Remove the string from the wing at the servo location and use the tape to attach it to the servo extension lead. Pull the lead through the wing and remove the string.





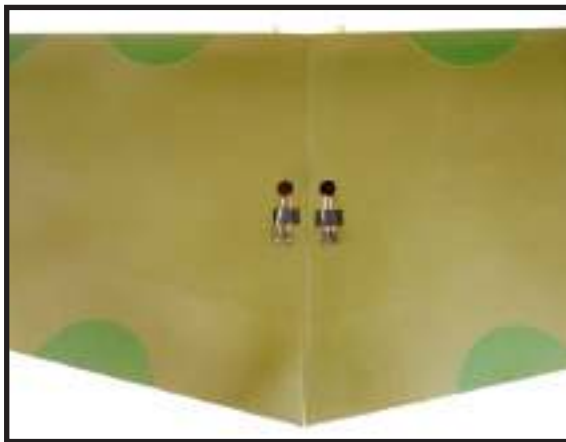
INSTALLING THE FLAP SERVO.

Repeat the procedure for the flap servo.

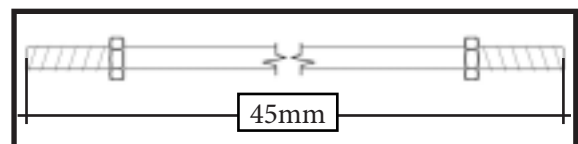
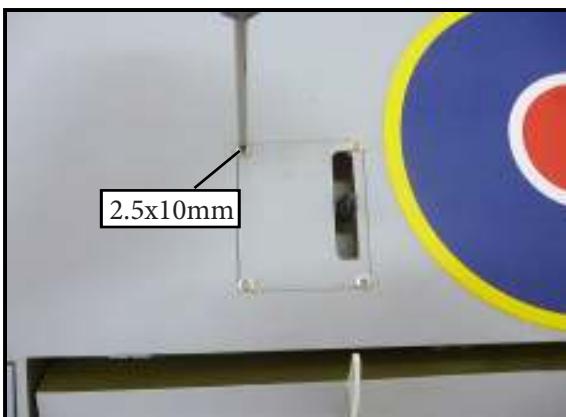
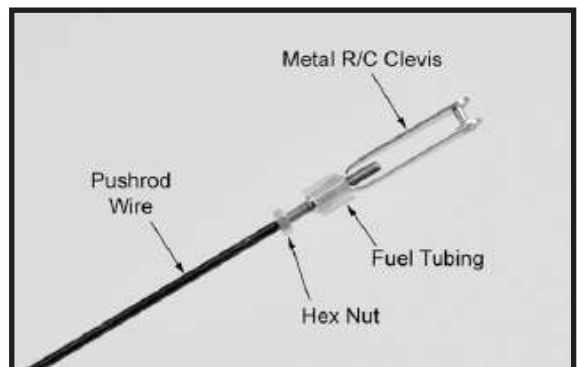


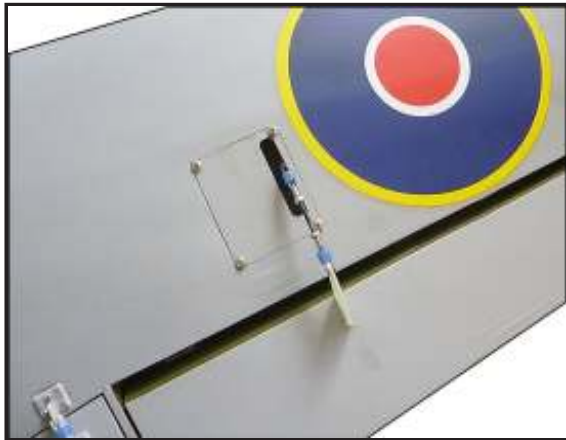
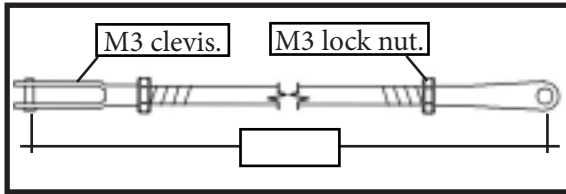
AILERON PUSHROD INSTALLATION.

Please see below pictures.



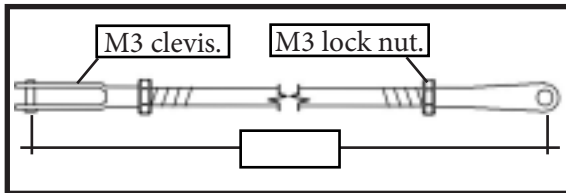
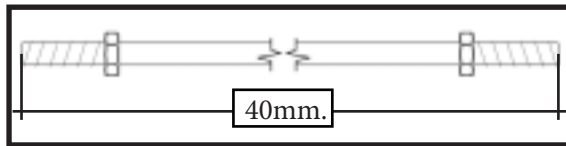
9) Set the aileron hatch in place and use a Phillips screw driver to install it with four wood screws.





INSTALLING THE FLAP PUSHROD.

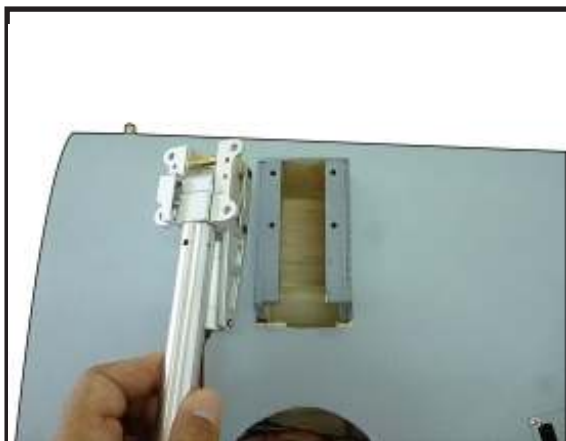
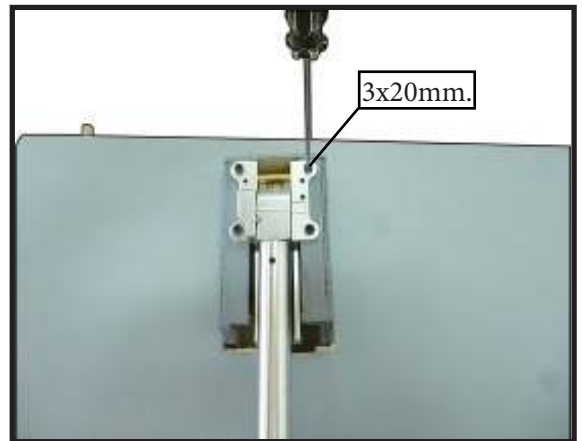
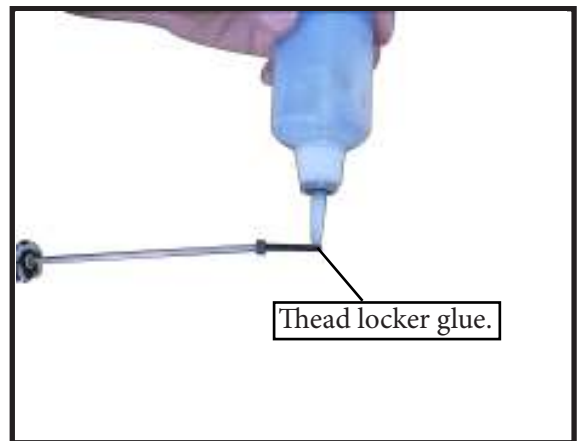
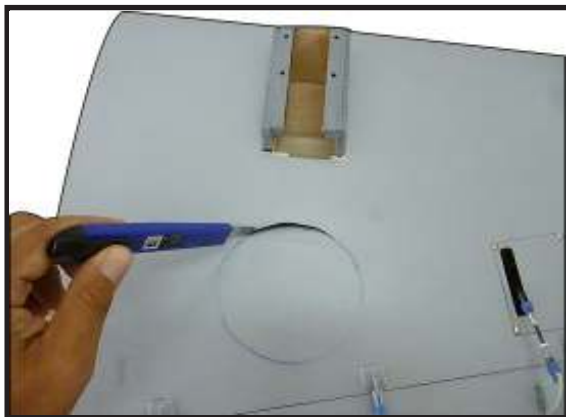
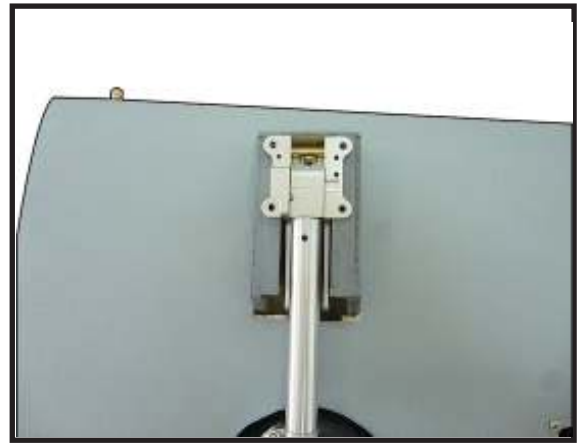
Repeat the procedure for the aileron pushrod.

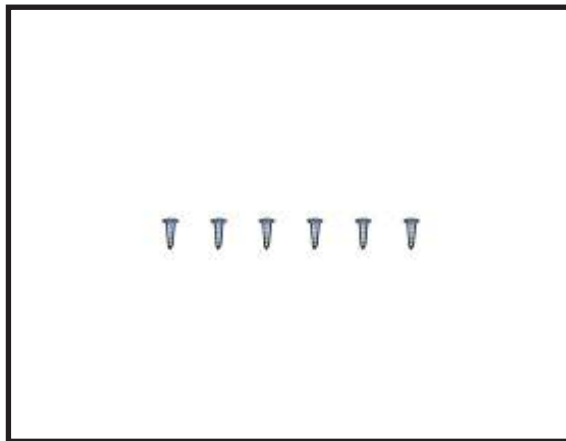
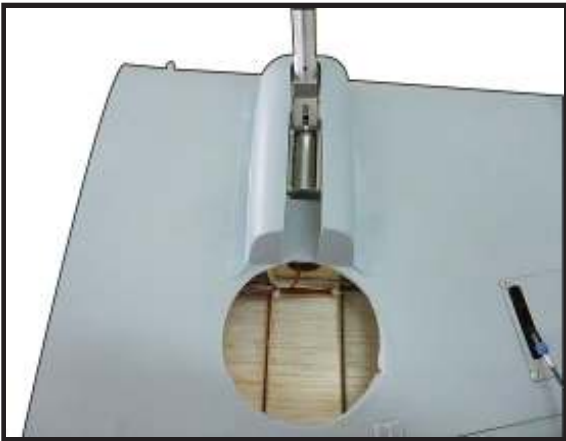
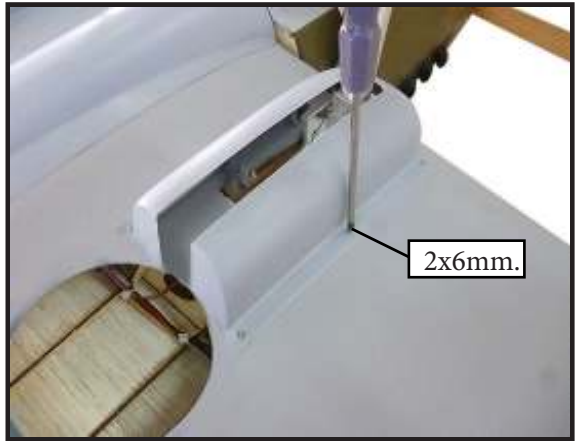
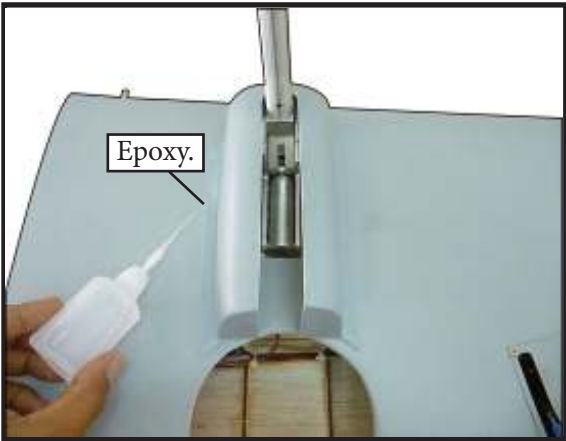


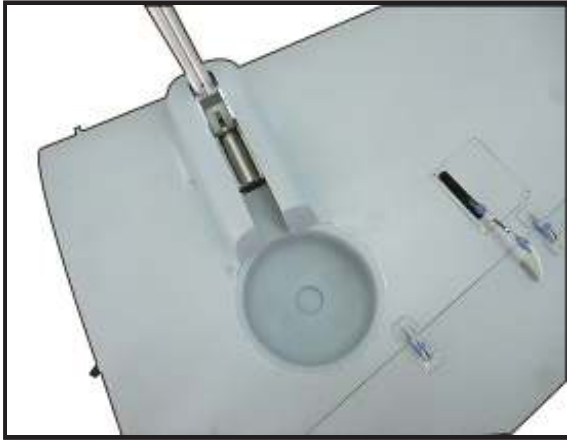
SERVO ROTATING RETRACT LANDING GEAR.

Please see below pictures.



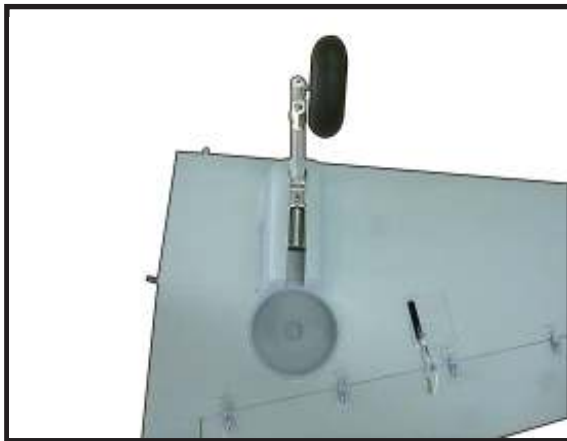






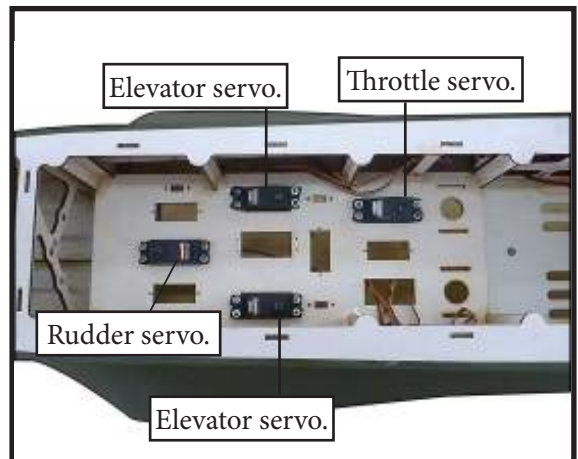
INSTALLING THE FUSELAGE SERVOS.

! 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.



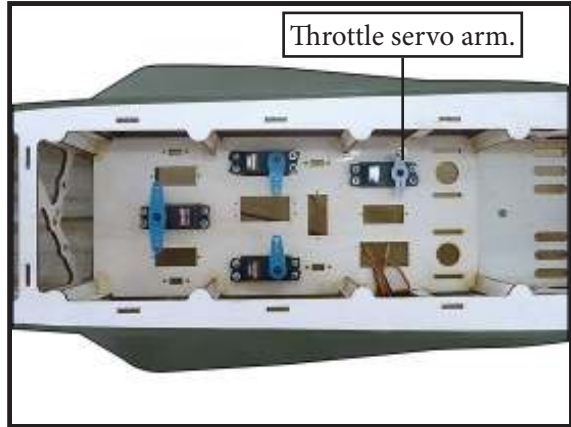
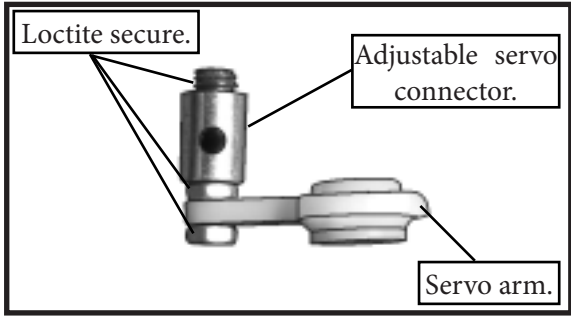
1) Install the rubber grommets and brass collets onto all servos. Test fit the servos into the servo mounts.

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



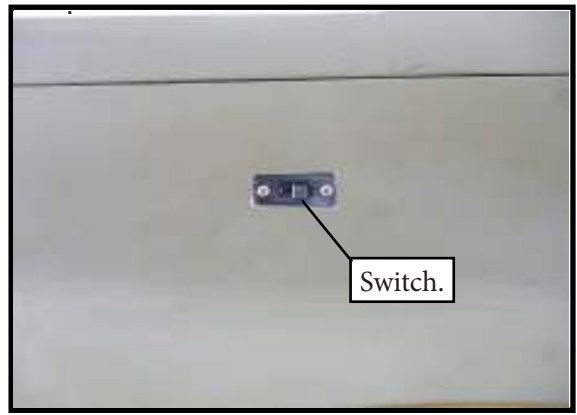
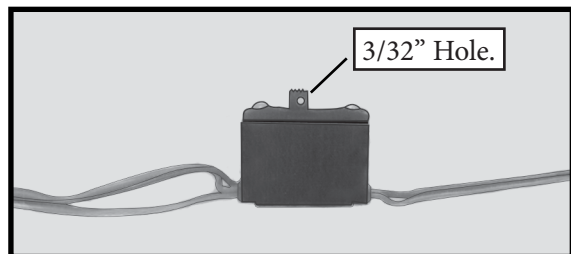
THROTTLE SERVO ARM INSTALLATION.

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

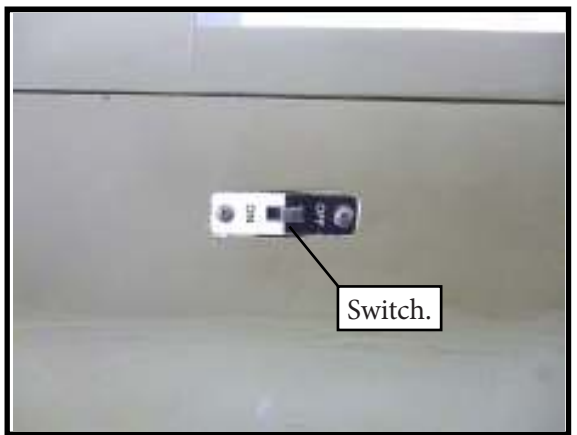
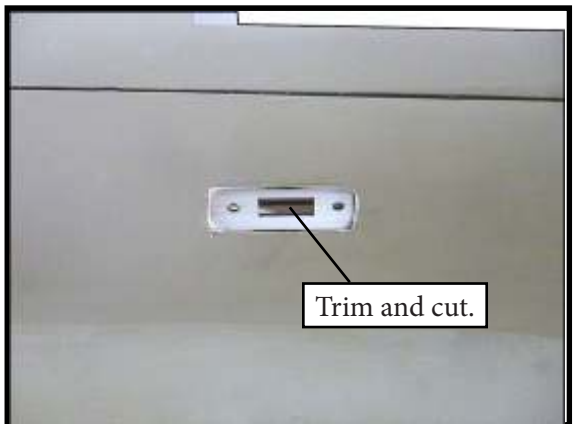


INSTALLING THE RECEIVER SWITCH.

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



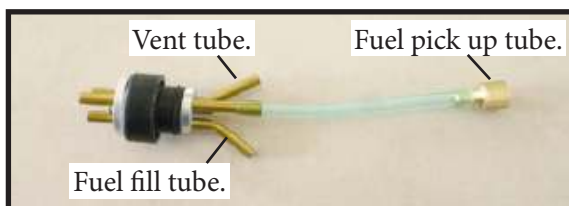
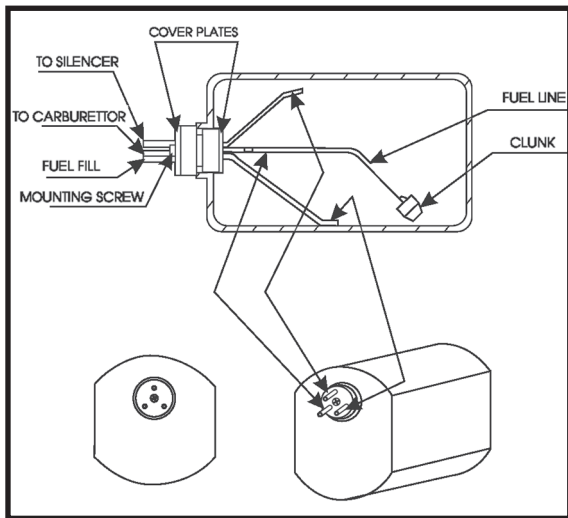
INSTALLING THE ENGINE SWITCH.



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.



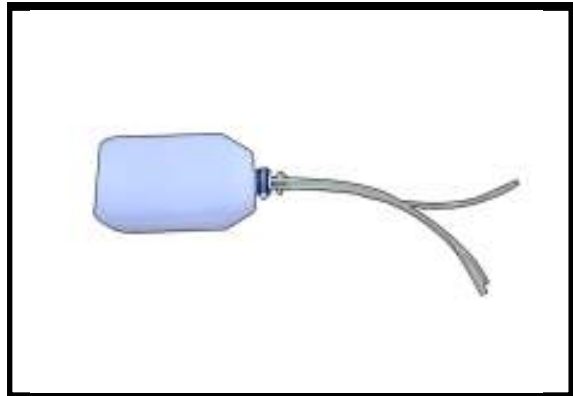
3) Carefully bend the second nylon tube up at a 45° angle. This tube is the vent tube.

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.

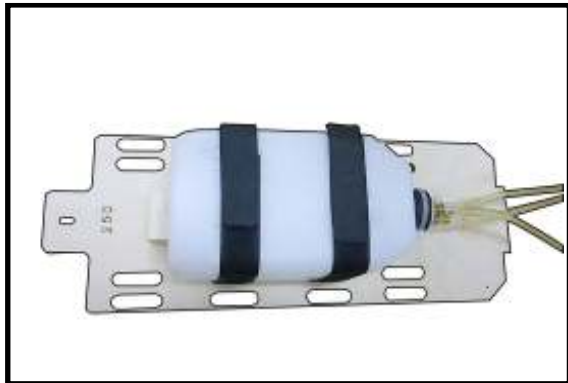
6) When satisfied with the alignment of the stopper assembly tighten the 3 x 20mm machine screw until the rubber stopper expands and seals the tank opening. Do not over-tighten the assembly as this could cause the tank to split.

FUEL TANK INSTALLATION.

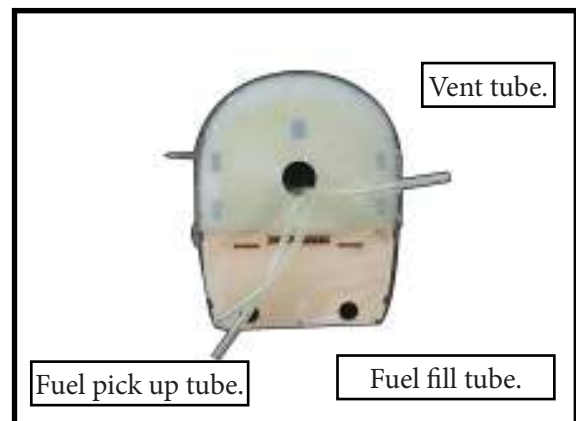


! *You should mark which tube is the vent and which is the fuel pickup when you attach fuel tubing to the tubes in the stopper. Once the tank is installed inside the fuselage, it may be difficult to determine which is which.*



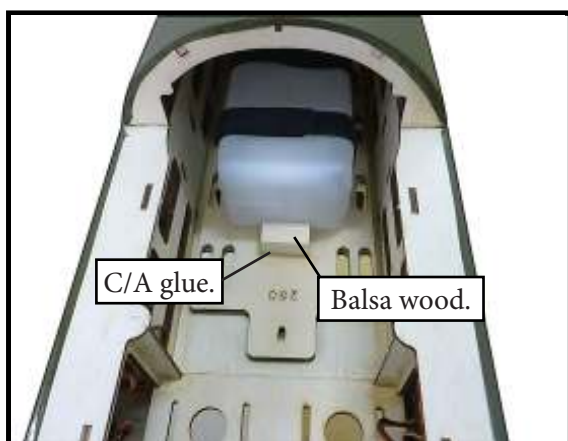


7) Slide the fuel tank into the fuselage. Guide the lines from the tank through the hole in the firewall.



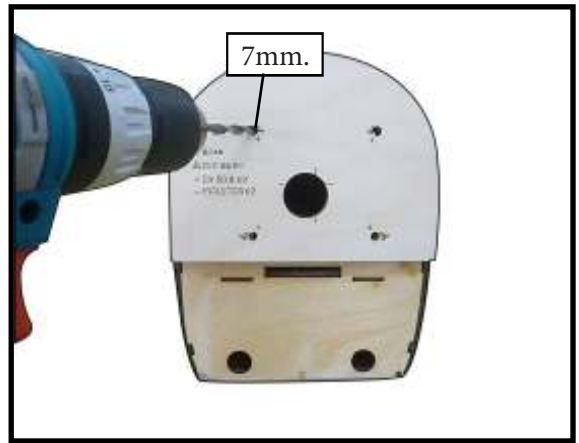
9) Connect the lines from the tank to the engine and muffler. The vent line will connect to the muffler and the line from the clunk to the carburetor.

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

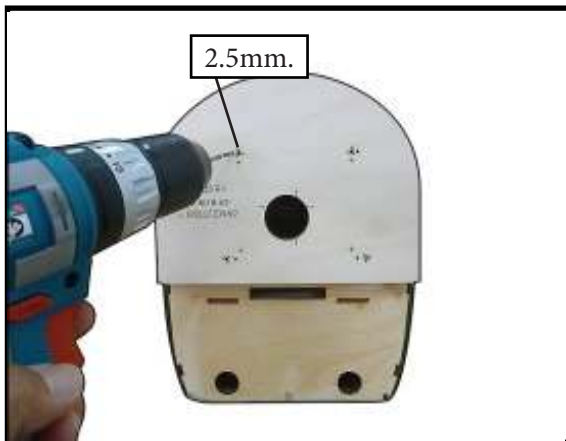


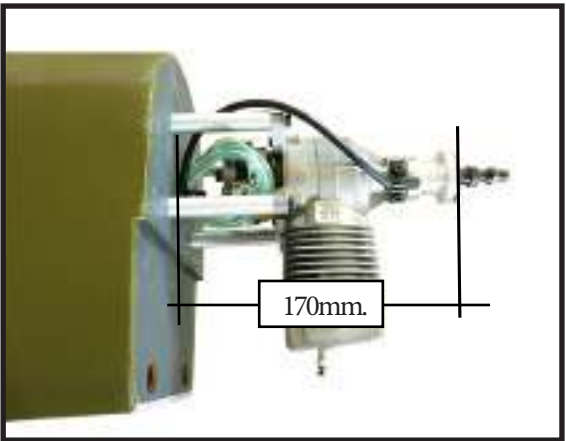
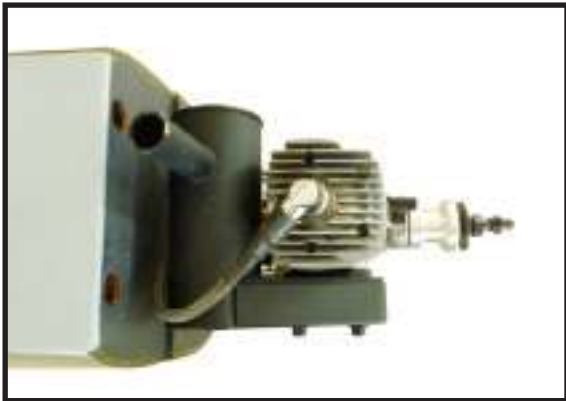
MOUNTING THE ENGINE .

Please see below pictures.



Locate the engine mounting in position on the firewall. Use a 2.5mm drill bit to drill the holes necessary to mount your particular motor choice.







Move the throttle stick to the closed position and move the carburetor to closed. Use a 2.5mm 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.

COWLING.

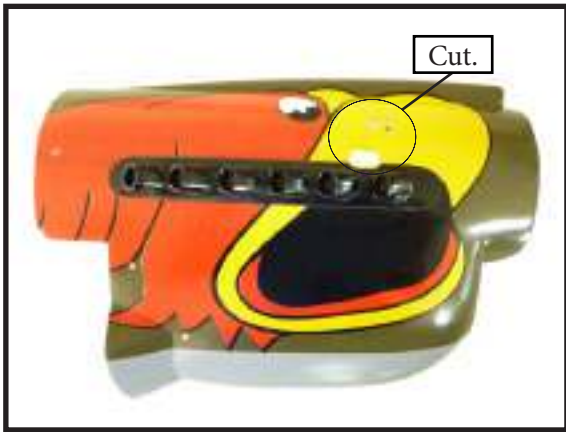
Use medium Epoxy the pushrod standoff to the inside of the fuselage and the pushrod tube.

Please see these below pictures.



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.

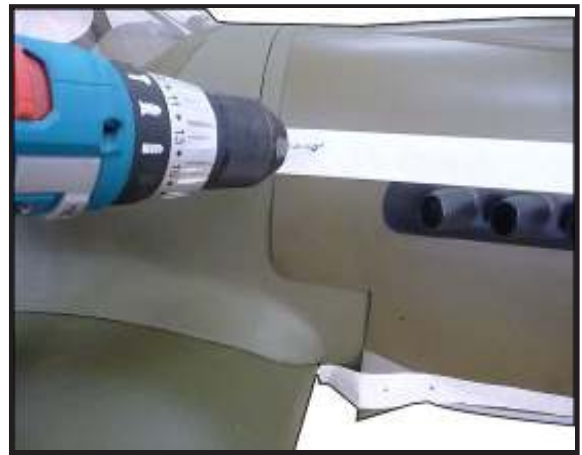




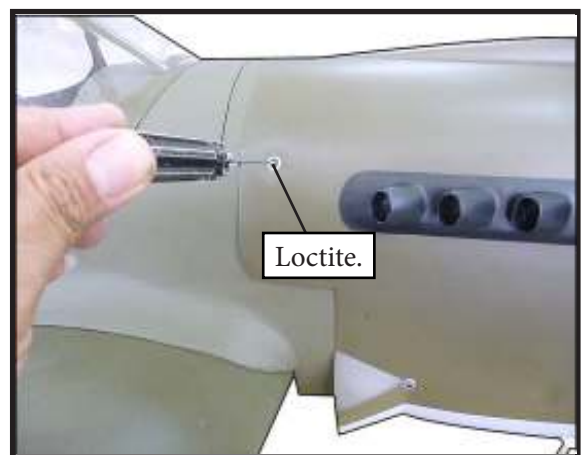
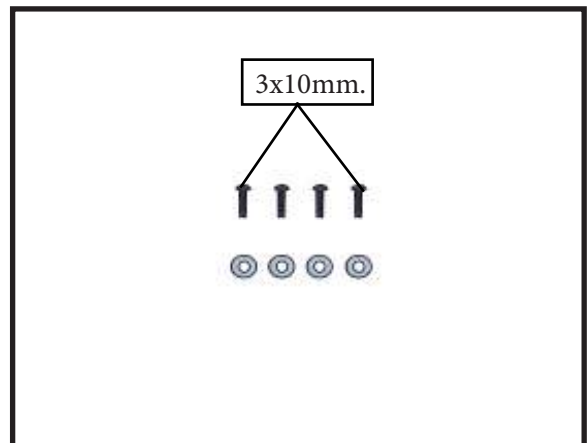
Tape the cowl to the fuselage using low-tack tape.



Use a drill and drill bit to drill the holes for the cowl mounting screws. Make sure the cowl position is correct before drilling each hole.



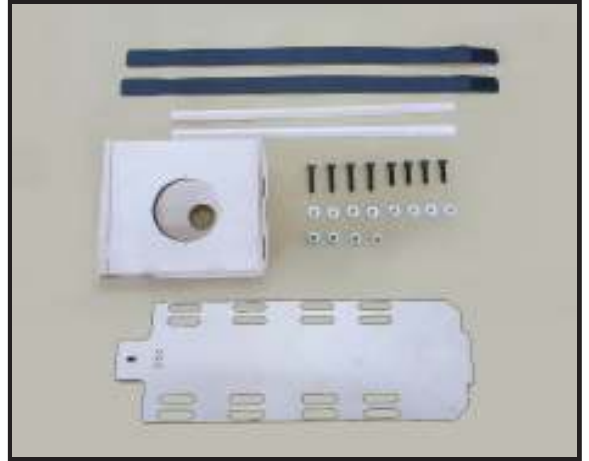
Install the muffler and muffler extension onto the engine and make the cutout in the cowl for muffler clearance. Connect the fuel and pressure lines to the carburetor, muffler and fuel filter valve. Secure the cowl to fuselage using the M3x10mm socket head screws. Putting a small length of silicon fuel tube under the head of the screw helps with vibration.





ELECTRIC POWER CONVERSION

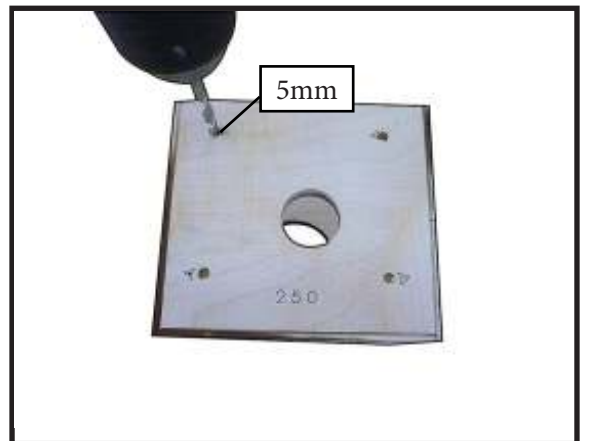
Locate the items necessary to install the electric power conversion included with your model.



Recommend the items necessary to install the electric power conversion parts included with your model.

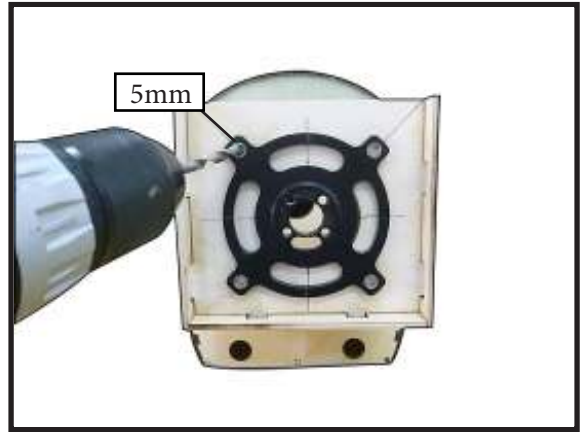
- **Motor: 360 - 6000 Watts**
- **Propeller: 24x10 ~ 25x12**
- **ESC: 160A - 200A**
- **12S Lipo**

Locate the engine mounting in position on the firewall. Use a 5mm drill bit to drill the holes necessary to mount your particular motor choice.

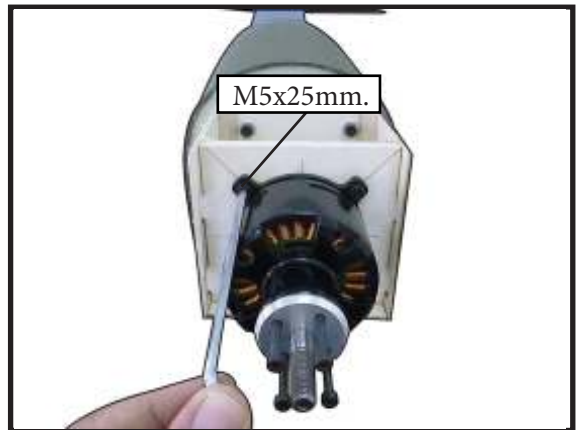
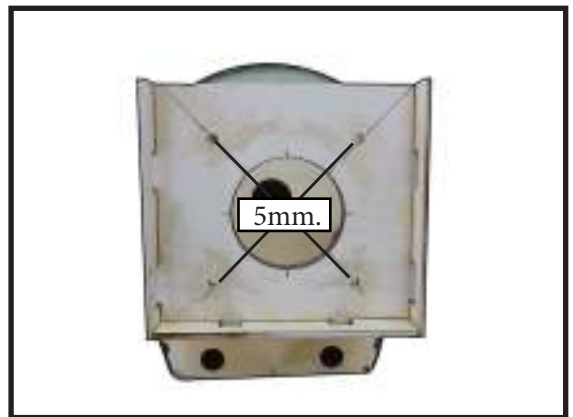


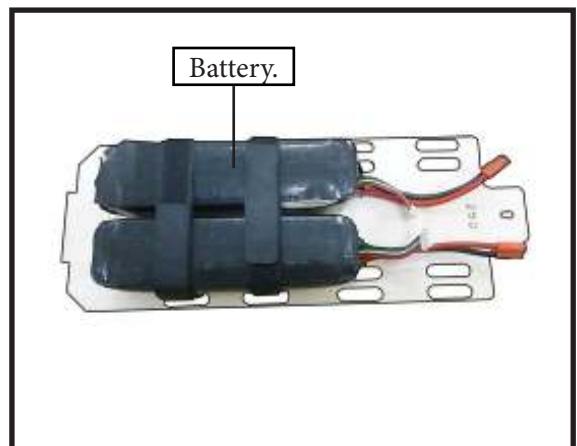
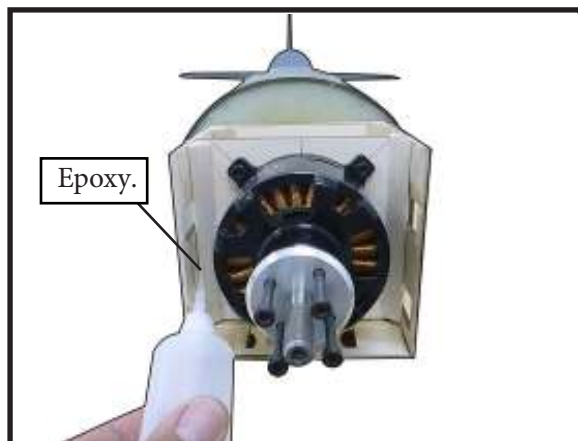
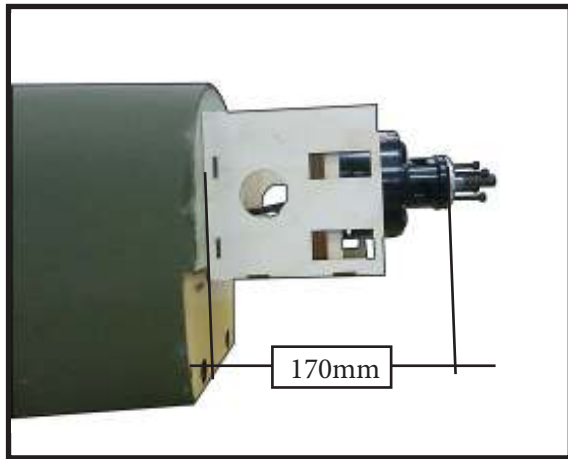


Attach the motor mount to the front of the electric motor box using four 5mm blind nut, four M5x30mm hex head bolts to secure the motor. Please see picture shown.

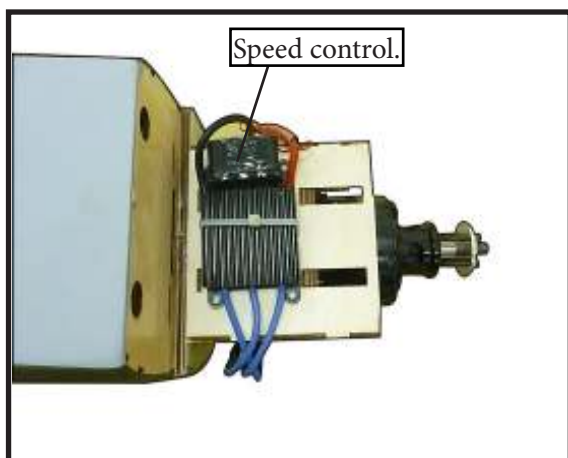


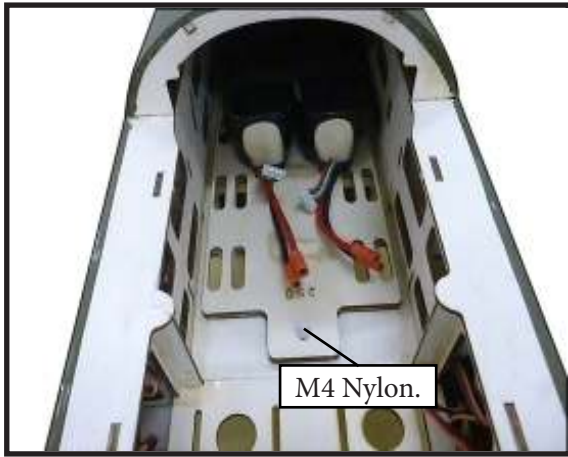
Then, use 5mm drill bit to enlarge the holes on the electric motor box.





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.

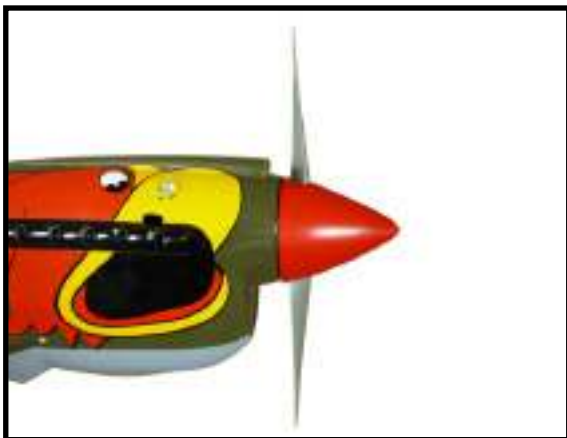




INSTALLING THE SPINNER.

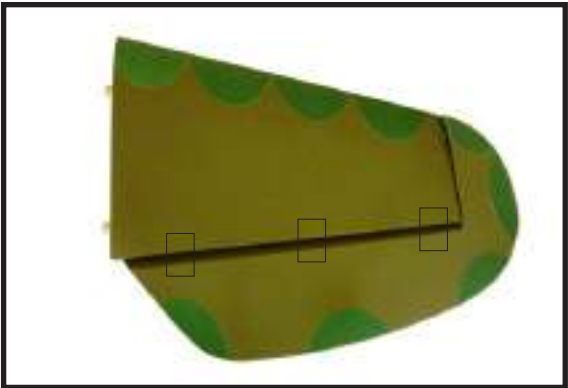


⚠ The propeller should not touch any part of the spinner cone. If it does, use a sharp modeling knife and carefully trim away the spinner cone where the propeller comes in contact with it.

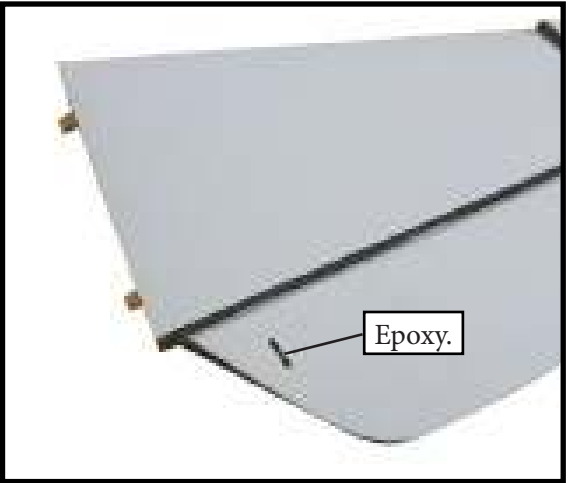


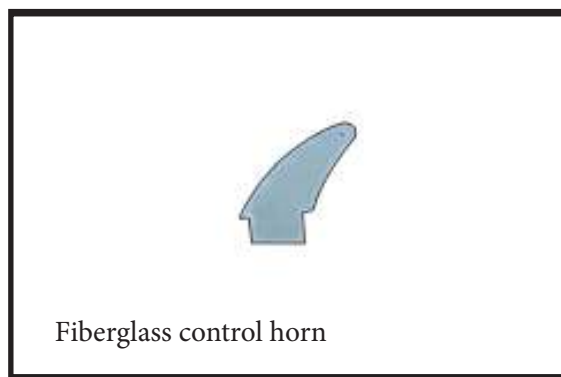
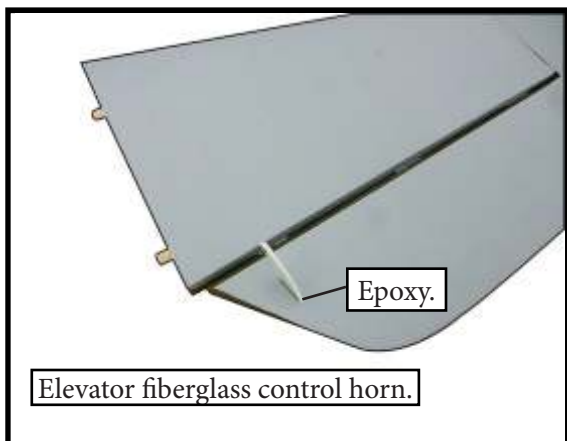
HINGING THE ELEVATOR.

Glue the elevator hinges in place using the same techniques used to hing the ailerons.

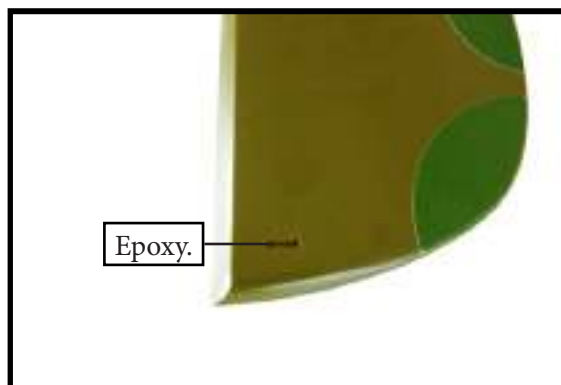


INSTALL ELEVATOR CONTROL HORN.





Use knife to remove covering



INSTALL RUDDER HINGE.

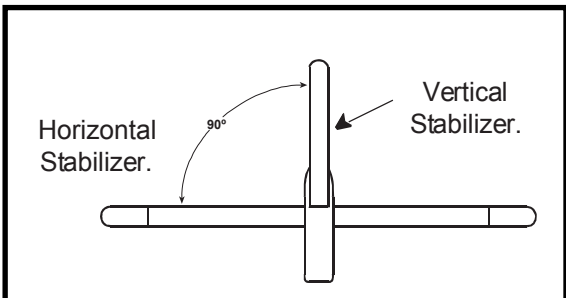
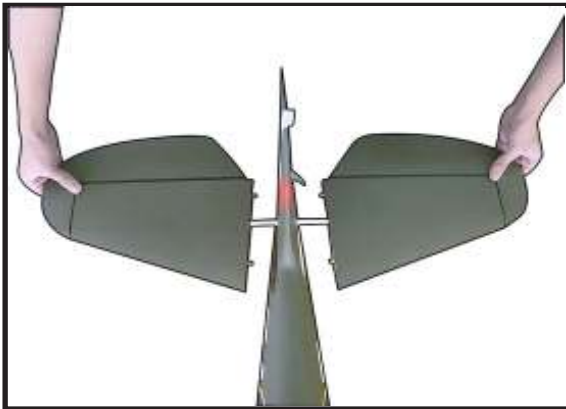
INSTALL RUDDER CONTROL HORN.

Repeat steps to install the rudder control horn as same as steps done for ailerons.

Glue the rudder hinges in place using the same techniques used to hinge the elevator.



INSTALLING HORIZONTAL STABILIZER.



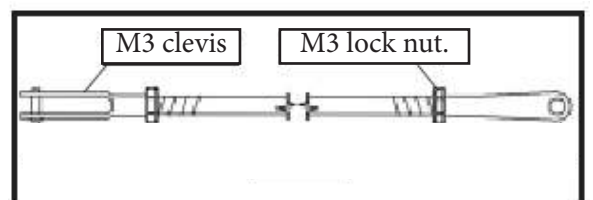
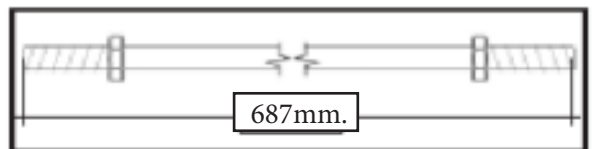
RUDDER PUSHROD INSTALLATION.

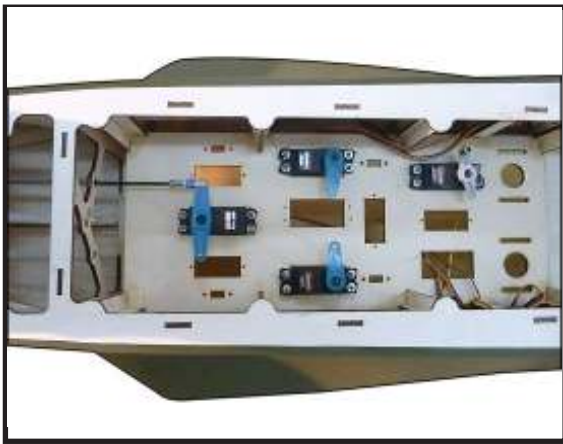
1) Locate items necessary to install rudder pushrod.



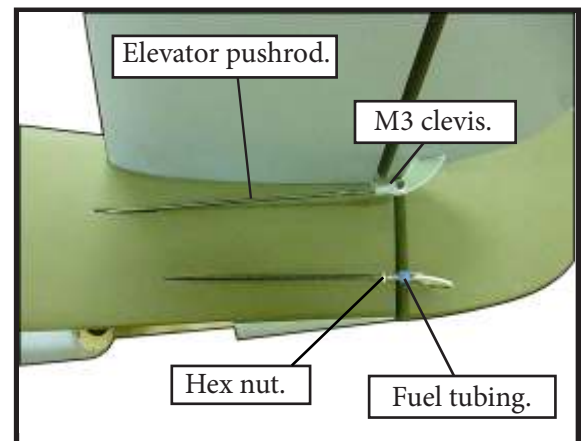
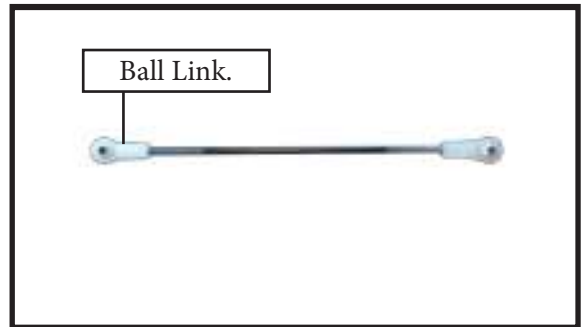
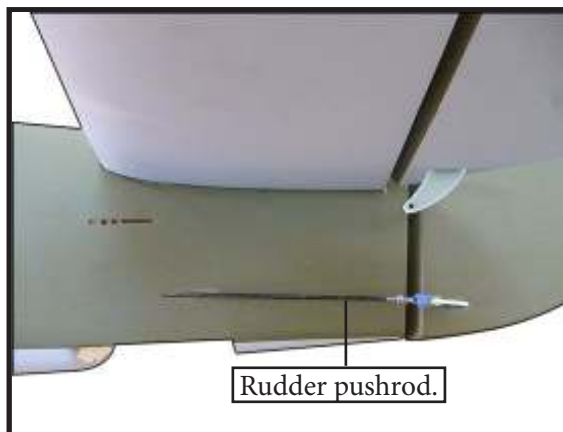
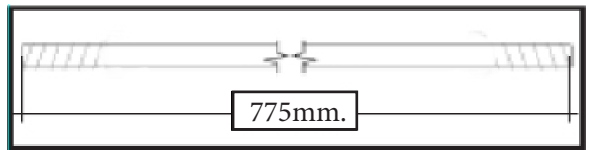
Thread one clevis and M3 lock nut on to each elevator control rod. Thread the horns on until they are flush with the ends of the control rods.

Elevator and rudder pushrods assembly as pictures below.



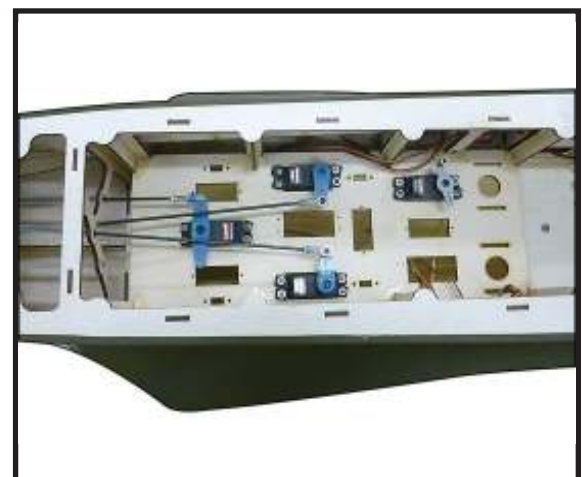


Assemble the elevator and rudder pushrods as shown in images below.

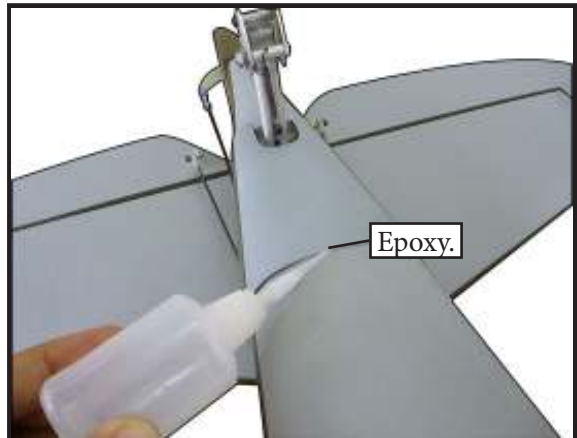
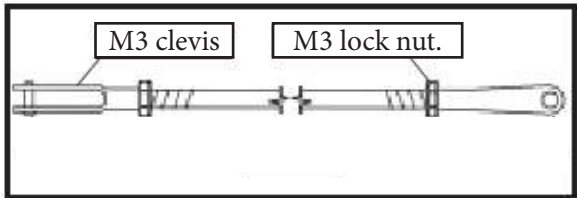
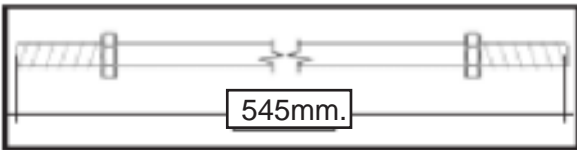


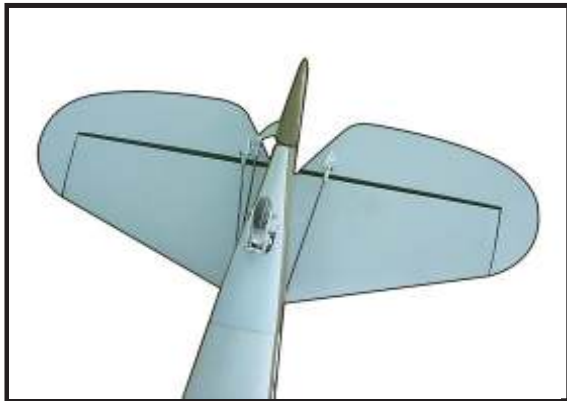
ELEVATOR PUSHROD INSTALLATION.

1) Locate items necessary to install elevator pushrod.



MOUNTING THE TAIL WHEEL.





INSTALLATION PILOT AND CANOPY.

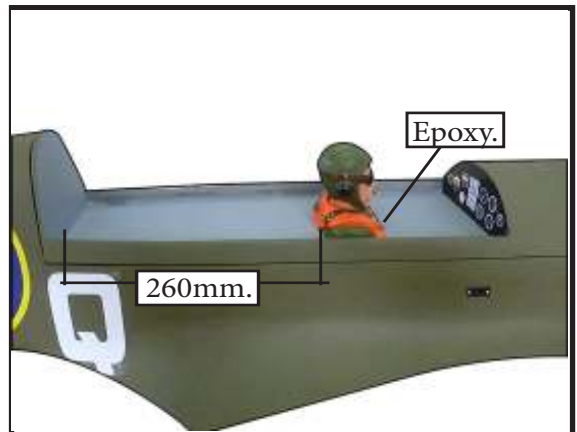
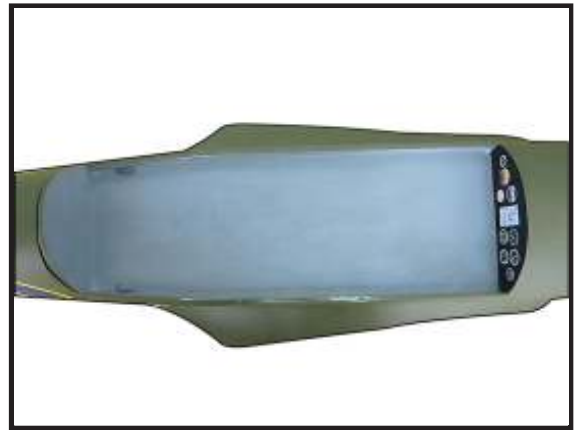
1) Locate items necessary to install pilot, seats.



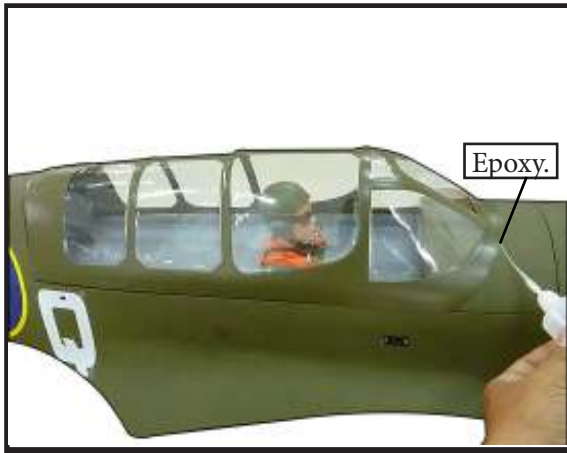
2) A scale pilot is included with this ARF. The Pilot included fitting well to the cockpit. (or you can order others scale pilot figures made by SG Models. They are available at SG Models distributors.)

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 shown. Use epoxy to glue the base of the pilot figure to the cockpit floor, please see pictures as shown.



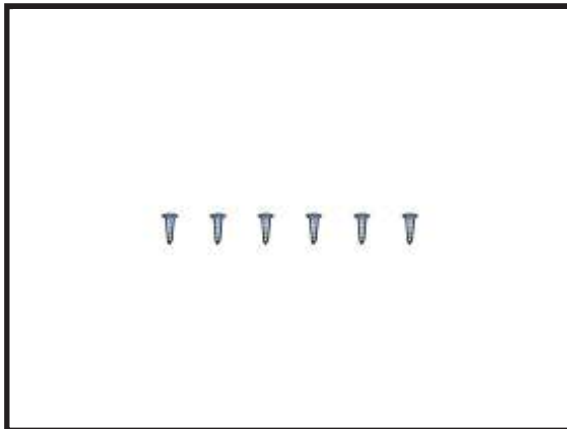
4) Position the canopy onto the fuselage. Trace around the canopy and onto the fuselage using a felt-tipped pen. Carefully cut and remove covering material from the fuselage where the canopy makes contact, exposing the bare wood. Then permanently glue the canopy in place with epoxy glue or special “canopy glue”.



APPLY THE DECALS.

1) If all the decals are precut and ready to stick. Please be certain the model is clean and free from oily fingerprints and dust. Position decal on the model where desired, using the photos on the box and aid in their location.

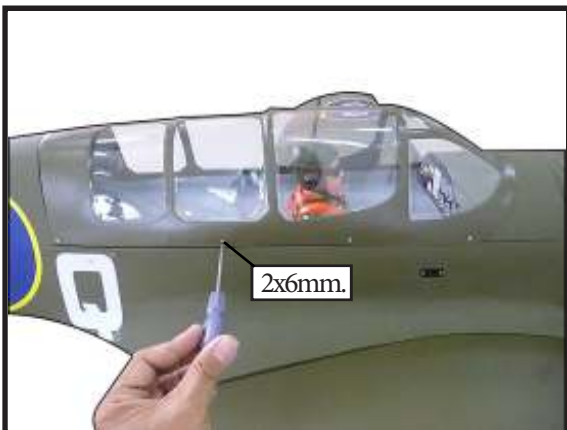
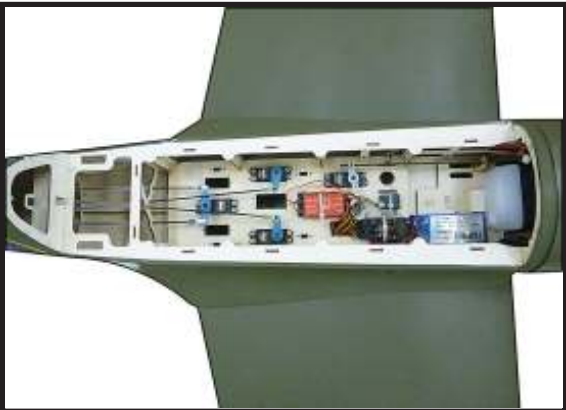
2) If all the decals are not precut, please use scissors or a sharp hobby knife to cut the decals from the sheet. Please be certain the model is clean and free from oily fingerprints and dust. Position decal on the model where desired, using the photos on the box and aid in their location.

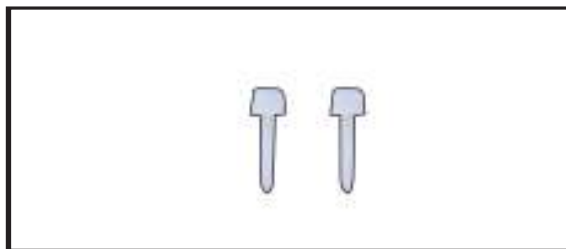


INSTALLING BATTERY - RECEIVER.

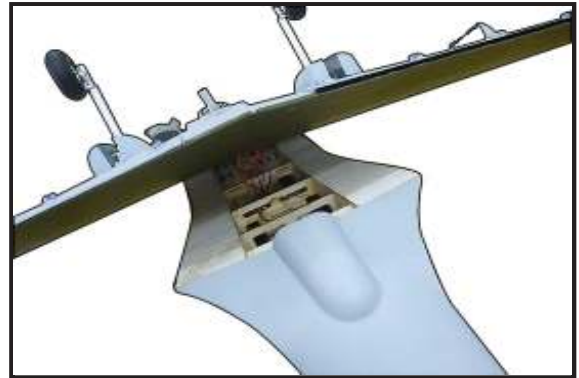
1) Plug the servos leads and the switch lead into the receiver. Plug the battery pack lead into the switch also.

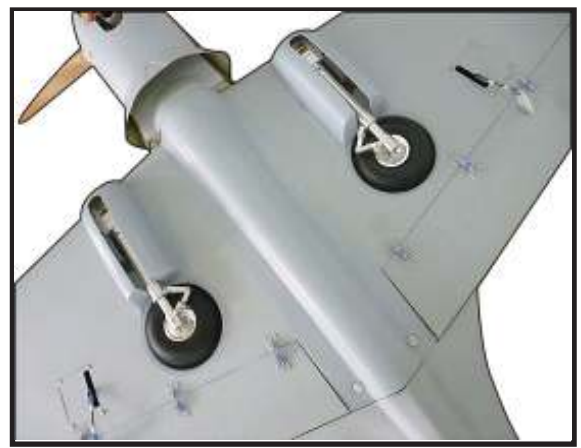
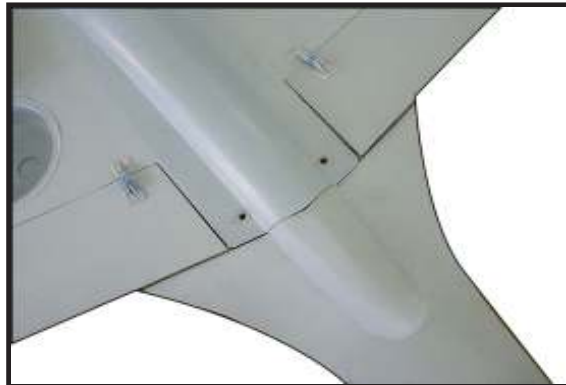
2) Wrap the receiver and battery pack in the protective foam rubber to protect them from vibration.





ATTACHMENT WING- FUSELAGE.





Insert wing gun onto the wings.





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 **100MM** 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 of the wing **100mm** back from the leading edge of the wing at the wing root.

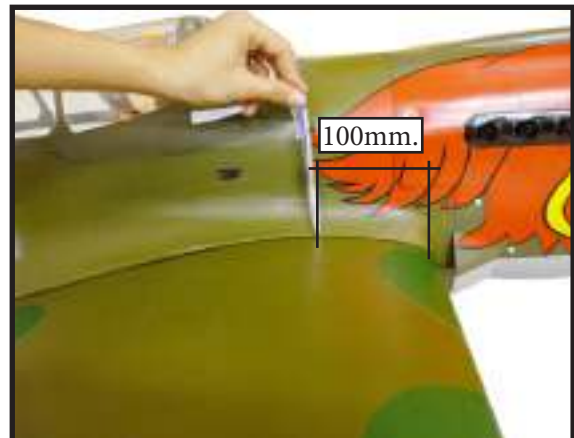
3) With the model inverted, place your fingers on the masking tape and carefully lift the plane.

Accurately mark the balance point on the top of the wing on both sides of the fuselage. The balance point is located **100mm** 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:

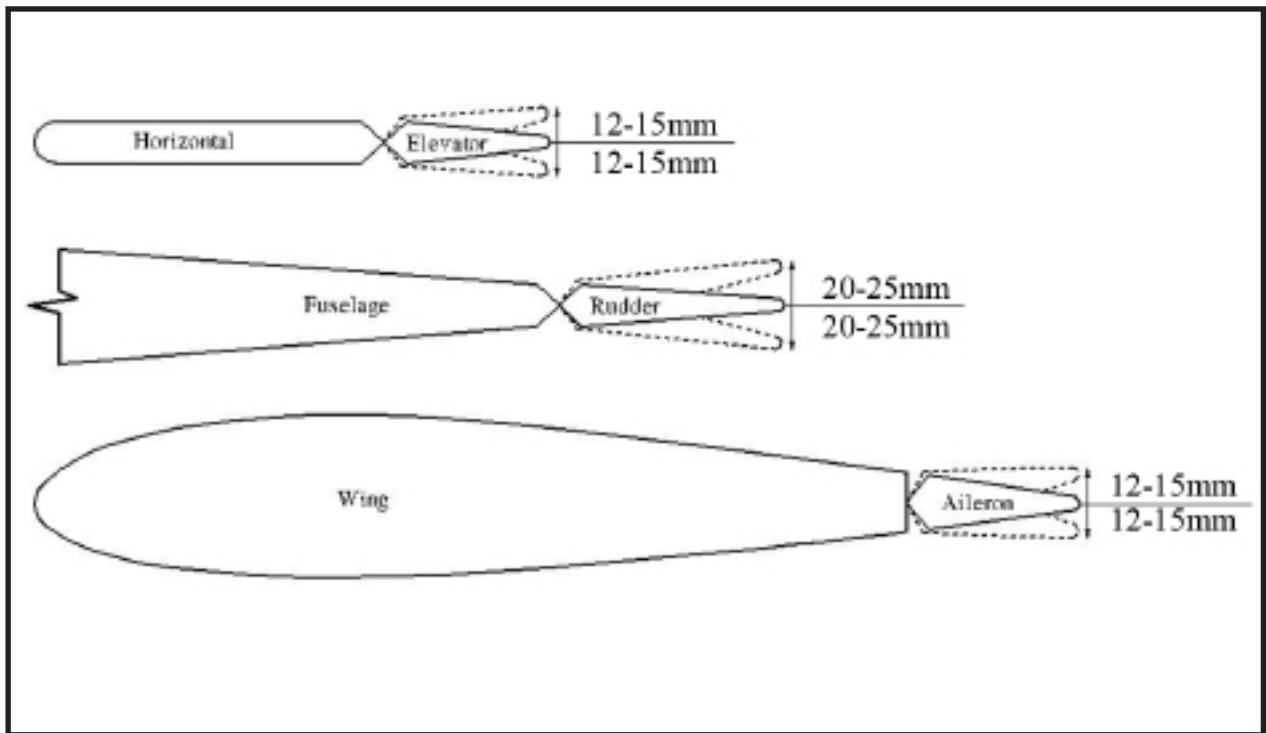
High Rate : 15mm
Low Rate : 12mm

Elevator:

High Rate : 15mm
Low Rate : 12 mm

Rudder:

High Rate : 25mm
Low Rate : 20 mm



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 elevator halves should move up. If it they do not, flip the servo reversing switch on your transmitter to change the direction.

□ C) Check the rudder. Looking from behind the airplane, move the rudder stick to the right. The 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 aileron on the right wing half. Move the aileron stick to the right. The right aileron should move up and the other aileron 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 **CURTISS P-40N WARHAWK** 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 CURTISS P-40N WARHAWK.*