

MAGIC STAR 3D ELECTRIC POWER

wingspan 39"



“ Graphics and specifications may change without notice “ .

Code: SEAX157



Specifications:

- Wingspan-----39 in (99.1 cm).
- Wing area-----432.5 sq.in (27.9 sq.dm).
- Weight-----1.5-1.9 lbs (0.7-0.85 kg).
- Length-----33.8 in (85.8 cm).
- Motor size-----450-180 size brushless
-----30-amp brushless ESC
- Radio-----4 channels with 4 sub -micro servos.

INTRODUCTION.

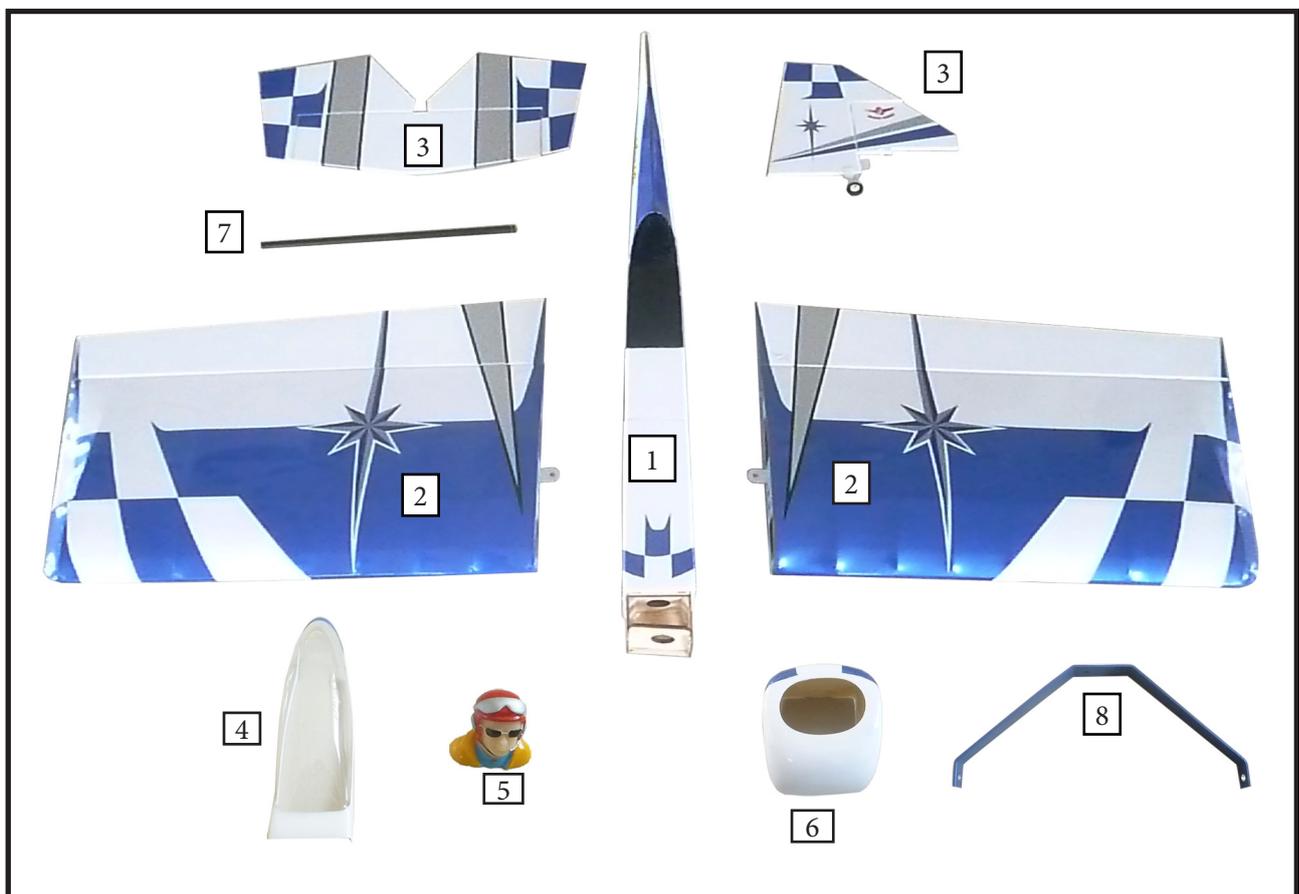
Thank you for choosing the **MAGIC STAR 3D EP ARTF** by **SEAGULL MODELS COMPANY LTD.**, The **MAGIC STAR 3D EP** was designed with the intermediate/advanced sport flyer in mind. It is a semi scale airplane which is easy to fly and quick to assemble. The airframe is conventionally built using balsa, plywood to make it stronger than the average 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 has been fitted and the hinges are pre-installed. Flying the **MAGIC STAR 3D EP** 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 **MAGIC STAR 3D EP**. Use the arts listing below to indentify all parts.

WARNING.

Please be aware that this aeroplane is not a toy and if assembly 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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SEAX157 MAGIC STAR 3D EP

- SEAX15701 Fuselage
- SEAX15702 Wing set
- SEAX15703 Tail set
- SEAX15704 Canopy
- SEAX15705 Pilot
- SEAX15706 Cowling
- SEAX15707 Aluminum tube
- SEAX15708 Landing gear

ADDITIONAL ITEMS REQUIRED.

- 450-480 size brushless coutrunner motor
- 30-amp brushless ESC
- Computer radio with 4 sub-micro servos.
- Glow plug to suit engine.
- Propeller to suit engine.
- Protective foam rubber for radio system.

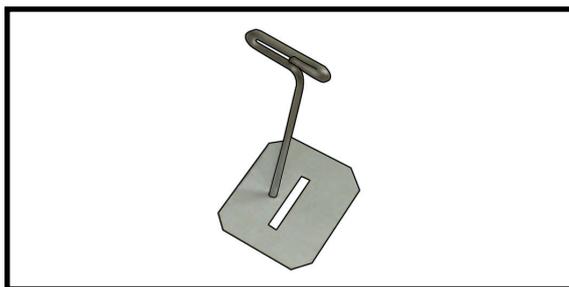
TOOLS & SUPPLIES NEEDED.

- 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.

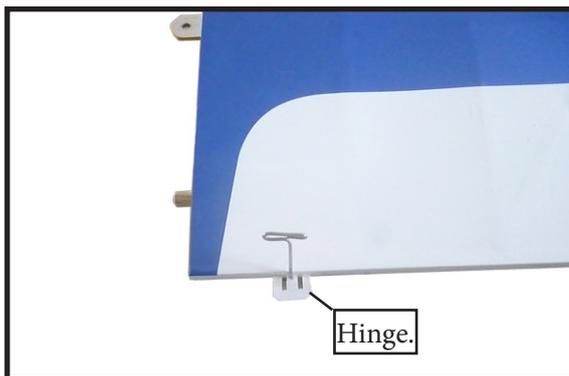
HINGING THE AILERON.

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.



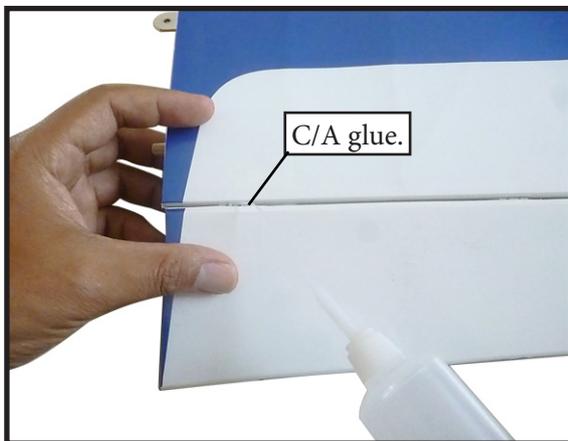
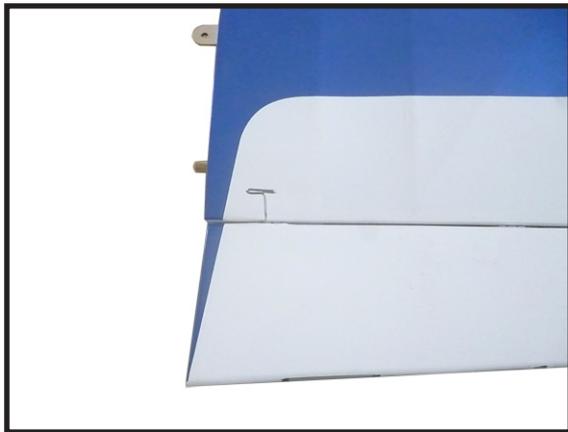
2) Remove each hinge from the wing panel and aileron and place a T-pin in the center of each hinge. Slide each hinge into the wing panel until the T-pin is snug against the wing panel. This will help ensure an equal amount of hinge is on either side of the hinge line when the aileron is mounted to the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

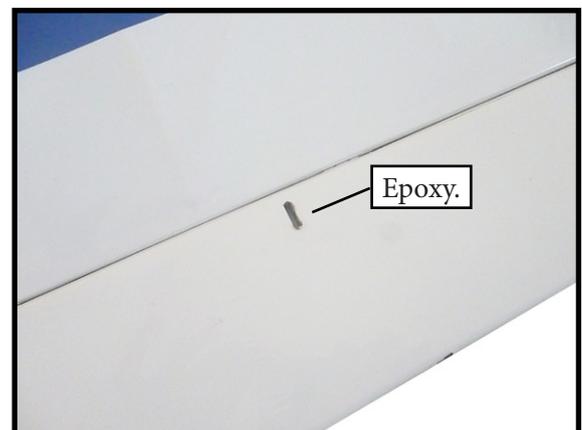
7) Repeat this process with the other wing panel, securely hinging the aileron in place.

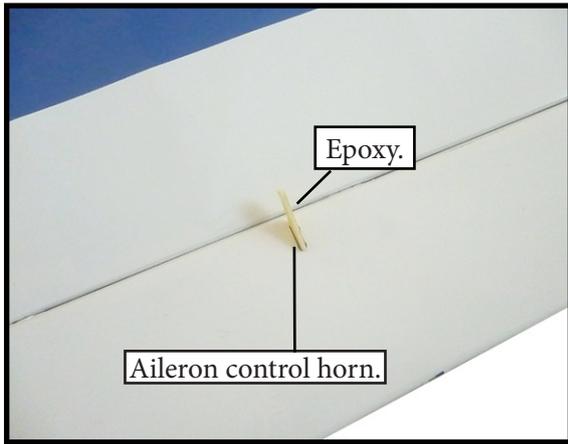
8) After both ailerons are securely hinged, firmly grasp the wing panel and aileron to make sure the hinges are securely glued and cannot be pulled out. Do this by carefully applying medium pressure, trying to separate the aileron from the wing panel. Use caution not to crush the wing structure.



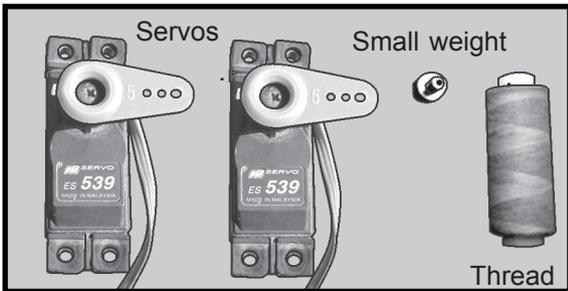
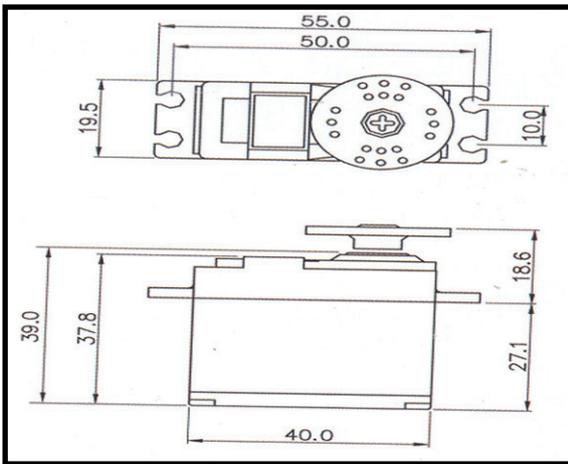
Note : Work the aileron up and down several times to "work in" the hinges and check for proper movement.

INSTALL THE AILERONS CONTROL HORN.



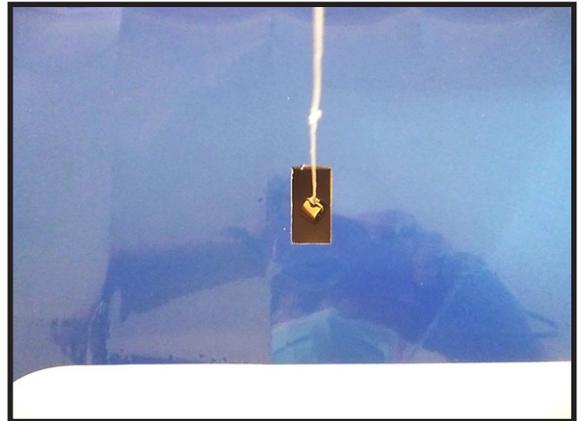
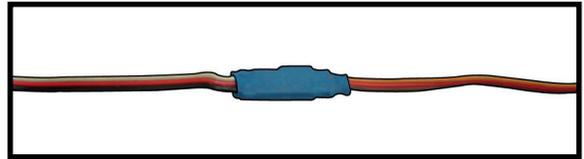


INSTALLING THE AILERON SERVOS.

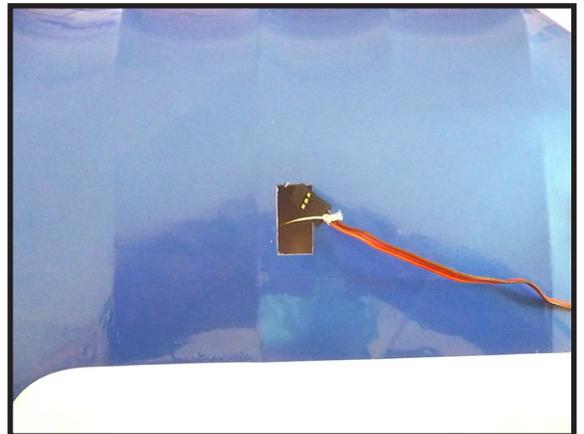


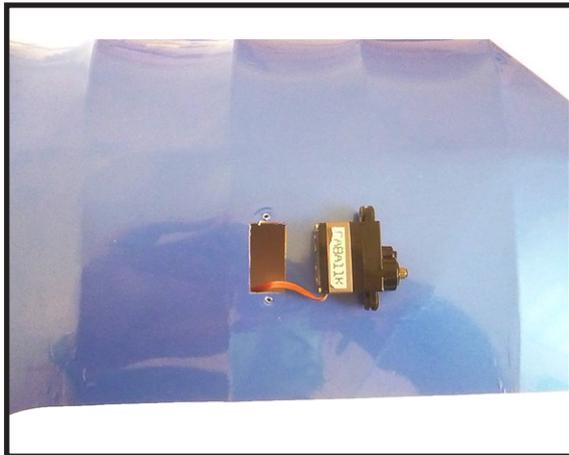
⚠ Because the size of servos differ, you may need to adjust the size of the precut opening in the mount. The notch in the sides of the mount allow the servo lead to pass through.

- 1) Using a small weight (Weighted fuel pick-up works well) and string, feed the string through the wing as indicated.
- 2) Use dental floss to secure the connection so they cannot become unplugged.



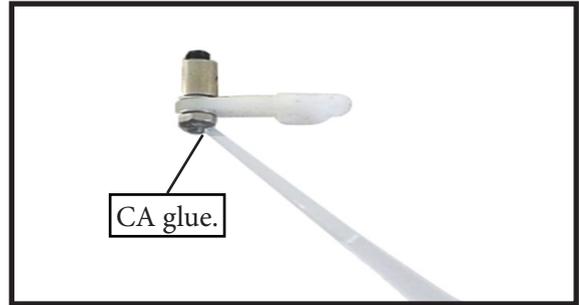
3) A string has been provided in the wing to pull the aileron lead through to the wing root. Remove the string from the wing at the servo location and use the tape to attach it to the servo extension lead. Pull the lead through the wing and remove the string.





AILERON PUSHROD HORN INSTALLATION.

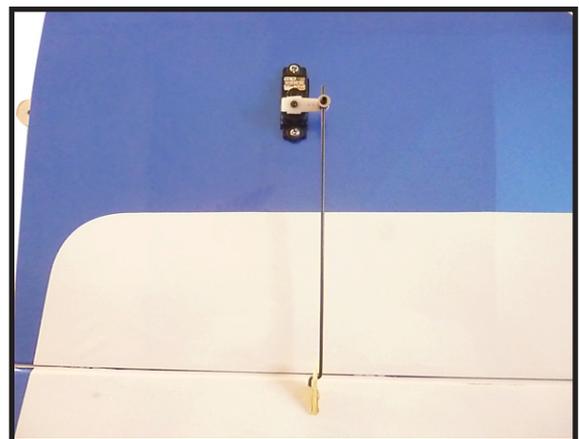
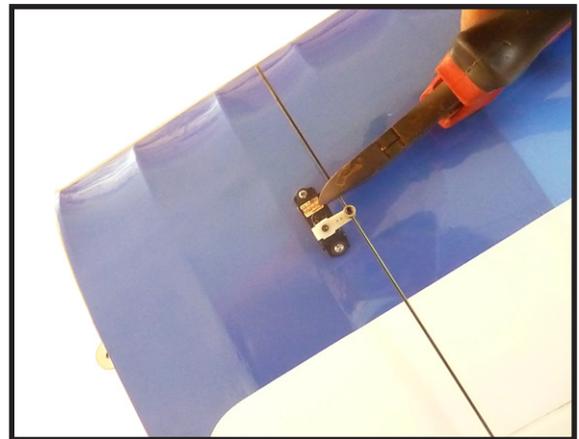
1) Use a very small amount of medium CA to secure the nut to the bottom of the connector threads. Do not use thin CA for this step as it can wick through the nut and glue the connector to the arm. Make sure the connector still rotates freely in the arm after the glue is cured.



2) Pass the Z-bend pushrod through the hole of the control horn.



3) The pushrod wire will pass through the hole in the micro screw-lock connector. Use side cutters to trim the pushrod so it is past the connector as shown.

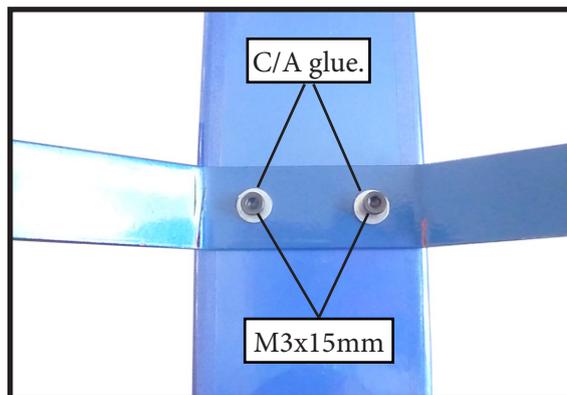
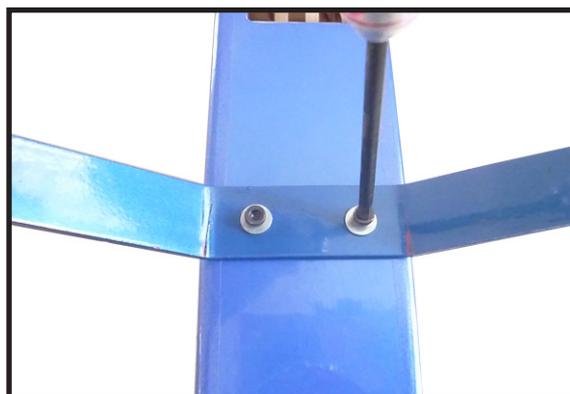
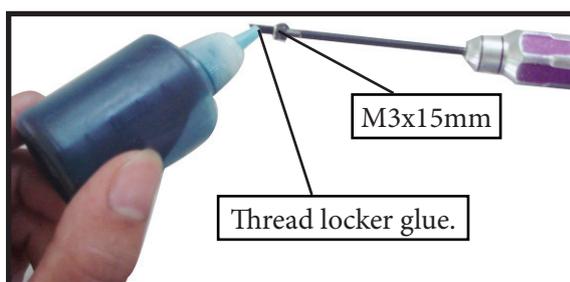


Repeat steps to install the remaining aileron control horn and pushrod.

INSTALLING THE MAIN LANDING GEAR TO FUSELAGE.



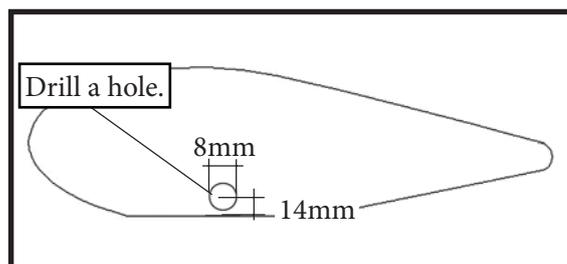
- 1) The blind nuts for securing the landing gear are already mounted inside the fuselage.
- 2) Using the hardware provided, mount the main landing gear to the fuselage.
- 3) Place the fuselage inverted on the workbench in a suitable stand. Set the landing gear in place and use a screwdriver to secure the landing gear to the fuselage using bolts M3x15mm and washers. Make sure to use the threadlock on the bolts so they don't vibrate loose.



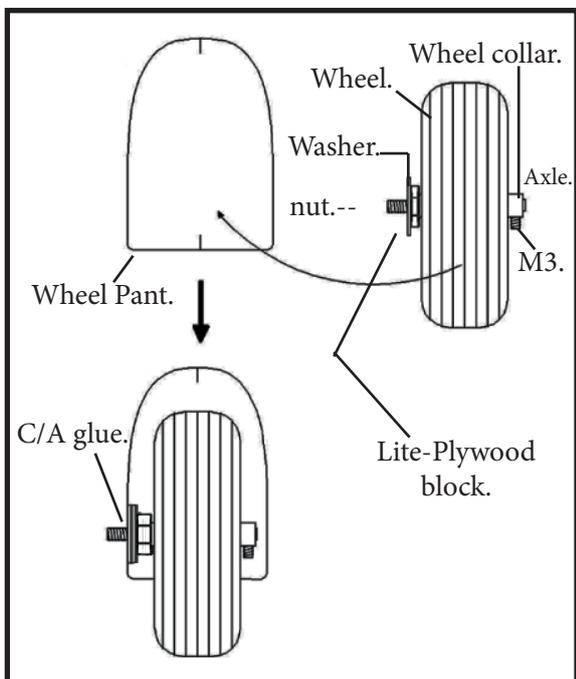
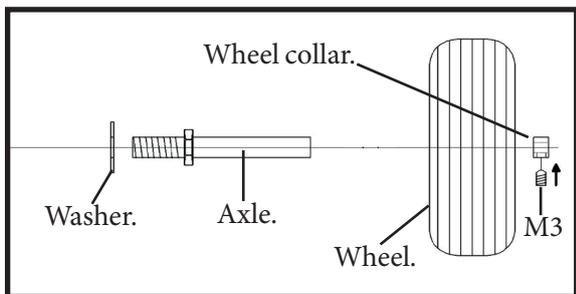
WHEELS AND WHEEL PANTS.

- 1) Locate the items necessary to install
- 2) Follow diagram below for wheel pant installation:

Use a drill and 8mm drill bit to drill a hole in the wheel pants.



- 3) You have to trim each axle using a tool cutting and cut-off wheel.
- 4) Slide the collar to the axle and setscrew the collars to secure the collar to the axle and then slider the wheel on the axle with a drop of oil on the axle so the wheel will spin freely when installed. Prepare a second collar and tighten the setscrew using hex wrench to secure the collar to the axle.
- 5) Place the wheel assembly in the wheel pants. The threaded portion of the axle will fit the notch of the wheel pant as shown.



6) Slide the threaded end of the axle through the hole in the bottom of the landing gear leg. Use a washer and lock-nut to tighten the axle to the landing gear. Make sure to use threadlock on the nut so it won't vibrate loose in flight as shown.

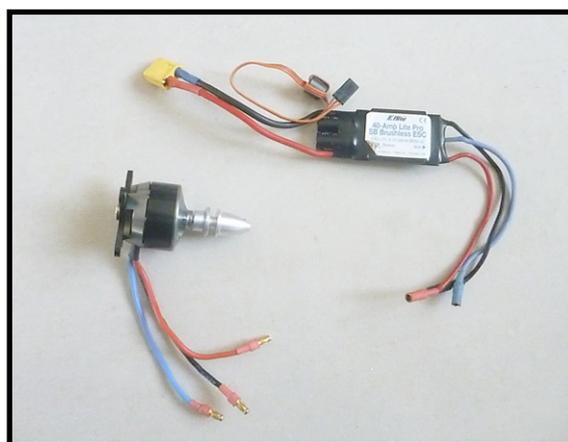
7) Tighten the set screws using a hex wrench to secure the collars on the axle over the flat spot to retain the wheel as shown.



Repeat steps to install remaining wheel pants to the landing gear.

ELECTRIC POWER CONVERSION.

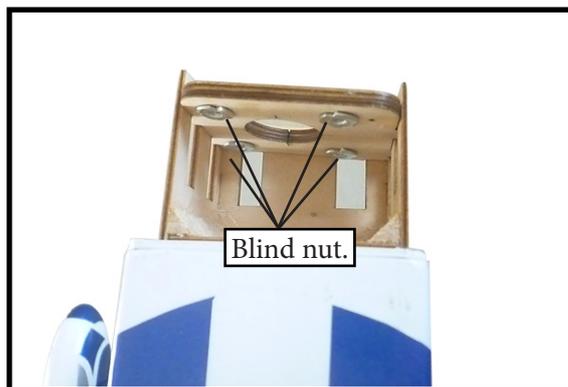
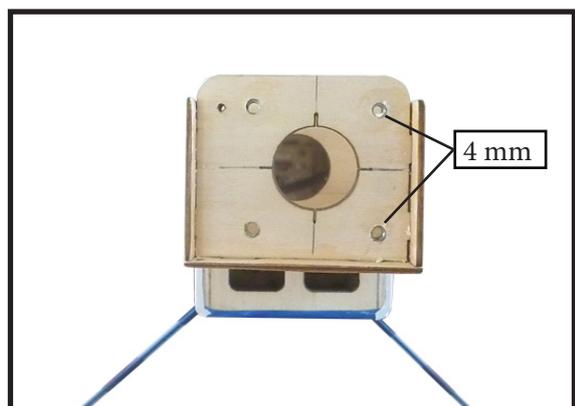
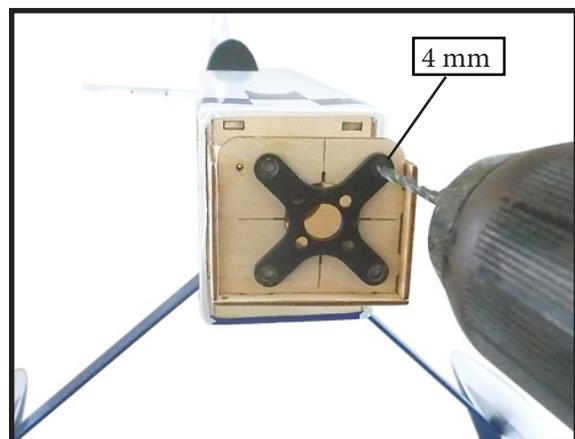
1) Locate the items necessary to install the electric power conversion included with your model.



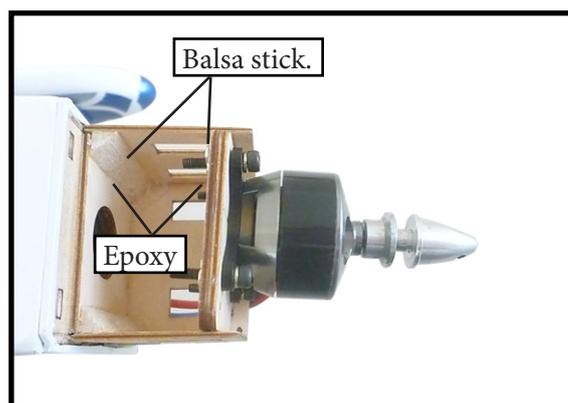
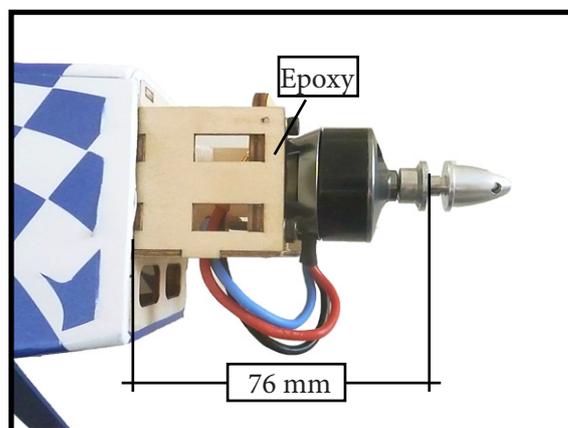
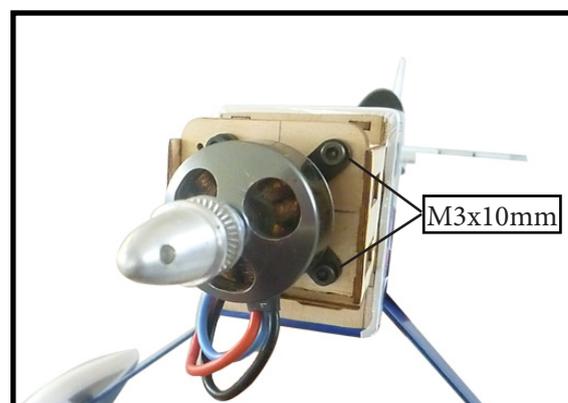
2) Recommend the items necessary to install the electric power conversion parts included with your model.



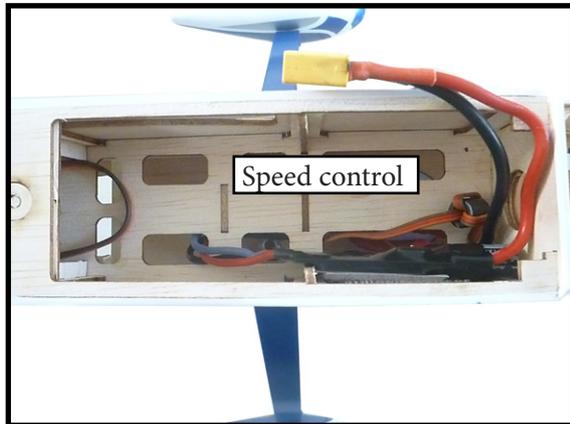
3) Attach the motor to the front of the electric motor box using four 4mm blind nut, four M3x10mm hex head bolts to secure the motor. Please see picture shown.



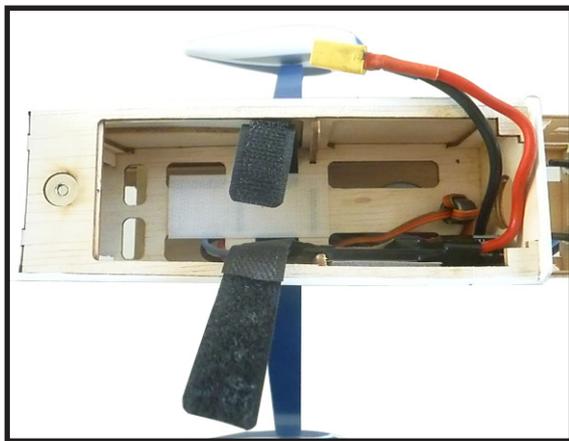
4) Attach the motor to the front of the electric motor box using four 4mm blind nut, four M3x10mm hex head bolts to secure the motor. Please see picture shown.



5) Attach the speed control to the side of the motor box using hook and loop tape. Connect the appropriate leads from the speed control to the motor. Make sure the leads will not interfere with the operation of the motor.



6) Apply a piece of hook and loop tape to the battery tray. Insert the hook and loop strap through the slot in the battery tray. Make sure not to get the motor and receiver leads inside the straps as they may come accidentally disconnected when you strap down the battery.



COWLING.

1) Slide the fiberglass cowl over the engine and line up the back edge of the cowl with the marks you made on the fuselage then trim and cut as shown.



Because of the size of the cowl, it may be necessary to use a needle valve extension for the high speed needle valve. Make this out of sufficient length 1.5mm wire and install it into the end of the needle valve. Secure the wire in place by tightening the set screw in the side of the needle valve.

2) While keeping the back edge of the cowl flush with the marks, align the front of the cowl with the crankshaft of the engine. The front of the cowl should be positioned so the crankshaft is in **nearly** the middle of the cowl opening. Hold the cowl firmly in place using pieces of masking tape.



3) 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 filler valve. Secure the cowl to fuselage using the M2x8mm screws.



INSTALLING THE PROPELLER.

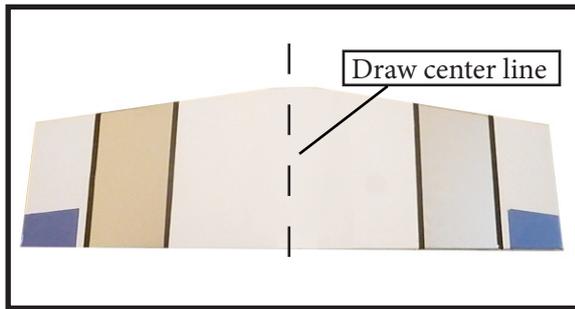


⚠ The propeller should not touch any part of the spinner cone. If it does, use a sharp modeling knife and carefully trim away the spinner cone where the propeller comes in contact with it.

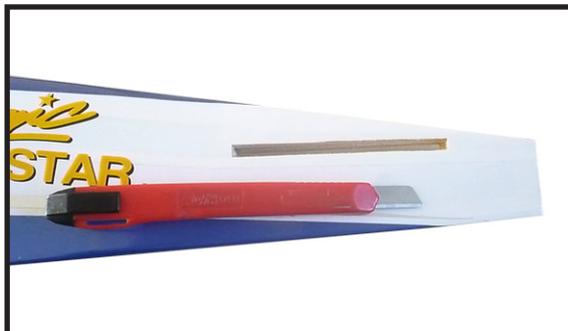


STABILIZER INSTALLATION.

1) Using a ruler and a pen, locate the centerline of the horizontal stabilizer, at the trailing edge, and place a mark. Use a triangle and extend this mark, from back to front, across the top of the stabilizer. Also extend this mark down the back of the trailing edge of the stabilizer.

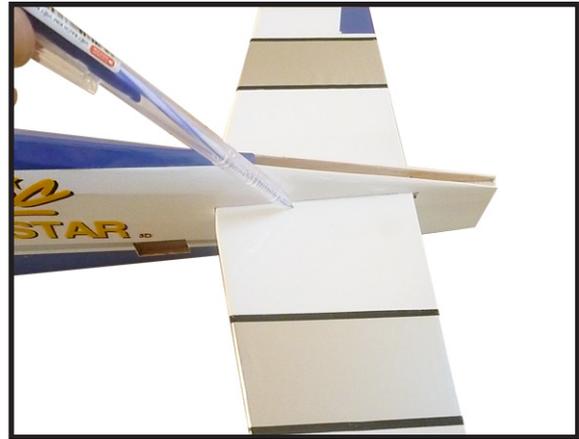


2) Using a modeling knife, carefully remove the covering at mounting slot of horizontal stabilizer (both side of fuselage).

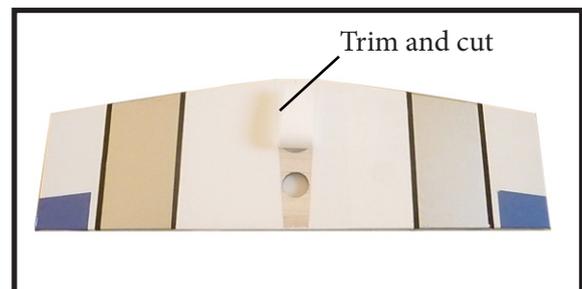


3) Slide the stabilizer into place in the precut slot in the rear of the fuselage. The stabilizer should be pushed firmly against the front of the slot.

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

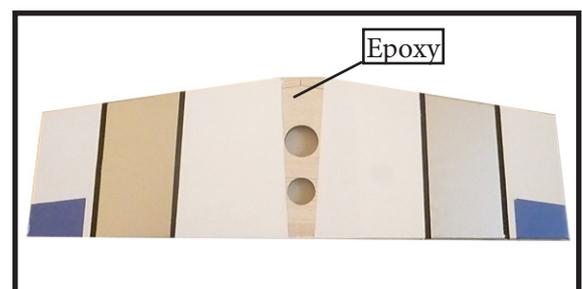


5) Remove the stabilizer. Using the lines you just drew as a guide, carefully remove the covering from between them using a modeling knife.

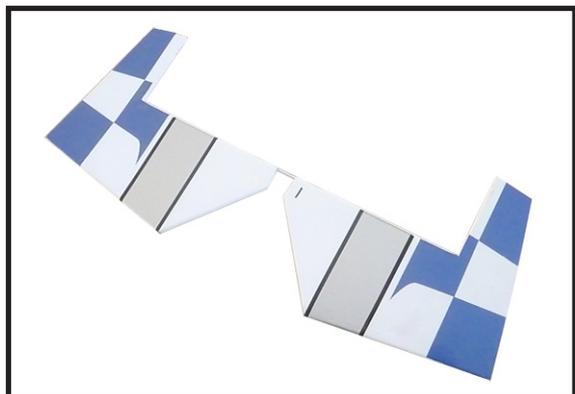


! *When cutting through the covering to remove it, cut with only enough pressure to only cut through the covering itself. Cutting into the balsa structure may weaken it.*

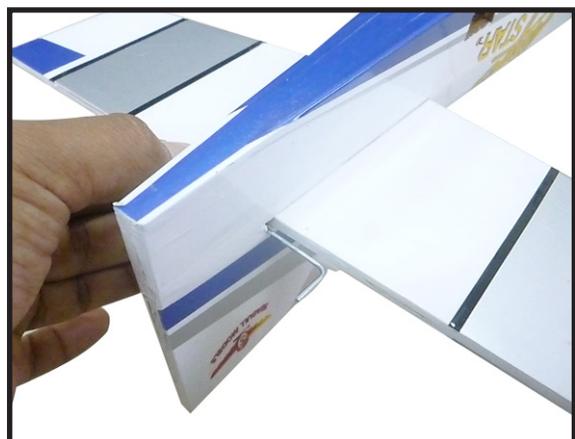
6) Using a modeling knife, carefully remove the covering that overlaps the stabilizer mounting platform sides in the fuselage. Remove the covering from both the top and the bottom of the platform sides.



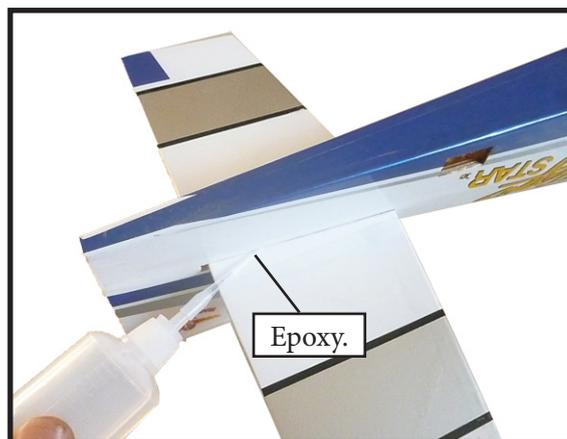
7) Fit the joiner wire into the elevators. Check to make sure the elevators are in alignment with each other by placing the assembly on a flat surface. It may be necessary to bend the joiner wire slightly to align both elevator halves.



8) Place the joiner wire in the slot for the stabilizer. Once the joiner is in position, slide the stabilizer into the slot in the fuselage.

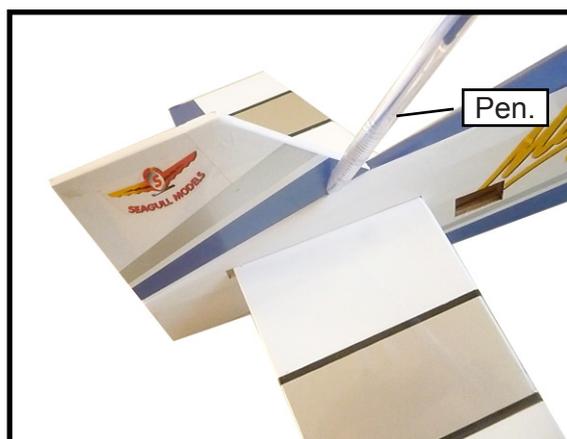


9) When you are sure that everything is aligned correctly, mix up a generous amount of 30 Minute Epoxy. Apply a thin layer to the top and bottom of the stabilizer mounting area and to the stabilizer mounting platform sides in the fuselage. Slide the stabilizer in place and realign. Double check all of your measurements once more before the epoxy cures. Hold the stabilizer in place with T-pins or masking tape and remove any excess epoxy using a paper towel and rubbing alcohol.

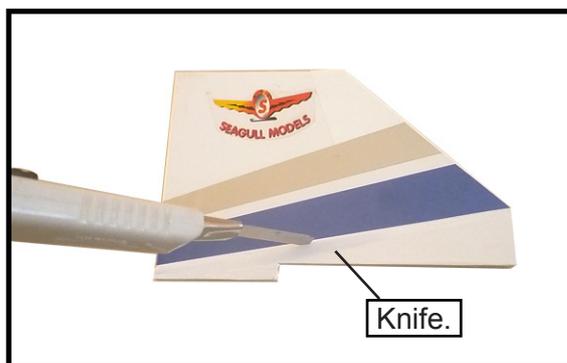


VERTICAL FIN INSTALLATION.

1) Place the fin in the slot on the top of the fuselage. While holding the vertical stabilizer firmly in place, use a pen and draw a line on each side of the vertical stabilizer where it meets the top of the fuselage.



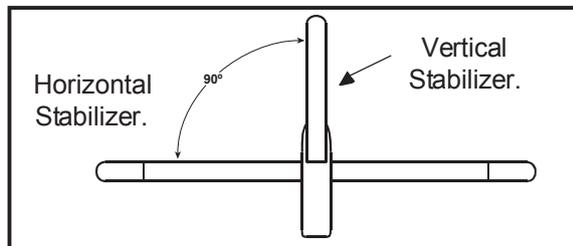
4) Remove the fin from the fuselage. Using a modeling knife, remove the covering from below the lines you drew.





! *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.*

2) Place the fin back in the slot on top of the fuselage. Using a triangle, check to ensure that the fin is aligned 90° to the stabilizer.

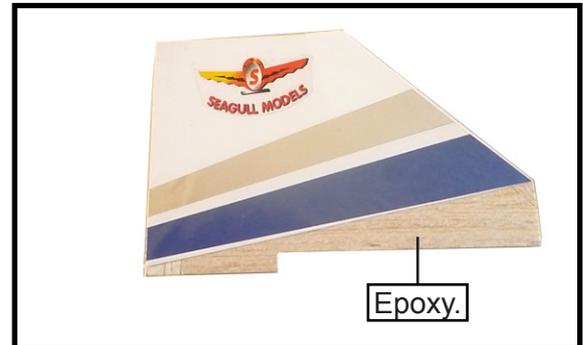


3) Use a straight edge to make sure the fin is aligned with the rear of the fuselage.



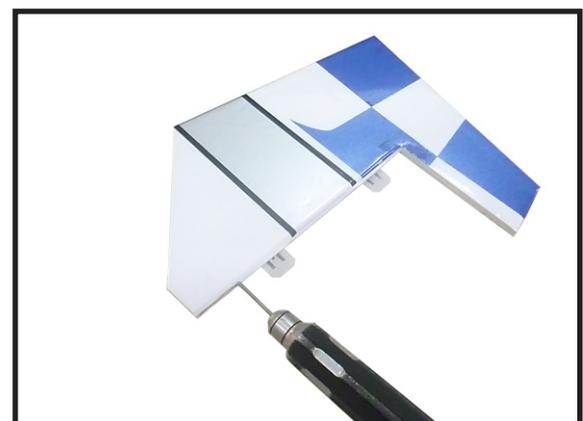
4) When you are sure that everything is aligned correctly, mix up a generous amount of 30 Minute Epoxy. Apply a thin layer to the mounting slot in the top of the fuselage and to the sides and bottom of the vertical stabilizer mounting area. Apply epoxy to the bottom and top edges of the filler block and to the lower hinge also. Set the stabilizer in place and realign. Double check all of your measurements once more before the epoxy cures.

Hold the stabilizer in place with T-pins or masking tape and remove any excess epoxy using a paper towel and rubbing alcohol. Allow the epoxy to fully cure before proceeding.

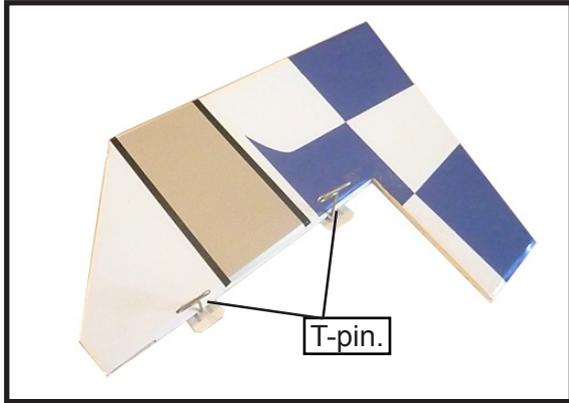


RUDDER AND ELEVATOR INSTALLATION.

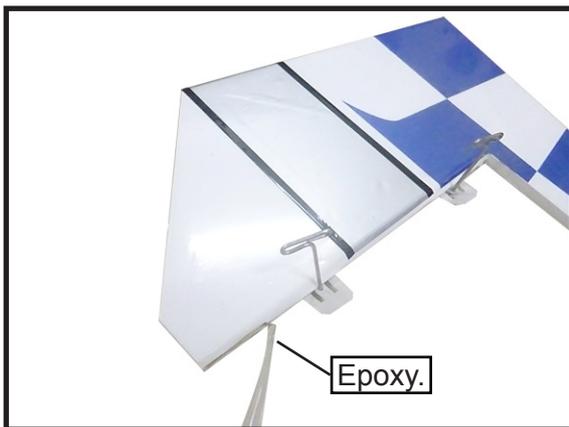
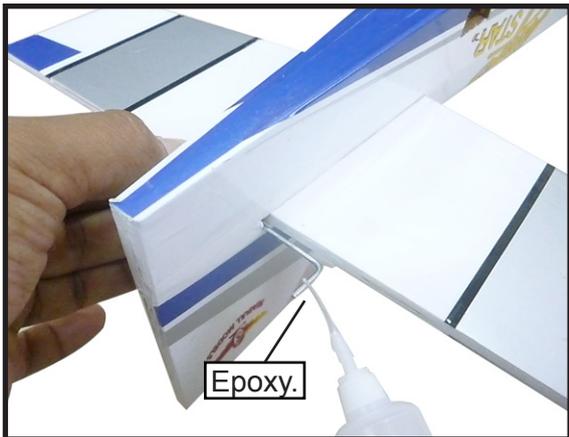
1) Use a pin vise and drill bit to drill a hole in the center of each hinge slot. This creates a tunnel for the CA to wick into, creating a better bond between the hinge and surrounding wood. Prepare all of the hinge slots for the vertical fin, rudder, horizontal stabilizer, and elevators.



2) Place a T-pin in the center of four CA hinges. Insert the hinges into the elevator as shown. The T-pin will rest on the edge of the bevel of the control surface. Prepare both elevators at this time.



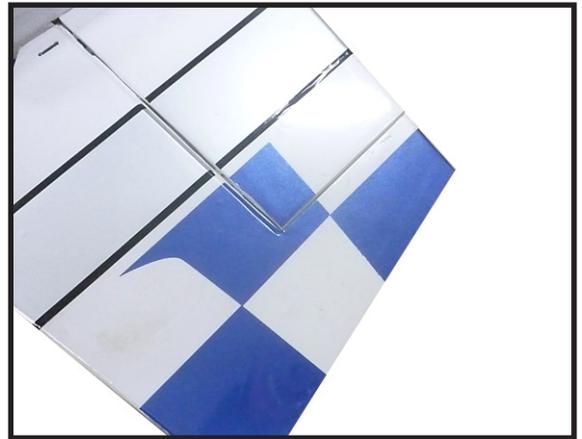
3) Mix a small amount of 5-minute epoxy and apply it to the joiner wire and into the hole and slot in the elevator.



4) Place both elevators into position once the epoxy has been applied. Use a paper towel and rubbing alcohol to remove any excess epoxy before it begins to cure. Make sure to check the alignment of the elevators to make sure they are in alignment while the epoxy cures.



5) Remove the T-pins from hinges. Position the elevators so they move freely without the counterbalances hitting the ends of the stabilizer.



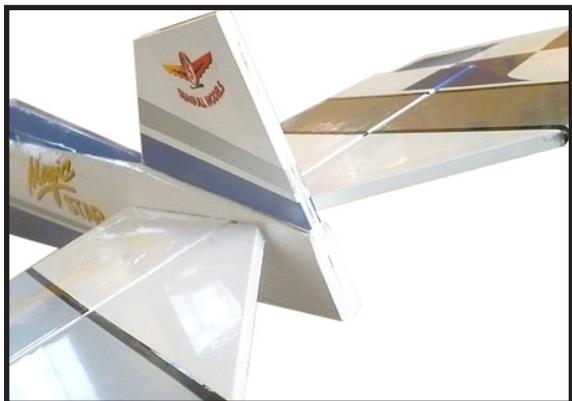
6) Saturate each of the hinges with thin CA on both the top and bottom of the hinge. Set the assembly aside to cure.



7) Break in the hinges by working the stabilizer up and down a number of times. This will reduce the initial load on the servo when the servo is connected for the first time.



8) Fit the tail wheel assembly into the slot at the bottom of the rudder. Use a small amount of 5-minute epoxy to glue the tail wheel into position in the rudder.



9) Slide the rudder into position, guiding the tab on the tail wheel knuckle into the slot at the bottom of the rudder.



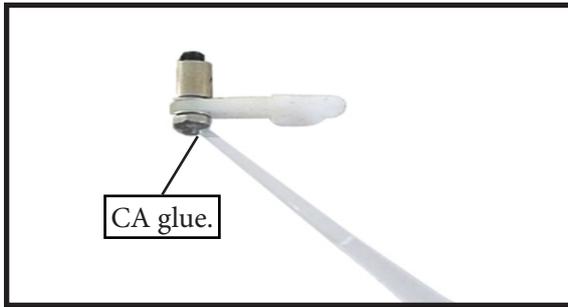
10) Check to make sure the counterbalance can move freely without hitting the top of the fin. Apply thin CA to each of the hinges. Make sure to fully saturate both sides of the hinges.



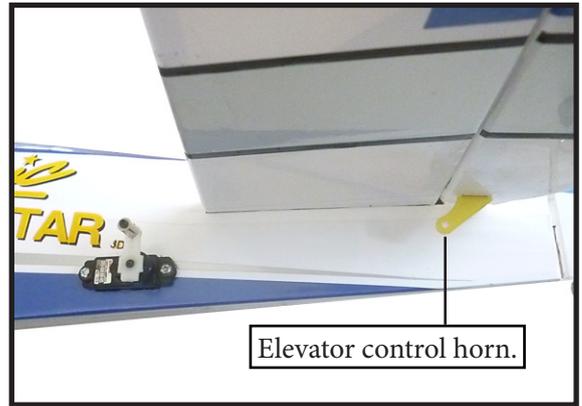
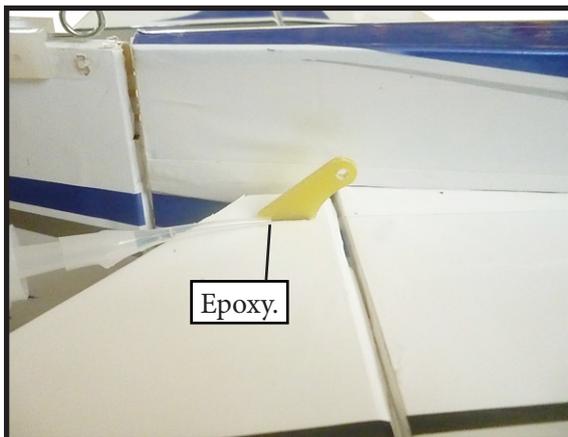
RUDDER AND ELEVATOR SERVO INSTALLATION.

1) The process as aileron servo to install servos for elevator.

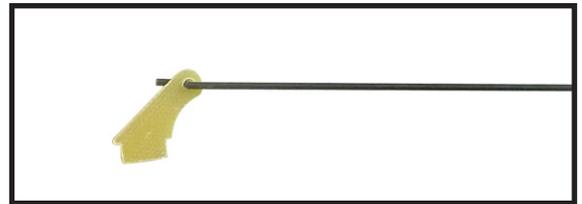




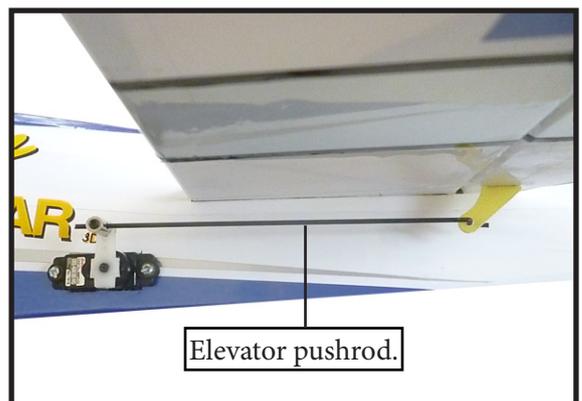
2) Locate position elevator control horn. Then, apply 2-3 drops of epoxy to the backplate where it contacts control horn to keep it from accidentally coming loose in flight.



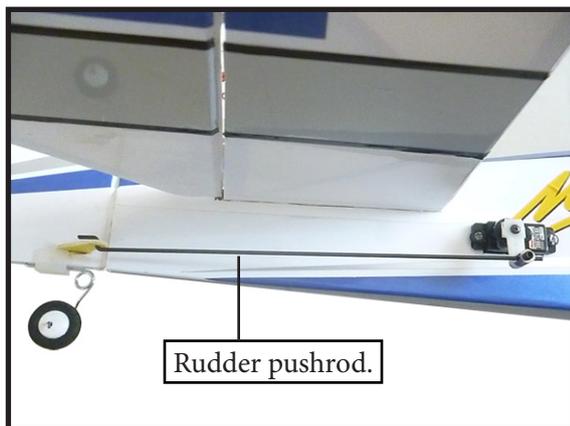
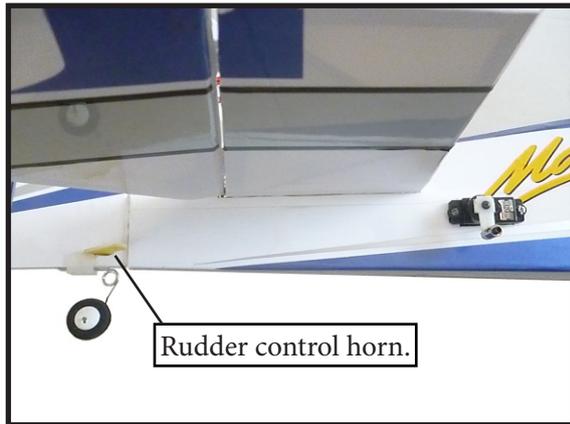
3) Pass the Z-bend in the elevator pushrod through the hole of the control horn.



4) Slide the pushrod into the hole in the pushrod connector. And use side cutters to trim the excess length of wire beyond the connector as shown. Insert the control horn in the slot in the elevator.



Repeat steps to install the rudder servo.



INSTALLATION PILOT AND CANOPY.

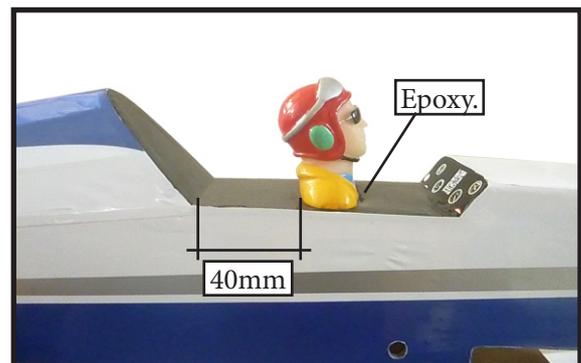
1) Locate items necessary to install pilot, seats.



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.



4) Position the canopy onto the fuselage. Trace around the canopy and onto the fuselage using a felt-tipped pen.



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.

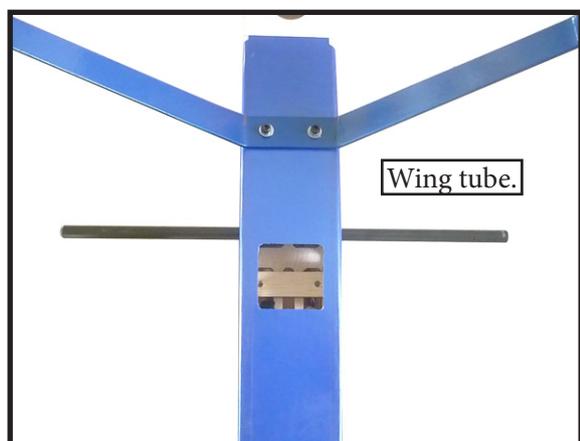
2) If all the decals are not precut, please use scissors or a sharp hobby knife to cut the decals from the sheet. Please be certain the model is clean and free from oily fingerprints and dust. Position decal on the model where desired, using the photos on the box and aid in their location.

WING INSTALLATION.

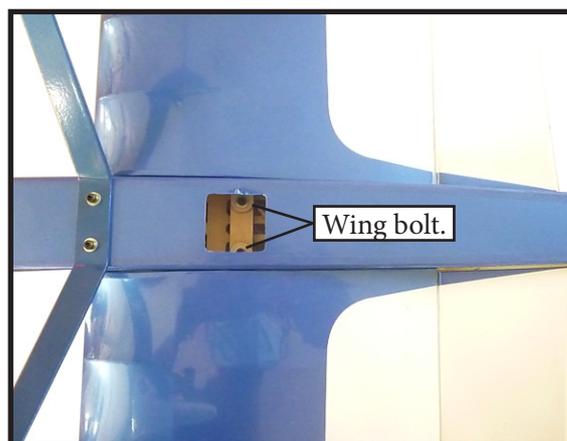
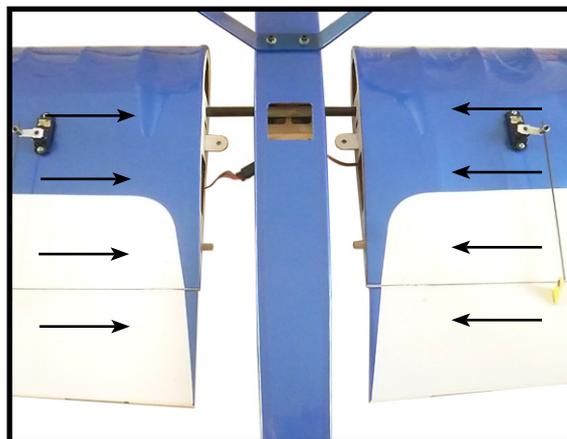
1) Remove covering from the fuselage by using knife.



2) Slide the aluminum tube into the socket in the fuselage.



3) Insert two wing panels as shown.



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 **89MM** 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 bottom side of the wing **89mm** back from the leading edge of the wing at the wing root.

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

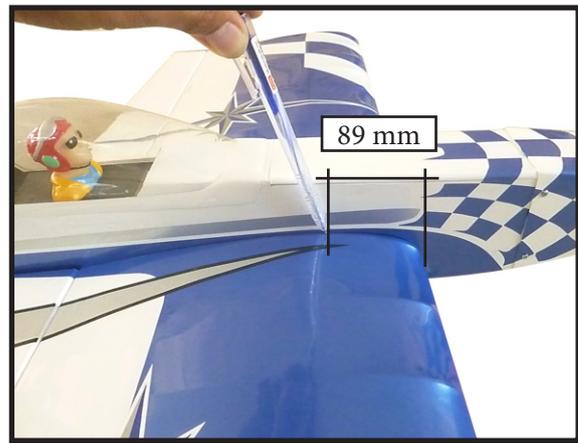
4) Do not turn plane upside down. Only low wing models should be turned upsidewards for balancing. Remove this paragraph, it is not intended for use in the instructions. it is a note for you. High Wing models must be balanced upright.

Accurately mark the balance point on the bottom of the wing on both sides of the fuselage. The balance point is located **89 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:

32mm - 51mm up.

32mm - 51mm down.

Elevator:

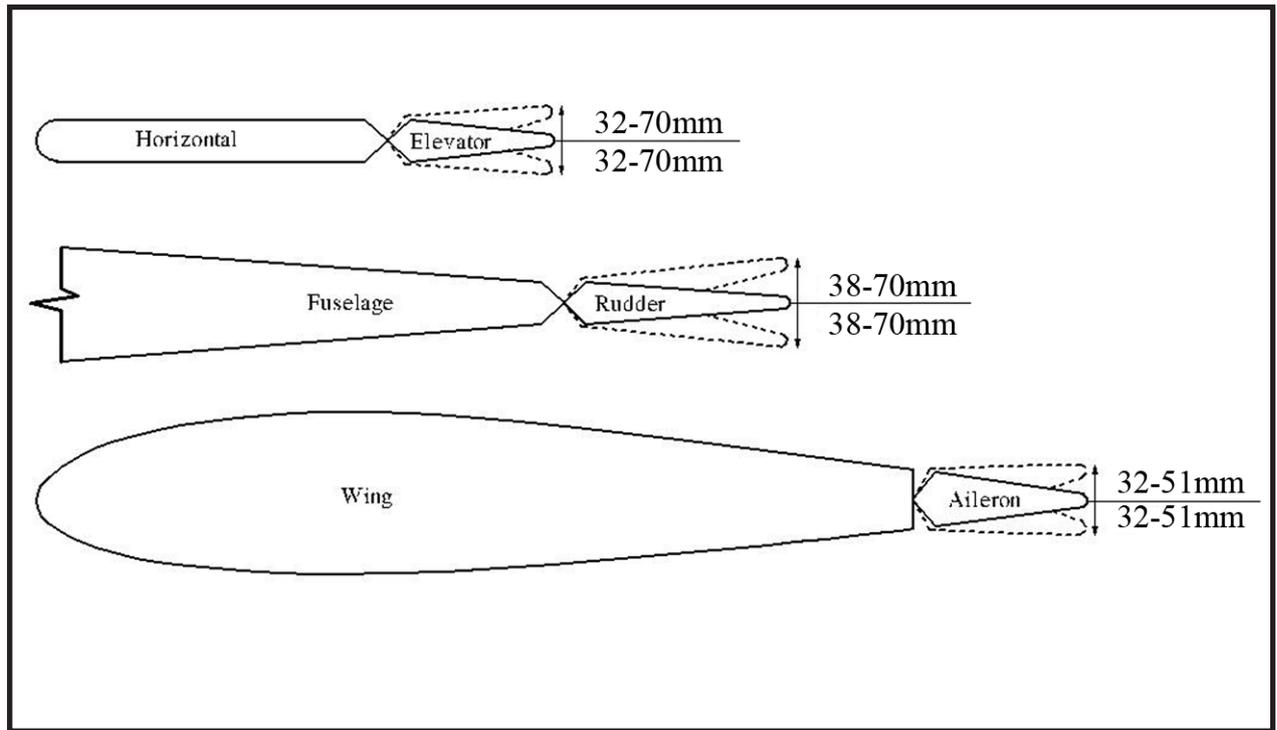
32mm - 70mm up.

32mm - 70mm down.

Rudder:

38mm - 70mm left.

38mm - 70mm right.



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 **MAGIC STAR 3D EP** 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 MAGIC STAR 3D EP.*