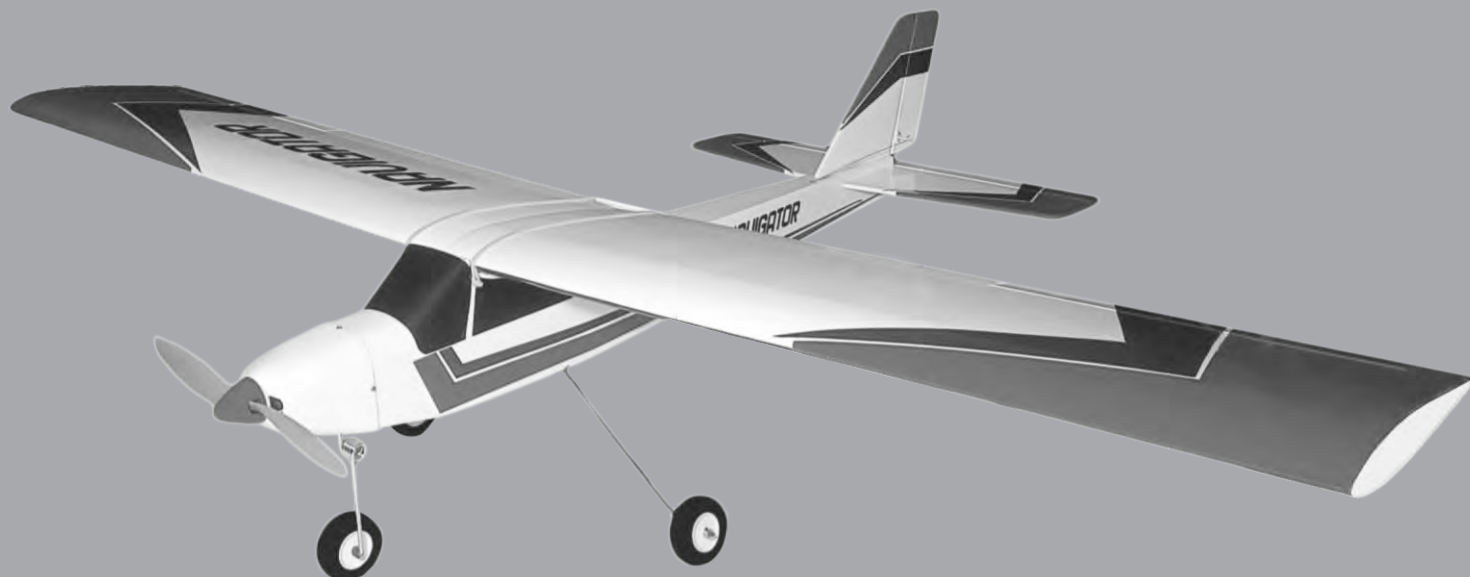


INSTRUCTION MANUAL



Navigator

All Balsa & Plywood Sport Trainer Kit

Navigator is an Advance Trainer Model with symmetrical airfoil capable of basic aerobatics. Kit contains precision laser cut balsa & ply parts, fiberglass cowling & necessary hardware. Assembles easily with the help of instruction book & full size plan.

Pay special attention to this symbol!



IMPORTANT

Specifications:

- Wing Span: 1500 mm
- Wing Area: 36dm²
- Wing Loading: ca.42g/dm²
- Length: 960mm
- Flying Weight: 1400-1500 Grams
- Motor Required:C3542-05 ESC: 50Amp.
- Battery: 3s2200mAh-3s/3700mAh

PRE CONSTRUCTION NOTES

Glues: Three types of glues are required for construction:

- 1- Water Based Aliphatic Glue (White Glue): Referred in instructions as Glue
- 2- Cyanoacrylate (Medium Viscosity): Referred as CA
- 3- Two Parts Epoxy: (30Min Epoxy for better strength recommended) Referred as Epoxy

IMPORTANT

Read instruction manual carefully and make sure you understand each part of the construction before you start building.

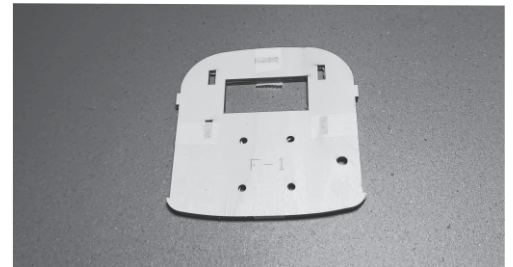
Model is built on a flat building board which can easily accept common pins for holding parts in position. Lay plan flat on building board and cover the plan with wax paper or clear polythene sheet so that parts do not adhere to plan.

Before commencing assembly, study plan, kit parts and instructions to develop a general idea of overall fit and sequence of assembling. Laser cut parts are retained in place with breaks, remove those breaks using a balsa knife.

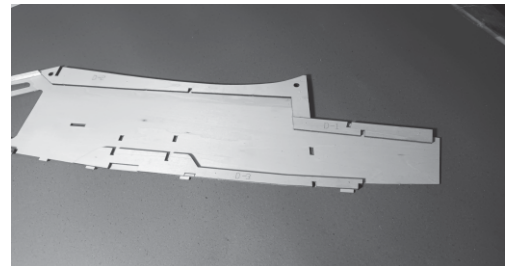
Remove parts as and when needed.

FUSELAGE ASSEMBLY

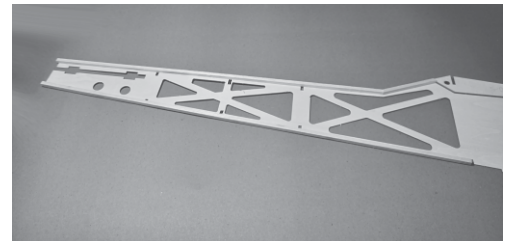
Join F-1 & F-1A former together with Epoxy and hold them in place with masking tape, and place under weight.



Glue doublers D-1, D-2 and D-3 at locations marked on fuselage sides, to make one left and one right side.

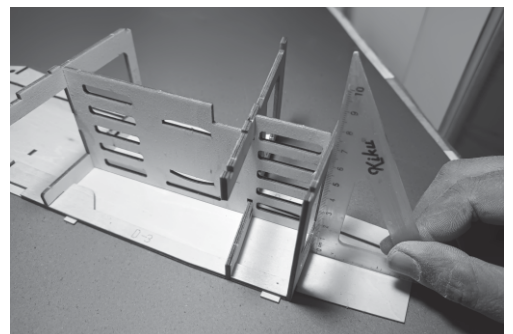


Glue 4mm balsa squares to fuselage sides according to plan.

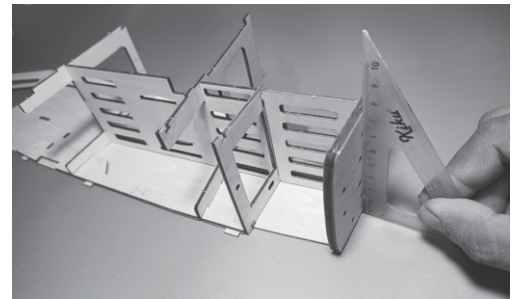


Glue formers F-11, F-2, F-3 and F-4 making sure formers are aligned 90 degree to fuselage side.

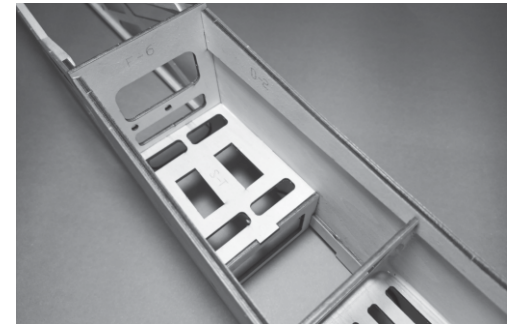
Make sure that the holes for the Steering Pushrod in F-1, F-2 and F-3 are on the right side, when viewed from the front side of fuselage.



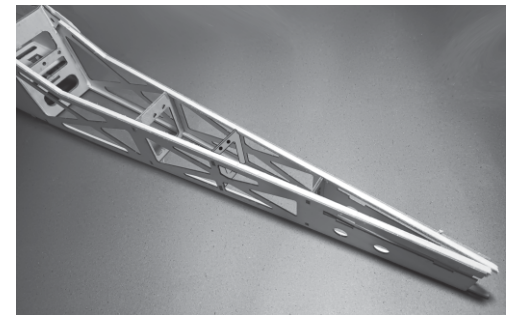
Glue battery former F-10 and Epoxy F-1 making sure formers are aligned 90 degree to fuselage. Next join the other side of fuselage.



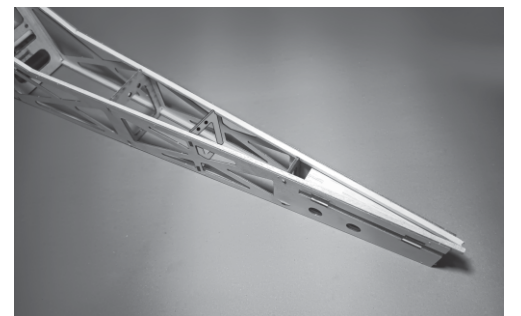
Glue formers F-5, F-6 and servo tray (S-T).



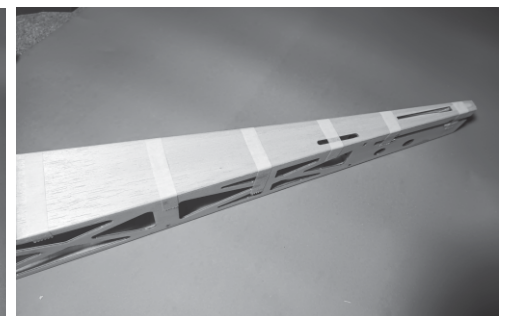
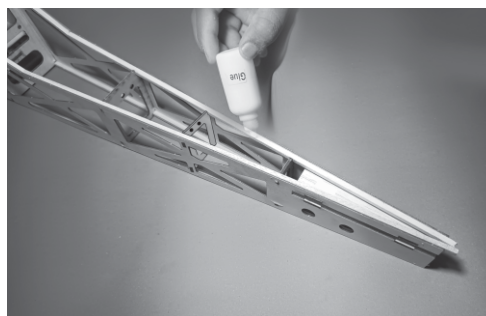
Glue formers F-7, F-8 and F-9 in between fuselage sides. Align fuselage with plan to make sure its straight!



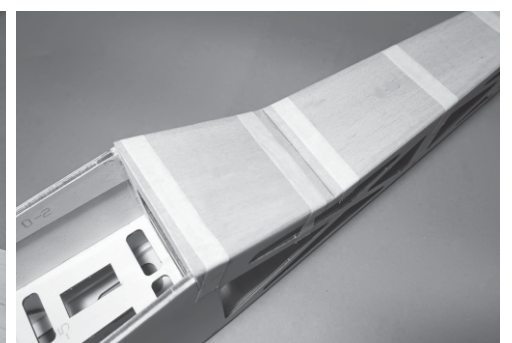
Glue Tailplane platform F-15 Top and Bottom at the rear.



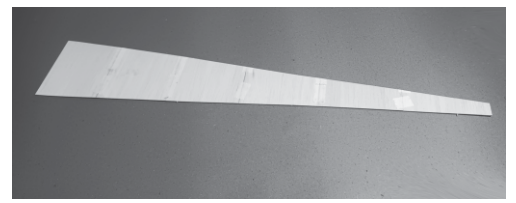
Apply Glue and fix top fuselage sheeting F-16 in place, secure with masking tape.



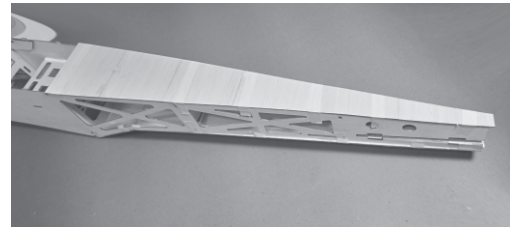
Glue sheeting F-17 and hold in place with masking tape.



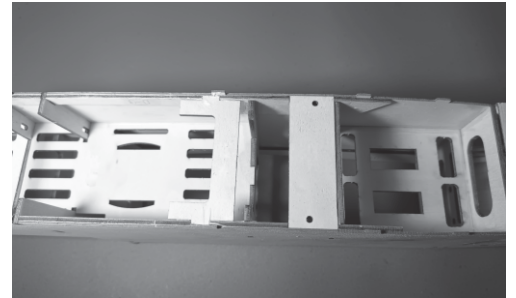
Glue bottom sheeting parts (F-18) together in a sequence as shown in picture, hold with masking tape.



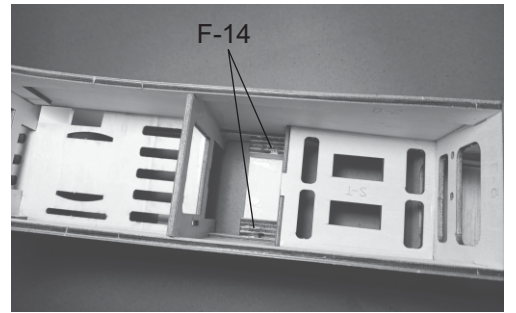
Glue assembled bottom sheeting (F-18) in place.



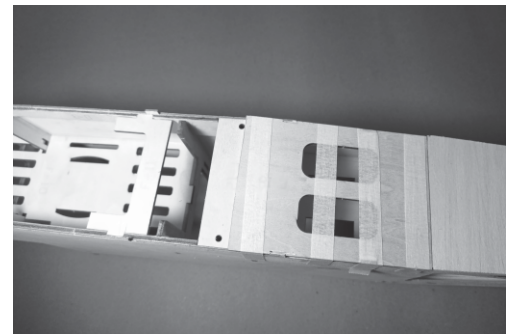
Epoxy formers F-12 and F-13.



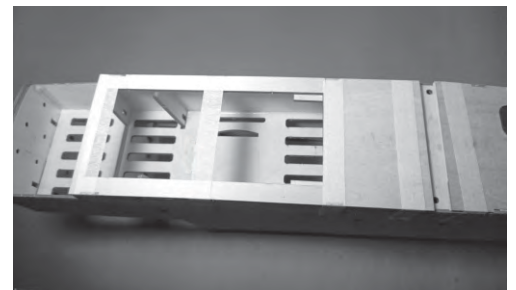
Epoxy former F-14.



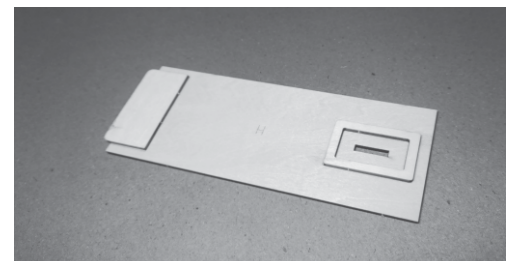
Glue bottom sheeting F-19 and retain with masking tape.



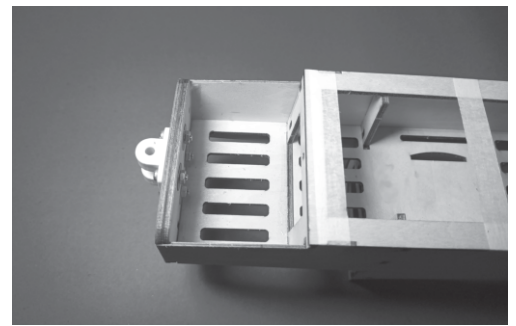
Glue bottom sheeting F-20 hold in place with masking tape.



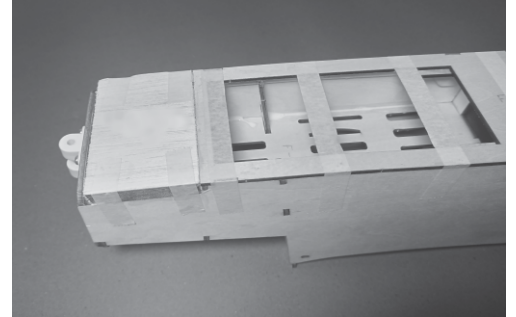
Glue H-1 and H-2 on locations marked on Hatch "H".



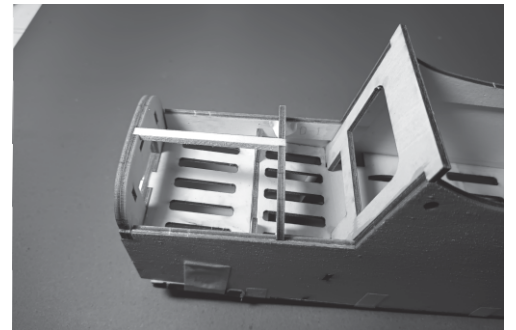
Fix nose landing gear block with screws on Firewall F-1 and apply thread lock on nut to secure them from coming off due to vibration.



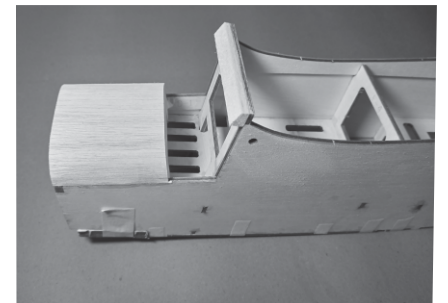
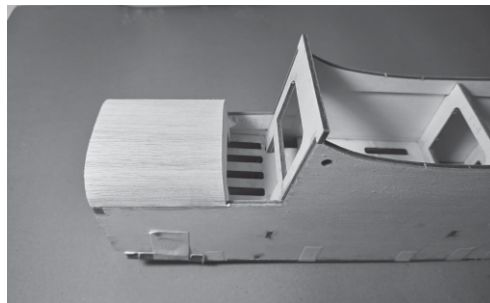
Glue 10mm nose block F-21 in front, retain with masking tape.



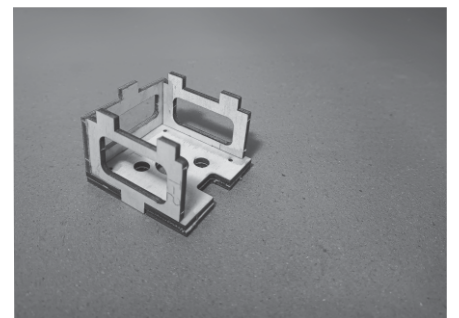
Glue former F-2A and glue 4mm sq. balsa strip in between F-1 and F-2A. Slightly moisten F-1 top balsa sheeting on the outer side to make it bend easily.



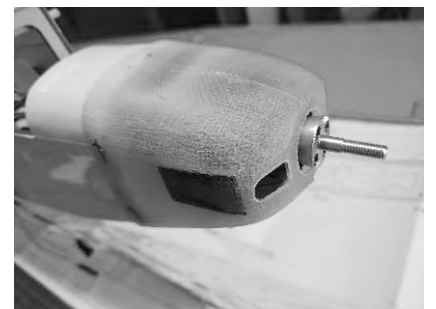
Glue F-1 top sheeting, retain in place with masking tape. Glue cabin part F-22 to Former F-3, when dry round off edges according to full size plan. Sand top sheeting next sand F-21 bottom balsa block to match F-1 roundness on bottom side.



Epoxy motor mount parts T, T-1, T-2, T-3 and T-4 to make motor mount with right thrust. Do not epoxy motor to the fuselage at this stage.



Trail fit the cowling and motor. It should be possible to overlap by about 1cm. Distance between Cowling and prop-adaptor should be precise. Paint the cowling according to your choice.



⚠ IMPORTANT

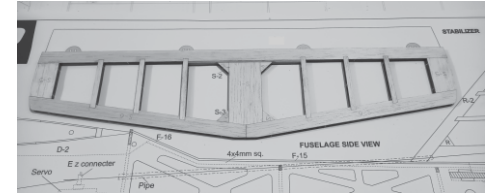
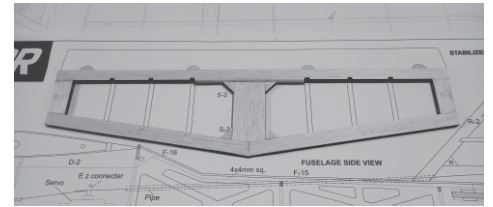
Before covering fuselage insert the Rudder/Elevator and Steering pipes according to full size plan.

STAB ASSEMBLY

CA parts S , S-1, S-4, S-5 and S-6 on full size plan.
CA gussets S-2 and S-3 on respectiver locations.

CA 6mm laser cut balsa squares as per plan. Round off leading edge and side tips of stab. Make hinge slots in stab and elevator.

Sand elevator S-7 to a slight taper. Stabilizer is now ready for covering.

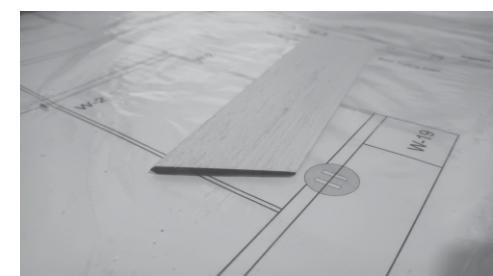
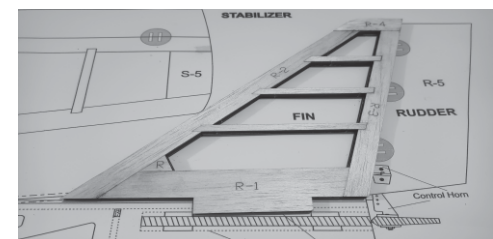
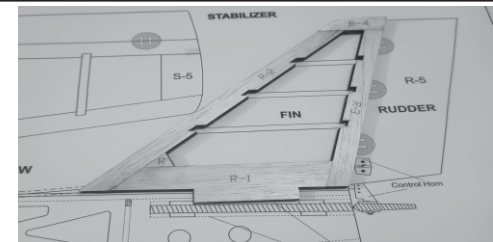


FIN ASSEMBLY

CA and pin up Fin parts R-1, R-2, R-3 and R-4 on the plan. CA gusset "R" in place.

CA 5mm laser cut balsa squares in correct order. Round off leading edge R-2 and top of the fin and sand the entire Fin surface with emery paper. Make hinge slots in Fin and Rudder according to plan.

Sand to both sides of rudder R-5 to a taper. Make slots in rudder and Fin for Hinges. Fin and Rudder assembly is ready to cover.

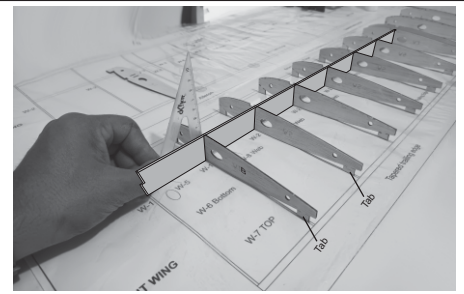


WING ASSEMBLY

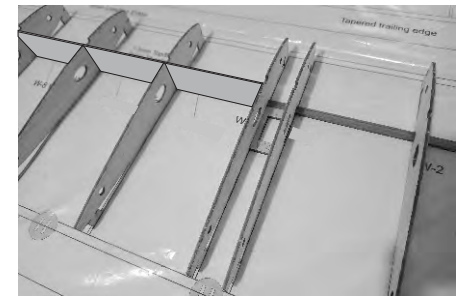
Pin bottom Spruce spar on the plan .



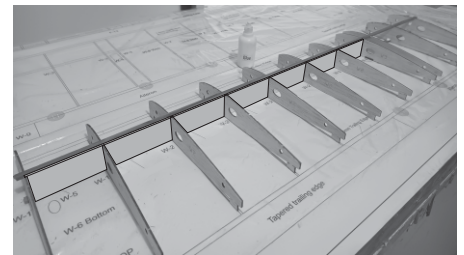
Glue W-1B to W-3 balsa ribs in place onto 1.5mm ply main spar & spruce spar according to plan. Ribs sit on tabs at the rear, these tabs will be removed latter. Make sure ribs sit at right angle.



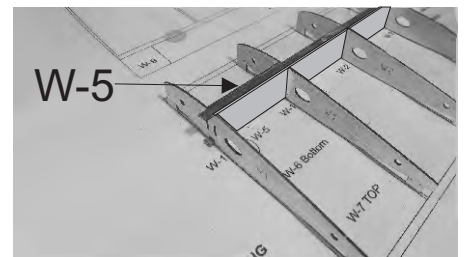
Glue W-4 wing servo tray in place.



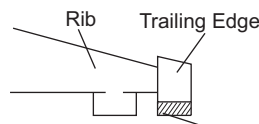
Glue top spruce spar and W-1 in place.



Glue part W-5 in place. Align W-1 to make sure the dihedral is correct.



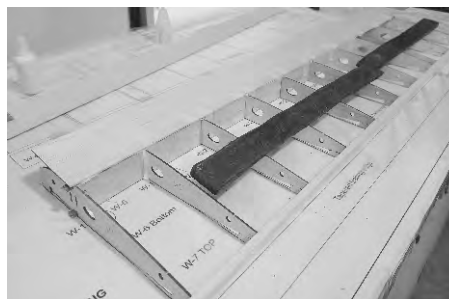
Place some weight on ribs and Glue 6mm trailing edge, take note trailing edge protrudes 1.5mm on both sides of ribs.



underlay with scrap wood



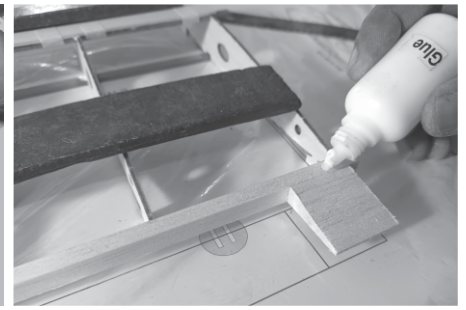
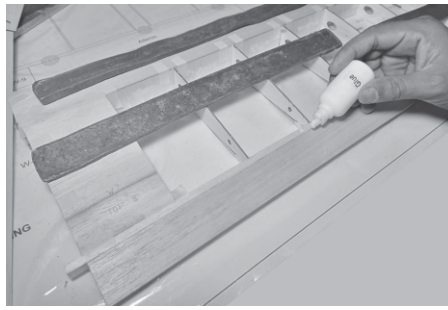
Lightly moisten 1.5mm balsa sheet with warm water to make it easier to bend. Glue this sheeting to top side of wing ribs, hold rear side with masking tape and front side with pins.



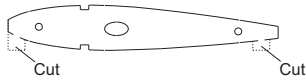
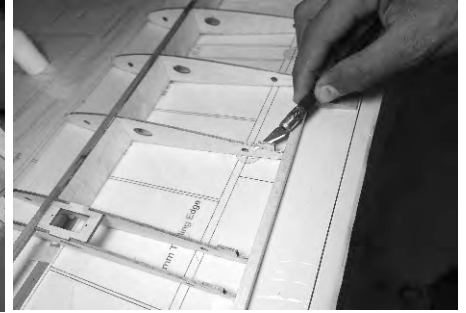
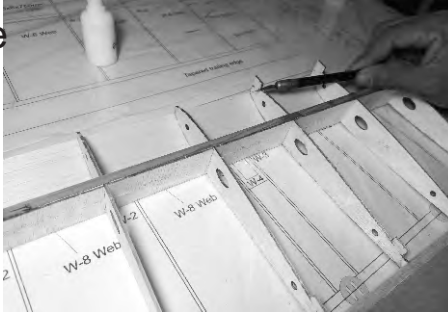
Glue top balsa center section sheeting W-7A and W-7B.



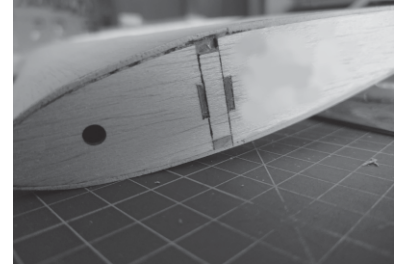
Glue tapered trailing edge & tip part W-9 according to full size plan. Let the wing dry.



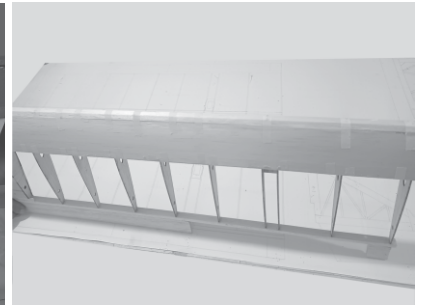
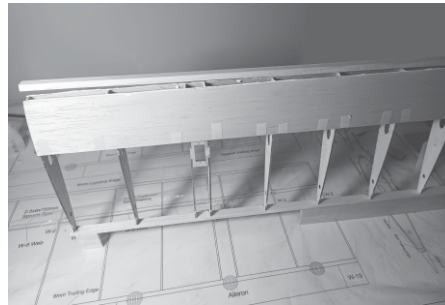
Carefully remove wing from the building board and cut the tabs at the rear and front of ribs with balsa knife.



Glue 1.5mm balsa sheet to ribs & spars, CA front side of sheeting to front end of ribs.
CA bottom center section sheeting W-6A & W-6B in place.



Glue 6mm leading edge, hold in place with masking tape. When dry remove masking tape and sand the leading edge round according to full size plan.



CA cap strips at top and bottom of ribs. Glue tip to wing according to full size plan.

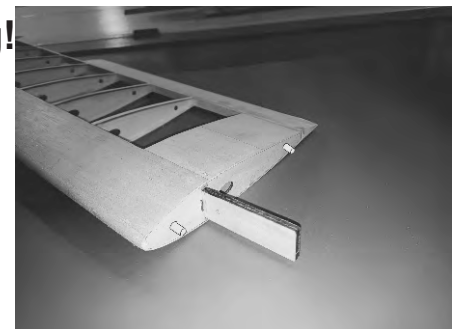
Repeat above instructions to assemble other side of the wing. Carefully sand the entire wing halves for smooth-ness.



⚠ IMPORTANT

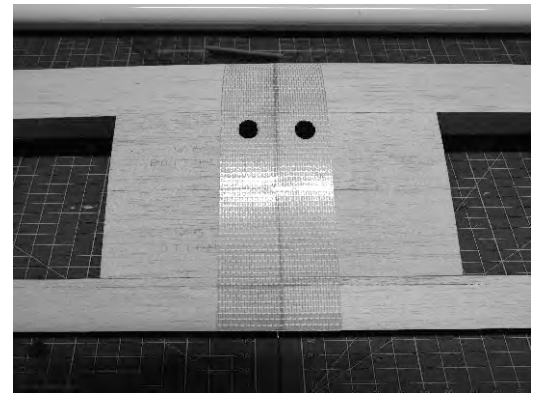
**First join both wing halves together, before covering!
Make sure Dihedral Brace fits in smoothly.**

Mix epoxy and spread on half the portion of Dihedral Brace, insert brace immersed with Epoxy in wing slot, make sure the center line mark on dihedral brace is barely exposed. Epoxy dowels and immerse half way through W-1 rib. When epoxy is dry move to next step.

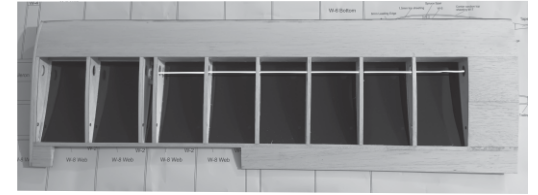


⚠ IMPORTANT

Mix epoxy, spread liberally on center section rib “W-1” of both wing panels, dowels and dihedral brace. Carefully join two wing panels ensuring dihedral brace and dowels enter into their respective locations. Apply sufficient epoxy for a strong center section joint. Clean excess epoxy with alcohol. Strengthen the middle section with filament tape (not included).



Before covering wing, pass a lead thread through rib holes tied to servo tray on one end & held with masking tape on center section sheeting at other end. While covering make sure the lead thread remains in place.

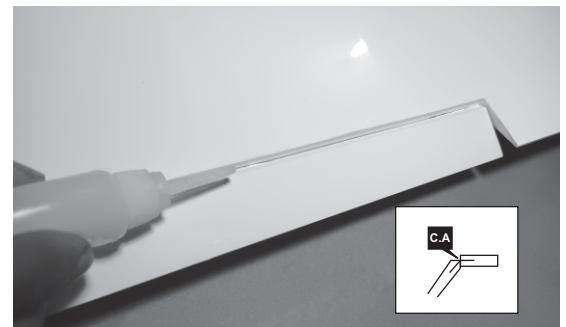
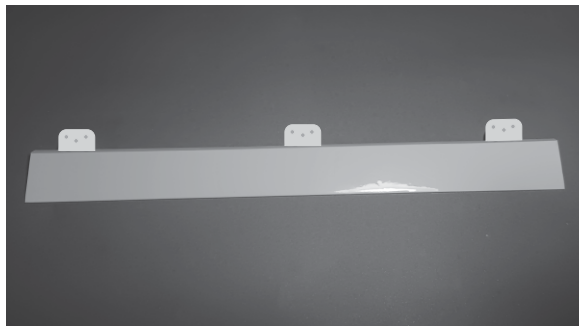


Covering:

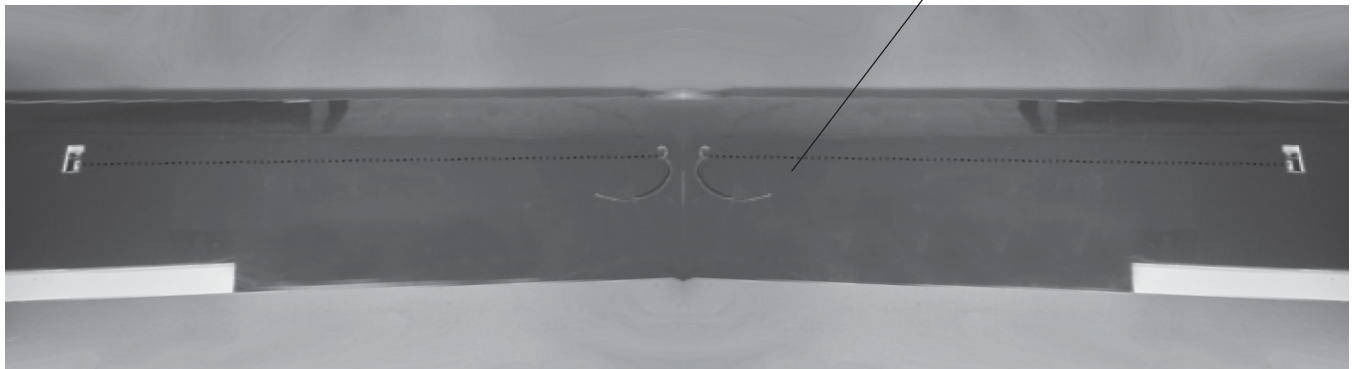
Use any iron-on covering of your choice. Covering materials come with detailed step by step instructions on how to apply. Window stickers and “NAVIGATOR” Sticker are applied after covering.

FINAL ASSEMBLY

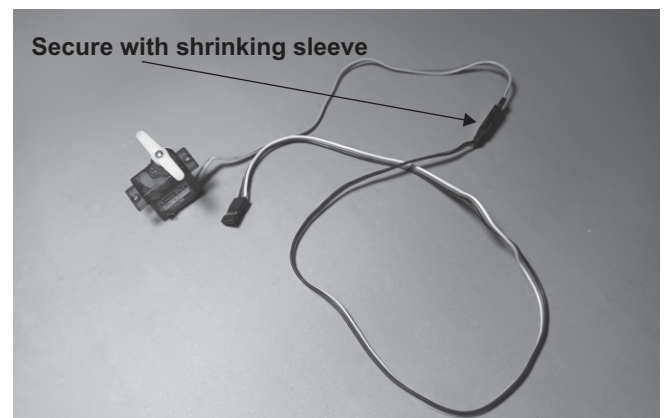
CA wing hinges.



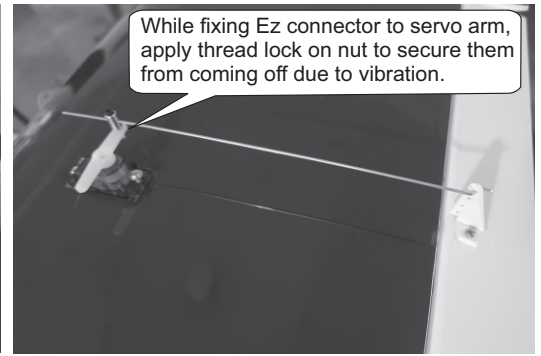
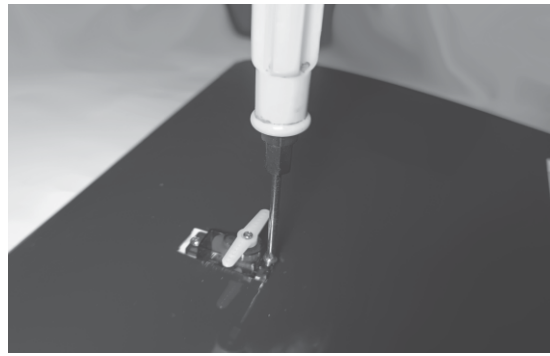
Aileron Servo Lead



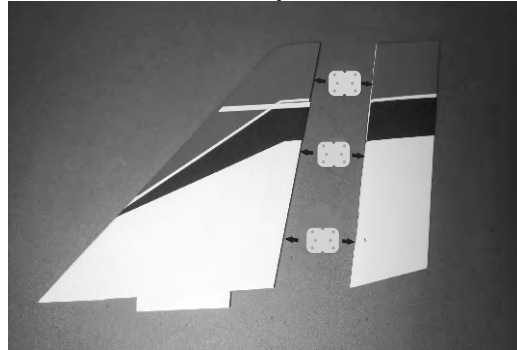
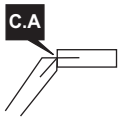
Servo Wire pull thread was already installed in previous steps. Attach lead thread to servo wire, and carefully pull servo extension wire through the wing.



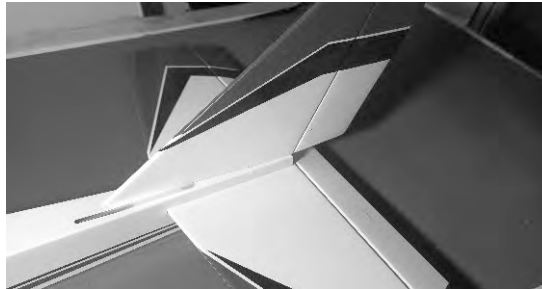
Fix aileron servo with screws to servo mount on each wing panel. Fix Ez connector in servo arm. Fix control horn on aileron with screws. Install pushrod wire passing Z Bend through control horn at one end and Ez connector on the other end. Tighten Ez connector screw with aileron at neutral position.



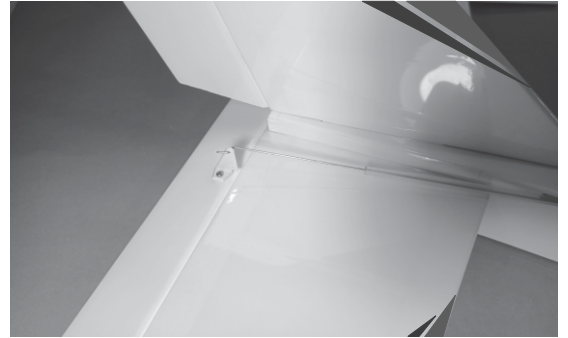
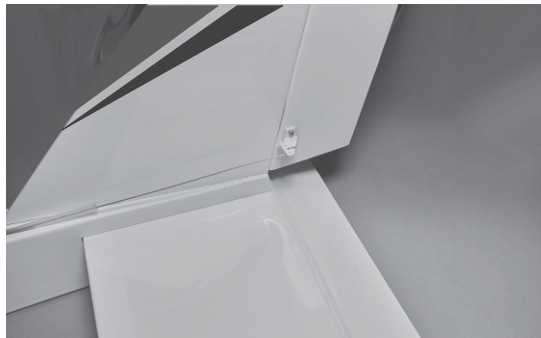
CA Rudder & Elevator hinges



Epoxy rudder and stabilizer in their appropriate slots. Make sure these are at 90° to each other



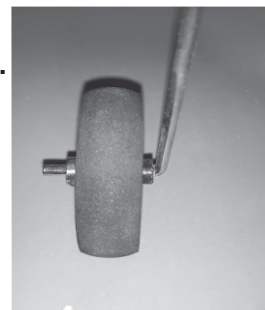
Fix control horns to rudder & stabilizer..



Fix rudder & elevator servos in fuselage with screws. Fix Ez connectors on horns. Link elevator pushrod with Z bend side inserted in elevator control horn and the other side of pushrod attached to servo through Ez connector. Keep elevator in neutral position before tightening Ez connector screw.

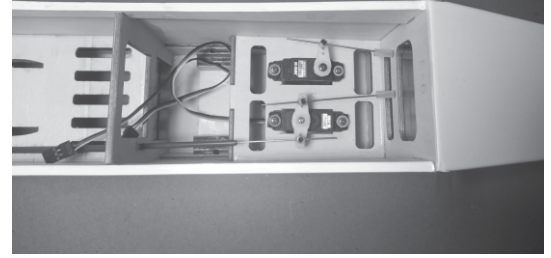


Fix nose wheel with wheel collars on either side. (CA plastic wheel collar on inner side and metal wheel collar on the outer side) Insert L/Gear along with steering arm in the nose Gear Mount. Connect nose gear pushrod to rudder servo arm with keeper.

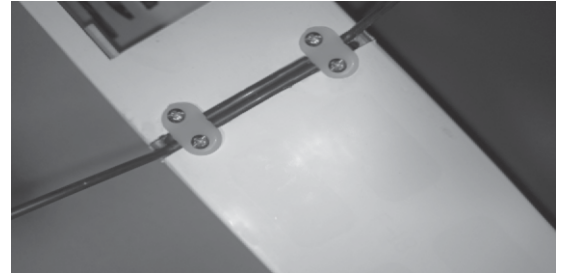
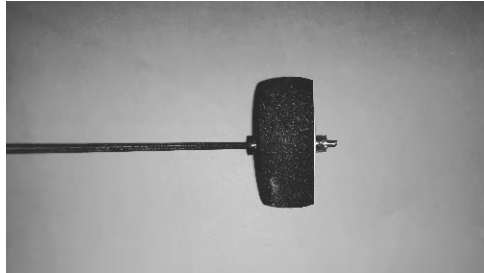


Link rudder pushrod to control surface, with Z bend of pushrod inserted in Rudder Control Horn and other end fixed through Ez connector with rudder in neutral position.

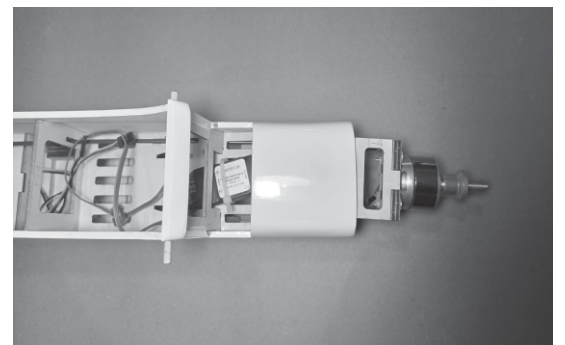
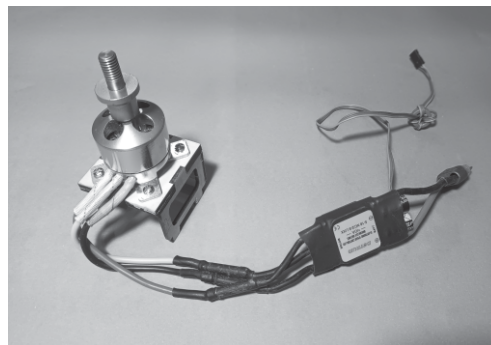
While fixing Ez connector to servo arm, apply thread lock on nut to secure them from coming off due to vibration.



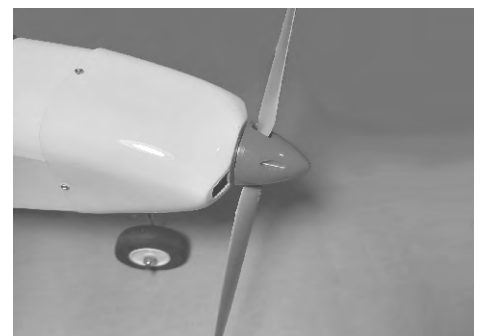
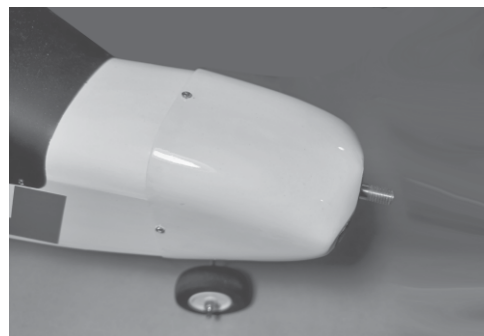
Fix wheels to the main landing gears, retain with wheel collars. Fix landing gears in fuselage slot and screw the landing gear clips in place.



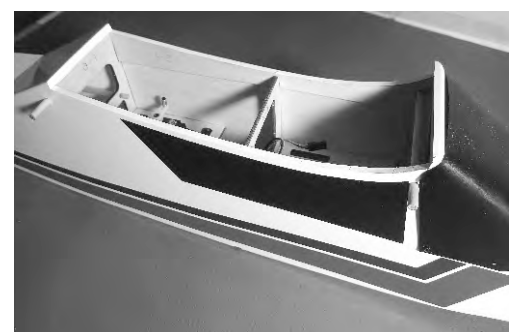
Install motor to motor mount with screws, connect ESC and slide ESC through F-1 in ESC compartment, hold ESC in place with wrap-tie, epoxy motor mount to F-1.

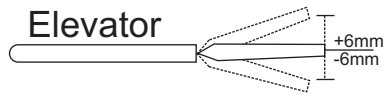
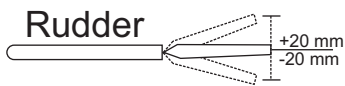


Fix cowling with screws, allow right thrust adjustment at front of cowl. Fix spinner and propellor.



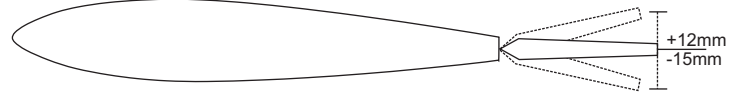
Fix dowels in fuselage. Attach Front Cabin Window with screws.



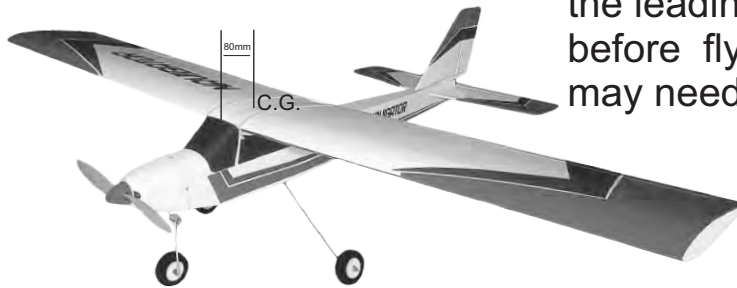


Adjust control throws as shown. These throws are good for general flying. Later you may adjust throws according to your personal preference.

Aileron

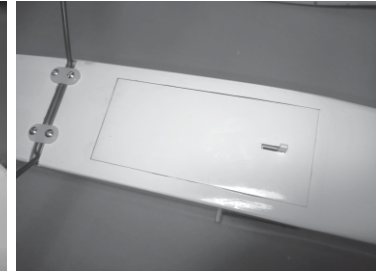


⚠ IMPORTANT



The ideal C.G. position is 80mm behind the leading edge of wing. Check the C.G. before flying, to balance the model you may need to move battery to & fro.

Apply hook & loop tape to battery and battery compartment. Secure battery in the battery compartment with hook and loop strap. Before flying connect battery connector to the ESC connector and close the hatch.



⚠ IMPORTANT

Radio Controlled Model airplanes are not toys. Before flying choose a safe flying place free of obstacles. Do not fly near people or near to electric poles. If you are a new entrant to hobby, take assistance from some senior flyers. Always fly the plane keeping safe distance in mind. Remember you are solely responsible for ensuring safe flying.

PRECAUTIONS:

- Always remove li-po battery from the plan.
- Do not operate the model with low transmitter batteries.
- While charging li-po battery, follow all safety instructions. Careless handling may lead to fire hazards.
- Once flight battery is installed, be careful to keep throttle stick to low position, any accidental movement of throttle stick may case injuries.
- While fixing Ez connectors, always apply thread lock on the retaining nut, so that these do not come-off due to vibration.