

Before start ,please carefully read the explanations!

BF-109 50CC



Specification:

Length: 2035mm(80")
Wing span: 2235mm(88")
Wing area: 79.7sq.dm(8.6sq.ft)
Wing loading: 125.5g/sq.dm(41.1oz/sq.ft)
Flying weight: 10kg(22 bs)
Radio: 6ch & 8servos
Engine: 50cc gasoline engine

INSTRUCTION MANUAL



SAFETY PRECAUTIONS

This R/C airplane is not a toy!

(The people under 18 years old is forbidden from flying this model)

First-time builders should seek advice from people having building experience.If misused or abused,it can cause serious bodily injury and damage to property.

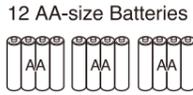
Fly only in open areas and preferably at a dedicated R/C flying site. We suggest having a qualified instructor carefully inspect your airplane before its first flight.Please carefully read and follow all instructions included with this airplane,your radio control system and any other components purchased separately.

REQUIRED FOR OPERATION (Purchase separately!)

CAUTION: For details concerning the equipment listed below (size, maker, etc.), check with your hobby shop.

1 A minimum 6 channel radio for airplanes (with 9 servos), and dry batteries.

CAUTION: Only use a minimum 6 channel radio for airplanes! (No other radio may be used!)
6 channel radio for airplane is highly recommended for this model.



A minimum 6 channel transmitter for airplanes.

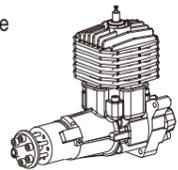


For handling the radio properly, refer to its instruction manual.

2 Engine and Muffler

Model Airplane Engine : 50cc gas engine

Muffler



Glow Plug

3 Propeller Spinner

Purchase a propeller that will match your engine.



5 in Spinner



22"X8-10

4

Sponge Sheet



Gasoline Tube



Fuel Filter

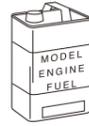


5

Required for engine starting:

Glow engine fuel only.

WARNING: Normal gasoline cannot be used with glow engines.



Fuel Pump



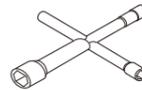
Booster Cord



4 D-size Batteries



Plug Wrench



6

Glue Instant Glue



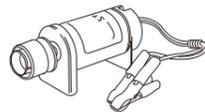
Epoxy Glue



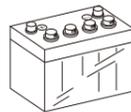
7

Other equipment for enhancing airplane operation & performance

Engine Starter



12V Battery (for starter)



9

Optional parts: rubber wheel with metal hub, oleo struts and retracts system.

TOOLS REQUIRED (Purchase separately!)

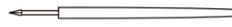
Sharp Hobby Knife



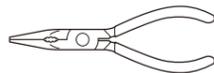
Phillips Screw Driver (l, m, s)



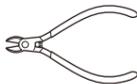
Awl



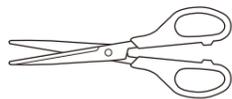
Needle Nose Pliers



Wire Cutters



Scissors



BEFORE YOU BEGIN

- 1 Read through the manual before you begin, so you will have an overall idea of what to do.
- 2 Check all parts. If you find any defective or missing parts, contact your local dealer.
- 3 Symbols used throughout this instruction manual, comprise:
- 4 We strongly recommend you use the thread lock for all the screws when you build your model.

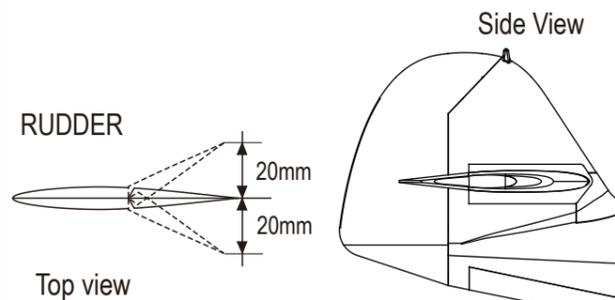
Do not overlook this Symbol!

Warning!

- Apply epoxy glue.
- Drill holes with the specified diameter (2mm).
- Cut off excess.
- Pay close attention here!
- Apply instant glue (CA glue, super glue).
- Cut off shade portion.
- Ensure smooth non-binding movement while assembling.
- Assemble left and right sides the same way.
- Must be purchased separately!

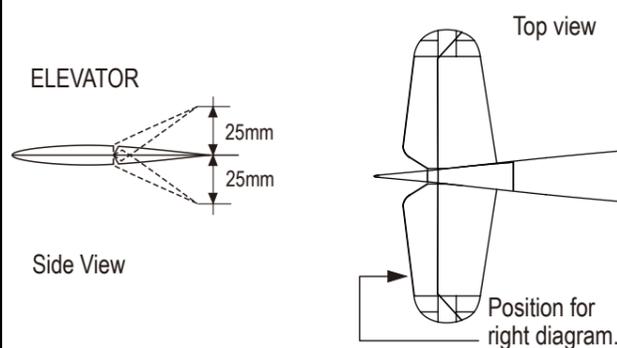
83 Adjustment.

Adjust the travel of each control surface to the values in the diagrams. These values fit general flight capabilities. Readjust according to your needs and flight level.



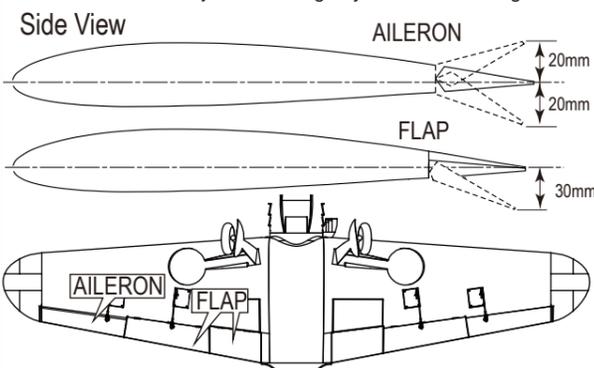
84 Adjustment.

Adjust the travel of each control surface to the values in the diagrams. These values fit general flight capabilities. Readjust according to your needs and flight level.



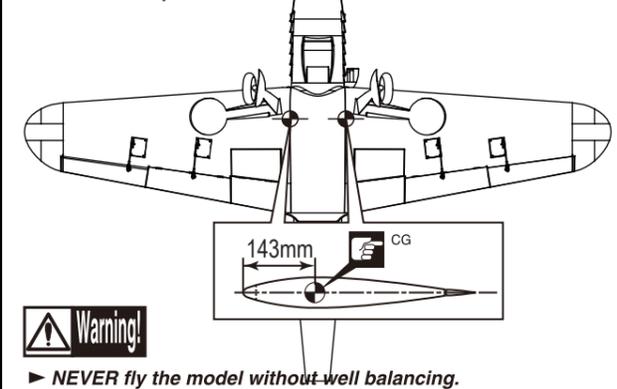
85 Adjustment.

Adjust the travel of each control surface to the values in the diagrams. These values fit general flight capabilities. Readjust according to your needs and flight level.



86 The centre of the Gravity.

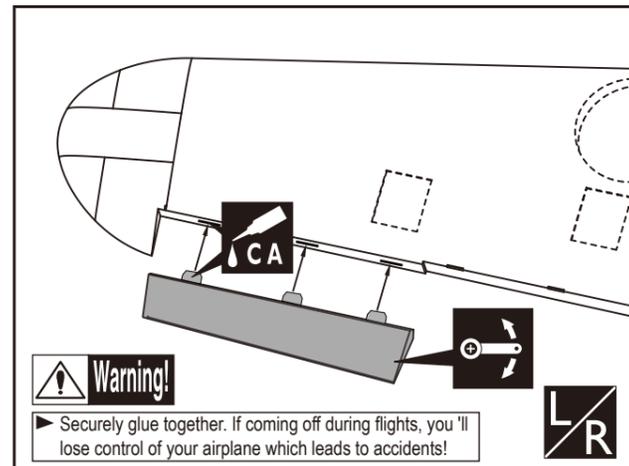
Never fly before checking the CG's required position. In order to obtain the CG specified, reposition the receiver and battery.



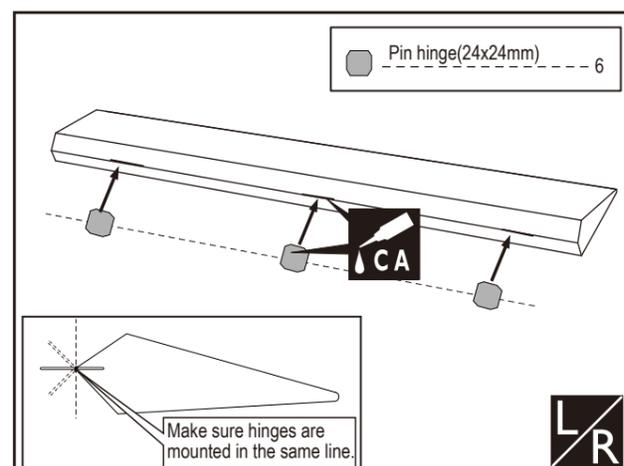
Accessory list for the coming installation steps.

	Cleviss	2
	Cleviss	2
	Collar (3mm)	2
	Rod (2.5x300mm)	2
	TP Screw (2.3x12mm)	8
	Servo tray(68.5x56.5x2mm)	2
	Wooden Block(20x20x8mm)	2
	Pin hinge(24x24mm)	6
	Screw (4x45mm)	2
	Lock Nut (4mm)	2
	Washer	2
	Washer(4x14mm)	2

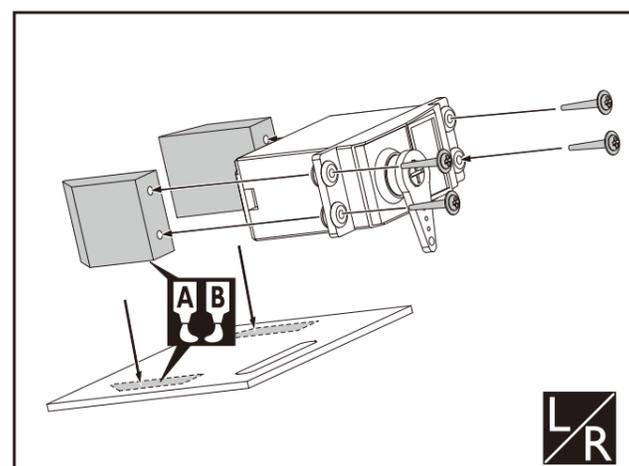
3 Assemble the aileron to main wing with instant type CA glue. Be careful to ensure the moving parts of the hinges are able to move freely.



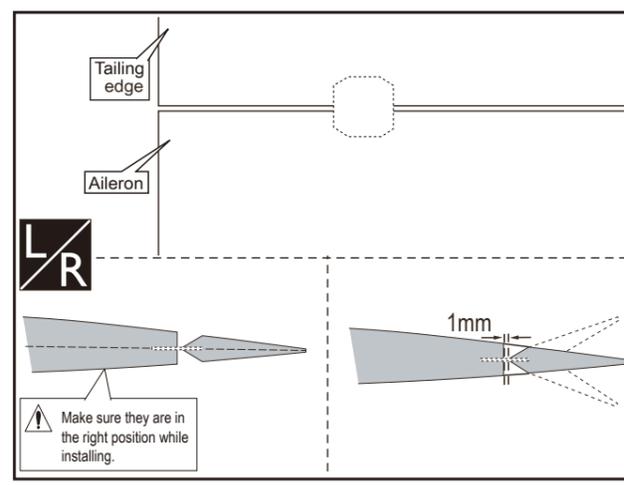
1 Apply instant type CA glue to aileron and pin hinge.



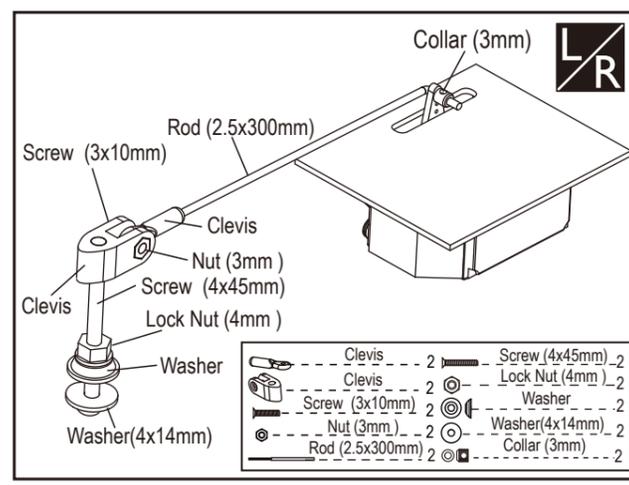
4 Install the servo as the illustration below



2 Keep some space about 1mm width between aileron and trailing edge.



5 Install the nylon control horn and connect the linkage.



Apply epoxy glue. Assemble left and right sides the same way. Pay close attention here! Do not overlook this symbol!

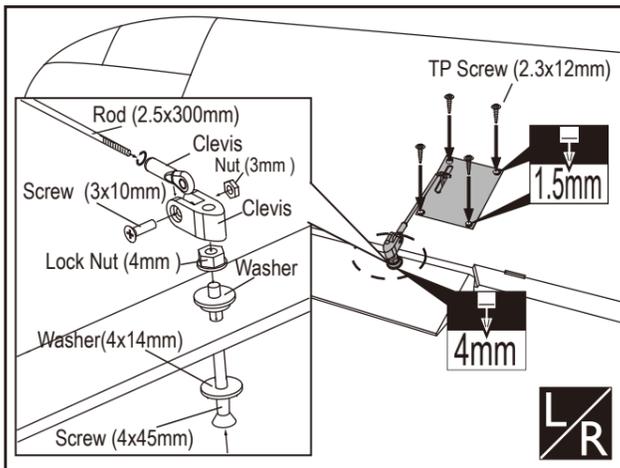
Apply instant glue (CA glue, super glue). Ensure smooth non-binding movement while assembling. Cut off shaded portion.

Apply epoxy glue. Assemble left and right sides the same way. Pay close attention here! Do not overlook this symbol!

Apply instant glue (CA glue, super glue). Ensure smooth non-binding movement while assembling. Cut off shaded portion.

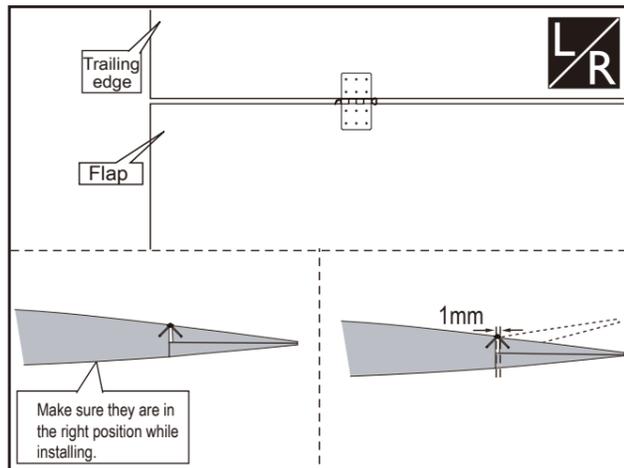
6

Secure the servo. Install the nylon control horn and connect the linkage.



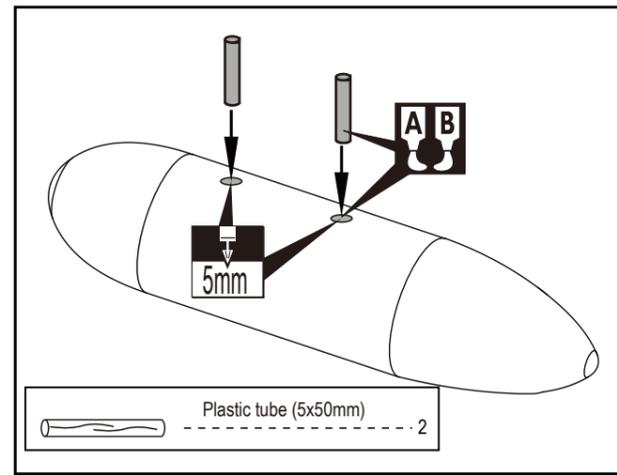
8

Keep some space about 1mm width between trailing edge and flap.



79

Epoxy the plastic tubes in the holes tightly.



Accessory list for the coming installation steps.

- Wheel (115mm) ----- 2
- Collar (6mm) ----- 4
- Wooden Block(43x28x26mm) ----- 2
- Landing gear(6mm) ----- 1
- TP Screw (3x20mm) ----- 16
- Washer (3x6mm) ----- 12
- Landing gear straps ----- 2
- Wooden Block(25x15x13mm) ----- 4

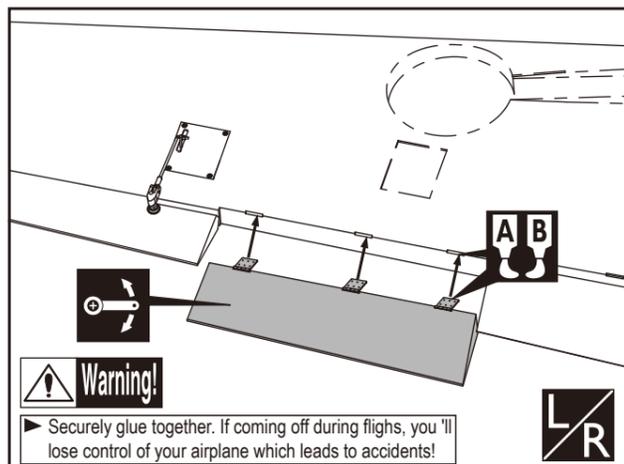


Accessory list for the coming installation steps.

- Clevis ----- 2
- Clevis ----- 4
- Collar (3mm) ----- 2
- Rod (2.5x300mm) ----- 2
- TP Screw (2.3x12mm) ----- 8
- Servo tray(68.5x56.5x2mm) ----- 2
- Wooden Block(20x20x8mm) ----- 4
- Pin hinge(24x24mm) ----- 10
- Screw (4x55mm) ----- 2
- Lock Nut (4mm) ----- 2
- Washer ----- 2
- Washer(4x14mm) ----- 2
- Copper joiner ----- 2
- Screw (2x10mm) ----- 2
- Nut (2mm) ----- 4
- Copper ball (2mm) ----- 2
- Rod (2x300mm) ----- 2

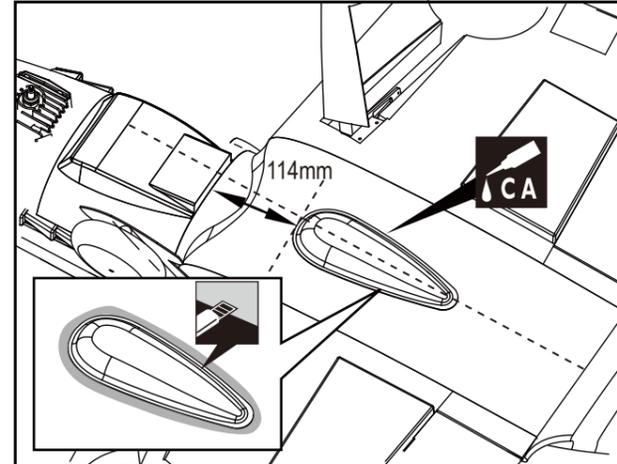
9

Assemble the flap to main wing with instant type CA glue. Be careful to ensure the moving parts of the hinges are able to move freely.



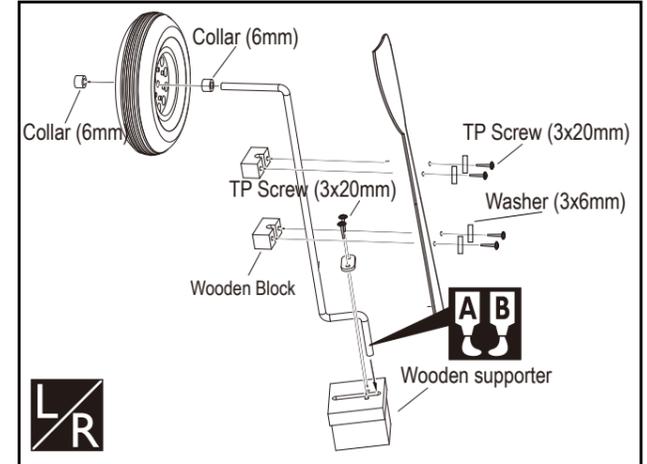
80

Glue the drop tank mounts to the fuselage bottom as illustration.



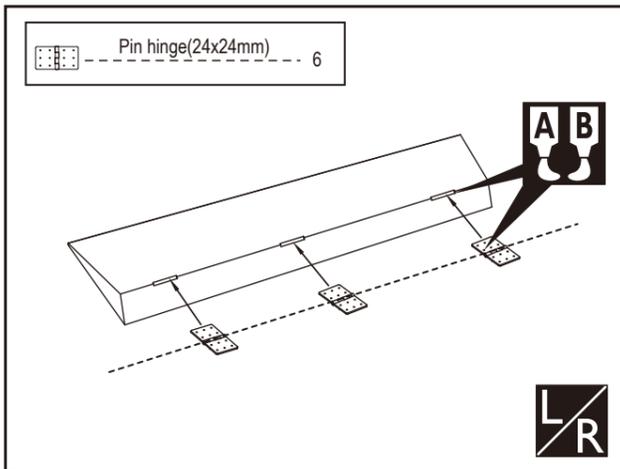
81

Assemble the wheel and gear door to landing gear.



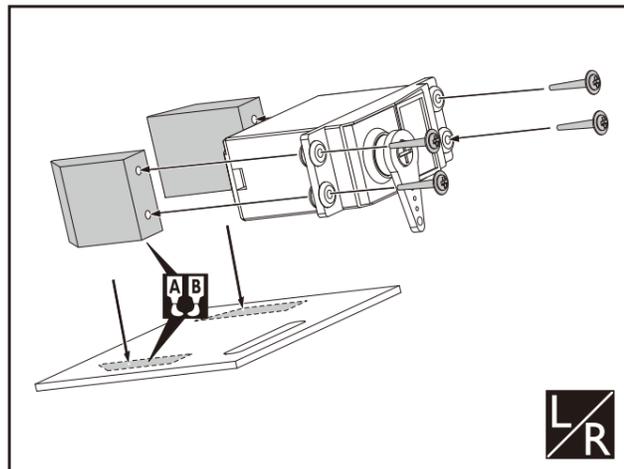
7

Apply instant type CA glue to flap and pin hinges.



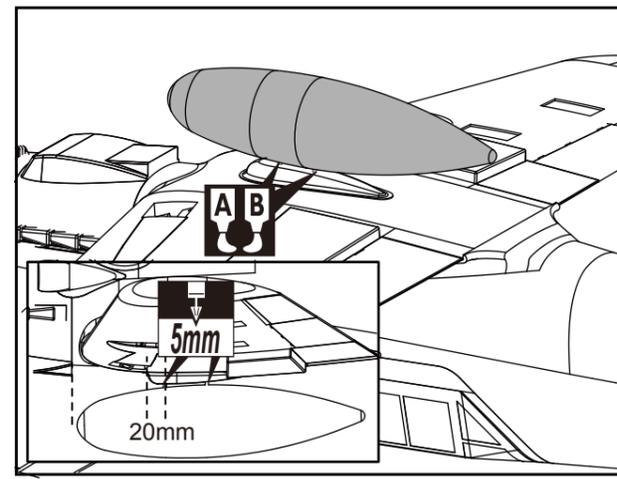
10

Install the servo.



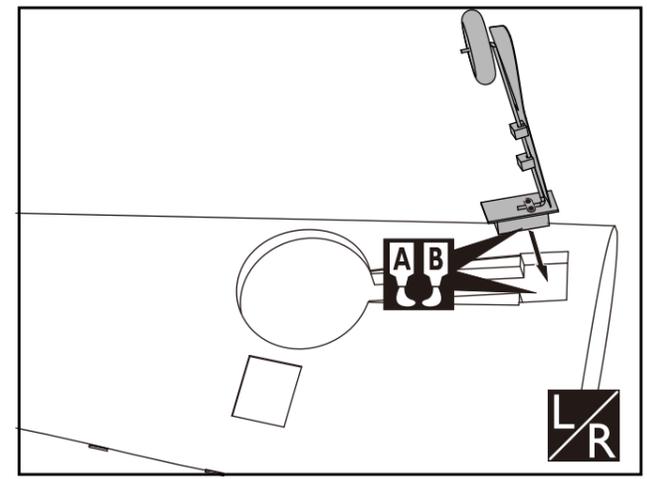
81

Please notice the datas below when assemble the drop tank.



82

Epoxy the landing gear to the wing steadily.



Apply epoxy glue.



Assemble left and right sides the same way.



Pay close attention here!



Apply instant glue (CA glue, super glue).



Ensure smooth non-binding movement while assembling.



Cut off shaded portion.

Do not overlook this symbol!



Apply epoxy glue.



Assemble left and right sides the same way.



Pay close attention here!



Apply instant glue (CA glue, super glue).



Ensure smooth non-binding movement while assembling.

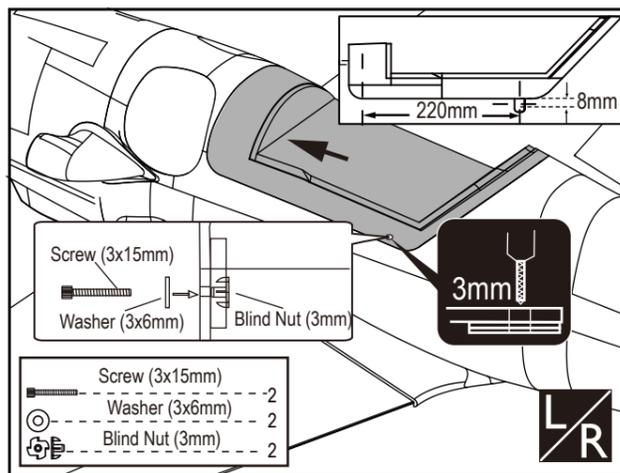


Cut off shaded portion.

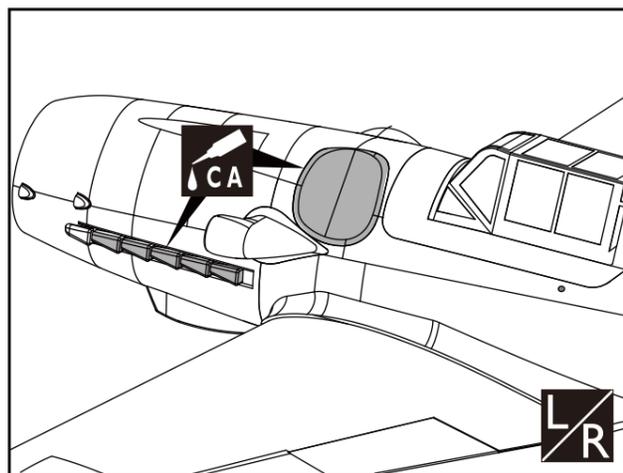
Do not overlook this symbol!



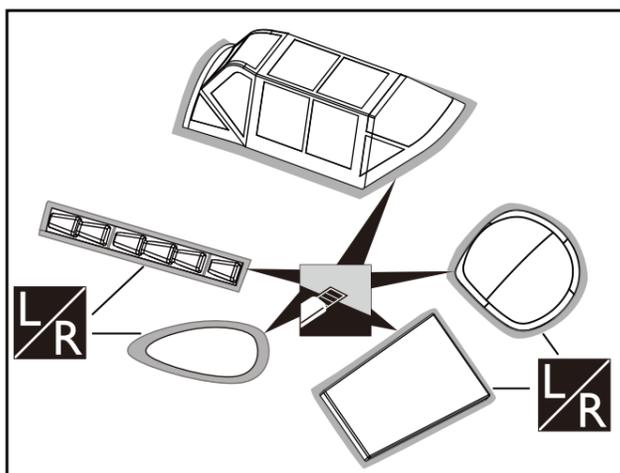
73 Assemble the cockpit to the fuselage and drill holes through the ply and the wooden block in the fuselage and the cockpit, then set blind nuts to the holes in the wooden block.



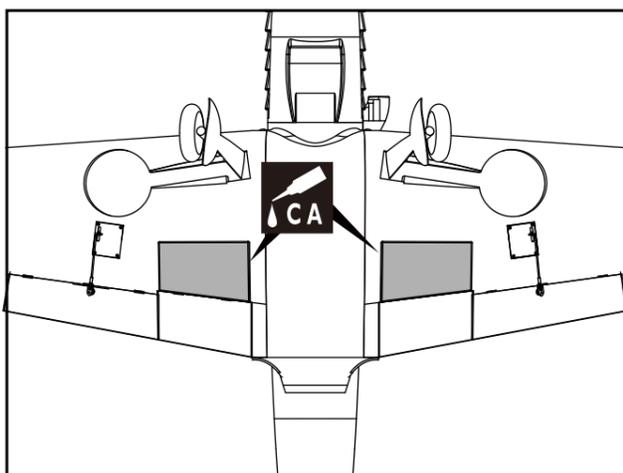
76 Glue the exhaust to the fuselage as below.



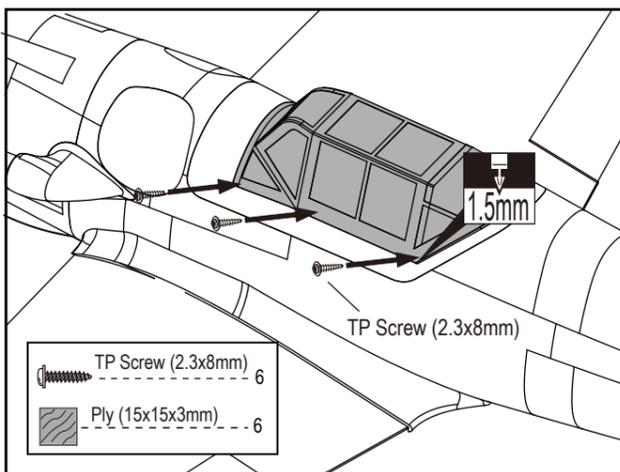
74 Cut away the surplus parts of canopy and PVC parts carefully along the shade line.



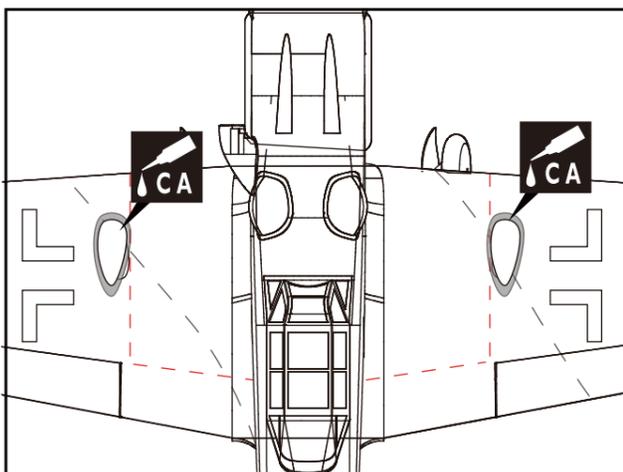
77 Epoxy the PVC part to the appropriate position in wing carefully as below.



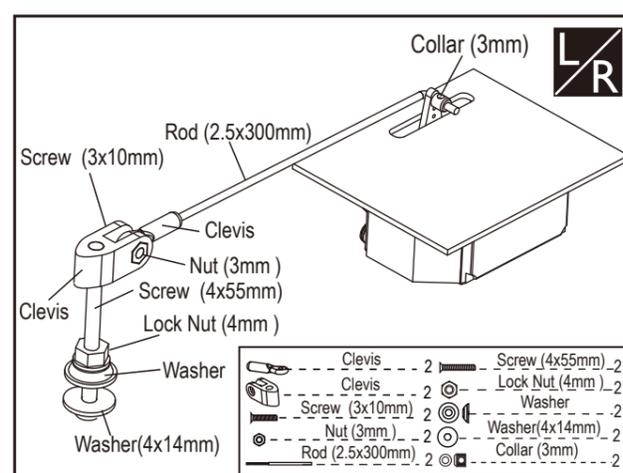
75 Epoxy plies under the canopy and assemble the canopy to fuselage with screw.



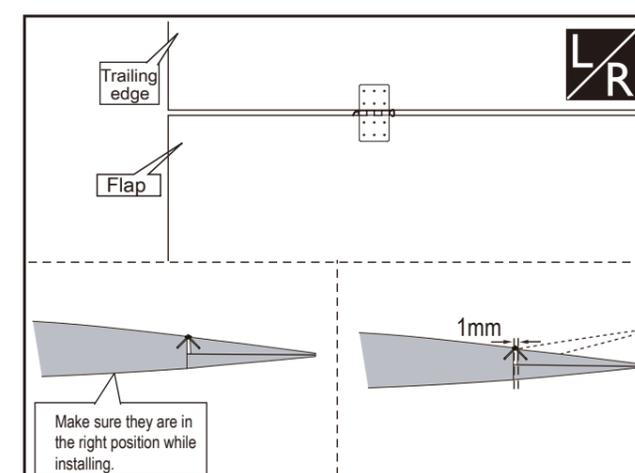
78 Epoxy the PVC part to the appropriate position in wing carefully as below.



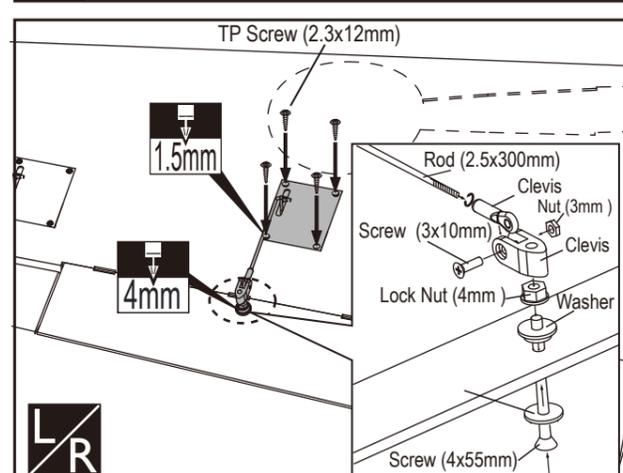
11 Install the nylon control horn and connect the linkage.



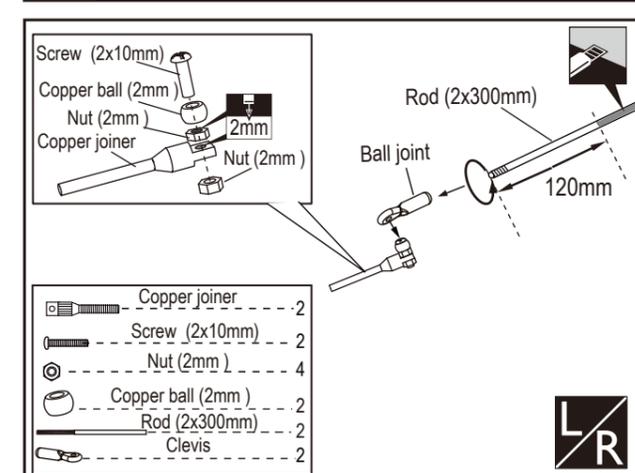
14 Keep some space about 1mm width between trailing edge and flap.



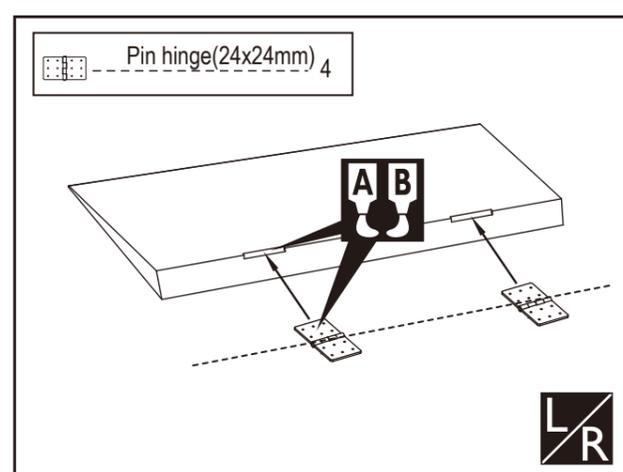
12 Secure the servo. Install the nylon control horn and connect the linkage.



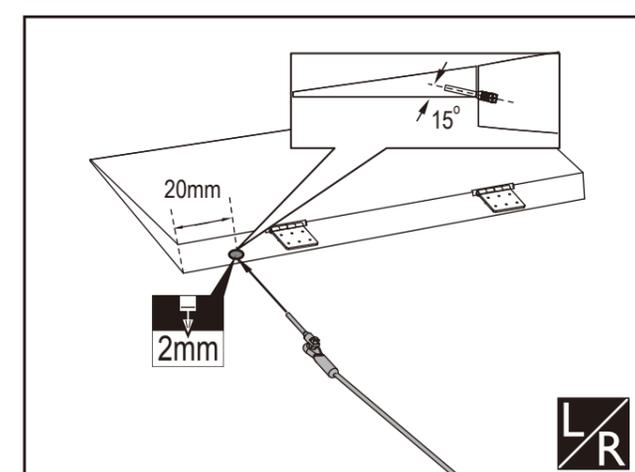
15 Assemble the copper joiner and link it to the rod as illustration.



13 Apply instant type AB glue to flap and pin hinges.



16 Drill a hole to appropriate position in the flap and epoxy the copper joiner in it as illustration.



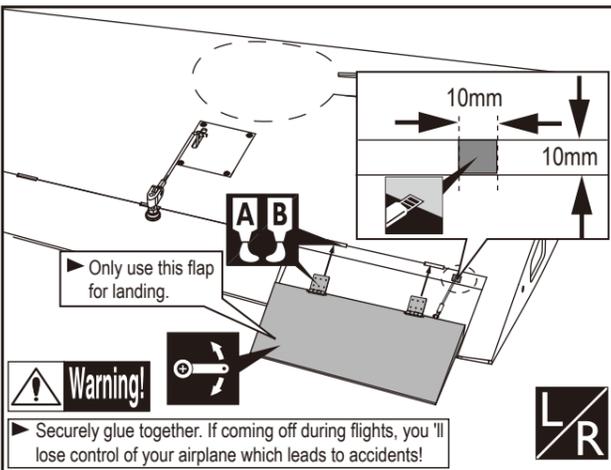
Apply epoxy glue.
 Assemble left and right sides the same way.
 Pay close attention here!
 Do not overlook this symbol!

Apply instant glue (CA glue, super glue).
 Ensure smooth non-binding movement while assembling.
 Cut off shaded portion.

Apply epoxy glue.
 Assemble left and right sides the same way.
 Pay close attention here!
 Do not overlook this symbol!

Apply instant glue (CA glue, super glue).
 Ensure smooth non-binding movement while assembling.
 Cut off shaded portion.

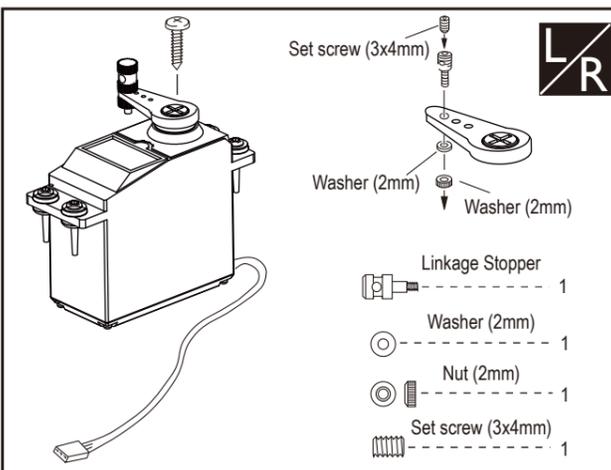
17 Drill a hole to relevant position in the mid wing and epoxy the flap to the mid wing.



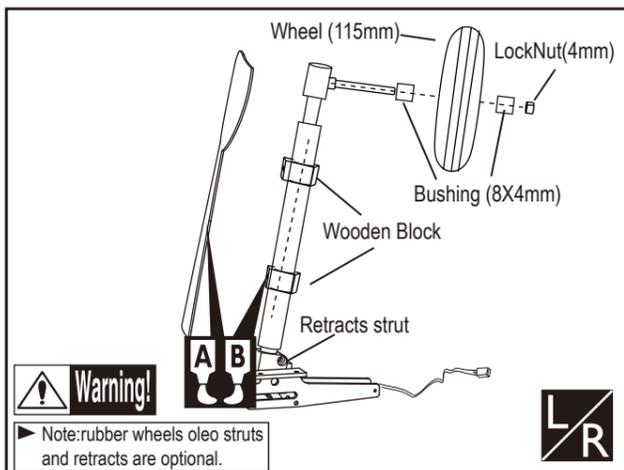
Accessory list for the coming installation steps.

- Main wing joiner (25x750mm) --- 1
- Screw (6x50mm) --- 2
- Wood dowel (6x30mm) --- 4
- Rib template (2mm ply) --- 1
- Wooden Block (Not included) --- 2
- Wooden Block (Not included) --- 2
- Wheel (115mm) (Not included) --- 2
- Bushing (8x4mm) (Not included) --- 2
- TP Screw (3x20mm) (Not included) --- 8
- Nut (4mm) (Not included) --- 2

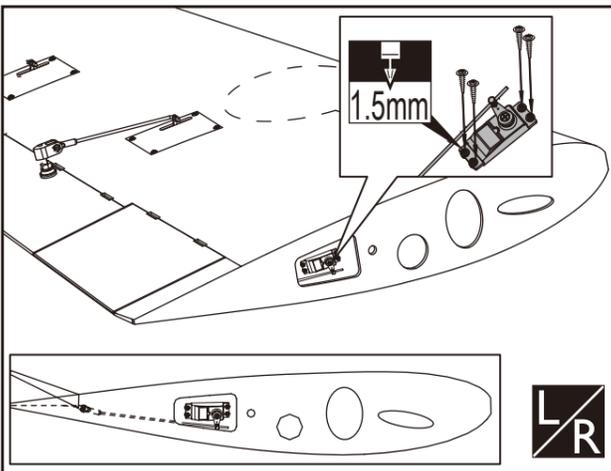
18 Install the servo and assemble it to the mid wing.



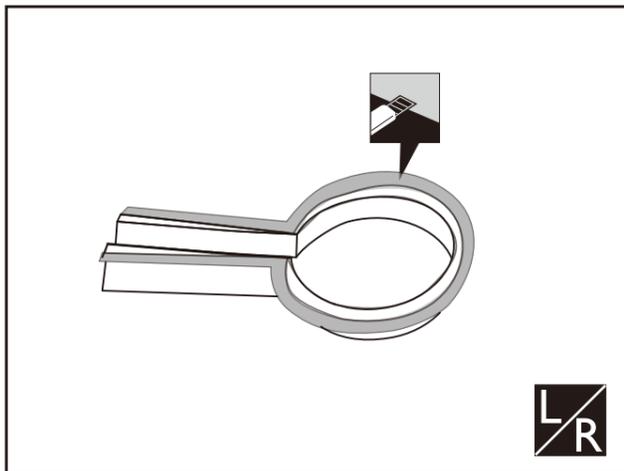
20 Mount the gear door and the wheel to the retract.



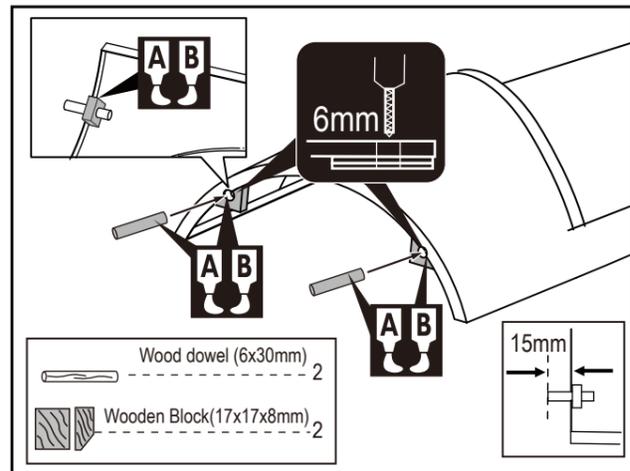
19 Link the rod to the servo in the mid wing.



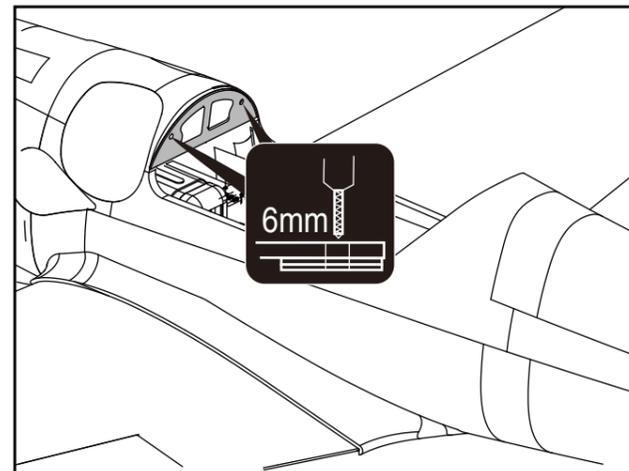
21 Cut off the surplus parts from the wheel wells along the shaded line carefully.



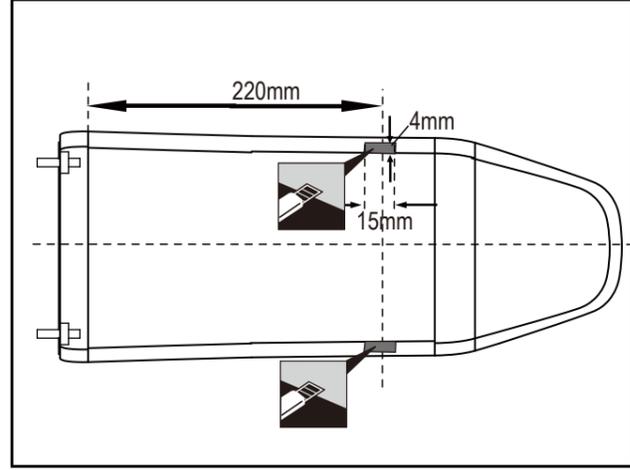
67 Epoxy wooden block to the relevant position behind the marked position and drill holes through the marked point and epoxy the wooden dowel in them.



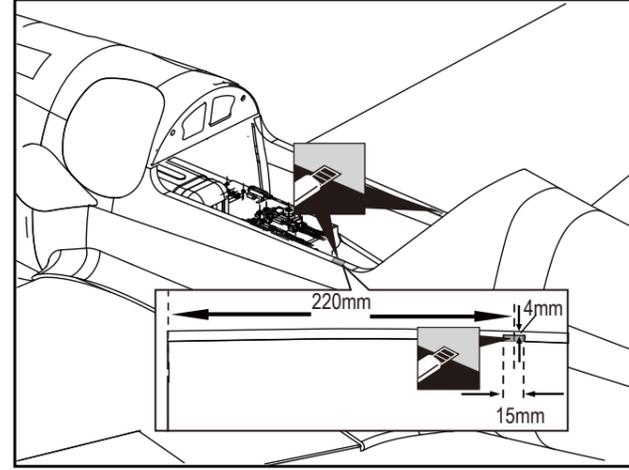
70 According to the location wooden block drill holes in the fuselage.



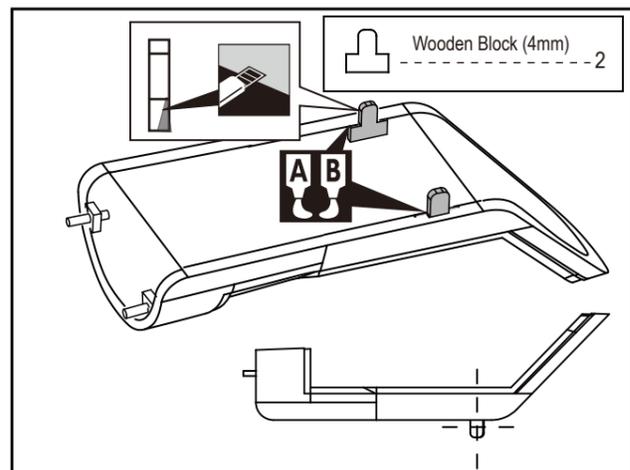
68 Open breaches to appropriate position in the cockpit as illustration.



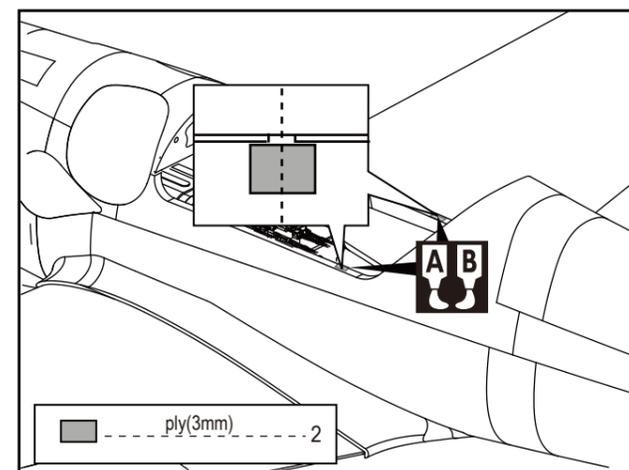
71 Trim breaches to relevant position in the fuselage for assembling the cockpit.



69 Epoxy the wooden block to the breaches.



72 Epoxy plies to relevant position below the breaches in the fuselage.



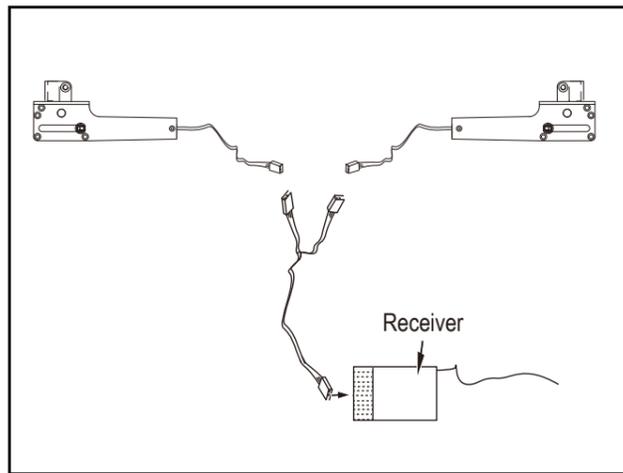
AB Apply epoxy glue. **LR** Assemble left and right sides the same way. **Hand icon** Pay close attention here! **Warning!** Do not overlook this symbol!

CA Apply instant glue (CA glue, super glue). **Arrow icon** Ensure smooth non-binding movement while assembling. **Scissors icon** Cut off shaded portion.

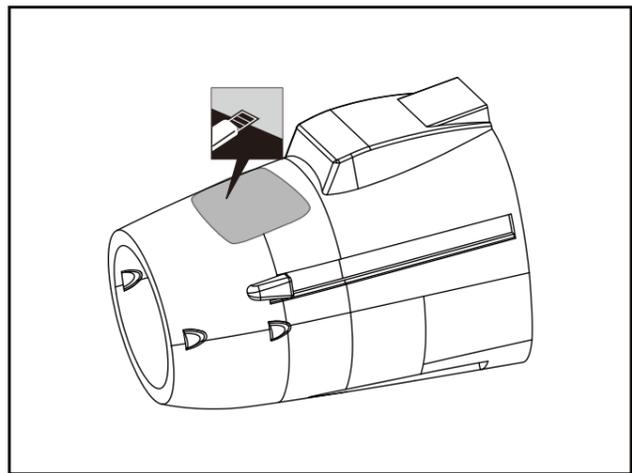
AB Apply epoxy glue. **LR** Assemble left and right sides the same way. **Hand icon** Pay close attention here! **Warning!** Do not overlook this symbol!

CA Apply instant glue (CA glue, super glue). **Arrow icon** Ensure smooth non-binding movement while assembling. **Scissors icon** Cut off shaded portion.

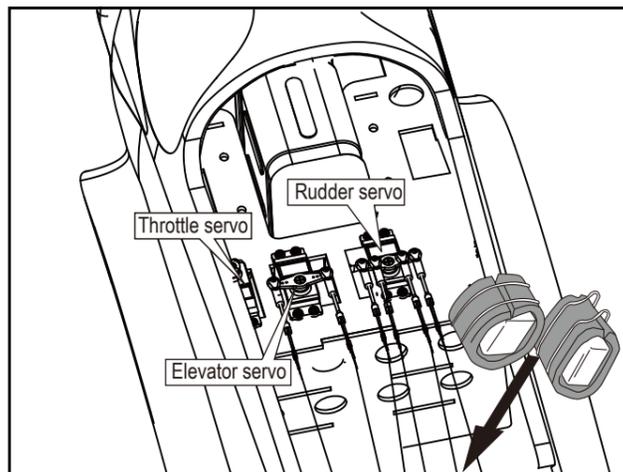
62 Connect the electric retract & receiver as illustration below.



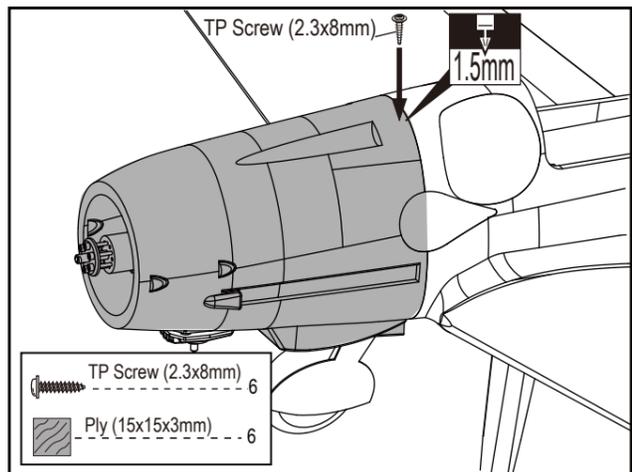
64 Trim the relevant position on the cowling for assembling the engine.



63 The servos installation finished sketch map. Assemble the receiver and the battery to appropriate in the fuselage.



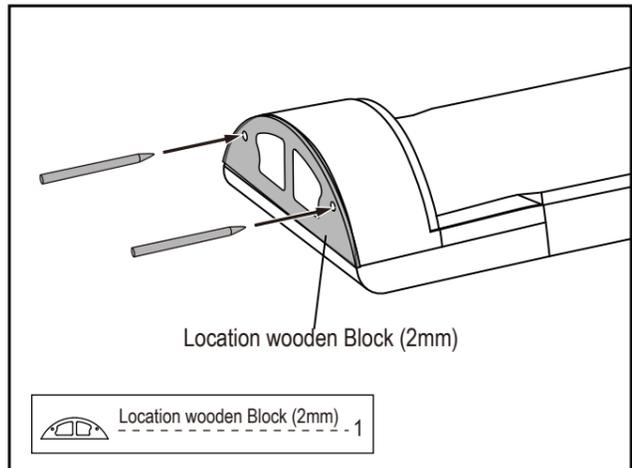
65 Epoxy the plies under the cowling in fuselage and assemble the cowling to fuselage with TP screw.



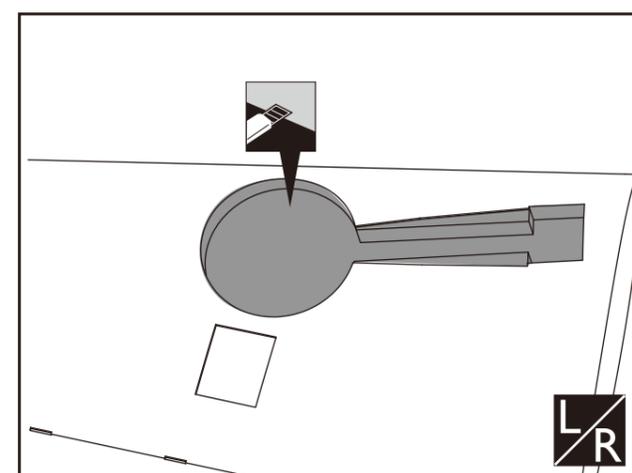
! Accessory list for the coming installation steps.

Canopy	1	Ply (17x17x8mm)	4
PVC	2	Plastic tube(5x50mm)	2
PVC	2	ply(3mm)	2
Pvc part	2	Wooden Block (9mm)	2
TP Screw (2.3x8mm)	2	Location wooden Block (2mm)	2
Ply(15x15x3mm)	12	Wood dowel (6x30mm)	1
Screw (3x15mm)	12	Drop tank	1
Washer (3x6mm)	2	PVC	1
Blind Nut (3mm)	2		

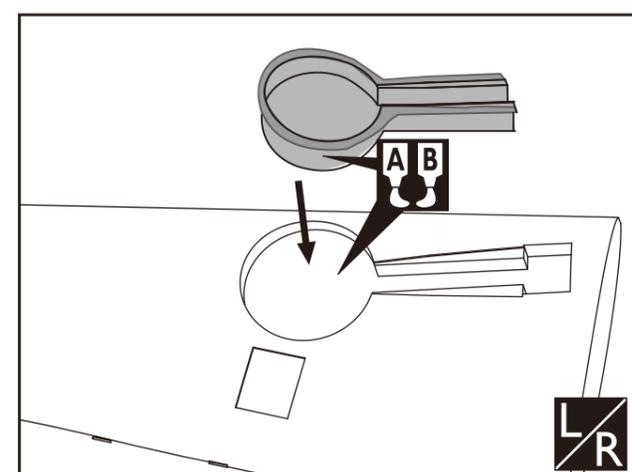
66 According to the location wooden block and mark in the cockpit through the holes in the location wooden block.



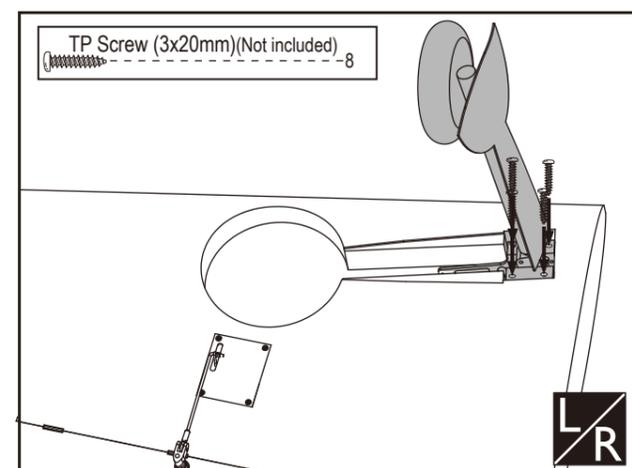
22 Trim the covering carefully from the relevant position in the wing for assembling the wheel wells.



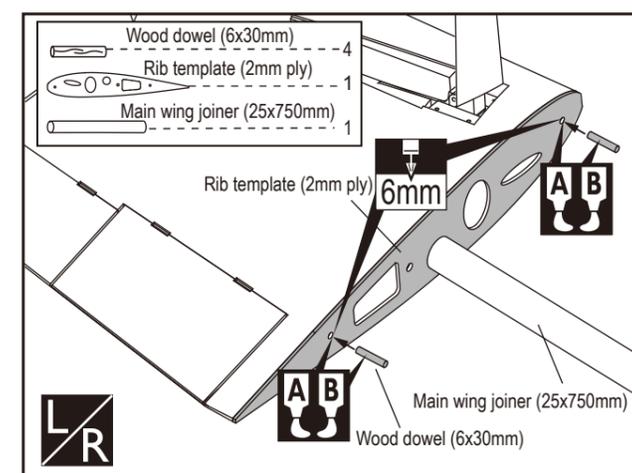
23 Epoxy the wheel wells to the wings.



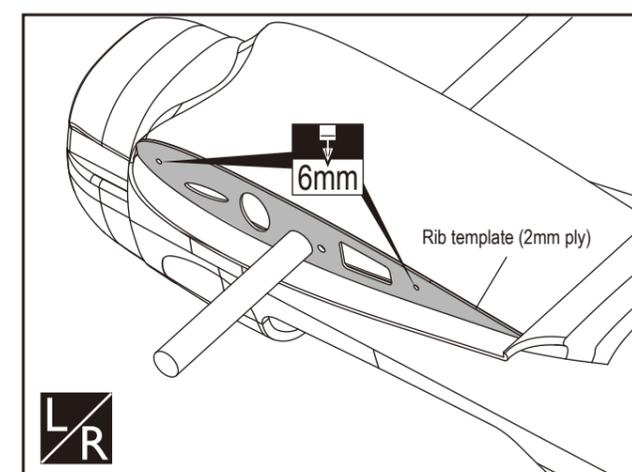
24 Assemble the retract to appropriate position in the wing.



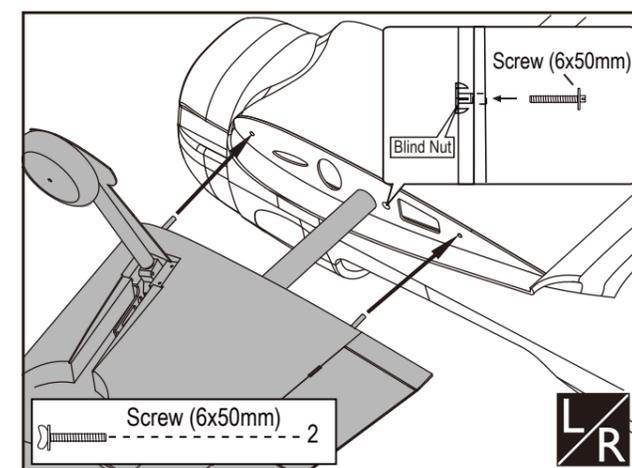
25 According to the rib template drill holes in one wing and epoxy wood dowel in them.



26 According to the rib template drill holes in the fuselage.



27 Assemble the wings to the fuselage steadily. Reinforce the connection between the fuselage and the wings by the screws as illustration.



AB Apply epoxy glue. **LR** Assemble left and right sides the same way. **!** Pay close attention here! **Warning!** Do not overlook this symbol!

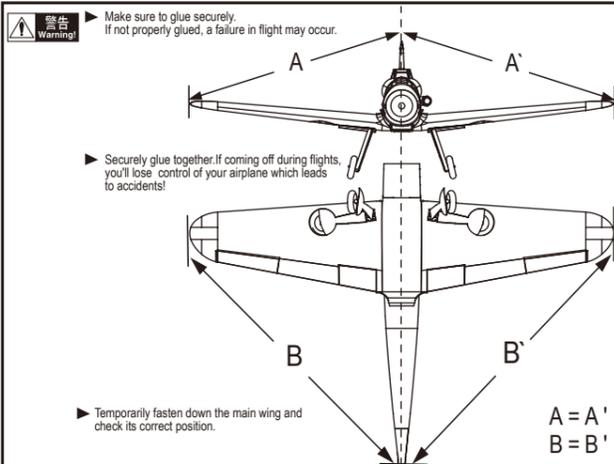
CA Apply instant glue (CA glue, super glue). **→** Ensure smooth non-binding movement while assembling. **✂** Cut off shaded portion.

AB Apply epoxy glue. **LR** Assemble left and right sides the same way. **!** Pay close attention here! **Warning!** Do not overlook this symbol!

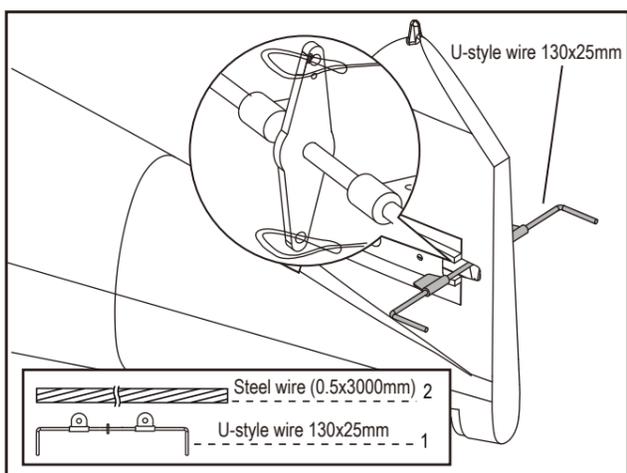
CA Apply instant glue (CA glue, super glue). **→** Ensure smooth non-binding movement while assembling. **✂** Cut off shaded portion.

28

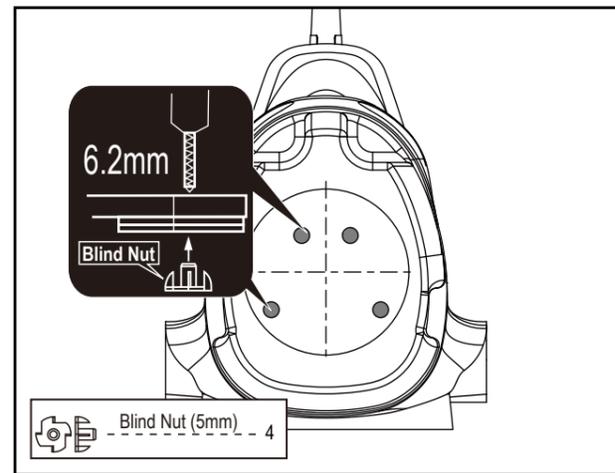
Assemble the wings.

**30**

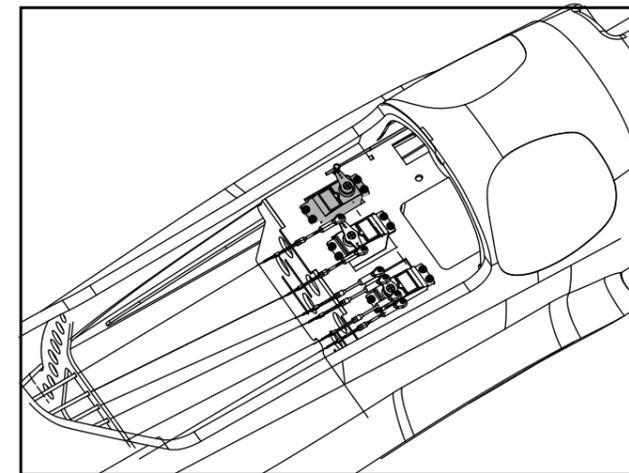
Set the U-style wire through the enlarged hole as below.

**56**

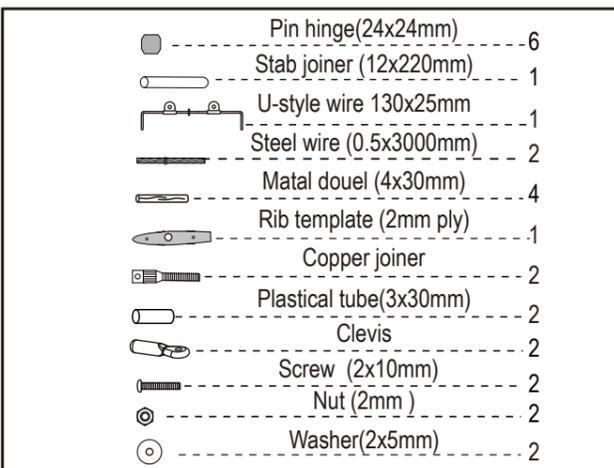
Drill four holes at the diameters as show for engine mount.

**59**

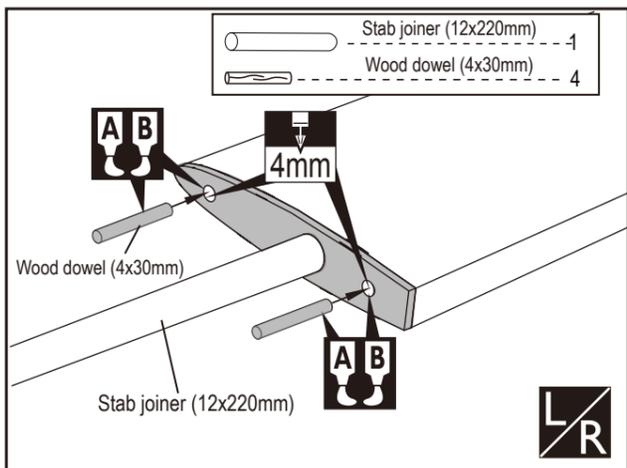
Assemble the throttle servo in the fuselage.



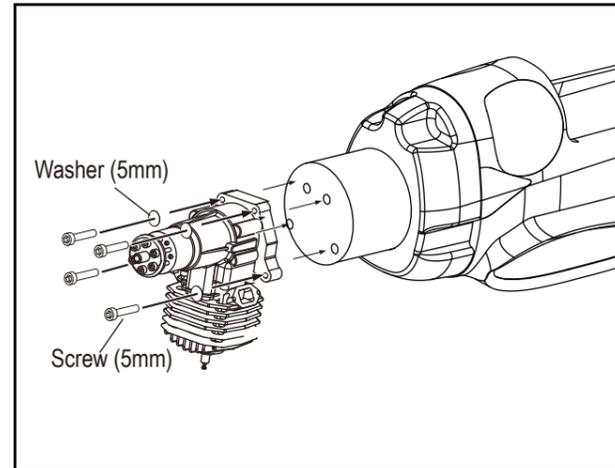
Accessory list for the coming installation steps.

**31**

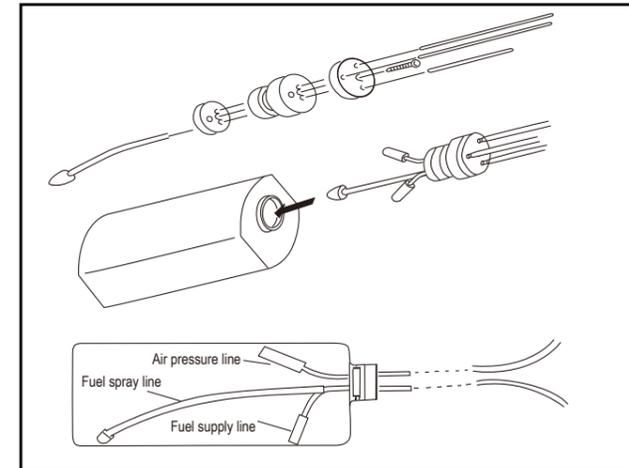
Drill two holes at the stabilizer root base on rib template and epoxy the wood dowel in them.

**57**

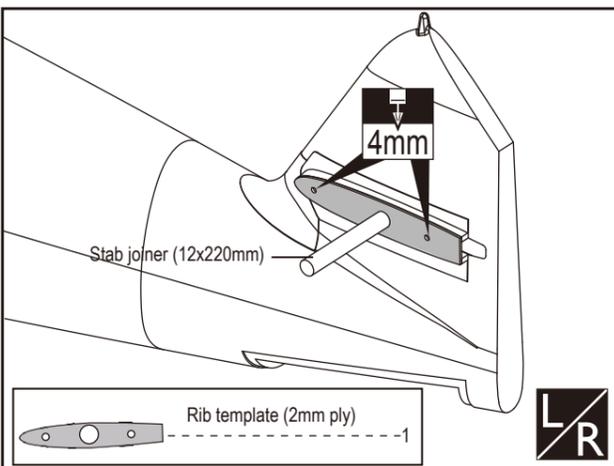
Assemble the engine.

**60**

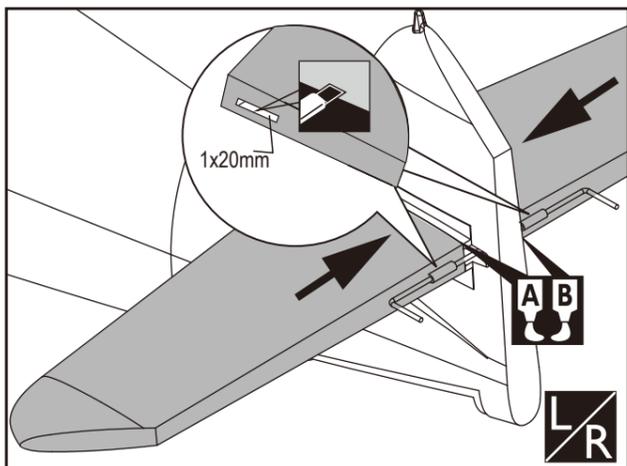
Assembly of the fuel tank.

**29**

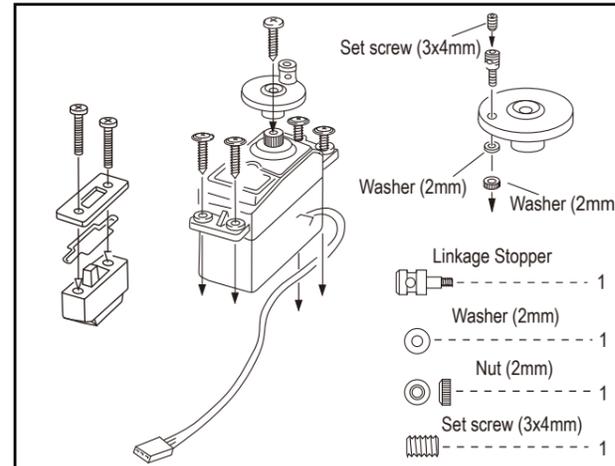
A cording to thr rib template drill holes to the tail of fuselage as below.

**32**

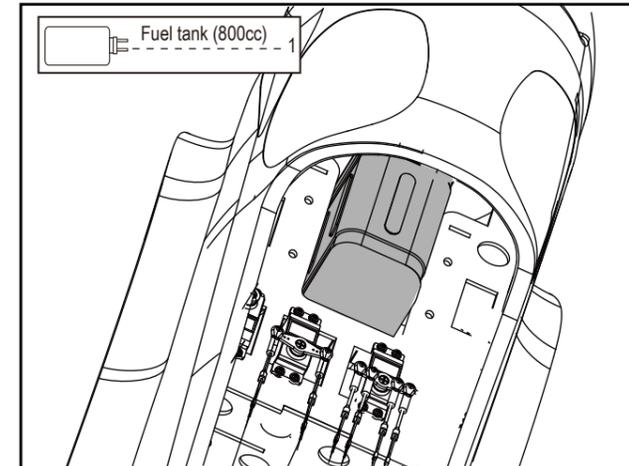
Drill holes to appropriate position in the stabilizer and epoxy it to the fuselage as below.

**58**

Assemble the servos and switch.

**61**

Mount the fuel tank to the fuselage.



Apply epoxy glue.

Assemble left and right sides the same way.

Pay close attention here!

Do not overlook this symbol!

Apply instant glue (CA glue, super glue).

Ensure smooth non-binding movement while assembling.

Cut off shaded portion.



Apply epoxy glue.

Assemble left and right sides the same way.

Pay close attention here!

Do not overlook this symbol!

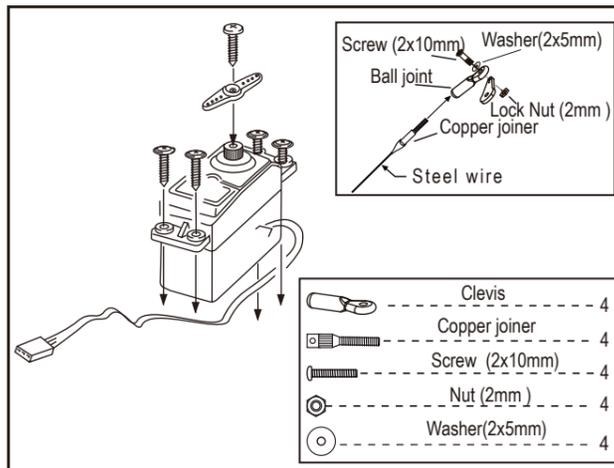
Apply instant glue (CA glue, super glue).

Ensure smooth non-binding movement while assembling.

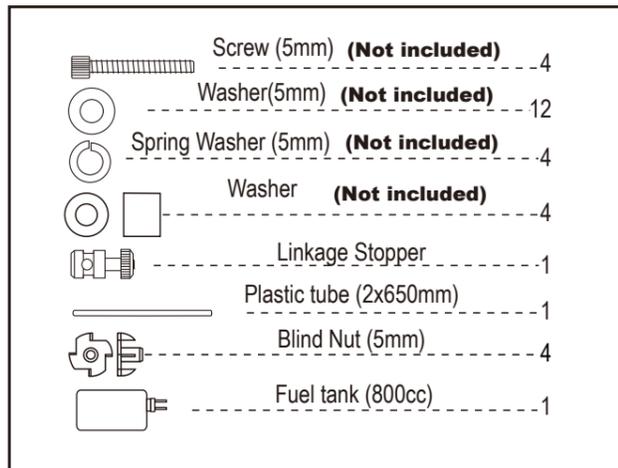
Cut off shaded portion.



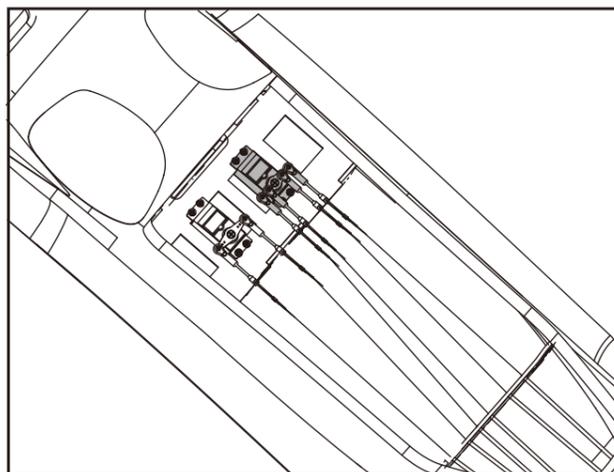
50 Install the servo.



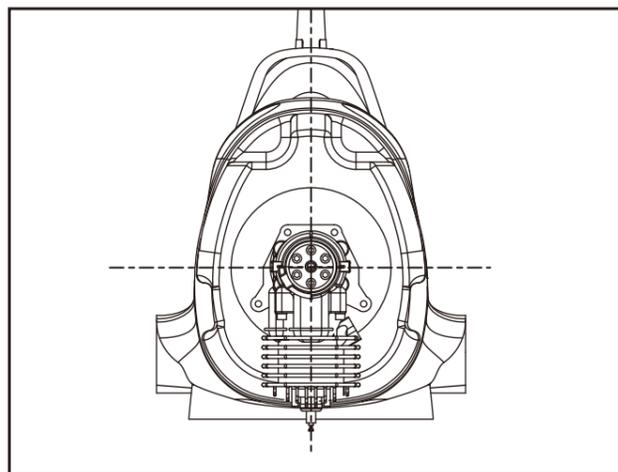
Accessory list for the coming installation steps.



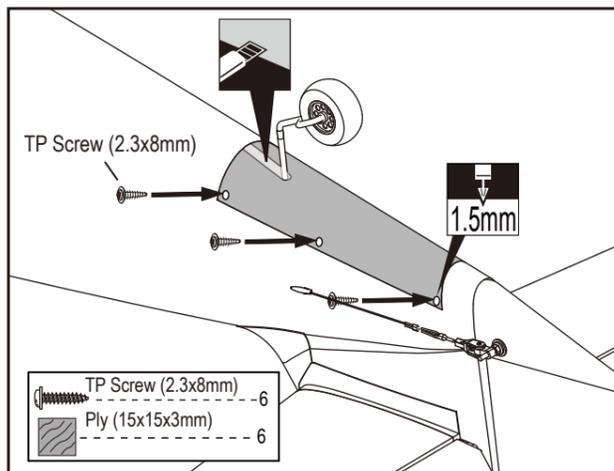
51 Assemble the servos for the rudder and tail wheel to appropriate position in the fuselage.



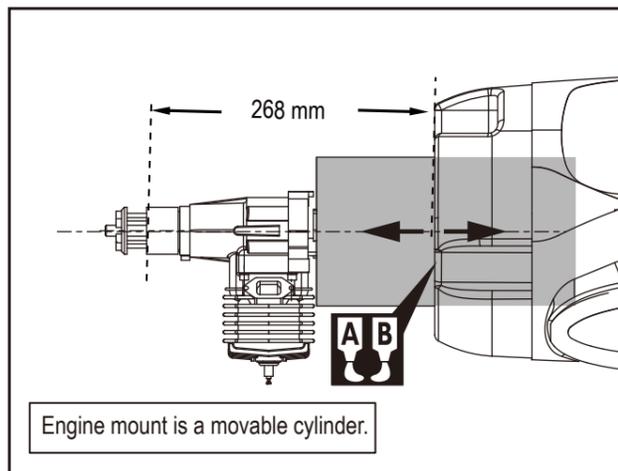
53 The front view when the 50cc engine install completion.



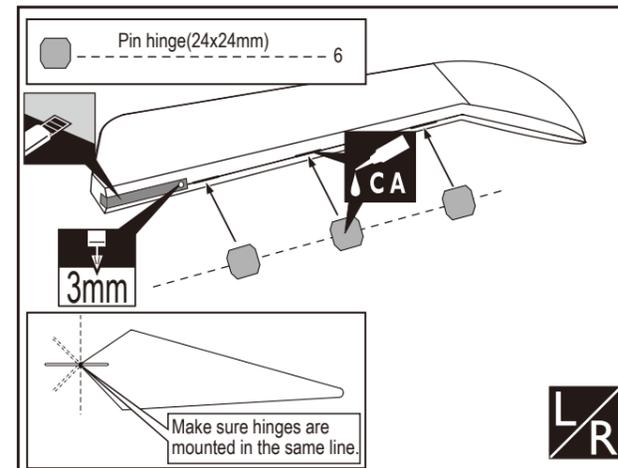
52 Trim the tail wheel cover and assemble it to fuselage with screw.



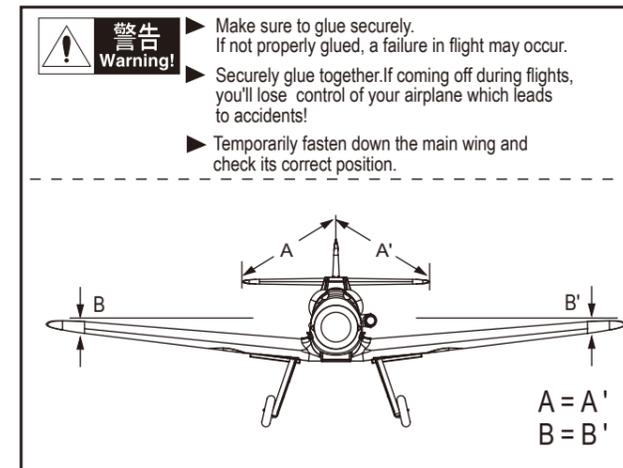
54 The side view when the engine install completion, customers can adjust the engine to a appropriate position by move the engine mount.



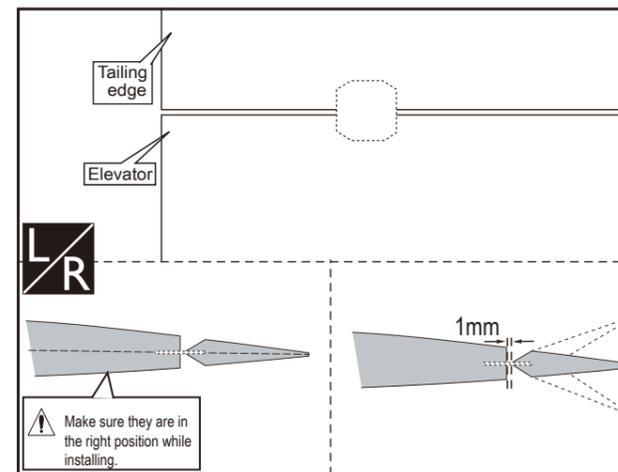
33 Apply instant type CA glue to elevator and pin hinge.



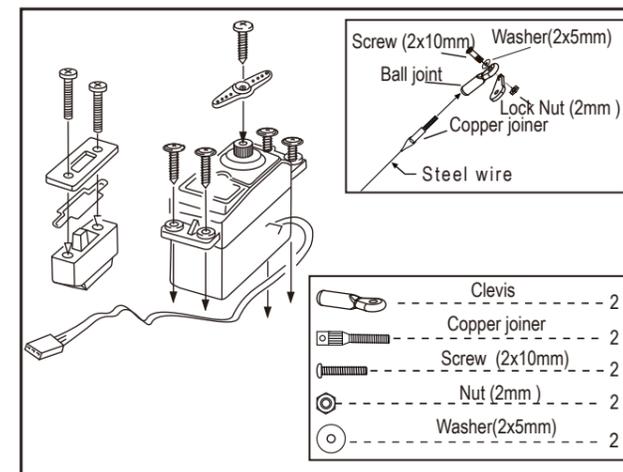
36 Assembly of the stabilizer.



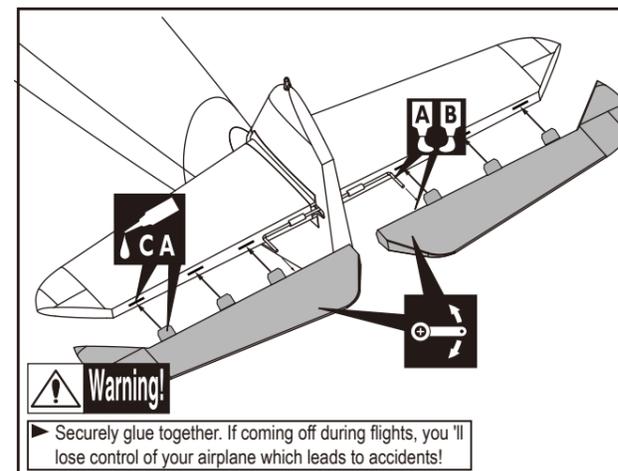
34 Keep some space about 1mm width between elevator and tailing edge.



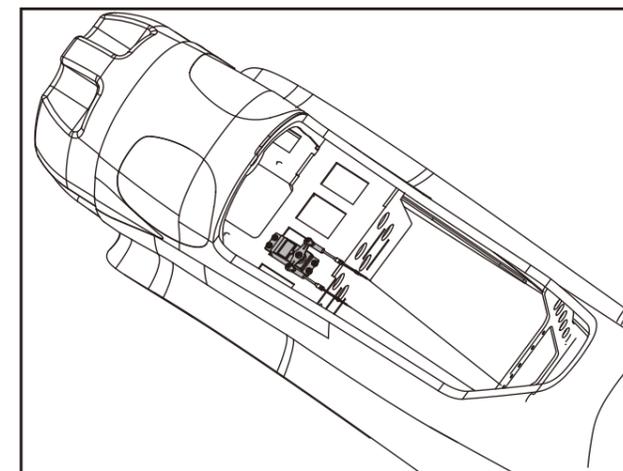
37 Install the servo.



35 Glue the elevator to the stabilizer by CA and epoxy.



38 Assemble the elevator sever to appropriate position in the fuselage.



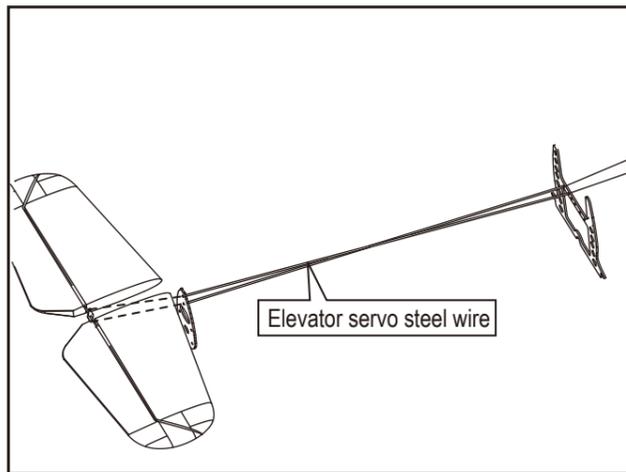
AB Apply epoxy glue. **LR** Assemble left and right sides the same way. **Hand icon** Pay close attention here! **Warning icon** Do not overlook this symbol!

CA Apply instant glue (CA glue, super glue). **Hand icon** Ensure smooth non-binding movement while assembling. **Hand icon** Cut off shaded portion.

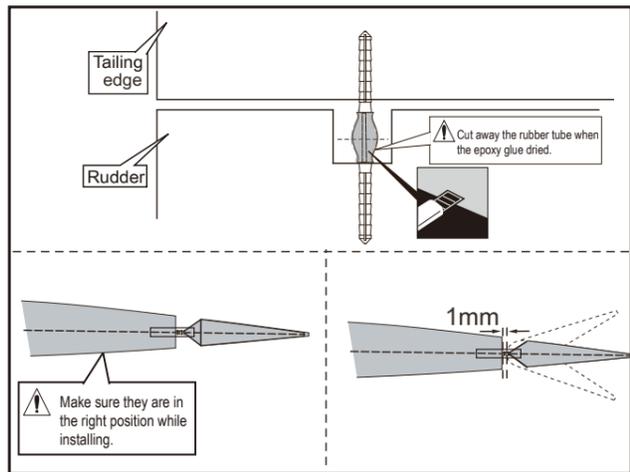
AB Apply epoxy glue. **LR** Assemble left and right sides the same way. **Hand icon** Pay close attention here! **Warning icon** Do not overlook this symbol!

CA Apply instant glue (CA glue, super glue). **Hand icon** Ensure smooth non-binding movement while assembling. **Hand icon** Cut off shaded portion.

39 Connect the elevator and the servo via the steel wire.



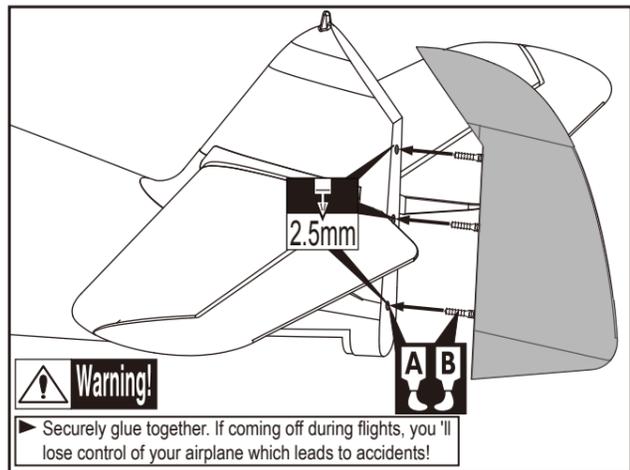
41 Epoxy the fibreglass tubes to appropriate position as below and leave some space with width of 1mm between tailing edge and rudder.



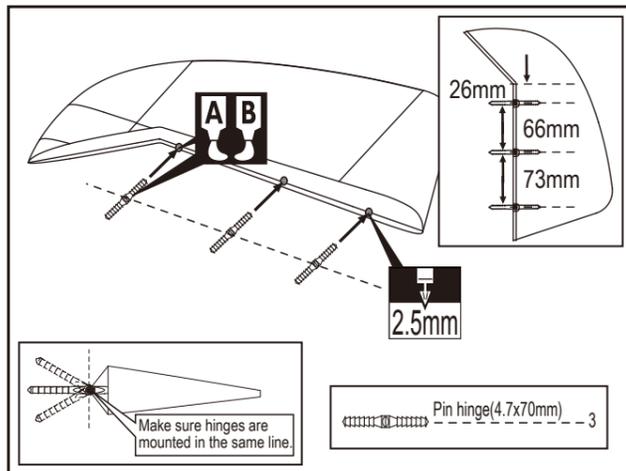
Warning! Accessory list for the coming installation steps.

Clevis	2	Wooden Block (9mm Ply)	1
Washer(3x15mm)	2	Wooden Block (3mm Ply)	1
Lock Nut (3mm)	2	Washer (3x6mm)	4
Screw (3x80mm)	1	TP Screw(3x20mm)	4
Copper joiner	4	TP Screw (2.3x8mm)	6
Plastical tube(3x50mm)	4	Ply (15x15x3mm)	6
Clevis	4	Pin hinge(4.7x70mm)	3
Screw (2x10mm)	4	Steel wire (0.5x3000mm)	4
Nut (2mm)	4	Wheel (45mm)	1
Washer(2x5mm)	4		

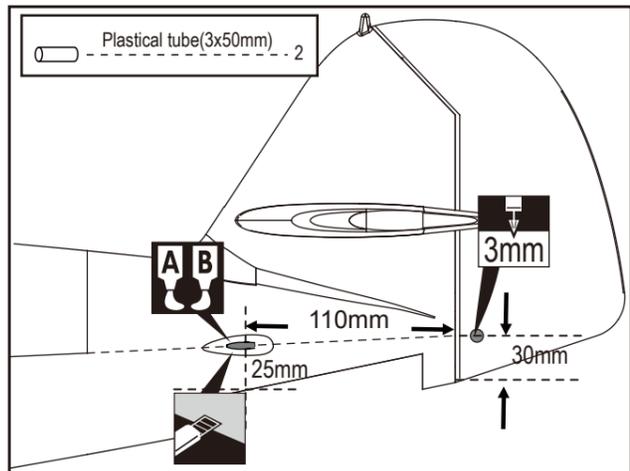
42 Drill holes to the relevant position in the tailing edge and epoxy the rudder to them.



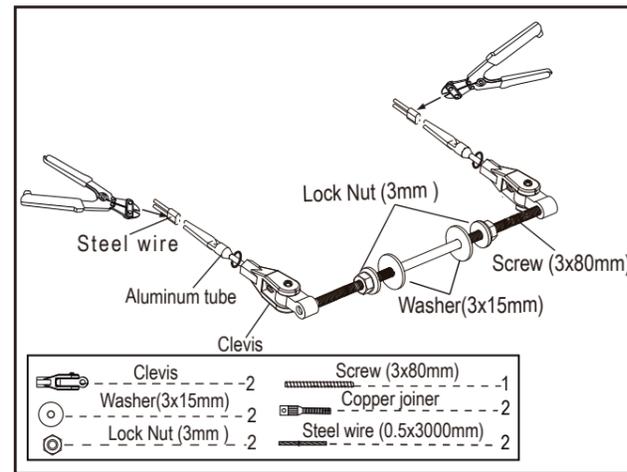
40 Drill holes to appropriate position in the rudder and epoxy the ping hinges in them



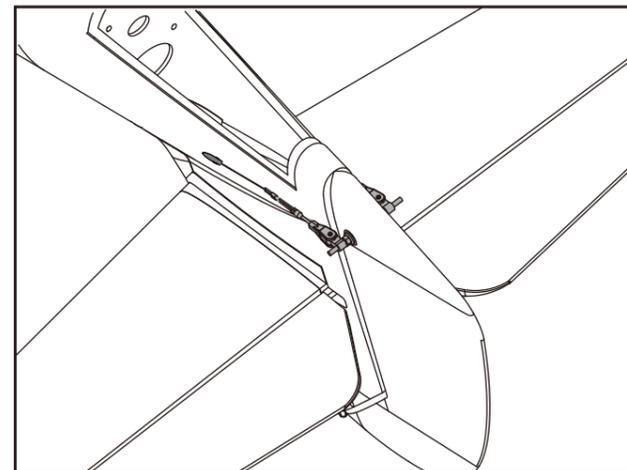
43 Drill a hole to the appropriate position through the rudder as illustration.



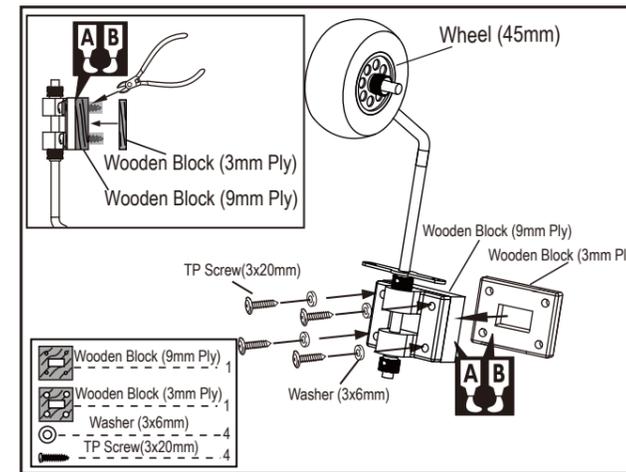
44 The sketch map after the rudder shaft assemble finished.



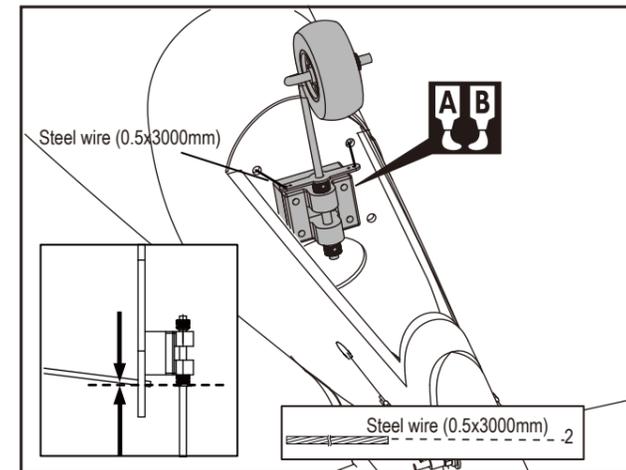
45 The sketch map of the linkage for the rudder and the tail wheel.



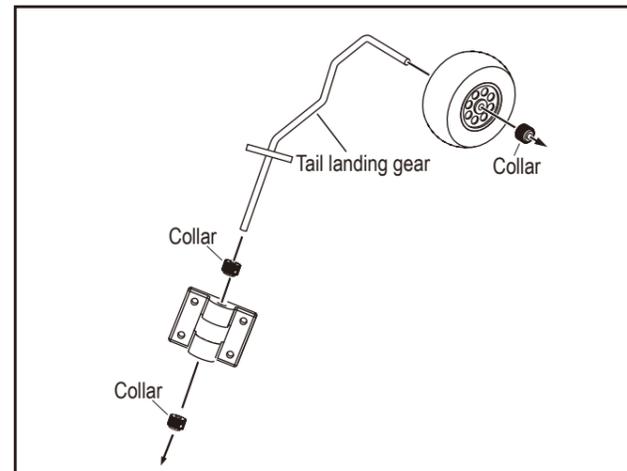
47 Assemble the wheel mount to the thick wooden block with screw, cut the surplus parts and epoxy the thinner wooden block to it as illustration.



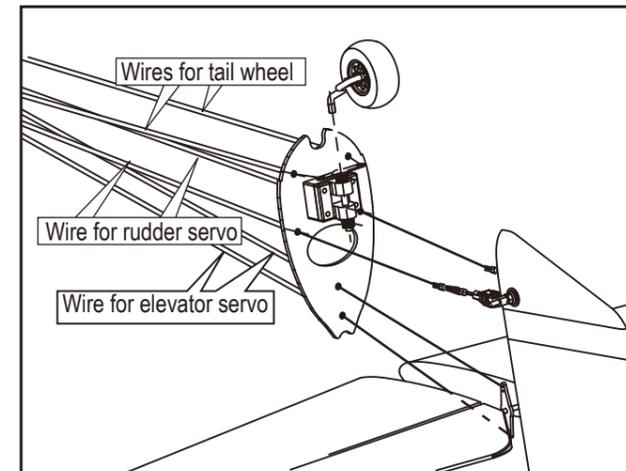
48 Epoxy the whole wheel mount set to the form in the fuselage and be carefule don't let the arm touch the fuselage when it works



46 Assemble the tail landing gear to the wheel steeling mounts as below.



49 The scatch map of the servo wires position inside the fuselage.



AB Apply epoxy glue. **LR** Assemble left and right sides the same way. **Hand icon** Pay close attention here! **Warning!** Do not overlook this symbol!

CA Apply instant glue (CA glue, super glue). **Arrow icon** Ensure smooth non-binding movement while assembling. **Scissors icon** Cut off shaded portion.

AB Apply epoxy glue. **LR** Assemble left and right sides the same way. **Hand icon** Pay close attention here! **Warning!** Do not overlook this symbol!

CA Apply instant glue (CA glue, super glue). **Arrow icon** Ensure smooth non-binding movement while assembling. **Scissors icon** Cut off shaded portion.