

Futaba

SkyLeaf ***BP***

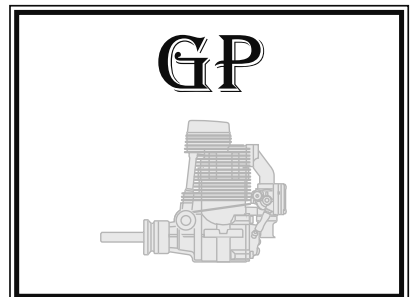
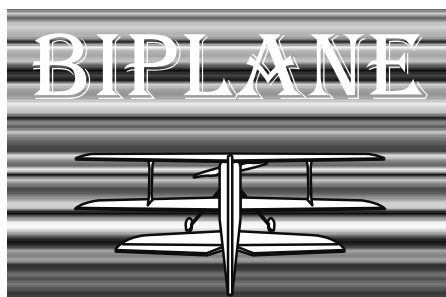
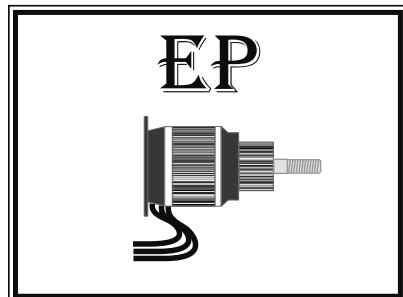
R/C model Aerobatic Biplane

EP: 55 in. motor / GP: Four-Stroke 70-81



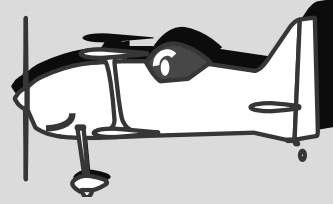
For expert flyers

Instruction Manual



Thank you for purchasing Futaba Sky Leaf R/C airplane.

To maximize your enjoyment, and to ensure proper flying, please read through this assembly instruction manual.



This manual has been combined with the electric motor kit (EP) and the engine (GP) kit. There are some unnecessary parts, so please refer to it according to your purpose.

Futaba guarantees this kit to be free from defects in both material and workmanship at date of purchase. This warranty does not cover any component parts damaged by use or modification. In no case shall Futaba liability exceed the original cost of the purchased kit. Further, Futaba reserves the right to change or modify this warranty without notice.

In that Futaba has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability. If the buyer is not prepared to accept the liability associated with the product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

Precautions

Application and modification precautions.

- 1. This product is only designed for use with radio control models. Use of the product described in this instruction manual is limited to radio control models.*
- 2. Modification, adjustment, and parts replacement:
Futaba is not responsible for unauthorized modification, adjustment, or replacement of parts on this product.*
- 3. Your Sky Leaf should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its performance capabilities, this airplane, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.*
- 4. You must assemble the model according to the instructions. Do not alter or modify the model, as doing so may result in an unsafe or unflyable model. In a few cases the instructions may differ slightly from the figures. In those instances the written instructions should be considered as correct.*
- 5. You must take time to build straight, true and strong.*
- 6. You must use an R/C radio system that is in good condition, a correctly sized motor/engine, and other components as specified in this instruction manual. All components must be correctly installed so that the model operates correctly on the ground and in the air. You must check the operation of the model and all components before every flight.*
- 7. If you are not an experienced pilot or have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your R/C club for your first flights. If you're not a member of a club, your local hobby shop has information about clubs in your area whose membership includes experienced pilots.*
- 8. While this kit has been flight tested to exceed normal use, if the plane will be used for extremely high stress flying, such as racing, or if a motor larger than one in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.*

- No part of this manual may be reproduced in any form without prior permission.
- The contents of this manual are subject to change without prior notice.
- Futaba is not responsible for the use of this product by the customer.
- Company and product names in this manual are trademarks or registered trademarks of the respective company.

For safe use

Please observe the following precautions to ensure safe use of this product at all times.

Meaning of Special Markings:

The parts of this manual indicated by the following marks require special attention from the standpoint of safety.

- ⚠ DANGER** - Procedures which may lead to dangerous conditions and cause death/serious injury if not carried out properly.
- ⚠ WARNING** - Procedures which may lead to a dangerous condition or cause death or serious injury to the user if not carried out properly, or procedures where the probability of superficial injury or physical damage is high.
- ⚠ CAUTION** - Procedures where the possibility of serious injury to the user is small, but there is a danger of injury, or physical damage, if not carried out properly.

🚫 = Prohibited ⓘ = Mandatory

WARNING: Always keep R/C components away from small children.

Assembly precautions

⚠ DANGER

ⓘ We, as the manufacturer, provide you with a good quality, thoroughly tested kit and instructions, but ultimately the quality and flyability of your finished model depends on how you build it; therefore, we cannot in any way guarantee the performance of your completed airplane, and no representations are expressed or implied as to the performance or safety of your completed airplane.

ⓘ Take your time and follow the instructions to end up with a well-built model that is straight and true.

ⓘ First-time builders should seek the advice of experienced modellers before beginning assembly and if they do not fully understand any part of the construction.

ⓘ Installing a more powerful motor/engine than specified or flying the hi-speed aggressively may lead to serious damage and accidents.

ⓘ Make the assembly correct with this manual.

■ If the assembly manual is not followed, in flight failure or danger to model and property could occur.

🚫 Do not fly before confirming the correct location of the C.G.

■ If the CG is incorrect, the model will be difficult to fly and could lead to a crash.

ⓘ Since the direction of the servos of an airplane can be easily mistaken, be very careful.

■ Double check that all directions are correct.

🚫 Do not use an overpowered motor/engine or too large of propeller on this airframe.

■ When not equipped properly, the performance might not be as described by the manufacturer.

ⓘ Make sure that all surfaces are level before flying.

■ If the surfaces are not level, the airplane will not fly straight and will be hard to control.

ⓘ Assemble this airplane only in places out of children's reach.

■ A small child may accidentally operate the system. This could cause a dangerous situation and injuries. Each part can be very dangerous when mishandled and cause chemical damage.

🚫 Use glues and adhesives that are needed for assembly in a well ventilated area.

■ Poor ventilation could lead to toxic fumes being inhaled.

Storage and disposal precautions

⚠ CAUTION

🚫 Do not store devices in the following places:

- Where it is extremely hot (30°C [86F] or higher) or cold (0°C [32F] or lower)
- Where the equipment will be exposed to direct sunlight
- Where the humidity is high
- Where vibration is prevalent
- Where it is very dusty
- Where the device may be exposed to steam and heat

ⓘ When the device will not be used for a long time, remove the battery from the transmitter and aircraft and store them in a dry place where the temperature is between 0 and 30°C [32F and 86F].

■ Leaving batteries inside your model and radio when they are not being used for long periods will result in battery deterioration, liquid leakage and other damage.

Other precautions

⚠ CAUTION

🚫 Do not directly expose model to fuel, oil, exhaust gas, etc.

■ If left in such an environment, the model may be attacked and damaged.

🚫 Do not add any extra devices that are not suggested by the factory on the airplane.

■ If the airplane is changed too much, the manufacture cannot promise correct performance.

ⓘ Join the Academy of Model Aeronautics.

■ The Academy of Model Aeronautics (AMA) provides guidelines and liability protection should the need arise.

ⓘ Always use genuine Futaba products such as transmitter, receiver, servo, etc.

■ Futaba is not responsible for damage sustained by combination with other than Futaba Genuine Parts. Use the parts specified in the instruction manual and catalog.

Flying precautions

⚠ DANGER

❗ Take enough safety precautions prior to operating this model. You are responsible for this model's assembly and safe operation.

❗ First-time fliers should seek advice for hints in pre-flight adjustments and assembly from experienced fliers. Be reminded that flying a badly assembled or badly adjusted airplane is very dangerous.

❗ In the beginning, first-time fliers should always be assisted by an experienced flier and never fly alone.

❗ Before flying your airplane, ensure the airfield is spacious enough. Always fly it outdoors in safe areas with no debris or obstacles.

❗ Ensure the propeller are securely installed.

⊘ Do not fly your airplane on days with strong winds or side winds.

⊘ Do not allow a bystander to get too close to the propeller.

❗ Do not use defective propellers.

⊘ Never grasp the transmitter antenna while flying.

■ The transmitter output may drop drastically.

❗ Always make sure that all transmitter stick movements operate all servos properly in the model prior to flight. Also, make sure that all switches, etc. function properly as well. If there are any difficulties, do not use the system until all inputs are functioning properly.

❗ While operating, never touch the transmitter with, or bring the transmitter near, another transmitter, a cell phone, or other wireless devices.

■ Doing so may cause erroneous operation.

⊘ Do not point the antenna directly toward the aircraft during flight.

■ The antenna is directional and the transmitter output is weakest. (The strength of the radio waves is greatest from the sides of the antenna.)

⊘ Never fly on a rainy day, when the wind is strong, and at night.

■ Water could lead to failure or improper functionality and poor control of the aircraft which could lead to a crash.

⊘ Never turn the power switch on and off during flight or while the motor is running.

■ Operation will become impossible and the aircraft will crash. Even if the power switch is turned on, operation will not begin until transmitter and receiver internal processing is complete.

⊘ Do not fly when you are physically impaired as it could pose a safety hazard to yourself or others.

⊘ Do not fly at the following places:

- Near another radio control flying field.
- Near or above people.
- Near homes, schools, hospitals airports, roads or other places where people congregate.
- Near high voltage lines, high structures, or communication facilities.

❗ When setting the transmitter on the ground during flight preparations, do not stand it upright.

■ The transmitter may tip over, the sticks may move and the propeller may rotate unexpectedly and cause injury.

⊘ Do not touch the motor, motor controller, engine, exhaust silencer, during and immediately after use.

■ These items may become hot during use.

❗ For safety, fly so that the aircraft is visible at all times.

■ Flying behind buildings or other large structures will not only cause you to lose sight of the aircraft, but also degrade the RF link performance and cause loss of control.

❗ From the standpoint of safety, always set the fail safe function.

■ In particular, normally set the throttle channel to idle.

❗ When flying, always return the transmitter setup screen to the Home screen.

■ Erroneous input during flight is extremely dangerous.

❗ Always check the remaining capacity of the transmitter and receiver batteries before each flying session prior to flight.

■ Low battery capacity will cause loss of control and a crash.

❗ Always check operation of each control surface and perform a range test before each flying session.

■ Even one transmitter setting or aircraft abnormality can cause a crash.

❗ Before turning on the transmitter:

1. Always move the transmitter throttle stick position to the minimum (idle) position.
2. Turn on the transmitter first and then the receiver.

❗ When turning off the transmitter's power switch after the motor/engine has stopped (state in which it will not rotate again):

1. Turn off the receiver power switch.
2. Then turn off the transmitter power switch.

■ If the power switch is turned on/off in the opposite order, the propeller may rotate unexpectedly and cause a serious injury.

■ Also always observe the above order when setting the fail safe function.

■ Maximum low throttle: Direction in which the motor runs at the slowest speed or stops.

❗ When adjusting the transmitter, stop the motor/engine, disconnect the motor wiring that allows it to continue operation. When doing so, please exercise extreme caution. Ensure that the aircraft is secured and that it will not come into contact with anything or anyone. Ensure that the motor will not rotate prior to making any adjustments.

■ Unexpected high speed rotation of the motor/engine may cause a serious injury.

⊘ This airframe is not designed to fly at excessively high speeds.

■ The airplane could become damaged.

Battery and charger handling precautions

⚠ DANGER

⊘ Do not recharge a battery that is damaged, deteriorated, leaking electrolyte, or wet.

⊘ Do not allow the charger or battery to become wet.

■ Do not use the charger when it or your hands are wet. Do not use the charger in humid places.

⊘ Do not short circuit the battery.

⊘ Do not repair, deform, modify, or disassemble the battery and/or battery charger.

⊘ Do not drop the battery into a fire or bring it near a fire.

⊘ Do not charge and store the battery in direct sunlight or other hot places.

⊘ Do not charge the battery if it is covered with any object as it may become very hot.

⊘ Do not use the battery in a combustible environment.

■ The gas could ignite and cause an explosion or fire.

⚠ Always charge the battery before each flying session.

■ If the battery goes dead during flight, the aircraft will crash.

■ Charging the battery past the specified value may cause a fire, combustion, rupture, or liquid leakage.

■ Do not charge the battery while riding in a vehicle. Vibration will prevent normal charging.

⊘ When using the Lithium battery, do not connect the charger to the balance charge connector and the power connector at the same time.

■ Doing so could cause a fire, combustion, generation of heat, rupture, or liquid leakage.

⚠ Insert the power cord plug firmly into the receptacle up to its base.

⚠ Always use the charger with the specified power supply voltage.

■ Use the special charger by connecting it to a proper power outlet.

⚠ If the battery liquid should get in your eyes, do not rub your eyes, but immediately wash them with tap water or other clean water and get treated by a doctor.

■ The liquid can cause blindness.

⚠ WARNING

⊘ Do not touch the charger and battery for any length of time during charging.

■ Doing so may result in burns.

⊘ Do not use a charger or battery that has been damaged.

⊘ Do not touch any of the internal components of the charger.

■ Doing so may cause electric shock or a burn.

⊘ If any abnormalities such as smoke or discoloration are noted with either the charger or the battery, remove the battery from the transmitter or charger and disconnect the power cord plug and do not use the charger.

■ Continued use may cause fire, combustion, generation of heat, or rupture.

⊘ Do not subject the batteries to impact.

■ Doing so may cause fire, combustion, generation of heat, rupture, or liquid leakage.

⚠ Use and store the battery and battery charger in a secure location away from children.

■ Not doing so may cause electric shock or injury.

⚠ If the battery leaks liquid or generates an abnormal odor, immediately move it to a safe place for disposal.

■ Not doing so may cause combustion.

⚠ If the battery liquid gets on your skin or clothing, immediately flush the area with tap water or other clean water.

■ Consult a doctor. The liquid can cause skin damage.

⚠ After the specified charging time has elapsed, end charging and disconnect the charger from the receptacle.

⚠ When recycling or disposing of the battery, isolate the terminals by covering them with tape.

■ Short circuit of the terminals may cause combustion, generation of heat or rupture.

⚠ CAUTION

⊘ Do not place heavy objects on top of the battery or charger. Also, do not place the battery or charger in any location where it could fall.

■ Doing so may cause damage or injury.

⊘ Do not store or use the battery and charger where it is dusty or humid.

■ Insert the power cord plug into the receptacle only after eliminating the dust.

⊘ After the aircraft/transmitter has been used for a long time, the battery may become hot. Immediately remove it from the aircraft/transmitter.

■ Not doing so may cause a burn.

⊘ Do not charge the battery in extreme temperatures.

■ Doing so will degrade the battery performance. An ambient temperature of 10°C to 30°C (50F to 86F) is ideal for charging.

⊘ Unplug the charger when not in use.

⊘ Do not bend or pull the cord unreasonably and do not place heavy objects on the cord.

■ The power cord may be damaged and cause combustion, generation of heat, or electric shock.

#1 Required for flight (Purchase separately)



- Transmitter/Receiver (More than 8 channels) (e.g. Futaba 10J, 12K, 14SG, 16SZ, 18SZ, 18MZ)
- Receiver battery (Futaba FR2F900/FR2F1800, etc.)
- Extension code
- Spinner (57 mm)



- Exacto Knife
- Wire cutter
- Needle nose pliers
- Scissors
- Screwdriver
- Hex key
- Drill (2.2mm, 2.4mm, 4mm)
- Tape
- CA glue
- Epoxy Adhesives
- Magic Marker
- Iron
- Hook-and-Loop Tape
- Sandpaper etc.

EP - Motor

- Motor 55 in. class (Futaba FMA-5055, KV525, etc.)
- Motor controller (Futaba MC970A, etc.)
- Lipo Battery (5 cell 3,500 ~ 4,500 mAh)
- Lipo charger
- Propeller (16 × 8 ~ 17 × 8)
- (7 servos) Unnecessary when servo SET

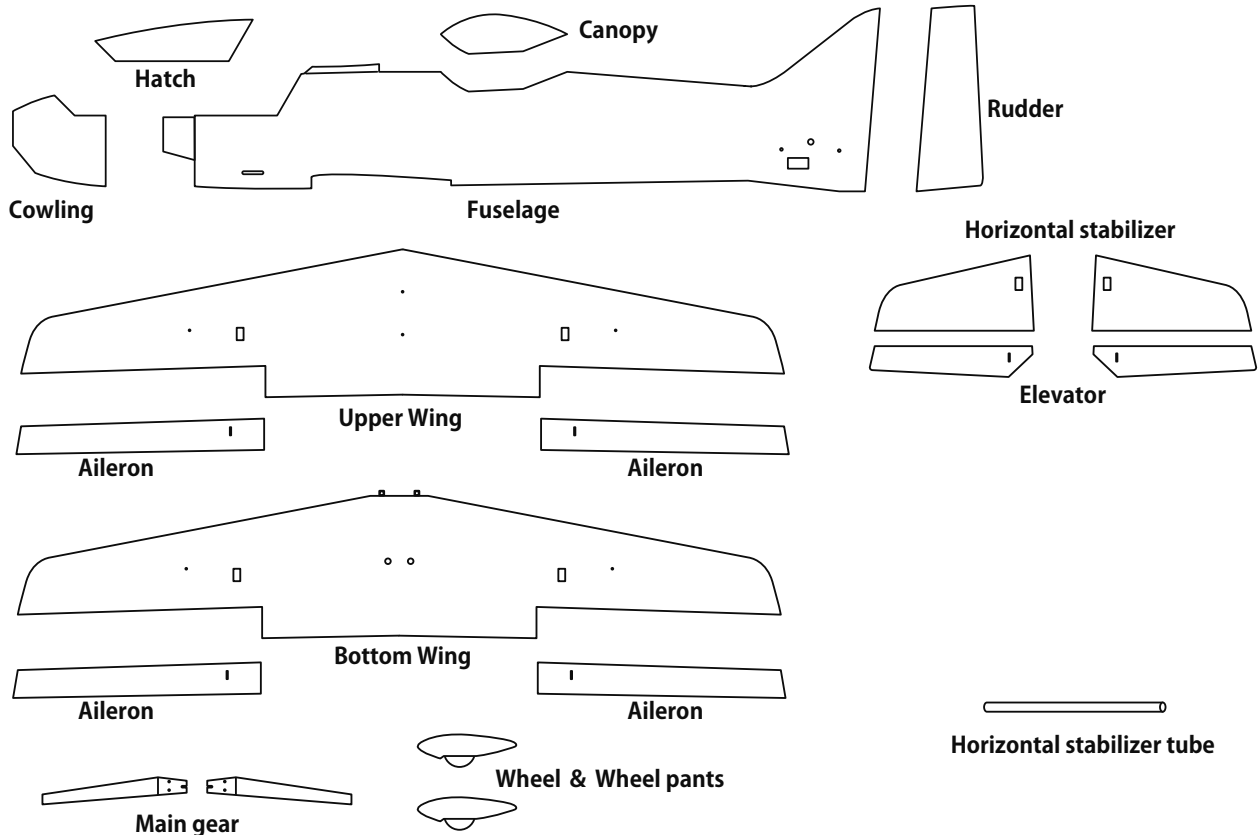
GP - Engine

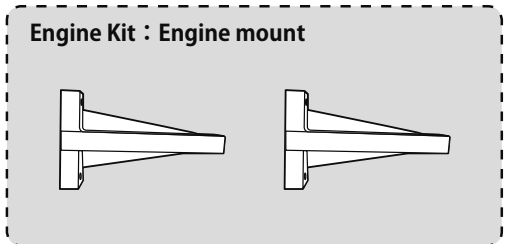
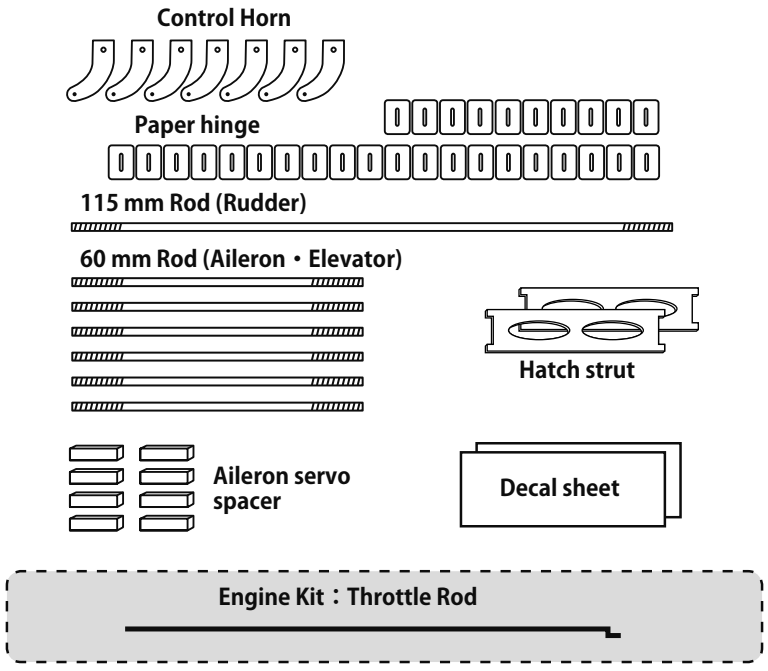
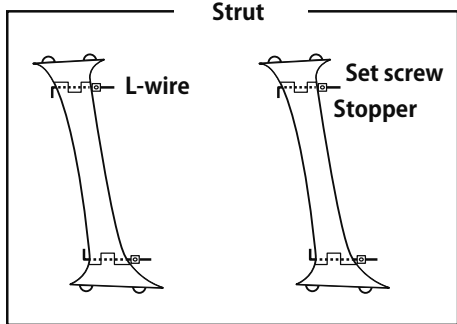
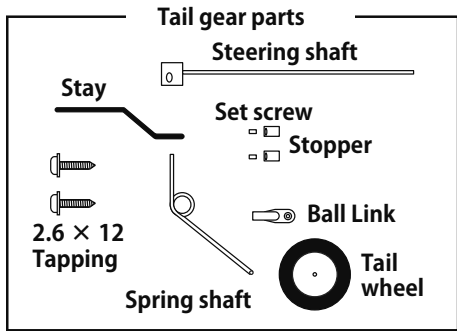
- Four stroke 70 ~ 81 Engine
- Fuel tank (280 ~ 400 cc)
- RC Glow fuel
- Fuel silicon tube (Nipple, fuel stopper)
- Engine starting tool (plug heat battery, booster code, starter etc.)
- Propeller (13 × 6 ~ 14 × 8)
- (8 servos) Unnecessary when servo SET

◆ Radio

Since this aircraft uses 4 servos for ailerons and 2 servos for elevators, **Futaba 18MZ, 18SZ, 16SZ, 14SG, 12K** with **4 aileron mixing** is recommended. In case of other radio, there are cases where fine adjustment of each servo can not be performed. Moreover, it is convenient to use the **S.BUS** system because wiring is complicated.

#2 SET contents





Screw, Nut, Washer, Parts, etc.

*Screw nut washer may be included extra.

M2x8 Tapping screw x4	M2x10 Hexagon bolt x14	M2 Nut x14
M2.6x12 Tapping screw x2	M3x16 Hexagon bolt x10	M4 Nylon Nut x8
M4x35 Flat head screw x4	M4x35 Hexagon bolt x2	M3 Washer x14
M3x35 Flat head screw x4		M4 Washer x16
Ball Link x14		

GP Kit

M4x25 Hexagon bolt x4

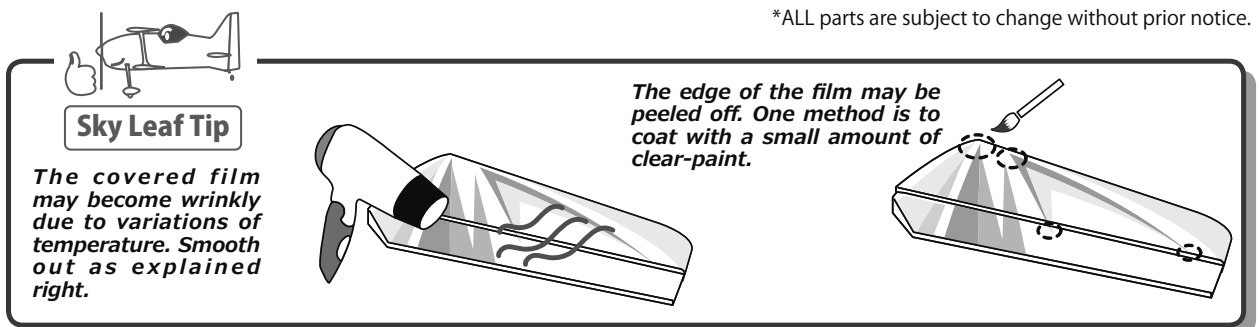
M3x25 Hexagon bolt x4

M3 Nylon Nut x4

Throttle adjuster (Set screw, M2 Nylon Nut, Washer)

EP Kit

M4x12 Hexagon bolt x4



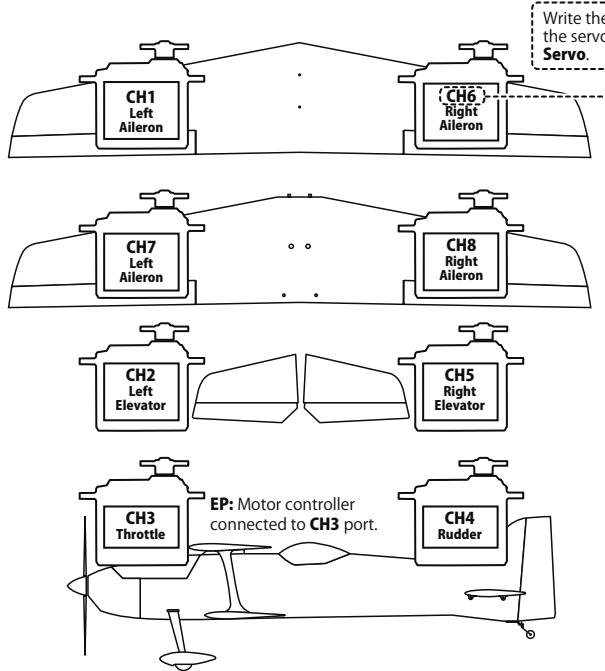
⚠ Be careful as the film will be damaged if it gets too hot.

3 Example of setting S.BUS servo with T18MZ / T12K

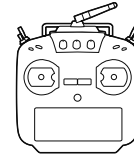
This aircraft is equipped with four aileron servos, so it is convenient to use **S.BUS**. In advance, decide the servo to be used and set the **S.BUS Servo setting** for each channel shown below. This page is unnecessary when **S.BUS** is not used.

Put the name on the label and paste it on each servo.

Channel setting example when S.BUS is used: T18MZ



Write the channel to the servo with S.BUS Servo.



T18MZ setting

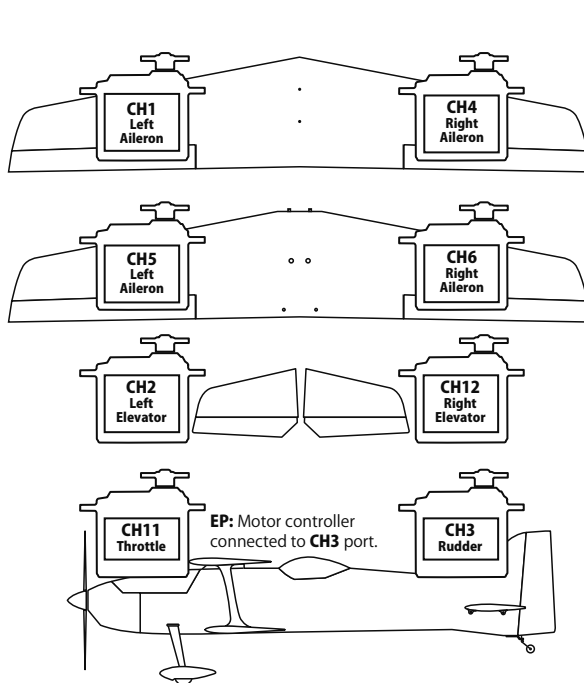
◆ Model Type

AIRPLANE

Wing Type → 4AIL+2FLP

Tail Type → AILVATOR

Channel setting example when S.BUS is used: T12K



T12K setting

◆ Model Type

AIRPLANE

WING → 4AIL+2FLP

TAIL → AILVATOR

In case of EP

R3008SB

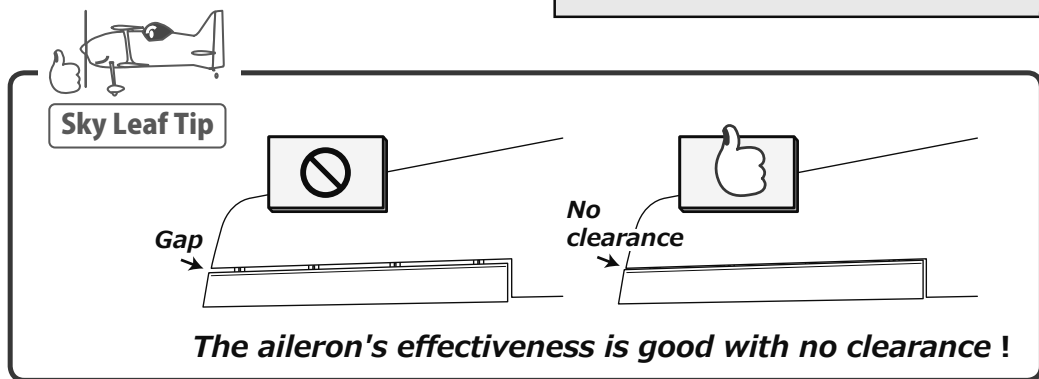
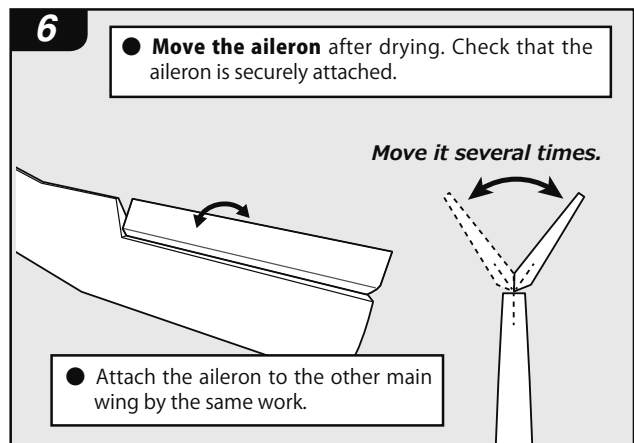
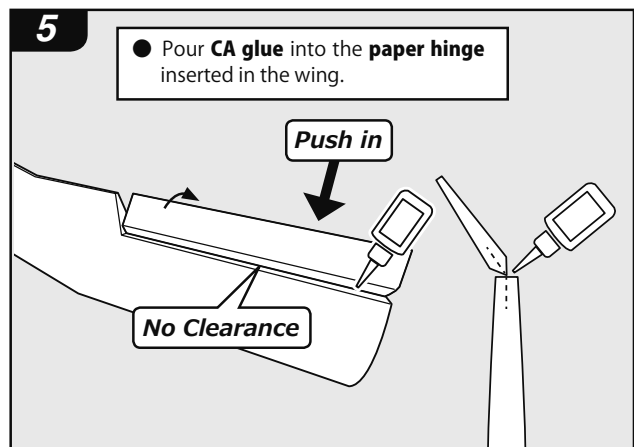
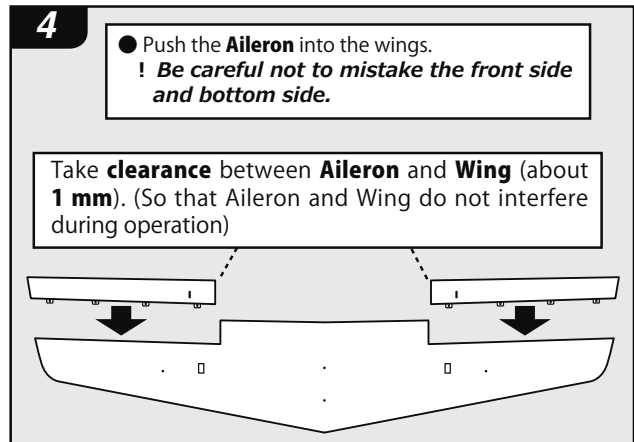
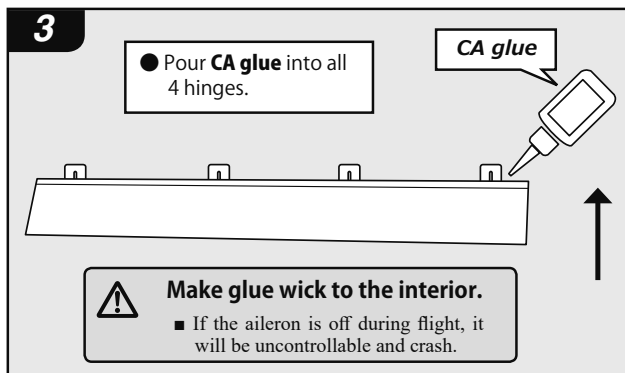
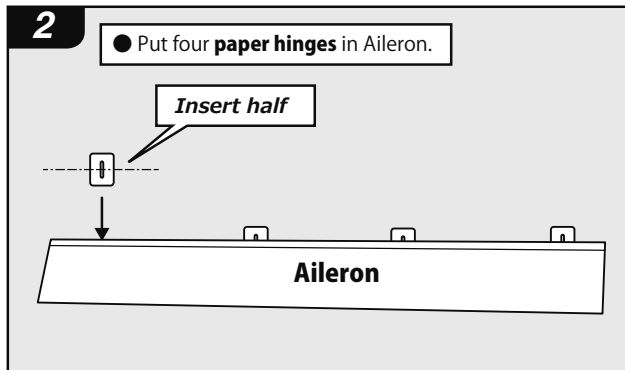
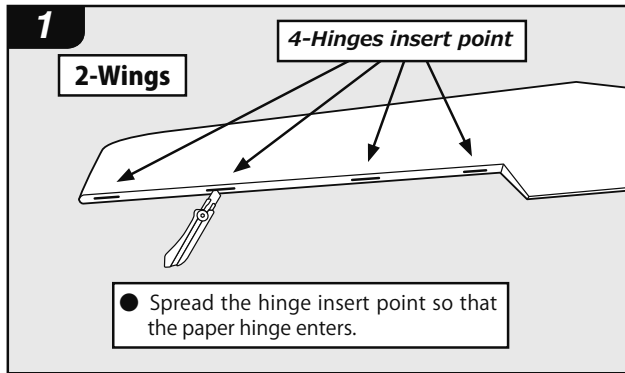
◆ CH MODE

Change to MODE D

! For EP with T12K: If model type is 4 AIL + 2 FLP, throttle will be CH11. There is no CH11 output port in the receiver (default setting), so you need to set CH MODE to MODE D and change the receiver's CH3 port to CH11 output.

4 Main wing

1. Installation of Ailerons

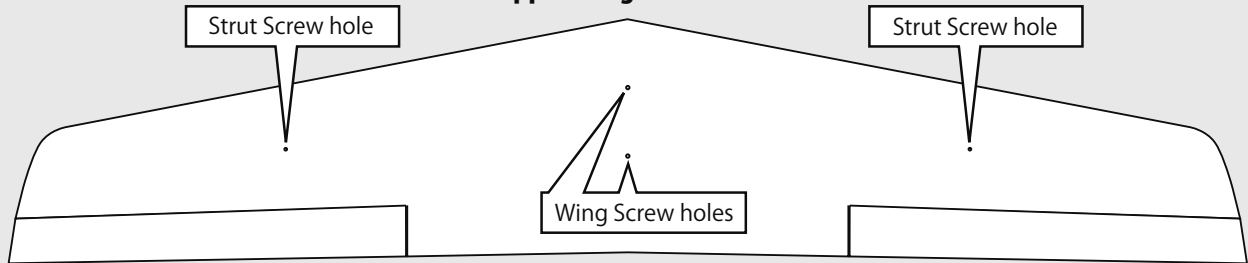


2. Film cutting of main wing

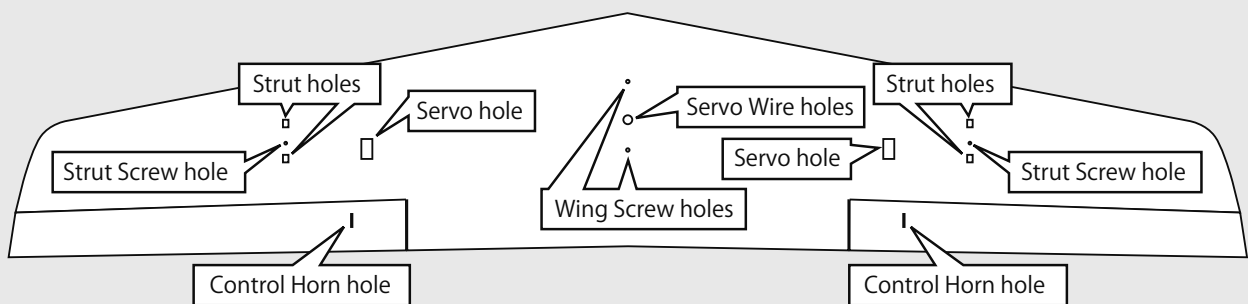
1

● There are several holes in the wood at the position shown in the picture. Cut the film of that part.

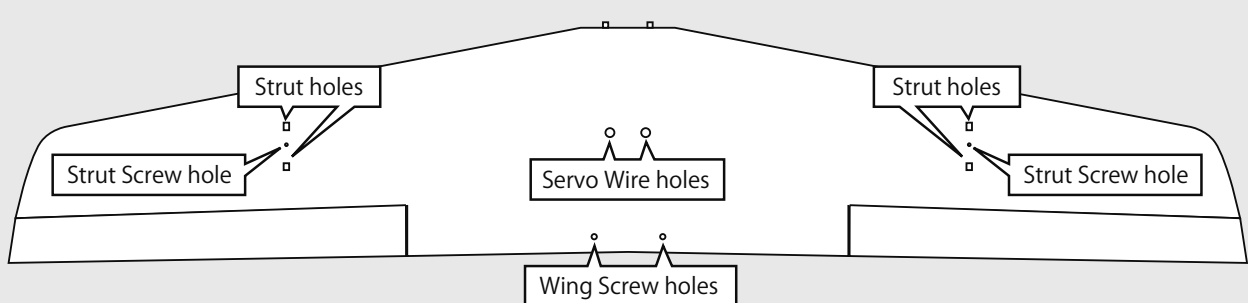
< Upper Wing Front side >



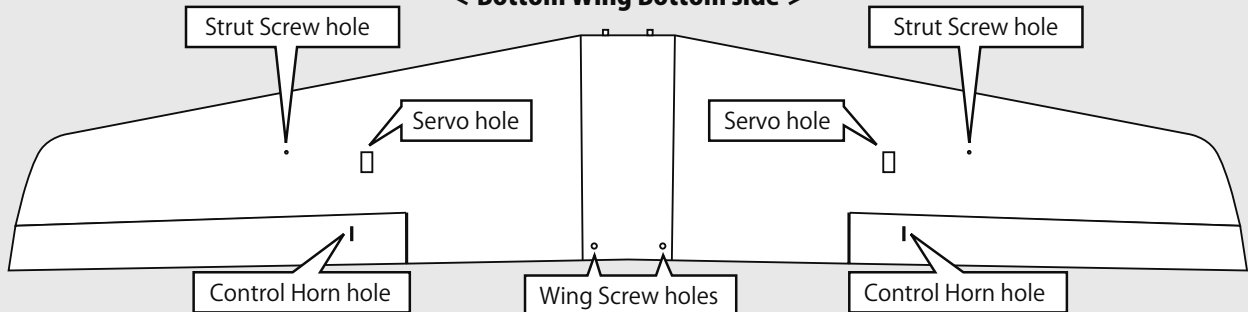
< Upper Wing Bottom side >



< Bottom Wing Front side >



< Bottom Wing Bottom side >

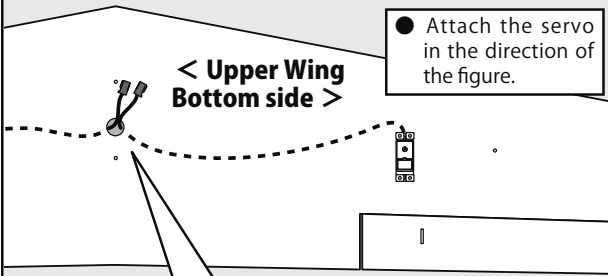


● There is a method of using a soldering iron to cut the film. Touch with a soldering iron along the basewood hole. The remaining film adheres to the base wood.

3. Installation of 4-Aileron Servos

1

- **4-Aileron servos** the wiring passes through the interior of the wing.



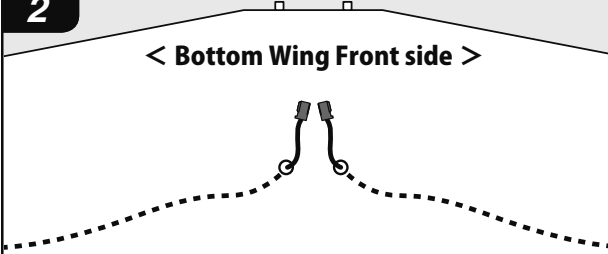
< Upper Wing Bottom side >

- Attach the servo in the direction of the figure.

- Servo wires are pulled through the hole through wing interior. Upper Wing put out wire from the bottom side.

2

< Bottom Wing Front side >

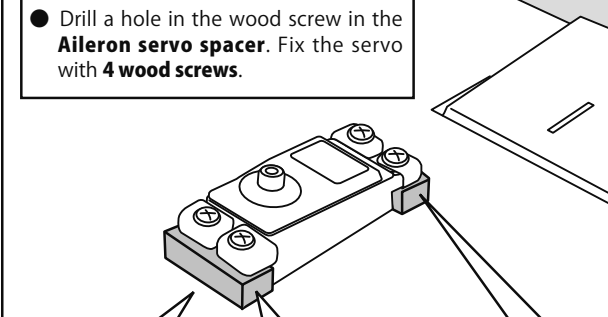


- Bottom Wing put out the wire from the front side.

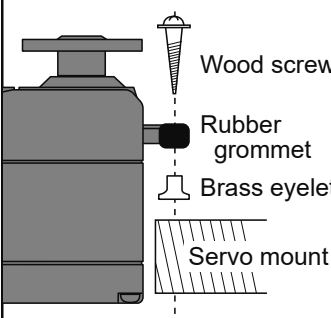
3

- **Install 4 Aileron Servos** on Wing bottom side.

- Drill a hole in the wood screw in the **Aileron servo spacer**. Fix the servo with **4 wood screws**.



- film on the adhesive surface is cut.
- First attach the **Aileron servo spacer** with **CA glue**.

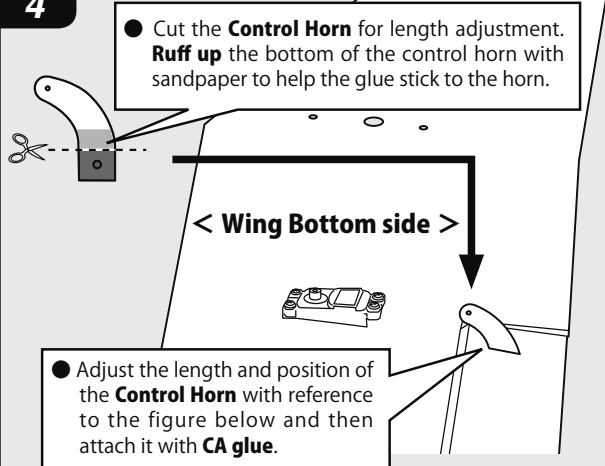


- Attach the **Rubber grommets** and **Brass eyelets** to all servo as shown in the figure.

Wood screw
Rubber grommet
Brass eyelet
Servo mount

4

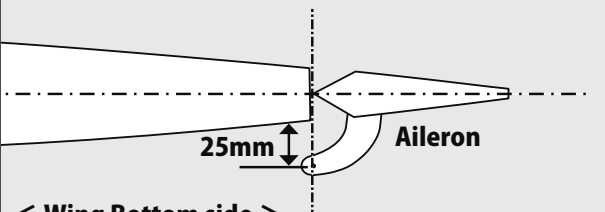
- Cut the **Control Horn** for length adjustment. **Ruff up** the bottom of the control horn with sandpaper to help the glue stick to the horn.



< Wing Bottom side >

- Adjust the length and position of the **Control Horn** with reference to the figure below and then attach it with **CA glue**.

● **Control Horn length and position**

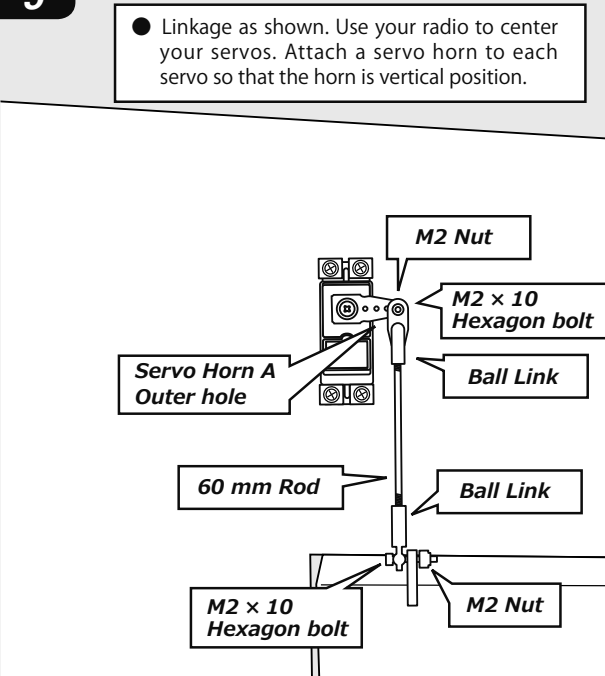


25mm **Aileron**

< Wing Bottom side >

5

- Linkage as shown. Use your radio to center your servos. Attach a servo horn to each servo so that the horn is vertical position.



M2 Nut
M2 x 10 Hexagon bolt
Ball Link
Servo Horn A Outer hole
60 mm Rod
Ball Link
M2 x 10 Hexagon bolt
M2 Nut

- Attach the **4-Aileron servos** to the other wing by the same work.

5 Horizontal stabilizer

1. Instal the Elevators

1

- Spread the hinge insert point so that the paper hinge enters.

Horizontal stabilizer

5

- Pour CA glue into the paper hinge inserted in the wing.

Push in

No Clearance

2

- Put four paper hinges in Elevator.

Insert half

Elevator

6

- Move the Elevator after drying. Check that the aileron is securely attached.

Move it several times.

- Attach the Elevator to the other Horizontal stabilizer by the same work.

3

- Pour CA glue into all 4 hinges.

CA glue

⚠ Make glue wick to the interior.

- If the aileron is off during flight, it will be uncontrollable and crash.

7

- Cut the Control Horn for length adjustment. Ruff up the bottom of the control horn with sandpaper to help the glue stick to the horn.

● Cut the film according to the prepared hole.

< Horizontal stabilizer Bottom side >

- Adjust the length and position of the Control Horn with reference to the figure below and then attach it with CA glue.

● Control Horn length and position

19mm

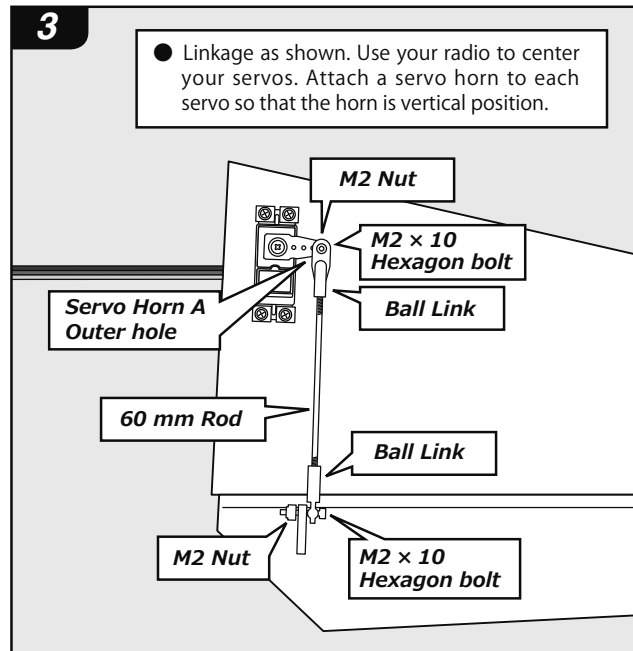
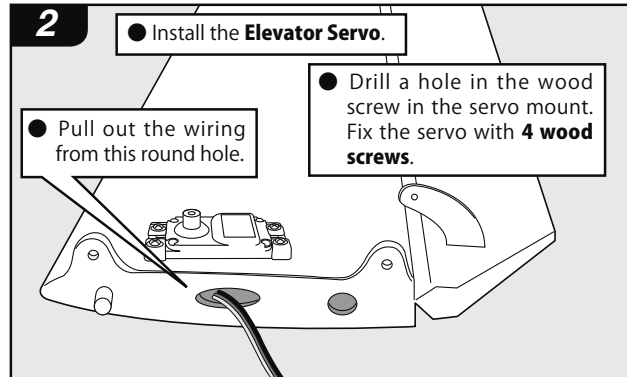
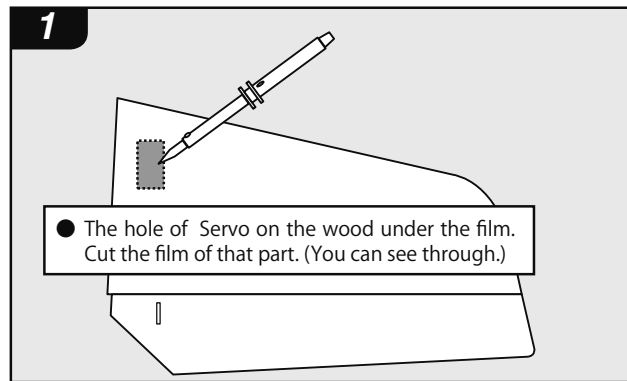
Elevator

< Horizontal stabilizer Bottom side >

4

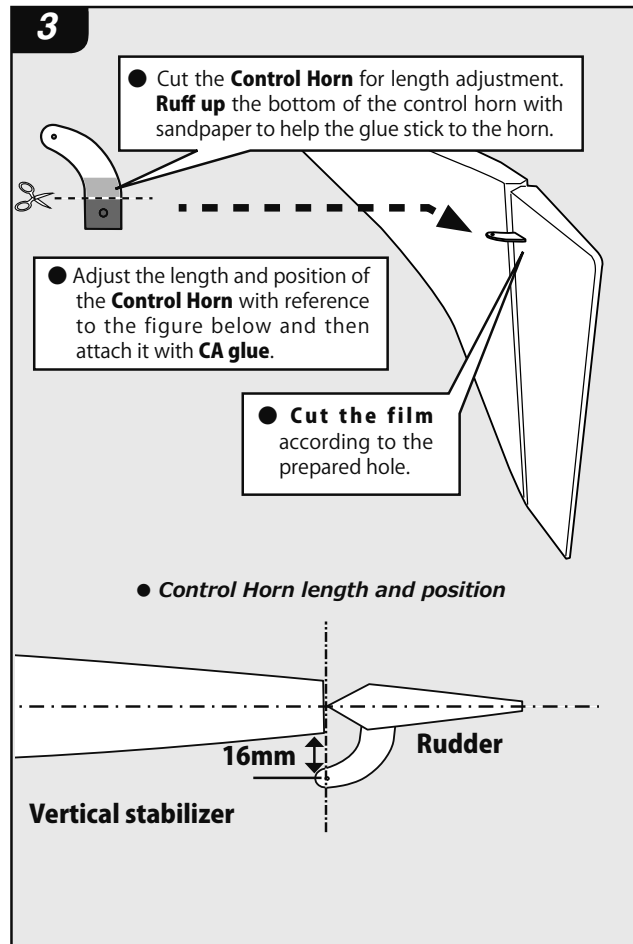
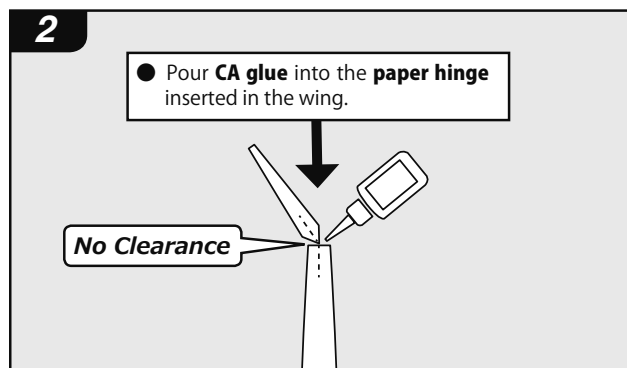
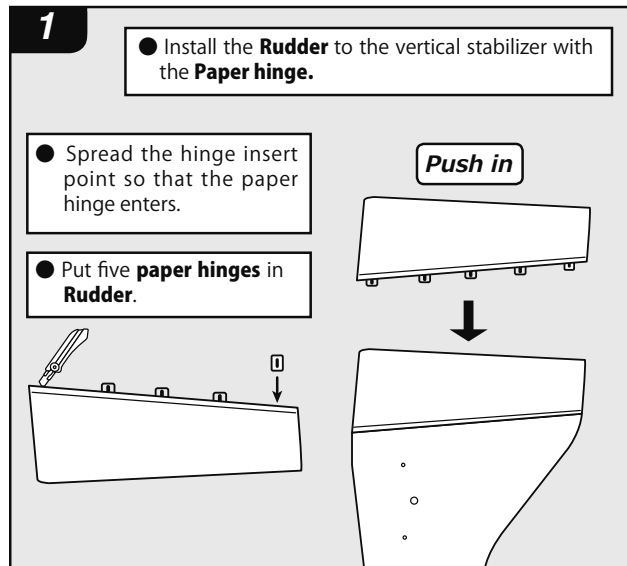
- Push the Elevator into the Horizontal stabilizer. ! Be careful not to mistake the front side and bottom side.

2. Install the Elevator Servos



● Attach the **Elevator servo** to the other **Horizontal stabilizer** by the same work.

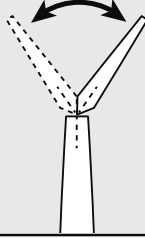
6 Rudder



4

- Move the **Rudder** after drying. Check that the aileron is securely attached.

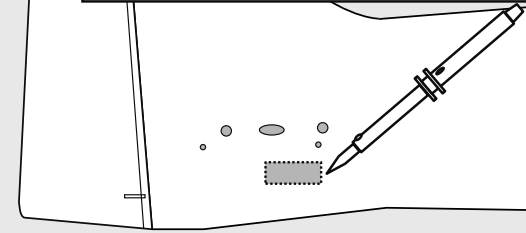
Move it several times.



5

- The hole on the wood under the film. Cut the film of that part. (You can see through.)

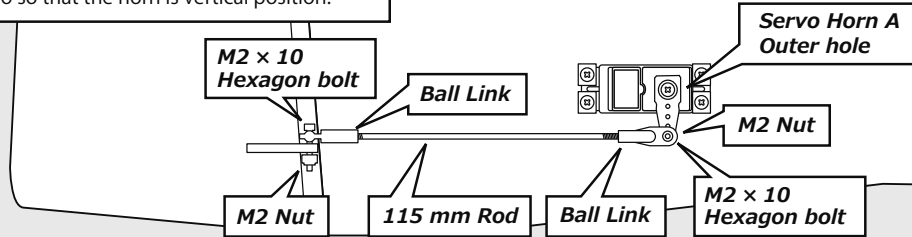
! Servo hole cuts only on the right side.
Servo hole on the left side is not cut.



6

- Linkage as shown. Use your radio to center your servos. Attach a servo horn to each servo so that the horn is vertical position.

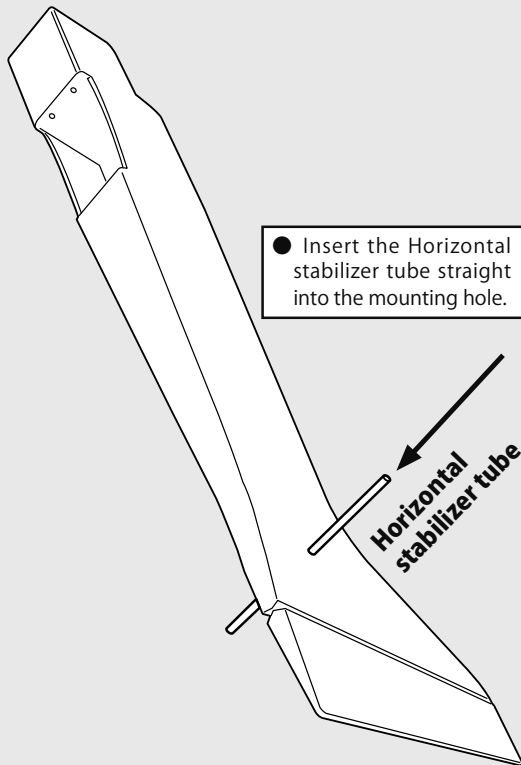
- Drill a hole in the wood screw in the servo mount. Fix the servo with **4 wood screws**.



7 Attach the Horizontal stabilizer

1

- Insert the **Horizontal stabilizer tube** into fuselage.



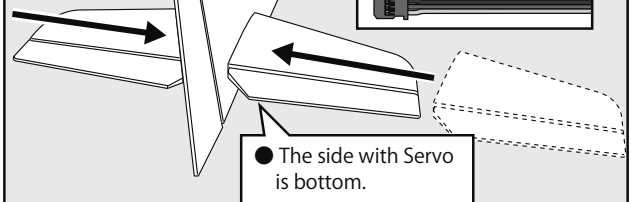
- Insert the Horizontal stabilizer tube straight into the mounting hole.

2

- Insert the left and right **Horizontal stabilizer** into the **Horizontal stabilizer tube**.

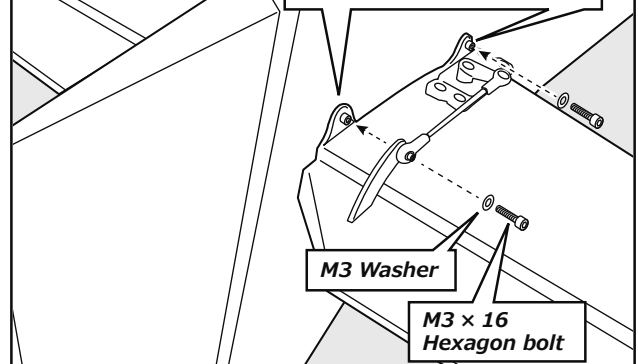
- Insert the Horizontal stabilizer straight into the Horizontal stabilizer tube.

- **Elevator servo wire** is put in the fuselage.



3

- Fix the Horizontal stabilizer with **M3 x 16 Hexagon bolt** and **M3 Washer**.





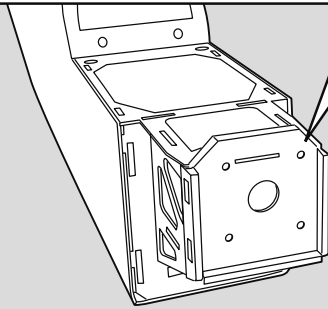
This page is an explanation of the case of electric motor. (It is unnecessary in the case of engine.)

8 Installation of Motor and Cowling : EP kit only

1

- Drill four holes with a **4 mm drill** in the position of the **Motor mount** figure. Determine the hole position according to the motor you use.

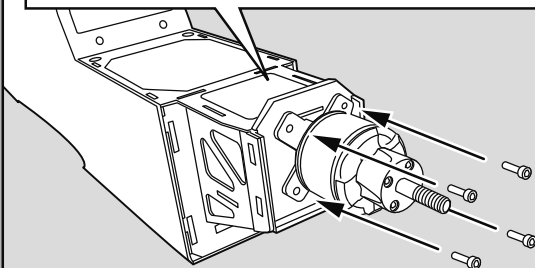
- There is a mark of the hole position according to **Futaba FMA-5055 KV525 Motor**.



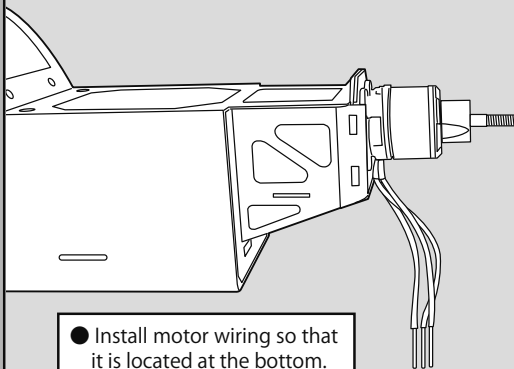
2

- Fix the Motor with four **M4 Nylon Nut, M4 Washer** and **M4 × 12 Hexagon bolt**.

- Install **M4 Nylon Nut and M4 Washer** from the inside of Fuselage.



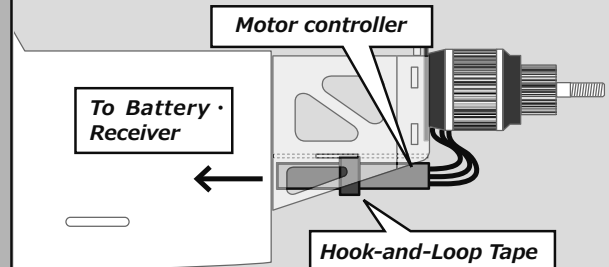
3



- Install motor wiring so that it is located at the bottom.

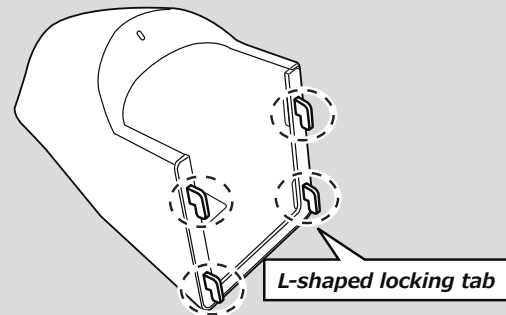
4

- Attach the **Motor controller** using the **Hook-and-Loop Tape** at the lower part of cowling of the nose.



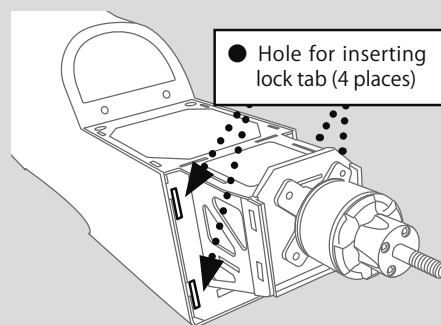
5

- Cowling comes with **4 L-shaped locking tabs**. Insert this locking tab into the hole of fuselage and lower it downward to lock cowling.

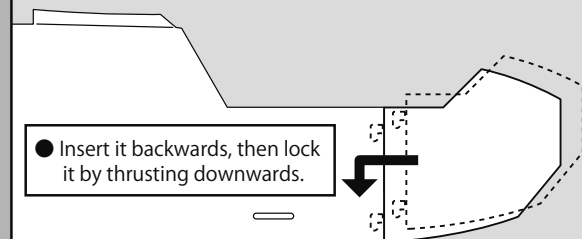


6

- Attach **Cowling** to the fuselage.



- Insert it backwards, then lock it by thrusting downwards.

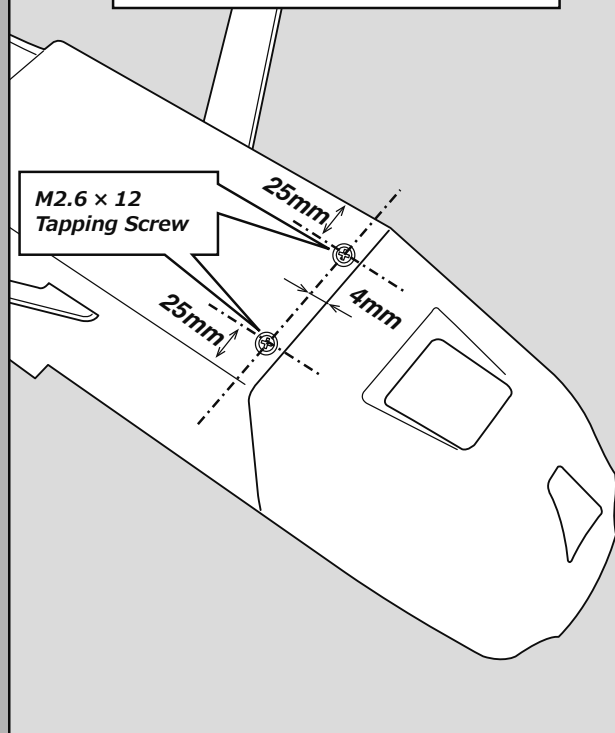




This page is an explanation of the case of electric motor. (It is unnecessary in the case of engine.)

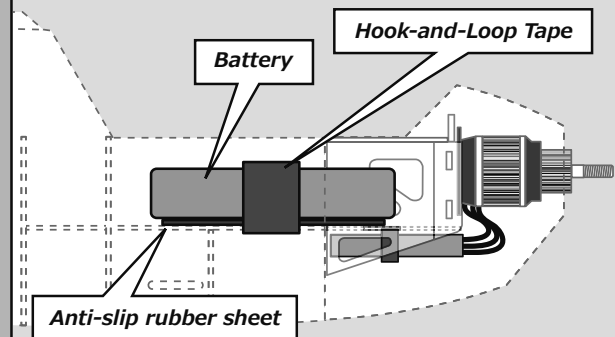
7

- Drill a hole with the 2.2 mm drill at the position in the figure and fix the cowling with **M2.6 × 12 Tapping Screw**.

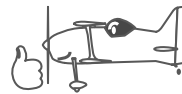


8

- Install the **Battery** using **Hook-and-Loop Tape** inside the fuselage as shown.

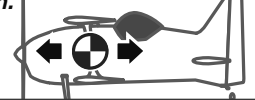


! Battery is heavy, fix it surely.



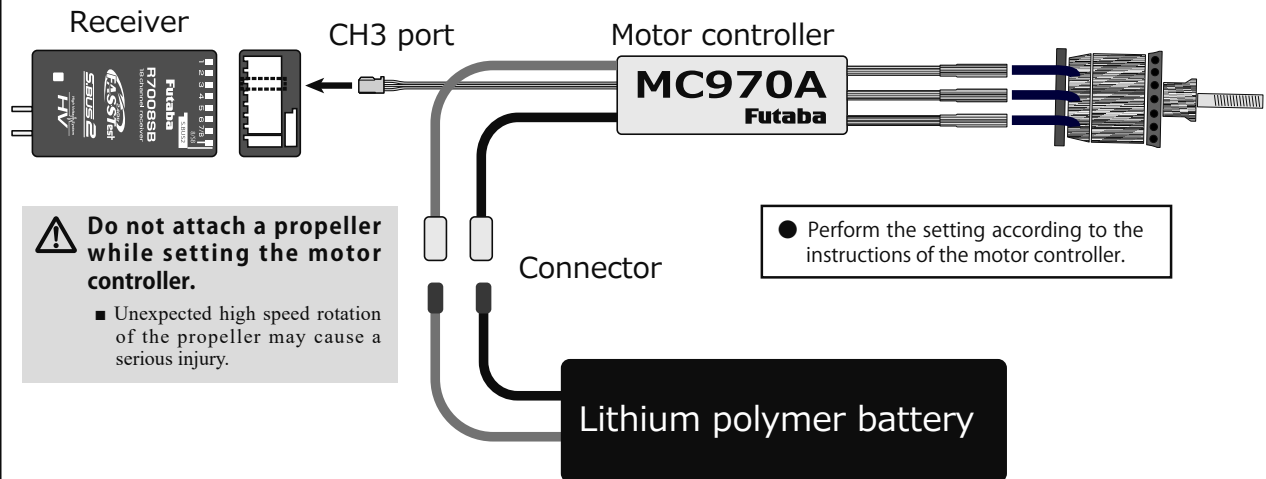
Sky Leaf Tip

To adjust the weight balance, slide the heavy battery back and forth.



9

- Connect the wiring of the **Motor controller** to **Throttle channel** of the Receiver.



Do not attach a propeller while setting the motor controller.

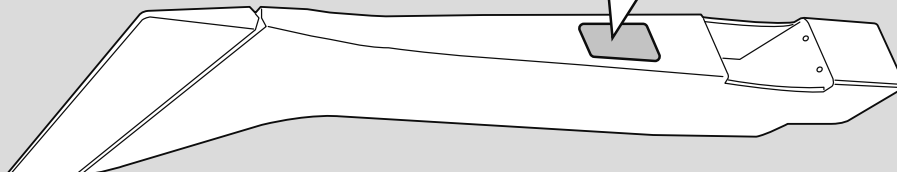
- Unexpected high speed rotation of the propeller may cause a serious injury.

- Perform the setting according to the instructions of the motor controller.

10

- Open the air outlet at the bottom of the fuselage to cool down the equipment.

- Cut this film.



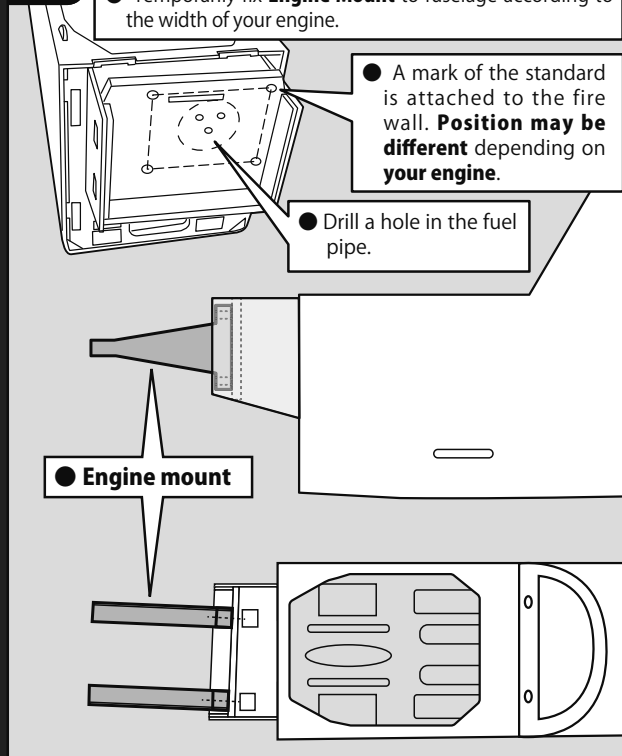


This page is an explanation of when to make it into an engine. (It is unnecessary in case of EP.)

9 Installation of Engine and Cowling : GP kit only

1

● Temporarily fix **Engine Mount** to fuselage according to the width of your engine.

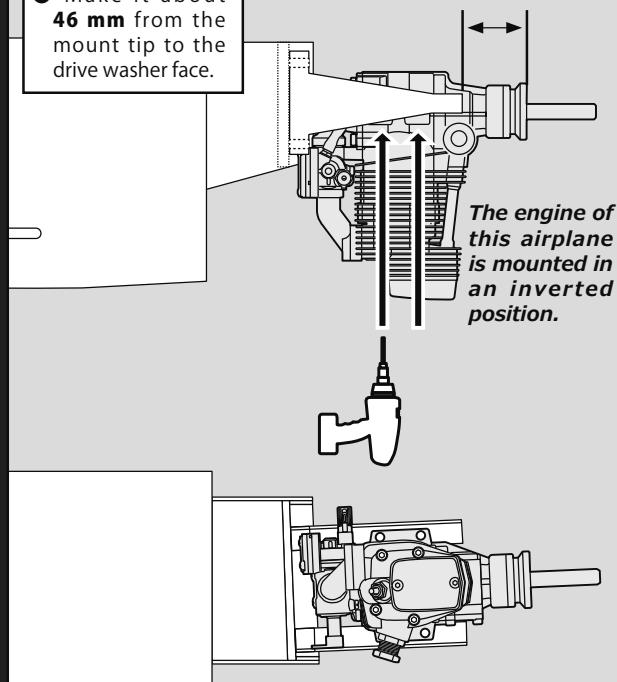


2

● Determine the mounting position of the Engine and drill four holes of 3 mm into Engine mount.

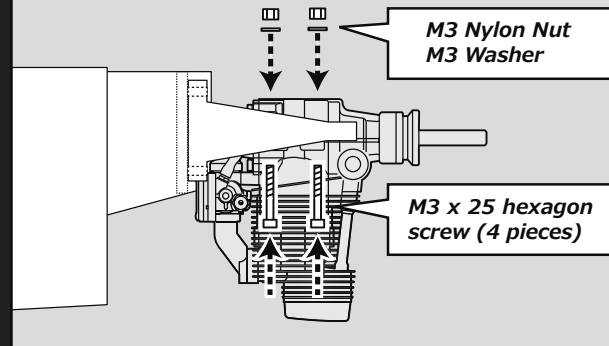
● Make it about **46 mm** from the mount tip to the drive washer face.

46 mm



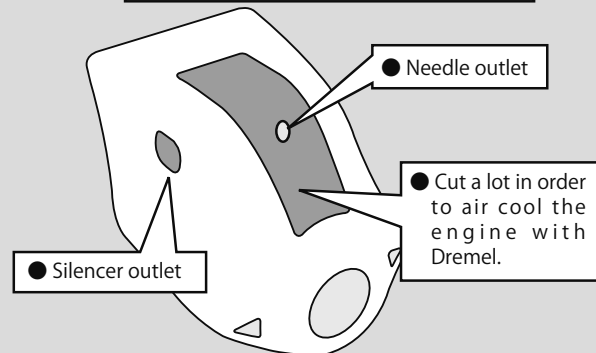
3

● Fix the **Engine** using a **M3 x 25 hexagon screw** (4 pieces) and **M3 Nylon Nut, M3 Washer** attached to the engine mount.



4

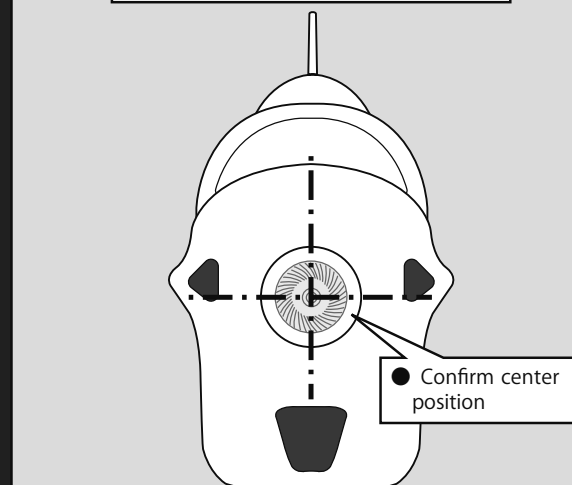
● Cut the part that interferes with the engine and silencer of the cowling.



! Dust and shavings must not enter inside the engine.

5

● Check the position of the engine shaft.

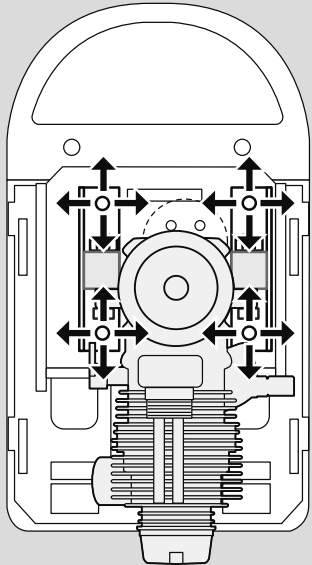




This page is an explanation of when to make it into an engine. (It is unnecessary in case of EP.)

6

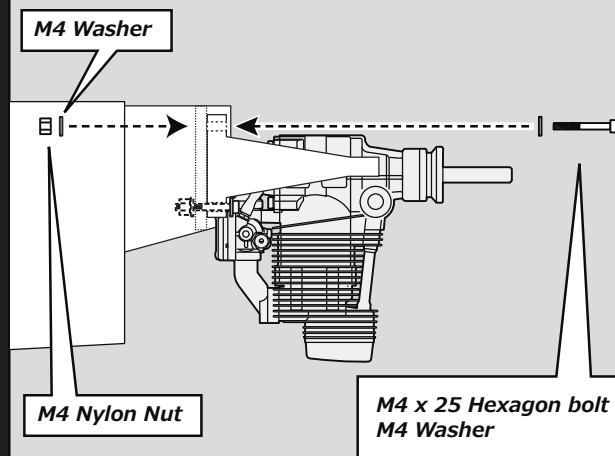
- Adjust the engine mount position if the center position is offset.



- Find the correct position and open a hole of 4 mm.

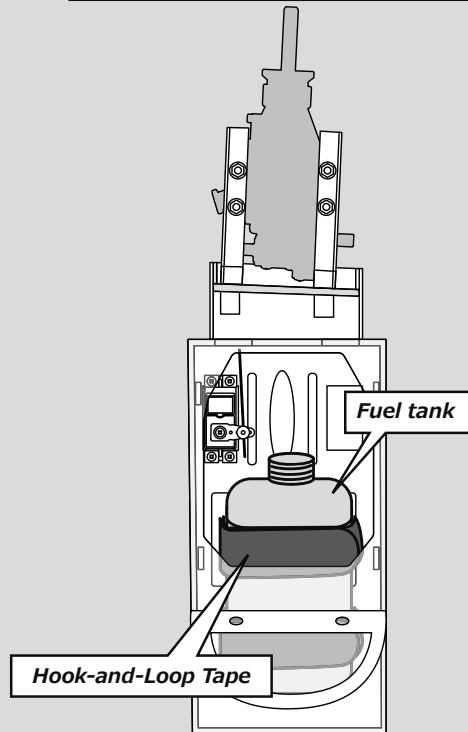
7

- Fix the **Engine mount** securely with **M4 × 25 Hexagon bolts** on the firewall, **M4 Nylon Nuts** and **M4 washers**



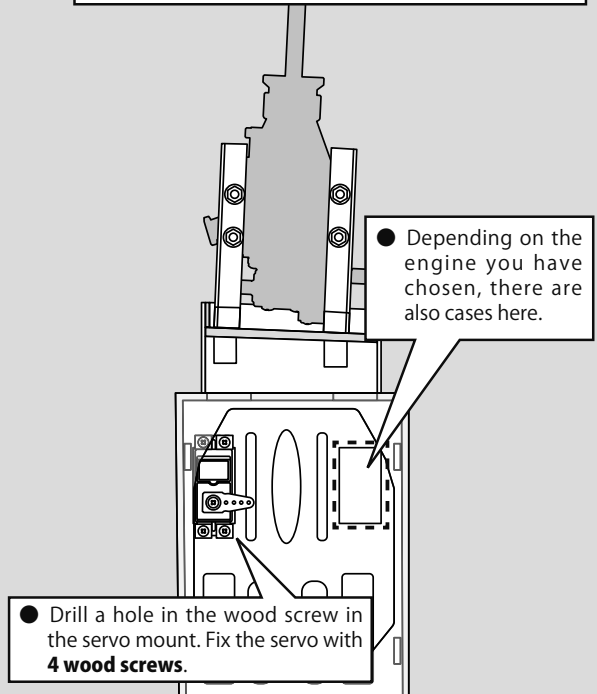
8

- Install the **Fuel tank** to the fuselage with **Hook-and-Loop Tape**.



9

- Depending on the position of the throttle of the engine to be used, install **Throttle Servo**.



- Drill a hole in the wood screw in the servo mount. Fix the servo with **4 wood screws**.



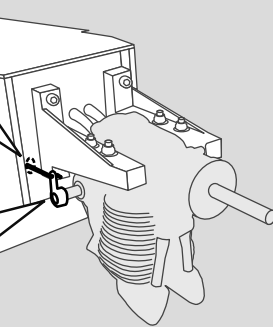
This page is an explanation of when to make it into an engine. (It is unnecessary in case of EP.)

10

● Link servo with engine throttle. Make it work smoothly.

● Drill a hole where Throttle Rod operates smoothly.

● Attaching the crank of Throttle Rod is done by removing the throttle arm from the engine.

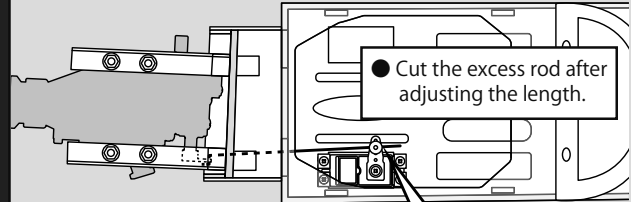


⚠ If the Rod is in contact with the metal part of the engine, noise may occur due to vibration and there is a danger of malfunction.

11

● Adjust the throttle stroke. Do not overload the throttle servo.

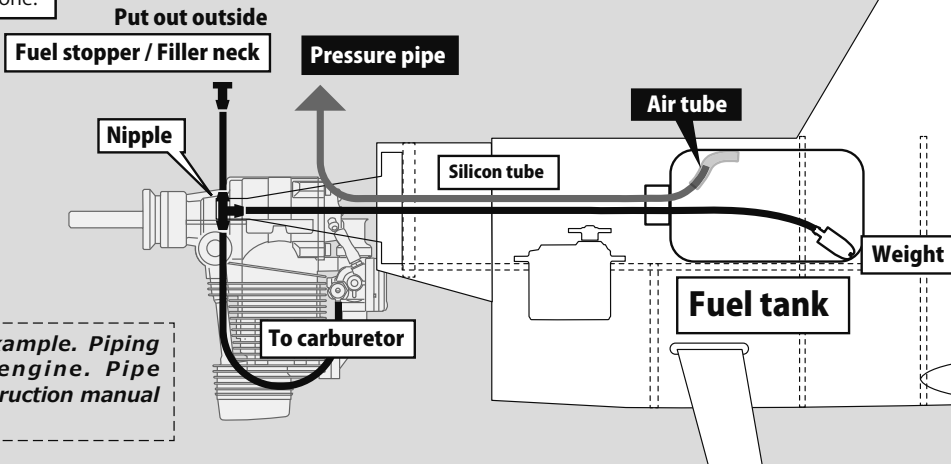
● Cut the excess rod after adjusting the length.



Set screw
Throttle adjuster
Washer
Servo horn
Washer
M2 Nylon Nut

12

● Piping of fuel is done.



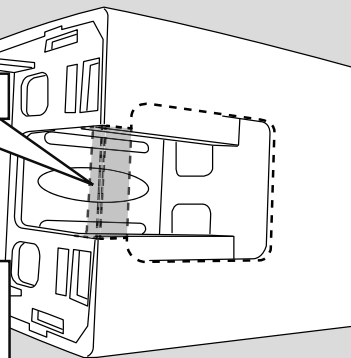
! This figure is an example. Piping depends on the engine. Pipe according to the instruction manual of the engine.

When using interior silencer

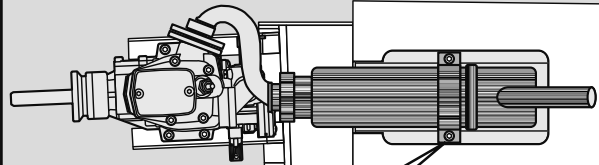
Futaba and O.S. do not sell interior silencer.

● Cut this film and wood.

● Apply epoxy glue or clear paint to the cut of the wood after cutting. Do not let fuel infiltrate.



Fuselage front bottom



● Screw the installation band of the silencer to the wood part inside the fuselage.



Sky Leaf Tip

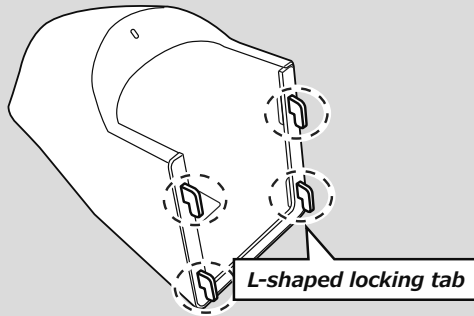
As the engine vibrates, tighten each screw tightly.



This page is an explanation of when to make it into an engine. (It is unnecessary in case of EP.)

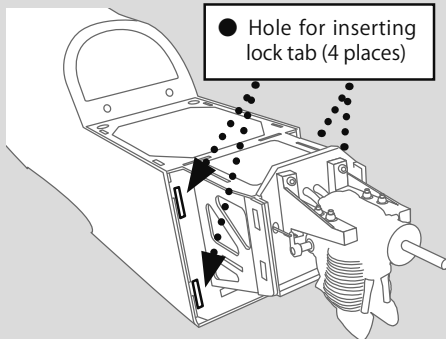
13

- Cowling comes with **4 L-shaped locking tabs**. Insert this locking tab into the hole of fuselage and lower it downward to lock cowling.

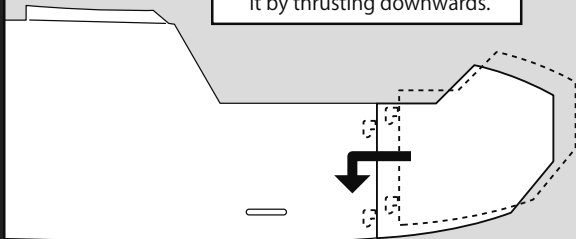


14

- Attach **Cowling** to the fuselage.

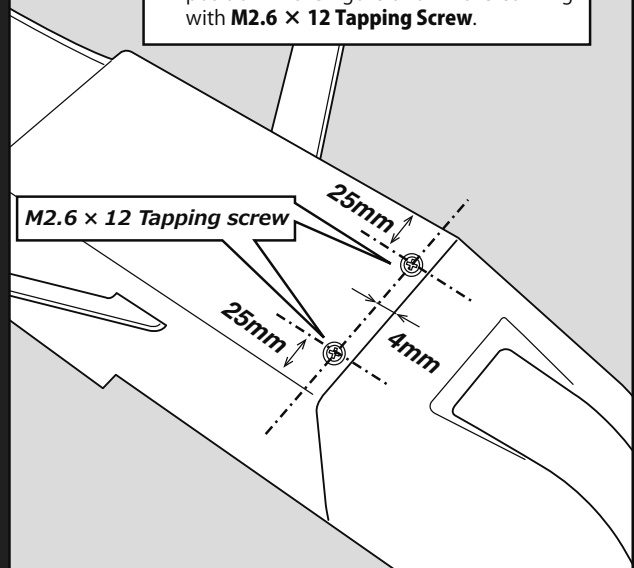


- Insert it backwards, then lock it by thrusting downwards.



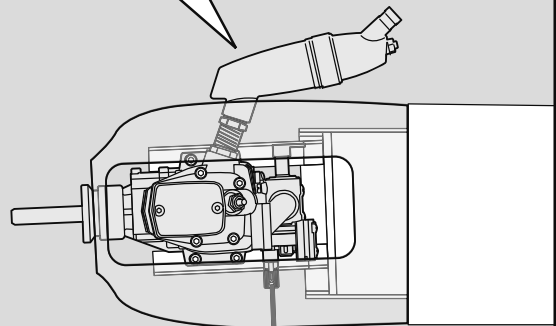
15

- Drill a hole with the 2.2 mm drill at the position in the figure and fix the cowling with **M2.6 × 12 Tapping Screw**.



16

- Install the silencer after cowling. Tighten firmly as it is easy to loosen by vibration.



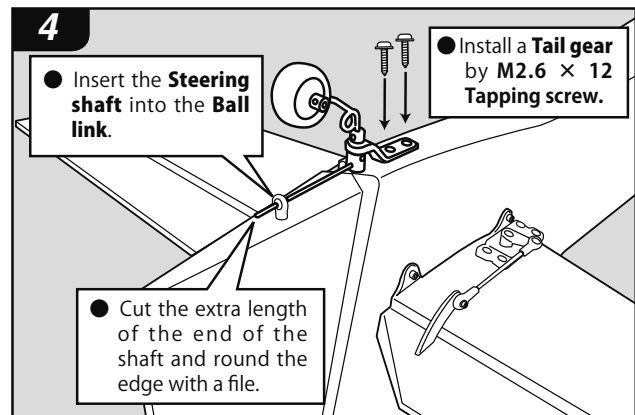
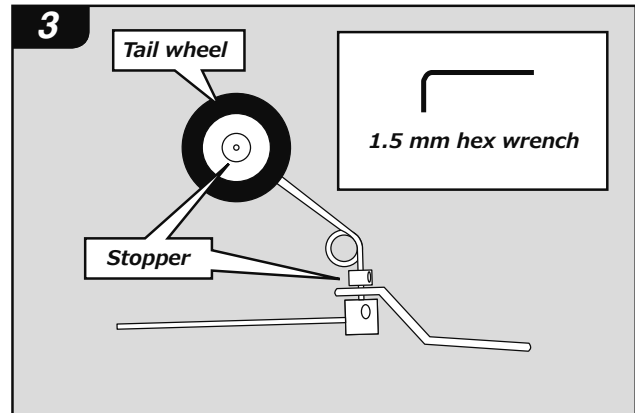
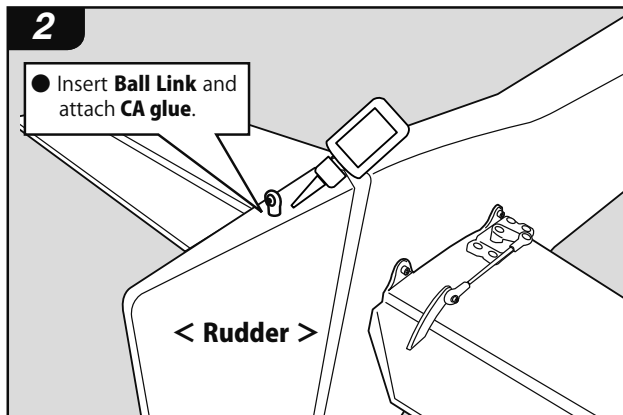
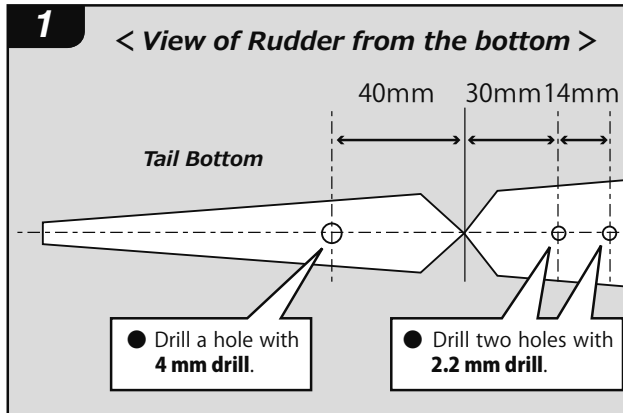
- Needle outlet
Use **Needle valve extension cable (O.S.)**.



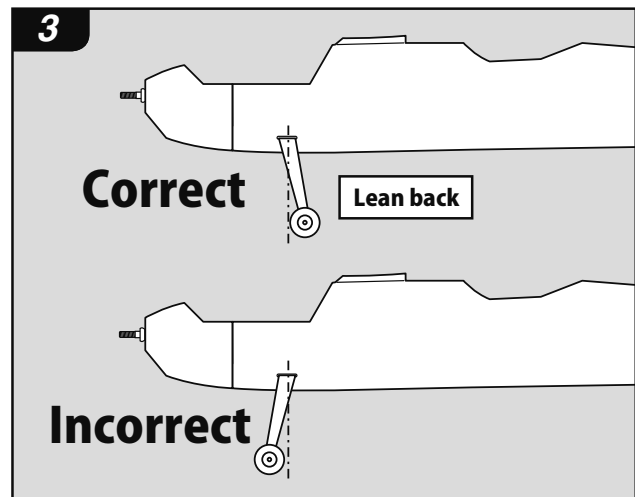
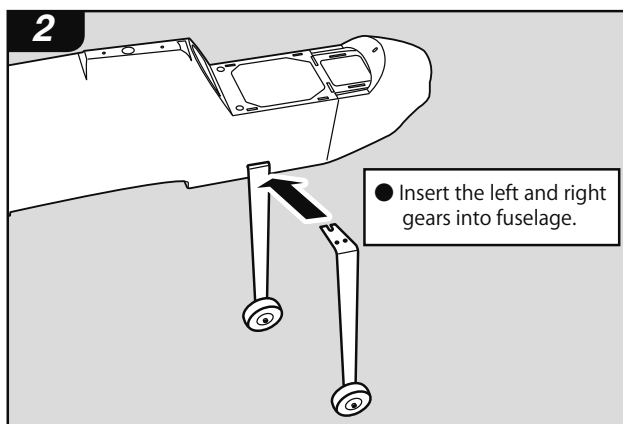
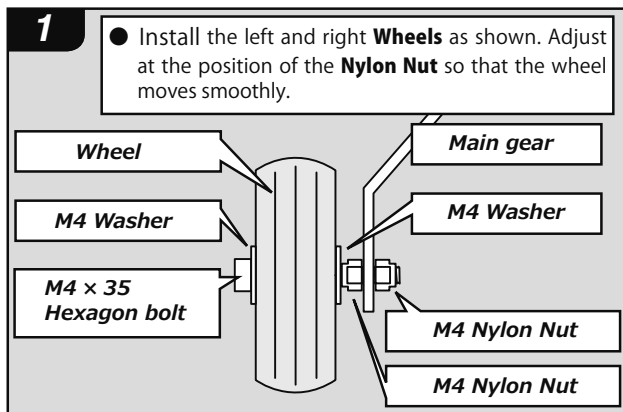
Sky Leaf Tip

Apply clear paint or epoxy glue to the parts of the wood around the engine where exhaust and fuel infiltrate.

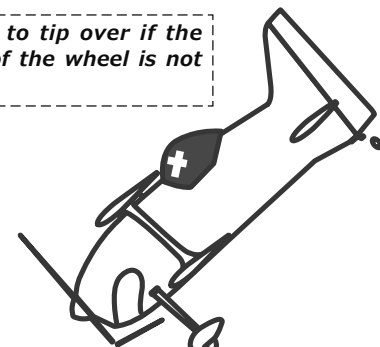
#10 Tail gear

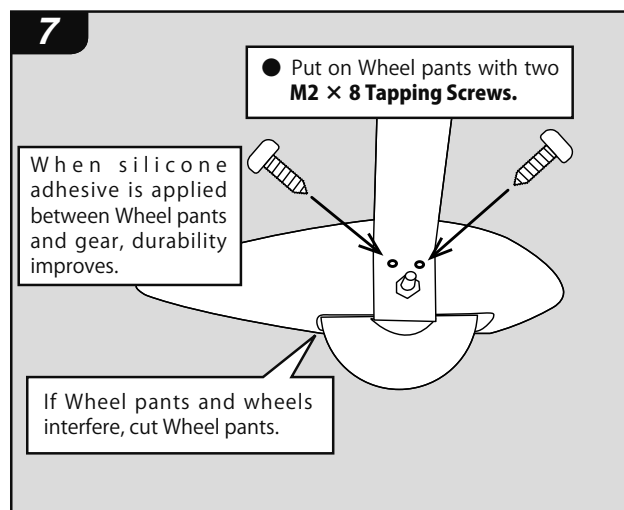
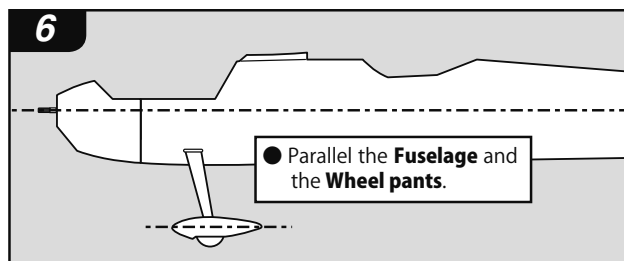
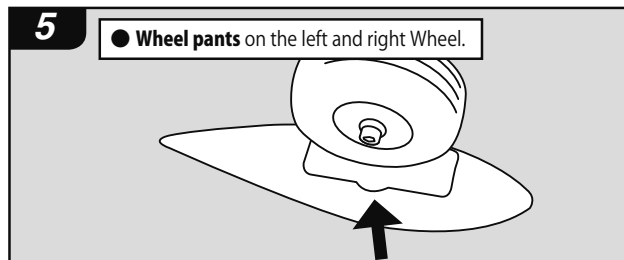
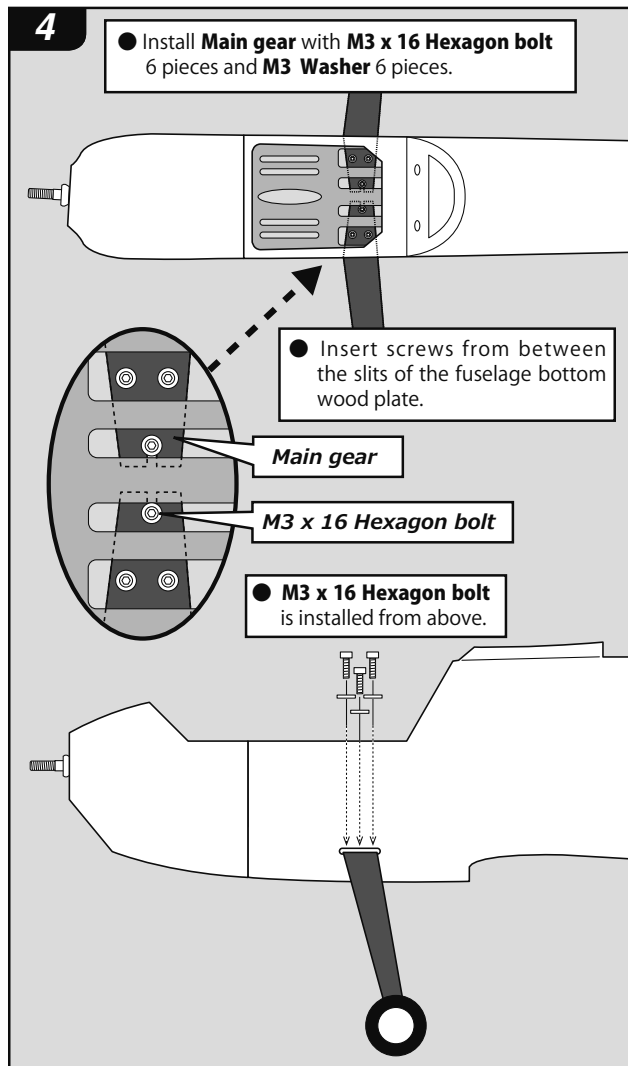


#11 Main gear

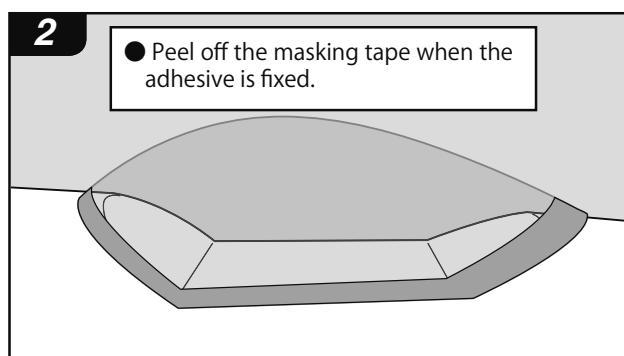
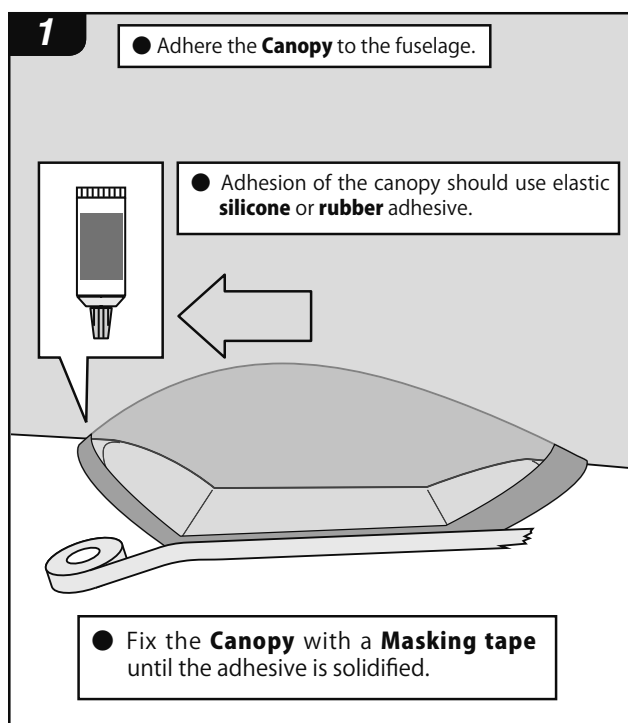


! It is easy to tip over if the rotation of the wheel is not smooth.

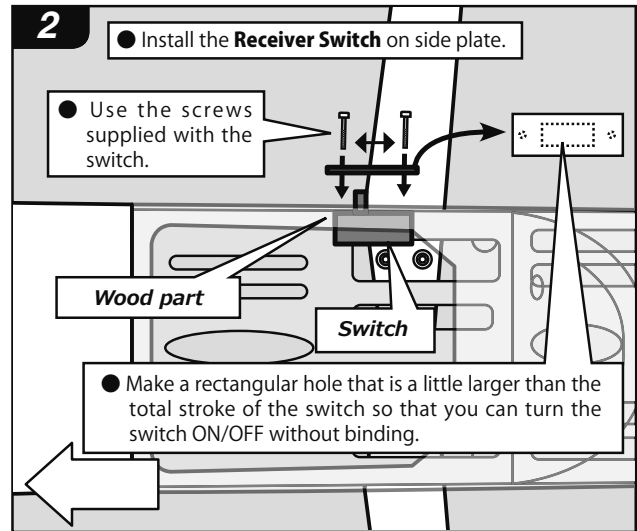
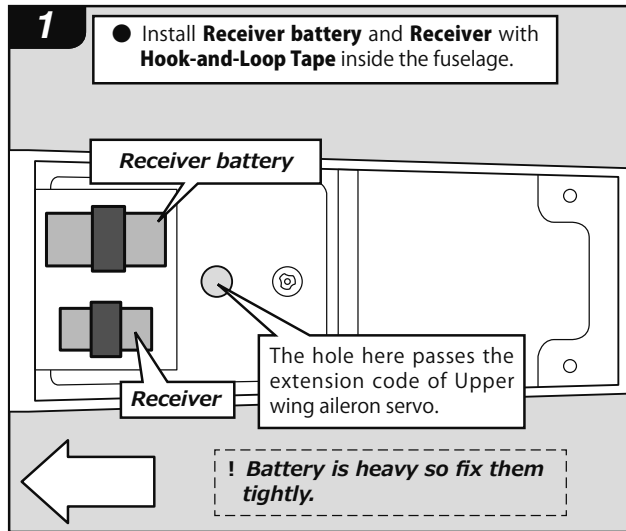




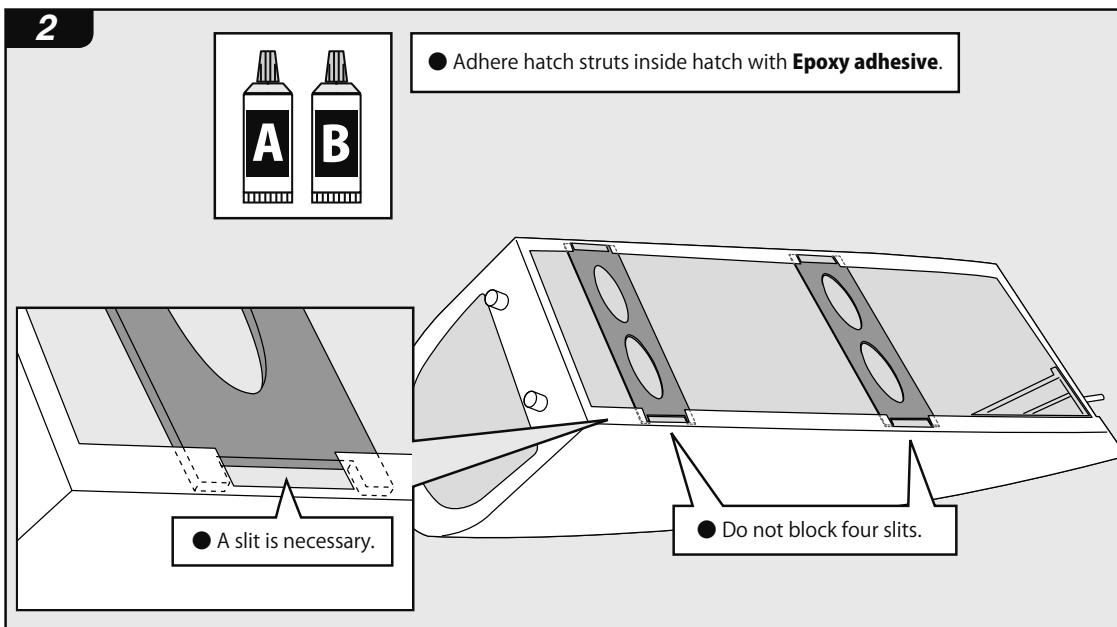
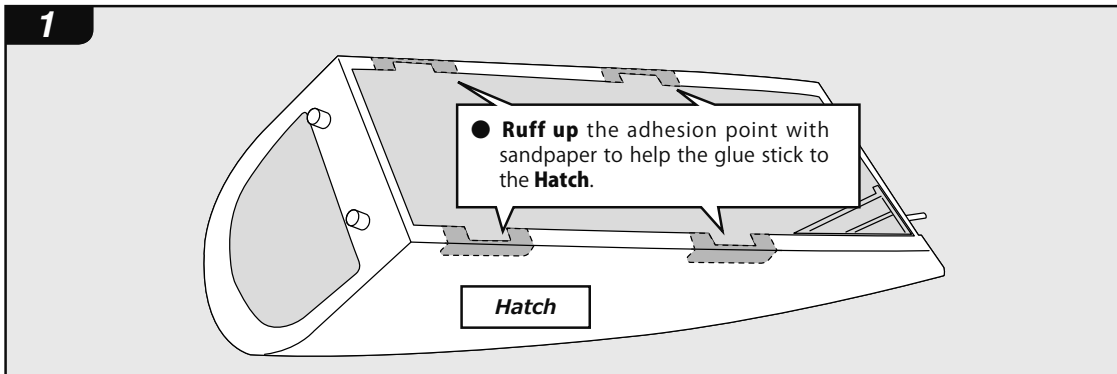
12 Canopy



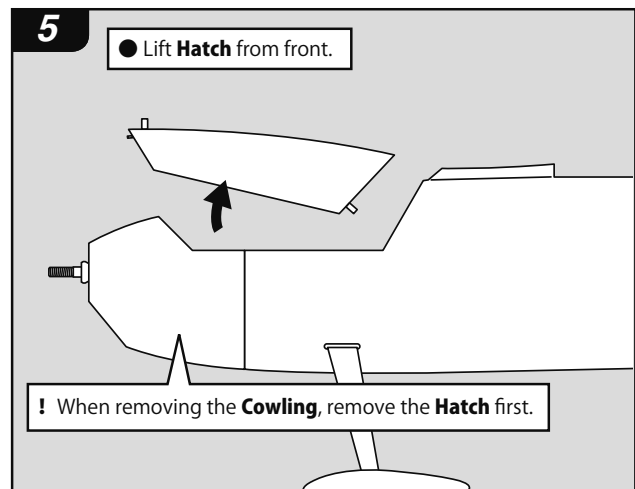
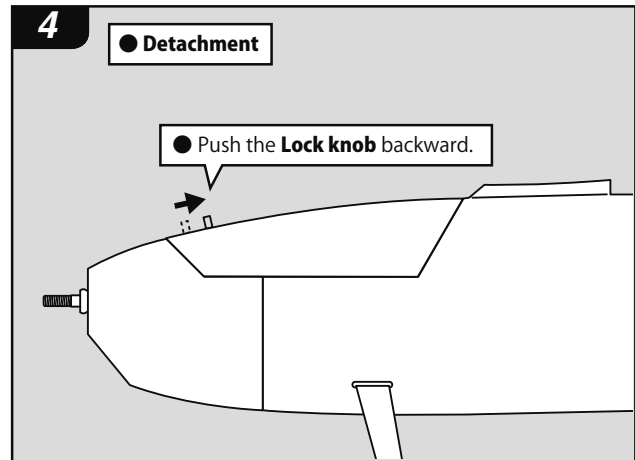
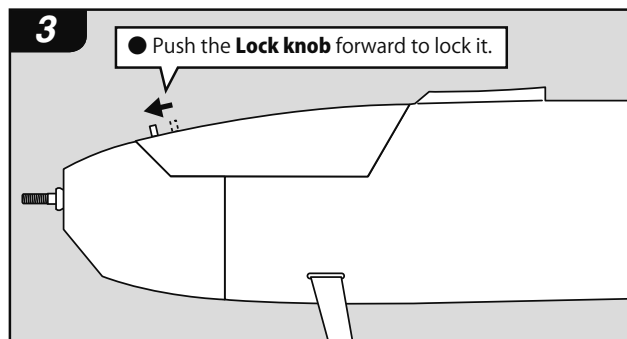
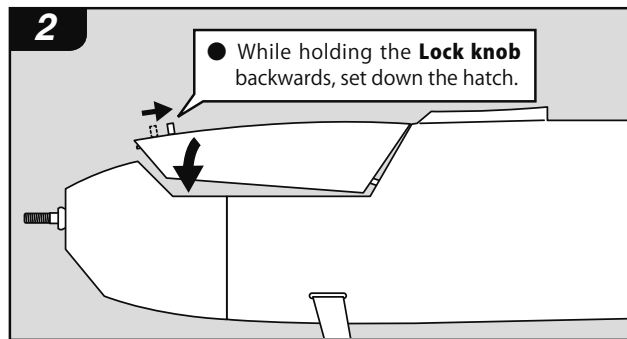
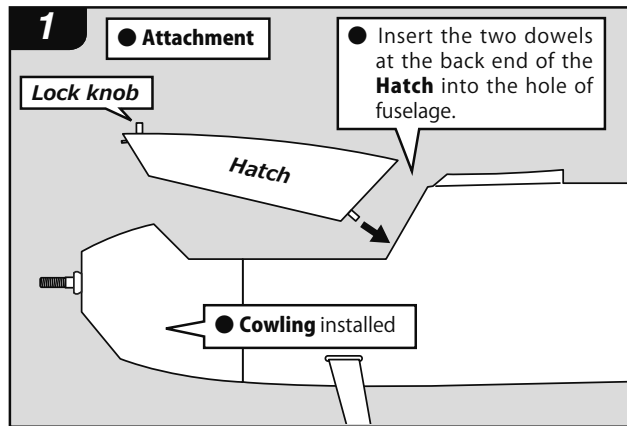
#13 Switch · Receiver · Battery



#14 Hatch



Hatch attachment / detachment



#15 Wing · Strut

1

● **Bottom Wing** Insert the two front dowels into the two holes of **Fuselage**.

2

● Fix **Bottom Wing** with two **M4 × 35 Flat head screws**.

3

● Fix **Upper Wing** with two **M4 × 35 Flat head screws**.

4

● Fix **Strut base** with **M3 × 35 Flat head screw**.

● **Small Strut base to Upper Wing**

● **Large Strut base to Bottom Wing**

● Adhere the **Strut base** to the wing with **Silicone glue** or **Rubber glue**.

M3 × 35 Flat head screw

M3 × 35 Flat head screw

5

● Install **Strut** and secure with **L-wire** and **Stopper**.

● Tighten **Set screw**

● Attach the **Strut** to the other wing by the same work.

Stopper

L-wire

L-wire

Set screw

⚠ Be sure to attach Strut when flying.

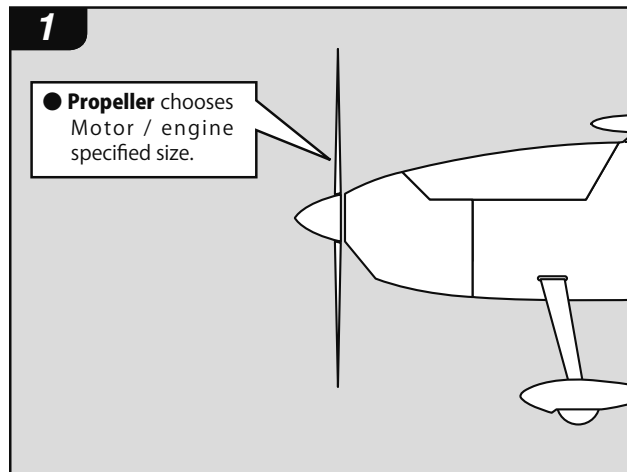
■ There is a danger of breakdown in the air due to insufficient strength unless strut is attached.

👍 Sky Leaf Tip

Remove Wing when transporting and storing. It is convenient to remove only bottom the L - wire then fold the Strut attached to the Upper Wing.

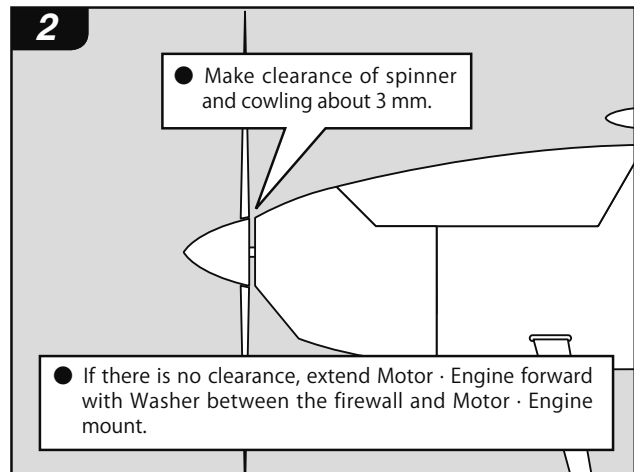
16 Propeller · Spinner

Propeller · Spinner is sold separately. Follow each manual to ensure installation.



⚠ Pay attention to the edge of the propeller.

- There is a danger of cutting your finger at the edge.



⚠ Tighten the Propeller · Spinner nut · screws securely.

- If coming off, there is a high risk of injury.

17 Decal sheet

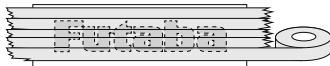
● How to paste



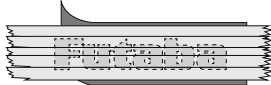
① Cover with masking tape.



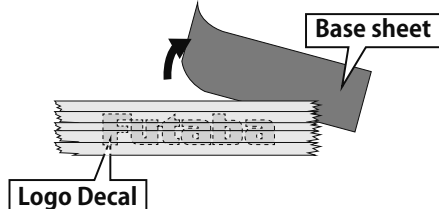
② Cover all of the logo.



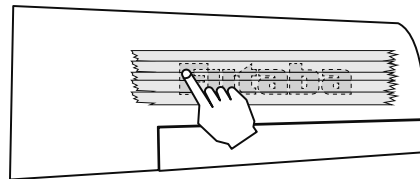
③ Peel off the base sheet.



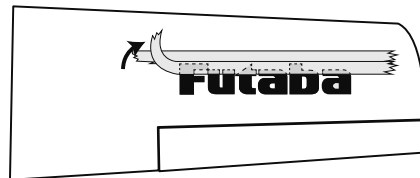
④ Leave the logo on the masking tape and remove all base sheet.



⑤ Put the masking tape together with the position on the airplane. Place by laying one side to another so that no air bubbles will show. After in position rub the decal part lightly to make the bond secure.



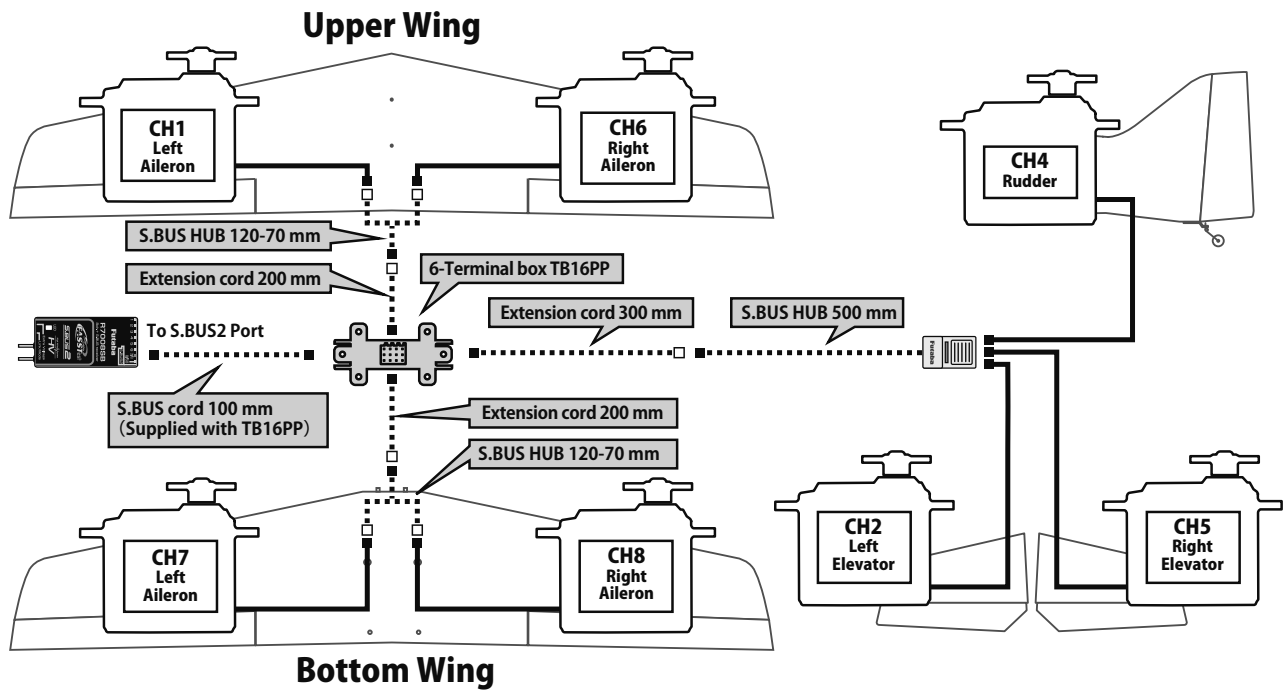
⑥ Carefully peel off only the masking tape so that the logo decal will not peel off.



⑦ Completed by closely attaching the logo decal with a soft cloth.



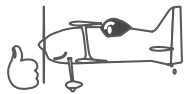
#18 S.BUS connection (e.g. T18MZ)



#19 Set the control throws

● Use a ruler, an inclinometer, or a protractor to accurately measure and set the control throw of each control surface in left/right or up/down same throw.

● Make sure that there is no binding on the control surface. In case of binding, reduce the travel adjustment in the TX.



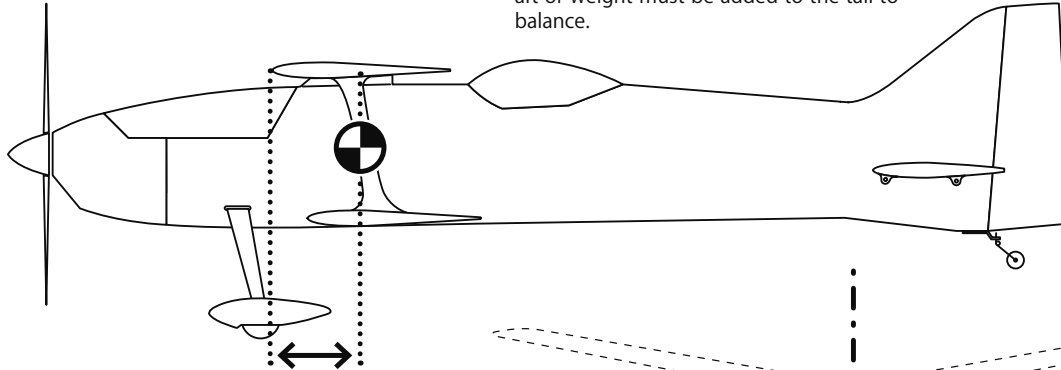
Sky Leaf Tip

It is best to utilize the dual rate function of the transmitter for the best control. A flight is usually done in low rate. For Aerobatics Flight, it is best to use high rates. When using high rates, use (-) EXPO. That will help control the model more smoothly around neutral stick position's.

Function	Aileron	Elevator	Rudder
D/R, AFR	45%	70%	100%
EXPO	-30%	-20%	-60%

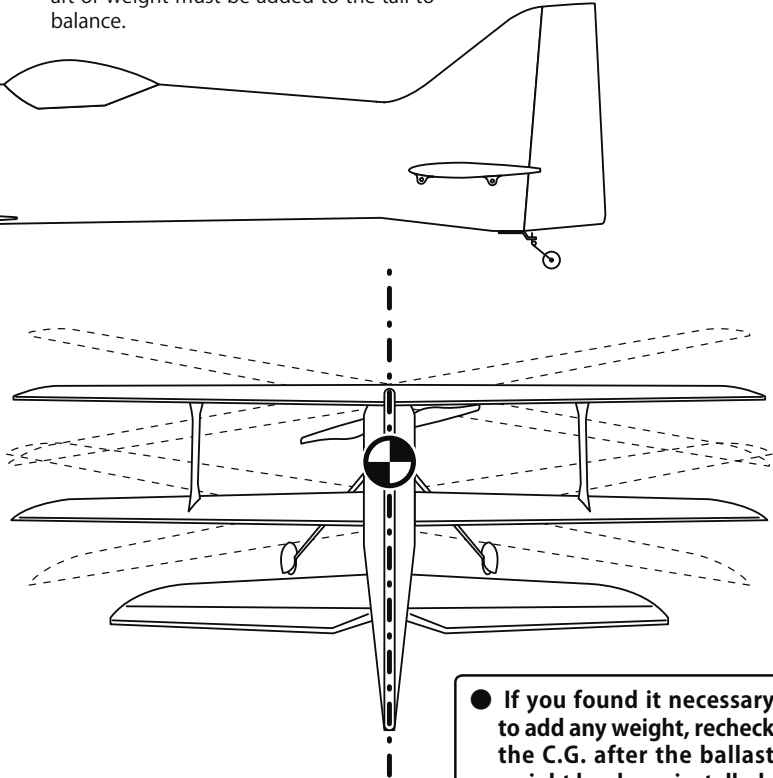
20 C.G. Position

- With the wing attached to the fuselage, all parts of the model installed (ready fly) and installed battery.



● 5.1 in (130 mm)

- If the tail drops, the model is "tail heavy" and the battery and/or receiver must be shifted forward or weight must be added to the nose to balance. If the nose drops, the model is "nose heavy" and the battery and/or receiver must be shifted aft or weight must be added to the tail to balance.



- With the wings level, have an assistant help you lift the model by the propeller shaft and the bottom of the fuselage under the tail. If one wing always drops when you lift the model, it means that side is heavy. Balance the model by adding weight to the other wing tip.

⚠ Do not fly before confirming the correct location of the C.G.

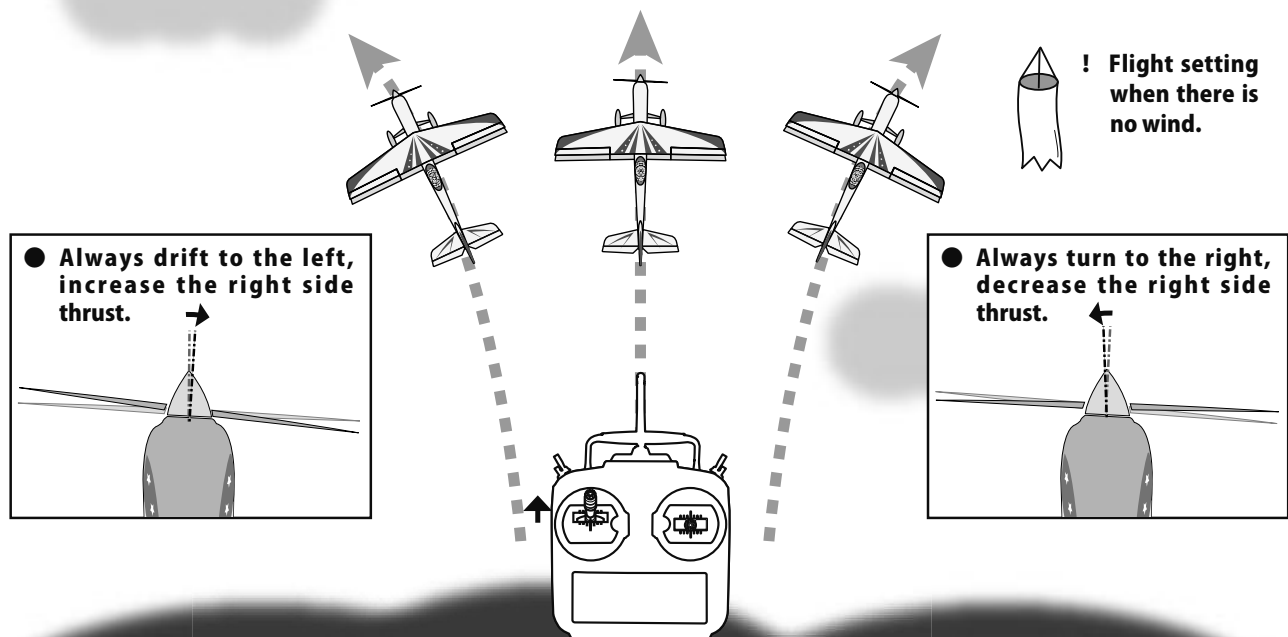
- If the CG is incorrect, the model will fly badly and could lead to a crash.

- If you found it necessary to add any weight, recheck the C.G. after the ballast weight has been installed.

21 Adjustment of side thrust

- Flight and adjust the side thrust. If drift is a concern, adjust the side thrust with the washer in the mount.

- Vertical climb with full power after trim adjustment.



22 Specification

Airplane : Sky Leaf BP
Overall Length : 60 in (1524 mm)
Wing Span : 53.5 in (1360 mm)
Wing Area : 835 in² (53.856 d m²)
Wing Thickness : 9%
Weight : 106 oz ~ 113 oz (3000 g ~ 3200 g)
Design • Test flight : Futaba's Pilots

S3176SV (S.BUS2/High Voltage servo) :

- Speed
0.17 sec/60° (6.6 V)
- Torque
4.5 kgf • cm (6.6 V)
- Size/Weight
1.41 × 0.77 × 0.98 in / 0.95 oz
(35.9 × 19.5 × 24.9 mm / 27 g)
- Operating Voltage
6.0 V ~ 7.4 V **! No dry battery use**

Futaba's Pilots

Tetsuo Onda :

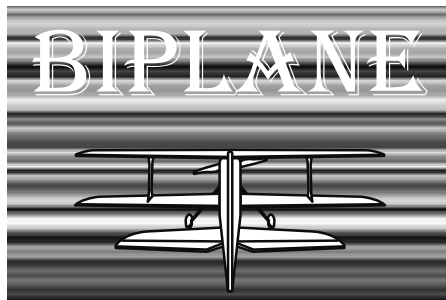


2017 F3A World Championship 1st
2003 ~ 2018 F3A Japan Championship 16 Wins
2004 ~ 2014 F3A Asia-Oceania Championship 6 Wins
2005/11/13/15 F3A World Championship 2nd
2007, 2009 F3A World Championship 3rd
2013 World R/C Indoor EP Championship 3rd

Koji Suzuki :

2000 F3A Asia-Oceania Championship 1st
2013 F3A World Championship 7th
2015 F3A World Championship 9th
2013 ~ 2018 F3A Japan Championship 2nd

The product is not repairable by Futaba service center if damaged.



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