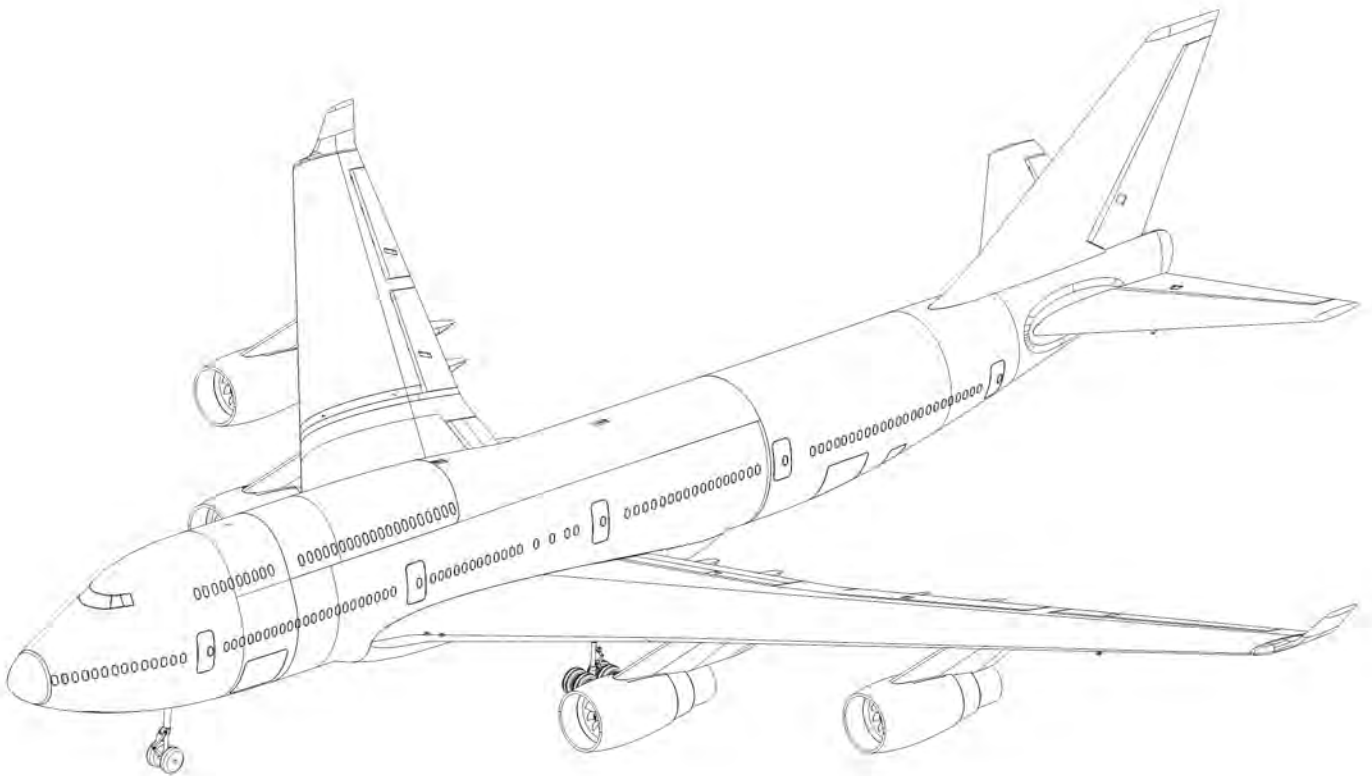


HSDJETS[®]

HBY-747 S-EDF90mm×4 ASSEMBLY AND PRE-FLIGHT INSTRUCTIONS

V1.0



Product S/N:

Want to learn more about the product video,
pictures, and other matters of attention Please
log in: www.hsdr.com

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S-EDF 90mm×4 HBY-747

Introduction

Thank you so much for purchasing this plane, What you have now is the latest plane product of HSDJETS. This model has the following features:

- 01.Designed by a master RC Pilot for amazing Sport Jet performance, scale appearance with a classic look and attention to detail with state of the art electronics.
- 02.The Airframe is constructed of Ultra High-Density EPO Foam and all the plastic components are engineered using the highest strength plastic. This makes for a very durable aircraft that resist many not so welcomed occasions!
- 03.Hsdjets has invested in the independent development of the exclusive MFC-2085 control system, which integrates the landing gear, Servo, power supply, lighting and other systems, so as to reduce complicated wiring.
- 04.Sequencing on-board LED Lighting System gives the HBY-747 an extremely scale appearance.
- 05.All new Wing Plug design for easy wing attachment using high quality plug materials for reliability and ease.

- 06.All Metal Landing Gear System now featuring Hydraulic Suspension Dampening provides a super scale appearance and provides a very strong landing gear system with soft suspension.
 - 07.New Ball Bearing Wheels with Electric Braking System for smooth landings and stopping the HBY-747 quickly.
 - 08.The whole machine adopts 14 metal gear digital servo, including 5 12g metal gear digital servo for landing gear and 9 25g hollow cup servo for other channels, which is firm and durable.
 - 09.All new Full Metal Control Surface Horns for all the control surfaces for strength and performance.
 - 10.Carbon fiber rod and glass fiber wing rib frame are embedded in the main wing, which significantly improves the strength and torque resistance.
 - 11.Four dual ubecs are used to ensure the stability and safety of power supply for each line.
 - 12.All standard screws are hexagon socket screws.
- We believe the plane will give you an excellent flying experience. Before starting please read our manual.

Warning!



This is not a toy. Potentially dangerous for children under 14 years old. Children under 14 should not be permitted to operate the model without the supervision of an adult. Please keep these instructions for reference after model assembly.

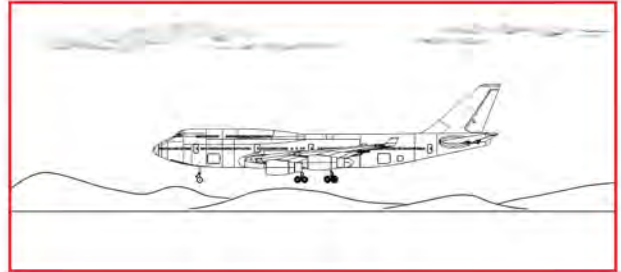
Important Tips

1. Some experience necessary. Beginners should use under supervision;
2. Before install, please read through the instructions carefully and operate strictly under instructions;
3. HSDJETS and its distributors/dealers will not be held responsible or liable for injury due to incorrect assembly or wrongful use;
4. Not for use of 14 years or under;
5. Please do not use commercial cleaning products to clean plane. It will damage the painted EPO foam;
6. You should be careful to avoid flying in areas such as public places, high-voltage-intensive areas, near the highway, near the airport or any other place where laws and regulation clearly prohibit;
7. You can not fly in bad weather conditions such as thunderstorms, snow, and etc;
8. Do not store batteries within 2 meters of flammable or explosive materials;
9. Dispose of damaged batteries in a designated place;
10. In flying field, the waste after flying should be properly handled, it can't be abandoned or burned;
11. Before starting the airplane, ensure that the throttle is in low and the transmitter switch is on! Then connect the battery;
12. Do not try to take planes by hand when flying or slow landing process. You must wait for landing stop and when the blades stop turning, first disconnect the power supply and then carry it;
13. Whether flying or debugging on the ground, always ensure that there is no one in front of the aircraft.

Safty Flight Instructions

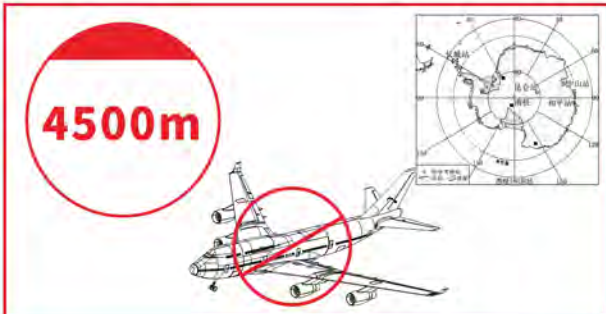
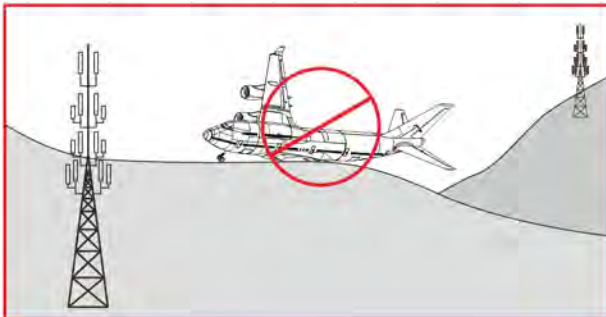
Strongly suggestion: users while enjoying the flying, please ensure that you are in a safe and reasonable environment.

1. It is better to try to choose an empty airspace, with no obstacles when you fly.
2. Stay away from people, animals, buildings, trees, water and other obstacles during flying.
3. Please keep the radio transmitter in your hand during the flight to control the model at any time to prevent accidents.
4. Please control the height of the aircraft to 120 meters to ensure the flight safety of the flyer and civil aviation. If you are in the area that have restrictions on flying altitude of 120 meters or less, please comply with its regulations. Make sure the model do not go out of sight and cause unnecessary accidents.

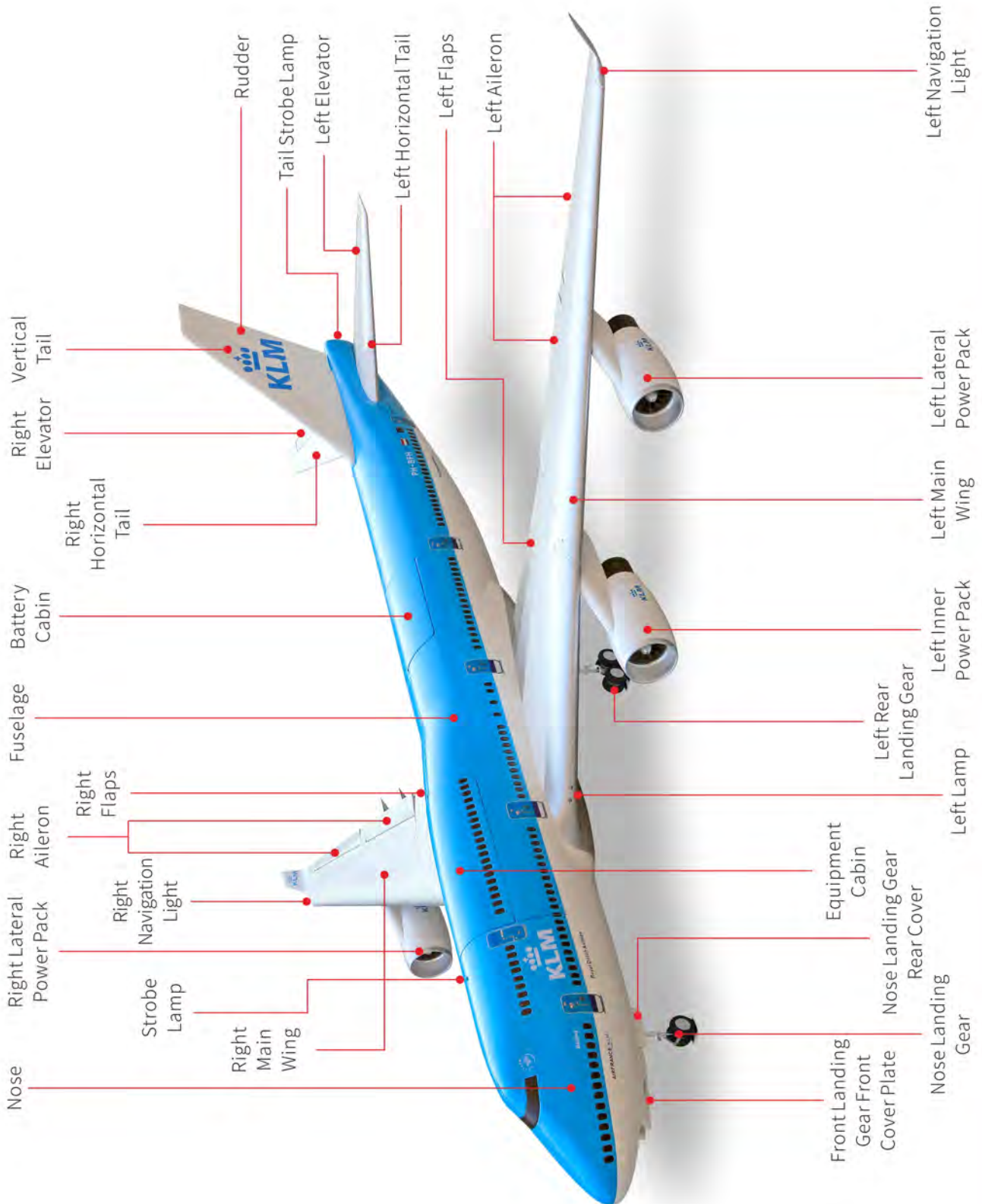


Flight environment requirements

1. Do not fly in areas such as transmission towers, communication base stations, high-voltage lines, or Wi-Fi hotspots to prevent the radio transmitter signal is interferenced.
2. Do not operate in bad weather, such as: strong winds(wind speed 10 m/s and above), raining, lightning, fog, snow, etc..
3. Flying is not recommended at altitudes above 4,500 meters and in the Arctic and Arctic circles.
4. Do not fly in airports or restricted areas under the relevant laws or regulations.



Description of each component

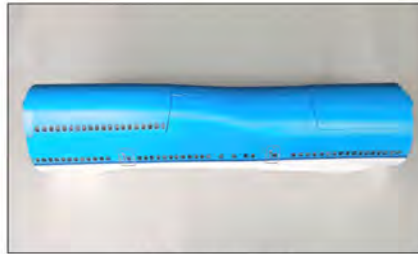


Install instructions

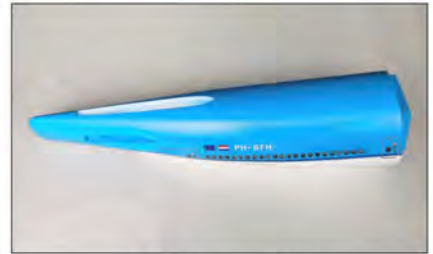
1. Aircraft unpacking (PNP version): Take out the middle section of the fuselage, the tail end of the fuselage, the left flat tail, the right flat tail, the fuselage / wing / flat tail latch tube, the nose and the inner engine set in turn × 2. Outboard engine set × 2. The middle section of the wing, left wing, right wing, vertical tail, accessory package and other items, and check whether the quantity of packaged items is complete according to the list of packaged items in the manual. whether the quantity of packing articles is complete according to the packing list in the manual.



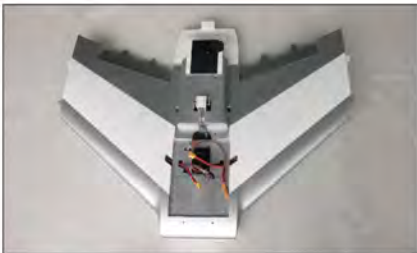
Nose×1



Mid fuselage×1



Fuselage tail end×1



Mid wing×1



Left main wing×1



Right main wing×1



Vertical tail×1



Left horizontal tail×1



Right horizontal tail×1



Inboard engine set×2



Outboard engine set×2



Reinforced carbon rod×1



Manual×1

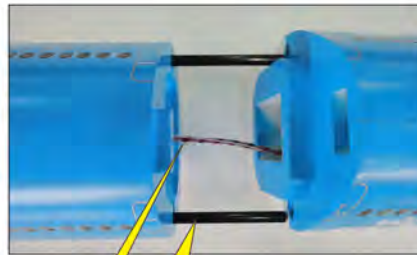


Accessories package×1

- Screw (HM3×14mm)×8 pcs (Main wing)
- Screw (HM3×35mm)×20 pcs (Engine set)
- Screw (HM4×35mm)×2 pcs (Vertical tail)
- Screw (HM4×50mm)×2 pcs (Vertical tail)
- Screw (HM6×95mm)×14 pcs (Nose, fuselage, wing)
- Screw (HM6×125mm)×4 pcs (Wing)
- Screw (HM6×130mm)×4 pcs (Wing)
- Accessories Bag 2×1 pcs 100mm signal line (JR male+JR male)×8 pcs
- 100mm High precision Y-line (JR male+JR male)×1 pcs

Install instructions

2. Install the nose and fuselage middle section: take out the nose, fuselage middle section and fuselage reinforcing rod from the PE bag, place them on a flat and clean table, and tighten the fuselage reinforcing rod ($\phi 16 \times \phi 12 \times L380\text{mm}$) into the specified hole position of the machine head, then install the machine head and the middle section of the machine body, and use screws (HM6×95mm×2pcs) fixed. Note: it is necessary to lead out the flat line of the machine head for connection.



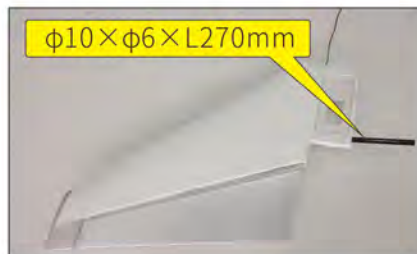
$\phi 16 \times \phi 12 \times L380\text{mm}$

HM6×95mm×2pcs

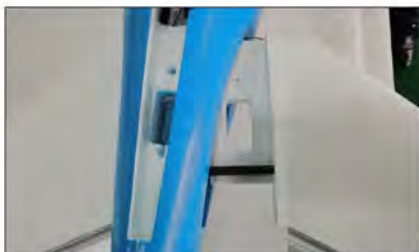
It is necessary to lead out the flat line of the machine head for connection



3. Install the left and right horizontal tail wings: First install the flat tail reinforcing rod ($\phi 10\text{mm} \times \phi 6\text{mm} \times L270\text{mm}$) insert the left horizontal tail into the designated hole position, and insert the left horizontal tail into the designated position at the tail end of the fuselage. Note: the servo line of the horizontal tail should also be inserted at the same time. Then align the hole position of the right horizontal tail with the reinforcing rod, insert the reinforcing rod, install the left and right horizontal tail in place, and then connect and plug the two servo signal wires of the horizontal tail with the servo signal wire at the fuselage end. Note: the wire color is opposite to the color, and cannot be inserted reversely.

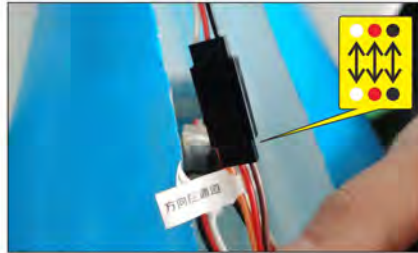


$\phi 10 \times \phi 6 \times L270\text{mm}$

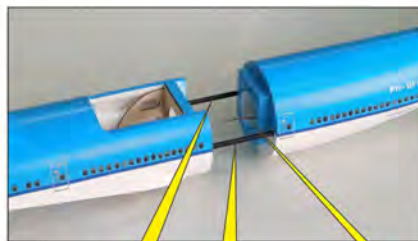


Install instructions

4. Install the vertical tail: Before installing the vertical tail at the designated position at the tail end of the fuselage, the signal line of the servo at the vertical tail end shall be connected with the signal line of the servo at the tail end of the fuselage. Note: the wire color is opposite to the color and cannot be inserted reversely; After installation in place, use screws (HM4 × 50mm × 1pcs, HM4 × 35mm × 1pcs) front and rear fixation.



5. Install the tail end and middle section of the fuselage: Connect the fuselage reinforcing rod ($\phi 16 \times \phi 12 \times L680\text{mm}$) into the designated hole position at the tail end of the fuselage, then install the tail end of the fuselage and the middle section of the fuselage, and use screws (HM6 × 95mm × 3pcs) fixed. Note: it is necessary to lead out the cable at the tail end of the fuselage for connection.



$\phi 16 \times \phi 12 \times L680\text{mm} \times 2\text{pcs}$

HM6 × 95mm × 3pcs

It is necessary to lead out the cable at the tail end of the fuselage for connection.

Install instructions

6. Installation of left and right wings and outboard engine sets: Before installing the outboard engine set at the designated position of the wing, connect and plug the power line and throttle signal line of the outboard engine set with the power line and throttle signal line at the wing end. Note: the wire color is the same as the color, and cannot be inserted reversely; Install in place with screws (HM3 × 35mm) fixed.

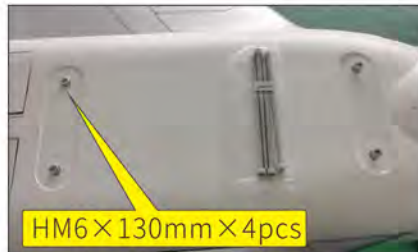


7. Installation of wing middle section and inner engine group: Before installing the inner engine group at the designated position of wing middle section, connect and plug the power line and throttle signal line of inner engine group with the power line and throttle signal line at the end of wing middle section. Note: the wire color is the same as the color, and cannot be inserted reversely; Install in place with screws (HM3 × 35mm) front and rear fixing.

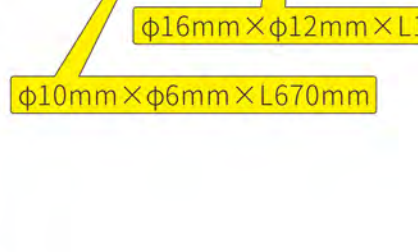


Install instructions

8. Install the middle section of the wing and the fuselage: Install the middle section of the wing with the inboard engine set at the designated position of the fuselage, and then install it in place with screws (front HM6 × 130mm × 4pcs, rear HM6 × 95mm × 2pcs) fixed. Then connect the signal cables at the head end and the tail end of the fuselage respectively. Note: the signal cable must be inserted properly according to the color of the wire, and it cannot be inserted reversely.



9. Install the left and right wings: Install the main wing stiffener ($\phi 16\text{mm} \times \phi 12\text{mm} \times L1380\text{mm} \times 2\text{pcs}$) ($\phi 10\text{mm} \times \phi 6\text{mm} \times L670\text{mm} \times 2\text{pcs}$) insert into the designated hole position in the middle section of the fuselage, align the hole position of the left and right main wings with the main wing reinforcing rod, and insert the reinforcing rod. Before fully inserting, make sure to connect the signal cable between the main wing end and the fuselage end, and then use screws (HM3 × 14mm × 4pcs) fixed.



Install instructions

10. Install the power cord: Connect the power cord with the xt90 plug cord in the middle of the wing. 747 body assembly completed.



First test and adjustment after assembly



1. Find the S-bus line at the mfc-2085 integrated control box and connect it to the S-bus port of the receiver. (Note: if the receiver does not support S-bus, the mfc-2085 integrated control box needs to be connected with PWM signal line;)



2. Turn on the remote control.



3. Connect the mfc-2085 integrated control box to a group of 2S lithium batteries;



4. MFC-2085 integrated control box S-BUS mode channel setting, the factory channel is: S-BUS Setting.

5. Check the Super Integrated Control Box S-BUS mode channel settings. The factory default channel is: S-BUS Setting

(Note: You can change the default gear switch position according to your own custom channel.)

- | | |
|----------------------------------|-----------------------------------|
| 1.AUX1 CH Aileron (default CH1) | 7.AUX7 CH Spare(default CH7) |
| 2.AUX2 CH Elevator (default CH2) | 8.AUX8 CH Spare |
| 3.AUX3 CH Rudder (default CH4) | 9.A/B LIGHT CH Spare(default CH3) |
| 4.AUX4 CH Flap (default CH6) | 10.NAV,LIGHT CH CH |
| 5.AUX5 CH Spare | 11.WHEEL BRAKE CH (default CH8) |
| 6.AUX6 CH Throttle (default CH3) | 12.LANDING GEAR CH (default CH5) |

First test and adjustment after assembly

5. Aileron detection: check whether the aileron movement is correct

Right model throttle radio transmitter

Note: If there is no special instruction, this user guide uses the right-hand oil remote control as an example for introduction.



Aileron standard action



Aileron standard action



Aileron standard action



When the aileron action is opposite to the specified action, you can find the servo reverse setting menu in the remote-control menu, and switch forward and reverse in the aileron item bar.

Right model throttle radio transmitter

Possible ailerons reverse action



First test and adjustment after assembly

7. Aileron adjustment: After completing the setting, start to adjust the standard position of the rudder surface. The aileron rudder surface should be on the same plane as the wing. If there is upturn or downturn that needs to be leveled, it can be adjusted through physical adjustment or system adjustment;

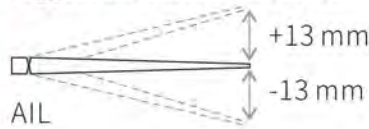
(1). Physical adjustment: change the length of the rudder surface by adjusting the length of the lever to keep it on the same plane with the wing;

(2). System adjustment: Adjust the neutral point of the servo through the Super integrated control box (for details, pls see the MFC-2085 multi-function flight controller system english menu introduction & quick entrance);

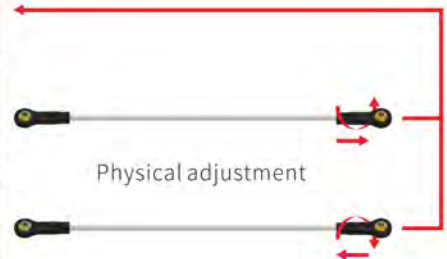
It is recommended to use 100% rudder amount for remote control, adjust the EXP curve under the premise of the same rudder amount, firstly, it is recommended to modulate -20% EXP value; actually adjust according to personal operating habits.



Suggest the amount of servo:



EXP suggest: -20%



8. Elevator detection: check whether the lifting action is correct

Right model throttle radio transmitter



Aileron standard action



Possible ailerons reverse action



Note: If there is no special instruction, this user guide uses the right-hand oil remote control as an example for introduction.

When the elevator action is opposite to the specified action, you can find the servo reverse setting menu in the remote-control menu, and switch forward and reverse in the elevator item bar.

First test and adjustment after assembly

9. Elevating adjustment: After completing the setting, start to adjust the standard position of the rudder surface. The elevator surface should be on the same plane as the horizontal tail. If there is upturn or downturn that needs to be leveled, it can be adjusted through physical adjustment or system adjustment;

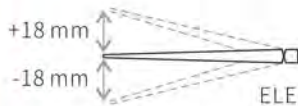
(1) Physics Adjustment: change the length of the rudder surface by adjusting the length of the lever to keep it on the same plane as the wing;

(2) System adjustment: Adjust the neutral point of the servo through the Super integrated control box (for details, pls see the MFC-2085 multi-function flight controller system english menu introduction & quick entrance);

It is recommended to use 100% rudder amount for remote control, and the rudder amount does not change. Adjust the EXP curve under the premise, the first suggestion is to modulate the -20% EXP value; the actual adjustment should be based on personal operating habits.



Suggest the amount of servo:



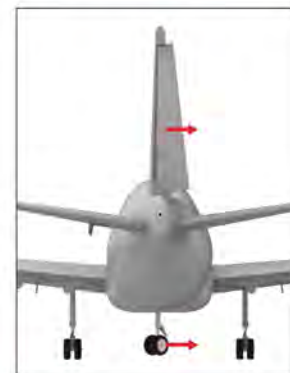
Physical adjustment

EXP suggest: -20%



10. Direction detection: check whether the direction is correct

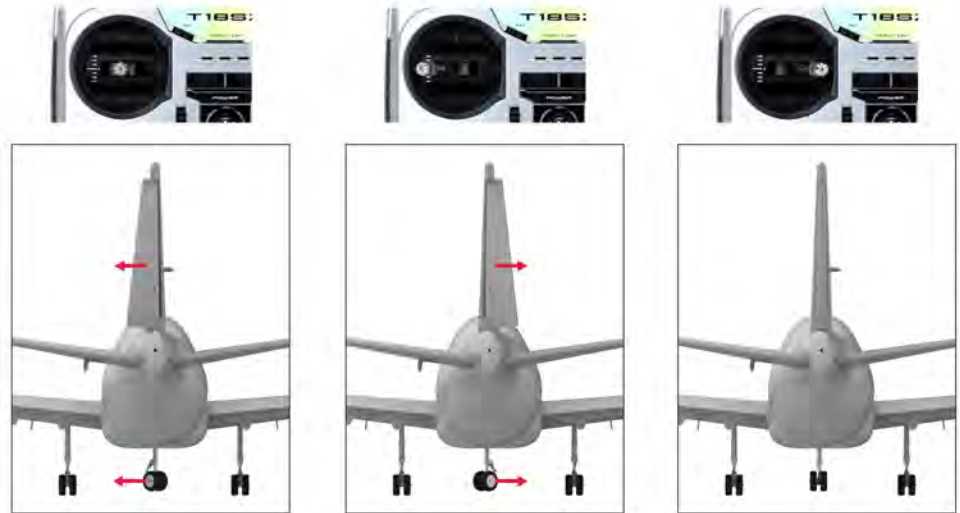
Rudder standard action



Note: If there is no special instruction, this user guide uses the right-hand oil remote control as an example for introduction.

First test and adjustment after assembly

Possible rudder reverse action

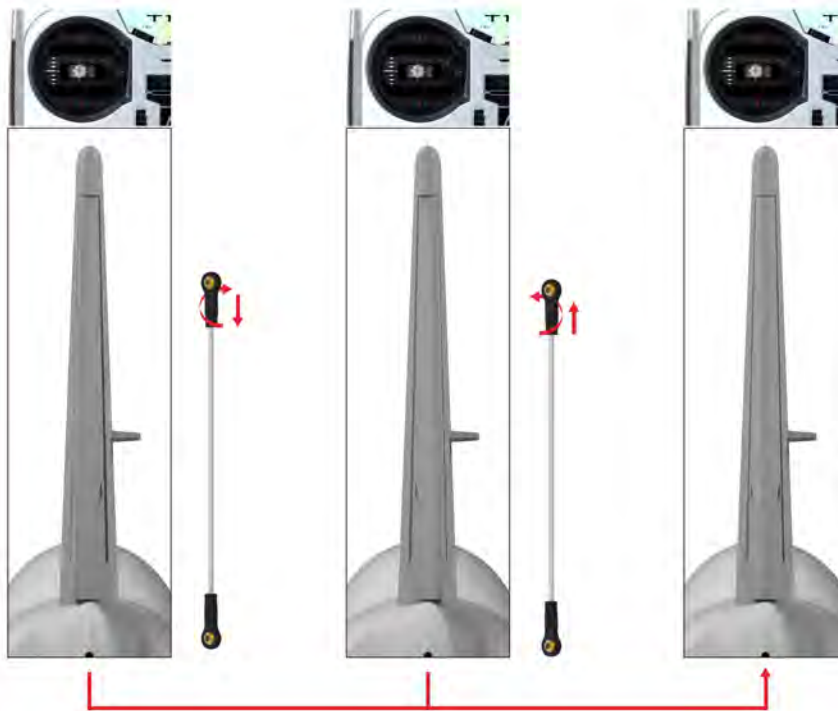


When the rudder action is opposite to the specified action, you can find the servo reverse setting menu in the remote-control menu, and switch forward and reverse in the rudder item bar.

11.Direction adjustment: After completing the setting, start to adjust the standard position of the rudder surface. The rudder surface should be in the same plane as the vertical tail. If there is a left or right deviation, it needs to be adjusted to the vertical center, which can be adjusted through physical adjustment or system adjustment:

(1).Physical adjustment: change the length of the rudder surface by adjusting the length of the lever to keep it on the same plane with the wing;

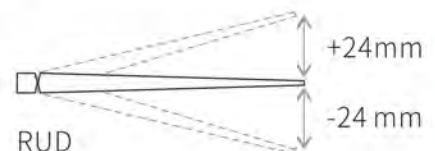
2).System adjustment: Adjust the neutral point of the servo through the Super integrated control box (for details, pls see the MFC-2085 multi-function flight controller system english menu introduction & quick entrance);



Physical adjustment

It is recommended to use 100% rudder for remote control, and it should be adjusted according to personal habits;

Suggest the amount of servo:

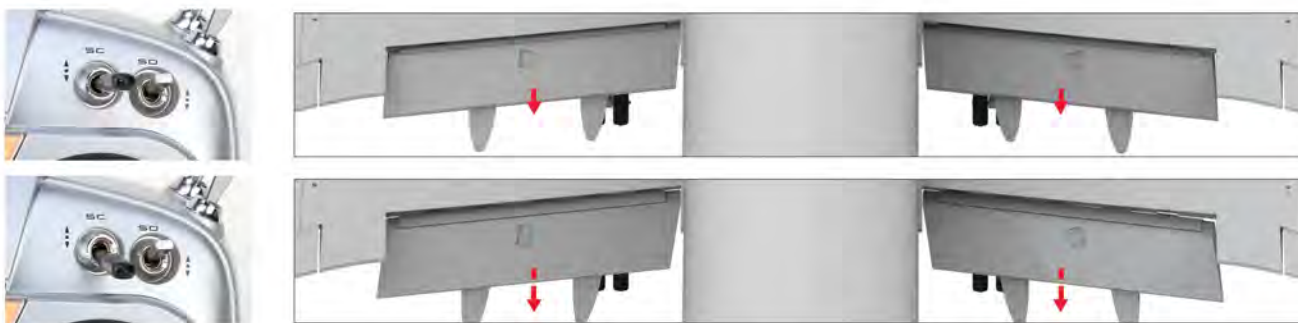


First test and adjustment after assembly

12. Flap detection: check whether the flaps are correct

Right model throttle
radio transmitter

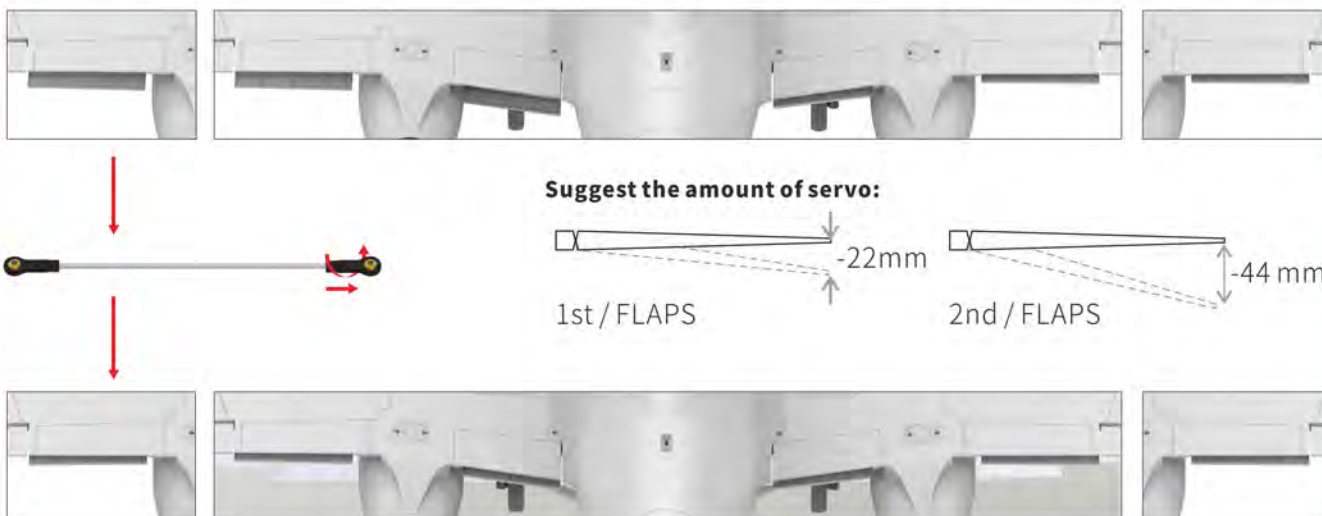
Flaps standard action



13. Flaps adjustment: After finishing the setting, start to check the flap rudder surface, whether the first gear flap rudder surface is the same in length, whether the second gear flap rudder surface is the same, if the two sides of the rudder surface are inconsistent, you can pass Physical adjustment;

Physical adjustment: Change the length of the rudder surface by adjusting the length of the lever to keep it at the same degree with the two rudder surfaces.

It is suggested to use 100% rudder for remote control, which should be adjusted according to personal operating habits.



First test and adjustment after assembly

14. Landing gear test and adjustment:

Standard landing gear action



Note: the super integrated control box has a built-in program to avoid false retraction and retraction. When the landing gear retraction and retraction function is used for the first time after each power on, it is necessary to toggle the gear pull switch on the remote control to control the landing gear back and forth once to release the program to avoid false retraction and retraction;

Check whether the landing gear works normally. If the landing gear light is on when the landing gear is retracted, it indicates that the action of the landing gear is opposite. The reason is that the positive and negative wires of the electric retraction and retraction are inserted reversely. It is necessary to replace and insert the positive and negative wires of the electric retraction and retraction from the super integrated control box (see the menu description and quick start of mfc-2085 super integrated control box for details);

If the five are not synchronized, one up, two down or two up and down, it can also be solved by switching and inserting the positive and negative wires. The mfc-2085 super integrated control box has the function of one key retracting and retracting the landing gear (see the menu description and quick start of mfc-2085 super integrated control box for details).

Possible landing gear reverse action



First test and adjustment after assembly

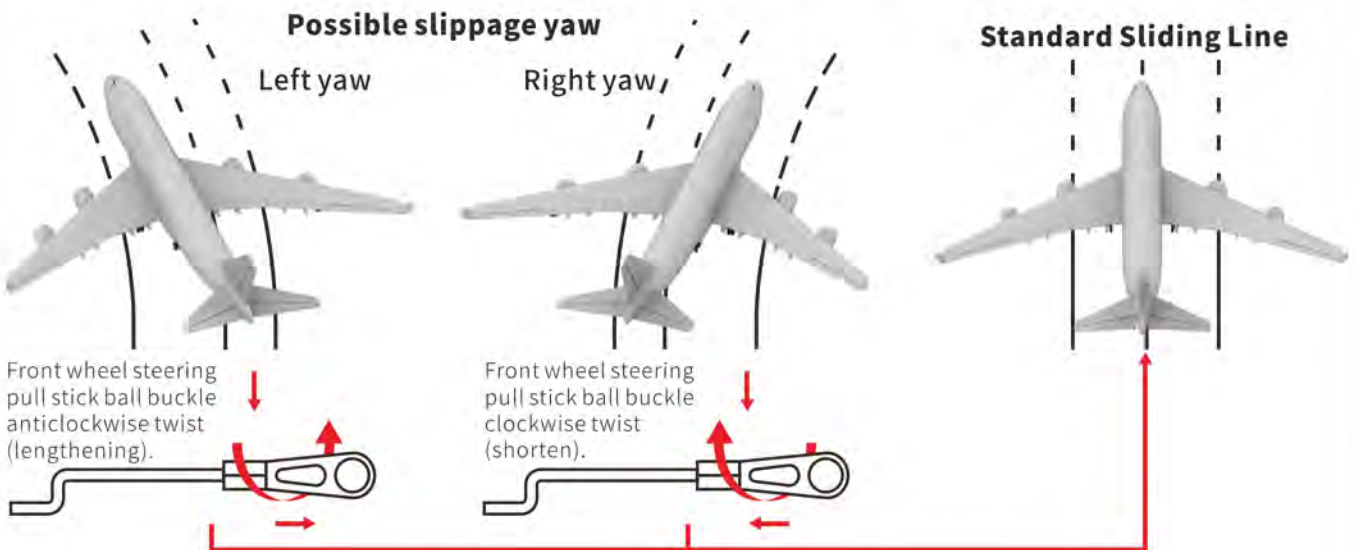
15. Ground test and adjustment: After the above process is gradually completed, power the plane and do straight slide test to check whether the stroke volume of the front steering servo is full. If the steering is yaw or the steering angle is too large, it can be adjusted by physical adjustment or system adjustment:

(1).Steering yaw adjustment:

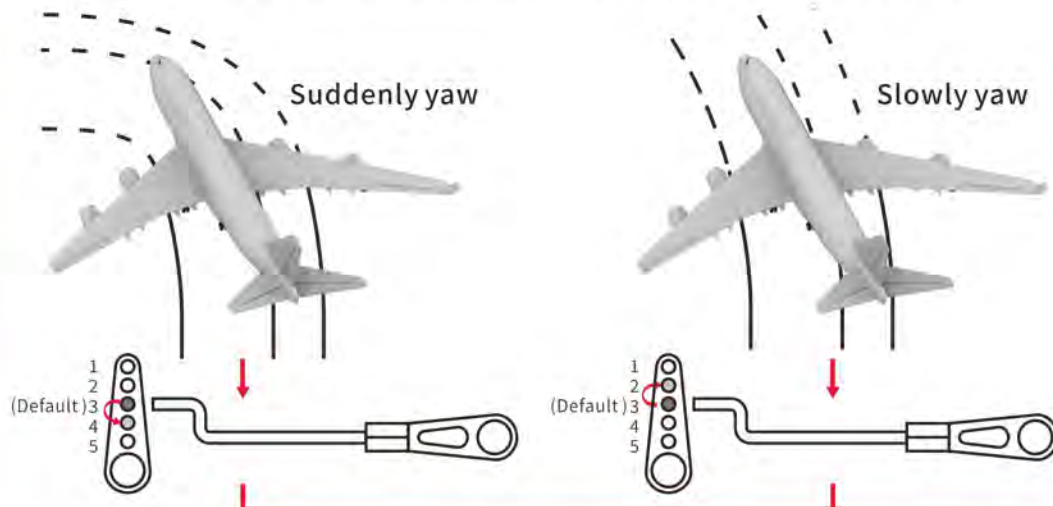
- ①. physical adjustment: Complete it by adjusting the length of the front wheel steering rod;
- ②. System Adjustment: Adjust the servo stroke by the Super Integrated Control Box(for details, pls see the MFC-2085 multi-function flight controller system english menu introduction & quick entrance);

(2).Excessive adjustment of steering angles:

- ①.Physical adjustment: adjust the install holes of the pull rod in the rocker arm of the steering servo of the front wheel;
- ②.System Adjustment: Adjust the servo stroke through the Super Integrated Control Box(for details, pls see the MFC-2085 multi-function flight controller system english menu introduction & quick entrance);



The skid yaw angle over or smaller may happened during the operation



Front wheel steering servo rocker lever mounting hole position is adjusted to hole 4, and the stroke is reduced by system adjustment.

Front wheel steering servo rocker lever mounting hole position is adjusted to hole 2, and the stroke is increased by system adjustment.

First test and adjustment after assembly

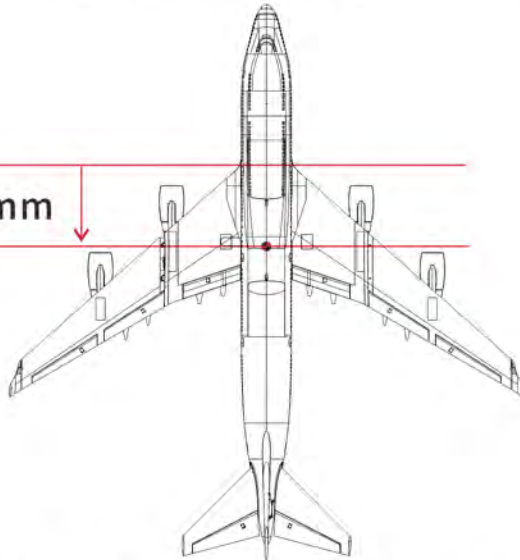
16.Center of gravity detection before take-off:

Before starting the machine, you need to confirm whether the position of the center of gravity of the machine is correct. The center of gravity is located behind the front edge of the main wing: 470~475mm.

A general method for measuring the center of gravity



470~475mm

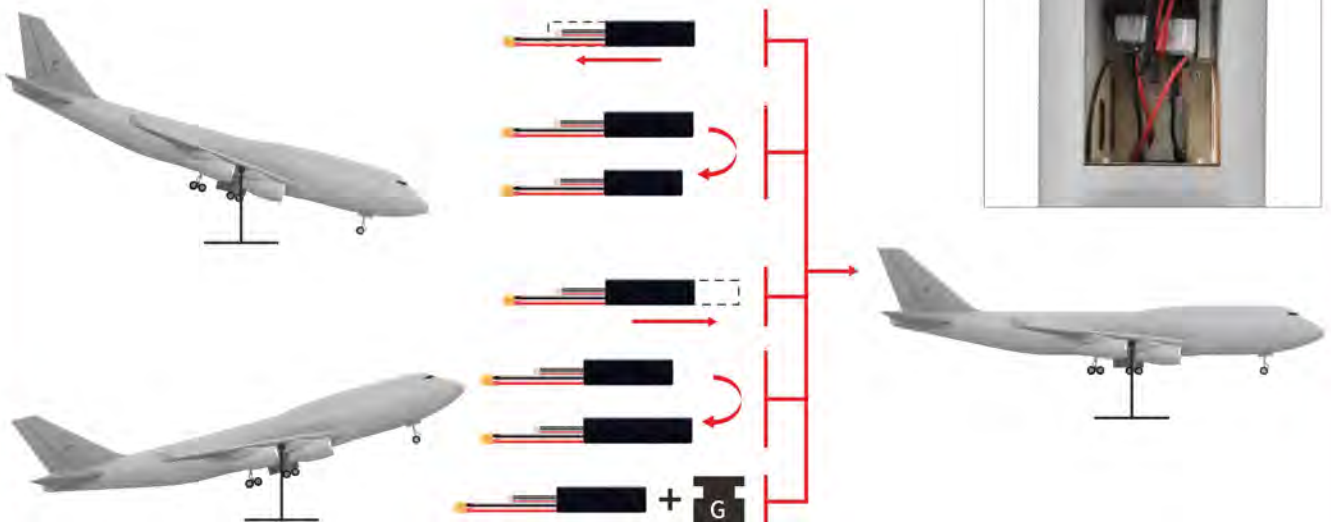


Battery Assembly Diagram



17.Center of gravity adjustment: If the position of the center of gravity is wrong, it must be adjusted. Generally, there are two situations:

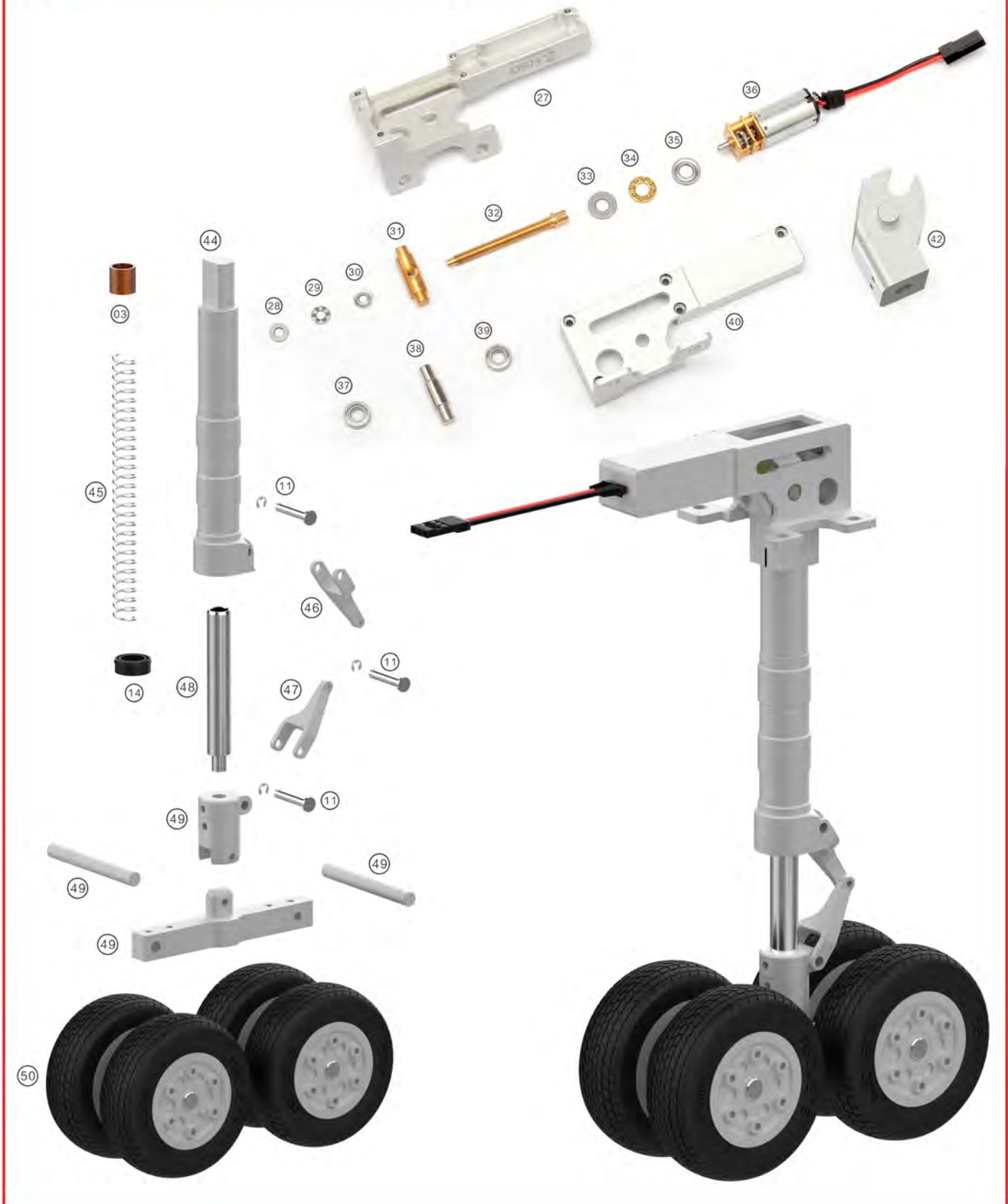
- A.If the nose is too heavy (lower your head during ground center of gravity test), you can move the battery back to the rear of the aircraft or replace with a smaller capacity battery that can meet the power requirements of the aircraft;
- B.The machine head is too light (head up during the ground center of gravity test), move the battery forward to the machine head or increase the counterweight or replace with a larger capacity battery that can meet the power requirements of the machine.



Front landing gear assembly diagram



Rear landing gear assembly diagram



Specification and configuration

Specifications:

Wingspan	2800 mm / 110.24 in
Length	3000 mm / 118.11 in
Take off weight	17kg / 37.5lb
Flying time	4~6 minutes
Main wing area	103.6 dm ²
Loading of airfoil surface	164 g/dm ²
Main material	20 times the import of aeromodelling EPO
Body Surface Treatment	Matte environmental water-borne paint + decal
Suitable experience level	<input type="checkbox"/> Zero basis <input type="checkbox"/> Beginner <input checked="" type="checkbox"/> Intermediate <input type="checkbox"/> Advanced
PNP assembly difficulty	<input type="checkbox"/> ☆(10mins) <input checked="" type="checkbox"/> ★☆(30mins) <input type="checkbox"/> ★★(60mins)
Operate suitable for age	Above 18 years of age
Working temperature	0°C ~ 40°C

Configuration:

Remote control channel	7CH (Selective configuration)
Control system	MFC-2085
Motor	3560-1550KV×4 PCS (outer rotor)
EDF	S-EDF 90mm 12Blade×4 PCS
ESC	100A×4 PCS
Power battery	6S / 22.2V / 5200 mAh Li-Po×4 PCS (Selective configuration)
Receiver battery	2S / 7.4V / 5200 mAh Li-Po×2 PCS (Selective configuration)
Servo	12g×5PCS / 25g×9 PCS (Hollow cup metal gear digital servo)
Landing gear	All metal hydraulic simulation electronic retractable landing gear
Brake function	Yes
LED Lighting System	Yes
Aileron	Yes
Flaps	Yes
Horizontal tail	Yes
Vertical tail	Yes
Reinforced gyro	Selective configuration
Packaging	Outer Box (card mark)
Center of gravity	470~475mm leading edge of main wing
Package size (1,2,3)	1310×625×400mm, 1190×993×330mm, 705×405×643mm
Packing weight (1,2,3)	8.5KG, 14.5KG, 6.7KG

S-EDF 90mm×4 HBY-747



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