

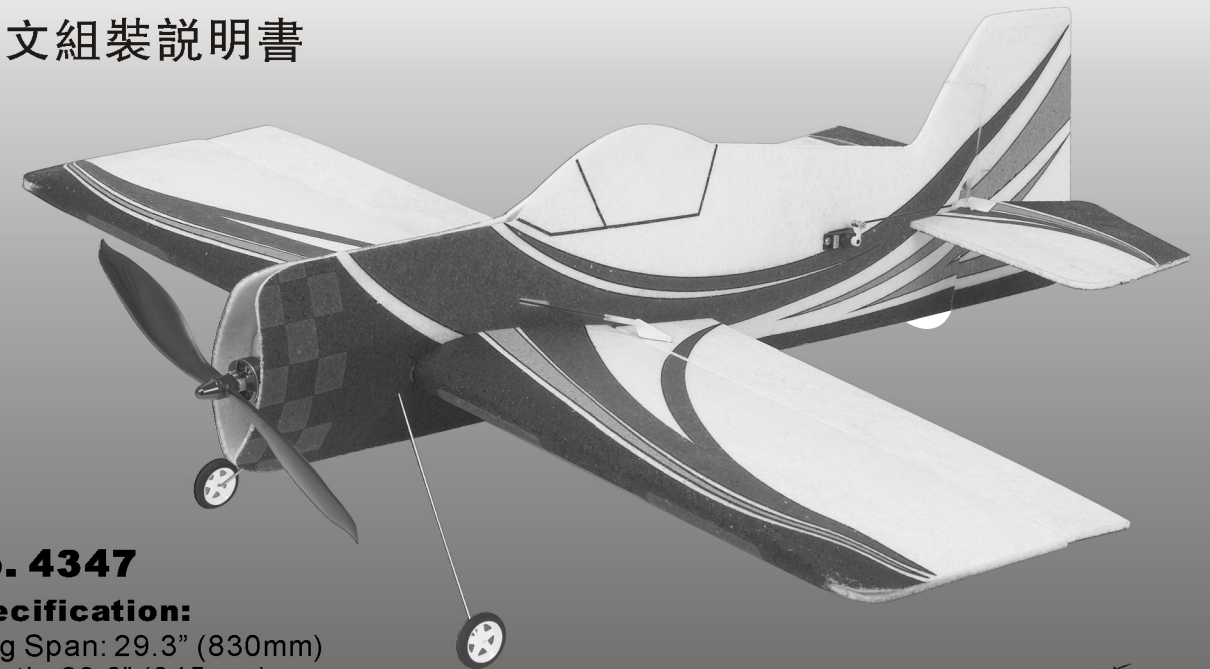
MEMO



3D Sukhoi 31

Assembly Manual

中文組裝說明書



No. 4347

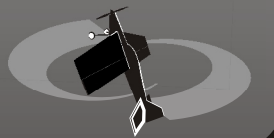
Specification:

Wing Span: 29.3" (830mm)

Length: 29.8" (845mm)

Wing Area: 322.4 sq.in. (20.8 dm²)

Weight: 14oz.~15oz. (420~430g)



Warranty

This kit is guaranteed to be free from defects in material and workmanship at the date of purchase. It does not cover any damage caused by use or modification. The warranty does not extend beyond the product itself and is limited only to the original cost of the kit. By the act of building this user-assembled kit, the user accepts all resulting liability for damage caused by the final product. If the buyer is not prepared to accept this liability, it can be returned new and unused to the place of purchase for a refund. Neither your dealer nor Thunder Tiger Distributors, can accept kits for return if construction has begun.

Notice: Adult Supervision Required

This is not a toy. Assembly and flying of this product requires adult supervision.

Read through this book completely and become familiar with the assembly and flight of this airplane. Inspect all parts for completeness and damage. Browse www.thundertiger.com for customer service if you encounter any problems.

INTRODUCTION



Introduction

Thank you for your purchase of the Thunder Tiger 3D Sukhoi EP. You can make this proven 3D fun flyer easily do any aerobatics and 3D maneuvers, includes Knife Edge, Hovering, Torque Rolls, Cobra...etc. Made of Anti-Impact EPP material that reduce the crash damage. Very good for those who are interested in learning 3D-aerobatics or experienced 3D pilots who are looking for a relaxed practicing plane that can be used both outdoor and indoor.

The 3D Sukhoi EP is designed for **intermediate pilot** minded. Before beginning the assembly read the instructions thoroughly to give an understanding of the sequence of steps and a general awareness of the recommended assembly procedures. Check the entire contents of your kit against the parts drawing and photos to make sure that no parts are missing or damaged. This will also help you to become familiar with each component of your plane. If you find that any of the parts are either missing or damaged, please contact Thunder Tiger Distributors for Customer Service.

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OTHER ITEMS REQUIRED FOR ASSEMBLY

A checklist is provided as below which will make shopping for these items easier.



Brushless Motor: Recommend OBL29/09-07A motor (No.2354)



Controller: ACE BLC 12A (No. 8026) is a perfect controller that controlling OBL motor efficiently.



Battery: Recommend the use of a ACE Power Lipo battery 3S1P 1100mAh(No.2804).



Extension Wire: 2 pieces of extension wire in length of 12".



Propeller: There is a 11x8 prop. in the kit, yet it is only for test flight. Recommended APC 10x4.7 SF propeller for high performance 3D aerobatics.



Radio: A 4-channel radio with 3 micro servos and mini receiver are required.



Adhesives: You will need the thick instant (cyanoacrylate) adhesives.

TOOLS AND SUPPLIES NEEDED

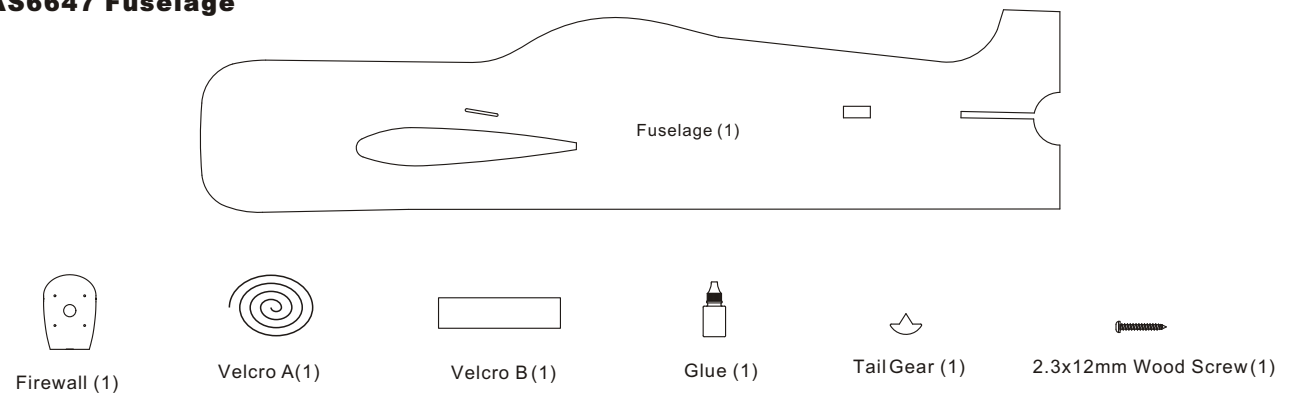
Paper Towel
Hobby Knife
Ruler
Pen, Pencil or Marker
Phillips&Flat Head Screw Drivers
Scissors
Nose Plier
Drill Bit 5/64" (2mm)



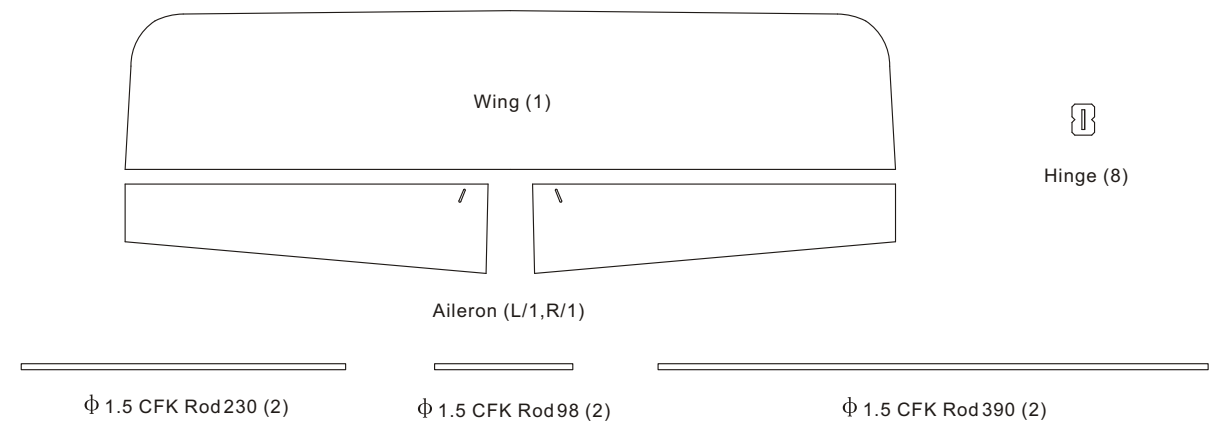
PARTS DRAWINGS

Open the box and check that you have all the parts as shown below.

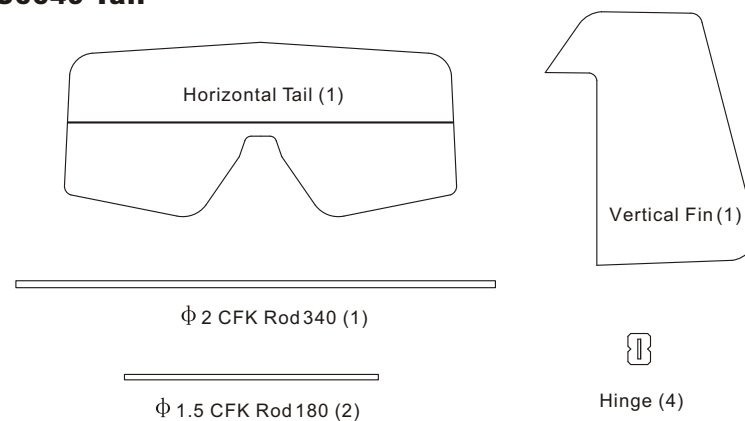
AS6647 Fuselage



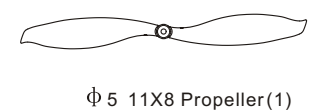
AS6648 Main Wing



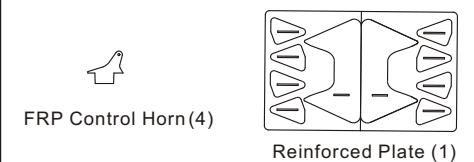
AS6649 Tail



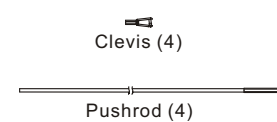
AS6653 11x8 SF Propeller



AS6652 Control Horn



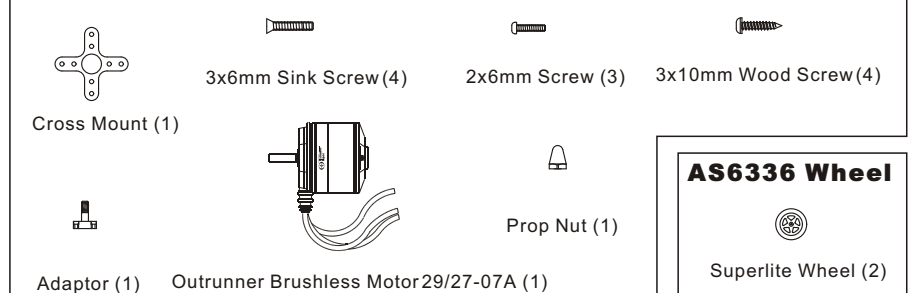
AS6650 Pushrod

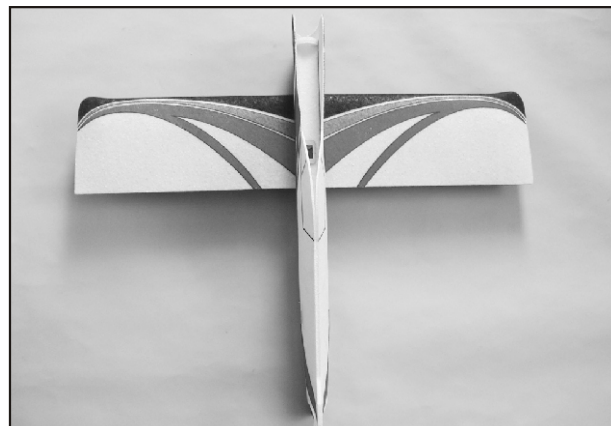


AS6651 Landing Gear

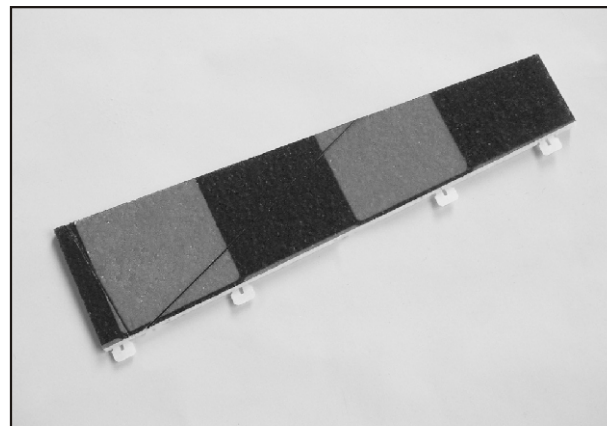


No.2354 OBL 29/09-07A

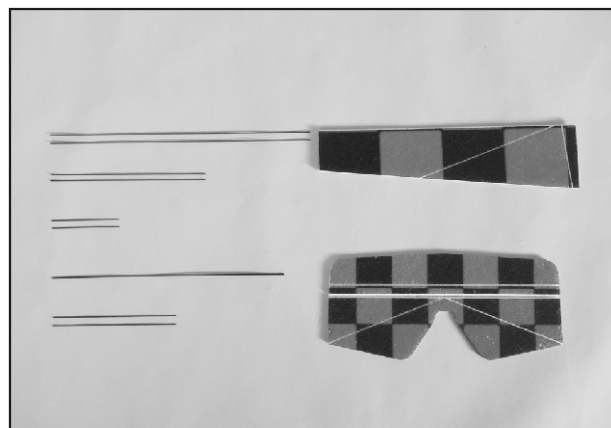




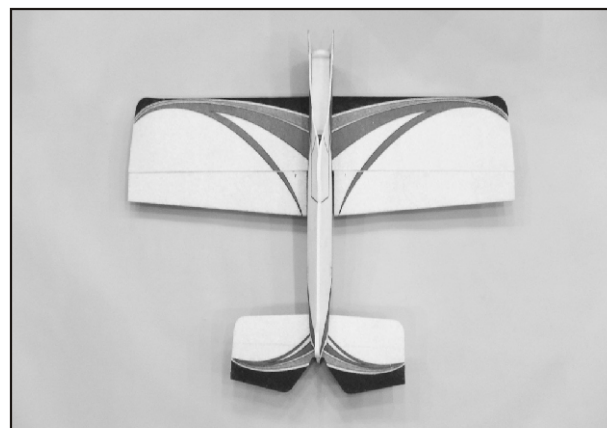
1. Carefully and slowly insert the main wing into the fuselage then center it in place.



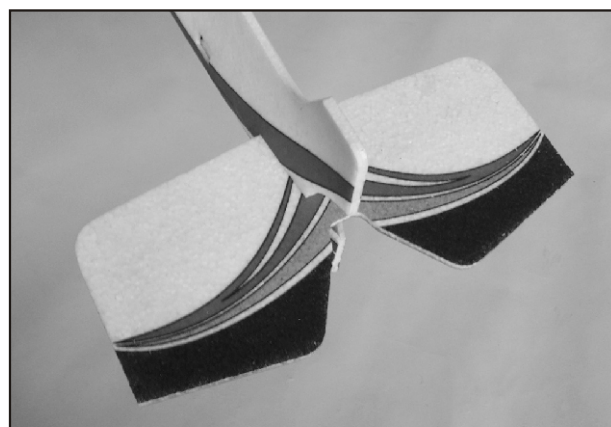
4. Install four CA hinges on the aileron as shown, carefully use the sharp hobby knife to cut the slots on aileron and trailing edge of wing for the hinges.



2. Glue the CFK rods on Aileron, Rudder and Elevator as indicated.



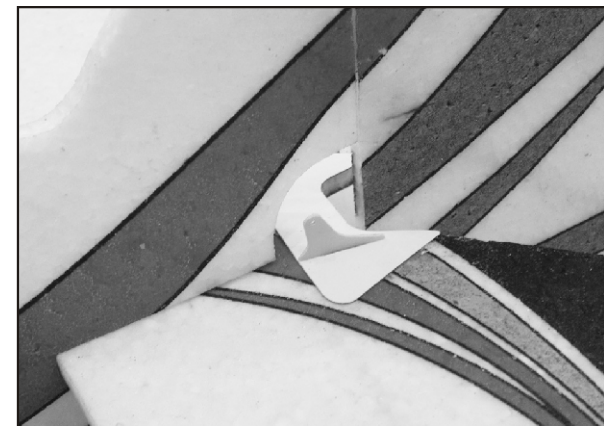
5. Attach the aileron to the trailing edge of main wing then apply CA glue to all hinges and make sure they are jointed well. Do the same procedure on the other aileron.



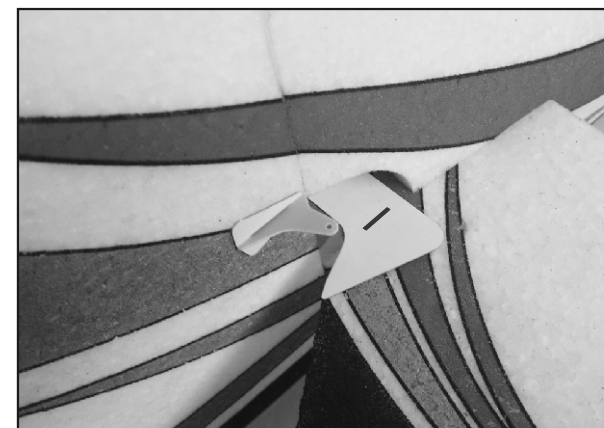
3. Install and center the horizontal tail in place, make sure the horizontal tail is perpendicular to the vertical fin and parallel with the main wing. Next CA the main wing and horizontal tail firmly in place.



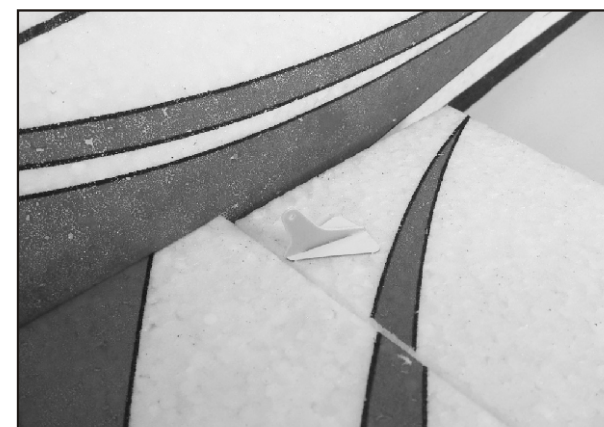
6. Install four CA hinges on the rudder, use the same way as you did on aileron. Next glue the rudder on the vertical fin.



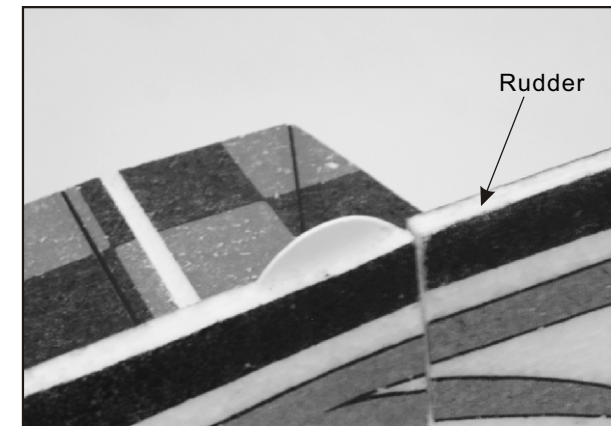
7. Glue the FRP control horn and elevator reinforced plates together as shown. Make sure the two reinforced pieces are glued properly at each side of elevator so the control horn could be installed perpendicularly at left.



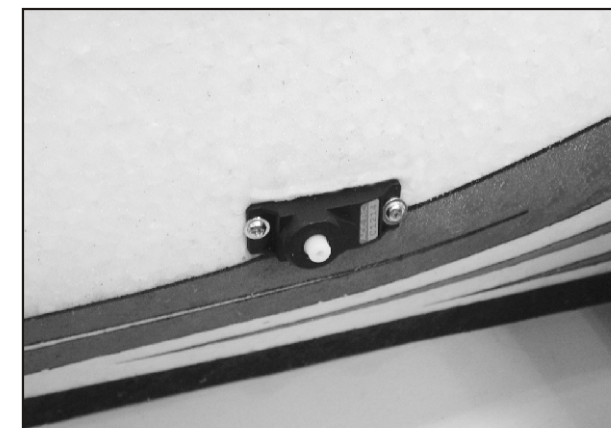
8. Do the same procedure as elevator control horn to install the rudder control horn as shown at right.



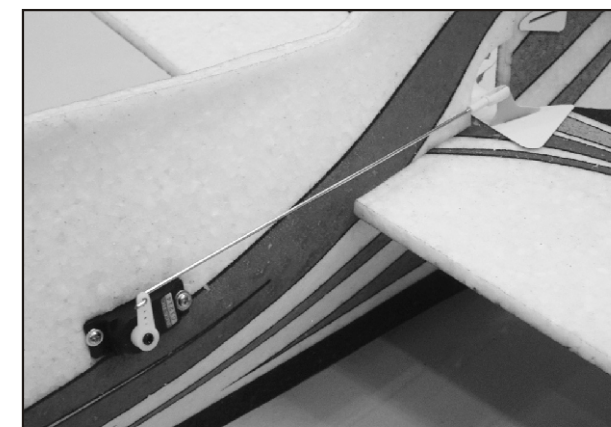
9. Do the same procedure on both aileron control horns.



10. Cut a slot at the bottom rear fuselage, install tail skid in place with CA glue.



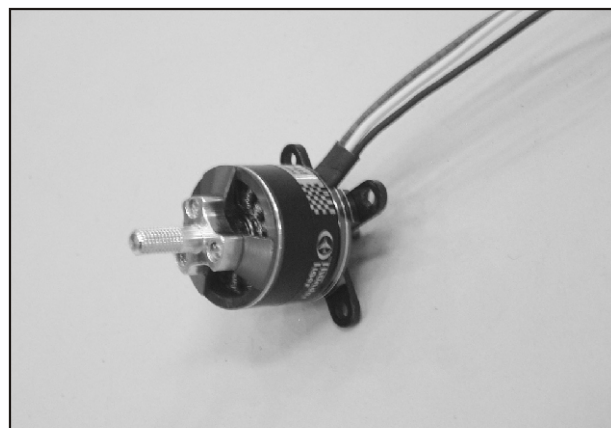
11. Drill 5/64" (2mm) pilot holes for mounting the elevator servo, next connect a 12" extension wire before you secure the servo in place. Do the same way on rudder servo.



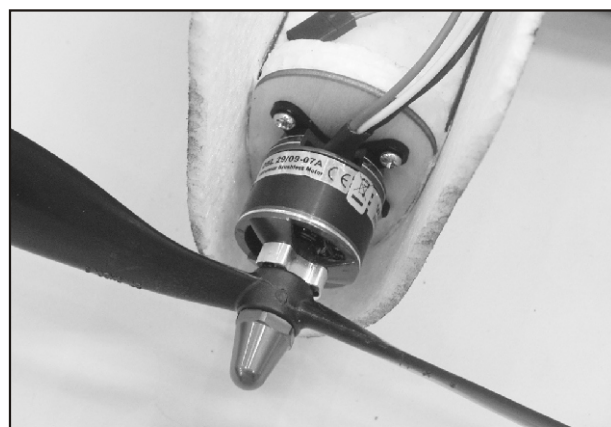
12. Locate the pushrod and clevis, thread the clevis at least 6mm then snap onto the FRP control horn, make sure servo is in neutral position then make Z-bend and cut the excess pushrod. Insert the Z-bend end to the servo horn and secure the servo horn on the servo as shown. Do the same way to the other pushrod.



13. Secure the aileron servo and attach the aileron pushrods as shown.



14. Secure the cross mount on brushless motor with four 3x6mm sink screws. Install the adaptor to the brushless motor with three 2x6mm screws as shown.



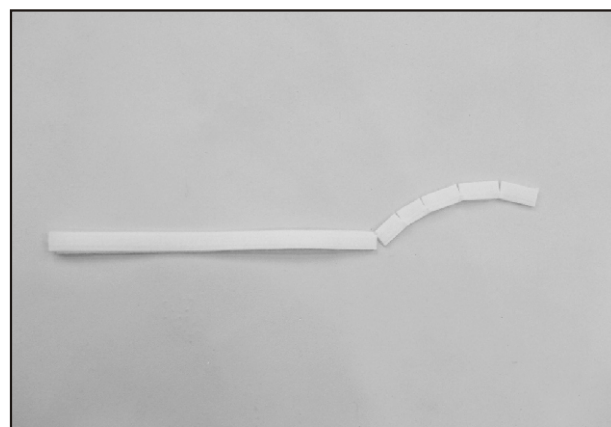
15. CA the firewall in place then install the brushless motor on the firewall with four 3x10mm wood screws. Next install the furnished propeller and with prop nut. If user would try extreme 3D then APC 10x4.7 SF is recommended.



16. Open the hatch and place the Lipo battery in the compartment. Secure the battery in place with the 2.3x12mm wood screw.



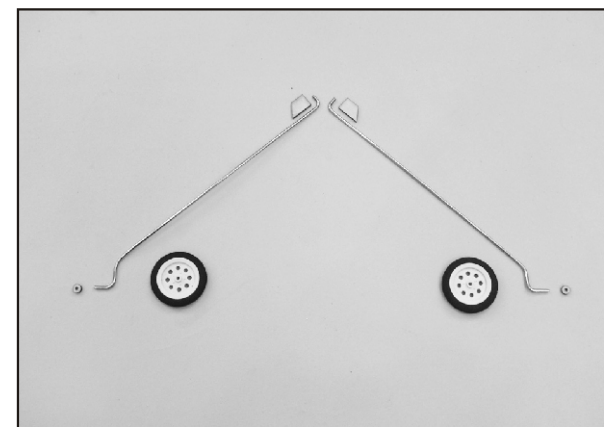
17. Connect the receiver and controller properly, secure these electric devices with the furnished wide Velcro.



18. Locate the narrow/long Velcro strip and trim as shown to accommodate the fuselage opening. Note: do not cut it off and make sure it is connected.



19. Apply the furnished glue on fuselage opening and Velcro, wait for 10 minutes before gluing them together. Hint: It is very important to wait for couple minutes before gluing together. You may blow the glue area and it will be cured faster. Do not separate the Velcro. Carefully attach the Velcro to the fuselage opening on one side first then apply the other side of fuselage to the Velcro.



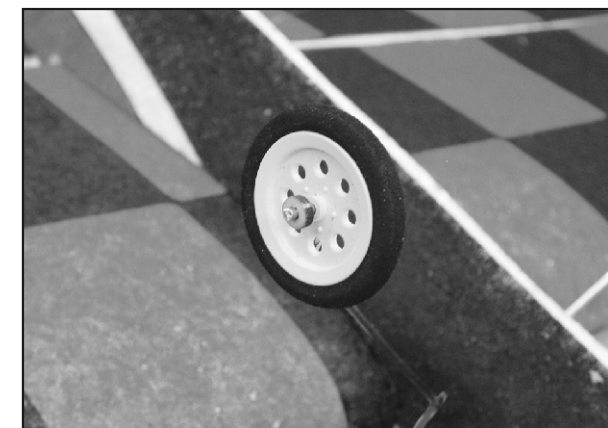
20. Locate the landing gear wires, mounts, wheels and stoppers. Bend the wire as shown and trim the excess wire.



21. Locate the landing gear mounting slot where near the leading edge of main wing as shown.



22. Trial fit the landing gear wire and mount first, CA the wire and landing gear mount in place when satisfied. Note two landing gear wires are angled properly.



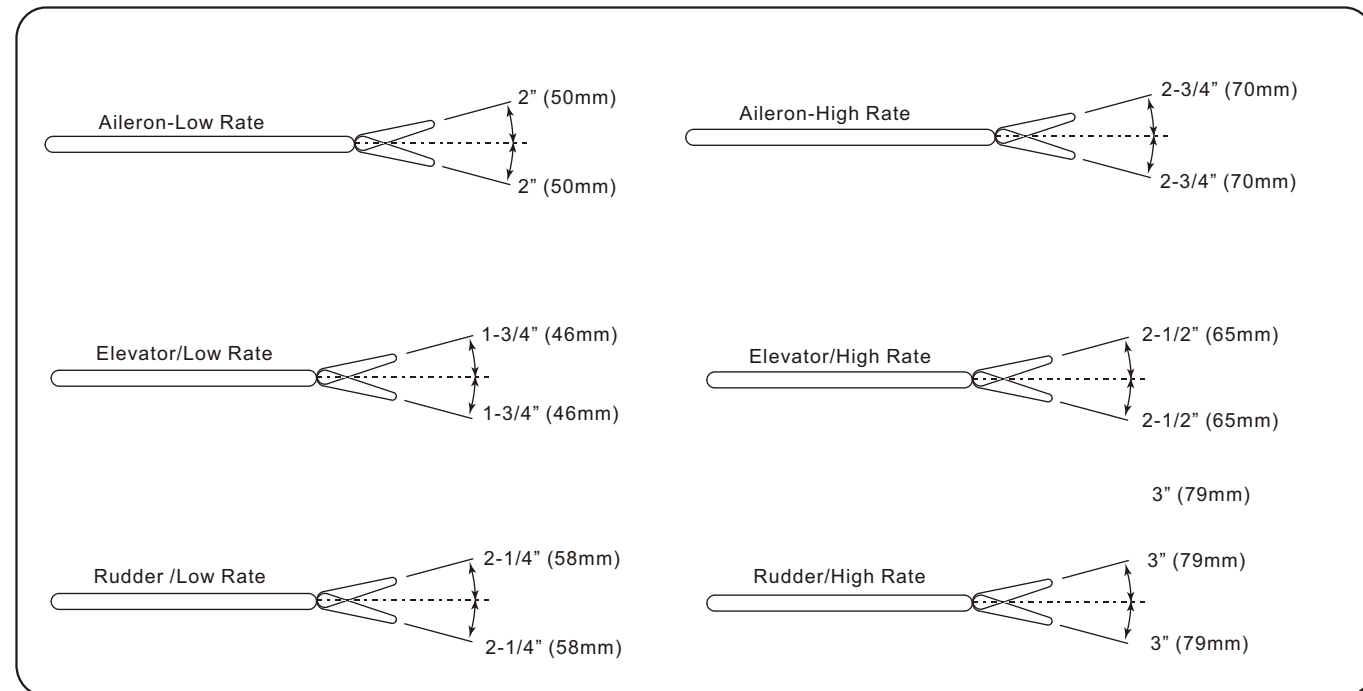
23. Install the wheel and CA the wheel stopper. Make sure wheel rotates freely.



Congratulations! Now you are ready to fly. Make sure to adjust the plane as the suggestion in next two pages.

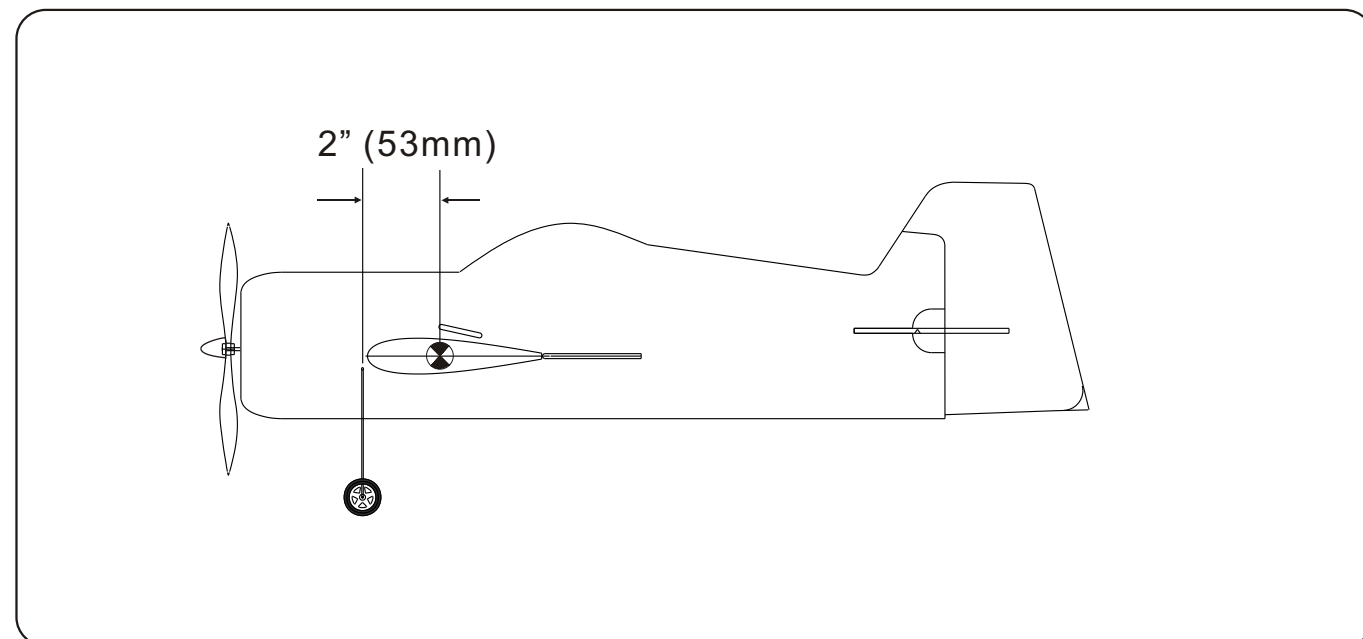
Control Throws

The following control throw of 3D Sukhoi EP is merely a starting point for your radio setup and can be tailored to fit your flying style.
For all three models the aileron and elevator of the same throws but rudder are different as shown below.



BALANCE

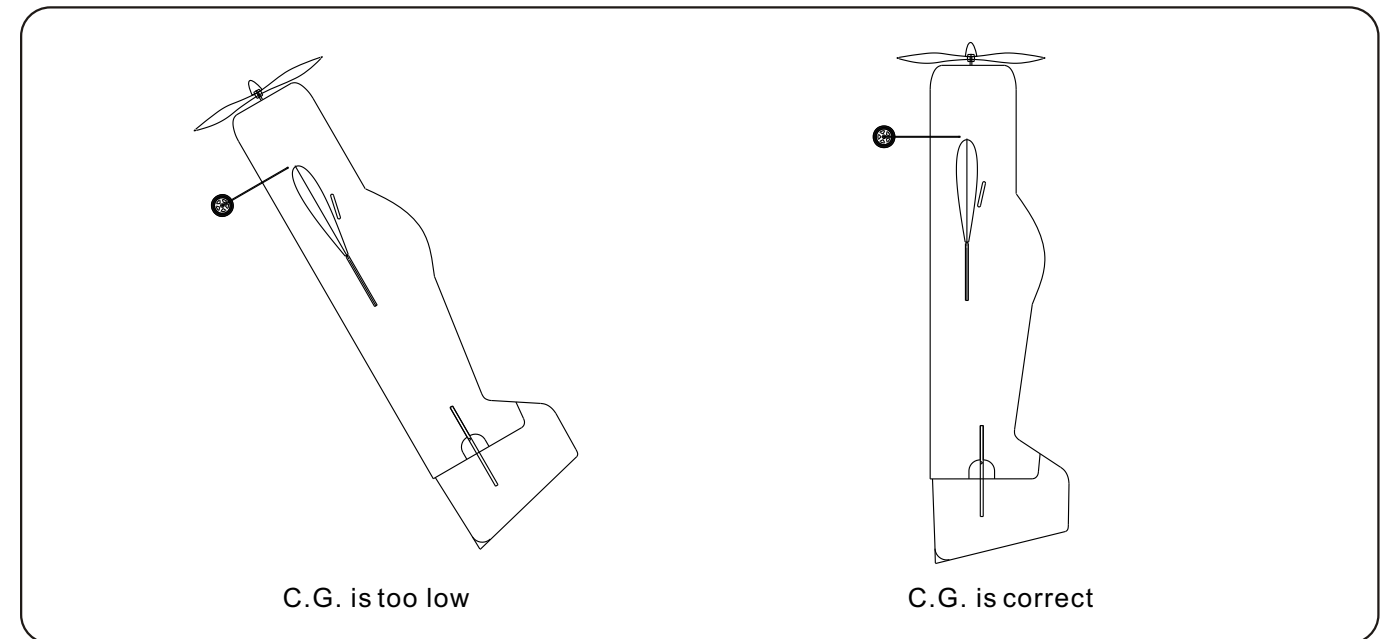
It is important to balance the plane to get correct C.G. before you fly.
Balance Point as indicated in each diagram.



Note: For the best flight performance of the Sukhoi, A high center of gravity is important.

LONGITUDE BALANCE

C.G. Must be set on thrust line

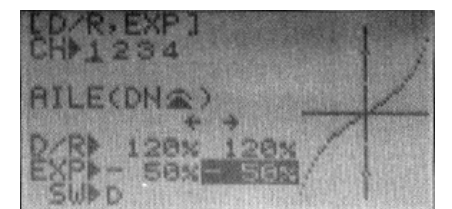
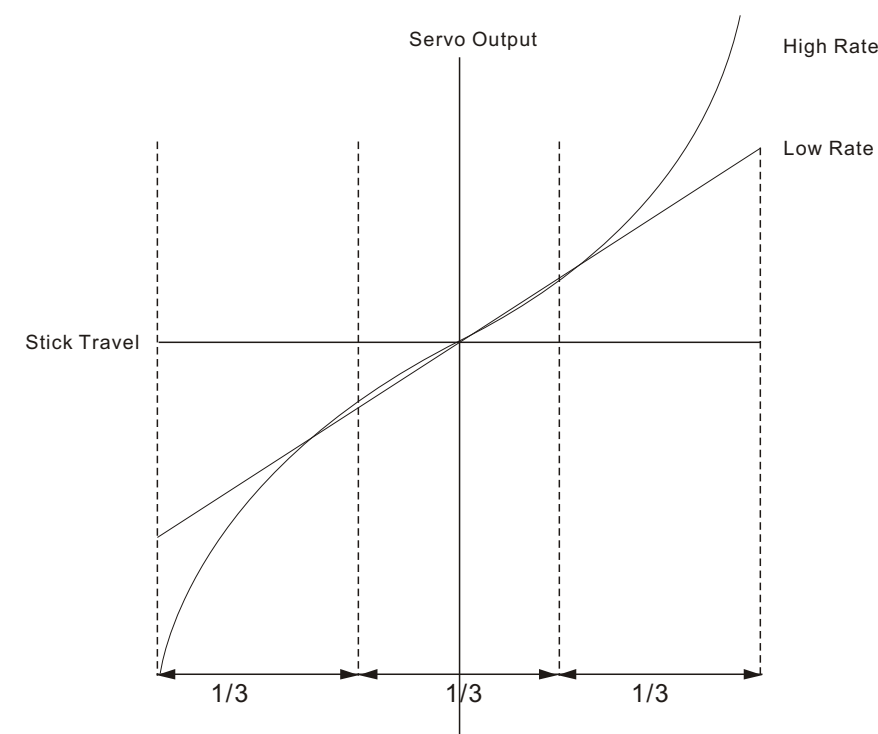


As 3D planes do a lot of hovering so it is very important to do longitude balance to make hovering much more stable. Try to create a small hole after the motor and on the thrust line. Get music wire or string then thread the wire through the hole. Make sure that model hangs perfectly vertical as illustration. If not then try to adjust the location of battery, receiver or ESC to get good longitude balance.

Congratulations

Your done, may you have many successful flights filled with fun and lots of 3D maneuvers.
Thank you for purchasing this plane from Thunder Tiger and we look forward to providing you with other great R/C products in the near future.

SETTING UP FOR 3D FLIGHT



Exponetial

To make your 3D flight successful, the most important is to set up your radio properly and fine-tune the exponential. We would suggest that could show the exponential graph as the illustration.

Normally this computerized radio has dual rates or even triple rates. Once you fly it fine with low rate in normal flight. Next you will have to set up 3D rate.

We suggest the 3D-rate setting is same as low rate setting around 1/3 of the total stick travel in the beginning. If you look at the graph , the middle section of 1/3 travel are most likely the same at low rate and 3D high rate .Beyond this middle section the 3D rate setting is far higher than the low rate.

SIMULATOR

A good tool to practice 3D easier is to fly simulator. One may say simulator is not realistic but this is not true. There are some simulators available in the market and its scenery and performance are just like a real thing .For example, Aerofly Pro Deluxe USB version from iKarus or Real Flight G3 from GreatPlanes are all good simulators you can choose from .

Simulator is a must buy tool if you seriously want to fly 3D aerobatics. There is no genius or born 3D pilot, remember that practice makes perfect. 30 minutes a day on a simulator can help you do hovering, torque roll easily as well as other aerobatics. If you would like to be a good 3D pilot, flying everyday is necessary. The reaction to control the airplane will be more nature. As there is no time to think when you do 3D aerobatics.

Simulator practice might be perfect yet suggest to do some actual flying as the supplemental so it will not go too far from the real thing as there are many things that you can not learn in screen.

FLYING

Even though you set up the airplane , it needs to be setup and fine-tuned in the air. Always start on low rates when launch the airplane or take off of the ground. Once you fine trim the airplane in the air then tune the exponential setting, you will be able to fly it all the time on the 3D rates.

Once you got confidence to do hovering or do 3D aerobatics, we suggest you fly it near you. The closer the airplane, the better you fly it near you. The closer the airplane, the better you can control the plane as you can see it very clear even if it has a slight movement. The other advantage is the lower or closer to ground, the less potential energy. It is useful for a dead battery or ESC cut off suddenly.



1. 小心慢慢地將主翼穿入機身內，使機身置於機翼中心位置。

2. 如圖，將CFK桿粘合到副翼，方向舵和升降舵的槽縫內。

3. 如圖將水平尾翼安裝到機身尾部的中心位置，確保水平尾翼與垂直尾翼垂直且與主翼平行。然後用瞬間膠水將主翼與水平尾翼緊密粘合。

4. 用美工刀在副翼及主翼後緣小心切開槽縫以安裝活頁片，如圖先在副翼槽縫內安裝活頁片。

5. 將副翼安裝至主翼後緣，再用瞬間膠水粘合所有的活頁片並確保其不會鬆脫。在另一側副翼上重複同樣步驟。

6. 同法，在方向舵上安裝活頁片。然後將方向舵粘合到垂直尾翼上。

7. 如圖所示，將玻鋼舵角片和升降舵補強片粘合。確保正確粘合兩塊補強片於升降舵的兩側，以保證舵角片在左側能垂直安裝。

8. 如圖，用以上同樣的方法在右側安裝方向舵舵角片。

9. 用以上同樣的方法安裝兩側副翼舵角片。

10. 在機身尾端底部切一條槽縫，用瞬間膠水將尾橈粘合固定到其中。

11. 鑽2mm的導孔用以裝置支撐升降舵伺服機，在固定伺服機之前先連接一段長約30cm的舵機延長線。用同樣的方法安裝方向舵伺服機。

12. 取出拉桿鋼絲和連桿頭，將拉桿鋼絲穿過連桿頭至少6mm然後扣在玻鋼舵角片上，確保伺服機位置居中，然後將鋼絲彎折成“Z”字形並切掉多余的鋼絲。如圖，將Z型彎插入伺服機擺臂，然後將擺臂鎖在伺服機上。用同樣的方法連接另一側拉桿鋼絲。

13. 安裝固定副翼舵機，並如圖連接拉桿鋼絲

14. 先用3x10mm的沉頭螺絲將十字馬達座與無刷馬達固定。然後如圖用三顆2x6mm的螺絲將轉接器固定在無刷馬達上。

15. 用瞬間膠水粘合固定防火牆，再用四顆3x6mm的圓頭十字木螺絲將無刷馬達固定在馬達座上。

16. 打開盒蓋並將鋰鉑電池放入電池盒內，用2.3x12mm的圓頭十字木螺絲將電池盒蓋固定。

17. 正確連接接收機和速控器，用所附的寬魔術膠帶固定住這些電動裝置。

18. 如圖修剪細魔術膠帶用以貼合機身開口處，注意：請勿將膠帶剪斷，保持其連續性。

19. 用套件中的膠水塗抹於魔術膠帶背面及機身開口處，過十分鐘後再將其粘合在一起。請勿將魔術膠帶分開，小心沿一邊的機身開口處貼上魔術膠帶，再將另一邊也貼合於膠帶的另一側。

20. 拿出起落架鋼絲，鋼絲座，輪子，輪擋，如圖彎折起落鋼絲並剪掉多余的鋼絲。

21. 如圖找出兩側翼根邊緣附近一個固定起落架的槽縫

22. 先試著安裝起落架鋼絲和起落架座，調試好將之粘合固定。注意：兩側的起落架鋼絲須保持對稱。

23. 安裝輪子並用瞬間膠水粘合固定輪擋，確保輪子能自由轉動。

請按照8, 9頁之設定調整您的愛機，注意重心位置以及舵量大小。

副翼小舵量約50mm，大舵量約70mm。
升降舵小舵量約46mm，大舵量約65mm。
方向舵小舵量約58mm，大舵量約79mm。

重心位置距前緣5.3公分處，可前後加重以取得平衡。

飛行前請了解遙控器操作及飛行原理并建議您尋求其他玩家指導以期能成功飛行并獲得飛行樂趣。

各項操作檢查完成後，您可以試飛您的愛機了！