

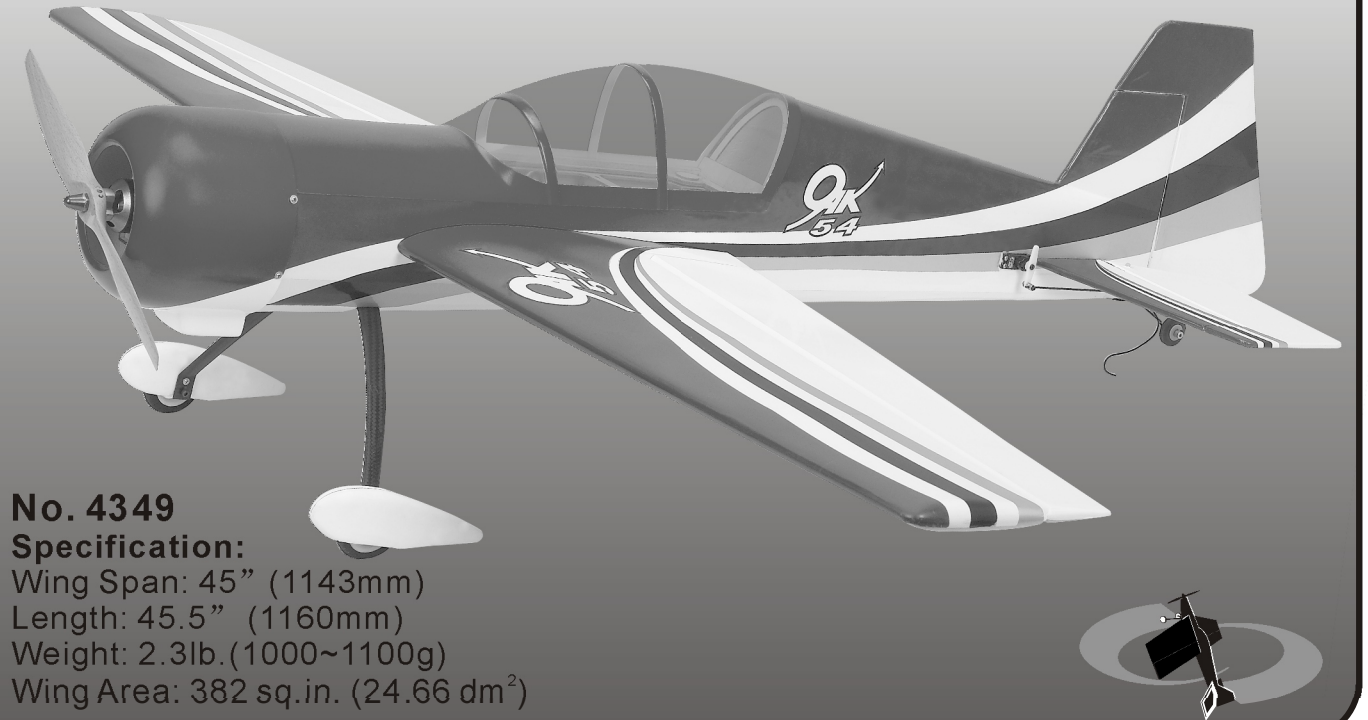
MEMO



3D YAK 54

Assembly Manual

中文組裝說明書



No. 4349

Specification:

Wing Span: 45" (1143mm)

Length: 45.5" (1160mm)

Weight: 2.3lb. (1000~1100g)

Wing Area: 382 sq.in. (24.66 dm²)

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

3D YAK 54

Introduction

Thank you for your purchase of the Thunder Tiger 3D YAK 54 EP. You can make this proven 3D fun flyer easily in doing any aerobatics and 3D maneuvers, includes Knife Edge, Hovering, Torque Rolls, Cobra...etc. 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 YAK 54 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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ITEM REQUIRED

OTHER ITEMS REQUIRED FOR ASSEMBLY

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



Brushless Motor: Recommend OBL36/09-30A motor.



Controller: ACE BLC-40A (No. 8027) is a perfect controller that controlling OBL motor efficiently.



Battery: Recommend the use of a ACE PowerLipo battery 3S1P 2200mAh(No.2808).



Extension Wire: 2 pieces of extension wire in length of 12" and one piece Y-cord.



Propeller: Recommended APC propeller 12x5E or 13x4E for normal flight and APC 12x6 E for high performance 3D aerobatics.



Radio: A 4-channel radio with 4 micro servos and mini receiver are required. Suggest to use programable radio so you can adjust the Exponential.



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

TOOLS AND SUPPLIES NEEDED


Paper Towel
Hobby Knife
Ruler
Pen, Pencil or Marker
Phillips&Flat Head Screw Drivers
Scissors
Nose Plier
Drill Bit 1/8" (3mm)

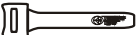
PARTS DRAWINGS

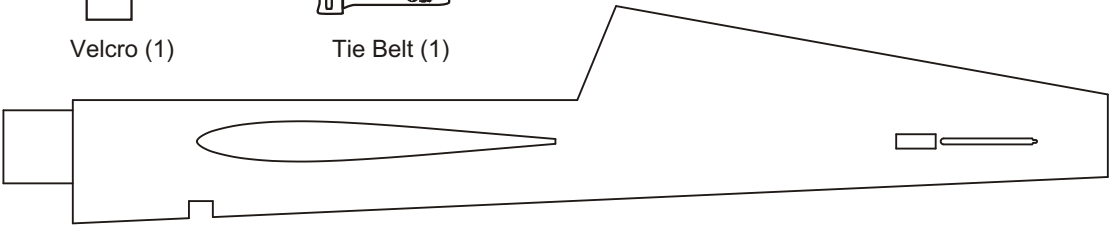
3D YAK 54


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

AS9127-03 Fuselage
AS9127-04

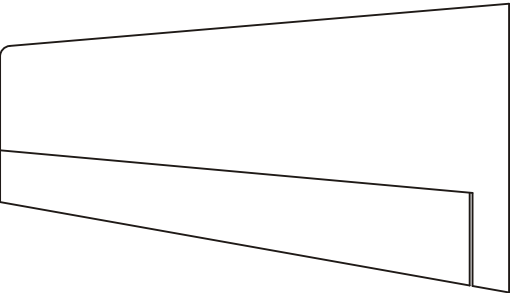

Velcro (1)

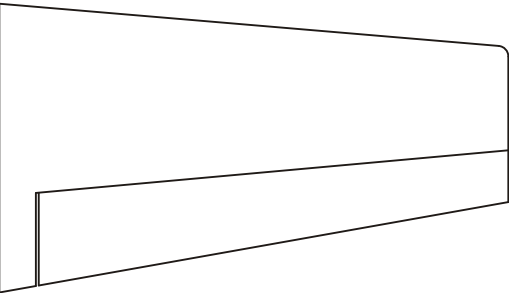

Tie Belt (1)



Fuselage (1)



M3x12 mm (4)


AS9128-03 Main Wing
AS9128-04


Left Wing (1)

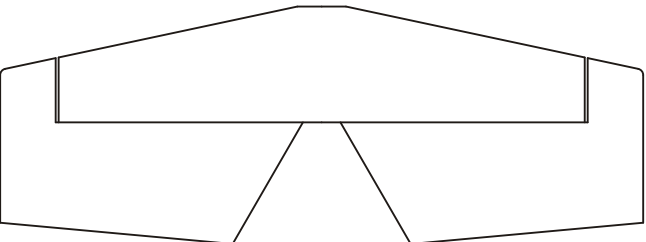

Right Wing(1)

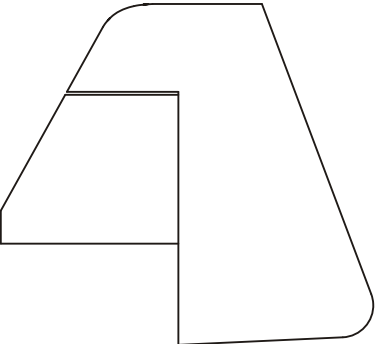

Wing Joiner Tube (1)



CA Hinge (8)



Nylon Retaining Screw (2)

AS9129-03 Tail Set
AS9129-04


Stab./Elevator (1)


Fin/Rudder (1)

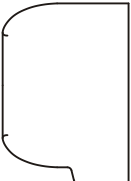

Elevator Torque Rod (1)



CA Hinge (6)



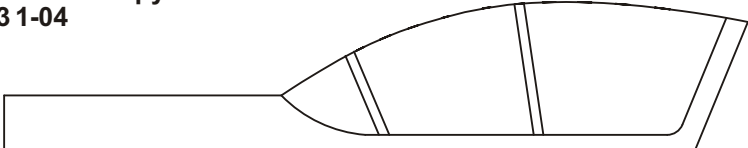
PARTS DRAWINGS

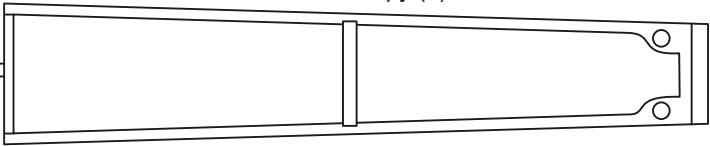
AS9130-03 Cowling
AS9130-04


Cowling(1)



2.3x8mm Wood Screw (4)


AS9131-03 Canopy
AS9131-04



Canopy (1)


Frame (1)

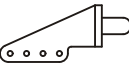
AS9132 Pushrod


Aileron (2)


Elevator(1)


Rudder(1)

AS9133 Control Horn


Control Horn (4)

AS9134 EZ Connector


EZ Connector (4)


3X3mm Setscrew (4)


M2 Washer (8)

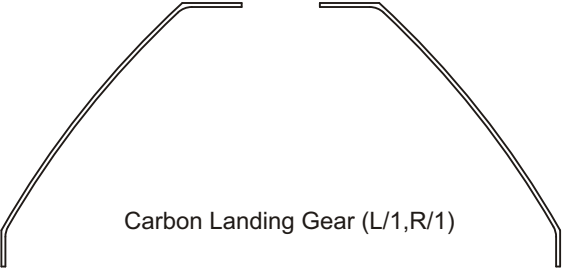

M2 Nut (4)



Hex Wrench(1)


AS9135 Lite Wheel



Wheel (2)

AS9136 Carbon Landing Gear



Carbon Landing Gear (L/1,R/1)



3x10mm Socket Screw (4)



M3 Lock Nut(4)



3mm Washer (4)


AS9137 Wheel Pant



Wheel (2)



3mm Collar (2)



M3 Washer (2)


2.3x8mm Wood Screw (2)



3X3mm Setscrew (2)



M3x21mm Socket Screw (2)



M3 Lock Nut (2)



Hex Wrench(1)


AS9138 Tail Gear



Mounting Strip (1)



Tail Gear (1)


Tail Wheel (1)


2.3x8mm (2)


2mm Collar (1)


3X3mm Set Screw (1)

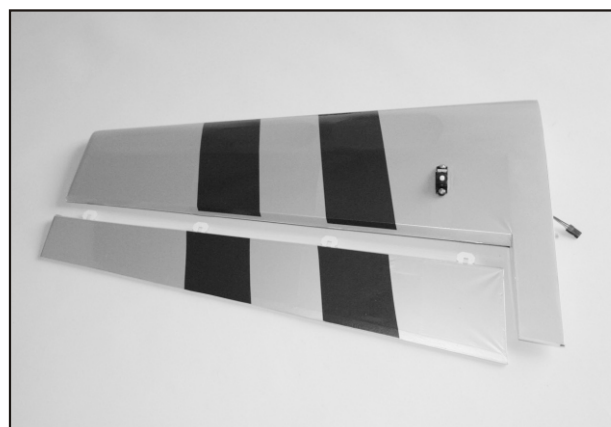

Hex Wrench(1)



1. Locate the aileron servo well at the bottom wing. Use hobby knife to cut an "X" then tack down the covering with heat iron.



2. Secure the aileron servo in place and exit the wire at the wing root.



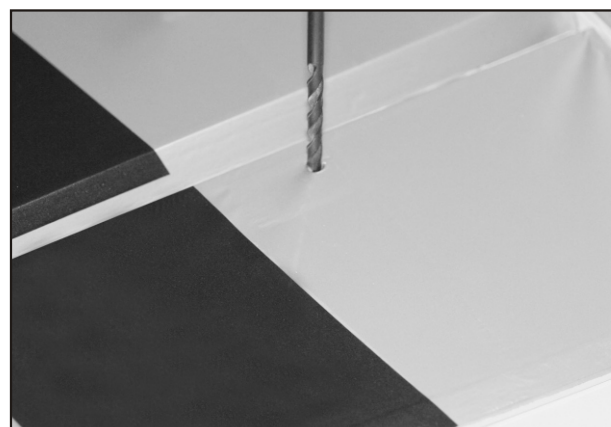
3. Remove the aileron then center all hinges in place.



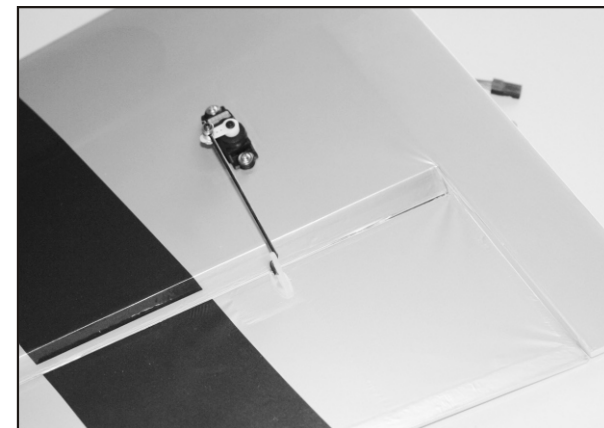
4. CA the four hinges on aileron. Make sure the hinges are centered.



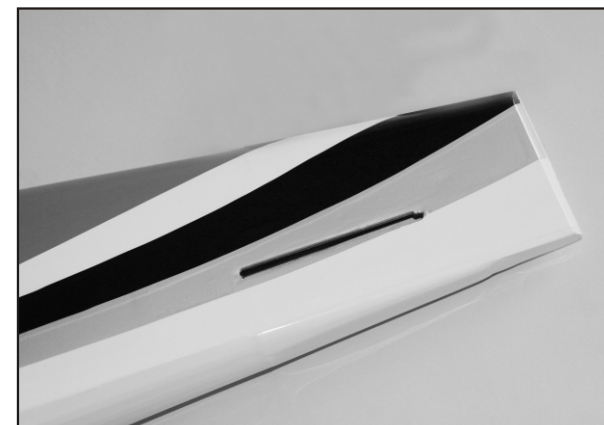
5. Next attach the aileron to the main wing, apply CA on both sides so the glue will seep into the trailing edge.



6. With servo horn and pushrod installed to decide the control horn hole. Next drill 5/32" (4mm) hole at the mark you decided. Make sure drill the hole perpendicular to the control surface.



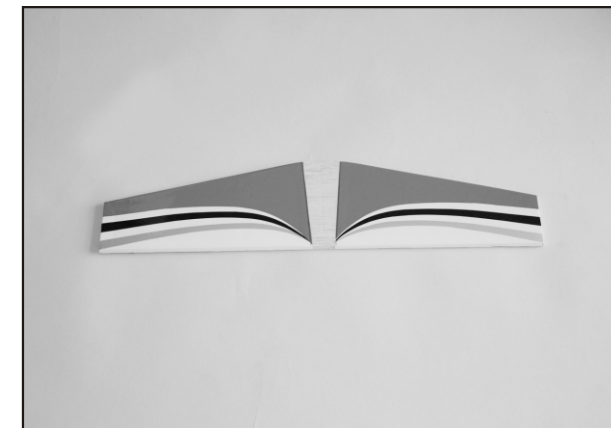
7. Secure the control horn with CA or epoxy, make sure the control horn is oriented to the pushrod. Snap Z-bend end of pushrod to the control horn and insert the other end to the EZ connector which should be installed on the servo horn with M2 washer and nuts.



8. Locate the fin and stab slots, carefully cut away the covering.



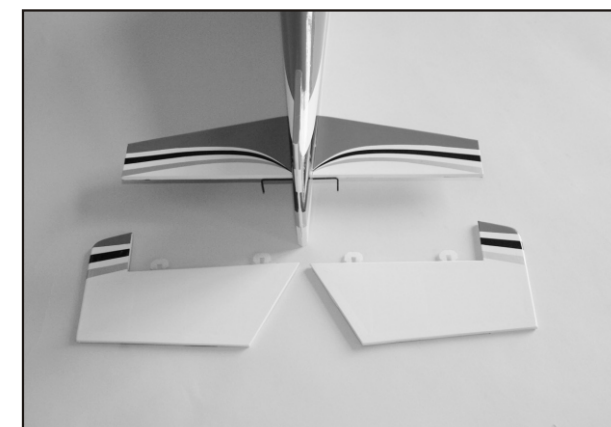
9. Temporarily install the vertical fin and stab. Make mark on stab and fin along the fuselage.



10. Remove the stab and fin, cut away the covering inside the lines you drew. Be careful not to cut into the wood as it may hurt the strength of the stab.



11. Attach the elevator torque rod first then install the stab in place. Center the stab and make sure the wing and stab is parallel, the fin is perpendicular to the stab. Glue the stab and fin in place with CA or epoxy.



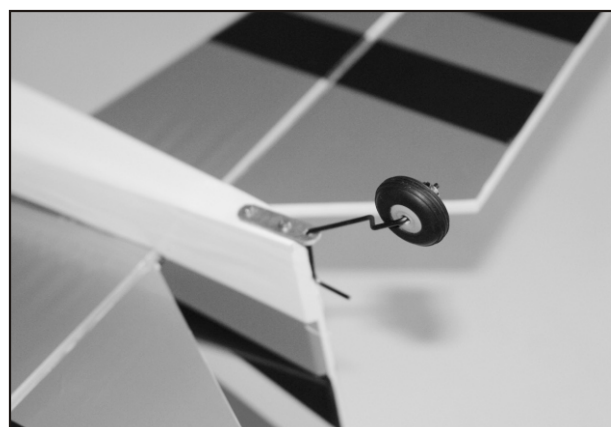
12. Same way as you install the hinge on aileron, secure the CA hinges on the elevators as shown.



13. Apply epoxy in the elevator torque rod holes then attach the elevator onto the stab. Make sure it moves free after cured.



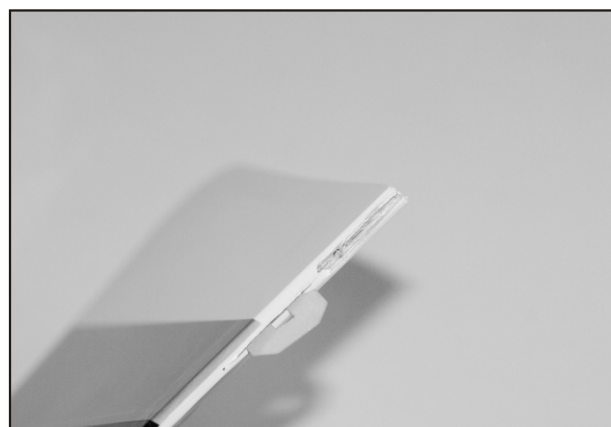
16. Trial fit the rudder in place, make sure it works fine then apply epoxy at the rudder torque rod hole and slot then attach the rudder on the fin. Wipe away the excess epoxy and make sure rudder works freely after cured.



14. Install the tail gear and wheel in place with two 2.3 x8mm wood screws and wheel collar.



17. Same way to locate the rudder and elevator servo well. Cut an "X" at the servo well.



15. Locate the rudder, glue the CA hinges as shown. Next use hobby knife to cut a slot so tail gear torque rod can accommodate to leading edge of rudder. This is to make hinge line gap as small as possible.



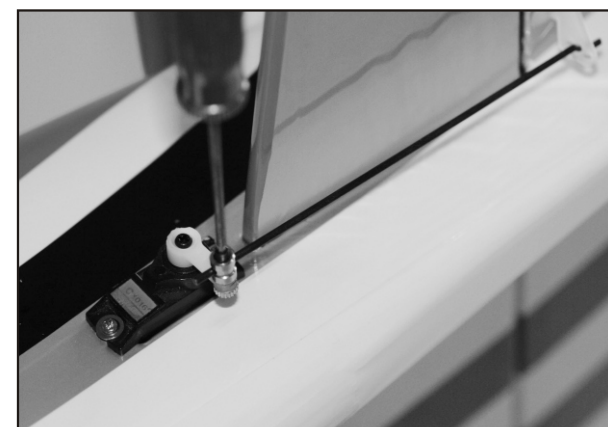
18. Heat treatment the servo well.



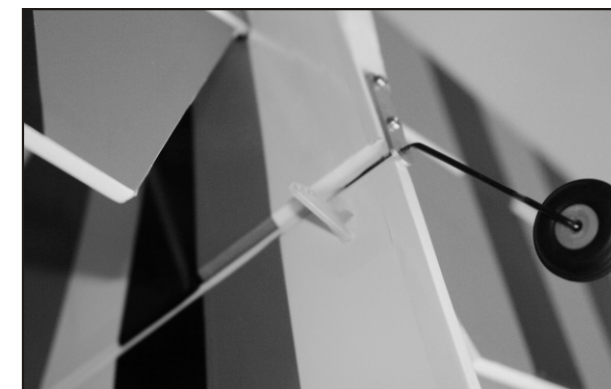
19. Install the elevator servo as shown at the left side of fuselage. Remember connect the extension wire at least 12".



20. Same way as the installation of aileron control horn. Install the elevator control horn in place as shown.



21. Snap on the pushrod first then attach the servo horn with EZ connector installed. Adjust the pushrod with elevator and servo are both in neutral position.



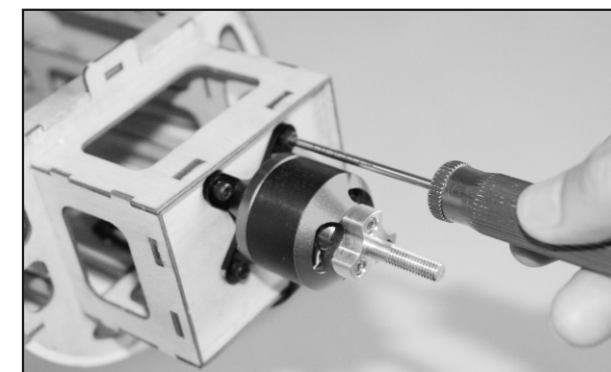
22. Same way to install the rudder control horn in place as shown.



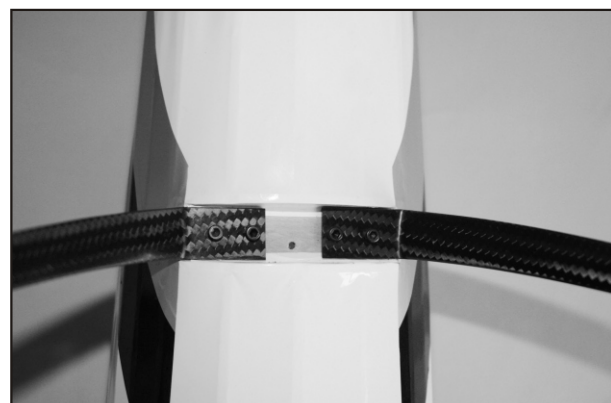
23. Secure the rudder servo at the right side of fuselage with 12" extension wire installed. Adjust the pushrod when servo and rudder are both in neutral position.



24. Locate the brushless motor, cross mount, adaptor, prop nut and mounting screws if user buys the kit with motor.



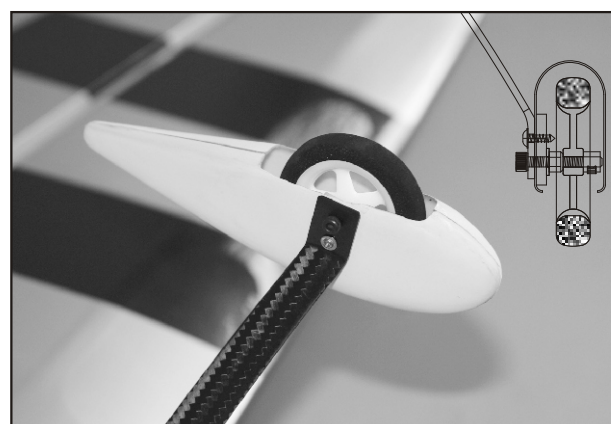
25. Install the motor on the fire wall with cross mount and adaptor installed.



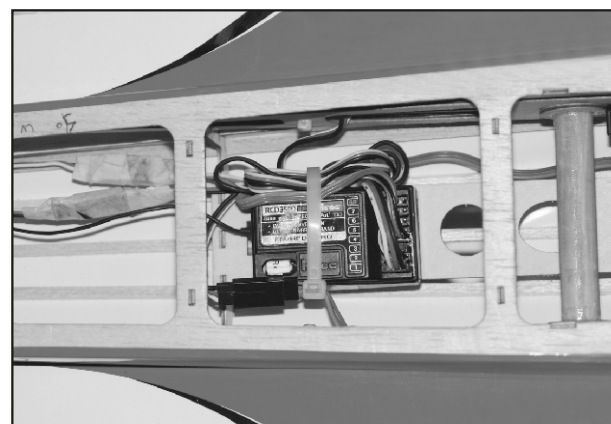
26. Install the carbon landing gear in place with M3x10 socket screws, M3 washers and M3 locknuts.



29. Secure the battery with the tie belt as shown in the fuselage.



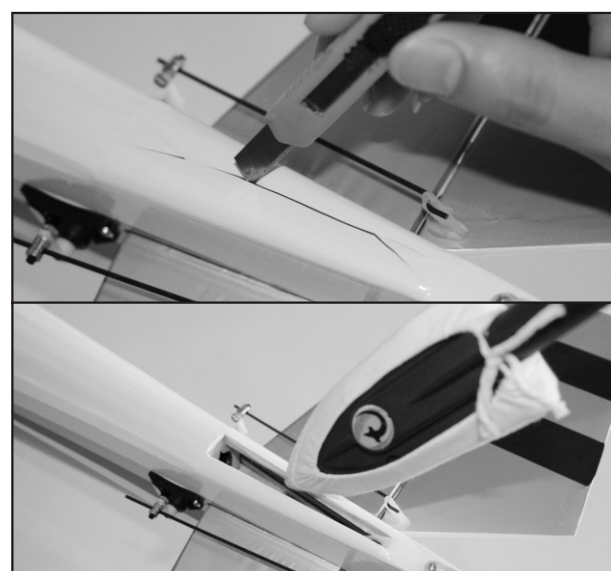
27. Drill 3mm hole for wheel axle, then install the wheel pant and wheel with socket screw M3x21mm, M3 locknut and washer. Adjust the wheel pant then secure the wheel pant with 2.3x8mm wood screw. Make sure the wheel rotates freely after installation.



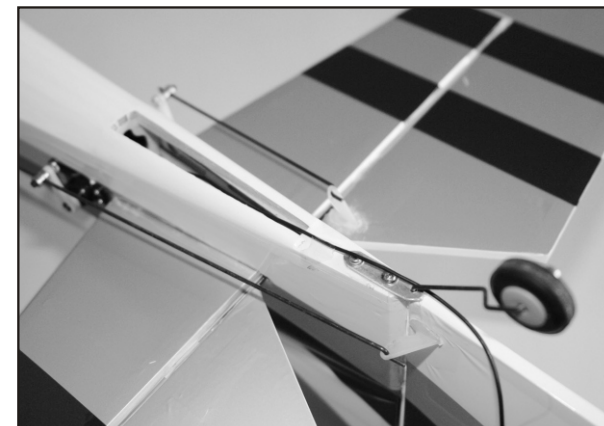
30. Correctly connect all servo wires to the receiver then secure receiver with nylon-tie band in place as shown.



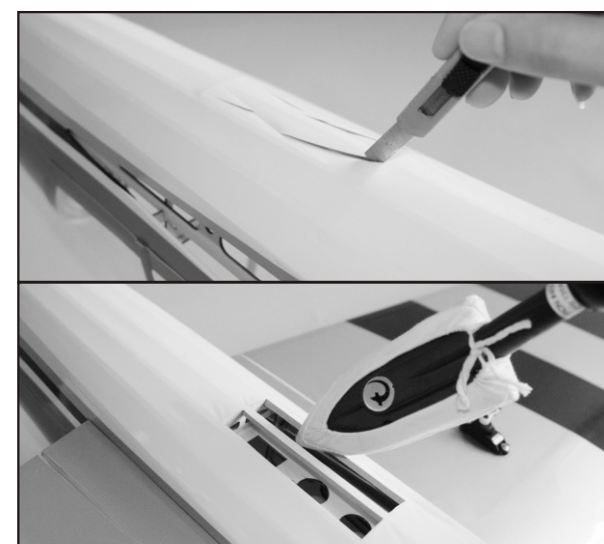
28. Trial fit and main wing in place, then install wing joiner. Locate the Nylon retaining screw then screw in the wing in place as photo shown in next step.



31. Locate the tail opening at the bottom fuselage. Cut a line in the middle then tack down the covering.



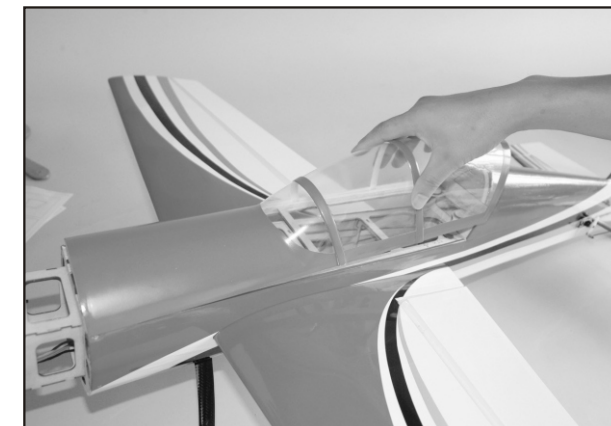
32. Thread the antenna through the fuselage and exit at this opening. Tape the antenna properly at the bottom fuselage.



33. Same way to locate the middle bottom fuselage where is an opening for air outlet. Tack down the covering as shown.



34. Locate the canopy & its frame, trial fit the frame in place. Make sure to leave about 3/32" (2.4mm) at twp sides. Note the front of frame should even with the canopy. The rear canopy should contact the turtle deck smoothly after gluing the frame.



35. Install the Canopy assembly in place. It should be secured perfectly with the super magnet.



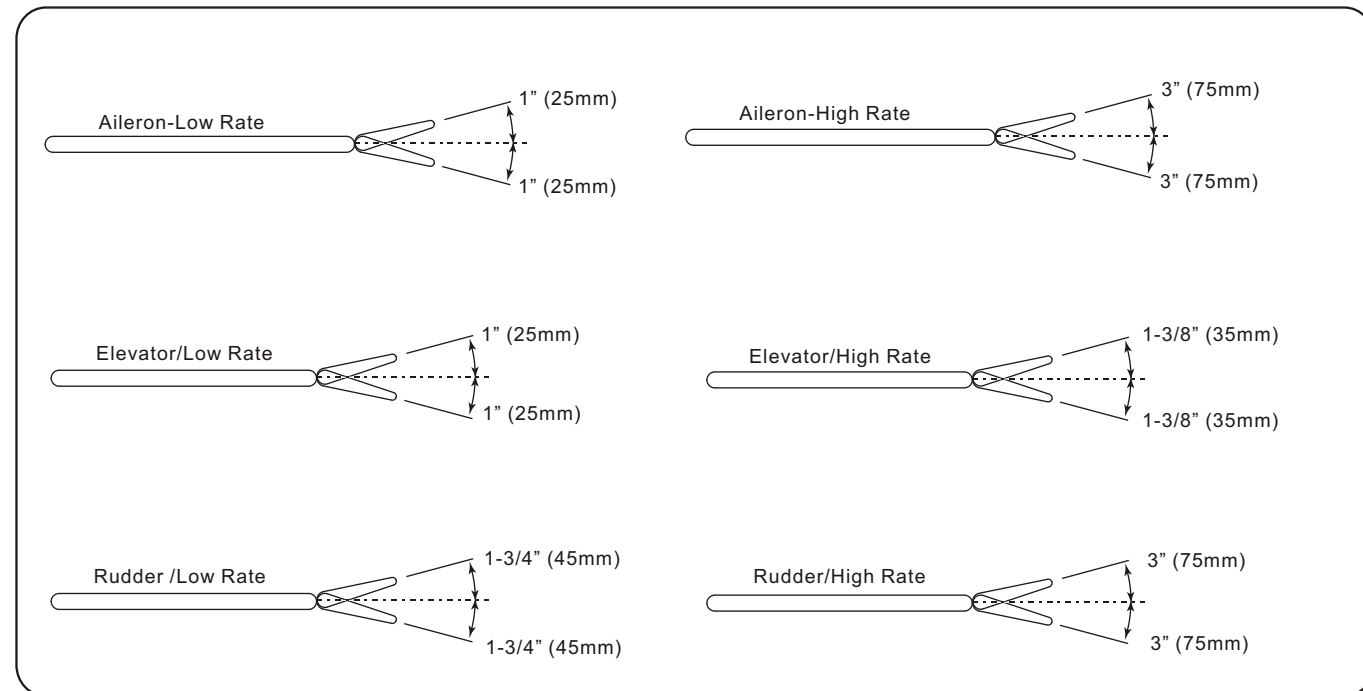
36. Trail fit the cowling in place, make sure the prop adaptor is out of the cowling. Secure the cowling with four 2.3x8mm wood screws.



37. Secure the propeller properly with prop nut. Now you finish the assembly please well adjust the control throw and CG before you go to fly.

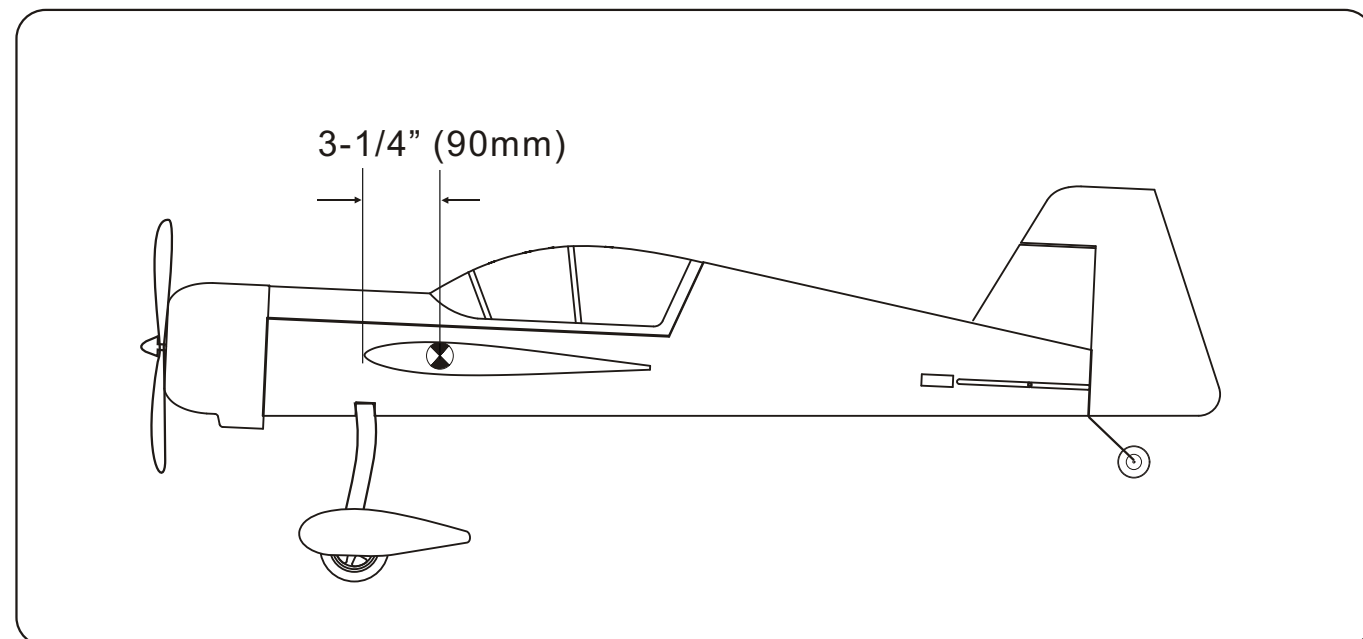
Control Throws

The following control throw of 3D YAK 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

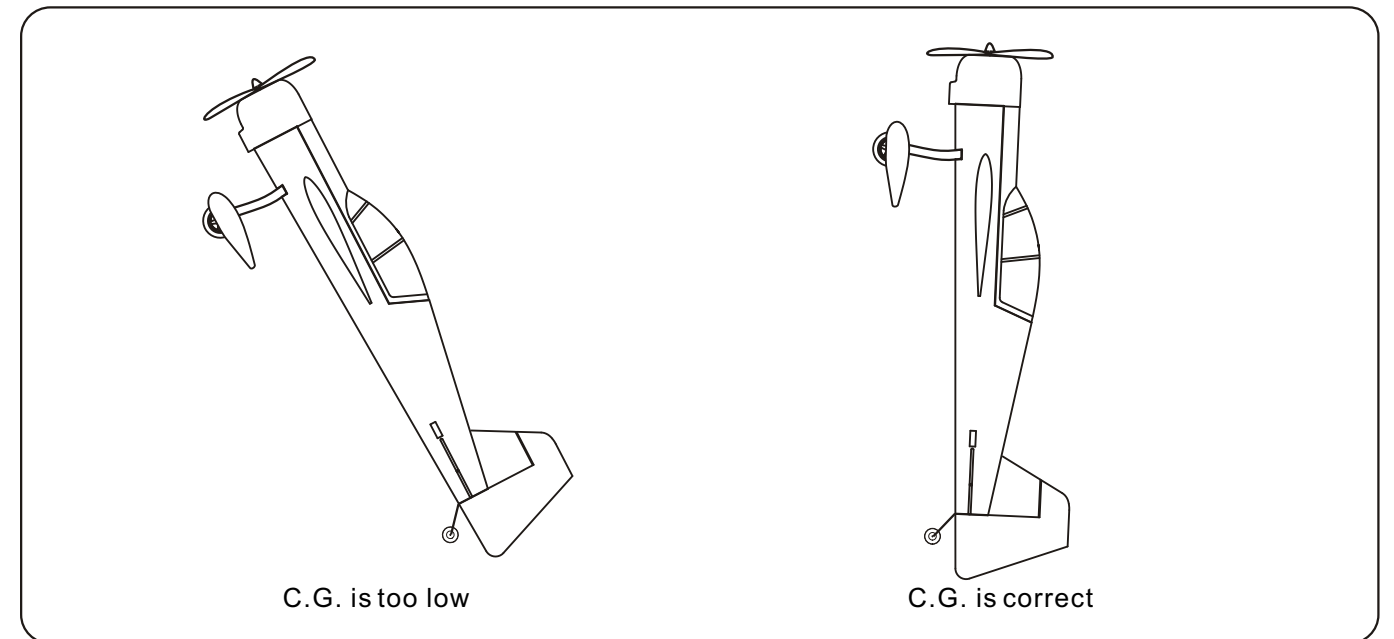
It is important to balance the plane to get correct C.G. before you fly.
Balance Point as indicated in each diagram.



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

LONGITUDE BALANCE

C.G. Must be set on thrust line

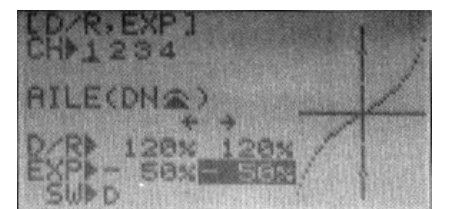
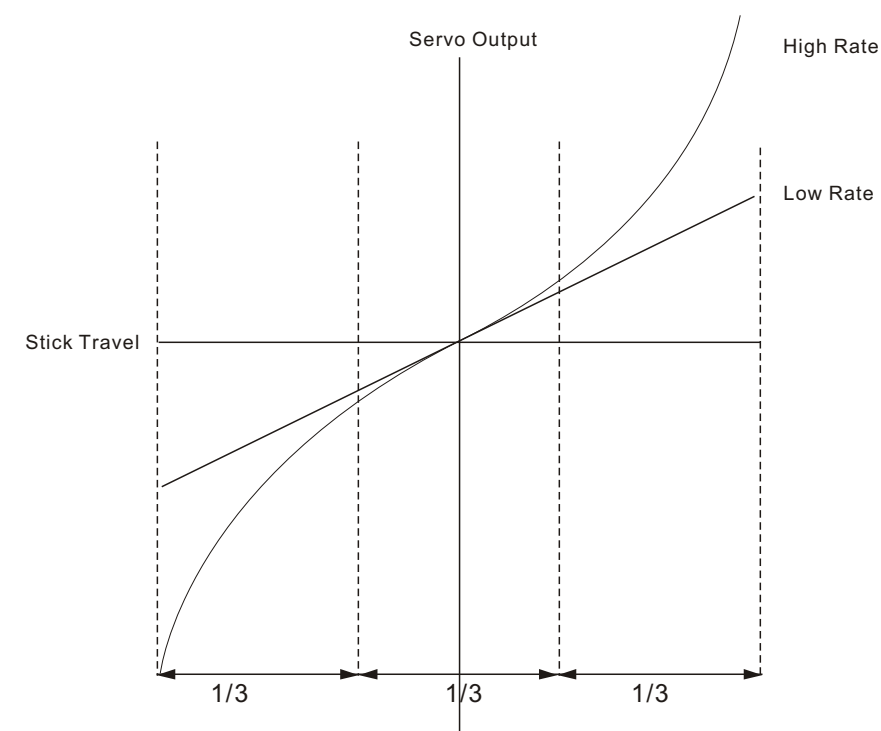


As 3D planes do a lot of hovering so it is very important to do longitude balance to make hovering much more stable. Try to create a small hole after the motor and on the thrust line. Get music wire or string then thread the wire through the hole. Make sure that model hangs perfectly vertical as illustration. 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



Exponential

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. 找尋副翼舵機位置 小心以美工刀在對角劃開一個 X 然後用電熨斗燙平包覆紙。

2. 如圖安裝舵機，請將舵機線自翼根穿出。

3. 將副翼移開主翼並調整副翼紙合頁於適當位置。

4. 以瞬間接著劑固定所有紙合頁。

5. 將副翼安裝於主翼上以瞬間接著劑固定紙合頁位置，確認膠水滲透入木質部分。

6. 暫時安裝舵機擺臂及推桿找出舵角片適當位置，然後鑽4mm 孔位。注意要垂直鑽孔。

7. 安裝舵角片並以瞬間接著劑固定。接著安裝舵機擺臂及推桿並用可調式推桿固定座調整。

8. 找出水平尾翼及垂直尾翼位置小心將包覆紙割除。

9. 暫時安裝水平尾翼及垂直尾翼，沿機身以記號筆在水尾垂尾上畫出記號。

10. 移出尾翼小心以美工刀將記號內之包覆紙割除。

11. 先將升降舵連接桿穿過機身再安裝尾翼，確認尾翼定位正常後以瞬間接著劑固定。

12. 安裝升降舵紙合頁。

13. 同時以環氧樹脂膠合連接桿，合頁部分以瞬間接著劑固定。

14. 如圖安裝尾輪架及尾輪以2.3x8mm 木螺絲固定之。

15. 如圖安裝紙合頁並將方向舵底部切一個溝槽使之與尾輪扭桿搭接。

16. 將方向舵安裝於垂尾上以瞬間接著劑固定後確定作動順暢。

17. 找出機身兩側舵機座位置。

18. 以美工刀將包覆紙割除後再以電熨斗燙平之。

19. 如圖安裝舵機，但請先連接約30cm 延長線。

20. 同安裝副翼舵角片請安裝水平尾翼之舵角片。

21. 於舵機及水平尾翼於中立點時安裝連桿。

22. 同法安裝方向舵舵角片。

23. 同法安裝方向舵舵機及連桿。

24. 請準備無刷馬達及其安裝配件。

25. 如圖安裝馬達於防火壁上。

26. 以內六角螺絲固定碳纖維腳架。

27. 如圖安裝輪罩及輕量化輪胎。

28. 先將碳管插在機身上然後安裝主翼，以尼龍螺絲固定於機身內側上。

29. 以束帶將電池固定於電池座上。

30. 將舵機線正確接至接收機並以束帶固定之。

31. 將尾部切開並將包覆紙熨好。

32. 將天線自機身尾部穿出以膠帶固定之。

33. 同樣於機身中段底部切開包覆紙並熨好如圖所示。

34. 將座艙組置於機身上以強磁固定。

35. 安裝馬達罩確認螺漿須突出罩緣，確定後已2.3x8mm 木螺絲固定之。

36. 安裝螺旋槳及螺旋槳固定螺帽，仔細調整重心及舵量後才可上空飛行。