RC AVINATION

# SUPER TUCANO V2

## AVN (PNP) SUPER TUCANO V2 WITH RETRACTS. FLAPS & LED LIGHTS EPO 1600MM




# INSTRUCTION MANUAL

Please read this manual carefully before operating this plane.

## WARNING

Read this instruction manual fully so as to become completely familiar with the features of this product before operating. Failure to operate this product correctly could result in damage to the product, personal property and cause serious injury. This is a sophisticated hobby product and is NOT a toy. It must always be operated with caution, common sense and some basic mechanical ability. This manual provides instructions on the assembly, safe operation and maintenance of this hobby product. It is highly recommended that you read and follow fully the instructions and warnings stated in this manual. This includes the safety, assembly, set-up, and flying guidelines in order to operate this product correctly to avoid damage or serious injury.

## SAFETY PRECAUTIONS

As the user of this product you, and you alone, are responsible for operating it in a manner that does not endanger yourself and others around you or result in damage to the product or property of others. This product is operated via a radio controlled system that in some cases can be subject to interference from sources outside your control. Interference may result in a momentary loss of control, so it is always recommended that this product be used in a suitably open outdoors space.

- This is a radio controlled flying model and as such must always be flown with caution and care. This is not a toy.
- This model is designed for intermediate to advanced pilots.
- Alway exercise great caution when using the recommended battery to power this product. For full safety notes and operating procedures, please see information provided by your battery supplier.
- Take great care when connecting/disconnecting the battery. See your battery supplier for full safety procedures.
- Never power up the model in confined spaces and always keep the prop clear of obstructions.
- This product is not a toy. Children must be accompanied by a capable and responsible adult at all times when operating this product.
- Only fly this model in an open area away from crowds of people, buildings, trees, power lines, and other obstructions.
- Always put safety first when operating this model and consider the warnings stated above.
- The supplier/manufacturer accepts no responsibility for damage or injury caused through the use of the product. Not suitable for children under the age of 14. THIS IS NOT A TOY.

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# SUPER TUCANO V2



## INTRODUCTION

The AviNationRC Super Tucano V2 is a large, impressive, modern-day warbird that offers super-scale looks with a sports plane feel. It has a low wing loading, rock-solid stability throughout its entire speed range, and an awesome presence on the ground or in the air. When flying, it tracks like it is on rails with no bad tendencies, and the ground handling is also excellent courtesy of the tricycle landing gear and rugged all-metal, sprung oleo struts. All these traits, including long flight times make it the perfect choice for beginners to flying scale model warbirds, and experienced pilots will also love the impressive amount of power and torque from the 6S setup and the highly efficient 5-blade scale propeller.

This amazing amount of power enables the Super Tucano V2 to carry out large, scale-like maneuvers with confidence and loads of panache. The flying characteristics are where the Super Tucano V2 comes into its own and make it stand out from the crowd. It flies extremely well and, with a balanced, neutral feel, it can perform aerobatics just as well as any purpose-built pattern-ship. It is also surprisingly 3D capable, it takes hovering, rolling circles, knife-edge loops, harriers, and even crankshafts it will take in its stride, the AviNationRC Super Tucano can do them all.

The features of this "Plug N Fly" model are also very impressive: large flaps for super slow, controlled landings, and very slow, low passes, day-bright LED nav, formation, and landing lights, and a set of all-metal, durable servoless retracts with sprung oleos and nose gear door. This setup makes for excellent ground handling and also smooths out all those lumps and bumps we get on many of our grass airfields. Power is supplied by a spirited 5052-525KV brushless motor coupled to a 100A AviNationRC AVN RVS G2 brushless ESC, as an option this can provide reverse thrust for an extremely short landing run. 6 x 13g servos provide control to the ailerons, elevator, rudder, and flaps, and a stronger, more powerful 25g servo provides control to the steerable nose gear.

The strong, lightweight EPO airframe is painted and finished in striking Ecuadorian Air Force Digital Camo scheme, and the parts count is minimal, making for a quick and straightforward building process. The beautiful scale decals are also expertly applied at the factory as are most of the scale detail. A feature of the full-size Super Tucano is the large tandem canopy and cockpit, this is superbly captured with this AVN version. The cockpit is well-detailed and includes two pilots for added realism, it also lends itself nicely to accommodating an FPV setup for an even greater flying experience. The large quick-release hatch gives excellent access to the radio/battery compartment, whilst allowing for super quick and easy battery changes.

We at AviNationRC hope you enjoy building and flying this large, very impressive, easy to fly scale warbird that can be enjoyed by both beginners to warbirds, and experienced pilots alike.

Please also check out the full range of unique, and high quality scale models manufactured by AvinationRC at chinahobbyline.com. This range is being added to all the time, so watch out for more exciting models from this premium brand.

## SPECIFICATIONS

Wingspan : 1600mm (63")

Length : 1617mm (64")

Flying Weight : 4100g (9lbs)

Prop : 13x8 scale 5 blade

Battery : 1 x 6S 4000-6700mAh 40-120C required

Motor : AVN Sport 5052 525KV Brushless Outrunner

ESC : AVN RVS 100amp Brushless Speed Controller

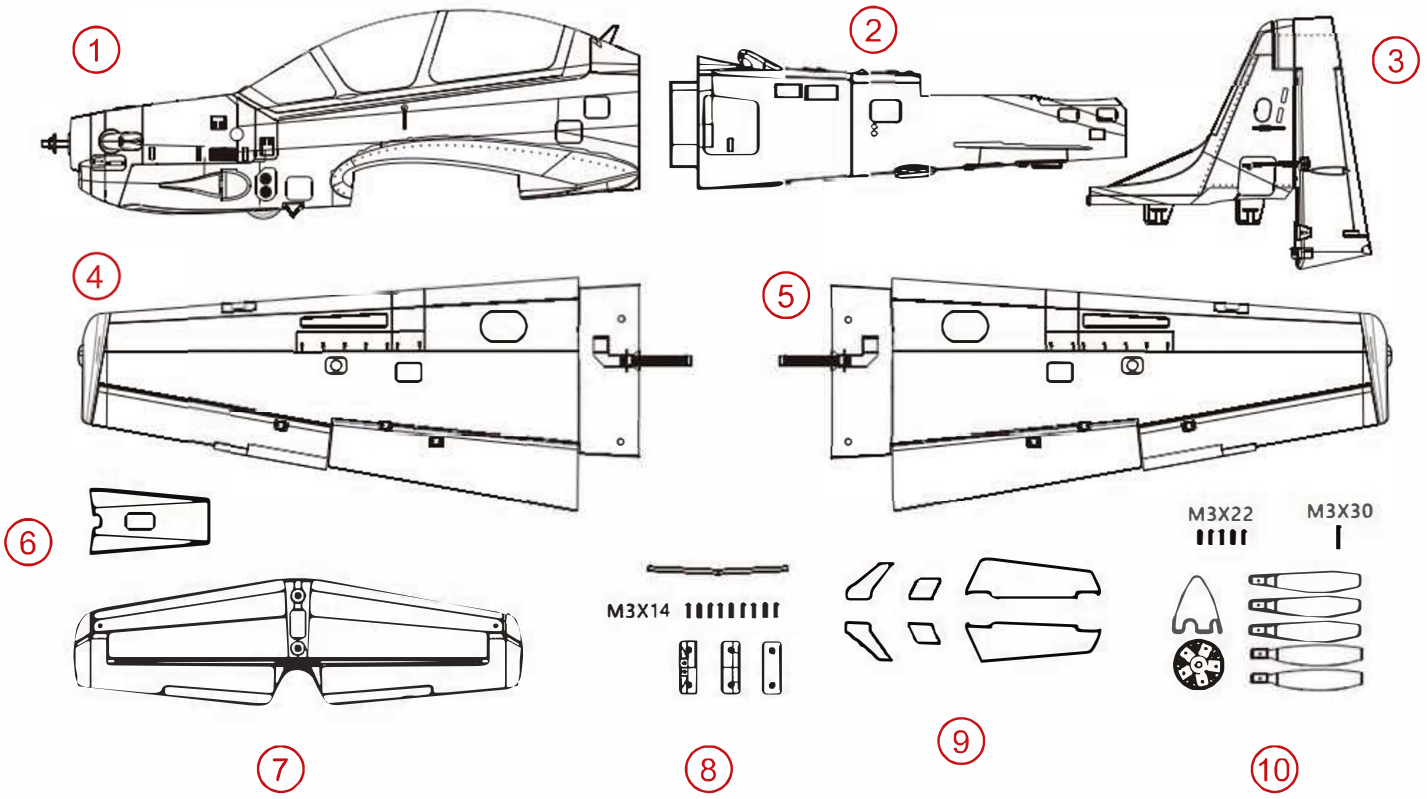
Servo: 6 x 13g Metal high speed (2 x Aileron, 1 x Elevator, 2 x Flaps, 1 x Rudder), 1 x 25g Steering, 1X9 g Nose door

Channels: 6-7ch, Aileron, Elevator, Rudder/Steering, Throttle, Flaps, Retracts,RVS/Breaking (reversing, optional)

# SUPER TUCANO V2



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1. Fuselage front
2. Fuselage rear
3. Vertical stabilizer w/rudder
4. Left wing
5. Right wing
6. Underside of rear fuselage
7. Horizontal stabilizer w/elevators
8. Wing joining and retaining set
9. Scale parts
10. Propeller assembly

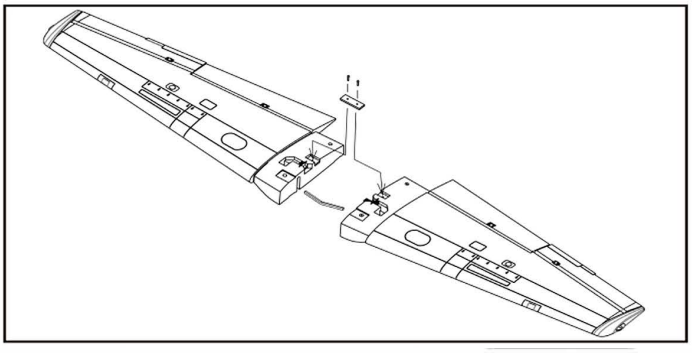
# SUPER TUCANO V2

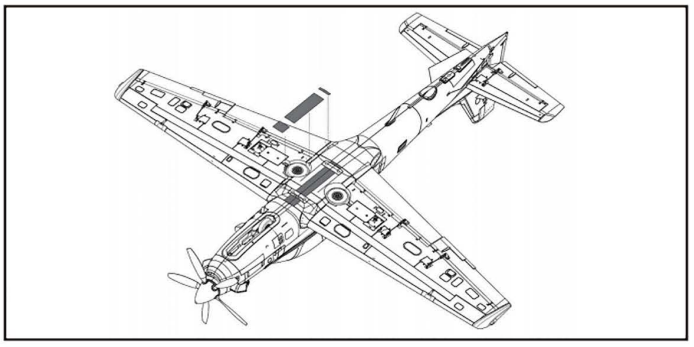


## ASSEMBLY (PNP)

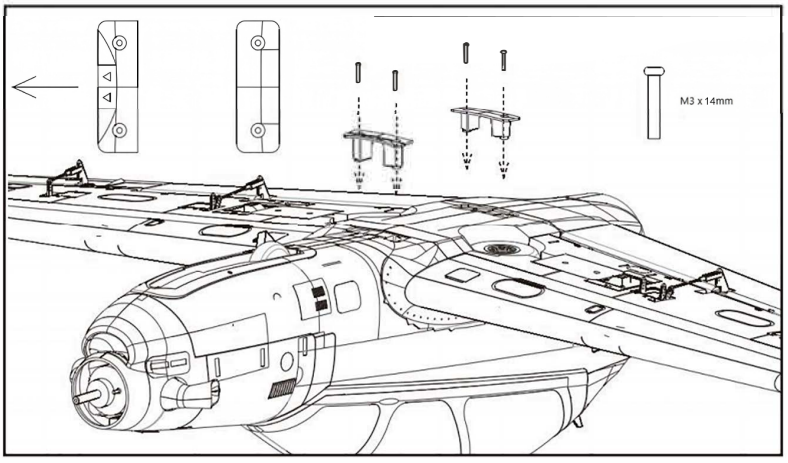
3x14mm self tapping screws and ply screw plates are now supplied for the wing halves and fuselage join of the Super Tucano V2. These are intended to either assist with securing the wing and fuselage joints in place whilst the glue dries, or to help facilitate a two part wing and fuselage system if transport is an issue. However, these are optional only, and gluing of the wing and fuselage is still the recommended approach to assembly. Contact type glue such as UHU POR is the recommended glue for the assembly process.

**1.** Join the 2 wing halves together using the steel wing brace supplied. It is highly recommended that you glue the wing halves together for extra strength and security. We also recommend that you use the fuselage and the wing bolts to "jig" the wing into the correct position whilst the glue cures. Supplied with the Super Tucano V2 is some colored tape to cover the wing join, apply this to the areas shown below.

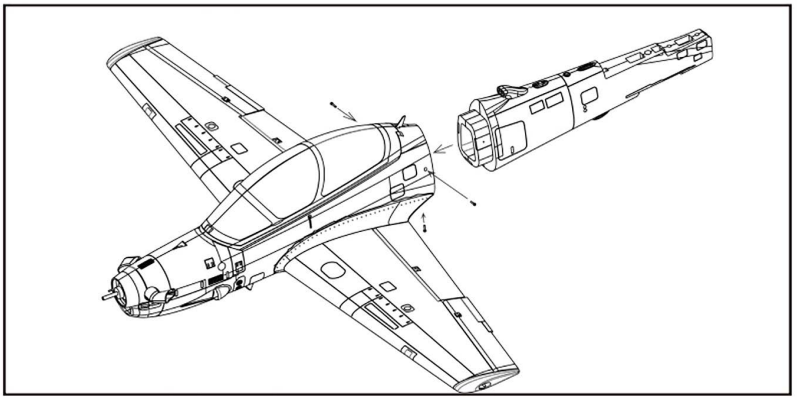




**2.** Rest the front of the fuselage upside down on a model cradle or similar device to support it without damaging the foam. Attach the wing to the fuselage using the 2 wing straps and the 4 M3x14mm screws supplied. Ensure the orientation of the 2 straps are correct by studying the drawing below.

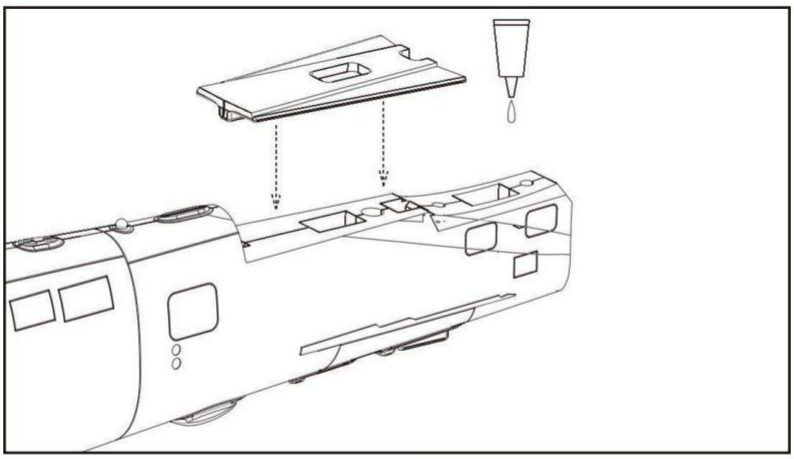



**3.** Turn the assembly back over the right way and glue the rear fuselage to the front as shown. Dry fit the the 2 halves together first to ensure there are no problems. When satisfied with the fit use a good quality foam glue or similar to join the 2 halves together.

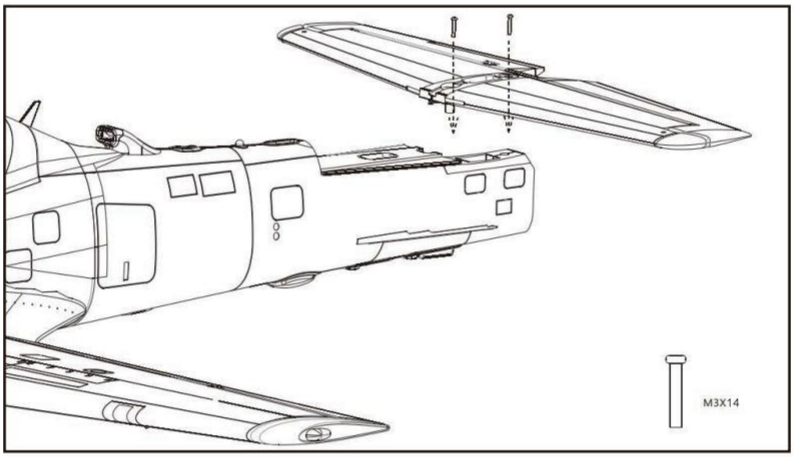




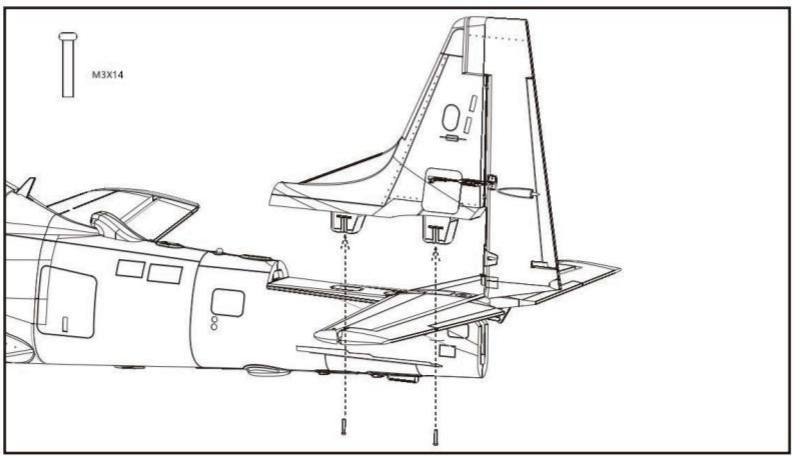
**4.** Glue into place the bottom of the rear fuselage molding as shown.



**5.** Attach the horizontal stabilizer and elevator assembly using the two M3x14mm screws supplied.

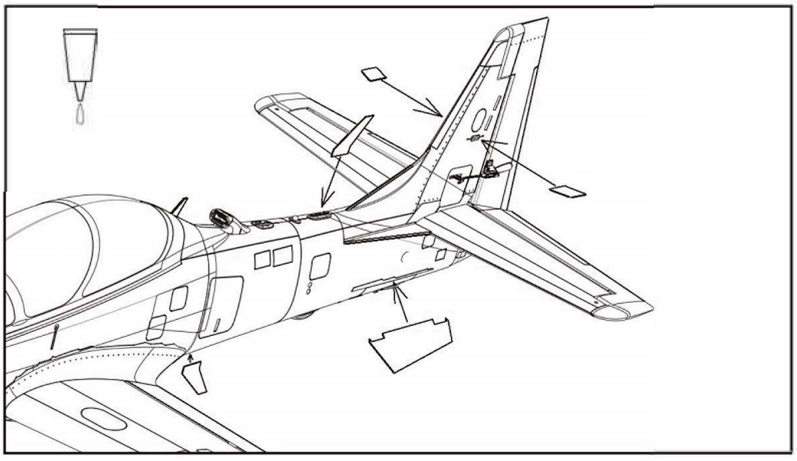



**6.** Next, attach the vertical stabilizer and rudder assembly using the two M3x14mm screws supplied.

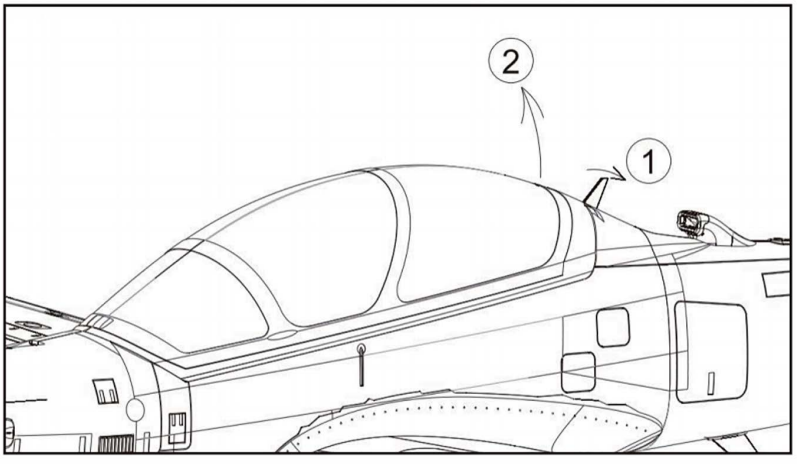




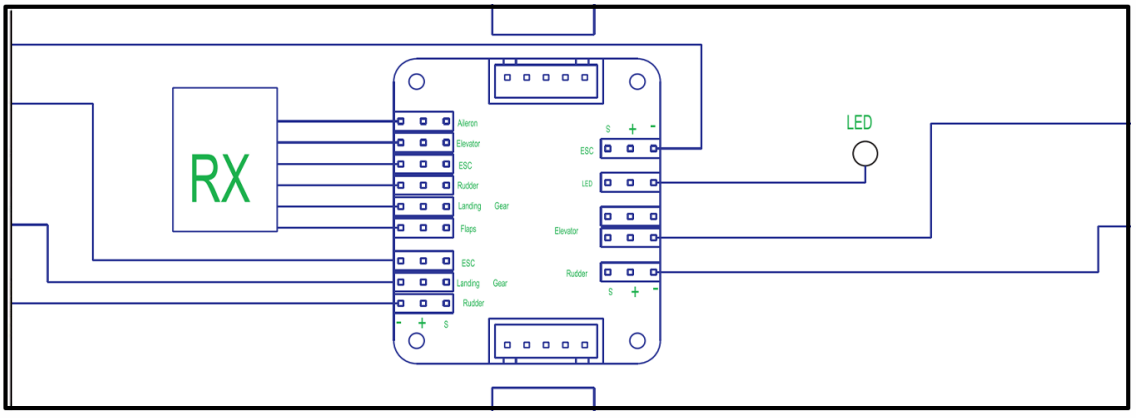
**7.** Glue the scale plastic parts into the fuselage and vertical stabilizer as shown below.



**8.** Remove the canopy to install the receiver and battery, etc.



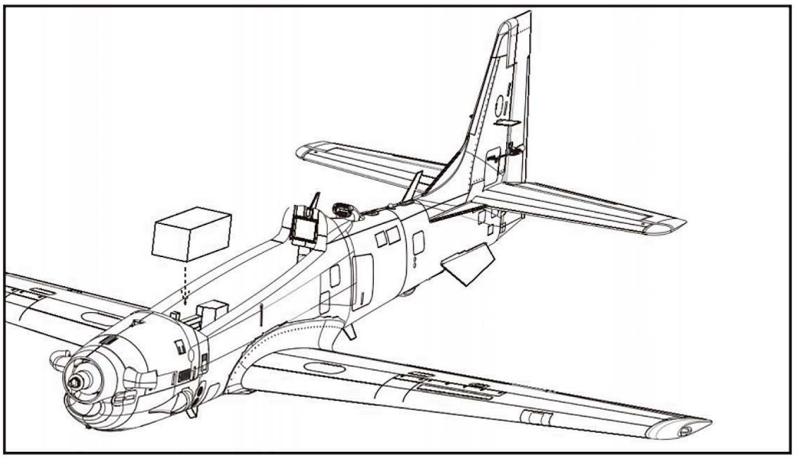

**9.** Below is the wiring diagram for connecting your receiver to the AVN MasterControl Board, and also to the servos and retracts.



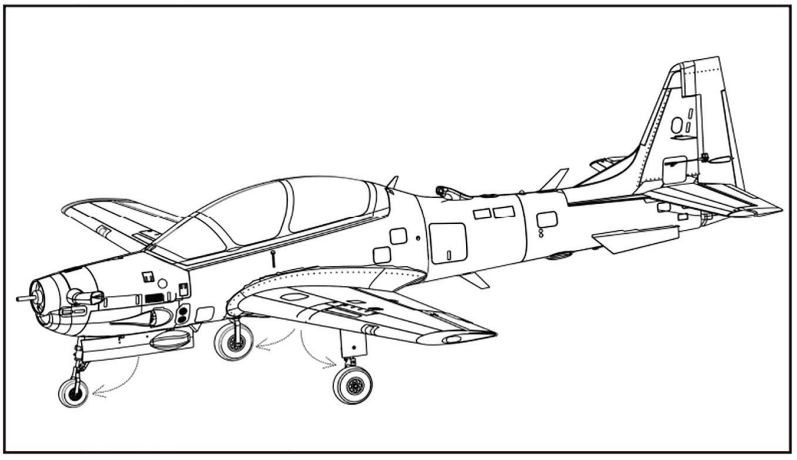

**Please note:** The two white 5-wire leads need to be connected to the correct sides of the PCB to ensure the wing servos function correctly. The left-hand wing lead needs to go to the left port, and the right-hand wing lead needs to go to the right port. They are marked, so please ensure they are plugged into the correct ports.



**10.** Ensure your transmitter has been bound to your receiver, then turn on the transmitter and connect your 6S flight battery.



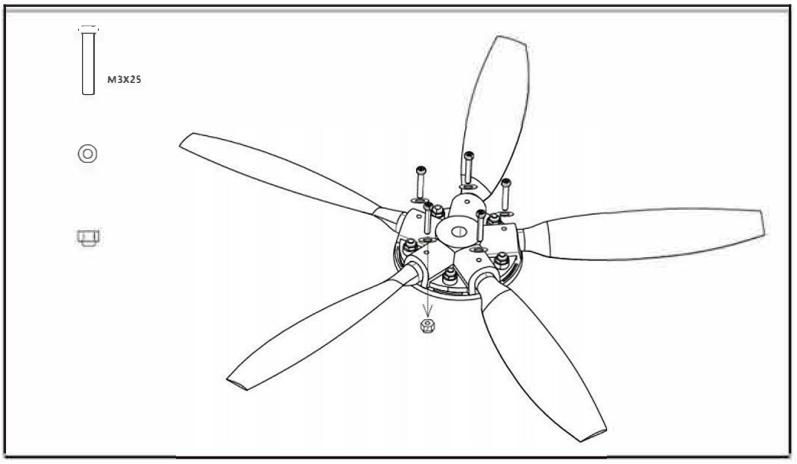
**11.** The nose gear door will need setting up on your radio system so that the nose gear door servo is sequenced to open the door before the gear comes down and close it after the gear goes up. This is easily done with most modern radio systems. See your radio manual or community site for details. If you fly with FrSky ETHOS system, a model memory file for the Super Tucano V2 is available to download from the CNHL site and this has the sequence system set up for you. Once your radio system is working, check thats all the control surfaces are operating correctly, the LED lights are on, and the landing gear is functioning properly. Also check that the motor runs and rotates in the correct direction, anti-clockwise when looking from the front.



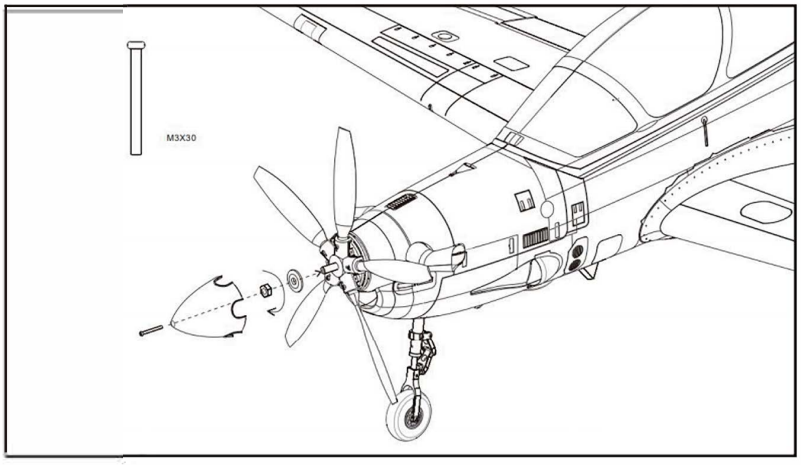


**12.** Assemble the propeller using the supplied M3x25mm screws, M3 washers and M3 nyloc nuts as shown below.

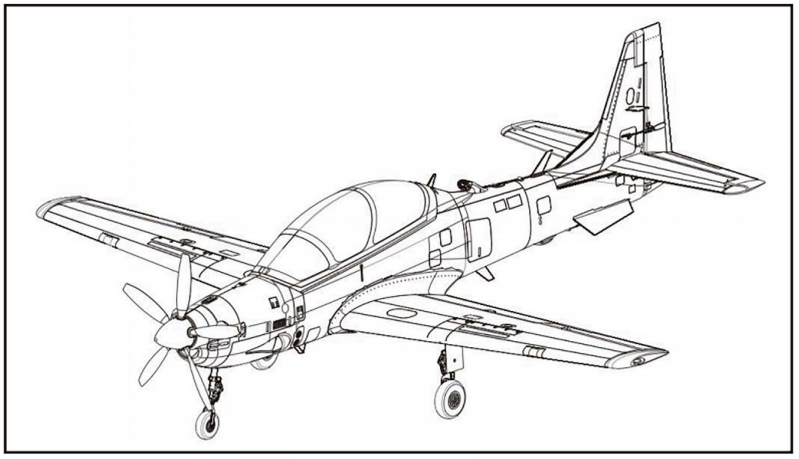
**Please note:** The back plate has already been factory assembled using bolts and nyloc nuts. How ever if a blade still feels loose after assemblyyou may also find that you need tighten the backplate screws slightly. Please also be sure NOT to overtighten the prop bolts as this could potentially crack the backplate which would then need to be replaced.




**13.** Install the propeller assembly to the motor using the propeller adapter nut and washer. Once the nut has been tightened with a spanner attach the spinner using the M3x30mm screw supplied.

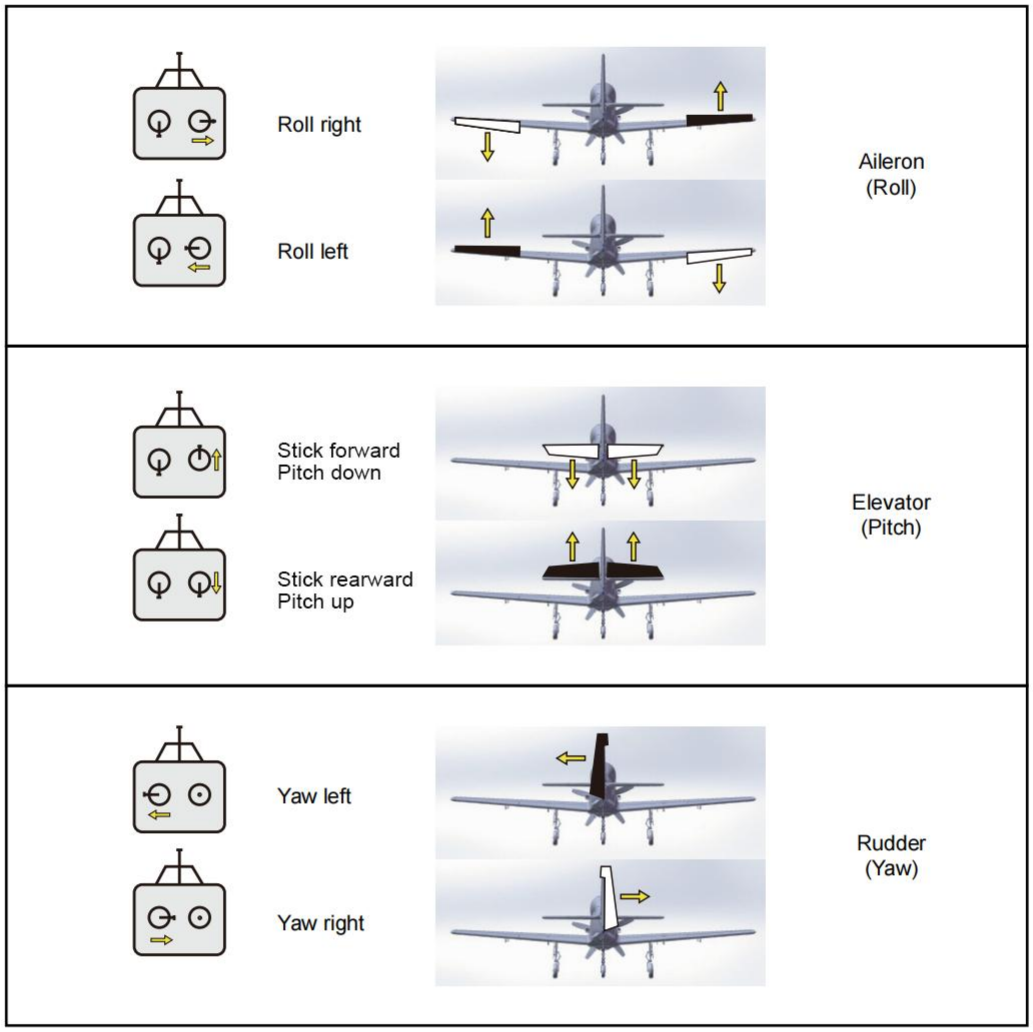



**14.** The assembly of your AVN Super Tucano V2 is now finished.



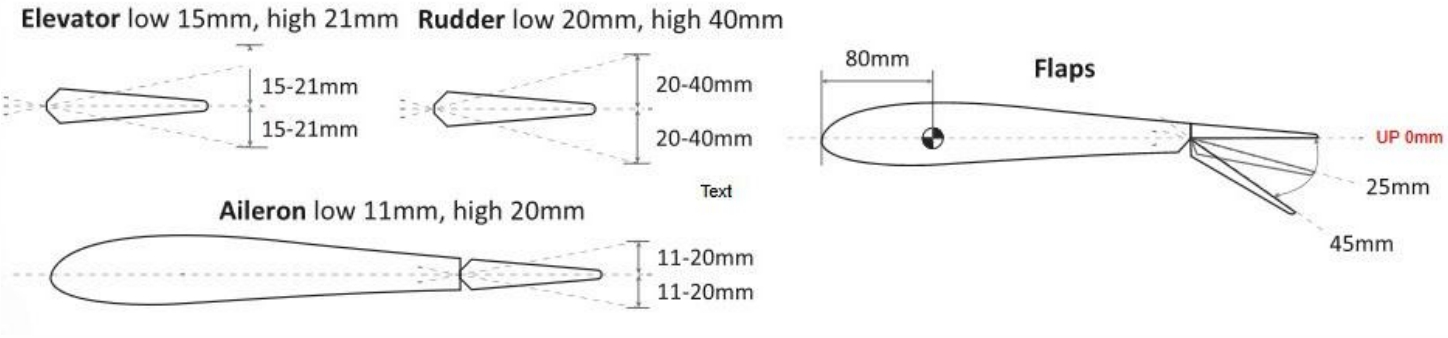


Switch on your Tx, connect your battery and set the trims and sub-trims to 0, then adjust the clevises to center all the control surfaces. Move the controls on the transmitter to make sure the aircraft control surfaces move in the proper direction.

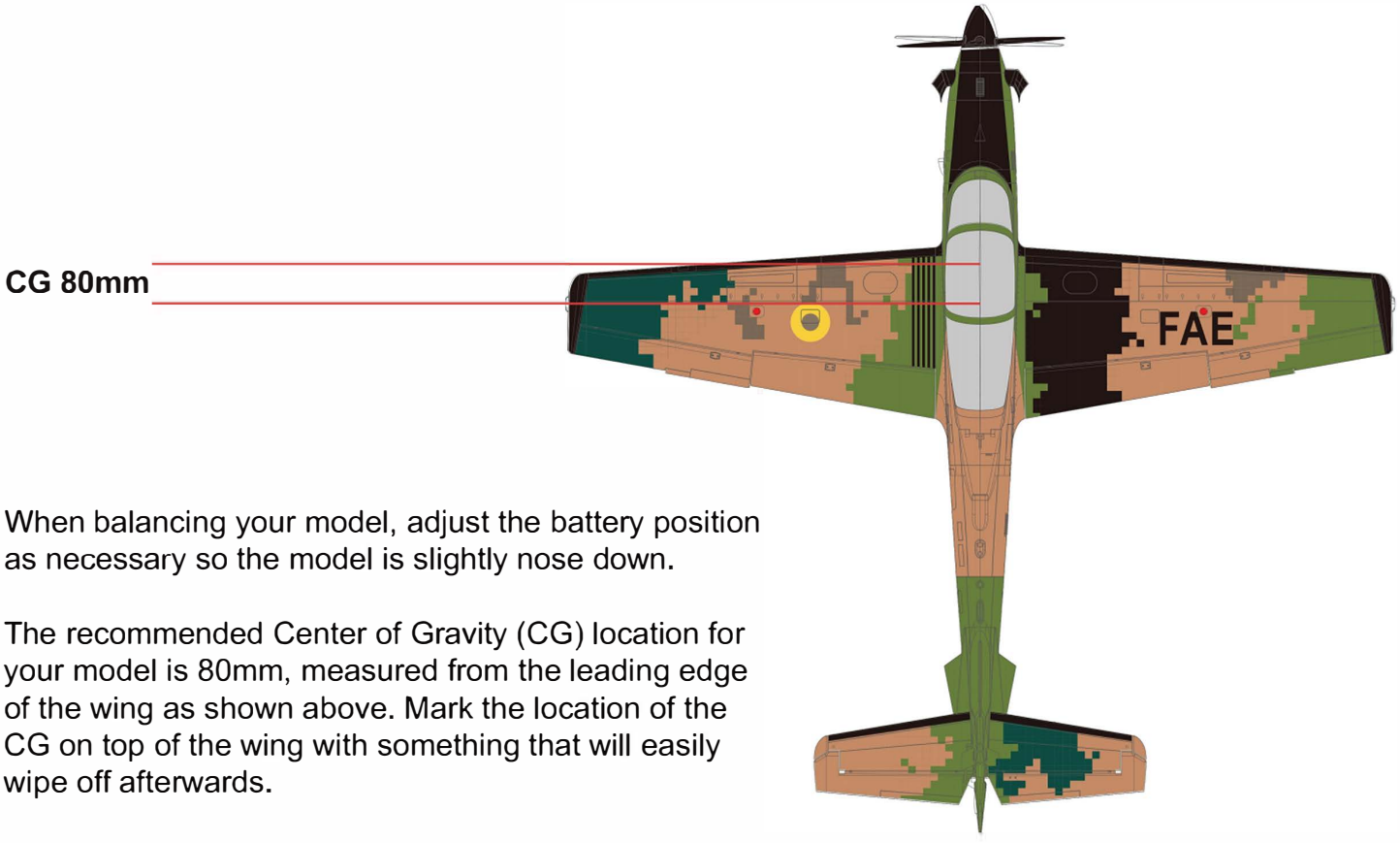




## CONTROL THROWS LOW - HIGH




## CG LOCATION




When balancing your model, adjust the battery position as necessary so the model is slightly nose down.

1. The recommended Center of Gravity (CG) location for your model is 80mm, measured from the leading edge of the wing as shown above. Mark the location of the CG on top of the wing with something that will easily wipe off afterwards.

2. When balancing your model, have the wheels retracted and support the plane inverted on the marks made on the top of the main wing with your fingers.

The 80mm CG point we recommend is for your initial flights. After the first flights, the CG position can be adjusted to your personal preference.



## Important ESC and model information.

1. When you switch on your transmitter and connect your flight battery you need to move the throttle stick to the low/off position, the motor will then emit a series of beeps. When using a 6S pack, 6 beeps with the same tune means the ESC has detected the 6 cells of the battery. The motor is now armed and will start when the throttle is opened.

2. The motor and ESC come pre-connected and the motor rotation should be correct. If for any reason the motor is rotating in the wrong direction, simply reverse two of the three motor wires to change the direction of rotation.

3. The motor has an optional brake setting and the ESC is supplied with the brake switched off. we recommend that the model is flown with the brake off. However, the brake can be accidentally switched on if the motor battery is connected to the ESC whilst the throttle stick is set at full throttle. To switch the brake off, move the throttle stick to the full throttle position. Plug in the flight battery and the motor will beep once, move the throttle stick to the low/off position. The motor is now ready to run and the brake will be switched off.

## Battery Selection and Installation.

We recommend the use of a 22.2V 4000mAh-6700mAh 40C-120C LiPo battery. If using a different specification battery, then choose one of approximately the same capacity, dimension and weight as that recommended.



## FLYING THE AVN SUPER TUCANO V2

Flying the Super Tucano V2 is a pure joy, its flying characteristics and ample power system combine to give it a very locked-in feel, and a stable and fun flying experience. When flying the Super Tucano V2 you'll want to have a good, smooth grass runway or hard surface to fly from, take off runs are a breeze with mid flap setting. The model will take-off after a short run out at just above 1/2 throttle and settle into a nice smooth climb out. Retract the gear as you climb out and this cleans the airframe up nicely by the time you have made your first turn and increase power and retract flaps as you do.

At this point you'll be ready for your first fly by (after any trimming that is needed). Right away you'll see how locked in the Super Tucano V2 feels and flies, low throttle, mid and full throttle passes low to the ground are especially satisfying. The Tucano has good aerobatic potential along with the more typical scale flight, rolls and loops being performed with ease as well as other aerobatics. Slow flight is very enjoyable with the Tucano, and full flap fly-by's with less than half throttle are easily achieved. Slow coordinated turns with the flaps down are a breeze when using combined ailerons and rudder with very little risk of the model stalling.

When you are ready to land, line up with the runway and bring the gear down and initially set mid flaps. Once the Super Tucano V2 settles into the approach, use power all the way down your glide slope to control the descent and keep airflow over the control surfaces. Full flaps can be deployed as you begin your final approach to further slow the model down if needed. A nose down approach not only looks cool but also helps maintain airspeed so is recommended. You will want to aim to land the Super Tucano V2 on the rear main wheels first then allow the nose wheel wheel to drop as the model slows. Feed in elevator once you very close to the ground to bring the nose up and flare onto the main gear. Once down the Super Tucano V2 will come quickly to a stop if flying from grass, but on hard surfaces will run on a little. AVN using excess rudder/steering inputs if it does. Flight times on the recommended battery with mixed throttle use are on average around 7 minutes.

Thank you for purchasing the AVN Super Tucano V2 , we wish you many pleasant flights and if the worst should happen, don't forget we do have spare parts available too.

## SUPER TUCANO V2 FLYING TIPS

- Double check you have installed the prop correctly, it should rotate counter-clockwise looking towards the nose.
- A 6-cell 4000mAh-6700mAh LiPo weighing between 600-900g is recommended for the best combination of AUW and flight times with mixed throttle use.
- The Super Tucano V2 slows down really well with flaps and is a lot of fun to fly at these slower speeds low to the ground, so don't just use them for take-offs and landings.
- Use a little rudder in the turns, especially when flying slow. A coordinated turn not only looks better but will give you more control too.
- After a few flights, check the nose landing gear to ensure it hasn't bent back a little if you've had some nose wheel first landings. It should always be raked a little forwards to maintain the nose-up attitude of the model when on the ground.



## MODEL FLYING PRECAUTIONS

- Select your flying area carefully. Always choose an open space that is clear and not obstructed by trees, poles, pylons, and buildings etc. Also ensure you are away from people and crowded areas. Avoid flying in areas with roads, near water, or within close proximity to full size air traffic.
- Do not fly this model in poor weather, for example: high winds, low visibility, inclement temperatures, and rain and storms are also to be avoided.
- Never attempt to catch the model whilst it is in flight, even a slow moving model can cause harm to yourself and risks damage to the model.
- This model is not recommended for children under the age of 14 years old. All children no matter what age, should be supervised by a capable and responsible adult when operating this model.
- Always unplug the battery from the when not in use, never leave the battery installed in the model.
- Please remember to keep clear of the propellers at all times when your flight battery is connected.
- Before flying, always turn ON your transmitter first, then plug your flight battery into the model.
- After flying, always unplug your battery first in the model and then turn OFF your transmitter.
- Exercise caution when charging your batteries, and follow in full your battery manufacturer's safety guideline when doing so.

## PRE-FLIGHT CHECKS

1. Always range check your model before any flying. Follow your radio manufacturers guidelines for performing this check.
2. Check that all screws and mounting points are firmly secured, including the control horns, clevises and, most importantly, the propeller. Double-check that the propeller blades are secure and inspect the propeller and spinner for any signs of damage.
3. Only fly with fully charged batteries. Failure to do so could result in loss of control, damage to the model and possibly property around you. Make sure your batteries are fully charged.
4. With the model powered up check that all control surfaces are free from damage, moving in the correct directions and with no binding.
5. Inspect the model and props for any damage that may have occurred during transit to your flying site. Listen for any unusual sounds from the electronics when powered up. If in doubt, do not fly.
6. With the model held securely and the propellers free of obstructions, increase the throttle just slightly to confirm the rotation of the propellers is correct . The model should want to pull straight forward when the throttle is applied.
7. Check that the CG is at the correct position. If not, adjust the battery position as necessary.
8. If you are an inexperienced model pilot, seek the help and assistance of an experienced pilot to perform these final checks, and to test fly the model for you.



## TROUBLE SHOOTING

- **Motor does not run:**
  1. Battery is not fully charged (Charge the battery).
  2. Transmitter battery is low (Charge or install a fully charged battery).
  3. Motor is not connected properly (Check the motor to ESC connections and the ESC to battery connections).
  4. Receiver is not bound to the transmitter (Consult your radio manual and go through the binding procedure).
  5. ESC is in set-up mode (Hold model and move throttle up to full then back to idle, or reverse the throttle channel on your transmitter. Switch everything off before doing this).

- **Model moves backwards:**
  1. Propeller is installed around the wrong way (Turn the propeller around).

- **Control surfaces not moving with stick input:**
  1. The servo leads are not connected properly (Check the servo connections).
  2. The servo is damaged (Replace the servo).

- **The model does not fly straight:**
  1. Control surfaces are not at neutral (Adjust the trims/sub trim on your transmitter).
  2. CG is not correct (Re-position the battery to achieve correct balance).

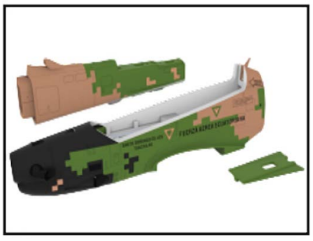
- **Model does not climb well:**
  1. The battery is not fully charged (Charge the battery).
  2. The elevator servo is reversed (Change the direction via your transmitter settings).
  3. CG to far forwards making it nose heavy (move battery backwards or add weight to tail).



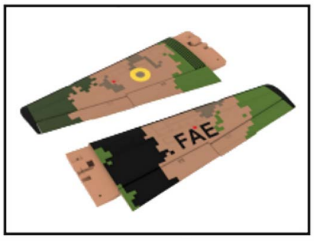
# SUPER TUCANO V2



## SPARE PARTS



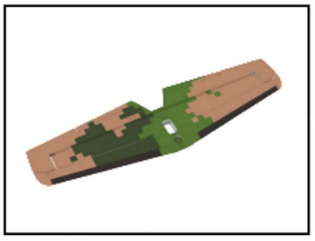
**Fuselage**
SKU:STUPV2015



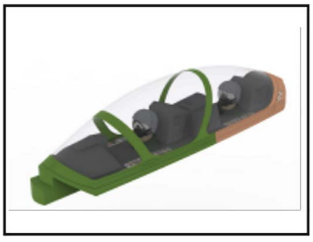
**Wing Set**
SKU:STUPV2013



**Vertical Stabilizer**
SKU:STUPV2016



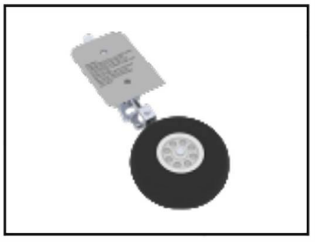
**Horizontal Stabilizer**
SKU:STUPV2017



**Cockpit/Battery Hatch**
SKU:STUPV2014



**5-Blade Propeller Set**
SKU:STUPV2003



**Main landing gear 1pcs**
SKU:STUPV2025W



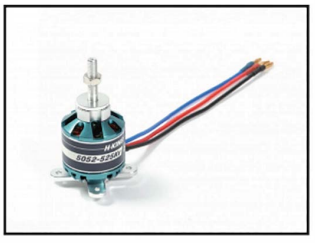
**Main wing fix parts**
SKU:STUPV2005



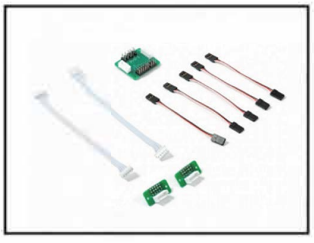
**Control horns and ball links** SKU:STUPV2006



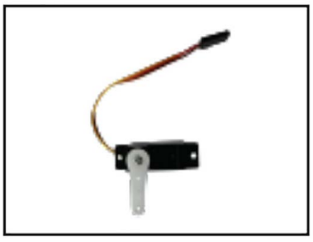
**Nosegear Servo Set**
SKU:STUP007



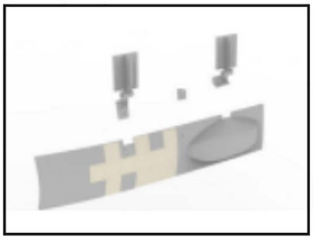
**5052-525KV Brushlees Motor Set**
SKU:STUP008



**Distribution Board Set**
SKU:STUPV2009



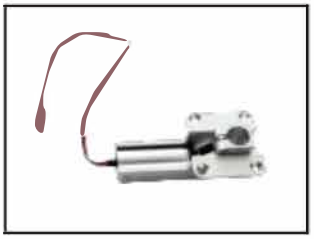
**13g metal servo for aileron elevator and rudder**
SKU:STUP020



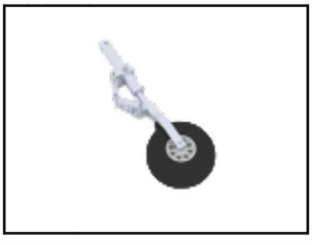
**Nose door**
SKU:STUPV2023N



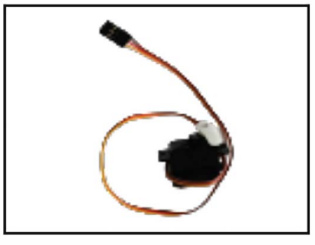
**Nose Landing Gear Retract Unit (1pc)**
SKU:STUPV2011



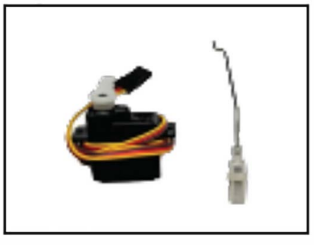
**Main Landing Gear Retract Unit (1pc)**
SKU:STUPV2012



**Front landing gear 1 pcs**
SKU:STUPV2024F



**13g metal servo for Flap wing**
SKU:STUP021



**9g metal serco for nose door retract**
SKU:STUPV2022N

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