

**FLEX**  
INNOVATIONS™

**ULTIMATE FP**

## *Assembly Manual*



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## Introduction



Flex Innovations is thrilled to introduce the Foam Profile (FP) line of aircraft. For years, profile foam aircraft have attracted modelers of all types due to their combination of enjoyment and durability. Now, Flex has committed to revolutionizing this type of aircraft by combining high level performance and equipment with a simple PNP style assembly process. This line focuses on accessibility and compatibility for pilots of all experiences and skill levels. From basic flight practice to high performance aerobatic demand, the FP line will satisfy the needs of all. Additionally, the EPP/carbon fiber construction allows for rigidity in flight and easy repairs. From indoors to outdoors, this line of aircraft offers ease of assembly, transportation, maintenance, and much more!

The Ultimate FP embodies the innovative spirit of Flex by not only providing a revolutionary foam profile biplane from a flying characteristic and equipment standpoint, but also eliminating the build hassle of previous biplane foam profiles! The Ultimate FP is a fantastic complement to the 70cc Ultimate which has become extremely popular in a short period of time. From smooth precision to all-out XA performance, this is a phenomenal addition to the Flex biplane lineup. One of the main focal points of the Ultimate FP is its ability to be a low and slow 3D trainer. The predictability in post stall flight is unmatched! Paired with high quality and high-performance equipment, the Ultimate FP is sure to be a fun airplane for all styles!

### SPECIFICATIONS/EQUIPMENT OPTIONS:

**Wingspan- 28"**

**Weight- ~200-220g (about 7.8 oz)**

**Motor- T-Motor AM40 1850KV (FPZM2818)**

**ESC- T-Motor AT 20A ESC (TMAT20A3S)**

**Servos- Potenza DS17HV 180mm (FPZDS17HVB)**

**Prop- APC 9 x 4.1 SF 3D Propeller (LP09041SF)**

**Recommended Battery- Potenza 2S 600mAh 45C (FPZB6002S45) or 2s 600mAh 100C (FPZB6002S100)**

**Recommended RX- 4-6 channel (Spektrum AR620, Futaba R3104SB)**

**Aura (Optional)- FT AURA 5 LITE AFCS (FLT8050)**

## Replacement Parts

FPM5370A	Flex Ultimate FP Orange PNP
FPM5370B	Flex Flat Foamy Ultimate FP JD Red PNP
FPM537001	Flex Ultimate FP Plastic Parts Sheet
FPM537002A	Flex Ultimate FP Orange Foam Wheel Pant and Landing Gear Sheet
FPM537002B	Flex Ultimate FP Red Foam Wheel Pant and Landing Gear Sheet
FPZA1057	Flex FP Propeller Band Set
FPZA1058	Flex FP Landing Gear+Wheel+Wooden Collar Set
FPZA1059	Flex FP EZ Connector+Z-bend Set
FPZM2818	T-Motor AM40 1850KV Motor
HW20AESC	T-Motor AT-20A ESC
LP09041SF	APC 9x4.1SF 3D Propeller
FPZA1060	Flex FP Series Spare Carbon Fiber Set
FPZDS17HVB	Potenza DS17HV Servo (180mm wire)
FPMJQ2118	Jinqiang JQ-2118 Building Adhesive

## ATTENTION

**Read the ENTIRE instruction manual to become familiar with the features and assembly of the product before starting assembly. Failure to assemble or operate the product correctly can result in damage to the product, personal property and cause serious or fatal injury. All instructions, warranties and other collateral documents are subject to change at the sole discretion of Flex Innovations, LLC. For up-to-date product literature, please visit our website at [www.flexinnovations.com](http://www.flexinnovations.com) and navigate to the product page for this product.**

## WARNING

**This is NOT a toy. This product is not intended for use by children under 14 years of age without direct adult supervision.**

## IMPORTANT INFORMATION REGARDING WARRANTY

**Please read our Warranty and Liability section before building this product. If you as the purchaser or user are not prepared to accept the liability associated with the use of this product, you are advised to return this product immediately in new and unused condition, in the original packaging material, to the place of purchase.**



## SAFETY WARNINGS AND PRECAUTIONS

Protect yourself and others by following these basic safety guidelines.

1. This manual contains instructions for safety, operation, and maintenance. It is essential to read and follow all the instructions in the manual, prior to assembly, setup, or use, to operate correctly and avoid damage or serious injury.
2. In some cases, the written instructions may differ slightly from the photos. In those instances, the written instructions should be considered correct.
3. This model is not a toy, rather it is a sophisticated remote control hobby product and must be operated with caution and common sense. This product requires some basic mechanical ability. Failure to operate this product in a safe and responsible manner could result in injury, or damage to the product, or other property.
4. This model must be assembled according to these instructions. Do not alter or modify the model outside of these instructions provided by Flex Innovations, LLC, as doing so may render it unsafe and/or unflyable. You must take time to build straight, true, and strong. It is your responsibility to ensure the air worthiness of this product.
5. Use only compatible, appropriate components for the final assembly of this model. Ensure that the radio system is in functional condition, that the engine is appropriately sized for the model and that all other components are appropriate for use in this model as specified in this instruction manual. All components must be installed correctly so that they operate correctly both on the ground and in the air.
6. Inspect and check the operation of the model and all its components before every flight.
7. If you are not an experienced pilot, or have not flown a high-performance model before, it is recommended that you seek assistance from an experienced pilot in your R/C club for your first flights. If you're not a member of a club, the Academy of Model Aeronautics (AMA) has information about clubs in your area whose membership includes experienced pilots.
8. Keep the propeller area clear from such items as loose clothing, jewelry, long hair, or tools, as they can become entangled. Keep your hands and body parts away from the propeller as injury can occur.

## IMPORTANT BEFORE ASSEMBLY

Carefully unpack your aircraft and inspect the parts. Review the manual and gather the required tools and supplies. Remove all parts from their plastic bags, inventory all items and closely examine all the major airframe components for damage. If any items are missing or you find damaged components, do not proceed. Please contact customer support.



## Tools/Supplies needed

*Including but not limited to:*

- Contact Foam Adhesive (FPMJQ2118) or Foam-Cure (BSI142)
  
- Medium CA (Foam safe not required)
  
- Hobby knife with fresh blades
  
- Phillips screwdriver
  
- CA Accelerator (BSI151)
  
- Parchment/Baking paper for a building surface (highly recommended)

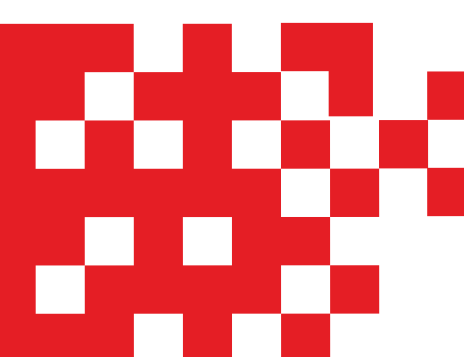


## Bottom Wing Installation



**1) Locate the bottom wing and main fuselage sections. Test fit the bottom wing into the cutout in the fuselage. Once all is straight and well fitting, apply building adhesive to glue in place.**

**\*It is recommended to use parchment paper as a building surface. Additionally, when gluing EPP parts together, we recommend a contact foam adhesive such as JINQIANG JQ-2118 BUILDING ADHESIVE OR SIMILAR.**

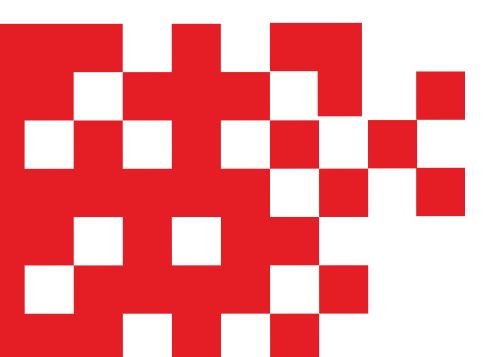
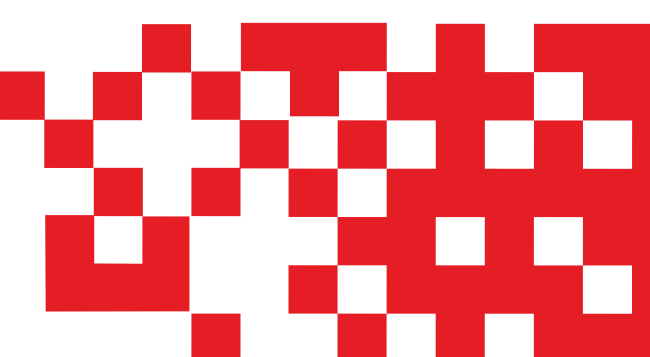




## Top Fuselage Installation

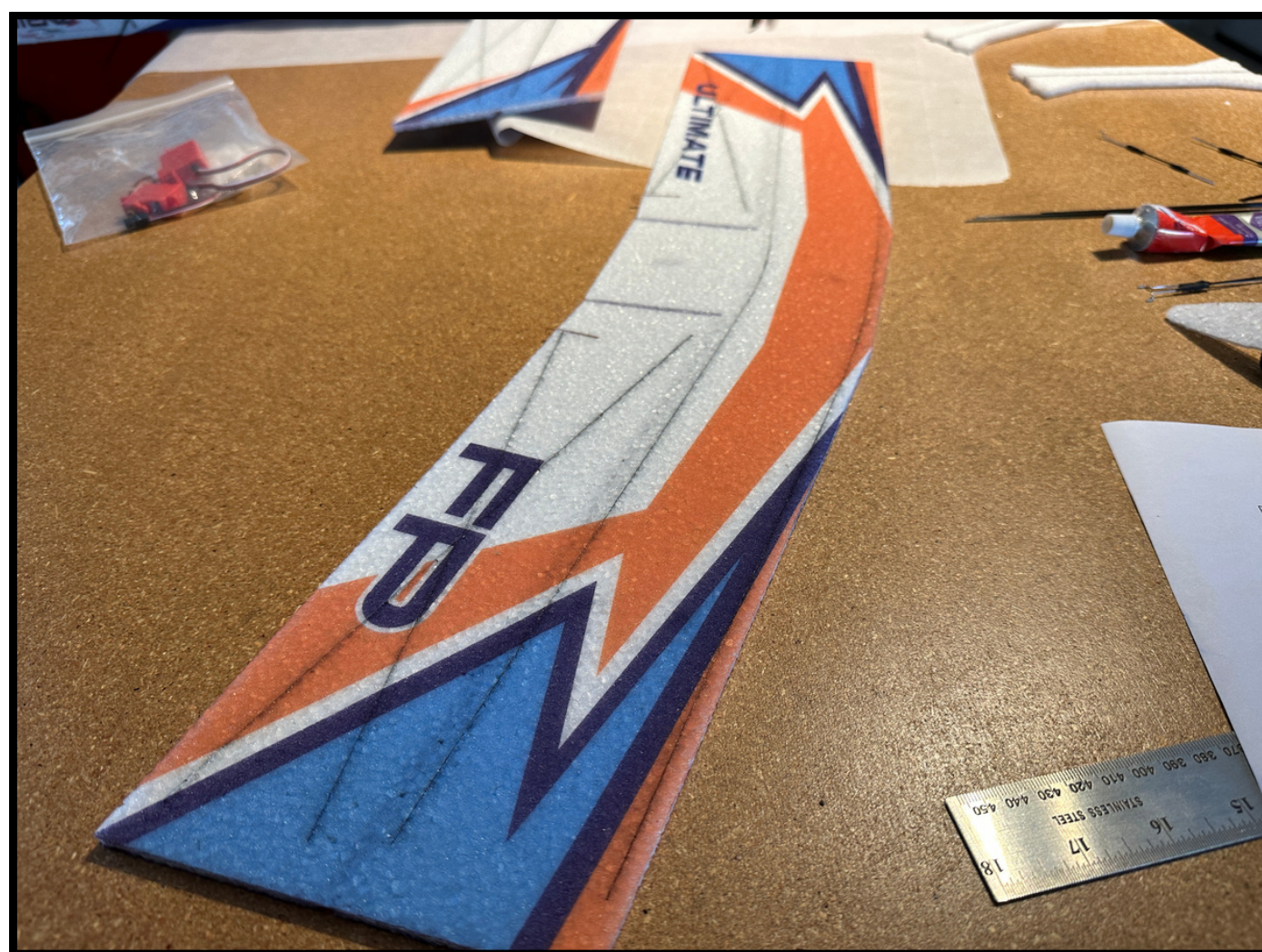


- 1) Locate the top fuselage piece. Notice the slots along the fuselage and how they correspond with the tabs of the top fuselage piece. Test fit and once everything is confirmed to align, apply adhesive. Make sure this sets at 90 degrees to the horizontal fuselage.





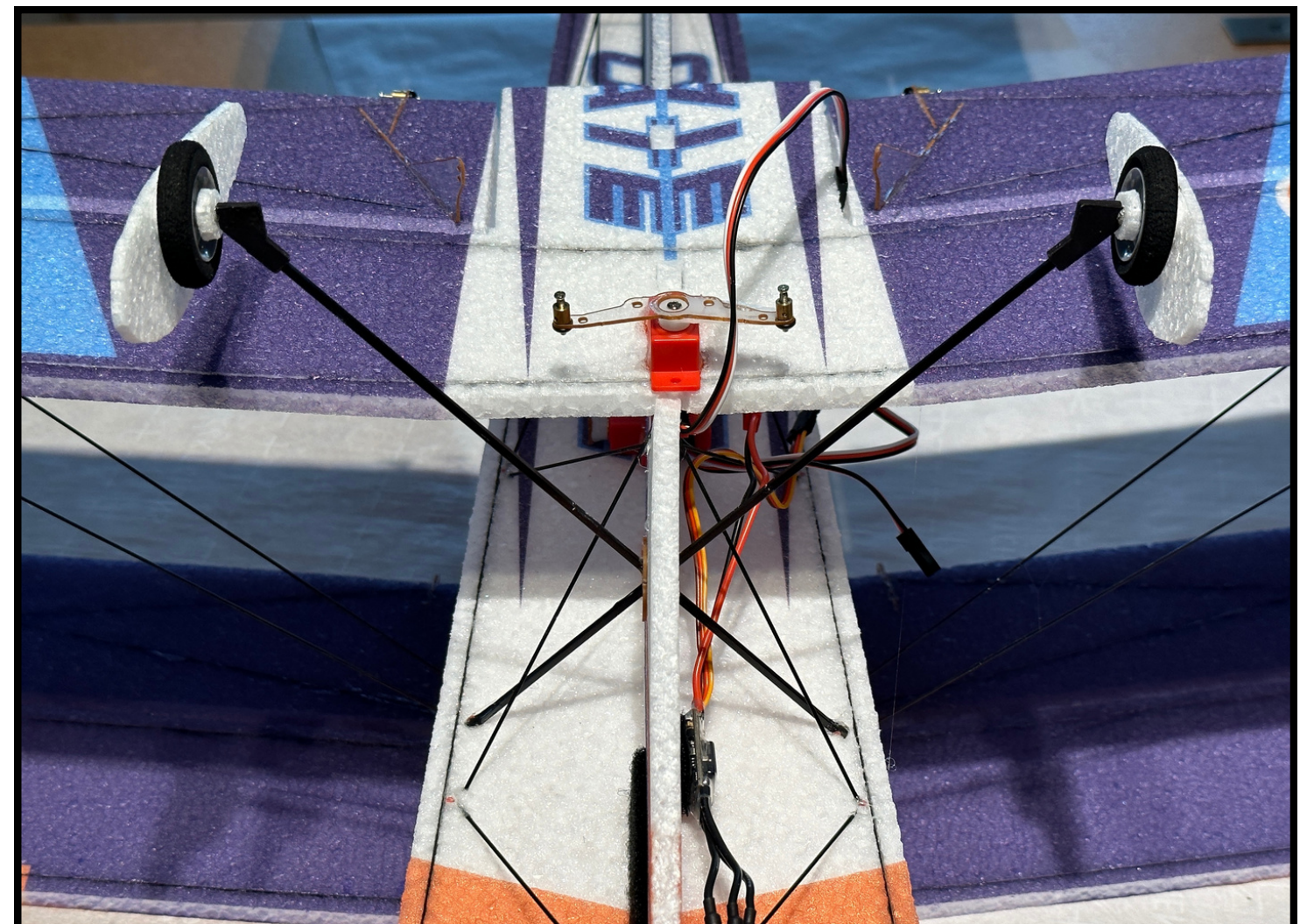
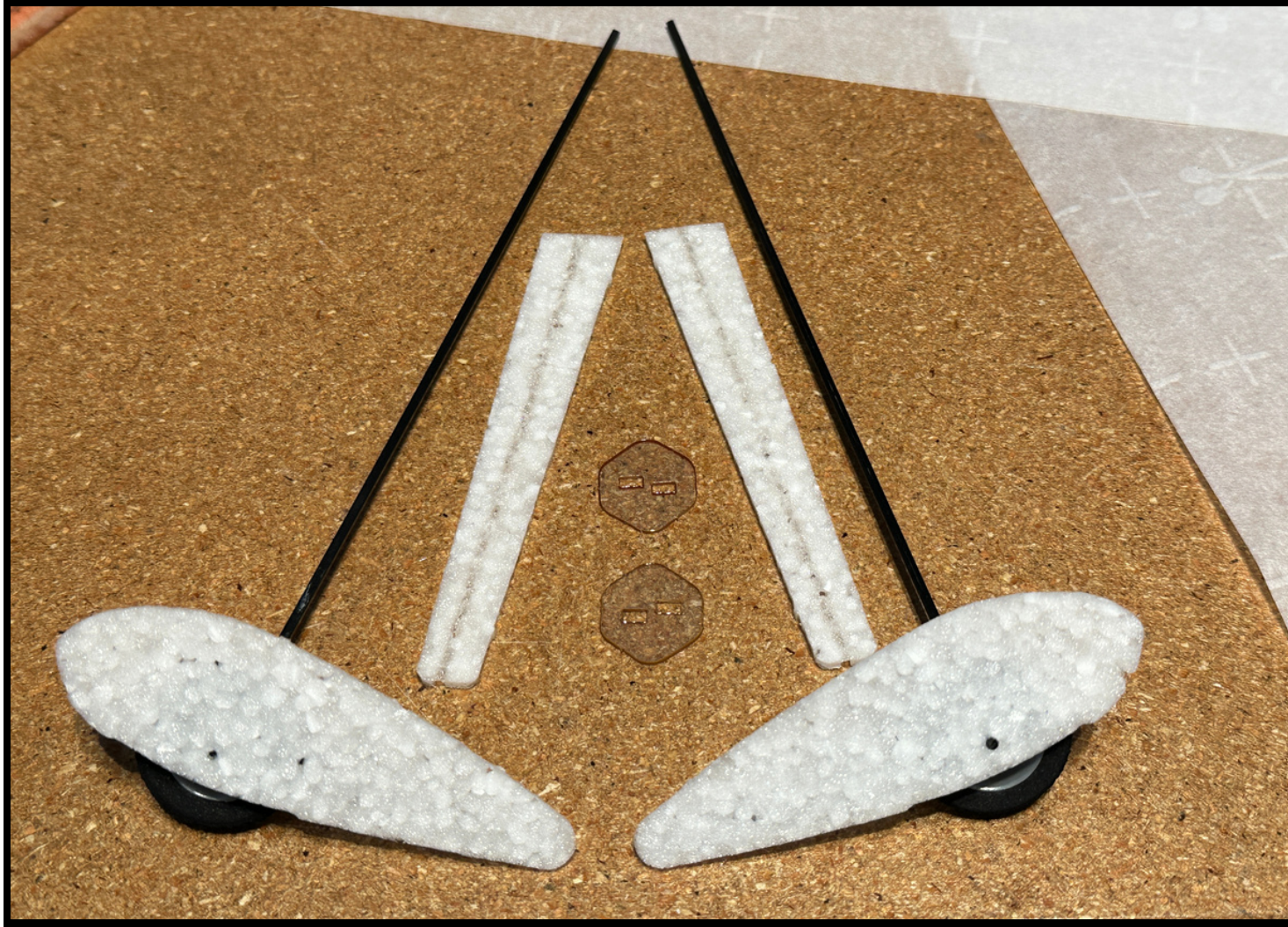
## Top Wing Installation



- 1) Locate the top wing along with the interplane struts.
- 2) Attach the top wing based on the tabs and notches in the fuselage/cabane area.
- 3) Glue wing into place.
- 4) Test fit the interplane struts on each side. Once aligned, apply glue to the top and bottom of the struts.
- 5) Make sure everything dries at 90 degrees and is straight.



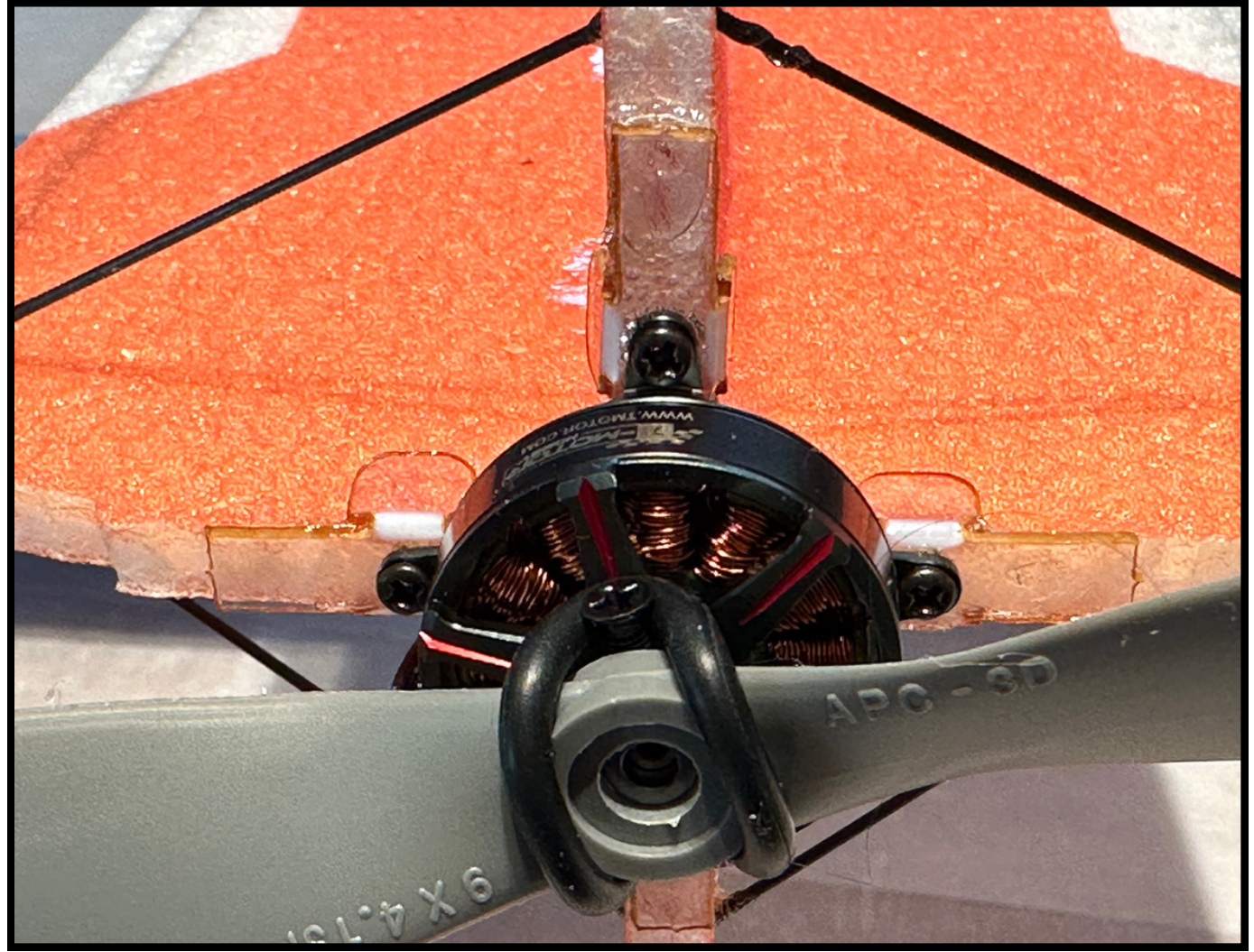
## Landing Gear Installation



- 1) Locate the main landing gear along with the plastic landing gear supports.
- 2) Slide the landing gear through the plastic landing gear supports as shown:
- 3) Locate the two dots marked on the fuselage for location of the landing gear.
- 4) Take a hobby knife and cut a slit into the bottom fuselage at marked location to allow the carbon fiber landing gear to pass through.
- 5) Once all fits, place building adhesive onto the ends of the landing gear.
- 6) Make sure the landing gear is equal height on each side while glue is setting.
- 7) Foam landing gear covers are optional. Apply contact adhesive to the center cutout of the landing gear cover and apply it to the carbon fiber landing gear.

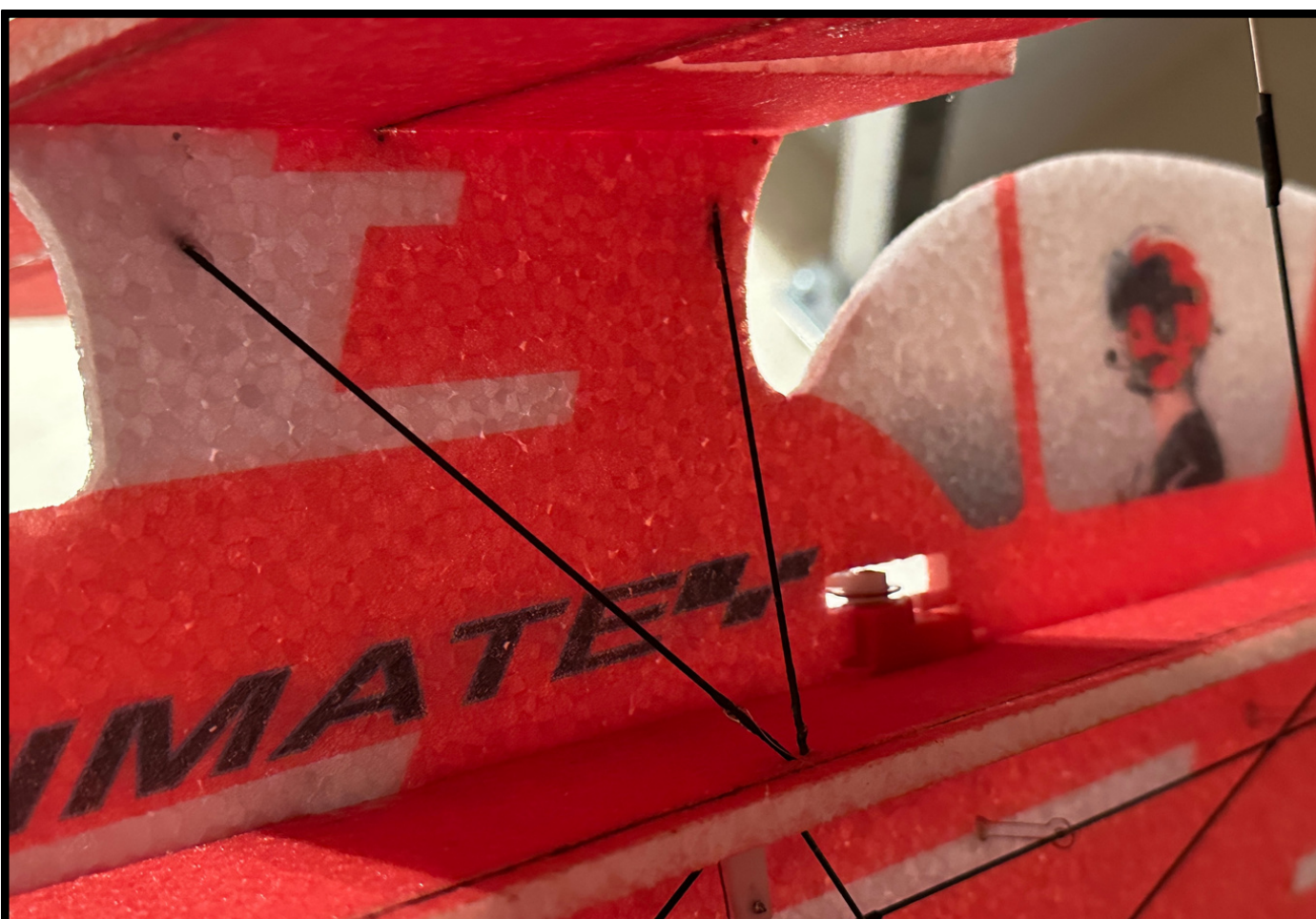


## Motor Bolt Installation



- 1) Locate the top motor bolt found with the motor packaging.
- 2) Bolt into place and wrap around top motor mount tabs.

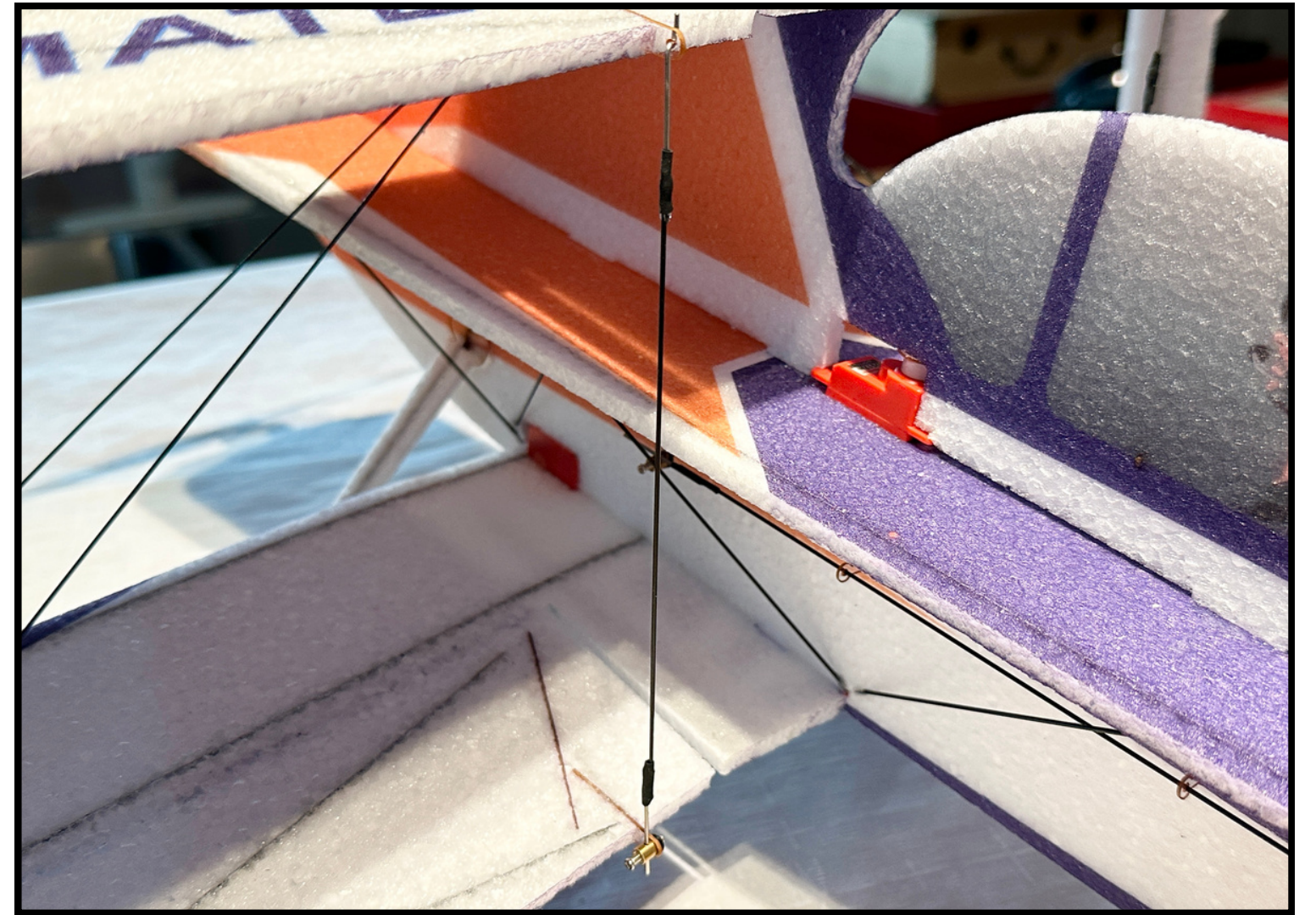
## Carbon Fiber Trussing



- 1) Install small carbon fiber rods on each side of the front portion of the fuselage to prevent twisting.
- 2) Install carbon fiber rods attaching from the vertical stab to horizontal stab. Make sure fuselage is set straight 90 degrees after applying
- 3) On each side of the fuselage cabane section, install provided carbon fiber rods as shown to support the top wing.



## Radio Setup



**1) Install RX and bind to your radio**

**2) Once bound, adjust the linkages in the EZ connectors to make sure all surfaces are close to the center. Use a Phillips screwdriver to tighten the connectors once centered.**

**3) Low Rate/Precision: 50% Dual Rates at 60-70% expo  
High/3D/XA Rate: 100% Dual Rates at 50% expo**

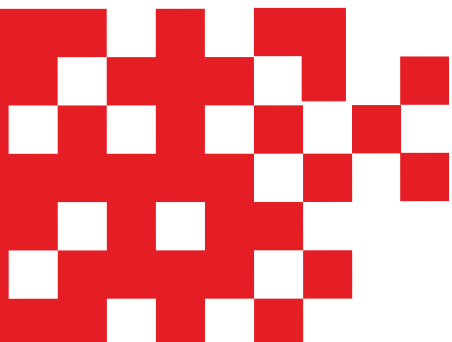
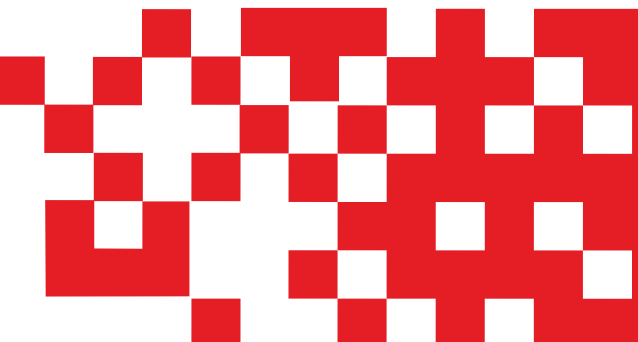
## Center of Gravity:

**Ultimate FP: Approximately 45-60mm from top wing root LE**





# ***ULTIMATE***





## LIMITED WARRANTY

### Warranty Coverage

Flex Innovations LLC and its authorized resellers (“Flex”) warrant to the original purchaser that this product (the “Product”) will be free from defects in materials and workmanship at the date of purchase.

### Outside of Coverage

The warranty is not transferable and does not cover:

- (a) Products with more than 45 days after the purchase date
- (b) Damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation, or maintenance
- (c) Damage to other components or assemblies associated with the use of the Product.
- (d) Modification of or to any part of the Product
- (e) Product not purchased from an authorized Flex Innovations dealer or distributor.
- (f) Product that has been partially, or fully assembled
- (g) Shipping damage
- (h) Cosmetic damage
- (i) Services or labor associated with the repair, use or assembly of the Product.

**OTHER THAN THE EXPRESS WARRANTY ABOVE, FLEX MAKES NO OTHER WARRANTY REPRESENTATION, AND HEREBY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER’S INTENDED USE.**

**Purchaser’s Remedy Flex’s sole obligation and purchaser’s sole and exclusive remedy shall be that Flex will, at its option, either (i) service, (ii) replace any part of the Product determined by Flex to be defective, or (iii) replace the Product determined by Flex to be defective. Flex reserves the right to inspect all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Flex. Proof of purchase is required for all warranty claims.**

**SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER’S SOLE AND EXCLUSIVE REMEDY. Limitation of Liability FLEX SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF FLEX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Further, in no event shall the liability of Flex exceed the individual price of the Product on which liability is asserted. As Flex has no control over use, setup, assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage and/or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.**