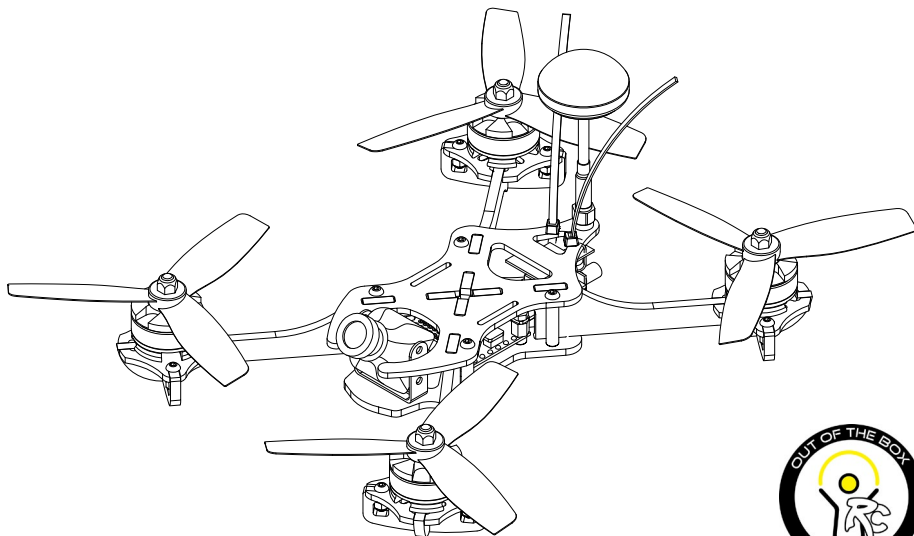


VLSF230

Assembly manual



Patent Pending



V05.20171003

THANK YOU!

Welcome and thank you for purchasing the VLSF230. I know you are looking forward to flying a racing drone that can be customized and can deliver efficient air flow, a strong frame, and fantastic flying capabilities. In this manual you will find the instructions that will take you step by step to complete your drone and to start flying!

As you are working through the instructions it is important that you **READ THE DIRECTIONS!** There are fine points covered that you will miss if you only assemble by the pictures. You will enjoy your journey much more if you follow the instructions provided in this manual.

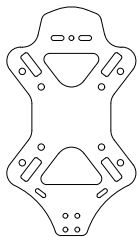
As always, we are dedicated to your drone flying experience and if you have thoughts, suggestions, concerns, or want to share a happy flight, please feel free to contact us!

contact@outoftheboxinnovations.com

DISCLAIMER:

Out of the Box Innovations RC can not foresee the equipment you will purchase or how you will use the product when you receive it. We are not responsible for any injuries or property damage to anyone or anything as it relates to this product. **USE AT YOUR OWN RISK!**

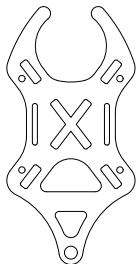
Please go over this list below. Verify that all objects on this list are accounted for before building your quad-copter.



Bottom Plate
X 1



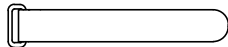
Motor Mount
Plate
X 8



Top
Plate
X 1



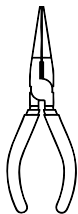
Limb
Plate
X 4



Cinch Strap Qt x1

	M3 x 10 Screw	x 20
	M3 Lock Nut	x 8
	28mm Standoff	x 3
	20mm Standoff	x 4
	3mm Standoff	x 4
	5mm Nylon Standoff	x 4
	Zip Ties	x 2

Tools and hardware we recommend



Needle
Nosed
Pliers



Phillips-
Head Screw
Drivers



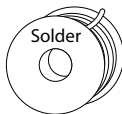
Allen
Wrench
Set- Metric



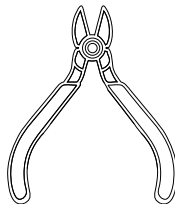
Hobby
Knife



Soldering
Iron



Solder
With Flux



Wire Cutters



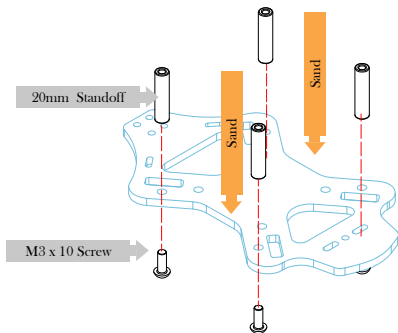
Blue
Loctite

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1

BOTTOM PLATE ASSEMBLY



Using M3 x 10 screws, secure the 20mm standoff to the main plate.

TIP

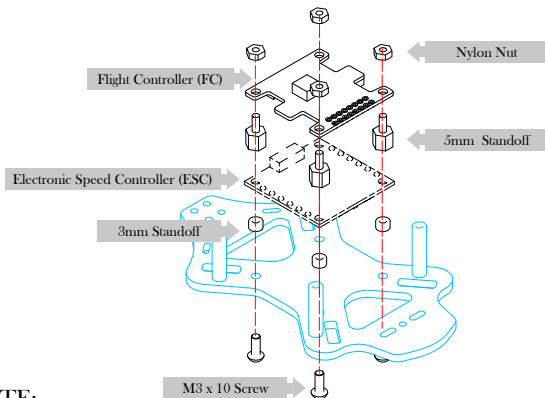
To save your battery straps, we suggest lightly sanding the top edges where the battery straps will go. This will help prevent the sharp edge from cutting into the strap.

What you need for this step

M3 x 10 Screw	x 4
20 MM Standoff	x 4

2

ESC AND FC ASSEMBLY

**NOTE:**

You might need to snip off the top of the standoff once you've put the nut on. Depending on the fit of the limbs.

Depending on the Electronic speed control (ESC) that you use, you might have to mount the individual ESC to the limbs of the VLSF. However, for this build we are using a 4-in-1 ESC which we will mount to the bottom plate using the 6mm standoffs and M3 x 10 screws. Mount the Flight controller (FC) above the ESC using the 6mm standoffs and secure with the M3 nylon nuts.

Be careful to note the direction of the ESC and the FC!
Be sure they are all aligned correctly!

What you need for this step

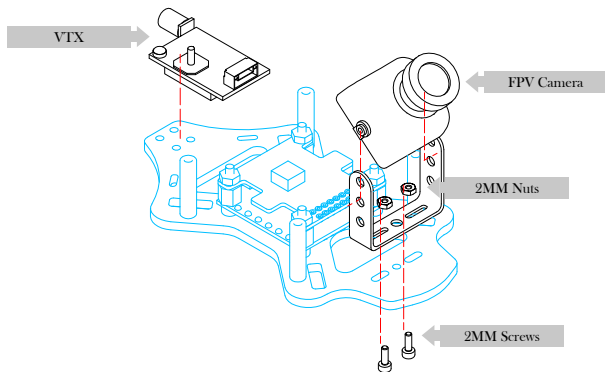
M3 x 10 Screw	x 4
5 MM Standoff	x 8
ESC (4 in 1)	x 1
FC	x 1
Nylon Nuts	x 4

3

CAMERA AND VTX ASSEMBLY

Attach your favorite FPV camera to the bottom plate using the manufacturer supplied mount to the bottom plate.

Connect to your VTX and secure your VTX to the bottom plate with double sided foam tape.



WARNING:
Never power up your VTX
without an attached antenna!

What you need for this step

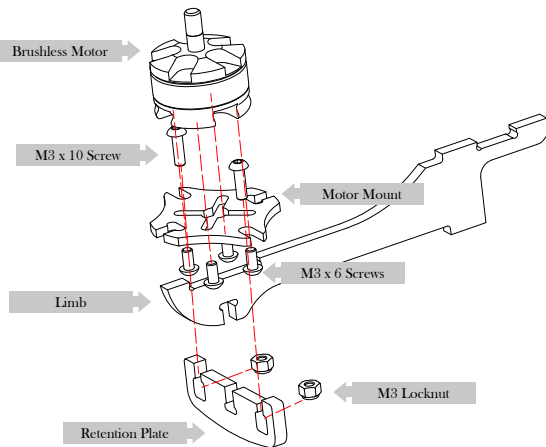
FPV Camera	x 1
FPV Camera Mount	x 1
VTX	x 1
M2 Screws	x 2
M2 Nut	x 2

4

MOTOR / LIMB ASSEMBLY

Using supplied screws from your vendor attach your brushless motor to a motor mount plate.

Slide the retention plate below the motor plate and secure to the limb with 2 M3x10 screws and lock nuts.



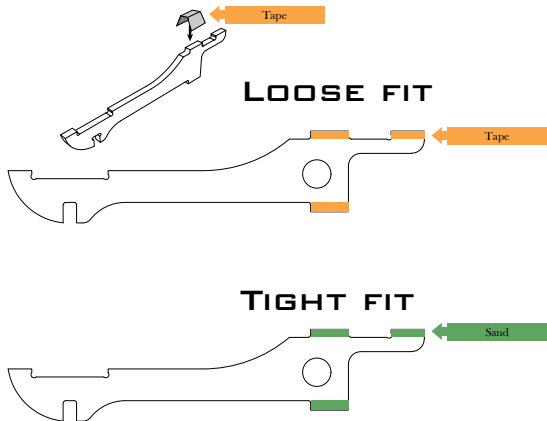
What you need for this step

M3 x 10 Screw	x 8
M3 Locknut	x 8
M3 x 6 * or supplied hardware	x 8
Retention Plate	x 8
Motor Mount Plate	x 4
Limb	x 4
Brushless motor	x 4

5

FITTING LIMBS

Loose limbs, from either crashing or tiny irregularities in the production of the materials, can be felt by gently wiggling your arms from time to time to verify a solid frame. If you find you have a tiny bit of wiggle, there is a simple solution.

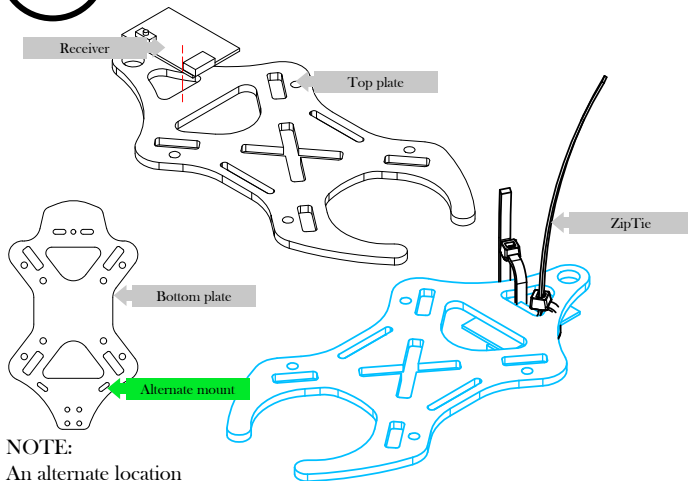


If a limb is “loose” a small amount of electrical tape (or whatever tape that is paper thin) placed around the tops of the tabs of the limb and then the top plate locks it in place when it’s all re-assembled takes away the gap and results in a solid frame once again.

If a limb is “tight” (as in, can’t get the limb through the slot) a small amount of sanding across just the tabs should fix it.

6

RX ASSEMBLY

**NOTE:**

An alternate location for your antenna is located on the bottom plate of the frame.

Using double sided foam tape, secure the receiver to the top plate.

Using supplied zip-ties, find a location suitable for your RX antenna and secure them to the zip-ties using provided heat-shrink tubing.

CAUTION:

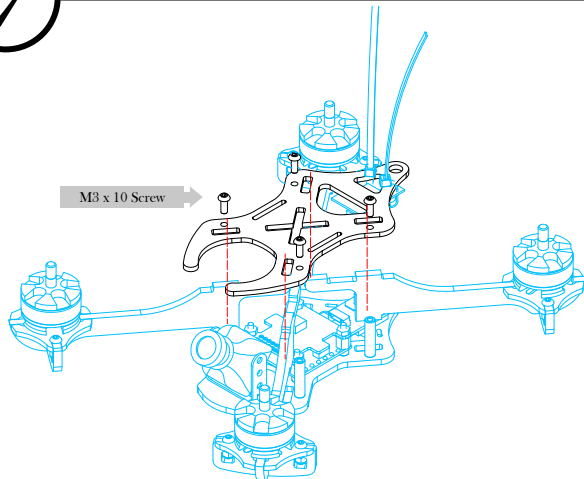
Be careful when applying heat to tubing, as it might cause damage to your antenna if not careful.

What you need for this step

Receiver	x 1
Zip ties	x 2
Double sided tape	

7

MAIN BODY ASSEMBLY



Now you can finish assembly of the main body with M3 x 10 screws while aligning your limbs into the slots located on both the top and bottom plates as shown. It can help to carefully test-fit the limbs first to ensure proper fit. Some light sanding may be necessary but it should be a tight fit so be patient with this step.

Be careful to note the direction of the ESC and the FC!
Be sure they are all aligned correctly!

WARNING:

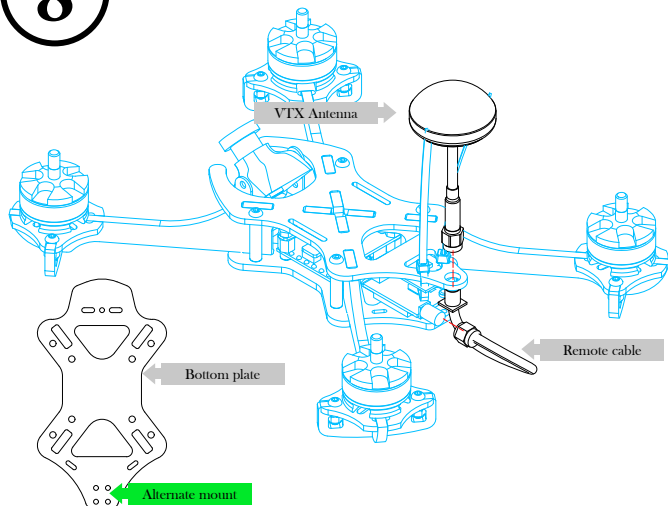
Do not use standoff screws to force the top or bottom plates on to the limb. The limbs should fit very snug but, press on the plates with fingers and secure with screws.

What you need for this step

M3 x 10 Screw x 4

8

VTX ANTENNA ASSEMBLY



Attach your VTX pig-tail or remote cable to the top plate using a manufacturer supplied secure nut and washer.

Connect your VTX Antenna to the connector.

Another option is to run your antenna down the middle and on the bottom of the bottom plate with zip-ties if you want something different. A pigtail with a 90 degree connector would be advisable for this.

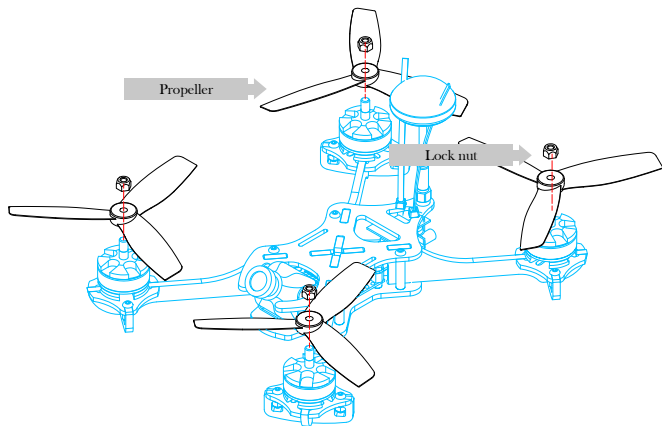
NOTE: On some VTX's having a connection through the frame can cause the VTX to short. If you notice extreme heat from your VTX, disconnect immediately and re-locate the antenna to the alternate location. You can use ZipTies to mount the Antenna.

What you need for this step

VTX Antenna	x 1
Remote Cable	x 1

9

PROPELLER ASSEMBLY

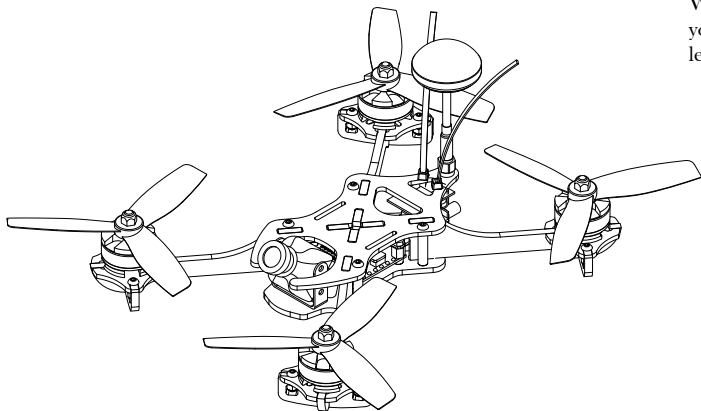


After verifying your motor rotation via your flight controller instructions. It is highly recommended that you secure your racing propellers to your motors with lock-nuts. Lock nuts are preferable. Prop nuts may fly off during flight causing damage to your quad-copter.

WARNING: NEVER test your motors with the propellers on. Physical harm may occur.

What you need for this step

5" or propeller	x 4
Lock nut	x 4



Now you've completed your build. Be sure to research your particular equipment and be sure it is 100% operational before attempting to fly. **WARNING: NEVER** test your motors with the propellers on.

NOTES: