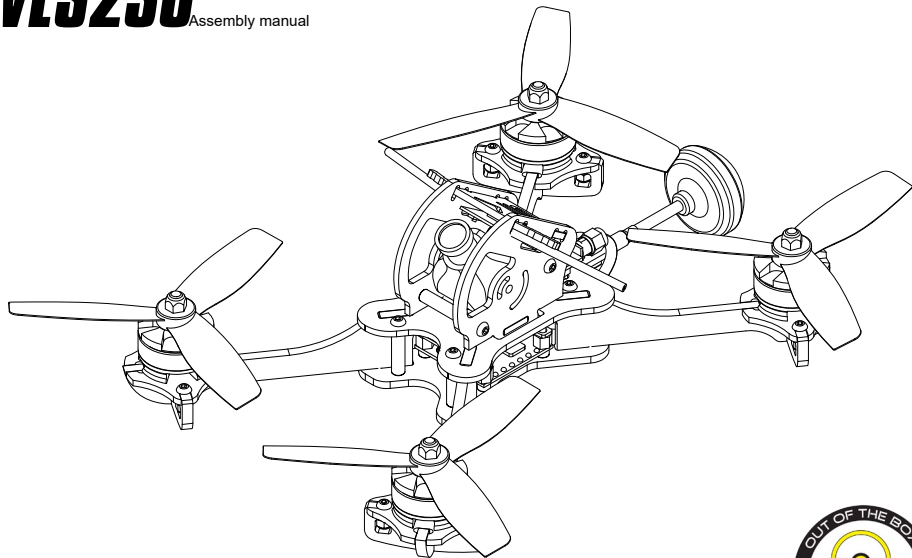


VLS230

Assembly manual



Patent Pending



V1.020170723

THANK YOU!

Welcome and thank you for purchasing the VLS230. I know you are looking forward to flying an advanced 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.

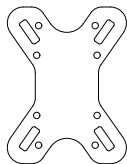
As always, we are dedicated to your drone flying experience and if you have thoughts, suggestions, concerns, or want to share a happy flight, please feel free to contact us!

ootbinnovations@gmail.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.



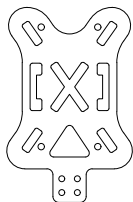
Bottom Plate
X 1



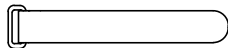
Motor Mount
Plate
X 4



A-Cam
Plate
X 1



Top
Plate
X 1



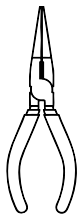
Cinch Strap Qt x1



Limb
Plate
X 4

		M3 x 10 Screw	x 24
		M3 Lock Nut	x 8
		28mm Standoff	x 2
		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



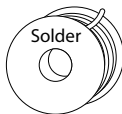
Allen
Wrench
Set- Metric



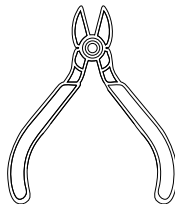
Hobby
Knife



Soldering
Iron



Solder
With Flux



Wire
Cutters



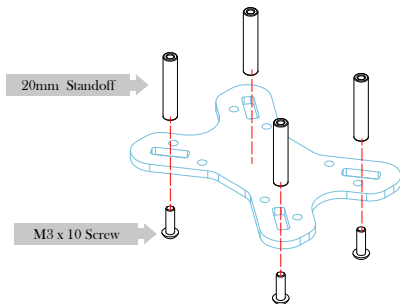
Blue
Loctite

Contents

BOTTOM PLATE ASSEMBLY	1
ESC AND FC ASSEMBLY	2
MOTOR AND LIMB ASSEMBLY	3
FITTING LIMBS	4
MAIN BODY ASSEMBLY	5
VTX AND ANTENNA ASSEMBLY	6
POD ASSEMBLY	7
ANTENNA OPTION	8
PROPELLER ASSEMBLY	9
READY TO FLY	10

1

BOTTOM PLATE ASSEMBLY



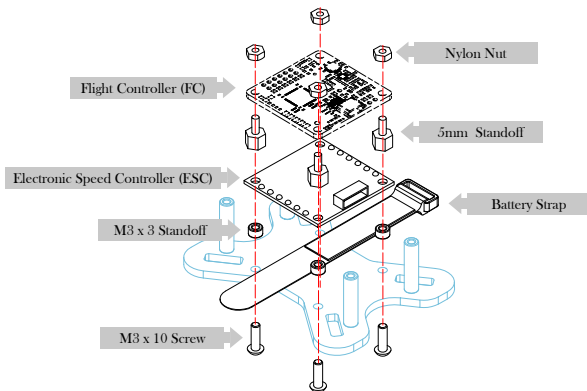
Using M3 screws, secure the 20mm standoff to the main plate.

What you need for this step

M3 x 10 Screw	x 4
20 MM Standoff	x 4

2

ESC AND FC ASSEMBLY



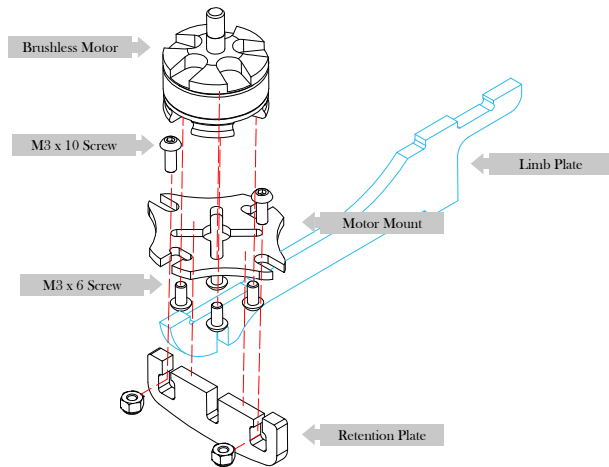
Depending on the Electronic speed control (ESC) that you use, you might have to mount the individual ESC to the limbs of the VLS. However, for this build we are using a 4-in-1 ESC which we will mount to the bottom plate using the 3mm standoffs and M3 x 10 screws. Mount the Flight controller (FC) above the ESC using the 6mm standoffs and secure with the M3 nylon nuts. You can also slip the battery strap just below the ESC.

What you need for this step

M3 x 10 Screw	x 4
5 MM Standoff	x 4
3 MM Standoff	x4
ESC (4 in 1)	x 1
FC	x 1
Nylon Nuts	x 4
Battery Strap	x1

3

MOTOR AND 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.

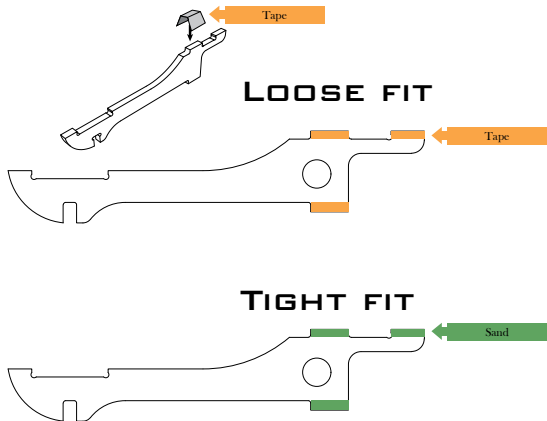
What you need for this step

M3 x 10 Screw	x 16
M3 x 6 *or supplied hardware	
15 mm Standoff	x 8
Motor Mount Plate	x 8

4

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.

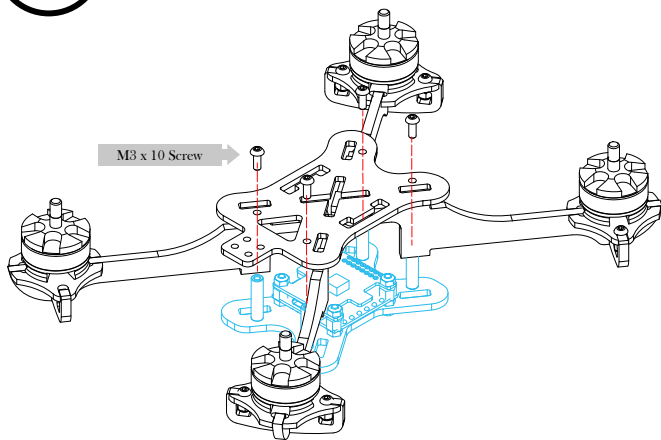


If a limb is “loose” a small amount of electrical tape (or whatever tape that is paper thin) placed around the tops of the tabs of the limb and then the top plate locks it in place when it’s all re-assembled takes away the gap and results in a solid frame once again.

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.

5

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

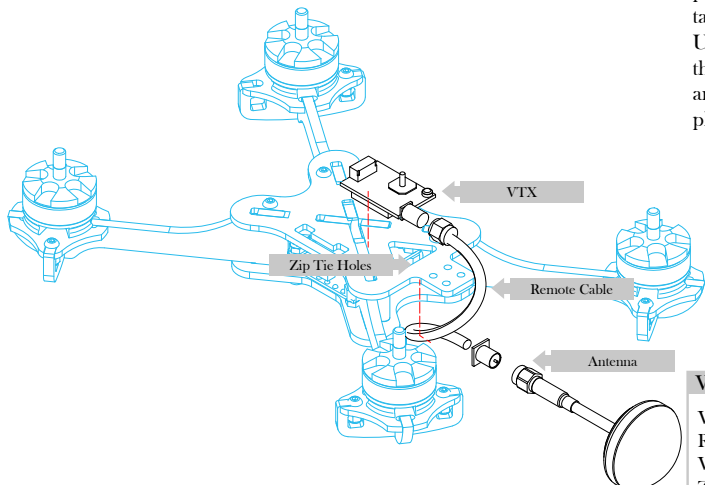
M3 x 10 Screw x 4

6

VTX AND ANTENNA ASSEMBLY

Attach the VTX to the upper plate with double sided sticky tape.

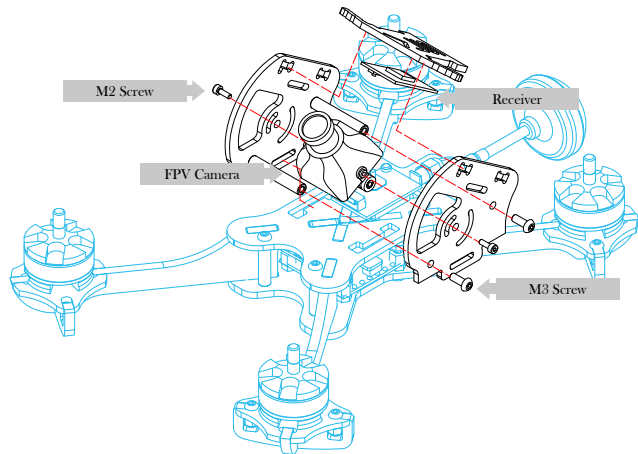
Using a remote cable, connect the VTX to the VTX antenna and then secure to the upper plate with 2 zip-ties.

**What you need for this step**

VTX	x 1
Remote Cable	x 1
VTX Antenna	x 1
Zip Ties	x 2

7

POD ASSEMBLY



Attach the upper pod portion to the top plate with by sliding the side plates onto the tabs located in the top plate of the main body. Secure your FPV camera with 2mm screws to one side. Attach the RX to the Cam Plate. Slide the Cam Plate through the holes of the side plates and carefully feed the antenna through the holes as well. Secure the second side plate with M3 x 10 screws and the M2 screw for the other side of the camera.

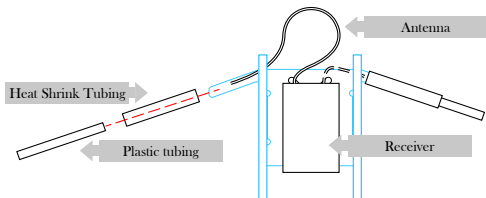
What you need for this step

M3 x 10 Screw	x 4
M3 Lock nut	x 4

8

ANTENNA OPTION

The antenna can be protected using plastic tubing held in place with heat-shrink tubing (1/4" should suffice). Finish with end caps for the tubes.

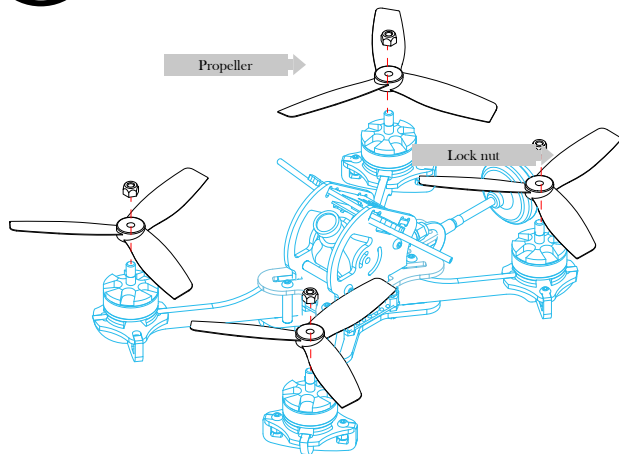


What you need for this step

Heat Shrink Tubing	x 4
Plastic Tubing	x 4

9

PROPELLER ASSEMBLY



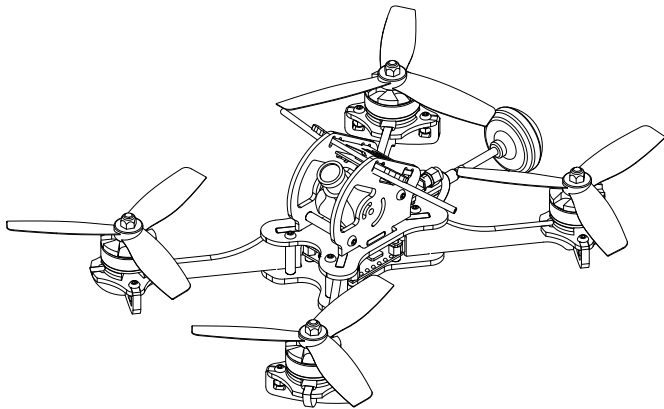
After verifying your motor rotation via your flight controller instructions. It is highly recommended that you secure your racing propellers to your motors with lock-nuts. Lock nuts are preferable. Prop nuts may fly off during flight causing damage to your quadcopter.

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

What you need for this step

5" or 6" 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: