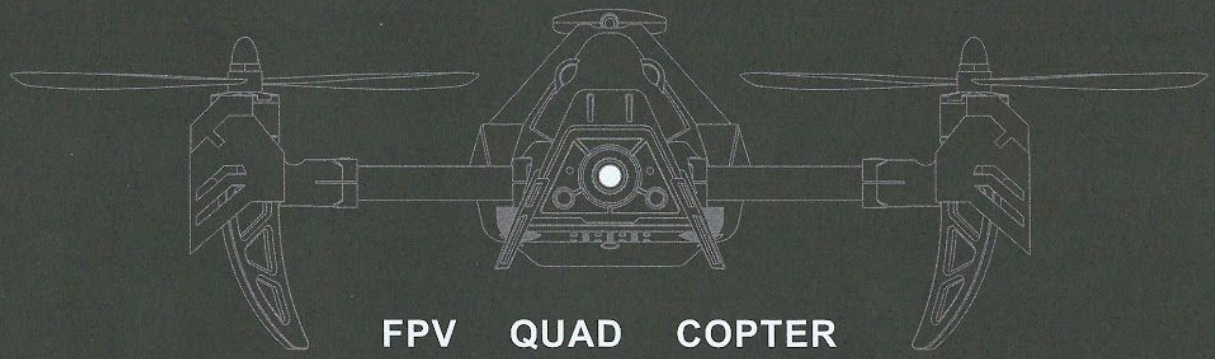
QUANUM



FPV QUAD COPTER

QUICK USER GUIDE

Table of contents

⚠ WARNING ! UNDER 18

This is not a toy. Product is not suitable for people under 18 years of age.

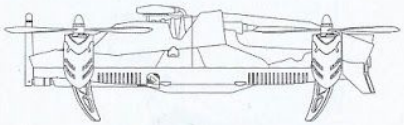
Do not fly the product without prior experience or without an advanced pilot's supervision.

Always turn on your remote controller before turning on the quad copter

Do not touch the propellers when the motors are started.

The product requires some soldering. Do not solder without prior experience

1.1 Product features



Flight modes

- ACRO
- ATTI (Attitude hold)
- IOC
- RTH (Return to Home)
- GPS hold

Flight performance (FPV Ver.):

Hovering accuracy (GPS mode): Vertical: +/-0.8m
Horizontal: +/-2.5m

Max. yaw angular velocity: 200°/s

Max. tilt angle: 45°

Ascent / Descent: +/-6m/s

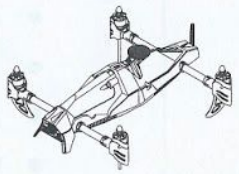
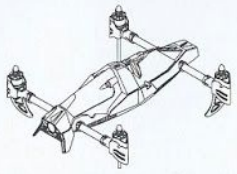
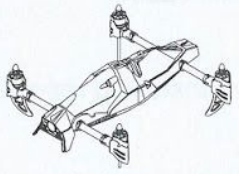
For product's different versions, refer to below hardware recommendations

Hardware recommendations

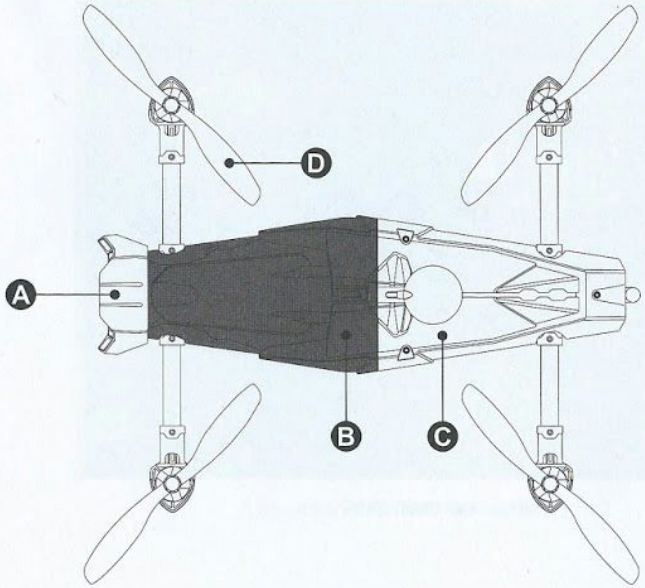
Flight controller:	Naza M. Lite / GPS combo
	KK2.1 HC (hard case version)
Motors:	Multistar MT2213 935KV Motor
ESCs:	Afro ESC 20Amp for Multi-rotor
Propellers:	8" x 4.5 standard & reverse
FPV camera:	Fatshark 600TVL FPV tuned CMOS Camera
FPV transmitter:	Fatshark 250~600 mW V3 5.8GHz VTx with Nexwave RF
Receiver:	Minimum 5 channel PWM, CPPM, S-bus
Battery:	3S 2200MAh ~ 3S 5200MAh lipo packs

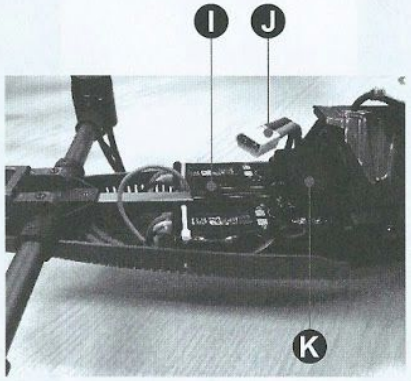
Dimensions (with GPS + VTx): 423mm(L) x 345mm(W) x 139mm(H)
(without GPS): 419mm(L) x 345mm(W) x 133mm(H)

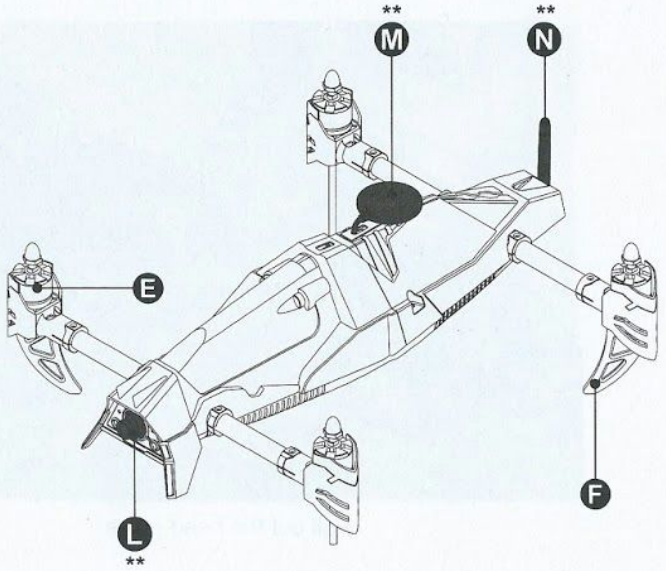
1.2 What's in the box

	FPV Version	Plug and Play Version	Frame Kit Only
			
Fatshark 600TVL FPV tuned CMOS Camera	✓		
Fatshark 250 mW V3 5.8GHz VTx with Nexwave RF	✓		
Naza-M Lite Multi-Rotor Flight Controller + GPS	✓		
Multistar MT2213 935KV Motor (x 4)	✓	✓	
Afro ESC 20Amp (x 4)	✓	✓	
8 x 4.5 Propeller set of 4	✓	✓	
Quad copter body and frame	✓	✓	✓
Cleaning cloth for FPV camera	✓	✓	✓
Micro USB cable (provided with Naza M-Lite)	✓		
Mini wrench for propellers	✓	✓	✓
Standoffs, screws, nuts for other Flight controllers		✓	✓
Instruction booklet	✓	✓	✓

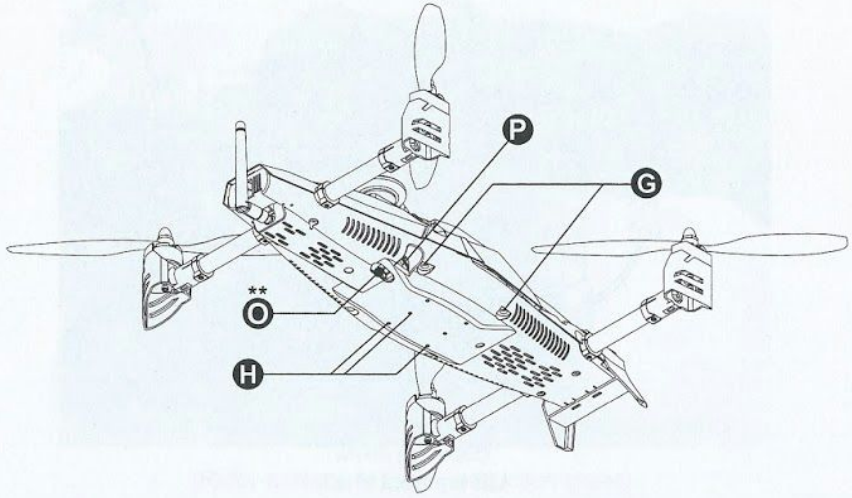
1.3 Parts identification



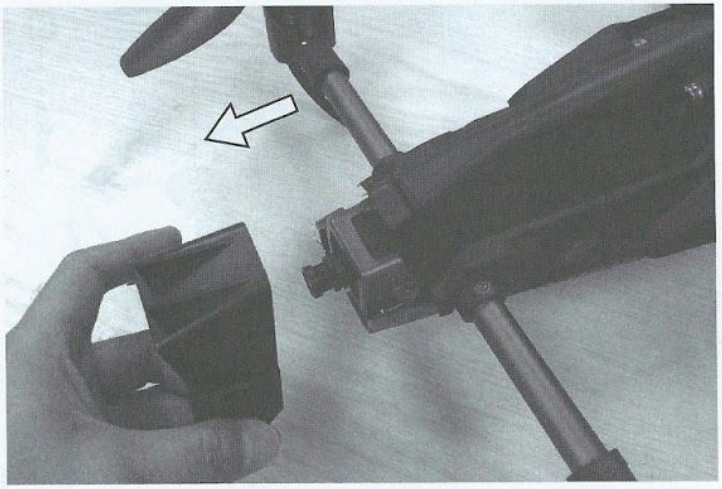




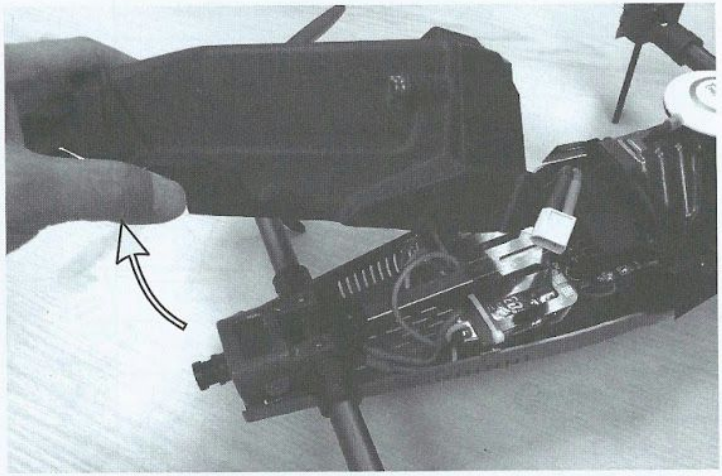
- A Head piece (removable)
- B Front shell (removable)
- C Rear shell
- D 8" propeller
- E Motor
- F Landing skid
- G Hard points for tall skids (option parts sold separately)
- H Hard points for brushless gimbal
- I Battery platform / Power distribution board
- J XT-60 plug
- K Velcro strap for battery
- L FPV camera (for FPV Version / Ultimate RTF FPV Edition)
- M GPS (for FPV Version / Ultimate RTF FPV Edition)
- N Video transmitter antenna (for FPV Version / Ultimate RTF FPV Edition)
- O LED status indicator (for FPV Version / Ultimate RTF FPV Edition)
- P Micro USB port (for FPV Version / Ultimate RTF FPV Edition)



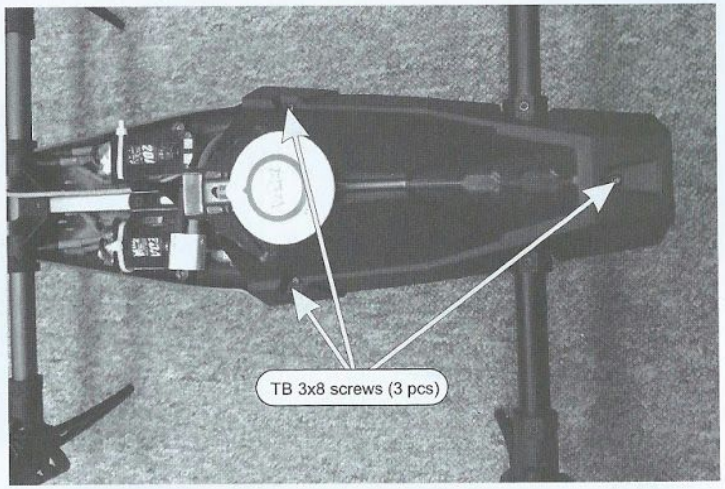
2.1 FPV Ver. - Installing receiver



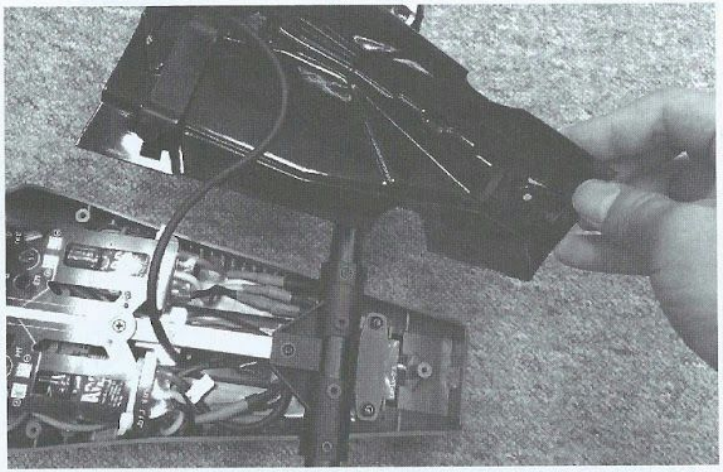
Pull out the head piece



Lift the front shell

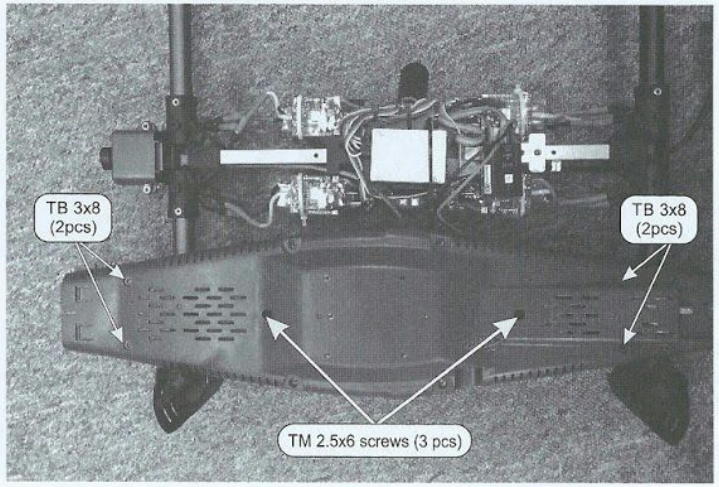


Unscrew rear shell

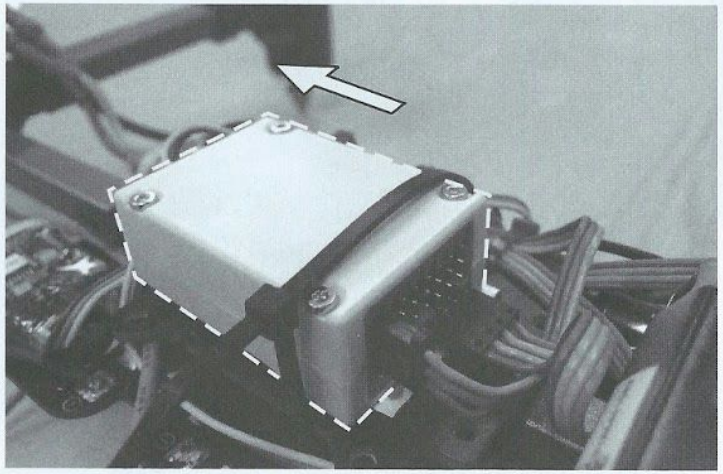


Lift the rear shell

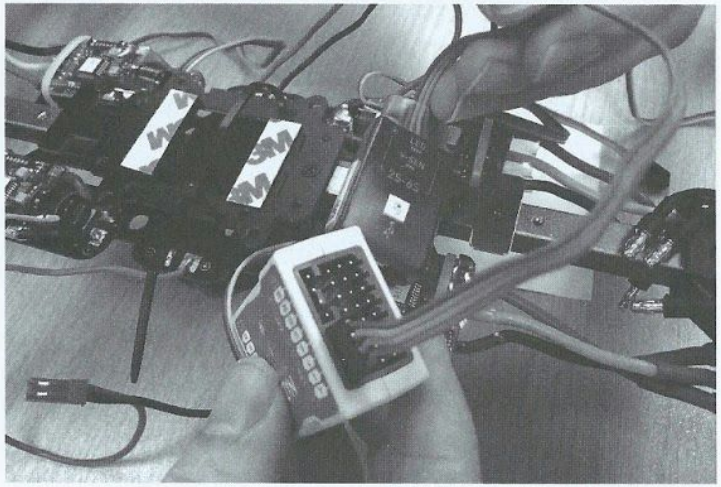
2.1 FPV Ver. - Installing receiver

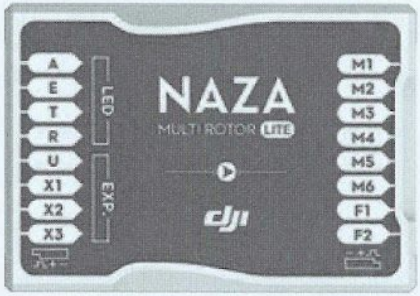


Unscrew and remove bottom shell



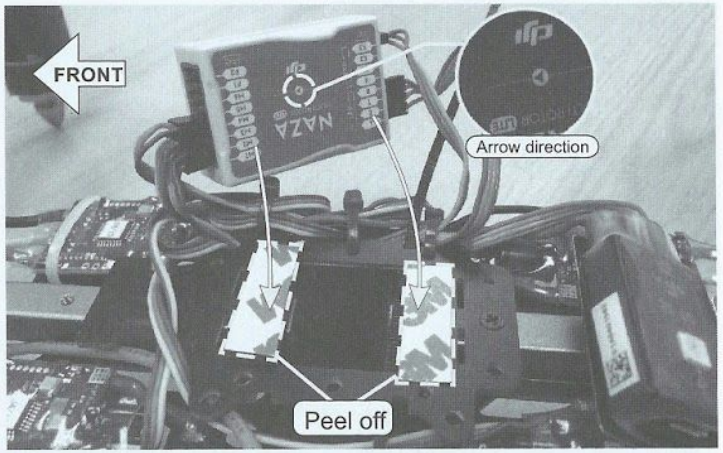
Zip tie is loose. You can easily pull out Naza Flight controller for connection to your receiver





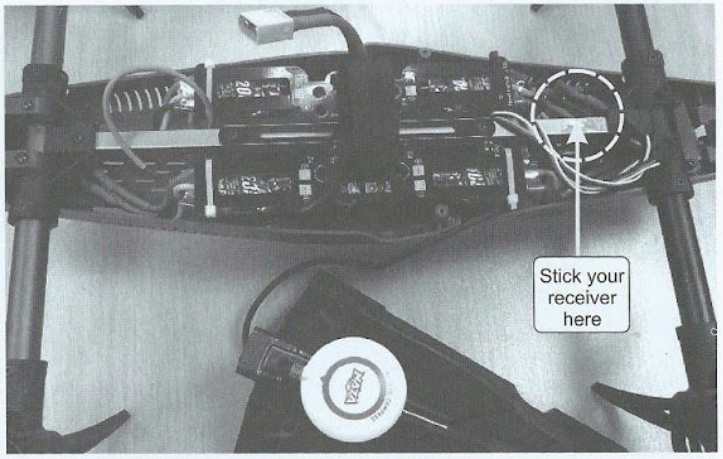
Connect Naza-M Lite flight controller to your receiver with wires provided
(Refer to Naza-M Lite's instruction sheet)

2.1 FPV Ver. - Installing receiver



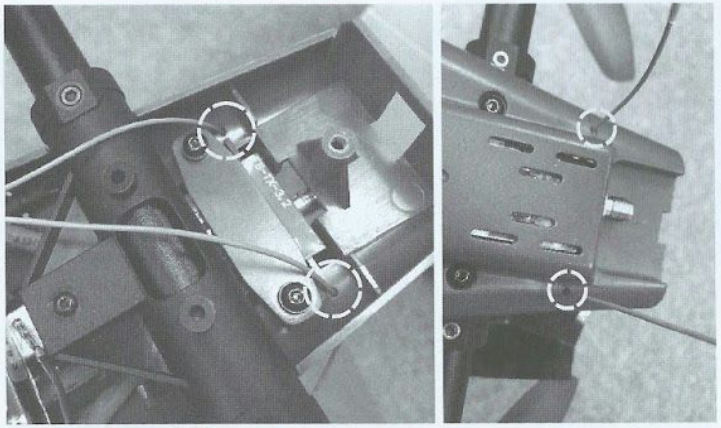
When finished connecting the wires, stick back the flight controller with double sided tapes provided. Note the arrow direction on the flight controller. Zip tie it tightly.

⚠ It is critical for the flight controller to be straight and in line with the frame when placing down ⚠

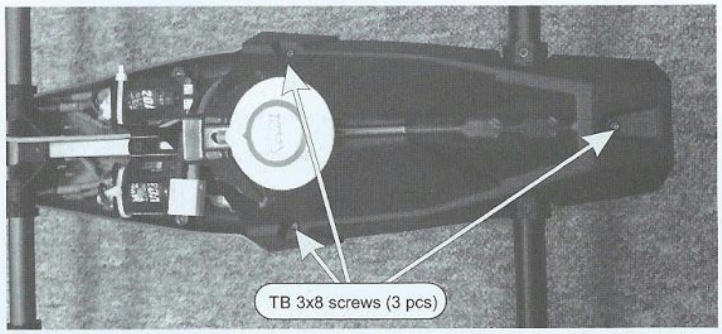


Assemble bottom shell and stick your receiver at location recommended

⚠ avoid damaging wires when putting back the bottom shell ⚠



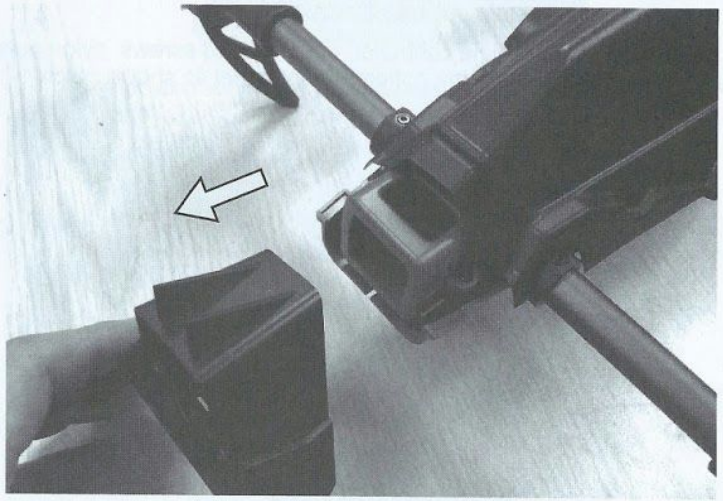
Bottom shell has 2 small holes. You may choose to stick your receiver's antennae out for optimal reception



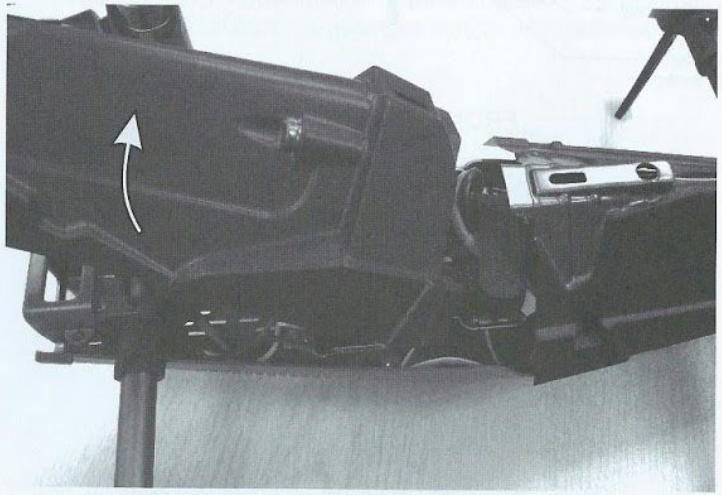
Close the rear shell with its screws

Next
Jump to Section 5 to complete setup

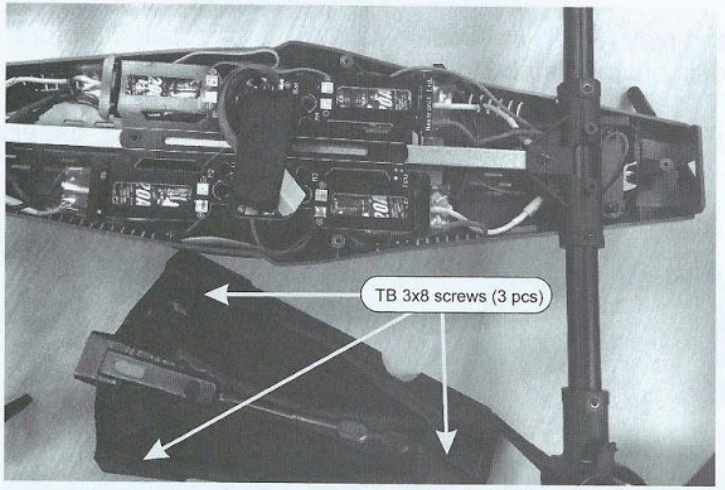
3.1 PNP Ver. - Installing flight controller



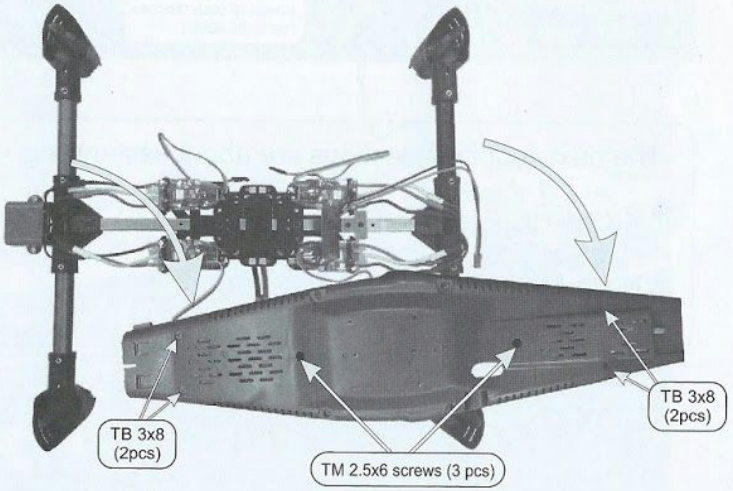
Pull out the head piece



Lift the front shell



Unscrew and lift rear shell

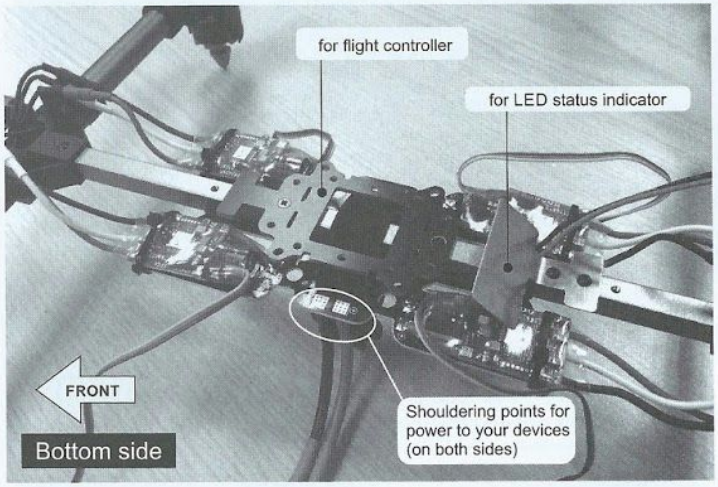


Unscrew and remove bottom shell

3.1 PNP Ver. - Installing flight controller

Plug and play (PNP) version comes with pre-installed motors, ESCs and basic power distribution.

All you need is to plug in your flight controller, receiver, battery and fly it.

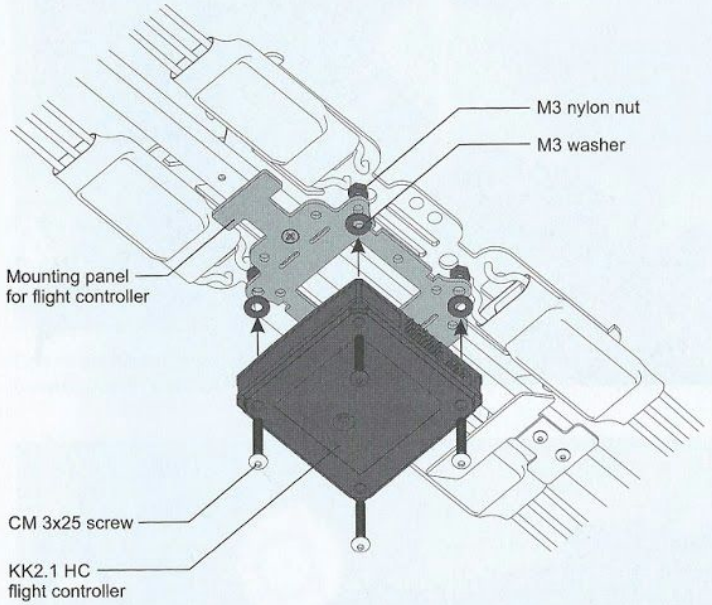


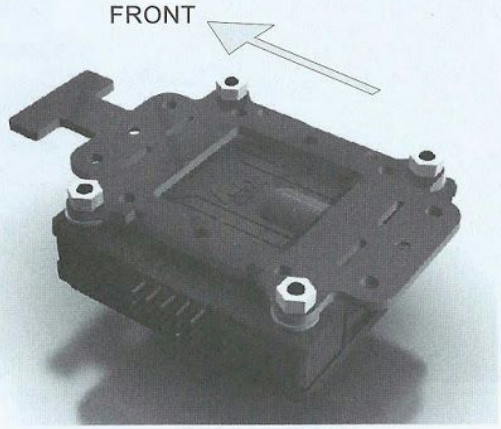
The next couple of sections are about assembling:

* KK2.1 HC Flight controller
* Naza-M Lite
* Naza-M Lite's GPS
* FPV camera and video transmitter

Using KK2.1 HC flight controller

In case of using KK2.1 HC flight controller, use provided screws, nylon nuts and washers to assemble onto the bottom mount panel as shown below





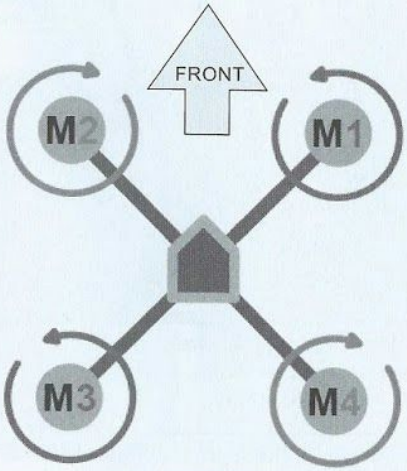
KK2.1 HC's forward direction is as shown above

3.1 PNP Ver. - Installing flight controller

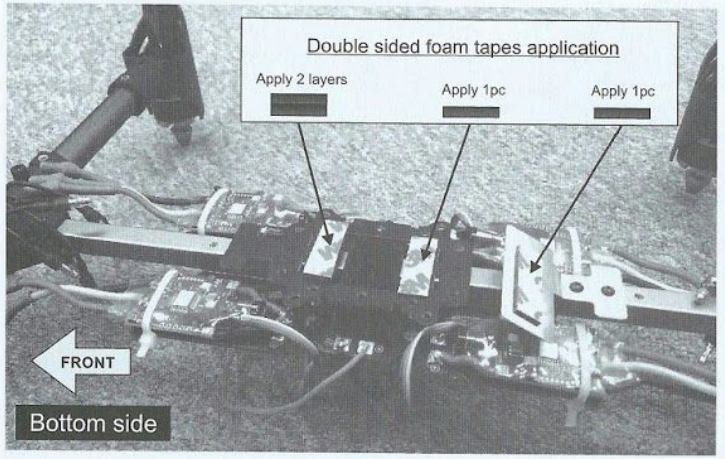
Using Naza-M Lite flight controller

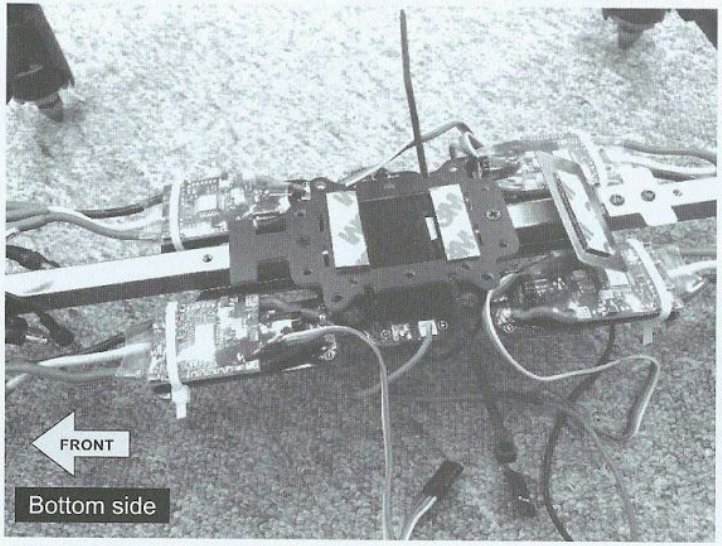
For wire connection and details, please refere to Naza-M Lite's instructions upon purchase

Naza-M Lite's motor rotation is shown below. If using other flight controllers, please refer to their own guideline



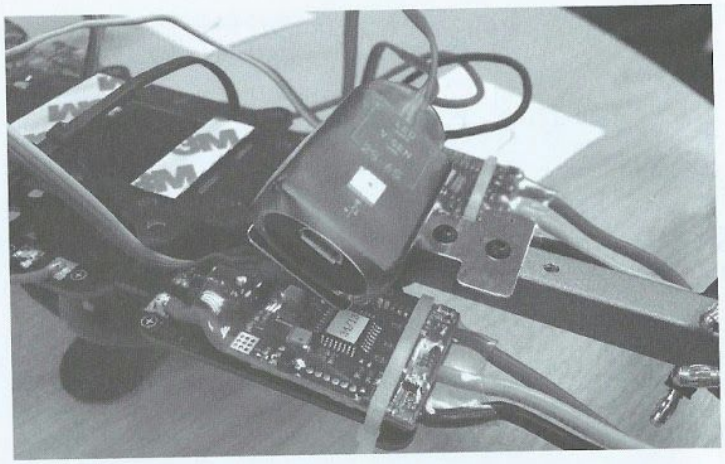
Using Naza-M Lite flight controller

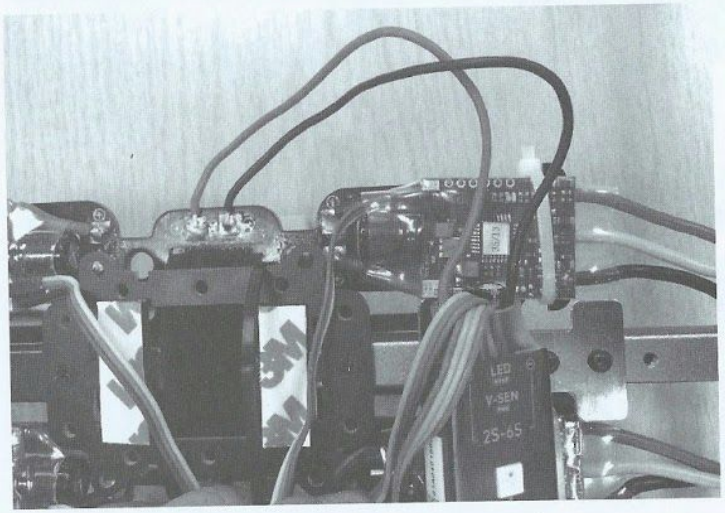




3.1 PNP Ver. - Installing flight controller

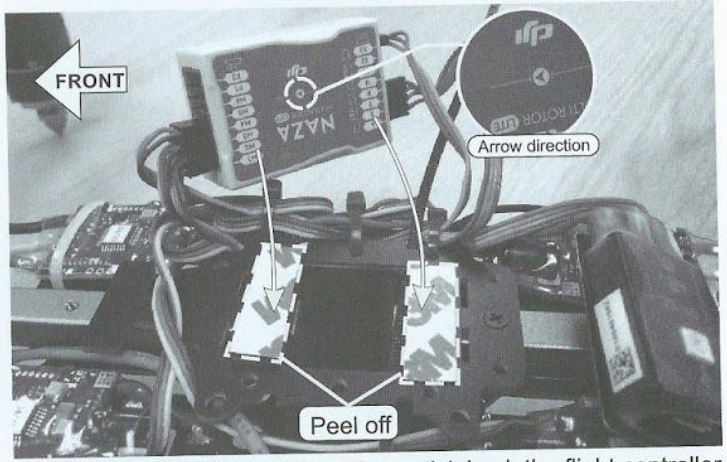
Using Naza-M Lite flight controller





Solder up LED indicator's power wires

Using Naza-M Lite flight controller

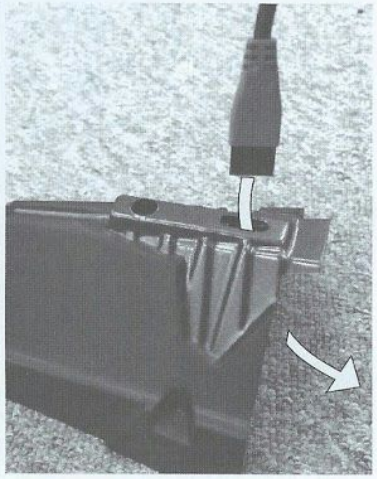


When finished connecting the wires, stick back the flight controller with double sided tapes provided. Note the arrow direction on the flight controller. Zip tie it tightly.

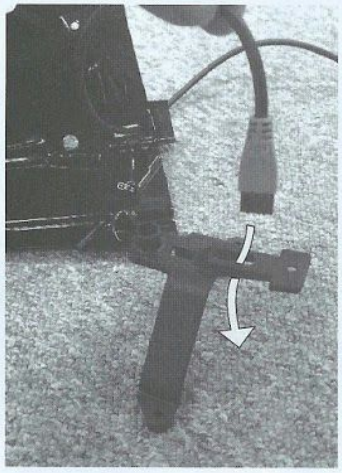
⚠ It is critical for the flight controller to be straight and in line with the frame when placing down ⚠

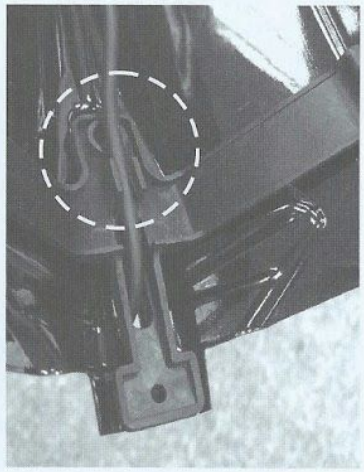
3.2 PNP Ver. - Installing GPS (Naza-M Lite combo)

Using Naza-M Lite (with GPS)



If using Naza M Lite GPS combo, stick the metal holder to the bottom of GPS dish. slip GPS wire through bottom shell



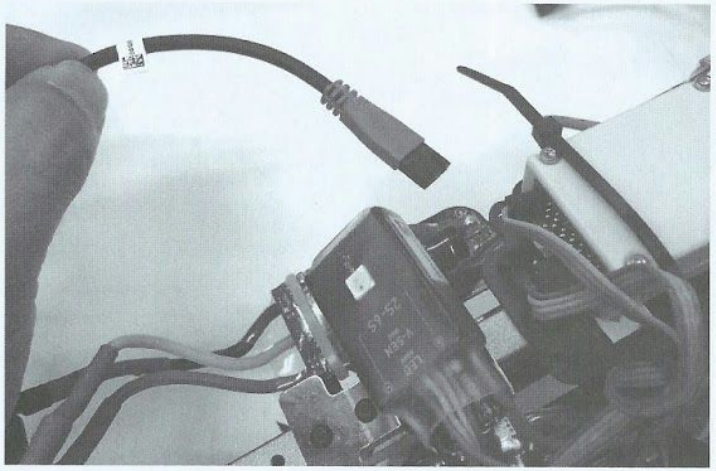


Then through the wedge frame as shown above. Snap the wire onto the wedge frame

Using Naza-M Lite (with GPS)

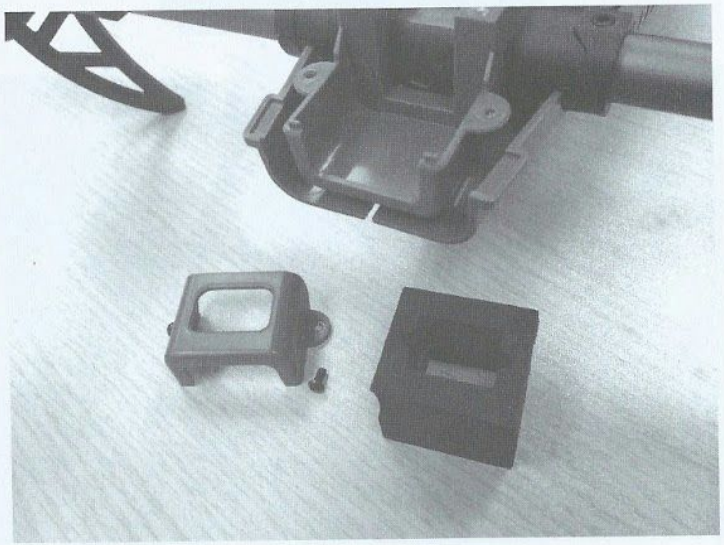
Insert GPS dish above rear shell. Apply glue for best result.

Note the direction of GPS dish (the small arrow head points to the front)

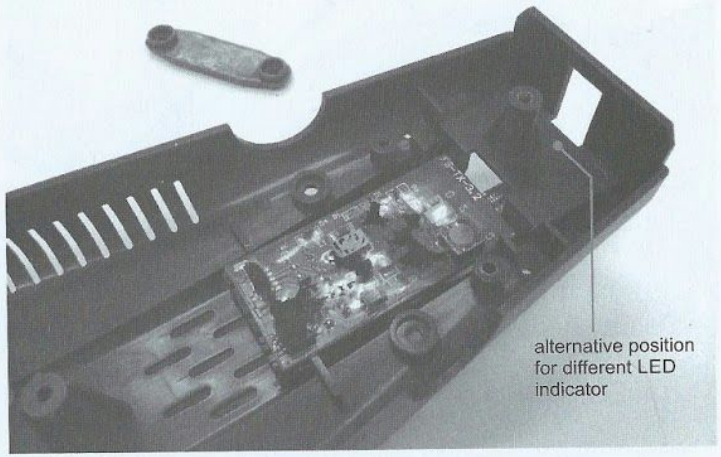


Plug GPS wire to flight controller

3.3 PNP Ver. - Installing FPV camera and video transmitter

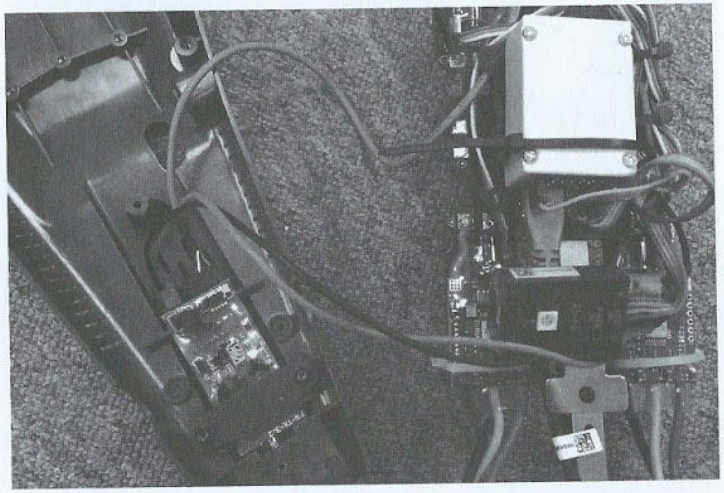


FPV camera tray on the front and video transmitter slot at the back allows players to install devices upon their choices



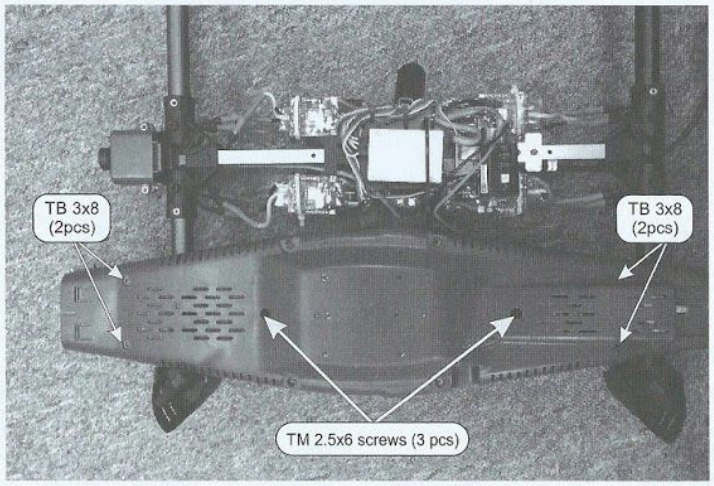
It is recommended to stick video transmitter to bottom shell with foam tapes

Provided foam is primarily for Fatshark's 600 TVL Cmos camera.



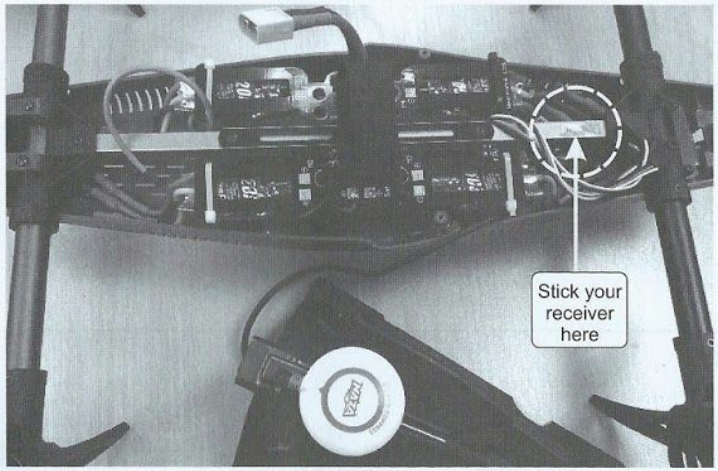
Connect FPV camera and power output to video transmitter

3.4 PNP Ver. - Installing receiver



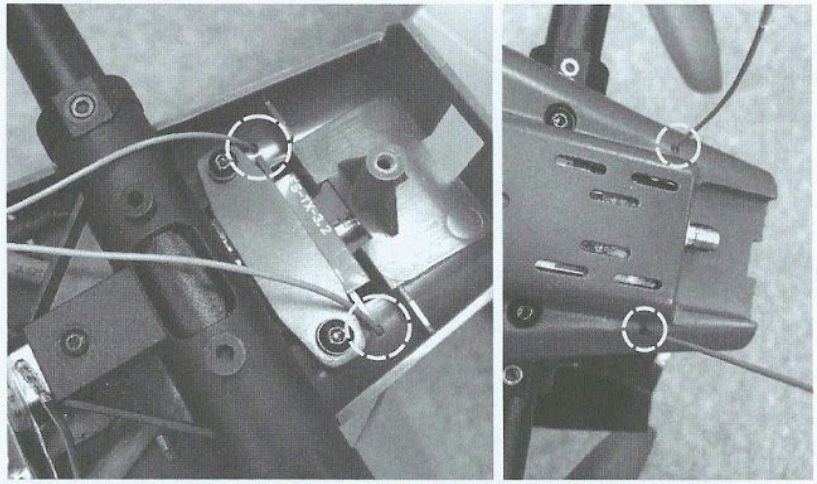
Close bottom shell when finished hardware installation

⚠ avoid damaging wires when putting back the bottom shell ⚠

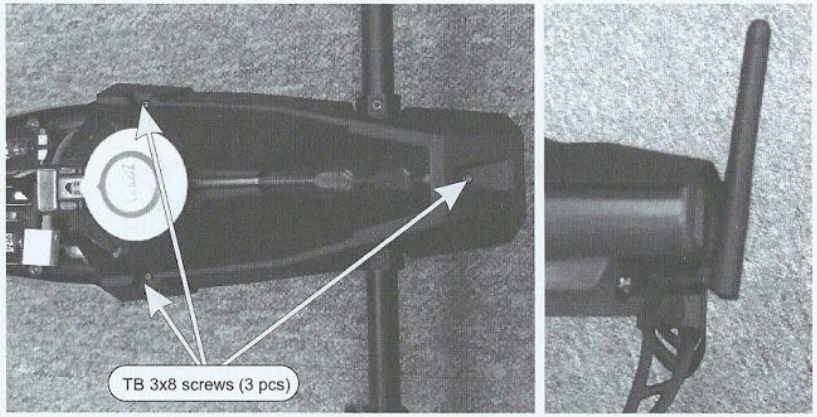


Assemble bottom shell and stick your receiver at location recommended

⚠ avoid damaging wires when putting back the bottom shell ⚠



Bottom shell has 2 small holes. You may choose to stick your receiver's antennae out for optimal reception



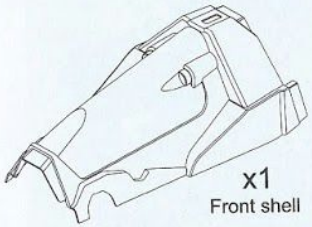
Close the rear shell with its screws. Install FPV transmitter of your choice

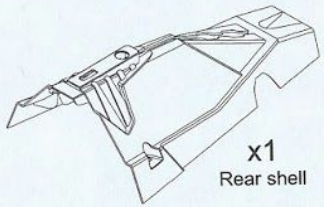
Next
Jump to Section 5 to complete setup

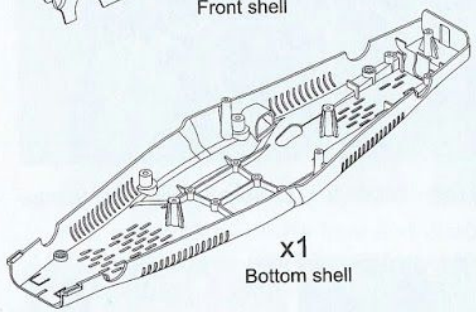
4.1 Frame Kit - Parts list

Parts List

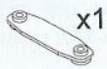
Plastic parts


x1
Front shell


x1
Rear shell


x1
Bottom shell

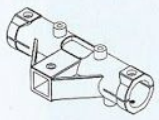

x1
Wedge frame

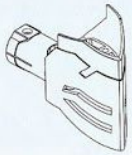

x1
VTx bracket

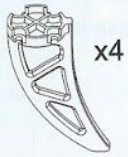

x1
Head piece


x1
FPV Camera holder cover

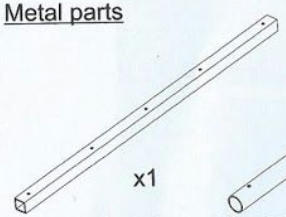

x1
FPV Camera holder

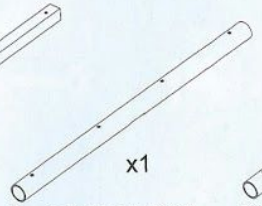

x2
Arm holder

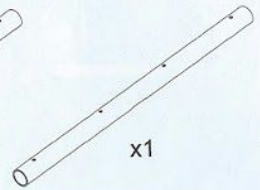

x4
Motor holder


x4
Landing skid

Metal parts

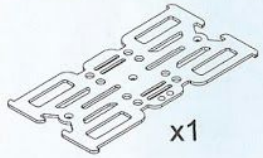

x1
Square aluminum tube


x1
Round aluminum tube (Red)


x1
Round aluminum tube (Black)


x1
Steel angle

Electronics / components


x1
Battery platform
/ Power distribution board


x1
JST (male) wire pigtail


Ferrite bead
x2


XT60 connector
x1


x1
Mounting board


12 AWG silicone cable (black) x1


12 AWG silicone cable (red) x1


5mm Heat shrink x1

Screws

Accessories


x1
Foam block
(for FPV camera)

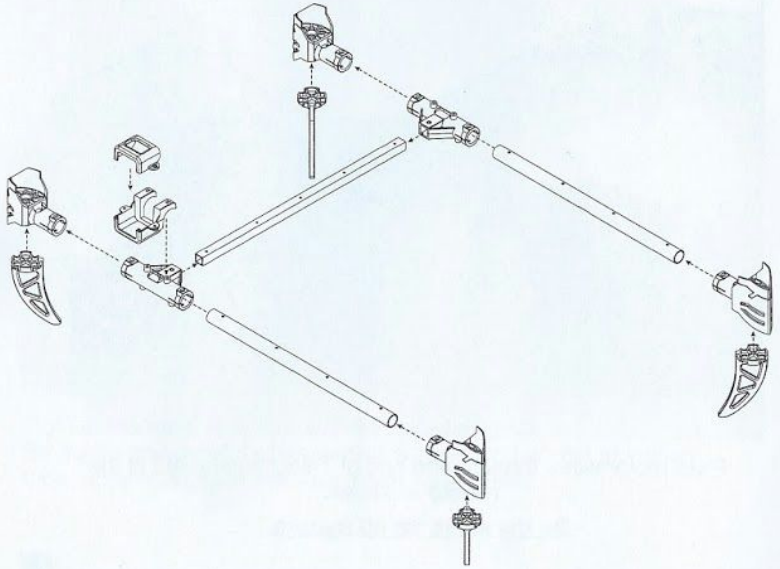

Velcro tape
x1


Foam tape
x5


Velcro strap
x1

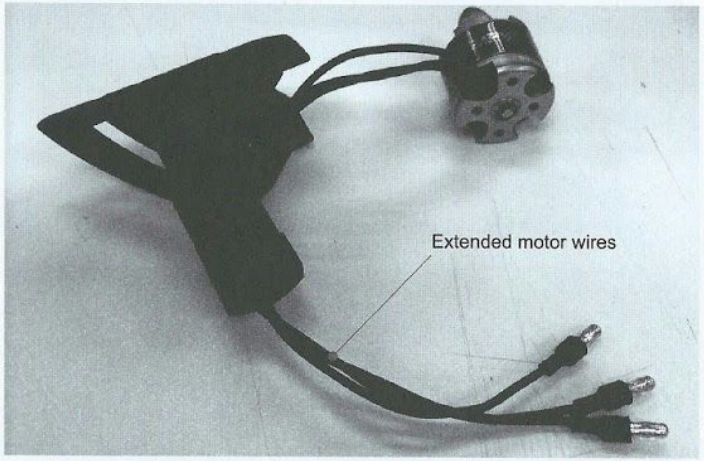
4.2 Frame Kit - Frame and motors

Assembly: Inner Frame

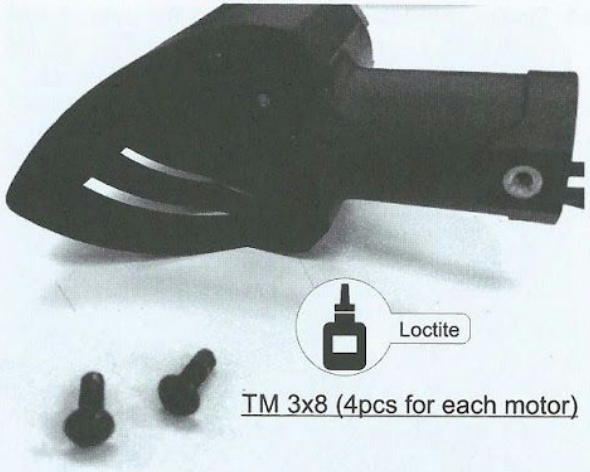


Hardware recommendations

Flight controller:	Naza M. Lite / GPS combo KK2.1 HC (hard case version)
Motors:	Multistar MT2213 935KV Motor
ESCs:	Afro ESC 20Amp for Multi-rotor
Propellers:	8" x 4.5 standard & reverse
FPV camera:	Fatshark 600TVL FPV tuned CMOS Camera
FPV transmitter:	Fatshark 250~600 mW V3 5.8GHz VTx with Nexwave RF
Receiver:	Minimum 5 channel PWM, CPPM, S-bus
Battery:	3S 2200MAh ~ 3S 5200MAh lipo packs



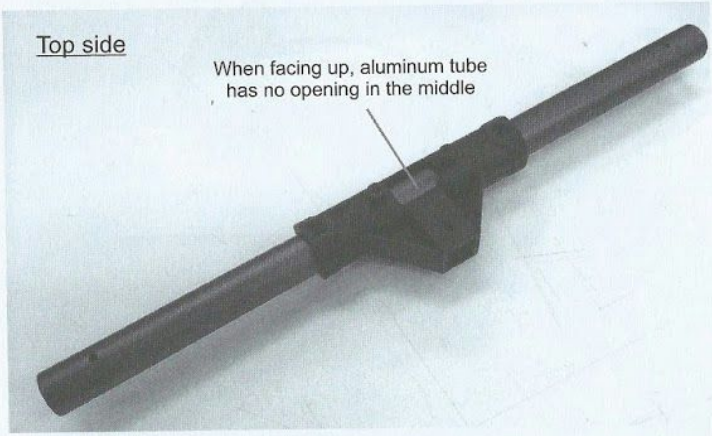
Slip motor wires through motor holder as shown
(picture shown above has extended motor wires)



TM 3x8 (4pcs for each motor)

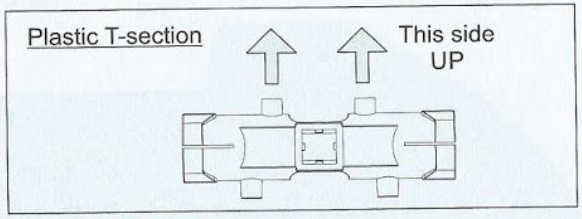
Use 4 pcs of TM 3x8 screws to mount your motor firmly
(use Loctite glue for best results)

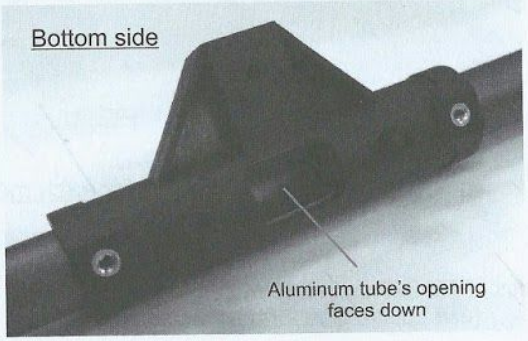
4.2 Frame Kit - Frame and motors

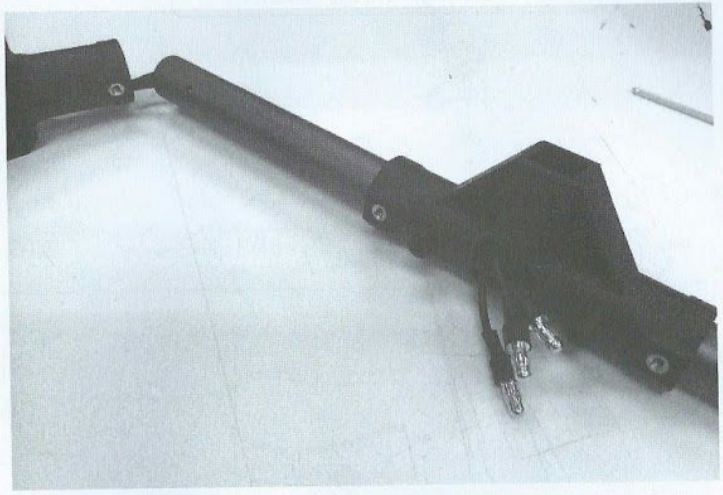


Insert round aluminum tube through arm holder and note the orientation of aluminum tube

Assemble Both Red and Black aluminum tubes the same way

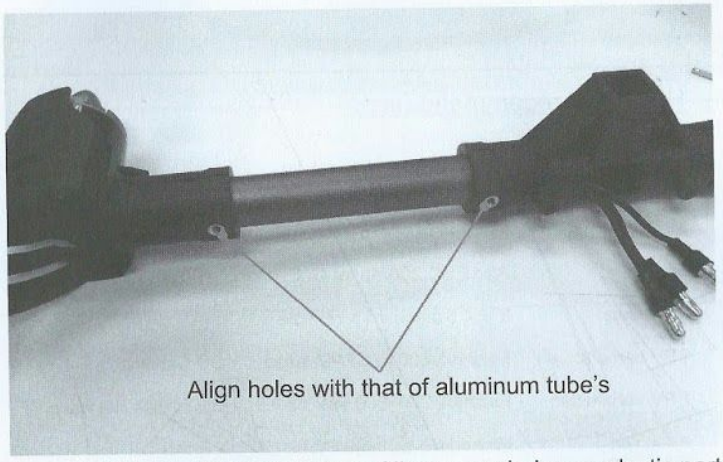






Pass motor wires through one end of T-section and out in the middle as shown.

Do the same for all motors

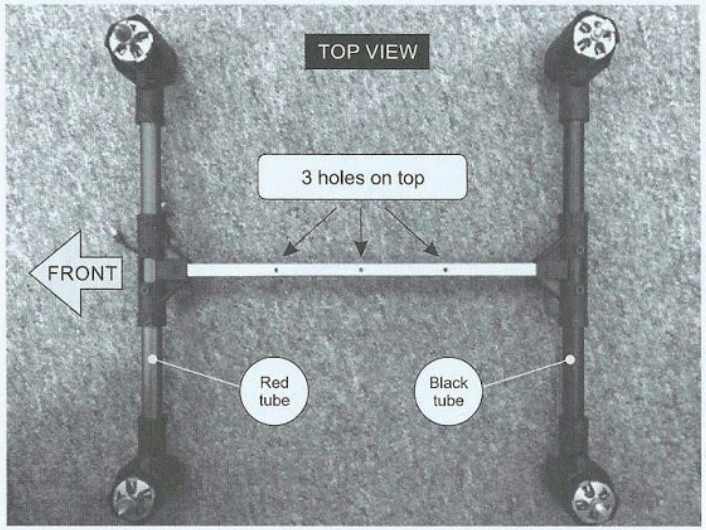


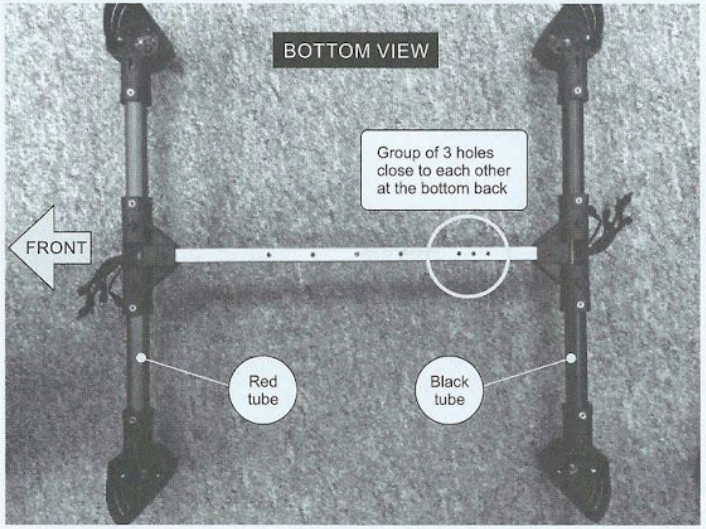
Insert motors to aluminum tubes. Align screw holes on plastic parts with aluminum

4.2 Frame Kit - Frame and motors

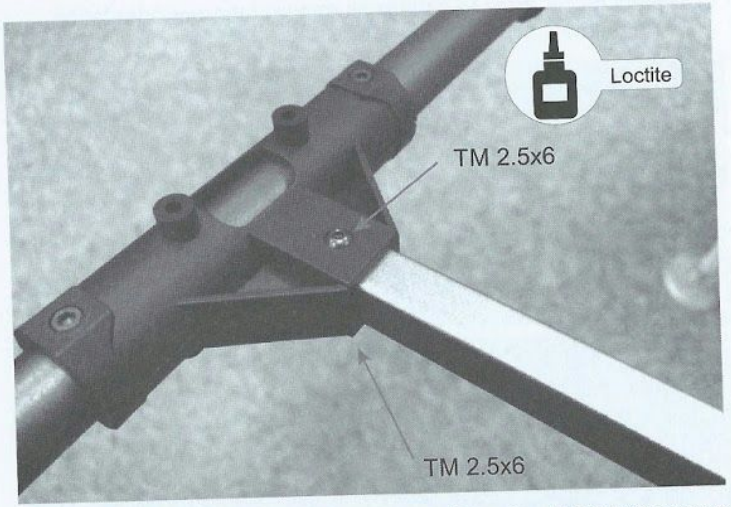
Tighten the arms structure with screws shown above.
Be gentle and careful when getting screws through the aluminum tube, otherwise could damage motor wires inside

Connect motor arms to square aluminum tube per orientation shown below

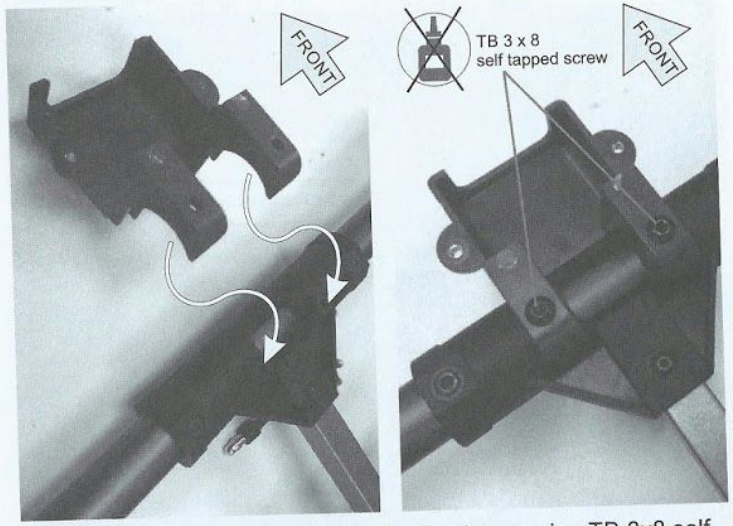




4.2 Frame Kit - Frame and motors

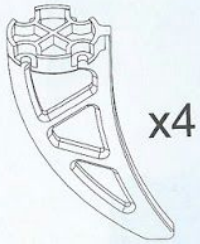


Tighten T-section with square aluminum tube using TM 2.5x6 screws.
Apply Loctite for best results



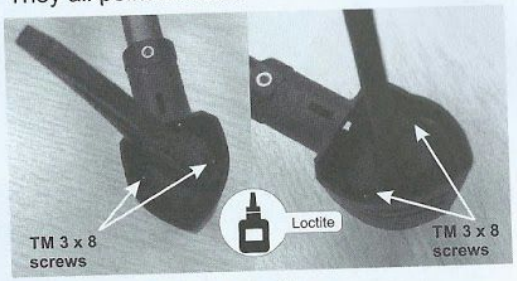
Assemble FPV camera holder to the front arm using TB 3x8 self tapped screws. No need to apply Loctite.

Landing skid

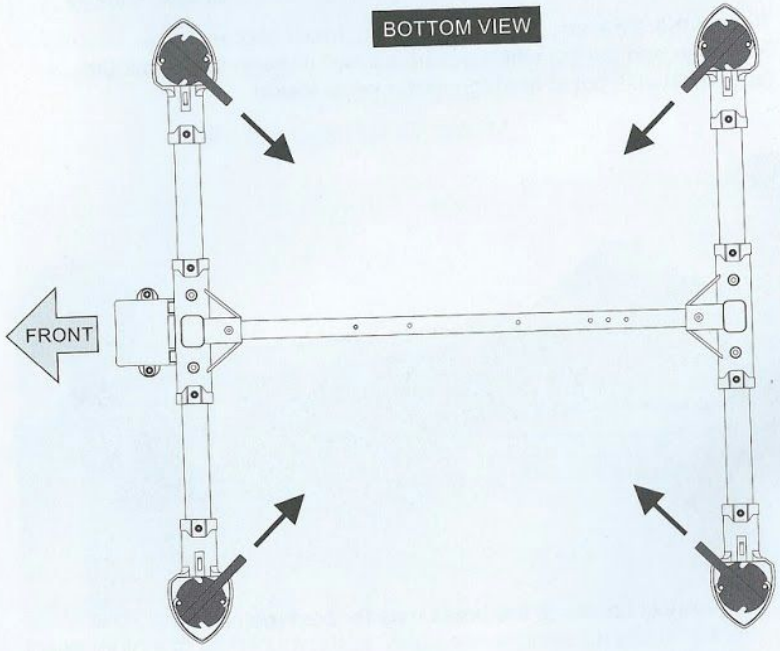


x4

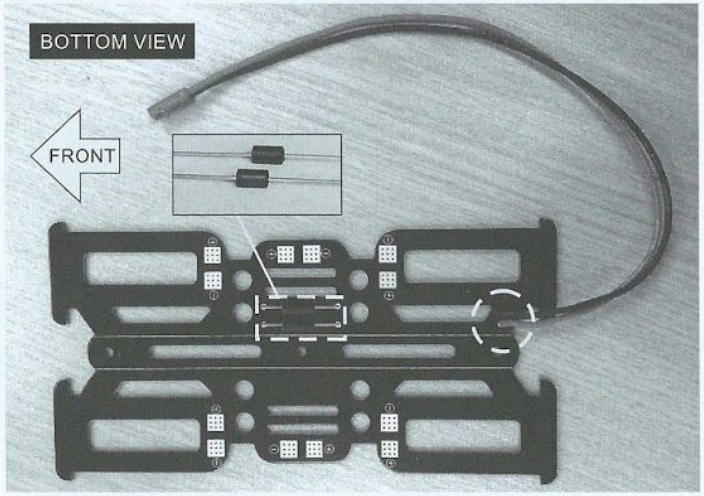
Install 4 identical landing skids per orientations indicated below.
They all point inwards



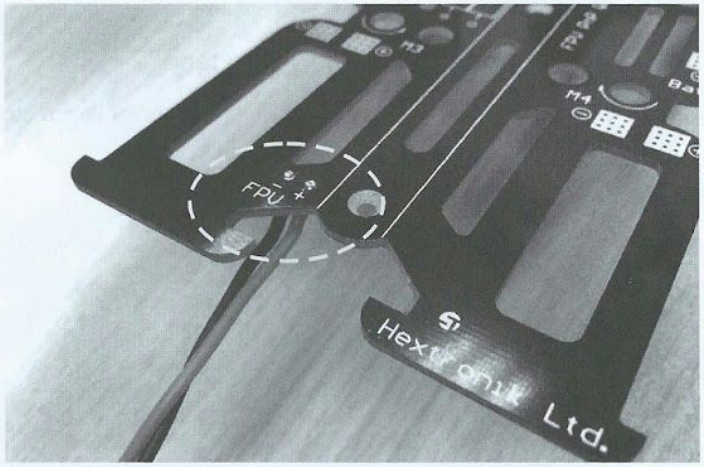
Use Loctite for best results



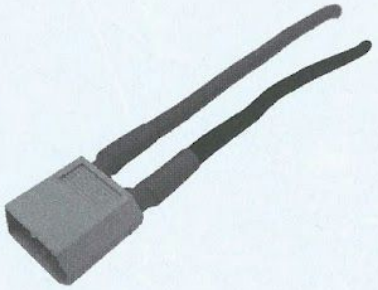
4.3 Frame Kit - Power distribution board setup

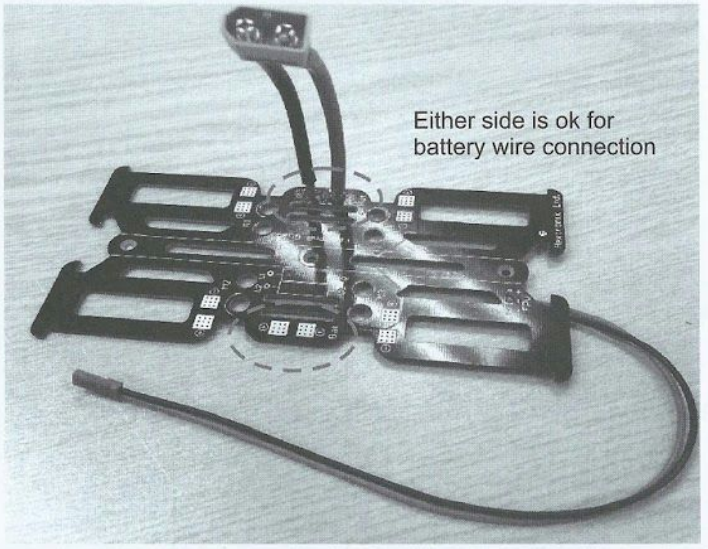


Solder 2 ferrite beads and one JST (male) wire to the bottom side of power distribution board



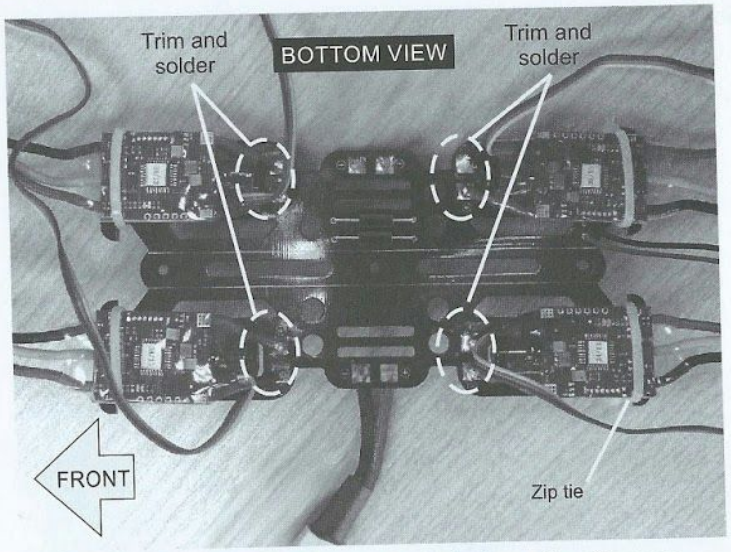
Solder up battery wire using provided 12 AWG silicone wires, heat shrink tube and XT60 plug



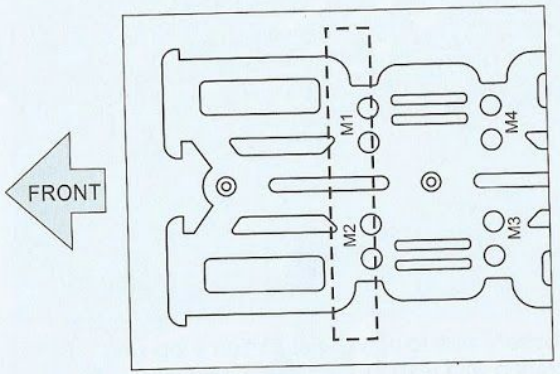


Solder battery wire to power distribution's top side (top side printed with text). Either left or right side is ok. It is recommended to solder it upright

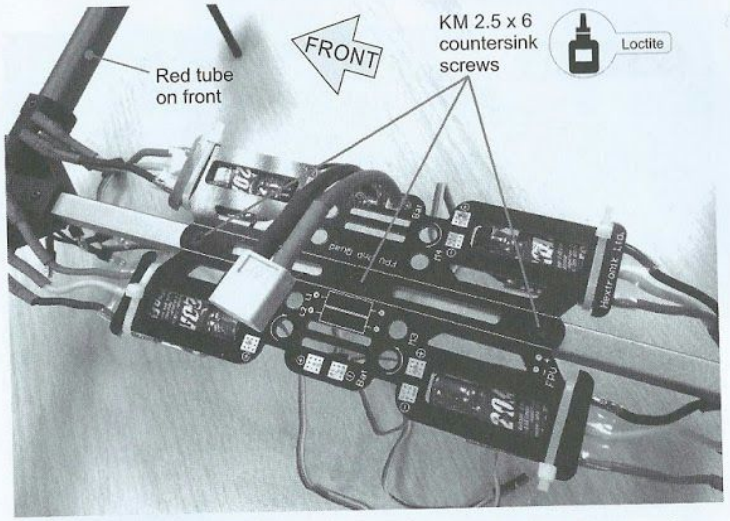
4.3 Frame Kit - Power distribution board setup



Zip tie and solder your ESCs to the bottom side of power distribution board as shown.

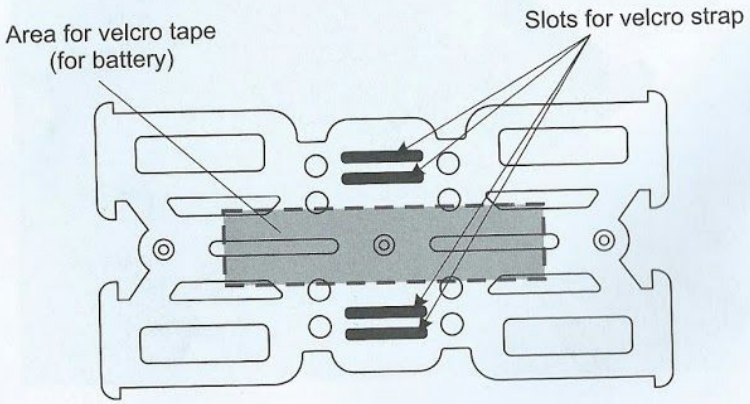


Note the forward direction on the power distribution board

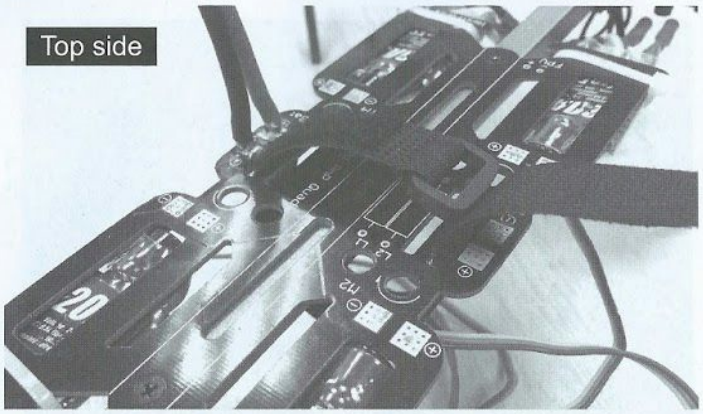


Assemble power distribution board to top of quad's frame using KM2.5x6 countersink screws. Use Loctite for best results

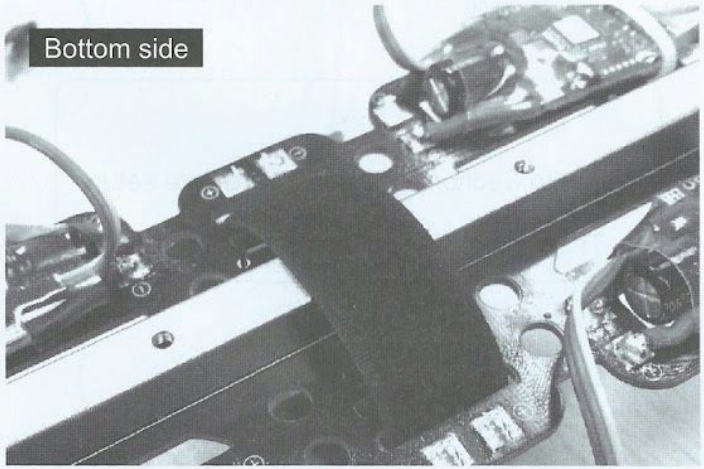
Velcro strap and velcro tape

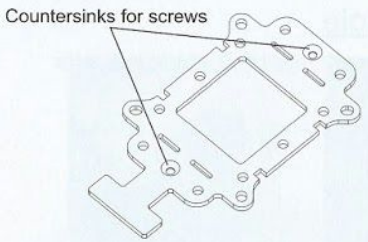


4.4 Frame Kit - Device mount setup



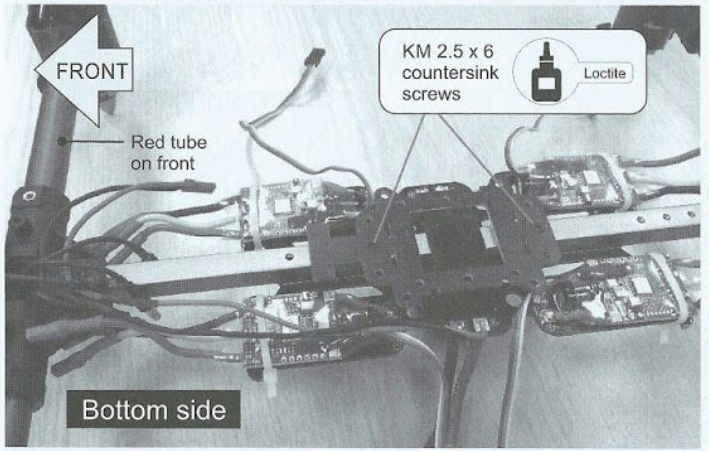
Choose the slots to slip through velcro strap.
Inner slots are for narrower batteries; outer slots are for wider ones



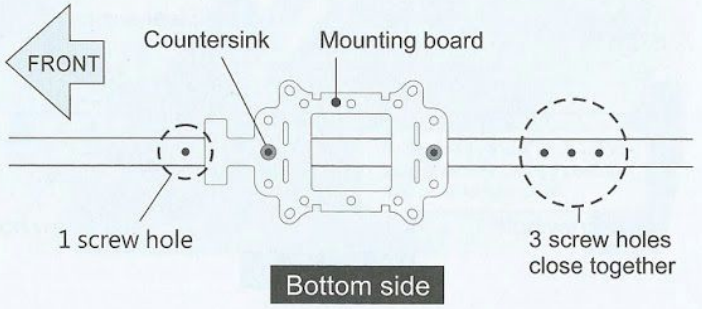


Mounting board

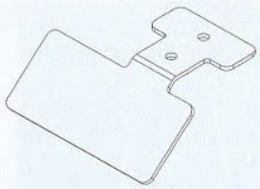
Helps to mount your flight controller



Assemble mounting board to the frame's bottom.
Note the orientation of parts.
Use Loctite for best results

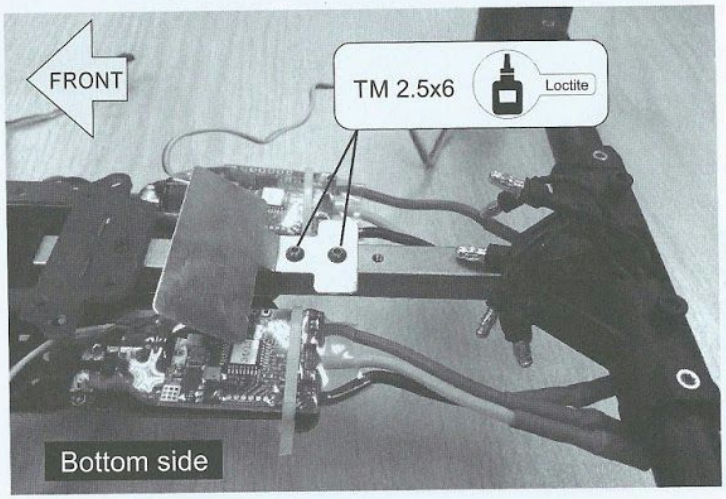


4.4 Frame Kit - Device mount setup

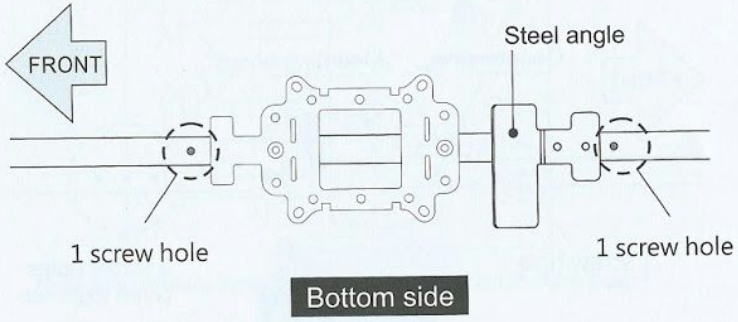


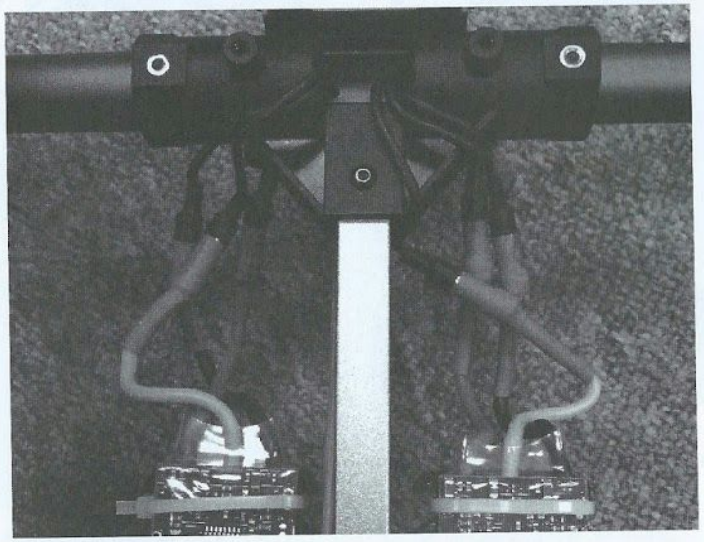
Steel angle

Helps to mount your LED status indicator



Assemble steel angle to the frame's bottom.
Note the orientation of parts.
Use Loctite for best results





Connect all ESC and motor wires

Next

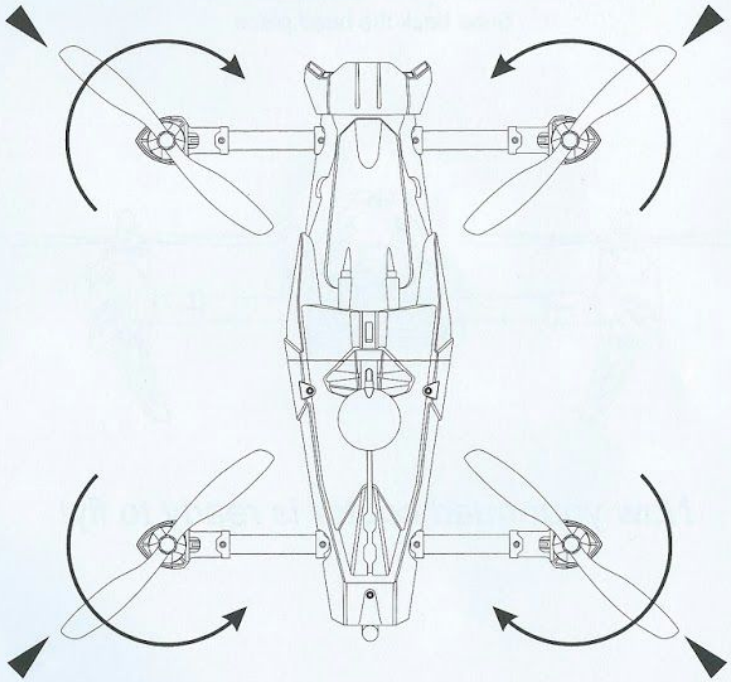
Jump to Section 3 for more hardware setup

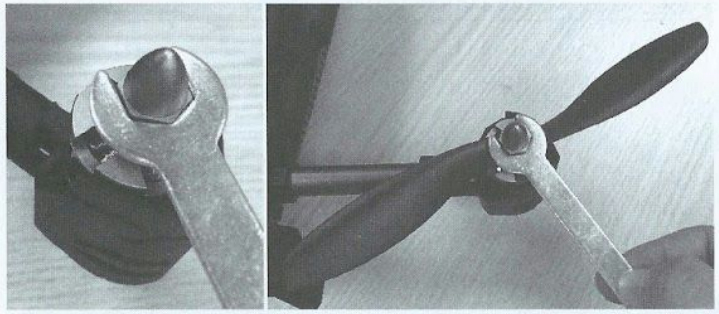
Then go to Section 5 to complete setup

After installing your receiver

For Naza setup information and parameter file please see files tab under the product description on **Hobbyking.com**

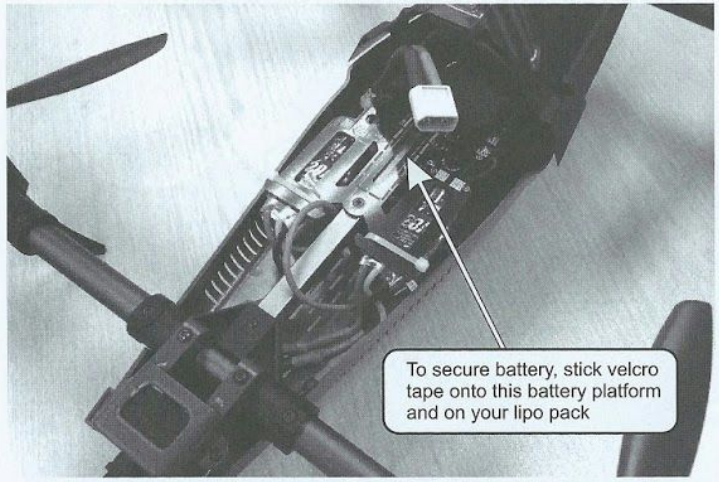
Install propellers to the Quad copter as shown in below orientation



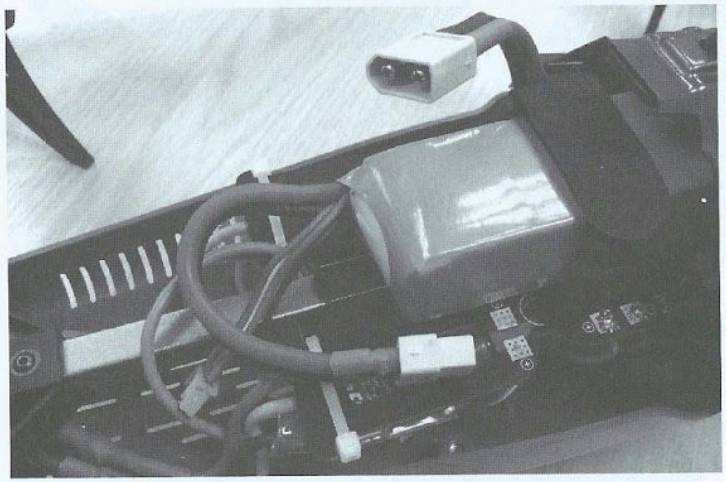


Unscrew cap with mini wrench. Put propellers in place. Reassemble the cap and tighten up

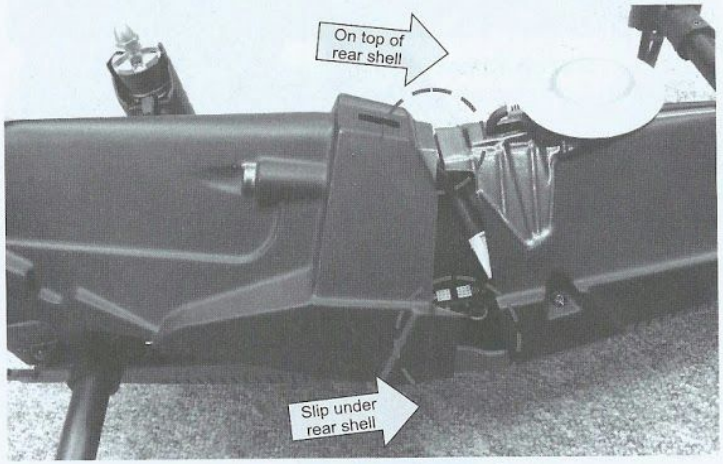
Recommended battery for Quanum FPV Quad copter:
3S 2200 mAh to 3S 5200 mAh Lipo pack



Always switch on your remote controller before connecting the battery

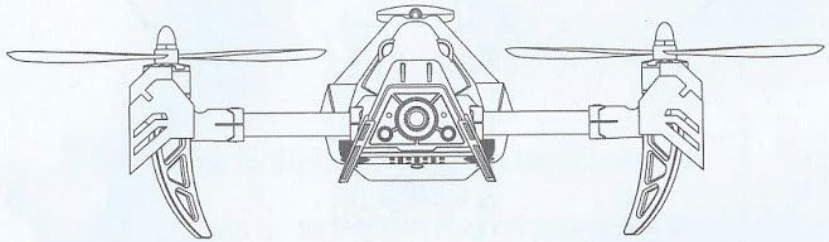


Place lipo pack on the platform and secure it with velcro strap.
Make sure you turn on your transmitter first.
Connect the battery. A beep sound will be heard.



Close the front shell as shown above

Snap back the head piece



Now your quad copter is ready to fly!