

The HexH2O V2 Build Guide

The following build guide is specifically for the HexH2o Version 2 model ([go here for Version 1 models](#)).

You are free to build the HexH2o in whichever way you wish, however we recommended you follow is guide closely in order to get the most from your machine.

This tutorial is based on using the DJI E600 Tuned Propulsion System

HexH2o V2 is specifically designed for the DJI E600, if you wish to use a different propulsion system please contact us before placing your order and we can supply you with the V1 model.

1. UNPACKING YOUR HEXH2O

Your kit will include:

- Painted HexH2o V2 body
- Foam buoyancy aids & retainer strips
- Perspex viewing dome and rear hatch with retaining clips and seal
- Carbon top and bottom plates
- 6 x Carbon Fibre 16mm arms
- 6 x Lightweight carbon motor mount assembly
- 6 x Folding centre arm assembly
- HexH2o sticker kit
- GoPro (3 & 4) anti reflection sticker
- Electronics tray with DJI Naza and gimbal mounts
- Distribution board mount
- 24v Cooling Fan
- Bolt, washer and grommet kit
- GPS Mount/casing assembly
- Naza LED stand off and grommet assembly
- Cable location mounts & cable ties
- Velcro
- Breather kit
- 2 x HexH2o hex keys and mini level
- Gimbal lock (locks gimbal in place during transportation)



1. TOOLS FOR THE JOB

- Soldering Iron, flux, solder
- Heat shrink (various sizes)
- Quick drying (5min) Epoxy
- Clear marine grade sealant (Sikaflex 291i recommended)
- Hot (glue) gun
- Cable for wiring harness and extending motor cables
- Servo cable for extension LEDs (optional)
- Bullet connectors, 18 x female (3.5mm)
- Parallel lead (if using 2 lipos) (eg: XT60/XT90)

- Power connectors (eg: XT60)
- Thread lock
- Wire cutters
- Hobby knife
- Small socket set (7mm)

3. Dome and rear hatch

When **removing** the dome or rear hatch, turn the retaining clips quarter turn ANTI-CLOCKWISE. If you try to open them by turning clockwise you will over tighten them and this may damage the paintwork. To fit the dome, carefully align the dome evenly on the rubber seal and turn each retaining clip quarter turn CLOCKWISE. **Work around each opposing clip.**

Use a finger to apply light pressure to the lip of the dome next to the retaining clip you are turning. Lightly sand the dome lip if you find the clips are hard to turn.

Carefully fit the dome and proceed to do a water test. Fill your sink, bath or other suitable water container. Carefully lower the front of the HexH2o into the water, just enough to ensure the dome is submerged and check to ensure it's water tight.

If water does come through check the following things:

- 1. Ensure your dome is seated correctly
- 2. Ensure the dome seal is in place
- 3. Check, and where required tighten the retaining clips *
- 4. Apply some silicone grease to seal as this will help to retain a water tight seal

* To tighten the retainer clips: remove the dome, put the clip to its 'closed' position. Holding the clip in place carefully tighten the screw. Do not over tighten, otherwise you will not be able to get the clip over the dome and/or may damage the paintwork.

If adjustment is required, only tighten the nuts 1 quarter turn at a time. Do not over tighten.

Once you are happy the dome is watertight, repeat the process with the rear hatch.

Once completed, remove both the dome and rear hatch and put to one side.

Keep your dome protected when not in use.

4. Fitting foam buoyancy aids

Using the provided velcro fit the buoyancy aids to either side of the hull, space the velcro evenly as

this will allow you to adjust the buoyancy aids as required.



5. Top plate assembly



Using the provided components, build up the top and bottom carbon plates, arms and mounting clamps. You will note that the arms have holes pre-drilled at the ends. The arms can only be inserted one way in order for the holes to line up.



Ensure the non folding clamps are fitted with the provided 1mm washers – 2 at the top and 2 at the bottom.

Don't fit the motor mounts to the arms just yet.



Note the bottom plate has 4 counter sunk holes (for the stand off bolts) – there are access holes in the top plate allowing you to access the bolts after the plates have been built/fitted.

Don't fit the top plate assembly to the HexH2o/stand-offs just yet.

6. Fit the grommets, stand offs, breather tubes



Carefully fit the 6 larger motor cable grommets into the pre-drilled holes in the top of the hull, then fit the 2 remaining smaller grommets into the pre-cut breather tube holes.

Fit the provided breather tubes through the breather tube grommets (leave approximately 4" sticking out). The tubes are fixed in place on the inside of the HexH2O using two of the supplied cable tie clips, and supplied cable ties as per the picture below.

Use some 5min epoxy to fix the cable tie clips to the inside of the HexH2O body.



Next, fit the supplied top plate stand offs to the HexH2o, ensuring you fit the supplied 2mm washers on either side of the HexH2o body: **bolt – washer – HexH2o – washer – stand off (don't forget blue thread lock).**

Finally fit your top plate assembly to the stand offs using the provided counter sunk stand off bolts **(don't forget blue thread lock).**

7. Fitting GPS Unit



Next mount the base of GPS holder (**the smaller half**) to the top plate using some of the provided 3M tape or one of your Naza GPS stem 3M pads as pictured, (do not cover any top plate screws or the stand off location holes). Ensure the opening for the GPS cable is pointing to the front of the HexH2o.

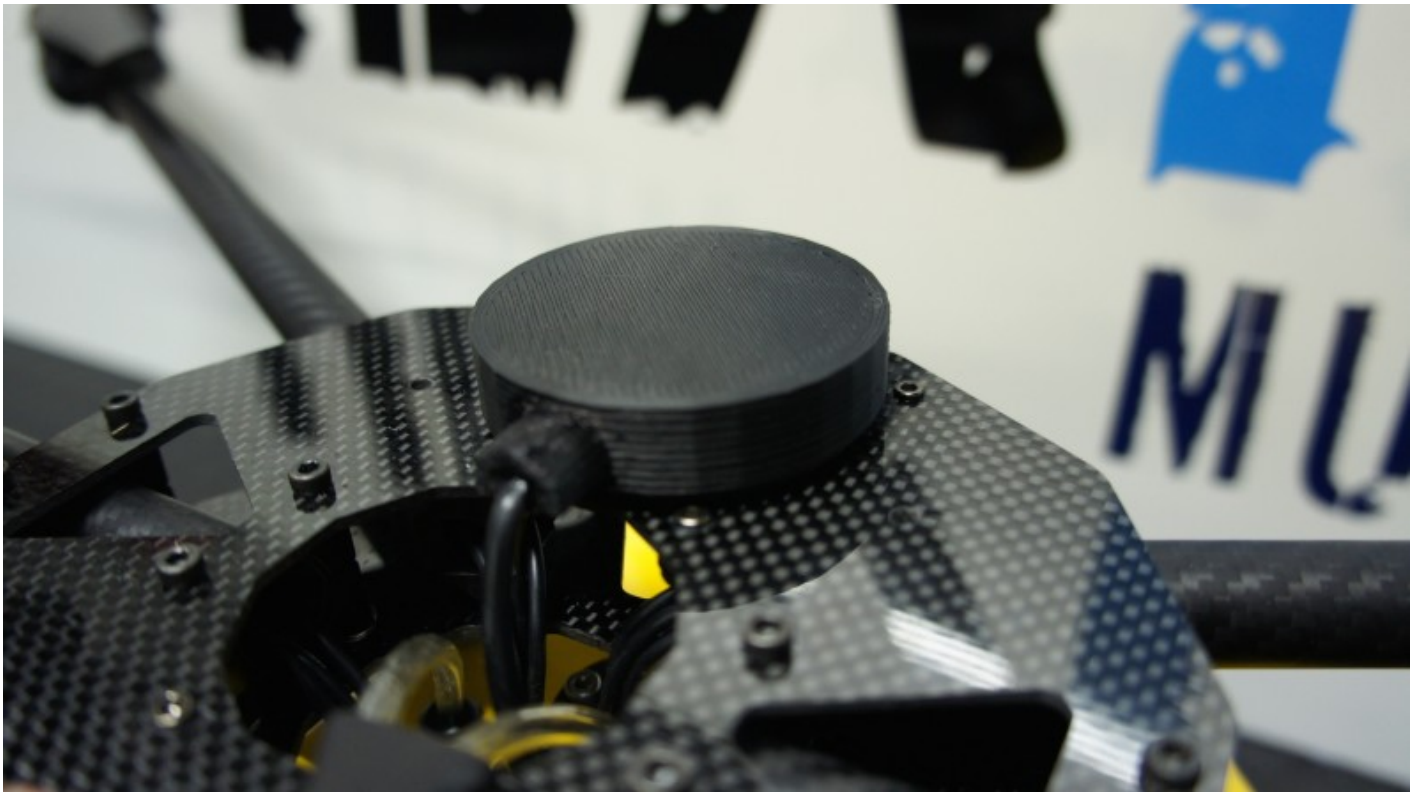


Using the provided 3M tape, mount the GPS unit to the inside of the provided GPS mount.



Then using some Marine grade sealant run a bead around the inside of the top half of the GPS holder and inside the neck (where the cable comes out). Gently push fit the top half of the GPS unit in place, effectively sealing the Naza GPS inside the holder.

Run the GPS cable through the pre-drilled slotted hole in the top of the HexH2o frame, then using the supplied cover plate and bolts fit in place using Marine grade sealant so seal it in position.



Ensure the area is water tight.

8. Fitting motors, motor cables

Fit each motor to the provided carbon motor mount plate (**don't forget blue thread lock**) using the motor bolts provided with the DJI E600 tool kits.



Note you will need to extend the cables to suit. First cut off the motor bullet connectors. Then create your 18 extended leads (using 18AWG cable) with female bullet connectors at one end. Each motor extension cable should be 60cm long.



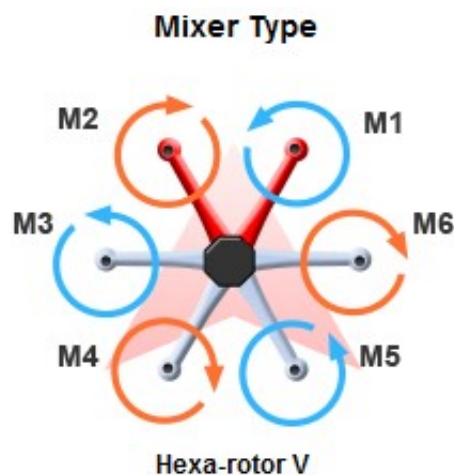
Feed the cables through the motor grommets from the inside of the HexH2o out, then run them down the arm, leaving the ends of the cables poking out the end.



Slide all of the cables through the motor mount and slide the motor mount onto the arm.

Each arm has pre drilled holes at each end, one end specifically fits the motor mounts whilst the other end is for the clamps.

Ensure you mount the correct rotation motor on the correct arm (they have arrows on the sides of the motors). Refer to your E600 manual for more information.



Using a soldering iron, join the extended cables to your motor. On our RTF builds we also use

[liquid electrical tape](#) under the heat shrink to give extra protection to the joint.

Then **carefully** pull the cables back through from the inside of the HexH2o.



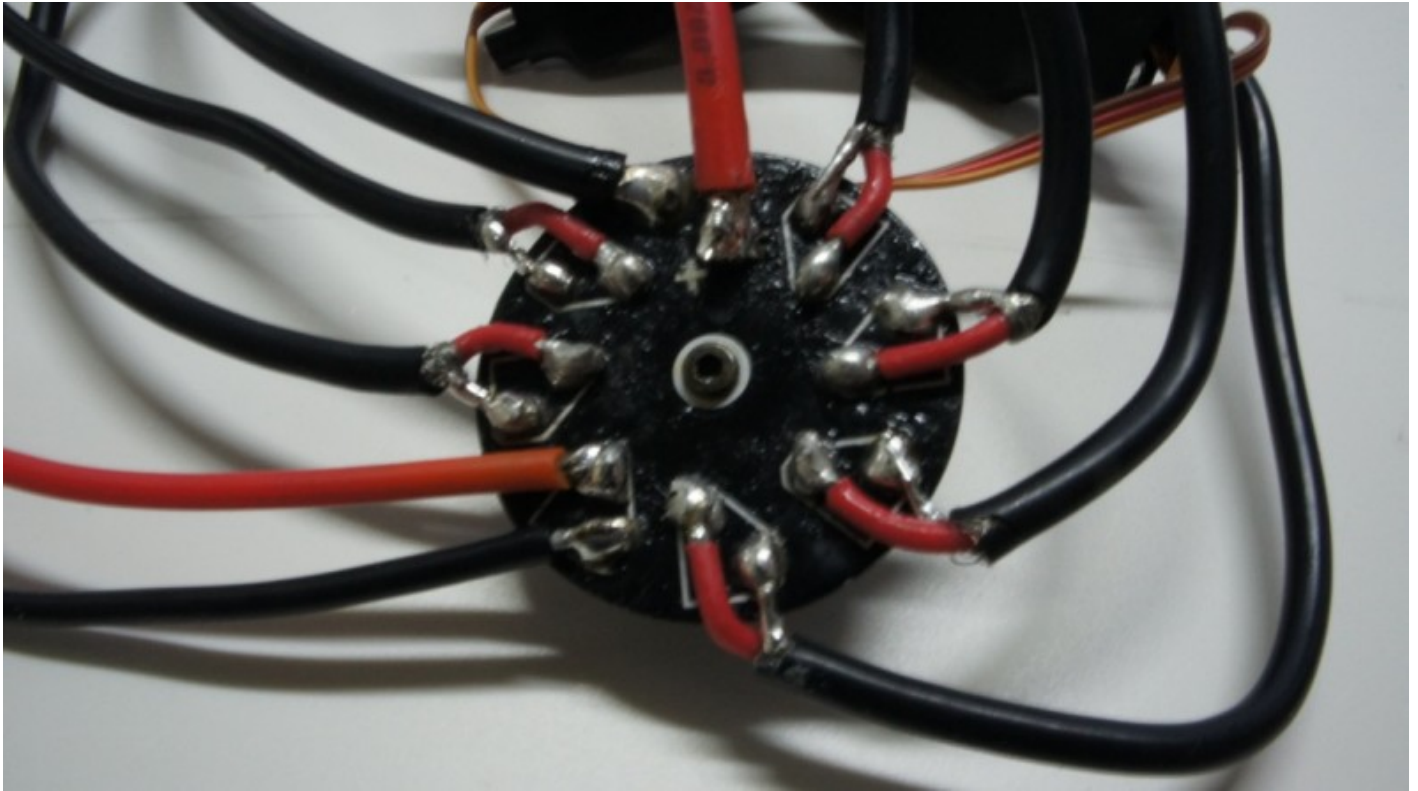
11. Sealing the HexH2o body

Generously apply marine grade sealant to the motor cables, grommets holes, breather tubes, GPS cable and the four stand off bolts from the **inside** ensuring you make a good watertight seal.

12. ESC's and distribution board

Inside the HexH2o are 6 ESC mounting brackets. These are specifically designed to mount the E800 ESCs. Before they can be installed you will need to connect them to the E800 distribution board.

Solder each of the ESCs to the distribution board.

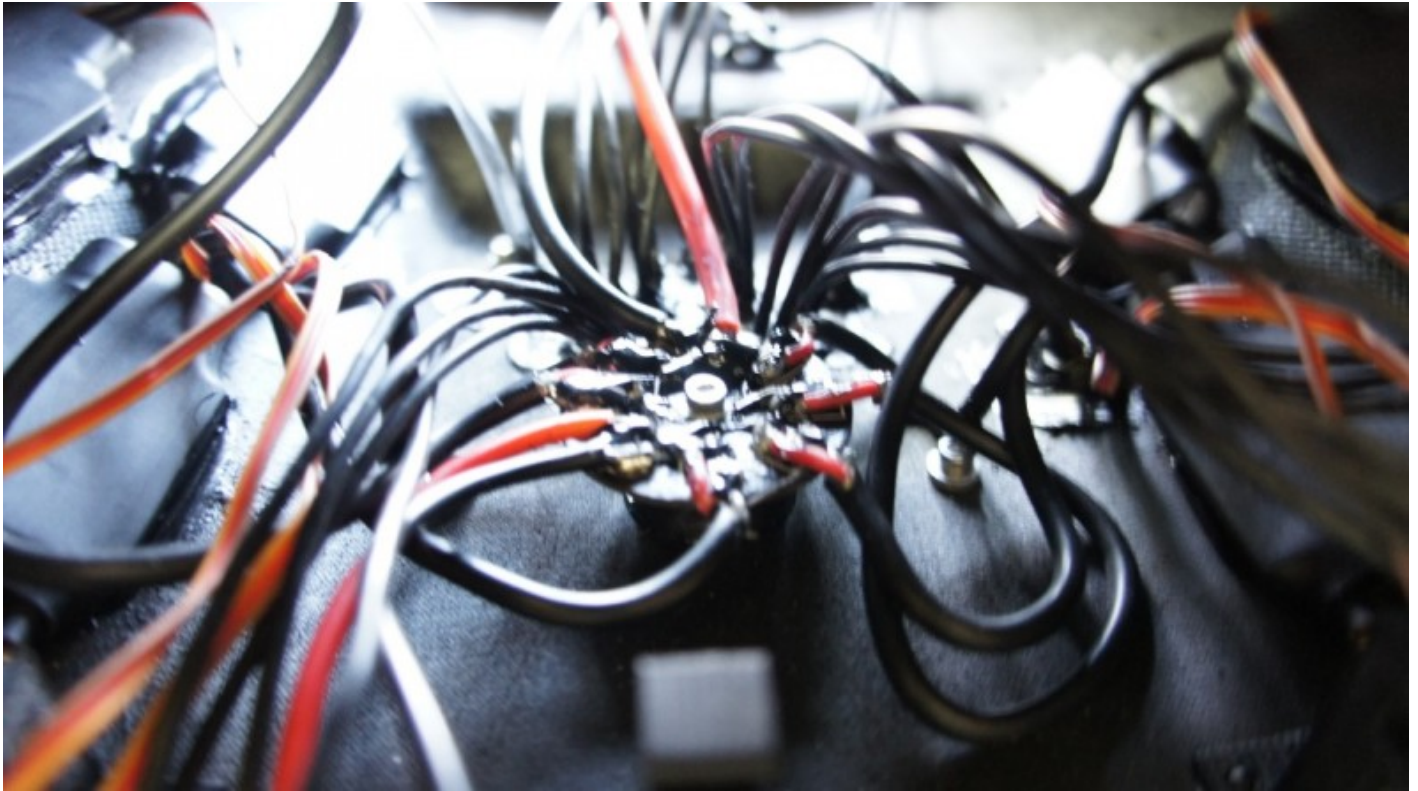


Then solder your main power cable to the board (approx 6' long using 12AWG cable) with your chosen connector on one end (this will connect to your flight batteries).

Next you will need a cable to connect to your electrics tray in order to power all of your components (approx 4' long using 16AWG cable), again fitting your chosen connector on one end.

Once completed decide where you want to locate your distribution board in the HexH2o (we recommend on the top just in front of the grommets).

Ensure you leave enough room for the electronics tray to be fitted.



Bond the provided distribution board stand off to the HexH2o (using 5min epoxy), then screw the distribution board to the stand off using one of the E800 bolts (supplied in the E600 tool kit)

Now its time to fit the ESC's in place, gently clip each ESC into the ESC holders.

Note the direction the ESC's are facing (all 3 facing back). This will make it easier to connect the motor cables later on.

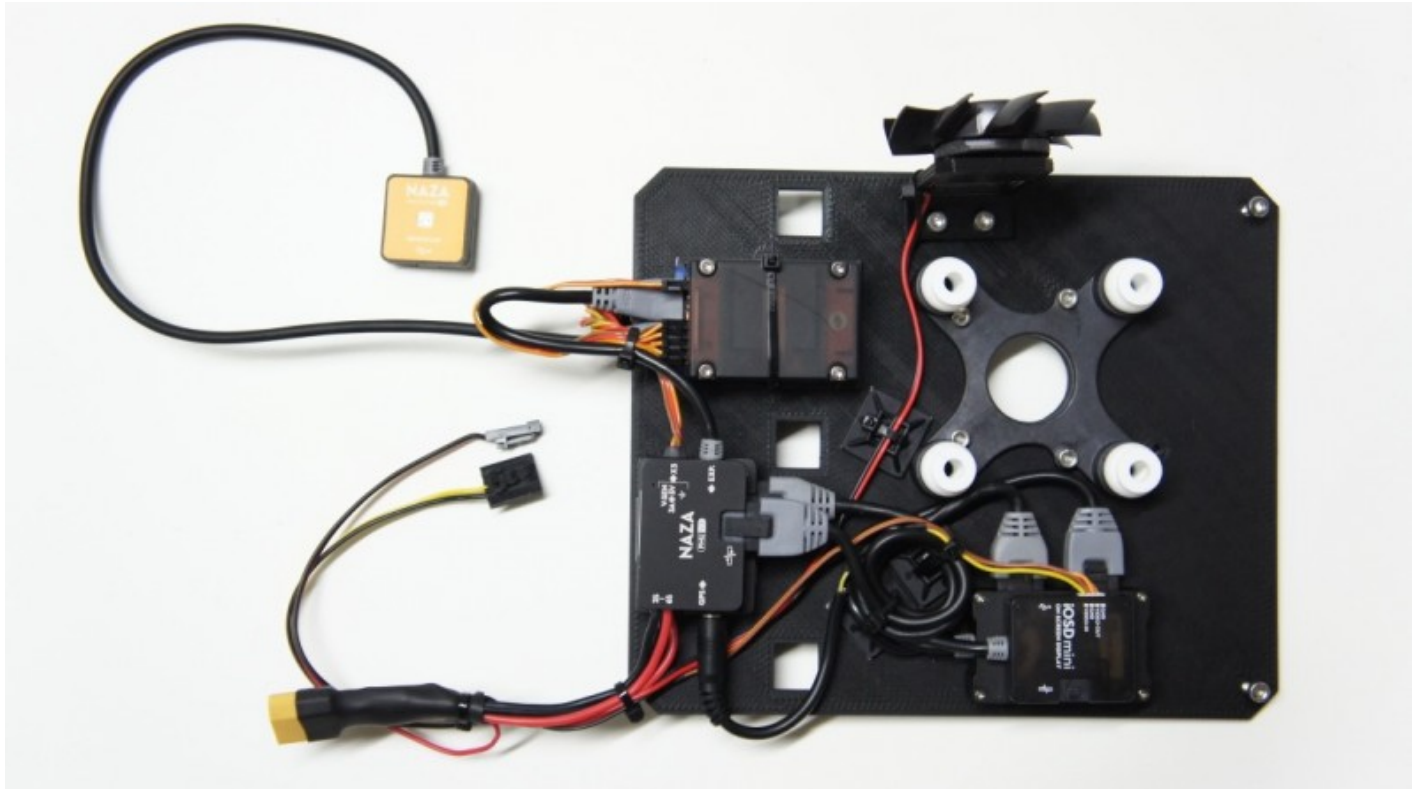
Now connect the 3 motor cables to each ESC (at this stage you do not need to worry about the order in which they are connected, you will test this later when you bench test your machine. The cables can then be easily swapped using long nose pliers.

13. Electronics tray

Next up is your electronics tray. How you mount your components is up to you, but we have provided a specific location mount for the NAZA V2, don't forget the tray sits at the top of the HexH2o so you must mount the Naza 'upside down' on the board (see pic). Screw the fan in place as per the picture. Mount all your components using 3M tape and once you are happy with their positions, cable tie them in place using the provided cable ties. Tidy the wiring using the provided cable ties and cable tie clips as required.

Note the power and video cables for the video transmitter (see #14). Also the NAZA LED (see

#15).



14. Video Transmitter

If you are using a video transmitter for a downlink, you will need to connect this to the power on your electrics tray, or power distribution board and connect the video link to your Gopro, gimbal or OSD (depending on your setup).

Mount the VTX (away from the other components) to the HexH2o frame using velcro. We recommend you fit the VTX with the provided heat sink to aid cooling.

We then recommend you use a 30cm SMA cable which connects to the antenna on the outside of the HexH2o, to the VTX inside the HexH2o. Drill a 8mm hole in the side of the HexH2o body where you want to mount the antenna and fit the supplied grommet. Pass the threaded end of the SMA extension lead through the grommet. Once fitted ensure you seal the area from the **inside** using marine grade sealant.





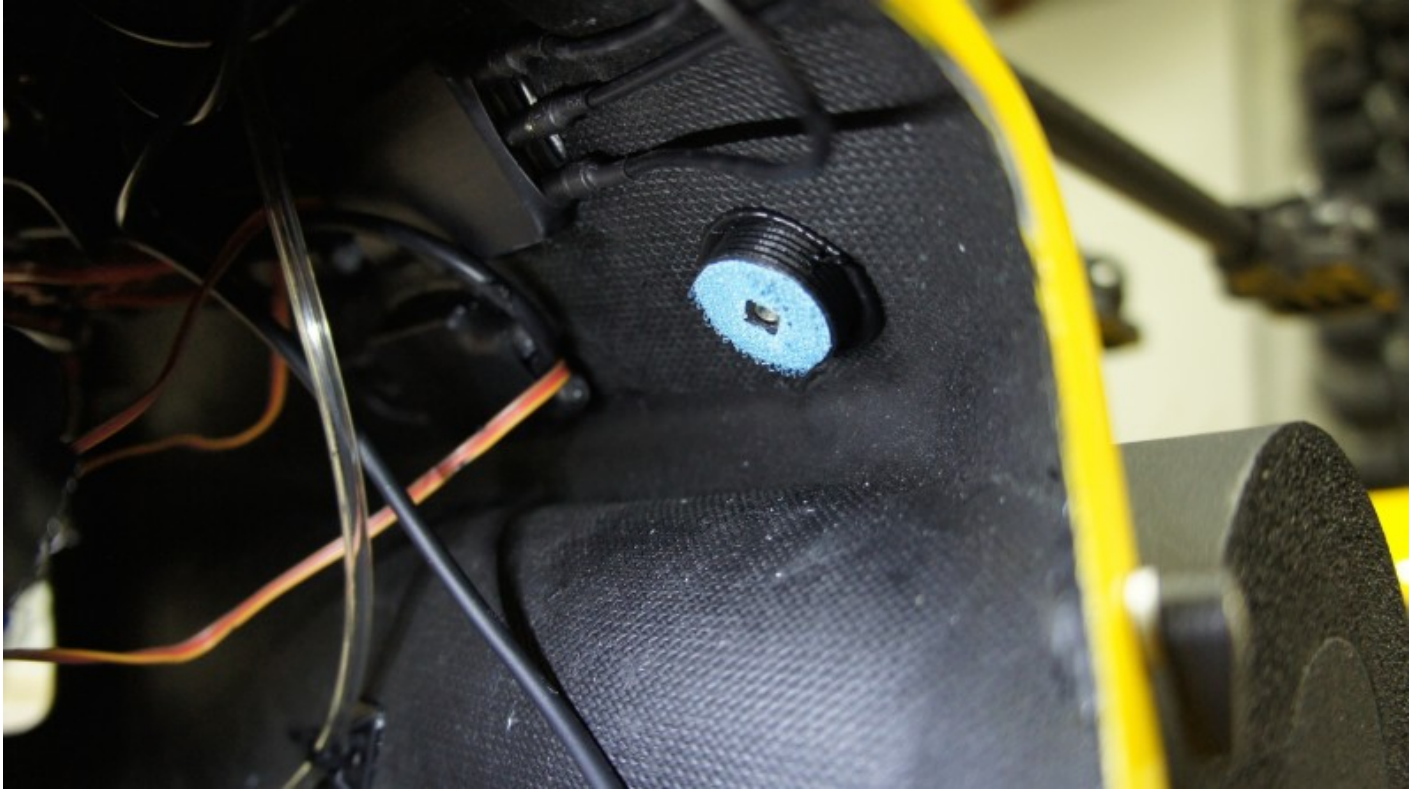
Ensure you pick a location for the Antenna that does not foul the folding arms.

15. NAZA LED location

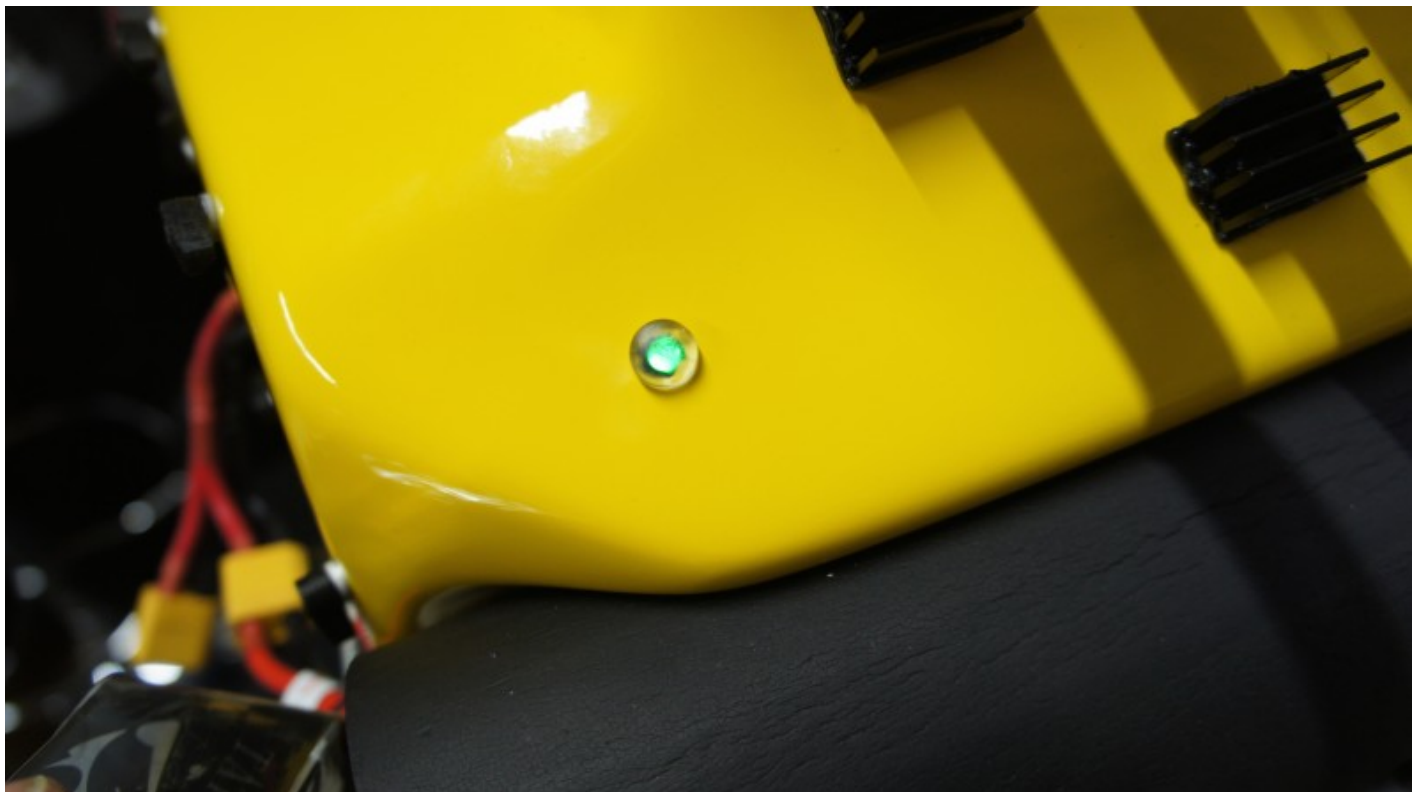
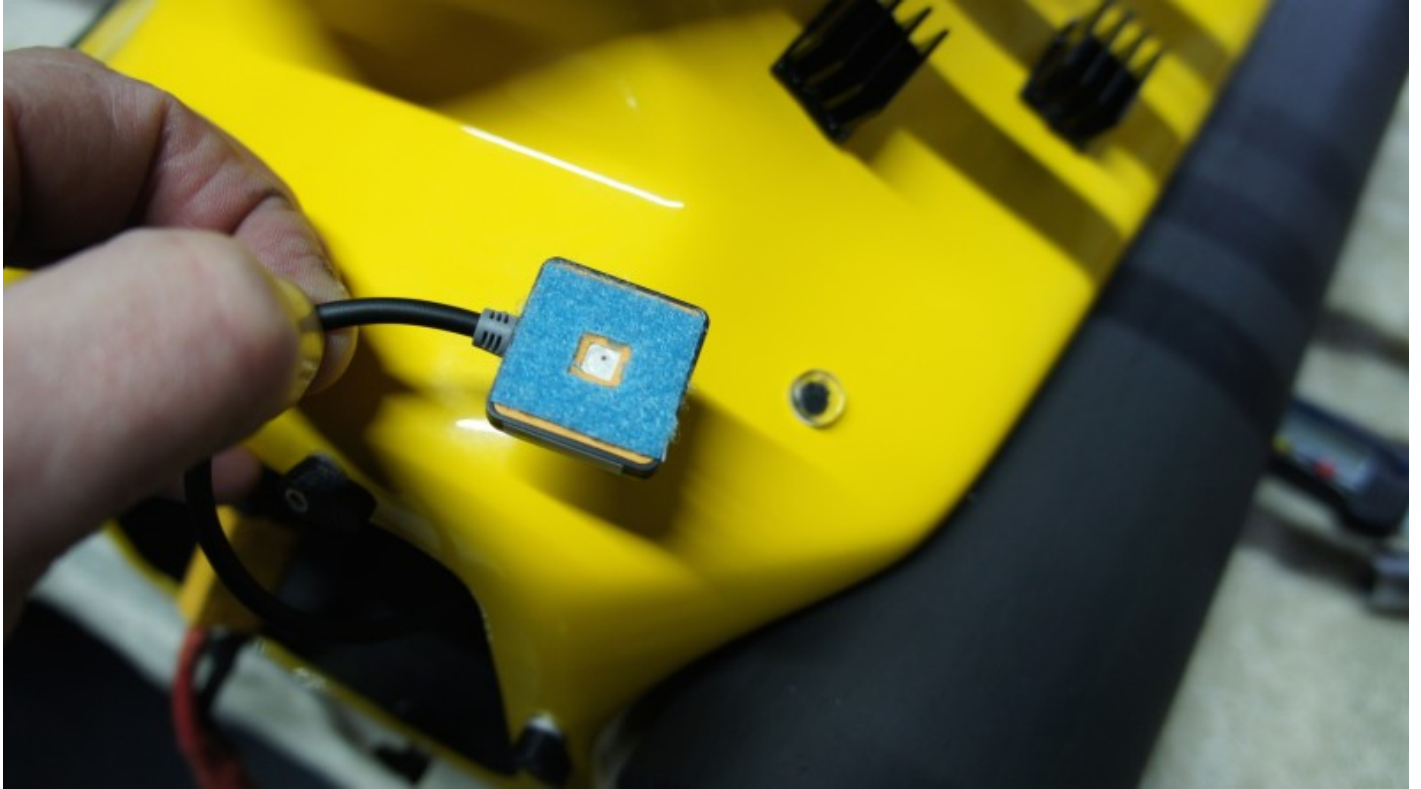
We provide a small stand off and a viewing grommet for the NAZA LED. This is optional but it enables you to view the LED status without having any reflections being picked up by your GoPro. Decide where you want to mount the LED, carefully drill a 4mm hole in the frame (use masking tape to help protect the paintwork).



Carefully push the provided clear grommet through the hole, then mount the stand off on the inside (using some 5min Epoxy for the grommet and Marine grade sealant on the stand off).



Finally fix the LED unit over the stand off using some of the provided velcro. Using Velcro means you can easily remove it should you need to plug the Naza into the assistant software.



Ensure the area is water tight.

16. Mounting your batteries

Your batteries will fit nicely in the floor of the HexH2O; either one lipo (fit sideways) or two lipo's (next to each other running front to back). Keep them in place using velcro. Position them to ensure your centre of gravity is maintained.

17. Hook everything up

You should now be ready to bench test your HexH2O! Fit your electronics tray, gimbal and GoPro and run through our '[First Flight Guide](#)' to ensure everything is set up correctly.

Important Notes

This build guide does not cover things like setting up the Flight Controller (NAZA), calibrating the IMU, GPS or calibrating your ESCs etc. For more info on that please refer to our [First Flight Guide](#) and refer to your flight controller manufacturers manual.

Always ensure you carefully remove the dome and rear hatch by rotating each clip; quarter turn **ANTI-clockwise** to open and work your way around opposing corners. **Do not turn clockwise to open** as this will over tighten the clips you may damage the frame paintwork.

HAPPY FLYING

Remember if you get stuck along the way please JUST ASK! We are here to help.