Installing Instructions for P3/P4 assembled payload release kit

Teralign - October 25, 2017 – hello@Teralign.com

Caution: You must recalibrate the compass

The payload release has a servo and the servo has a magnet. The magnet will cause your compass to be thrown off so you must do a recalibration or your return to home and other flights that depends on compass will not work correctly. Do this each time a servo is added or taken off. I didn't do this once and sent the drone on a mission. As hard as it tried to fly to the correct location the compass kept sending it the wrong way. I had to abort the flight and flew it home by hand. Return to home is a mission and your drone will not be able to return to home. It flies great once the recalibration is done.

3D printed parts

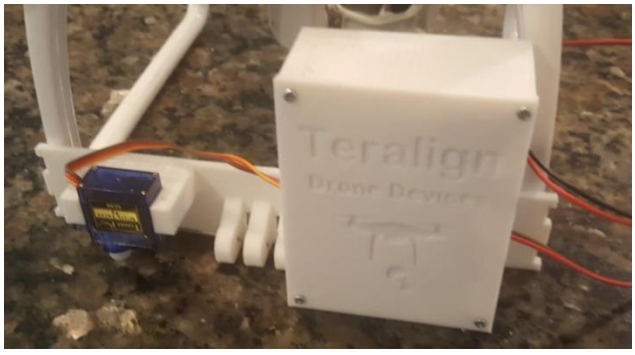
All the non-electronic parts in this kit are 3D printed. Why? It has been stated that often the plastic parts can cost much more in production than the electronics. 3D printing allowed us to keep the costs down and rapidly makes changes when we have a better design. The upside of 3D priding is saving costs and quick proto-typing and getting product into production. Downside is that the printed parts are not as smooth as a part that was produced using a molding process. With Teralign using 3D printing it allows us to make changes as our users come up with good ideas. Please let us know any of your ideas you might have.

Mounting the payload release kit on the P3/P4

The Teralign payload release kit is designed to go on the back of the P3/P4. This way it will not block the down looking sonar and cameras of the drone.

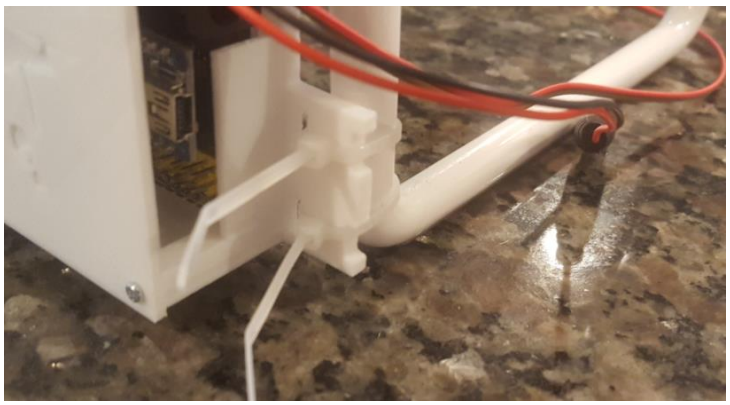
Step 1

On a flat surface put the Teralign payload release against the back of the Phantom.



Line up the holes of the dropping device to each of the legs of the drone.

Loop the zip ties through the holes of the base and around the landing gear of the drone. At first leave the zip ties loose until all four are in place then tighten them all.



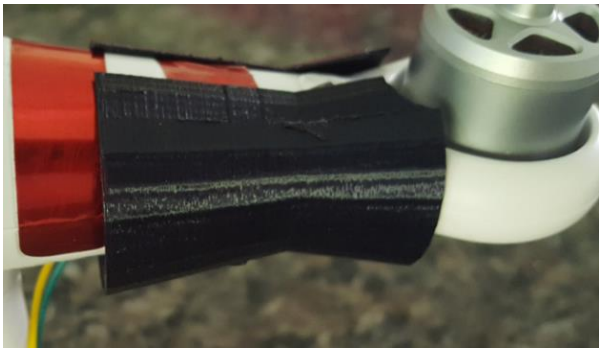
Should look like the picture on the right. For looks you might want to clip the zip tie leads. The base unit is now mounted. Simple, wasn't it?

Step 2

The dropping mechanism is triggered by the turning on and off the front lights of your Phantom. You will need to put the light sensor holder on your Phantom's right light, it is made to just snap on. Each change of state of the light causes the payload release to release one item.

P3

The P3 light sensor and holder is made to snap onto the right arm of the Phantom. It is black to lower the amount of light that gets to the light sensor. It is shaped like two cones put together. It is made in such a way that it does not block the vents on the arm.



It is a tight fit. Open it up enough to fit over the arm. The wires should be coming out towards the body of the drone like in the picture. Make sure the opening of the holder is at the top of the arm so the light sensor is touching the drones light at the bottom of the arm. See picture to the right.

P4

The P4 light sensor and holder is made to snap onto the end of the right arm of the Phantom. It is black to lower the amount of light that gets to the light sensor.

The P4 light sensor holder is designed to snap onto the end of the phantom arm over the light. Put the holder and sensor at the end of the right arm of the P4 and push it onto the arm.

When it is pushed all the way over the light it should look like the picture below.

The rounded piece at the end of the holder is designed to keep the sun light away from the sensor. The holder is designed to not block the motor or the venting.

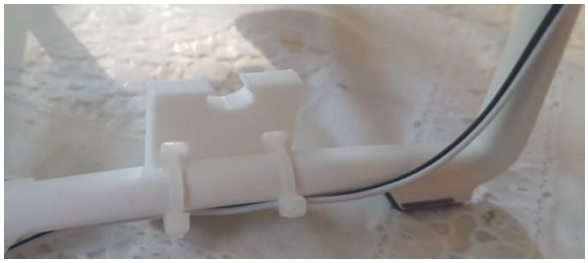
Step 3

For the P3 and P4 hook the wires coming out of the sensor to the wires coming out the of base unit. The wires just push together. The color of the wires does not mater it can be either wire can be connected to either wire.

Next use the zip ties to hold the wire along the legs of your drone as needed.

Your unit is now installed.

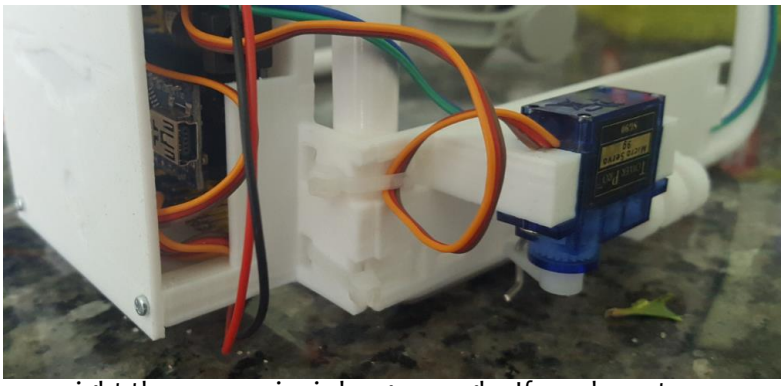
Base Extender



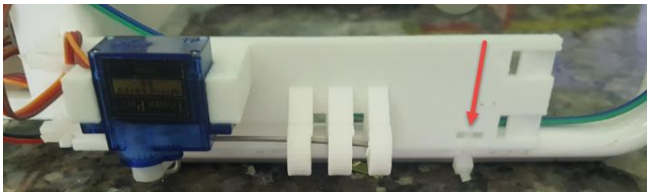
We have found when dropping two items sometimes the objects can get tangled during fight. To prevent this, one way is to keep the items on a short line as close to the dropping mechanism as possible.

One way we helped to prevent the entanglement of two items we included the Base Extender. It mounts on either one of the Phantom's landing gears. See picture to the right. Then run the line from the dropping servo through the base extender so one item drops from the side and the other drops from the back.

Adding the Side Drop



If you have the side drop mechanism, follow these instructions. If the servo for the side drop is not plugged into the electronic board, open the case with the four screws. You will see the servo that is plugged into the board at position D9. Plug the side drop servo into position D10 just right of the servo of the base. The brown wire goes at the bottom. If you have one side drop best to mount it on the right the servo wire is long enough. If you have two side drop mechanisms, then mount the 2nd on the left and it will need servo extender wires supplied with the 2nd side drop. Put the servo wires through the hole that the base servo wires go through. Plug this 2nd side drop servo into D11 with the brown wire at bottom.



The base and side drop units are designed to fit together at the corner and be zip tied together where they join. See the picture. Then on the side drop there is a slot to attach another zip tie to attached to the front of the drone's leg. See the picture the red arrow points to the zip tie attachment.

Dropping Order

With each turning on and off the front lights triggers a servo to drop an object. The order of dropping is: D9 servo 1st and 2nd, D10 3rd and 4th, D11 5th and 6th.

Turning the unit on and off

To turn on the unit just plug in the wires coming from the battery into the units plug. It was debated whether to have an off/on switch. It was decided against the switch because it added cost and weight and for something else to break.

Testing if unit works

Turn on the unit. The servo should now be closed. Then using your Phantoms controller turn on or off the front lights. With each click the servo should open so that one item is dropped. If this does not work contact us using the email above.

Dropping your first object

Connect what you are dropping to something that can be looped through the dropping device. We have found using fishing barrels pictured to the right is a good way to connect to dropping device.

Make sure the unit is turned off then put a device in dropping device and close the servo by hand. Then put the next item in the dropping device in the dropping mechanism. Now turn on the unit and the servo will totally close.