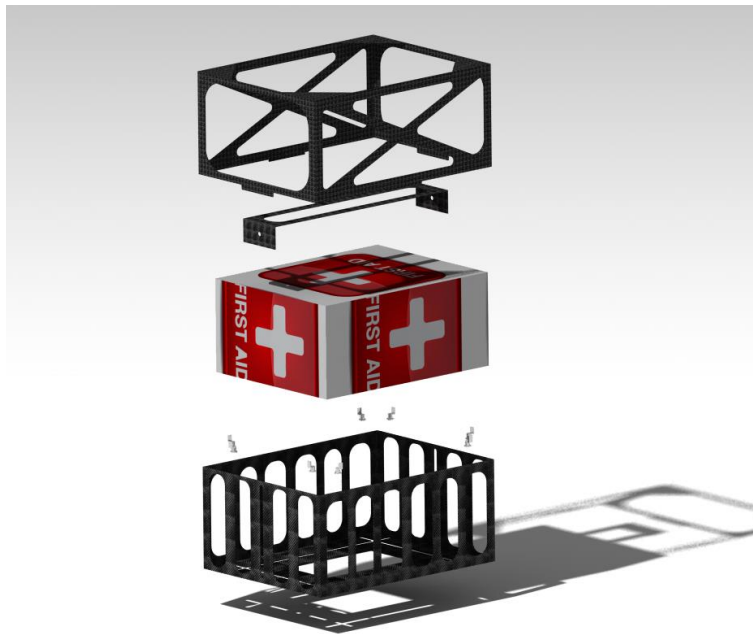




Report regarding Cargo Compartment

Hygeia Ex Machina



First Aid Cargo Drone

May 2016



Brief Introduction & Description

In this report the design of cargo compartment of the drone is briefly presented to demonstrate the main aspects of its shape, assembly features and operational benefits.

In Figure 1 the main parts of the cargo compartment are presented.

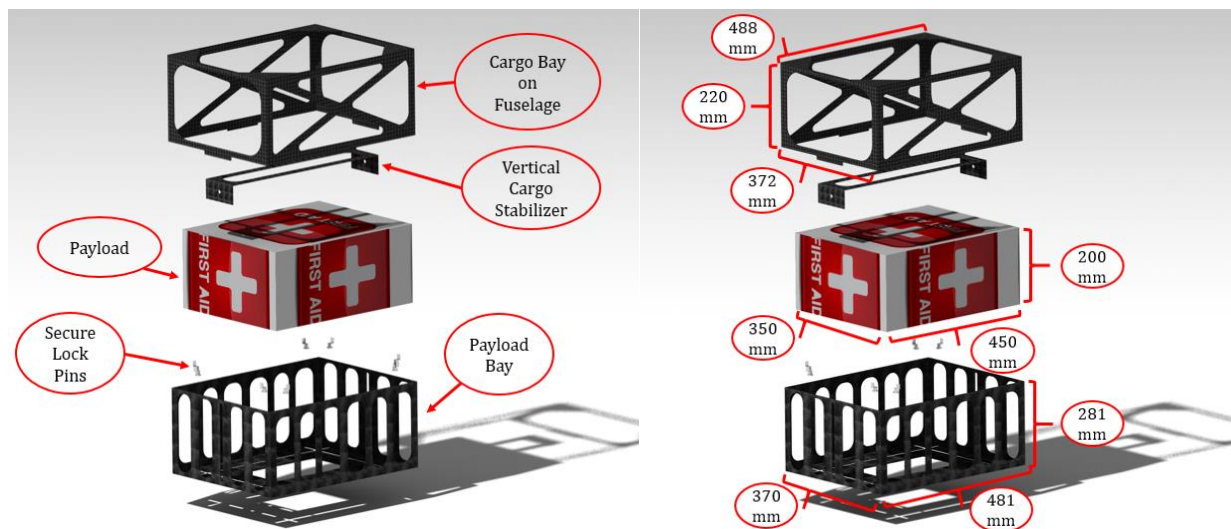


Figure 1: Cargo Compartment Parts Description & Major Dimensions

The main part of the compartment is the cargo bay which is made out of CFRP plates and is fixed on the fuselage to provide a rigid lightweight frame to support the payload bay.

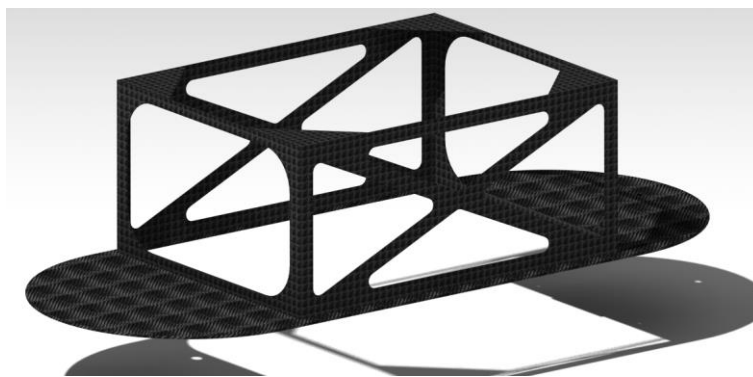


Figure 2: Cargo Bay on Fuselage Plate

The payload box is inserted inside the payload bay and it is secured in the horizontal plane using secure lock pins. These pins can be moved in proper slots in order to be adjustable for different payload boxes with various dimensions. In Figure 3 and Figure 4 the payload is presented inside of payload bay while in Figure 5 the payload bay is presented empty.



Figure 3: Payload inside Payload Bay



Figure 4: Bottom View of the Payload inside Payload Bay

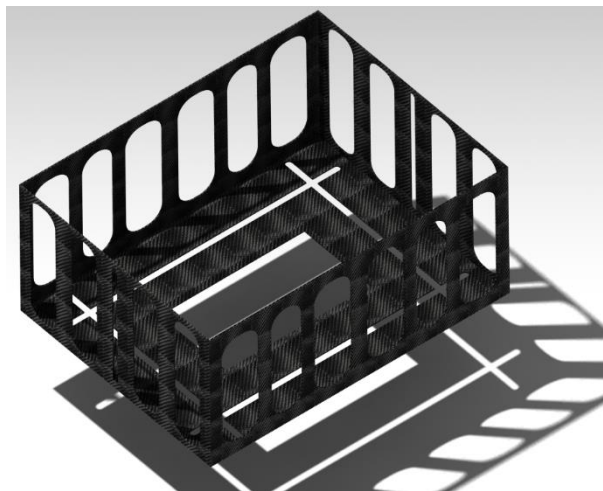


Figure 5: Payload Bay

When the payload is fitted the vertical stabilizer is positioned to restrain the vertical movement of the payload. The material out of which the vertical stabilizer as well as payload bay, is manufactured is hybrid carbon-kevlar composite to provide desired damping in case of turbulences and/or impact effects.



Figure 6: Vertical Cargo Stabilizer

Finally, the payload bay complex is inserted into cargo bay from the lower surface of the aircraft and it is secured using rotating lock hooks that they are attached on fuselage plate.