2023-24 Design, Build, Fly Q&A #6

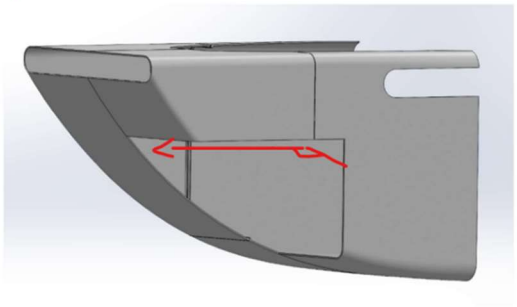
General Questions

1. Are we allowed to restrain the EMTs, crew, and passengers with friction fit?

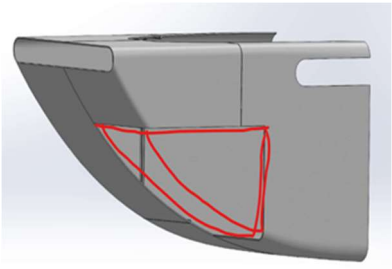
Answer: No.

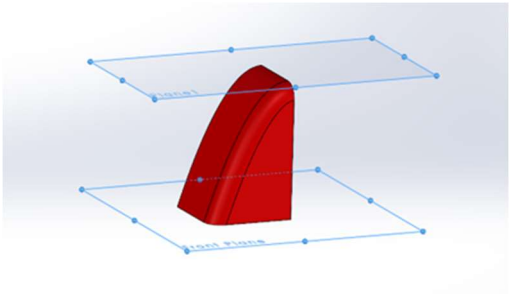
2. We have an urgent question / problem regarding the recent Q&A 5:

   In question 6, a blended hatch design is presented. The answer states the design is non compliant, since the longitudinal dimension of the hatch can not be verified. We are confused why this is so – wouldn't a tool like a square measure the largest longitudinal dimension of the hatch accurately?



   If the problem lies in complex geometry, can we provide a tool that would help the tech inspection to verify the maximum longitudinal direction of the hatch? For example a »positive« volume that takes up the space of the hatch opening, or something similar– the volume could be easily laid on one side and measured.





   If this is not okay, we could also provide some kind of a rig to ensure accurate, perpendicular measurement in the longitudinal direction.

   We are concerned, since our design is similar to the one above. According to this, we assume it would also be regarded as non-compliant, which is problematic since the aircraft is already constructed and there is 1 week to the competition. The whole aircraft design is based around the hatch, so even if we could rebuild it, that would probably constitute a major design change?

None of the previous rules or Q&A answers seemed to indicate there would be anything problematic with a blended hatch (As long as it is on the side, doesn't cross the centerline and is primarily vertical).?

Answer: The images provided in Q&A#5, Question #6, show a hatch that is not on a blended surface, but instead is an opening on two different surfaces. Since one surface is aft facing, this results in an opening that is not closed in the longitudinal direction and therefore cannot be measured. This is different from Q&A#2, Question #4 in that the opening shown is on top and has clearly defined edges in the longitudinal direction. Teams may not bring jigs or tools to tech inspection to aid with tech inspection.

The design presented at the end of the question above is on a blended surface and has a clearly defined hatch opening in the longitudinal direction.

3. My team wanted to confirm our floor design for the passenger compartment is within regulations. The floor of our aircraft is a single plane horizontal floor. It is a non-removable part of the configuration but the floor has hinges and opens (like a chest) to access and install our battery. That is the only time this floor access is used and locks in place. Is this configuration within legal parameters?

Answer: Access panels and hatches are allowed as long as the floor in the flight configuration meets all requirements as stated in the rules and Q&A.

4. [From Q&A#1, Question #57]: "Can we add velcro to the passengers/EMT/patient as a restraint system? Answer: Velcro is acceptable to use in the restraint system as long as it is verified to securely restrain the payload during Tech Inspection."

   We just want to confirm; does this mean we can attach/stick velcro directly to the wooden dolls? This velcro stuck onto the doll would then attach to the restraint system mounted in the aircraft. Additionally to this question could we put glue on the 3M sticky side of the velcro to ensure it's strongly attached/added to the doll?

Answer: The answer to Q&A#1, Question #57 was meant to confirm that velcro is an acceptable method of securing payloads. To be clear, there can be absolutely NO modifications or additions to the peg doll payloads by teams prior to starting a mission. Attaching self-adhesive velcro are any material or

component with an adhesive is strictly prohibited. Velcro harnesses or straps that simply go over or around the peg dolls without adhering to them are acceptable.

5. Regarding the temporary removing of fasteners/pins/retention devices, if I a fastener goes straight down through the wing into the fuselage, would "original location" be with respect to the holes in the wing or the holes in the fuselage? Furthermore, does "original location" also mean original position? Or could I replace the fastener into an upside down position? Say, screw from fuselage into wing rather than from wing into fuselage?

Answer. As a general rule, a threaded fastener must be replaced back into the threaded hole in the original orientation and a non-threaded fastener, such as a pin, must be place back into the first hole engaged in the flight configuration in the original orientation. But as always, a final determination will be made during tech inspection if the temporary removal and replacement of the fastener is compliant.