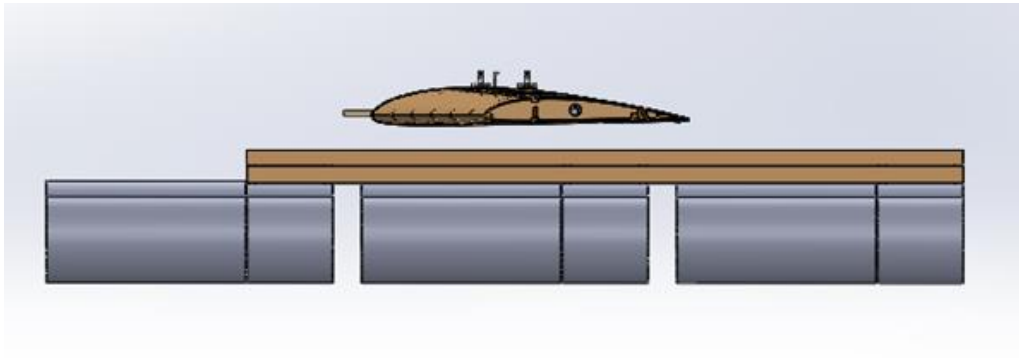


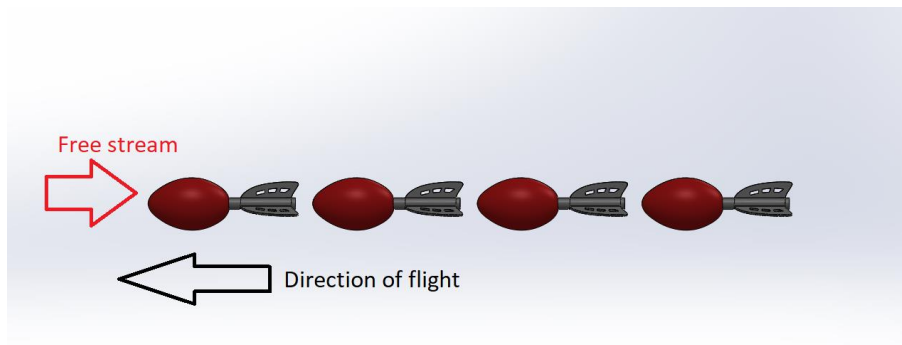
2018-19 Design, Build, Fly Q&A #2

1. Could part of the bomb be not exactly under the wing as below (Assume the armament is attached to the wing, unlike in the picture)? Some stores are not entirely under, but attached through an armament to the wing. Would it violate the interpretation of Rules under question 25?

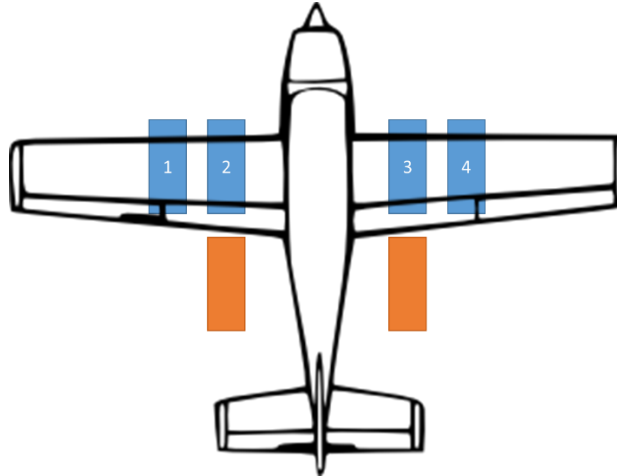


In the rules its mentioned about the spacing between the rockets and the aircraft. Can we mount the rockets in tandem configuration according to the spacing in the rules. Four of the rockets will be under the wing and the rest will be mounted in tandem configuration or we have to mount all of them side by side under the wing?

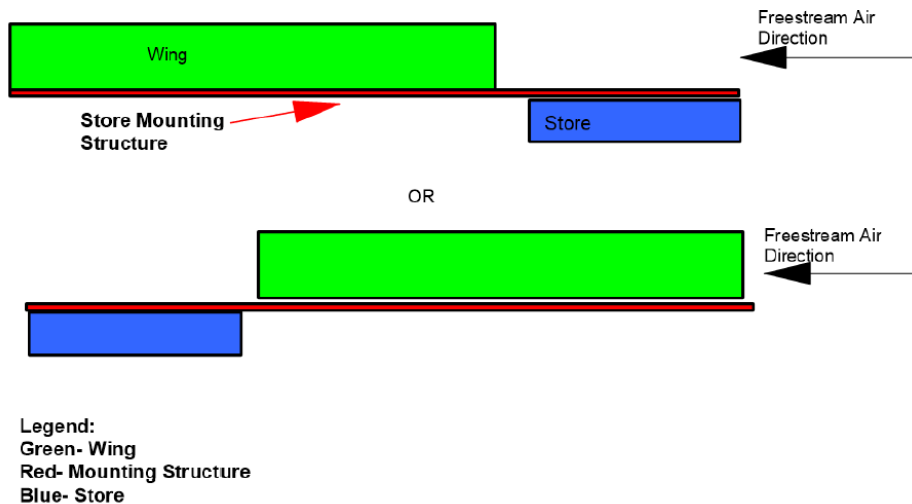
Can we place the attack stores in the arrangement shown below, with the tip following the rear of the next stores?



Answer: For the minimum requirement of four stores, these first four must be mounted laterally under the plane of the wing. There must be two on each side of the fuselage centerline as notionally shown below. The stores must have lateral separation (cannot be in line as shown above). For additional stores over the four minimum, these can be aligned behind other stores as also notionally shown below.



- For mission 3, is the attack store allowed to not be under the projected area of the wing but still physically under the wing? i.e. if the attaching mechanism protruded in front of the leading edge or behind the trailing edge of the wing and the attack store is also protruding but still attach below the wing does this still count as "under the wing." This situation is shown in figure [below].



Answer: As long as the mounting structure is attached to the wing and the store is under the plane of the wing, it is allowed (as shown in the picture above)

- The attack store shown in this photo in Q&A-1 is blocked by the fuselage. Does the attack stores counted as under free stream in this case?

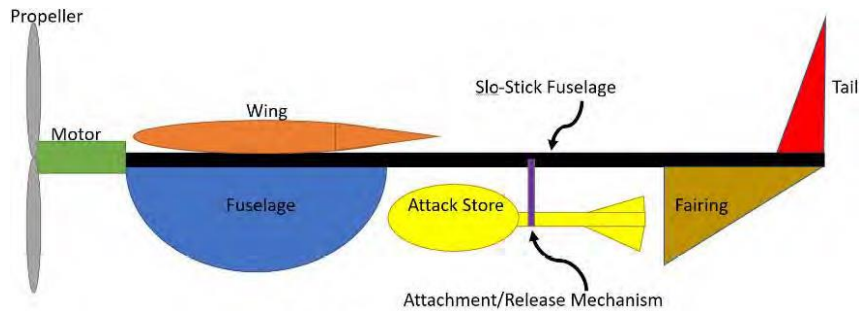


Figure 2. Attack store placement

Answer: As long as the stores are under and attached to the wing or fuselage via an attach structure as shown, it is allowed.

4. Is there a maximum number of attack stores? For example, if we are able to fly 7 laps and successfully drop 7 stores within the given time frame, would we get 7 whole points for that mission?

Answer: No maximum number of stores. The above example is correct.

5. Will the take-off ramp required for the takeoff of the aircraft be available in the competition area? or will we bring to the competition area?

Answer: The take-off ramp will be provided at the competition. No teams should bring their own ramp for the competition.

6. The aircraft will be folded to fit in a box of 3X2X2 feet. How do we fit in this box? So the 3-foot-long edge is the maximum wingspan folded for us? And the 2-foot edge shows the maximum body length?

Answer: Examples were shown in Q&A#1.

7. Will the box used for the plane be different before the ground mission? Will the ground mission box be 10X10 feet in size? (DBF rules page 13)?

Answer: Two different boxes. The 3x2x2 is for tech inspection for the aircraft requirements. The 10x10 box is the size of the area on the ground in which to conduct the ground mission. The two are not related.

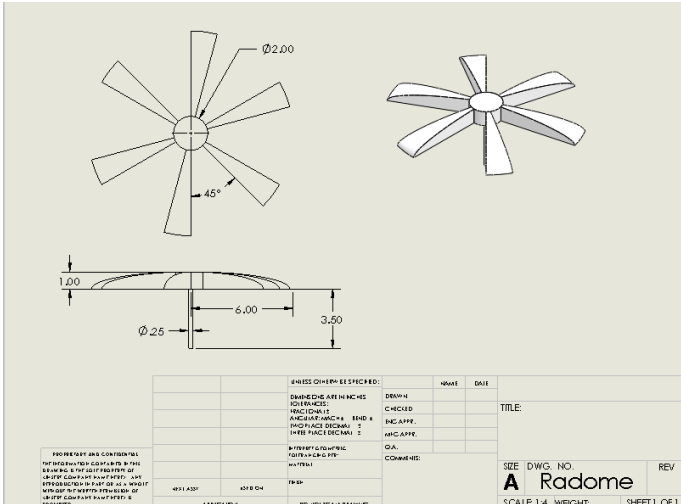
8. Are we going to assure the Attack store? or will it be given to us in the competition area?

Answer: The stores will be provided at the competition.

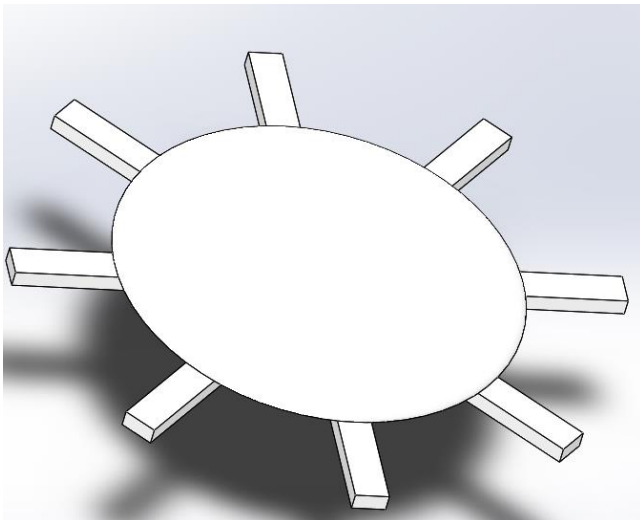
9. Does the plane have to be single-winged?

Answer: No.

10. From the rules, the radome "Must be 12 inch minimum diameter and 1 inch minimum thickness in the center (attachment point)". Is this shape allowed?



Given that it looks a bit strange, a would the following modification be allowed



Answer: Neither of these shapes are allowed. The radome must be a 12 inch continuous circle.

11. What is the trajectory of the take-off ramp? Is it linear?

Answer: It is linear. It is a flat 10 x 4 ft surface.

12. Can the radome go under the plane? Most radome designs we see are mounted above the aircraft fuselage. Would it be okay to mount the radome in-line with the fuselage or even below

Answer: The radome could be mounted underneath as long as it is parallel to the horizontal plane of the aircraft and meets all other requirements.

13. When the airplane is taking off, how is the landing gear configured relative to the ramp?
For example, does the furthest most landing gear start at the bottom of the ramp? Or, does the rearmost landing gear start at the bottom of the ramp?

Answer: The requirement is that all landing gear are in contact with the ramp at start of take-off.

14. If the holding mechanism is large, does it count as covering the attack stores?

Answer: It cannot enclose the store or create a “fairing” around the store as explained in Q&A#1.

15. Can we use a claw to hold the attack stores?

Answer: The method of attachment is up to each team as long as it meets the requirements in the rules and Q&A.

16. can we add stoppers between the attack stores? i.e. blocks between the attack stores?

Answer: There must be a minimum of one half inch between stores.

17. For each flight missions, can there be components from one flight mission there are not a part of another flight mission. For example, if there is a removable door or hatch that is on the plane in mission one but is replaced by a different hatch for mission two, is this allowed?

Question regarding the drop mechanism for the attack stores: Is it allowed to remove the mechanism for the first and second flight mission or does it need to be fixed on the aircraft for all missions?

Can a fairing be added in place of an attack store for M1 and M2 when teams don't need to carry the attack store so that there isn't a void as shown in Figure [below]?

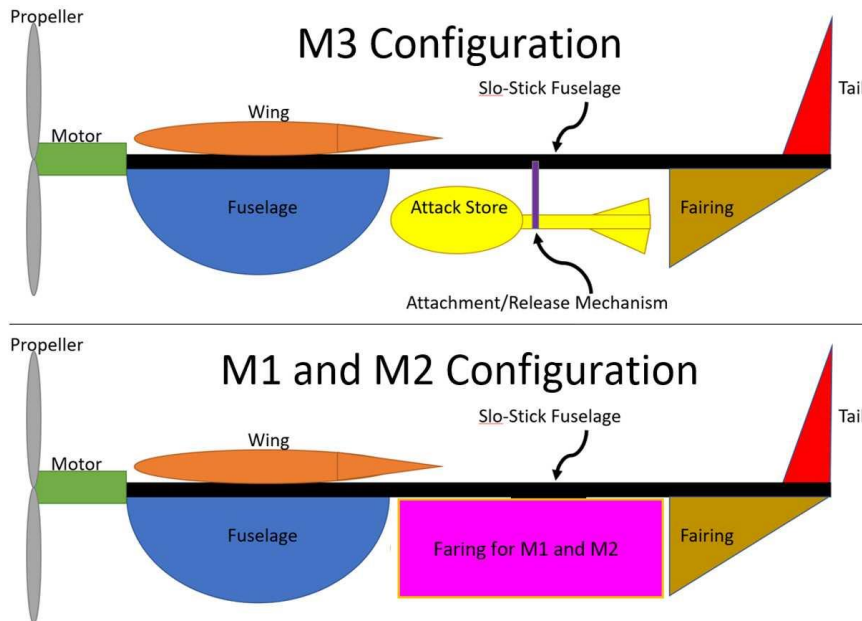


Figure 1

Answer: Other than the stores and radome and batteries and propellers, the aircraft cannot change configurations for each mission.

18. If there are multiple fuselage can there be multiple tailhooks as well. So if there are three fuselages, therefore three fuselage center-lines, can there be three tailhooks on those three center-lines?

Answer: Only one tail hook is required on the aircraft centerline.

19. What is the video resolution and format requirement for the proof of flight?

Answer: There are no specific format or resolution requirements. However, the video must be sufficient for the tech inspector to determine that the airplane in the video is indeed the one brought to tech inspection clearly.

20. Do we need to include take-off and landing in the video? What is the duration for the video?

Answer: The only requirement specified in the rules is straight and level flight. The duration need only be enough for the tech inspector to confirm the requirements are met.

21. Are we allow to use tools to hold and release the tail hook at take-off for safety reason?

Answer: No, the tail hook must be released by hand by the ground crew member. It is up to the teams to design a tail hook and access to it safely.

22. Is the mounting device required to be installed on the aircraft when it is passing through the 3ft x 2ft x 2ft box?

Answer: Everything but the radome and stores must be part of the aircraft configuration when passing through the box.

23. Does the aircraft need to pass through the 3ft x 2ft x 2ft box before each mission?

Answer: No, only in tech inspection.

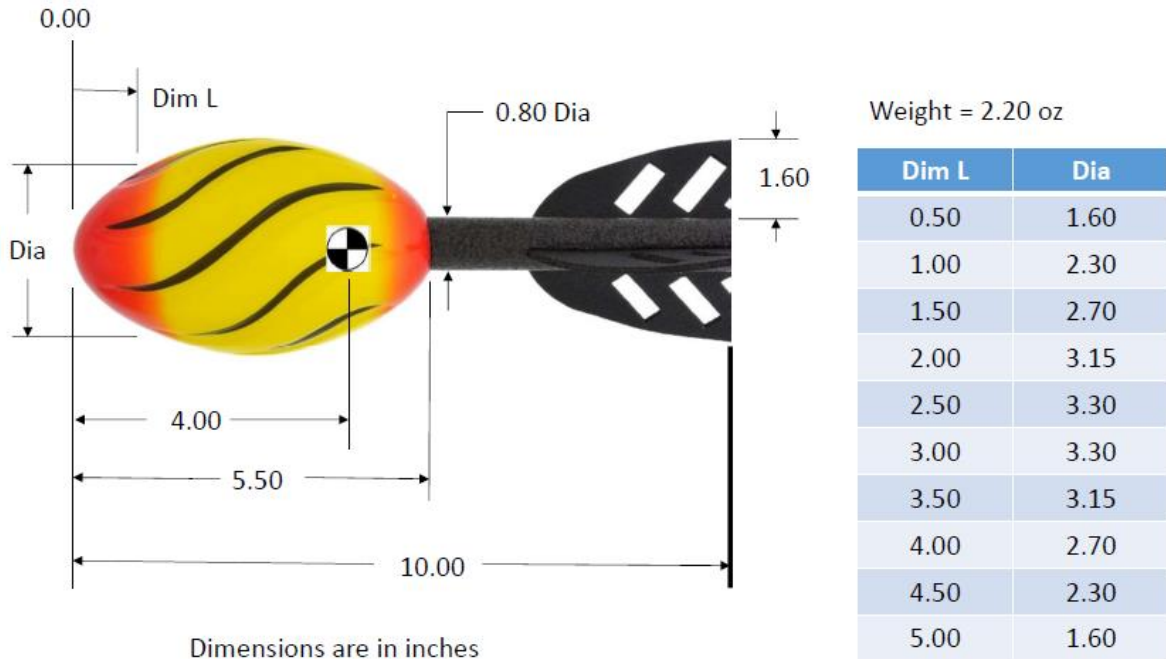
24. The rules say that a video of the plane flying must be shown before the hardware inspection. Does this video need to be submitted with the final report before 22nd February 2019 or can it be submitted any time prior to the contest fly off date?

I am writing to find out when the proof of flight video is due for submission? Are we supposed to submit the video with the design report?

Answer: The video is to be brought to tech inspection and shown to the tech inspector.

25. In rules it's stated approximate 3 oz and in Q&A it's given 2.25 oz. Could you help us out with this?

Answer: The store in original rules is no longer available. It has been replaced by a similar item as shown below. The weight of the new store is 2.20 and is expected to be within +/- 0.10 oz of this value or better.



<https://www.dollartree.com/two-tone-missile-foam-footballs-12-in/252857>

26. I have a question regarding the tail hook, can it be attached at the center line of the plane, exactly at the back of the tail?

Answer: It is required to be on the centerline and must be located such that the ground crew member can restrain the aircraft during power up at take-off.

27. For the ground mission, the rules state that we must attach and individually deploy 4 stores. Do the four stores need to be under the wing or can we attach/deploy a store that's under the fuselage?

Answer: It must be the minimum four stores required to be under the wing.

28. For further clarification of Q&A #1 Question 6, if we use aerodynamic forces to spin the radome during flight, then during the ground mission are we allowed to blow on the radome to simulate aerodynamic forces to make it spin?

Answer: It is up to each team to demonstrate that the radome will rotate on command in flight and stop on command as required by the rules during the ground mission.

29. When attaching stores for the ground mission (see Figure 2), can we attach both the mounting hardware and the stores onto the aircraft at the same time since we can remove the hardware for M1 and M2 (Scenario 1) or does the mounting hardware need to already be on the aircraft and only the store can be attached (Scenario 2)?

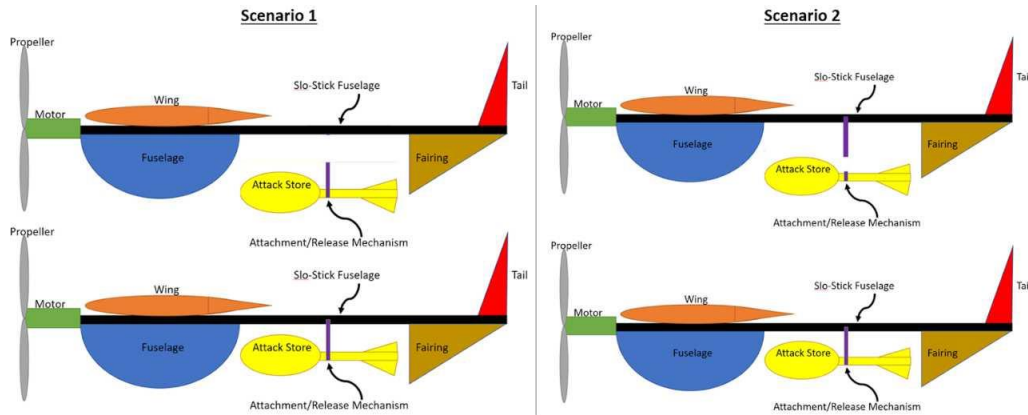


Figure 2

Answer: Scenario 2. Only the stores are not attached when entering the staging area.

30. During the process of designing our aircraft's electrical system, our team has encountered a question regarding the use of multiple arming plugs: is the use of multiple arming plugs permitted?

Answer: Yes.

31. Is magnet regarded as a valid mechanical locking mechanism?

Answer: No.

32. Can part of the radome to be zero in thickness but fulfilling the requirement of minimum center thickness and minimum diameter?

Answer: It is not possible to be zero thickness but there is no requirement for a minimum thickness other than the center as specified in the rules.

33. In previous years competitions, teams were able to use tape to cover certain plane components prior to take off. In this years competition, would a team be able to cover "joints" along the wing folding after the plane has been deployed to flight configuration?

Answer: No.