



2022-23 Design, Build, Fly Q&A #1

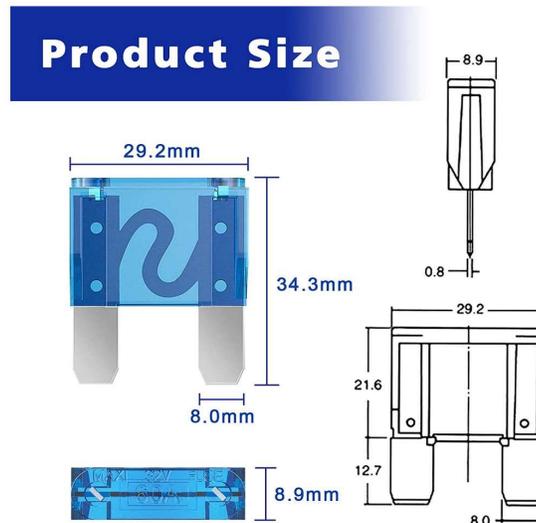


General Questions

1. Can you please specify in more detail the 'blade' style fuse?

Answer: Blade style fuses are commonly used in automobile applications and an example can be found at the website below and as shown in the figure below.

https://www.amazon.com/Maxi-Blade-Assortment-BUSY-CORNER-Pieces/dp/B0BJPCLXSC/ref=sr_1_10?keywords=100+amp+blade+fuse&qid=1668696364&sr=8-10



2. Can we use different spar connectors (tubes) for the different missions?

Answer: No. The aircraft configuration cannot be altered during the competition and must be as presented in the Design Report and tested at Tech Inspection.

3. Can you please specify in more detail which types of 'fasteners' are allowed?

What type of fastener will be used to hold the antenna to the edge of the wing

Answer: Fastener selection is up to each team to decide.

4. Does the RC transmitter have to be in shipping box as well?

Does the transmitter have to be in the shipping box?

Answer: No.

5. Does the box have to be something we buy (like an actual shipping box), or can we manufacture it to measurements that would be more beneficial to us, so long as it complies with the 62" rule?

Answer: The shipping box can be purchased or manufactured.

6. Does the Aircraft have to be a mono-wing, if not which wing would the antenna need to be mounted?

Answer: The aircraft does not have to be a mono-wing. The antenna would need to be mounted on the upper wing if multiple wings are used.

7. Is the antenna adapter counted in the wingspan?

Answer: No, but it cannot be a wing extension with lift capability; it must essentially be just large enough to secure the antenna pipe.

8. Do both sets of wings have to be identical? Can they be different i.e. different airfoil/ control surface sizes?

Answer: For flight safety consideration, both sets of wings must be of the same design.

9. Can a non-traditional drivetrain be used without modifying motors? I.e. contra-rotating gearbox, etc?

Answer: Yes but it must be commercially procured and unmodified.

10. Are there other limitations on the method in which the wings are attached to the fuselage?

Answer: The method of attachment of the wing sections is up to each team to decide.

11. The jamming antenna must be securely fastened to the wing tip. What is defined as the “wing tip”? Is this the end of the airfoil section that provides lift to the wing, or is it the end of all of the structure that makes up the wing (i.e. the widest point of the entire aircraft). Does the antenna have to be located within some proximity of the wing tip, or does it have to be mounted outside of the wing tip?

Answer: The wing tip is the outboard end of each wing section as shown in Figure 1 of the rules. It does not include the antenna adapter which is mounted to and outboard of the wing tip.

12. Does the shipping box go through any structural simulations?

Answer: No.

13. Do all batteries brought to comp have to be in the shipping box for mission set up or just the batteries being used for the mission have to be in the box?

Answer: Only the batteries used for a mission must be in the shipping box or installed in the airplane at the start of the mission.

14. Can we use magnets to secure doors or removable pieces?

Answer: No.

15. What special provisions are made if the CG doesn't fall within the wing tip chord length?

Answer: If the CG does not fall within the wing tip, the teams will coordinate with the Tech Inspector to implement the required wing tip test. Are the maximum dimensions of this box 62.00 inches x 62.00 inches x 62.00 inches, or is the sum of the box's dimensions 62.00 inches maximum?

16. In the rules it says height+length+width= 62 inches. Does this mean that the height, length and width all together has to be max 62 inches or does it mean that the different factors height length and width have to be each max 62 inches?

Answer: As stated in the rules, it is the sum of the length of the three sides of the box (length + width + height).

17. "All Jamming Antennas must be carried in the shipping box for all missions." What does this mean for during mission 3 when one antenna needs to be mounted on the edge of the wing?

Answer: Teams get to select which antenna they want to use for each M3 attempt if they have more than one antenna.

18. If we decide to add winglets, can we make them foldable onto the wing? Will this be considered a wing modification?

Answer: Winglets can be added and the design implementation is up to each team but must not protrude beyond the wing tip (i.e, cannot be outside the jamming antenna adapter or counter-weight).

19. What are the components that can be fixed to the fuselage without requiring assembly in the aircraft staging phase before each flight mission? (eg. battery, ESC, motor)?

Answer: Only the wing sections and payloads are required to be uninstalled prior to entering the staging box or at the start of the ground mission. All other components and subsystems may be installed prior to the start of the mission.

20. Can we have a permanent fixation on each wingtip to install the ground fixture or the jamming antenna adapter on using the two fasteners?

Answer: Yes.

21. Do the outer dimensions of the shipping box include the handle and trolley wheels?

Answer: Measured dimensions will not include movable items such as folding handles but will include fixed items such as wheels, latches, etc.

22. If a coin is flipped twice and the result is "head" then "tail", which wing set will be chosen?

Answer: The first coin flip is for the left wing section and the second coin flip is for the right wing section. In the example above, the L1 and R2 wing sections would be selected.

23. For a dual motor configuration, can the motors be installed into the wings permanently or do the motors have to come off the wings fitting with the modularity theme?

Answer: The motors are not required to come off but if permanently attached, they must be included in each of the four wing sections in the shipping box.

Ground Mission

24. Of which type/form are the weights used in the Ground Mission?

Are the GM weights provided? What increments are available? What is the attachment method?

For GM, are weights provided or do we bring our own? If weights are provided, what dimensions are they?

Answer: Each team will provide their own weights in the configuration and increment of their choosing, including any adapters for attaching to the fuselage as allowed in the rules.

25. Can the two ground test fixtures be connected for a safer stand?

Answer: Yes.

26. Can the ground test stand have pinned joints where the aircraft attaches so no moment is experienced at the wing tips?

Answer: Yes.

27. Are we allowed to use power tools (i.e. Electric Drill/Driver) during the assembly of the aircraft for the Ground Mission?

Are tools permitted to be supplied by the team for use during the ground assembly mission?

Can power tools be used during the assembly?

Do the tools needed for assembly need to be inside the shipping box or can they be stored separately?

Answer: Yes, but power tools and ALL tools used for the assembly of the aircraft in the staging box or during the ground mission must be in the shipping box at the start of each mission and are included in the 50lb weight limit

Payloads

28. Can the pipe be cut off at an arbitrary angle?

Answer: No. It must be cut perpendicular to the pipe axis.

29. Are holes in the pipe allowed for fixation?

Does the “unmodified” means that cannot drill any holes on the pipe such as for installation on the wing tip?

Answer: Holes are allowed for attaching to the adapter. No holes are allowed above the adapter.

30. Are external reinforcements for the antenna allowed?

Can guy wires be attached from the cap of the antenna to the fuselage?

The rules clearly stated we are not allowed to have internal support for the Antenna. Can we have external Support? If we do, does the length of the Antenna start from wherever the support ends?

Answer: No.

31. Can the antenna start in a horizontal position and be raised during flight? What phase of flight must the antenna be vertical?

Answer: The antenna must be installed in the vertical position via the adapter in the staging box and remain in the vertical position throughout the mission.

32. Can the pvc pipe be at an angle from the wing instead of being tangential to the wing?

Can the antenna be installed in a position that is not perpendicular to the wing as shown in the diagram in the rules? That is to angle it in towards the fuselage? If so, is the score for mission 3 determined from vertical height perpendicular to the wind or by length of the antenna

Answer: No, it must be perpendicular to the wing as shown in the rules.

33. Does the C.G. of the Electronics Package have to be at its geometric centre?

Answer: No.

34. Can we have a replica antenna as a counterweight?winglet?

Can we just add another antenna to the other side to counter balance? If we choose to do so, the antenna-shaped counterweight would not need to be attached for missions 1 and 2? There was no specification for what the counterbalance was allowed to be.

Can we install a second antenna as a counterweight on the opposite wing than the one chosen in the coin flip?

Answer: No, only a counter-weight as allowed in the rules. The counter-weight must be essentially the same dimensions as the antenna adapter – cannot extend further outboard than the antenna adapter or above or below the wing. The antenna must be mounted on the side of the aircraft opposite the flight safety line in the takeoff direction as stated in the rules and is not based on the coin flip.

35. The rules clearly stated that the Antenna needs to be unmodified, we are trying to simulate the antenna like a cylinder in a flow and further reduced to a sphere. Just like a golf ball, can we add materials/norches/vortex generators to the Antenna to make sure the flow on the Antenna stays attached? (hypothetical)?

Answer: The PVC pipe cannot be modified (except for attachment to the adapter as clarified in Q&A#1 question #29).

36. Rules say “unmodified pvc pipe”, but a criteria for the pipe is length. Can we cut a longer pipe shorter or does that count as modifying the pipe?

Answer: The antenna(s) can be any length each team determines and the length cannot be modified after Tech Inspection. The reference to “unmodified PVC pipe” is with respect to inner and outer diameter or to the external surface of the pipe.

37. Is the ½” referring to the inner or outer diameter of the pvc?

What does the “1/2inch” refer to? Is it the length of inner diameter or the length of outer diameter of the PVC pipe?

Answer: The ½ inch is referring to the standard size of Schedule 40 PVC in accordance with ASTM-D1785 as stated in the rules. Teams will need to refer to the ASTM document for exact dimensions.

38. The rules say “The Jamming Antenna will be securely attached to the wing tip with two fasteners using an adapter of the team’s design;” If a fastener is part of the adapter (and it will never be removed from the adapter), does this count towards our limit of two fasteners? Or is the requirement to basically use 2 fasteners to attach the adapter to the wing tip? If the functional mechanism of a clamp is a screw, does that count towards one of our fasteners?

Answer: Only two fasteners are allowed to attach the adapter to the wing tip. Any fasteners used to attach the antenna to the adapter do not count towards this requirement.

39. The rules say that the antenna must be unmodified; if the antenna is glued to the adapter, is it considered modified or unmodified? If winglets were added, and the antenna mounted outside of the winglet (no direct contact with the winglet outside of fastener), would the antenna height be measured from the adapter, or the tip of the winglet?

Answer: Modifications to the PVC pipe for attachment to the adapter are allowed within the volume of the adapter. The length is measured from the top of the adapter as stated in the rules.

40. The rules said max payload weight should be declared at tech inspection for mission 2. Does that mean we are allowed to bring more than one payload with different weights to optimize mission score?

Answer: Only one Mission 2 payload is allowed. The weight of the payload can be adjusted to achieve a desired mission score but cannot exceed the weight declared in tech inspection.

41. If the payload has the same volumetric size as the requirement, can it have a size smaller? That is if it is a cylinder payload, if its volumetric size is equivalent, can it have a radius of less than 3 in?

Answer: The Mission 2 payload must meet the requirements stated in the rules which is a box.

42. Does the antenna have to attach into the side of the wing? If we design wingtips, can we install the antenna into the wing surface from a top down view?

Answer: It must attach to the side of the wing tip as shown in the rules as this is also the ground mission test fixture mount.

Power

43. Is the propulsion power stored requirement verified from the battery specs or a power measurement?

Answer: It is determined by the unaltered, manufacturer's original label on each battery.

44. If we use a servo battery, does it need an arming plug, switch, and blow out fuse?

Answer: The Rx/Servo battery does not require an arming plug or fuse. The rules require that there must be an externally accessible switch to turn on the radio control system.

45. Are burst amps over 100 amps allowed?

Answer: The current must be within the capability of the fuse.