

Aero Design Virtual Technical and Safety Inspection for 2021-Micro class

Aero Design is introducing a virtual inspection process.

Teams will use this PowerPoint to photographically document that their aircraft meets all General, Class and Safety requirements.

For each numbered line item on this PowerPoint, attach a photograph that clearly shows that detail on your aircraft. Please crop and edit photos as needed. If the photo does not clearly show the requested detail, our virtual inspectors will contact you and will ask for a better photograph. Please double check your submissions to make sure each photo clearly shows the designated inspection item.

If you need more room for a suitable photo or photos, feel free to add additional pages to this document. Please keep all the numbered requirement notes. Please limit total file size of this submission to 25 MB or less.

Please include a separate inspection form for any spare aircraft, as well.

As some inspection items cannot be documented with a photo, teams will affirm in writing that their aircraft meets these requirements. These requirements are listed at the end of this PowerPoint.

Please see the Aero Design web site for the correct deadlines for all submissions, including this one.

All aircraft will undergo a safety inspection, radio system and power system functional check and a spot check for other inspection items at the validation event before the flying competition begins. Please note that Aero Design reserves the right to inspect or re-inspect an aircraft for any rules requirement at any time during the competition. Additionally, the aircraft must be compliant with all rules throughout the competition.

Team number:

Team name:

University:

Contact email for inspection questions:

Fill In your team number, team name, university name and email

Aircraft overview

1. Please submit three overall pictures of your aircraft: A top view picture, a side view picture and a front view picture. Please make the views match the views on your 2D drawing. These photos will be used to compare your overall aircraft configuration and design details to your 2D drawing and reports. For Micro class, please include the external payload attached to the aircraft

General aircraft requirements

These are the same for all aircraft classes

2. Aircraft conformance to 2D drawing: Using a tape measure and carpenter squares or similar tools, measure and record the wingspan , overall length and overall height of the aircraft. Tape measure must be taut and straight. Document each measurement here and fill in your actual measured aircraft measurements, not the measurements on your 2D drawing. Attach a photo of each overall measurement operation, with a close-up detail photo of the actual number on the US tape measure as the measurement is taken. Please use the same precision as your drawing.

Actual Wingspan: Actual length: Actual height.

General aircraft requirements: These are the same for all aircraft classes

3. Aircraft ID: Required: 3" team numbers for Regular and Advanced class, 1" team numbers for Micro class : Team number on top and bottom of wing, Team number on both sides of the fuselage or tail, university name or initials on the outside of the aircraft and university name, address and email address on the inside or outside of the aircraft. Photos as needed. Place a US ruler next to the team numbers to document their size.

General aircraft requirements: These are the same for all aircraft classes

4. Aircraft has positive mechanical steering on the ground. Note that for 2021, Micro class must take off and will have landing gear, so must meet this requirement. Picture should show the steerable landing gear and the attached linkage.

5. Aircraft has a spinner or model aircraft type safety nut installed that meets the rules requirements.

General aircraft requirements: These are the same for all aircraft classes

6. Red arming plugs: Aircraft must have a discrete and removable red arming plug

Red arming plug must be installed externally on the top surface of the aircraft.

Arming plug for Micro class is located at least 6" behind or in front of the rotational plane of the propeller

Red arming plug receptacle cannot have more than one exposed male connection lead.

One closeup of the plug and socket, plug not installed and a photo showing the plug location on the overall length of the aircraft.

7. Battery must be properly secured (cannot move) against all flight loads. Battery compartment or bay must be free of any mechanical hardware that could damage or penetrate the battery in the event of a crash. One photo showing both, or one of each. Forward wall of battery compartment must be clearly visible.

General aircraft requirements: These are the same for all aircraft classes

8. All servos and control linkages secure and properly installed. All clevis type connections must have a mechanical keeper. Receiver mounted securely. Attach a properly labeled photo of each linkage and servo installation and a photo of the installed receiver.

General aircraft requirements: These are the same for all aircraft classes

9. Empty CG Design requirement and Empty CG marking:

Aircraft empty CG is located in a safe flyable position, aircraft has the fuselage clearly marked on both sides with a classic CG symbol, min. .5" in diameter, centered on empty CG location. Empty CG position matches submitted drawing. Submit one photo showing the location of the CG symbol, with a ruler showing the location relative to the wing leading or trailing edge, and one photo showing the aircraft being suspended horizontally, free to tilt up or down, at the marked CG.

10. Aircraft uses a 2.4 GHz radio control system. External TX antenna, if used, is undamaged.

Picture of TX, showing TX type and showing an undamaged external TX antenna, if used.

Micro class inspection items.

1. Wingspan is 48" or less. Show overall picture of tape measure making a true span measurement, pulled taut, with a closeup photo of the number on the tape measure. . You may use the wingspan picture from the overall measurements page here.

2. Battery must be a clearly marked, commercially available Lithium polymer pack, with a maximum of four cells. The pack can be any size and any capacity. Take photo of battery label.

Micro class inspection items.

3. Cargo Bay. Cargo Bay fully enclosed and fully encloses all payload plates Only one Cargo Bay on aircraft.
Photo of bay open. Photo showing that the bay is fully enclosed.

4. Micro Class Power Limiter: Aircraft has unmodified 2021 or newer version 450 watt SAE Power Limiter installed. Power Limiter is fully visible and easy to inspect. Power limiter is properly installed and mounted securely. Power circuit contains RX, battery, ESC, arming plug and limiter only: no other electronics allowed. One photo showing the label of the limiter and how it is attached to the aircraft and another showing the wiring to the motor, battery, limiter and ESC.

Micro class inspection items attested to by teams, no photos required.

- 1. No lead used in any part of the aircraft or payload.**
- 2. No metal prop.**
- 3. Aircraft must be structurally sound and capable of flight without payload installed.**
- 4. If ballast used, must be securely mounted and not installed in payload bay.**
- 5. Aircraft is powered only by the electric motor or motors installed on the aircraft, with no other forms of stored potential or kinetic energy on the aircraft.**
- 6. The assembled aircraft has been carefully examined for warps and other misalignments in the wings and tail surfaces and that all parts are mounted securely.**
- 7. The team has safely powered up the completed aircraft, with the prop removed, and has accomplished a complete functional check of control surface movements and motor rotation direction and confirms all systems are responding correctly.**

By submitting this document, teams officially affirm that each of these line items meet Aero Design rules and requirements.