



Air Vehicle Pilot Qualification Checklist

Students must demonstrate sufficient understanding of RC operation and ability to maintain control of a flying vehicle to operate their air vehicle at the challenge event. Teams who are unable to demonstrate the following concepts will have a pilot provided for them at the challenge event.

Pre-flight

- FAA registration and general RC safety
- Battery safety
- Knowledge of RC transmitter operation and how they relate to the vehicle
- Flight worthiness of vehicle (See Flight Worthiness Guidelines)

Flight

- Take offs and landings
- Ability to hover in place and change altitude in a controlled manner
- Ability to move in a commanded direction
- Ability to fly within a contained space "tail-in" (nose of vehicle always points away from operator)
- Ability to fly a simple pattern with vehicle nose pointing in direction of motion
- Ability to hover nose-in or recover any orientation to tail-in without losing control



Air Vehicle Flight Worthiness Guidelines

All air vehicles will undergo at least two flight worthiness checks; once at the pilot certification event, and once on challenge day. Deficiencies will be allowed to be fixed if time allows, but repairs will still require a flight worthiness checks. Flight worthiness will be determined by the lead coordinator for the air event or an experienced RC pilot in accordance with Academy of Model Aeronautics (AMA) Safety Code. Flight worthiness results are at the sole discretion of the inspector and are final.

Here are some general guidelines for constructing a safe multirotor air vehicle:

- Make the airframe as sturdy and rigid as possible. Minimize flexing and bending.
- Make sure the flight controller is vibration isolated. Low density 1/4" thick foam with adhesive on both sides is an inexpensive and effective solution.
- Make the airframe as light as possible.
- No loose parts. All components should be secured to prevent shifting in flight.
- Rotor paths should be free from all possible obstructions such as wires, electronics, etc.
- No metal rotors.
- If soldering electronics, ensure all solder joints are properly formed.
- Center of gravity for the vehicle with and without the payload should be at the geometric center of the vehicle.
- Payloads should be attached below the center of gravity.
- Payload attachment should be sufficient to prevent it from falling off. Velcro is not sufficient unless it is part of a band that encircles the payload.
- The payload should not make contact with the ground when the vehicle is not flying. Ensure your landing gear is tall and strong enough to support the weight of the vehicle and the impact of hitting the ground at 5 feet per second (drop from approximately 4.5 inches.)
- Battery should be easily removed from the vehicle, but secured well enough to not be ejected in a crash.