**Purpose:**

To provide a step by step checklist to prepare before flying a UAS.

**Definitions:**

UAS: An unmanned aircraft system (UAS), sometimes called a drone, is an aircraft without a human pilot onboard – instead, the UAS is controlled from an operator on the ground.

AGL: Above Ground Level

VLOS: Visual Line of Sight

VO: Visual Observer

PIC: Pilot in Command

NOTAM: Notice to Airmen

TFR: Temporary Flight Restriction

**Procedure:**

1. **PREPARE**
   1. **FAA PREFLIGHT CHECKLIST**

The FAA created a preflight checklist for UAS pilots to review, you can find more information on each item in the checklist below. You can also visit the [FAA Website](https://www.faa.gov/news/updates/media/2015-FAA-383-UAS_Holiday_Pre-flight-checklist_1200x627_ae05.pdf) for more information on guidelines and regulations.

* 1. **BATTERY CHECK**

Make sure batteries are fully charged. Depending on battery capacity, pack extras if needed for extended flight time. Do not leave batteries plugged in to charger after it has reached its full charge.

## *Warning*: If Lithium polymer (LiPo) batteries are swollen, damaged or leaking do not insert in aircraft.

*Recommended:* [LiPo Safe Bag](https://hobbyking.com/en_us/batteries/battery-accessories-adaptors/lipo-safe-bags.html)

* 1. **GROUND STATION**

Make sure your PC or mobile device is compatible with the UAS - refer to the manufacturer's specifications. Check to make sure all connection cables and devices are included, in proper working order, and the PC or mobile device is fully charged. Keep in mind that some Apps are optimised for particular devices and operating systems (ex. iOS or Android).

## MEMORY CARD

## The SD Card inserts into the aircraft’s designated SD slot. The amount of memory needed depends on the scope of the flight mission.

## *Recommended:* Refer to the manufacturers website for supported SD cards.

## WEATHER

## Winds can adversely affect the handling characteristics of your UAS. Be sure to check with the manufacturers specifications for the maximum wind resistance. Minimum weather visibility is three miles from your control station.

*Check weather conditions:*

[UAV forecast](https://www.uavforecast.com/#/)

[KittyHawk](https://kittyhawk.io/apps)

## AIRSPACE RULES

Operations in Class G airspace are allowed without air traffic control permission. Operations in Class B, C, D and E airspace need ATC approval. Before flying, check for Temporary Flight Restrictions (TFRs), alerts, and prohibited areas. The [Low Altitude Authorization and Notification Capability](https://www.faa.gov/uas/programs_partnerships/uas_data_exchange/) (LAANC) provides access to controlled airspace near airports through near real-time processing of airspace authorizations below approved altitudes in controlled airspace. This capability is implemented in various apps and software (ex. AirMap, DJI, Kittyhawk, Skyward).

*Check Airspace:*

[SkyVector](https://skyvector.com/)

[Know Before You Fly](http://knowbeforeyoufly.org/air-space-map/)

[Airmap](https://app.airmap.io/)

* 1. **AIRCRAFT CHECK**

Inspect the aircrafts body for any damages. Update the software before every flight and calibrate the aircraft’s compass. Make certain the propellers are secure before taking off. Before launching aircraft, the area should be clear of people. Have a visual observer (VO) if possible. *ALWAYS* give right-of-way to manned aircraft such as helicopters and planes.

*Calibration:*

[Yuneec Typhon H](https://www.youtube.com/watch?v=nxnjuLDNoyA)

[DJI Phantom](https://www.youtube.com/watch?v=2WltMwrWlyM)

[DJI Inspire I/II](https://www.youtube.com/watch?v=7CTpR78KcoE)

* 1. **INSURANCE**

Protect private property by purchasing insurance (UAS are usually not covered). There are several companies that provide drone liability insurance such as Verifly.

[Verifly](https://www.verifly.com/)

* 1. **FLIGHT REQUIREMENTS**
     1. Do not exceed Manufacturer Requirements
     2. Fly below 400 feet AGL at all times
     3. Fly Visual Line of Sight (VLOS) at all times
     4. Pilot in Command (PIC) must know all FAA rules
     5. Never Fly at Night (know Civil Twilight in location)
     6. Never Fly Over Groups of People
     7. Never Fly Over Stadiums or Sporting Events
     8. Never Fly Within 5 Miles of Airport (or heliport)
     9. Never Fly Near Emergency Response e.g., wildfires, first responders, etc.
     10. Never Fly Near other Aircraft (manned or UAS)
     11. Always Give Way to Manned Aircraft
     12. Maximum Speed 100 mph
     13. Maximum Weight UAS 55 lbs. (attachments count)
     14. Ensure 3-mile Visibility
     15. No Hazardous Materials
     16. Consider Covered Blades/Rotors
     17. Never Fly Under the Influence of Alcohol or Drugs
     18. Never Fly Recklessly
     19. Fly 500 feet away from people

## 2. CHECKLIST

* 1. **PRE-FLIGHT**

*PLAN MISSION*

* Create flight plan
* Verify Insurance is Current
* Check Weather—esp. wind speed & precipitation
* Check NOTAM (FAA Notice to Airmen)
* Check TFR (Temporary Flight Restriction) in area
* Inspect area for people
* Check overhead
* Obtain any video/photo releases
* Ensure Class G Airspace

*VERIFY AIRCRAFT FUNCTIONALITY*

* Inspect Batteries for Damage
* Visually inspect the condition of the unmanned aircraft system components
* Inspect registration markings for proper display and legibility
* Calibrate UAS compass prior to any flight
* Check that control link is established between the aircraft and the control station
* Check for correct movement of control surfaces using the control station
* Check battery levels for the aircraft and control station
* Check that any equipment, such as a camera, is securely attached
* Verify communication with UAS and that the UAS has acquired GPS location from at least 10 satellites
* Scan for nearby people and animals
* Stand clear and loudly announce the word “CLEAR”
* Start the UAS propellers to inspect for any imbalance or irregular operation
* Hover at 4-6 feet and watch for any abnormalities and listen for anything that sounds loose
  1. **POST-FLIGHT**

The remote pilot in command must report any sUAS accident to the FAA no later than 10 days after a Part 107 operation that meet the following criteria:

* Serious injury to any person or any loss of consciousness; or
* Damage to any property, other than the small unmanned aircraft, unless one of the following conditions is satisfied:
* The cost of repair (including materials and labor) does not exceed $500; or
* The fair market value of the property does not exceed $500 in the event of total loss.

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