



# PRE-FLIGHT CHECKLIST

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This is less of a test-prep lecture and more of a real-world lecture.

When you think about planning for and completing an sUAS mission, there are a few different workflows to consider, usually in this order:

- **AIRSPACE PLANNING:** Researching airspace / regulatory approval and pre-flight mission planning
- **GEAR PREPARATION:** Gathering gear, formatting SD cards, charging batteries, etc.
- **WEATHER AND ON-THE-GROUND CHECKS:** Checking weather conditions and local obstructions / flight considerations
- **PRE-FLIGHT INSPECTION:** Inspecting your system and following a pre-flight checklist
- **FLIGHT MISSION:** Capturing the right combination of photos / videos / data for your mission
- **SAFE LANDING:** Landing, powering down, packing up, and properly storing your gear
- **POST-PRODUCTION:** Editing your photos, videos, or data

As you conduct more and more flight missions, you'll get a better feel for your own processes, specifically when it comes to pre-mission planning and airspace



research, which we cover a bit more in our *How to Conduct Airspace Research* lecture in Module 9.

But in this lecture, I want to offer some thoughts on your **pre-flight system inspection**. To quote the Part 107 regulations, "a remote pilot-in-command must conduct a preflight inspection to include specific aircraft and control station systems checks and to ensure the small UAS is in a condition for safe operation."

While there's no one catch-all pre-flight checklist that'll work for every pilot and every sUAS model, hopefully the below document helps you better understand the best practices around powering up your aircraft and taking to the skies. Feel free to repurpose this document as your own and to tailor it to your specific system and set of processes.

First, let's assume:

- You've done the appropriate airspace research and secured any authorizations / waivers or local permissions if needed.
- You have a list of shots / data you're looking to capture and have thought through how you'll be spending time in the air.
- You're mentally and physically fit to fly.
- Everything is fully charged and your SD cards are formatted.
- Your system's firmware is up-to-date.



You've just rolled up to the site location and are getting out of your car.

Here's a checklist of things to consider as part of your pre-flight ritual. **Again, these are not exhaustive and might change depending on the specific model you're operating and type of flight missions you're conducting.** To that point, you'll see a note about powering up the DJI Go 4 app. I recognize that not all of you are flying DJI units, but since the aircraft I fly most often right now is the DJI Mavic Pro, I tailored the checklist toward that model.

Okay, let's dive in.

## **WEATHER & SITE SAFETY CHECK**

- Chance of precipitation less than 10%
- Wind speed under 15 knots (less than 20 mph)
- Cloud base at least 500 feet
- Visibility at least 3 statute miles (SM)
- If flying at dawn / dusk, double-check civil twilight hours
- Establish take-off, landing, and emergency hover zones
- Potential for electromagnetic interference?
- Look for towers, wires, buildings, trees, or other obstructions
- Look for pedestrians and/or animals and set up safety perimeter if needed
- Discuss flight mission with other crew members if present

## **VISUAL AIRCRAFT / SYSTEM INSPECTION**

- Registration number is displayed properly and is legible
- Look for abnormalities -- aircraft frame, propellers, motors, undercarriage
- Look for abnormalities -- gimbal, camera, transmitter, payloads, etc.
- Gimbal clamp and lens caps are removed
- Clean lens with microfiber cloth

- Attach propellers, battery/fuel source, and insert SD card / lens filters

## **POWERING UP**

- Turn on transmitter / remote control and open up DJI Go 4 app
- Turn on aircraft
- Verify established connection between transmitter and aircraft
- Position antennas on transmitter toward the sky
- Verify display panel / FPV screen is functioning properly
- Calibrate Inertial Measurement Unit (IMU) as needed
- Calibrate compass before every flight
- Verify battery / fuel levels on both transmitter and aircraft
- Verify that the UAS has acquired GPS location from at least six satellites

## **TAKING OFF**

- Take-off to eye-level altitude for about 10-15 seconds
- Look for any imbalances or irregularities
- Listen for abnormal sounds
- Pitch, roll, and yaw to test control response and sensitivity
- Check for electromagnetic interference or other software warnings
- Do one final check to secure safety of flight operations area
- Proceed with flight mission