RESEARCHDRONES
DISCOVERING NEW PERSPECTIVES

ResearchDrones Checklist

Pre-field check (including mission planning)

1. Cache map of mission location
2. Check for weather forecast
3. Charge and balance lipo batteries
4. Check all control surfaces, servos and motor are functional
5. Check still photograph camera is configured and functional
6. download logs if there are any left on the auto pilot
7. clear logs
8. check if all necessary things are ready and packed for field

Pre-flight check

1. Check battery power
2. Make sure the airframe is placed in a level position
3. Install battery in plane and make sure it is secured
4. Make sure throttle is set to 0 and mode switch is in Manual
5. Turn transmitter on, check transmitter battery power
6. STAY CLEAR OF THE PROPELLER
7. Power on
8. Close aft section of fuselage
9. reset APM
10. Block the airspeed sensor during initialisation
11. don’t move the plane until the Autopilot is initialized
12. Blue LEDs should be on and steady (GPS lock acquired and initialized)
13. Make sure the airspeed sensor is clear
14. check if all surfaces move into the right direction in manual mode
15. check all surfaces in stabilize mode

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Mission Planning

1. Connect telemetry Link
2. Set Home altitude (alt in HUD should now read 0)
3. Check if HUD is displaying airspeed 0 (tol <3). If not please reinitialize your APM system
4. Plan/Load mission in flight planner, check
    a. 1st waypoint must be
        i. of type Takeoff
        ii. 30° angle (for maja with airspeed sensor)
    b. Waypoint before land about 500m distance to landing point at 50m AGL (maja 1.8m version)
    c. landing waypoint
        i. set altitude to 0
5. Optional: Save your mission on laptop
6. Upload mission to Aircraft
7. Download mission again, verify if still the same as before upload
    a. Answer “No” to the dialog: “set home location to …?”
    b. verify that home location on the map is still the same
8. Switch to “Flight Data” tab and continue with Take-off check

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Take-off check

1. Start camera with required settings (time active, interval, lens zoom)
2. Lock fuselage
3. check centre of gravity (maja: 8cm behind the front wing edge)
4. STAY CLEAR OF THE PROPELLER
5. Switch to auto mode (engine should start)
    a. if engine does not start hit [Restart Mission] in mission planner if telemetry is used
    b. without telemetry link, restart APM by unplugging the battery and restarting the checklist. check mission and upload mission again to APM if needed.
6. Elevator should move slightly upward
    a. if elevator does not move upward **ABORT**.
7. Check wind direction
8. Launch against wind, level (not nose up and not nose down), clear of obstacles.

Approach check

1. Constantly check altitude (if telemetry is available)
2. On final - nudge with rudder if there is an error in heading
3. on missed approach
    a. no obstacles in flight path: switch to RTL mode
    b. with obstacles: full throttle
        i. switch to stabilize mode
        ii. pull gently on the elevator to gain altitude
        iii. use rudder to correct heading
        iv. when clear of obstacles: switch to RTL mode

Post-mission check

1. Download logs from APM to laptop
2. Clear logs in APM
3. Download photographs/videos from camera
4. Check all control surfaces, servos and motor are functional
5. Turn off transmitter