

Example Pre-Flight Checklist

1. Verify flight battery has current qualification and ~100% charge level
2. Verify flight time falls within max. allowable flight time of aircraft (15 min)
3. (FFOD) Assemble the aircraft:
 - o Extend arms and lock
 - o Verify antennas (915MHz/2.4GHz) upright and straight.
 - o Remove camera lens
4. Visually inspect vehicle for damaged props, broken wires, etc.
5. Set Switches on Terminate Box to **UNARM** and **BYPASS** positions
6. Install & plug in research battery, turn **ON**: GOPRO, mech. switch on tray and SG switch
7. Plug in Ethernet cable to SafeGuard unit
8. Configure SafeGuard
9. Insure **"SG RDY" LED** on terminate box is **ON**
10. Install motor battery into vehicle using Velcro and tray. Ensure wires are free and clear from props.
11. Initialize ground station Mission Planner SW on GCS laptop.
12. Verify telemetry unit is plugged into GCS USB port
13. R/C transmitter on
14. Verify TX program & voltage (>7.6V) is correct for vehicle
15. Verify R/C transmitter switches before powering on vehicle:
 - o Switch B to Position 0. (Stabilize Mode)
 - o Switch A to Position 0 (RTL OFF)
 - o Switch C to Position 0 (Gear Deployed)
16. Verify PPE & remove loose clothing and lanyards.
17. Verify vehicle is level & plug in motor battery.
18. Verify arming light is blinking red and indicating safe condition.
19. Verify Research System is powered on (via lights on SAFEGUARD & TERMINATION BOX)
20. Connect GCS to Aircraft via Mission Planner & verify RF link
21. Verify flight mode control of the vehicle by selecting all:
 - o Switch B to 0 (Stabilize), 1 (Loiter), 2(Auto)
 - o Switch A to 1 (RTL)
22. Verify flight mode selected for takeoff.
23. Load flight plan into Mission Planner
 - o Verify way point radius (2m)
 - o Verify way point altitude (30m or 15m)
 - o Write waypoints to the UAS.
 - o Verify speed change (5m/s or 2m/s)
 - o Read waypoints back to verify location.
24. Verify GEOFENCE enabled and set to correct values (max alt=122m (400ft) for North-40,
 - o Verify max. altitude =<122m.
 - o Verify Polygon and altitude
 - o Verify RTL Alt. (max 30m)

- o Verify ACTION = RTL or Land
- 25. Verify correct location reported & AP GPS lock (Hdop < 2.0)
- 26. (FFOD)Conduct range check (30 paces, range check power level)
- 27. (FFOD)Turn off R/C transmitter, verify vehicle indicates RC Failsafe and Research off
- 28. Transport Vehicle to launch point
- 29. Verify **SG RDY LED is ON & ARM SAFEGUARD**
- 30.** Set Terminate Switch to **FIRE** position (**Both switch should be to the RIGHT**)
- 31. Press and enable safety switch, ESC/motor beeping should stop (CAUTION: This is 1 of 2 pre-arm safety features)
- 32. Request clearance for take-off from RSO

At end of flight:

1. Land vehicle and stop props
2. GCS Operator verify vehicle is **DISARMED** and cleared to approach
3. Press arming/disarming button to get blinking red light
4. Set terminate switches to **BYPASS & UNARM** positions
5. Relocate vehicle to table
6. Connect RC flight logger and record antenna information.
7. Download Data from SAFEGUARD
8. Disconnect flight battery
9. Turn off RC Transmitter
10. Close out Mission Planner
11. After Downloading SAFEGUARD's Data turn Switch on Tray **OFF**