Summary Flight Procedure: Gwaihir - Page 1

Initial set up
1. Mount batteries
2. Check that the CG is centered, or very slightly shifted toward nose (nose-heavy)

Batteries
3. Install “screamers” on batteries
4. Install GoPro Cameras
5. Plug IMU into computer (white USB connector)
6. Plug Lidar into computer (black Ethernet connector)
7. Check: USB drive plugged into upper right USB slot
8. TX switches forward
9. TX throttle all the way down
10. TX aileron centered
11. Turn on transmitter (NOT craft!)
12. Check model: TX is “Heavy Lift Helicopter”
13. Throttle hold ‘on’ ("SG switch should be up, toward you"

Power plug in Sequence
14. Ensure throttle hold is on
15. Top right battery (1) to plug into input with flight controller power lead (1)
16. WAIT TEN SECONDS for IMU gyro to stabilize
17. Top left battery (2) into input at bottom left Listen for arming tone from ESC
18. WAIT ANOTHER TEN SECONDS for IMU gyro
19. Arming tone should produce 12 tones, corresponding to a 12 cell battery
20. Unusual tone: ESC log is full. Download and start over
21. Connect final two batteries.

Transmitter input check
22. Check throttle hold is on
23. Right stick (elevator) forward: check that swash tilts forward
24. Right stick (elevator backward: check that swash tilts backward
25. Right stick to right (aileron): check that swash tilts right
26. Left stick to right (aileron): check that swash tilts left
27. Again check that throttle hold is on
28. Left stick (throttle/pitch) up: check that swash plate move up shaft
29. Return left stick to lowest position
30. Left stick (yaw) left: check that tail blades are blowing air to left side of aircraft
31. Left stick (yaw) right: check that tail blades are blowing air to right side of aircraft

Gyro Check
32. Check that throttle hold is still on
33. Tilt nose down: swash should tilt back to compensate
34. Tilt nose up: swash should tilt forward to compensate
35. Tilt craft left: swash should tilt right
36. Tilt craft right: swash should tilt left
37. Pull craft toward you: air should hypothetically blow toward you to oppose the pull
38. Push away from you: air should hypothetically blow away from you to oppose push

Auto Pilot Check
39. Throttle down and throttle hold still on
40. Start with switch fully forward
41. Full forward to GPS: two green lights should be flashing on GPS antenna
42. Switch to center position: two purple flashes should be seen on GPS antenna
43. Switch to full manual mode: no lights should be flashing on the GPS antenna
44. Return to full forward (GPS mode): 2 green flashing lights again
Summary Flight Procedure: Gwaihir - Page 2

45. IMPORTANT: if lights flash red. This is a NO GO for flight  
46. All switches forward EXCEPT THROTTLE HOLD  
47. Throttle position still fully back  
48. Toggle switch F (rate mode switch) from forward to back, then to forward again  

-this centers the tail rotor for takeoff  

Payload Start up  
49. Turn on Cameras  
50. Plug in payload battery: check to make sure Lidar is spinning  
51. Throttle hold forward. Throttle hold off.  
52. Increase throttle/pitch to 2\textsuperscript{nd} position ind. Bar  

-this initiates ESC governor; ramps up RPM to operating speed  
53. Wait for ESC to spool up to RPM  

Take off  
54. Increase throttle/pitch to stick just above 5\textsuperscript{th} position  
55. Climb to altitude. Reduce throttle to just below 4\textsuperscript{th} position to hover  

Ground station transfer  
56. Click ‘go’ on pre-planned mission  
57. Toggle Mode Switch (TSE) forward and back to set to GPS cruise  

Landing  
58. Return to hover in GPS mode over landing location  
59. Decrease throttle to just below 4\textsuperscript{th} position to initiate slow descent  

NEVER LOWER BELOW 3\textsuperscript{rd} POSITION DURING LANDING  

When skids touch ground  
60. Lower throttle to 3\textsuperscript{rd} indicator position  
61. Switch throttle hold indicator backward (hold on)  
62. Look for (red-blue-flash white) GPS light indicator  
63. WAIT 8-10 seconds for throttle to turn off  
64. Put throttle position at its lowest indicator position