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| Artifact ID:  TP-004 | Artifact Title:  Preflight Checklist | |  |
| Revision:  01 | Revision Date:  2025-03-16 | |
| Prepared by:  Lucas Bons | | Checked by:  Jonah Lowther | |
| Purpose:  The checklist of items to bring and procedures to check before an active flight test | | | |

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| Revision History | | | |
| Revision | Revised by | Checked by | Date |
| 01 | Lucas Bons | Nina Chao | 2024-03-16 |

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| --- | --- | --- | --- | --- |
| Flight Date: |  |  |  |  |
| High Altitude | | | | |
| Complete? | Action: | Tools, materials Needed: | Details: | Who can do it? |
|  | Assemble wings | 3/32 hex |  | Anyone |
|  | Ensure connection to Pi | Pi, laptop, extra jumper cables, wiring diagram (on hood) | Insert Pi into drone, insert wifi antenna, connect jumpers from Flight Controller, connect to laptop through wifi | Israel, Anthony, Isaac, Tristan, Janie |
|  | Ensure camera capabilities | Laptop |  | Anthony, Tristan, Isaac |
|  | Drone battery level verification | Multimeter |  | Anyone |
|  | Remote battery level verification | Controller |  | Brian |
|  | Receiver Test | Controller | Power Drone on, test receiver range | JBJ |
|  | Calibrate accelerometer | Laptop - QGroundControl | Stationary dance | JBJ (Jonah, Brian, Jadyn) + Anyone |
|  | Calibrate compass | Laptop - QGroundControl | Spinning dance | JBJ + Anyone |
|  | Calibrate gyro | Laptop - QGroundControl | Set on level ground | JBJ + Anyone |
|  | Calibrate level horizon | Laptop - QGroundControl | Set on level ground | JBJ + Anyone |
|  | Acquire GPS signal | Laptop - QGroundControl | Power up, take laptop and plane into the open and validate gps lock via Q ground control | JBJ + Anyone |
|  | Create flight plan | Laptop - QGroundControl | Create and load flight plan | JBJ |
|  | Attach wings to fuselage | Phillips head screwdriver |  | Anyone |
|  | Right aileron servo test | Controller |  | Brian |
|  | Left aileron servo test | Controller |  | Brian |
|  | Right flap servo test | Controller |  | Brian |
|  | Left flap servo test | Controller |  | Brian |
|  | Front wheel servo test | Controller |  | Brian |
|  | Attach rear prop | Rear Prop, Nut, wrench |  | Lucas, Anna, Jadyn, Jonah, Brian |
|  | Final visual inspection |  |  |  |
|  | Insert lid | Lid |  | Anyone |
|  | Center of gravity test |  | Pick up drone under wings and ensure balance | JBJ + Airframe integration |
|  | Set up ROS nodes | Laptop | Launch ROS nodes and start collecting data | Anthony, Tristan, Isaac |
|  | Start fire | Matches/lighter, wood |  | Anyone |
|  |  |  |  |  |
|  |  |  |  |  |
| Flight Date: |  |  |  |  |
| Low Altitude | | | | |
| Complete? | Action: | Tools, materials Needed: | Details: | Who can do it? |
|  | Ensure connection to Pi | Pi, laptop, extra jumper cables, wiring diagram (on hood) | Insert Pi into drone, insert wifi antenna, connect jumpers from Flight Controller, connect to laptop through wifi | Israel, Anthony, Isaac, Tristan, Janie |
|  | Ensure camera capabilities | Laptop |  | Anthony, Tristan, Isaac |
|  | Drone battery level verification | Multimeter |  | Anyone |
|  | Remote Battery Level Verification | Controller |  | Brian |
|  | Receiver Test | Controller | Power Drone on, test receiver range | JBJ |
|  | Drop servo test | Laptop | Something to drop | Anthony, Tristan, Isaac |
|  | Calibrate accelerometer | Laptop - QGroundControl | Stationary dance | JBJ (Jonah, Brian, Jadyn) + Anyone |
|  | Calibrate compass | Laptop - QGroundControl | Spinning dance | JBJ + Anyone |
|  | Calibrate gyro | Laptop - QGroundControl | Set on level ground | JBJ + Anyone |
|  | Calibrate level horizon | Laptop - QGroundControl | Set on level ground | JBJ + Anyone |
|  | Acquire GPS signal | Laptop - QGroundControl | Power up, take laptop and plane into the open and validate gps lock via Q ground control | JBJ + Anyone |
|  | Create flight plan | Laptop - QGroundControl | Create and load flight plan | JBJ |
|  | Screw in rear lid | Rear lid screws, .05 in hex wrench |  | Airframe Integration |
|  | Attach wings to fuselage |  |  | Airframe Integration |
|  | Attach tail fins |  |  | Airframe Integration |
|  | Attach rear prop | Nut, cap, wrench, prop | Screws on opposite of normal direction | Lucas, Anna, Jadyn, Jonah, Brian |
|  | Right aileron servo test | Controller |  | Brian |
|  | Left aileron servo test | Controller |  | Brian |
|  | Right flap servo test | Controller |  | Brian |
|  | Left flap servo test | Controller |  | Brian |
|  | Insert Front Lid | Front Lid | Has retractable pin to secure | Anyone |
|  | Center of Gravity Verification |  | Pick up drone under wings and ensure balance | JBJ + Airframe integration |
|  | Final visual inspection |  |  |  |
|  | Set up ROS nodes | Laptop | Launch ROS nodes and start collecting data | Anthony, Tristan, Isaac |
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|  |  |  |  |  |
|  | Additional Tools/Materials: | Do we have it? |  |  |
|  | Multimeter |  |  |  |
|  | Servo tester |  |  |  |
|  | Wifi antenna |  |  |  |
|  | Tweezers |  |  |  |
|  | Hex sets |  |  |  |
|  | Painters tape |  |  |  |
|  | Ballast |  |  |  |
|  | Extra jumper cables |  |  |  |
|  | Foam tack glue |  |  |  |
|  | Speed tape |  |  |  |
|  | Velcro |  |  |  |
|  | USB cables |  |  |  |
|  | Phillips head screwdriver |  |  |  |
|  | Controllers |  |  |  |
|  | All props (4x quad rotors, 2x tail props) |  |  |  |
|  | Nuts |  |  |  |
|  | Crescent wrench |  |  |  |
|  | Wings, tail fins, lids |  |  |  |
|  | Rear lid screws |  |  |  |
|  | Matches/lighter |  |  |  |
|  | Wood |  |  |  |
|  | Fire extinguisher |  |  |  |
|  | gallon of water |  |  |  |
|  | Charged Batteries |  |  |  |
|  | scissors |  |  |  |