FLIGHT TEST # 1

DATE:

OBJECTIVE(S)

- A successful first flight of the Apprentice aircraft, including:
  - Sustained flight for at least 7 minutes
  - Verify all aircraft controls function nominally in flight
  - Verify all sensors are functioning during flight
  - Collect flight performance data (climb rate, cruise velocity, descent rate, stall velocity)
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SUCCESS CRITERIA

- Flight proceeds according to the test procedure
- Flight occurs without any damage to aircraft
- All control surfaces respond as expected
- All flight data correctly displayed and saved in QGroundControl
- Electronics behave as expected and provide reasonable data

SUPPLIES

- ❏ Apprentice
- ❏ Taranis (fully charged)
- ❏ Battery (fully charged, plus spare)
- ❏ Computer to run QGroundControl
- ❏ Receiver antenna for computer
- ❏ Extra rubber bands
- ❏ Tape
- ❏ zip-ties

LOCATION:	TEST SYSTEM:	TEST CONDITIONS:
TBD	Apprentice	

PROCEDURES

1. Complete Preflight Checklist
   - ❏ Electronics Preflight Checks & Arming Procedures completed
   - ❏ UAS is ready to fly
   - ❏ Team is briefed on safety concerns
   - ❏ Team is briefed on roles and objectives
   - ❏ Final Weather check
2. Have UAS positioned on the runway
3. Pilot input full throttle, lifts off, and climbs straight ahead to ~100ft
4. Decrease throttle to ~75%
5. Adjust trims on Taranis as needed. (if necessary, land and adjust clevises to correct large trim errors)
6. Perform a left/right turn and establish a rectangular pattern, d
7. Test aircraft response for elevator, rudder, & aileron inputs at ½ and full deflection
   - ❏ Visually verify the correct response for each maneuver
8. Slow aircraft to just above minimum controllable speed and re-test control inputs

- ❏ Visually verify the correct response for each maneuver

9. Perform a stall at a low throttle setting and again with the throttle fully closed
10. Perform an approach to landing followed by a low pass over the runway and go-around to assess landing characteristics
11. Land the aircraft and check the battery voltage before additional flights

12. Proceed to Electronics Team Test procedures documents
    - ❏ Set Cruise speed in QgroundControl based off of Manual Flight information

13. After the last flight disconnect in the following order:
    - ❏ Disarm Pixhawk via QgroundControl
    - ❏ Flip ESC power switch to OFF position
    - ❏ Disconnect the battery
    - ❏ Turn off Taranis
    - ❏ Measure battery voltage
    - ❏ Assess aircraft for damage

TEST DATA

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DEBRIEF

- Total Flight Time: _____

- Battery level pre-test: _____ | - Battery level post-test: _____ | - Power Consumption: _____

- Objectives met:
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- Test items that went well:
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- Test Items that did not go well/need to be improved:
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