Fixed Wing Test Stand Procedure

The test procedure detailed in this document is intended to validate the behavior of a fixed wing aircraft before a flight is performed. To this end, aircraft system data, motor, and control surfaces will all be verified in a controlled environment provided by the test stand. Such tests have been shown to increase mission success rates by preventing the launch of non-flight worthy aircraft while increasing operator confidence in the aircraft.

CRITICAL: **Aircraft Assembly Instructions** – Removing aircraft from box and assembly.
Mission Planner Documentation – Telemetry radio and ground station usage.
Manual operation Manual – Detailed Information about the Hand Controller.

Setting Up Test Stand

The Fixed wing aircraft is secured to the test stand using two Velcro straps. The final appearance of the Test stand with aircraft is shown below.

1. Fully thread test stand into mounting locations found on the lid of the aircraft carrying case.

2. Position the aircraft wing over the center of the metal plate. Slide the aircraft backwards until it touches the rear raised section of the test stand.

3. Secure the aircraft to the test stand using the front Velcro strap.

4. To prevent any forward motion, wrap the rear Velcro strap around the aircraft body. Note that the rear Velcro strap is directly secured against both the aircraft body and the wings.

5. Verify that the fixed wing aircraft is not able to shift or move out of position.

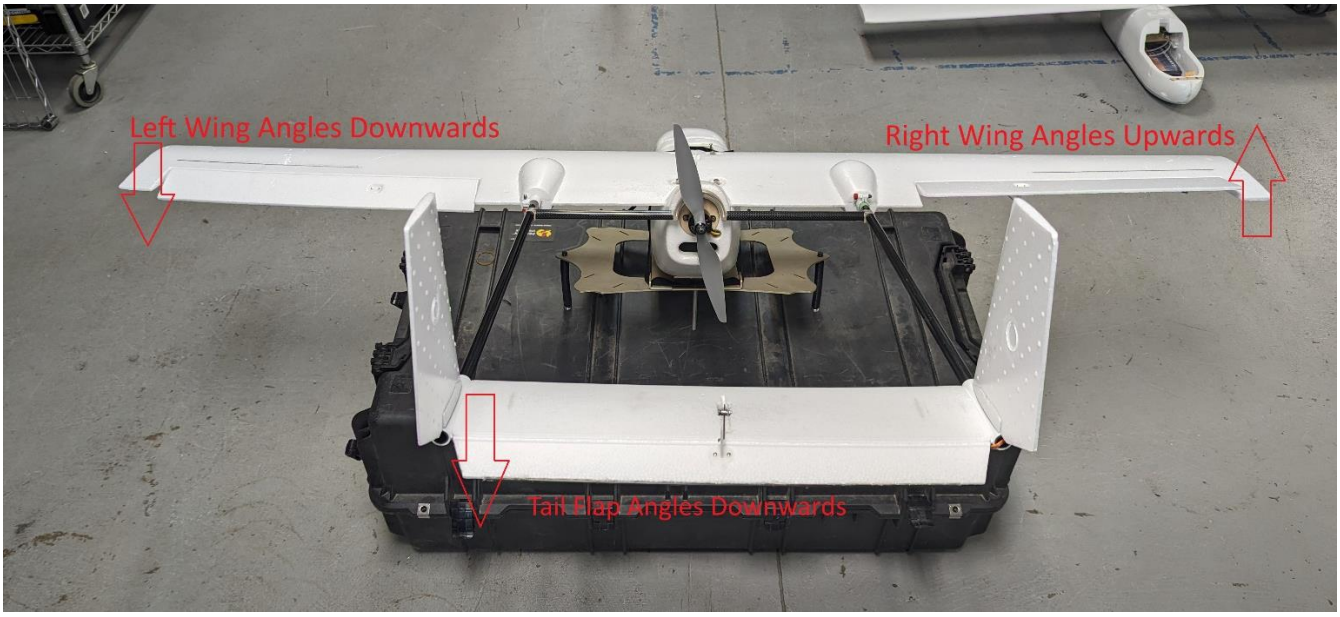
Actuator Testing

With the fixed wing aircraft secured to the test stand, proceed with powering the aircraft. Once powered, verify the following:

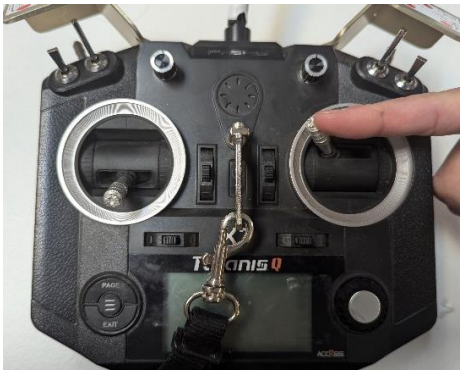
1. Hand Controller – Signal bar appears on the hand controller following power up of aircraft.
2. Mission Planner – Connection is established to aircraft using Telemetry device.
3. Hand Controller / Mission Planner –

    Mode Switch (Hand Controller) changes the displayed flight mode (Mission Planner).

Hand Controller - Right Stick : UP/LEFT

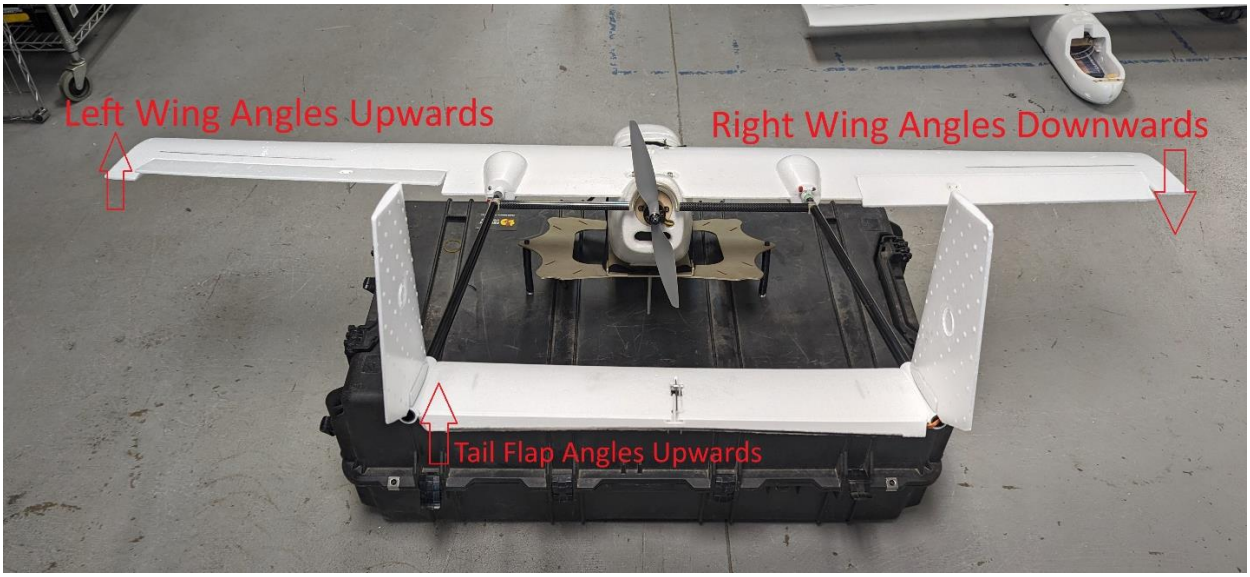


Stand behind the aircraft, matching the perspective of image above.



With the right analog stick of the transmitter matching the image above, ensure that the actuators of the aircraft behave as shown in the top image.

Hand Controller - Right Stick : DOWN/RIGHT



Stand behind the aircraft, matching the perspective of image above.

With the right analog stick of the transmitter matching the image above, ensure that the actuators of the aircraft behave as shown in the top image.

Note the position of the left analog switch. Fully down and centered.

Full Throttle Test

Before flight, the motor is throttled to its maximum to verify aircraft behavior and assembly.

1. Hand Controller / Mission Planner – Manipulate the mode switch until FBWA appears in the bottom left corner of the top left screen. Found on DATA tab of mission planner.

2. Verify that the propeller will not hit anything as it spins.

3. Stand behind the aircraft. When motor begins to spin, air should be pushed at the operator.

3. Move the left analog stick to Down and Centered position.

4. Move the Flight Group: Disarm/Arm switch to its ARM position.

5. Slowly increase the left analog stick's vertical position, motor begins to spin at around %10.

6. For 5 seconds, push the left analog stick to its Upwards most position. This left analog stick position is shown in the image above.

7. Return the left analog stick to its bottom most position, DISARM the aircraft.

Testing Complete – Aircraft is ready for Flight

Version History

Name	Date/Version	Description	Reason
Nicholas Ronnie	7/31/2024	Document Created	