

Date: 5/9/12  
Location: ACRC  
Aircraft: Thor  
Pilot: James Rosenthal  
Flights: 3 Thor

### **Weather**

Sunny, no wind, temps around 50F.  
METAR KANE 091134Z AUTO 32006KT 10SM CLR 08/07 A3004 RMK AO2=

Andrei, James, and Ryan arrived at ACRC at 6am to fly early in the morning. The weather was ideal with no wind. We forgot to take Rx Data from the first flight. This was the first flight test sans Austin. Overall, the flight test ops went smoothly.

The first flight (41) was for System ID with Thor using augmented manual inputs. This flight was used to complement data from the previous deployment with even higher frequency chirps. The chirps went from 0.4 Hz to 15 Hz, with an amplitude taper to avoid the actuator rate limits at high frequency.

As in the previous deployment, the pilot was given manual control in the axis of the chirp, and was denied inputs on the remaining surfaces. A baseline controller was used to control the off-axis. The pilot was instructed to obtain a hands-off trim before injecting the automatic chirp signal.

The second and third (42 and 43) flights were used to test the waypoint tracker controller. We had disabled the altitude and velocity hold controllers to simplify the debugging task. We did not have enough time to debug the controller pre-flight, and this was James' last opportunity to fly. Initial reaction to the performance was poor. More analysis required, adjustment, and re-test.

Flight 42 and 43 also had some manual elevator, aileron, and rudder doublet maneuvers that could be used for model validation.

Software used was [branches/WayPointTrack rev 830](#)

Flight 41 was dedicated to chirps of all three surfaces. The input frequency range was .4 to 15 Hz, with amplitudes of 5 deg, with a taper at higher frequency.

### **Thor Flight 41**

Rx data: Missing, we forgot to save it before powering down Thor.

Flight 42 was dedicated to a heading doublet. Erratic response. Manual elevator, aileron, and rudder doublets.

### **Thor Flight 42**

Rx data: A027, L004, F000, H000

Flight 43 was dedicated to a revised heading doublet, with smaller amplitude and shorter pulses. Erratic response. Manual elevator, aileron, and rudder doublets.

## **Thor Flight 43**

Rx data: A065, L019, F002, H000

### **Issues**

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