

# SOUTHWEST OHIO ROCKETRY ASSOCIATION

JANUARY 26, 2020 LAUNCH REPORT

NOON TO 4PM

**Launch Conditions:** Marginal, weather low 40's, slight winds, clouds 1500 feet

**Total Number of Launches:** 11 (1 additional rocket prepped and attempted but motor would not ignite)

**Total Number of 100% Fully Successful Flights** (excluding simple fin breaks on landing): 9

1 nose cone separation

1 augered in due to motor failure (old engine)

2 CATOs were counted as successful flights as CATO was planned (see below)

**Rockets Recovered:** 11

**Number of Launch Participants:** 3

**Number of Family/Friends/Observers/Non-launching rocketeers:** 2

**Teams and Competitions:** 0

**Types and Number of Motors:**

A: 3 B: 0 C: 3 D: 3 E: 2 Higher: H165, Qty 1, L1 Expediter rocket, motor would not ignite after multiple attempts with different igniters, motor over 10 years old

**Ground Fires:** 0

**Medical Incidents:** 0

**Damage to vehicles/facilities:** 0

**Donations:** \$7

**Rocket Items and Issues:** CATO- Catastrophe On Take Off

Tim Morley gave quite the show with a research project on a bad lot of Estes E12-6 engines. He made a expendable rocket, the "CATO Challenge", to launch with the expectation that the motor might fail based on previous use of motors from the same 3-pack. Estes had already been contacted about the original motor failure a few months ago and graciously replaced the original rocket and motor pack. With all safety and fire control apparatus in place, he launched "CATO Challenge" and, as expected, the motor failed spectacularly. The rocket survived the ordeal amazingly. With videos running, the third and last engine from the same pack of motors was reloaded into the rocket. The rocket motor exploded just after liftoff and this time, the rocket CATOed fully. Or, as NASA says, had an "unscheduled deconstruction". This was very timely as SpaceX had launched a Falcon rocket with the Dragon Crew Capsule for a dry abort test the previous week. Its rocket engine was purposely made to fail to test the ability of the Dragon Capsule to speed away from a CATO. As expected, the engine began to fail, Dragoon fired its escape jets, flew away perfectly, and the main first stage exploded in a spectacular fireball. All went well for these research "failures".

Speaking of rocket issues, another Estes engine thrusted fine but ejection charge failed to deploy the parachute. A Big Daddy augered in causing severe damage to the rocket. Age of the motor was over 5 years old.

Tim had two successful glider flights. One for 49 seconds and the second for an undetermined time (~1.25min) as the rocket was so downfield and near the park buildings its total time could not be evaluated. The second flight had the Orbiter snag into a small tree and was recovered using three fiberglass poles attached to a rake to make a distance of about 15 feet long enough to snag the chute and recover the rocket.

Rick tried to launch an Expediter on a H165-RM but with no success. Multiple igniters were tried but the motor refused to light. Although stored properly and unopened, the age of the motor was over 10 years old and was the likely cause of the failure.

Additional items:

- Need to purchase a new emergency air powered horn.
- Need to purchase longer cords for the low power launches
- Need launch waiver forms to be added to Launch Control binder.
- Need to redesign the launch flight cards to make easier to fill out
- Need a general meeting and launch flyer to put in hobby stores for upcoming events