



SOUTHWEST OHIO ROCKETRY ASSOCIATION (SORA) LAUNCH REPORT NOVEMBER 12, 2023 1:00PM TO 5:00PM NAR SECTION #624

Launch Conditions: Clear skies, temperatures 50's, gusts to 10MPH

Total Number of Launches: 55 **Rockets Recovered:** 55 **Lost:** 0 **Found Rocket (not launched):** 0

Total Number of 100% Fully Successful Flights (excluding simple fin breaks on landing, etc.): 44

Success Rate: 80%

Number of Individuals Who Launched Their Rockets: 13 **Number of Family/Friends/Observers:** 15

Teams and Competitions: 0 **Scouts/HomeSchool/4-H:** 0

Types and Number of Motors: 20 total

A: 9 B: 15 C: 17 D: 9 E: 4 F: 1 G: 1 H: 0 I: 0 Higher: 0

One two-stage rocket E16-0 to a E16-6

Ground Fires: 0 **Medical Incidents:** 0 **Damage to vehicles/facilities:** 0

Donations and drink/food sale, sale of merchandise:

straight out donations: \$10

t-shirts: 2 at \$20 = \$40

mugs: 0 at \$10 = \$0

stickers: 0 @ \$0.25 = \$0.0

food and drinks: 0 at \$.75 = \$0

Total: \$ 50.00

Rocket Topics and Issues:

1. It was a great day for a launch with temperatures in the mid 50's, clear skies, minor gusts to 10MPH. There was a large turnout with 13 rocketeers launching and 15 friends, family members, and visitors enjoying the show.
2. Congratulations! The Club has now surpassed last year's total for the Sum of Total Impulse used in rockets during the year and we still have one more launch scheduled!
3. We had our first three bear ascent into the heavens with Natalie launching an Estes Skytrax with gummi bears on board. They successfully landed unharmed and ready for their next adventure!
4. The Berry brothers from Dayton's Wright Stuff Rocketeers were in attendance and flew a variety of amazingly well-crafted rockets.

5. The Club had fun using altimeters during several launches. It is good to push our electronics knowledge and experience.
6. We unfortunately beat our record of Catastrophes on Take Offs (CATO's) with three motor failures. It is sad to see these as they are not usually the rocketeer's fault. Two exploded on take off and one two-stage rocket failed to ignite the second stage motor mid-flight.
7. The inaugural launch of Rick's new Falcon 9 using a E16 motor had a spectacular CATO caught on video. The motor casing was never found even after an exhaustive search. The rocket can be rebuilt. Elon would be proud.

Next meeting: Tuesday December 5 , meet at Lebanon Library 6:30PM

Next Launch: Sunday, December 10, Hisey Park



A rainbow of rockets!



Dave flew four rockets today.



Heading to Jupiter on a B6-0

Falcon 9 Ready for launch.

Did you know about..... Blue Origin?

Owned by Jeff Bezos (creator of Amazon), headquarters Kent, Washington, founded Sept 2000, 5 production facilities and 5 field offices



Meet New Shepard

Named after Mercury astronaut Alan Shepard, the first American to go to space, New Shepard is our reusable suborbital rocket system designed to take astronauts and research payloads past the Kármán line - the internationally recognized boundary of space. Whether you are an astronaut flying with Blue Origin or sending a payload to space, your 11-minute flight on New Shepard will be the experience of a lifetime.



Crew Capsule

Pressurized crew capsule environmentally controlled for comfort with room for six and the largest windows to have flown in space.

Ring & Wedge Fins

Aerodynamically designed to stabilize the booster and reduce fuel use on its flight back to Earth.

Drag Brakes

Deploy from the ring fin to reduce the booster's speed by half on its descent from space.

Engine

The BE-3 (Blue Engine 3) propels the rocket to space and restarts for a controlled pinpoint landing on the pad. The uniquely throttleable engine slows the booster down to just 8 km/h (5 mph) for landing.

Aft Fins

Stabilize the vehicle during ascent, steer it back to the landing pad on descent, and guide the rocket through airspeeds of up to Mach 4.

Landing Gear

All rockets take off, not all rockets land. As a fully reusable rocket, the New Shepard booster uses landing gear that deploys for touchdown.

New Glenn

At more than 320 ft (98 m) tall, New Glenn is one of the largest vehicles ever built.

- **Seven-Meter Fairing**

Twice the volume of traditional five-meter class fairings means room for bigger constellations, heavier payloads, and orbital platforms.

- **Upper Stage**

Hydrogen-powered upper stage designed for demanding, highly energetic missions to low Earth orbit (LEO), medium Earth orbit (MEO), and geosynchronous orbit (GEO).

- **BE-3U**

Built off of New Shepard's BE-3 flight heritage, the BE-3U is optimized to operate in the vacuum of space. Its high thrust and high specific impulse upper stage are capable of accomplishing any mission.

- **Fins**

Four actuated aerodynamic control surfaces for attitude adjustment during the first stage's descent and landing.

- **Reusable First Stage**

Designed for reuse and minimal maintenance in between flights.

- **Strakes**

Wing-like to provide lift and cross-range for the reusable first stage during its descent back to Earth.

- **Landing Gear**

Aft module houses six hydraulically-actuated legs to support and secure the first stage during landing on a moving platform.



The Club's Motto....."Sapientia ducet ad astra" – Wisdom leads to the stars