



SOUTHWEST OHIO ROCKETRY ASSOCIATION (SORA)

LAUNCH REPORT SEPTEMBER 08, 2024

1:00PM TO 5:00PM NAR SECTION #624

Launch Conditions: Slight haze, temperatures mid-70s, wind to 7mph

Total Number of Launches: 37 **Rockets Recovered:** 37 **Lost:** 1 **Found Rocket (not launched):** 0

Total Number of 100% Fully Successful Flights : 31 **Success Rate:** 84%

Failure modes: CATO, 2 chutes not ejected, too low impulse motor used for delay time, 2 rockets stuck on rail, weak ejection charge due to ceramic cap not fracturing properly/completely.

Number of Individuals Who Launched Their Rockets: 9 **Number of Family/Friends/Observers:** 5

Teams and Competitions: 7 NARTREK (3 successful) **Scouts/Home School/4-H:** 0

Types and Number of Motors: 44 total

A: 9 B:10 C:9 D: 5 E:3 F: 1 G: 2 H: 0 I: 0 Higher: 0

One two stager and one three motor cluster

Ground Fires: 1 (very small, put out with foot, watered down area and all pad areas several times during the day)

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

Donations and drink/food sale, sale of merchandise:

straight out donations: \$28

mugs: 0 at \$10 = \$0

food and drinks: 10 at \$1ea = \$11

t-shirts: 1 at \$20 = \$20

stickers: 0 at \$0.25 = \$0.0

new memberships 2 @\$5+ 1 free = \$10

Total: \$69.00

Rocket Topics and Issues:

1. It was an incredible day for launching with so many great flights and in-depth learnings going on!
2. We welcome three new SORA members: Ronda Smucz, John Doscher, and Elijah Bass. We hope their experiences with the club and their journey in model rocketry will be rewarding.
3. We had a great runout for NARTREK (National Association of Rocketry Training Rocketeers for Experience and Knowledge). There were seven attempts at the Bronze and Silver levels with three certifications obtained. Well done! Gary's glider certification attempt was absolutely spectacular with the glider arcing beautifully back almost to land on the launch pad.

4. Jon won “closest to the Pad” and will be receiving a free model rocket kit at the next meeting.
5. Rick performed a maiden flight of a Mad Cow V-2 rocket with a perfect flight and only a little effort retrieving the rocket from the weed at the west end of the field.
6. We did have one small ground fire that was simply and quickly extinguished with a shoe. We had watered the area down prior to launching. It is believed the exhaust passed through the center hole in the blast plate where the rod goes through as the fire was directly under the pad.
7. Our attempt at a three rocket drag race was not successful. The electronic system does not seem capable of doing this although it is supposed to. We were able to do a two rocket race but unbelievably, both rockets stuck on the launch rods after ignition. The rockets were small Estes models and there was carbon buildup right where the launch lugs were located low on the rods. Additionally, one motor did not work properly as the ejection charge did not rupture the ceramic cap at the top of the motor and that is why the parachute did not eject while it was trapped on the pad during launch.
8. We did have a CATO (Catastrophe on Take Off) due to a motor failure. Given the nature of the rupture, there was probably a crack in the motor running the length of the propellant, delay charge, and ejection charge such that all three ignited simultaneously. In NASA terminology, the rocket had a URD – Unscheduled Rapid Deconstruction!
9. Bob Maxwell was our Master Rocketeer for the day with seven launches. Harold and Robb each had six. Not bad for a 5 hour session.
10. We did improve on last month’s safety record with today’s 84% success rate. Last month was 81%. Both values are below target of 90%. Two of the seven failures were due to bad motors. Robb’s Patriot on a G80-10T failed to live up to RockSim predictions and did not obtain sufficient altitude to give enough decent time for the chute to deploy. The rocket was a loss but could be rebuilt with replacement of the airframe. Parachute fails and stuck on the pad problems also occurred.
11. We had a nice two stage flight and a successful NARTREK three engine cluster that performed great.
12. Doing the Total Thrust calculations, we are just short of passing last year’s Total Impulse Sum of 3595 Newton-Seconds. So far we are at 3404 N-S. We should easily pass it next launch. This shows how the club is progressing.

Next meeting: Tuesday October 1, meet at Lebanon Library 6:30PM

Next Launch: Sunday, October 6th, Hisey Park

The Club’s Motto.....“Sapientia ducet ad astra” – “Wisdom leads to the stars!”



Rob and his Patriot Missile



Gary's 3-motor cluster successful Nartrek certification



Sharing knowledge at the RSO table



One of three liftoff during the drag race



Rick's Madcow V-2 on a E16-6



Off to the heavens....



Drag race ready to go or not go....



High Power Pad, Dave's Bumble Bee on a G80-7White Lightning



Born Again Rocketeers were plentiful today



Nice paint jobs!



Gary's NARTREK Glider successful certification



Merlin Missile Works Silver Sword



Where RockSim simulations and reality colide...



Um, can anyone tell me where the Center of Gravity and Center of Pressure are?????

FUN FACTS:

Unlike traveling to Earth's moon, traveling to Mars is much more difficult. In the seven months it will take to get there with current technology, the Earth would be traveling in its own orbit and moving millions of miles away from where you started out. Mars is also traveling. To minimize travel time, the return trip would need to be started almost a year later due to the relative orbits of the two planets. The full round trip would take 26-months.

The engineers on the Saturn Apollo project calculated that, if the rocket exploded on the launch pad, it would hurl a 100 pound object three miles. That is why all personnel are required to be 3.5 miles away during all launches (except the firefighters in special armored vehicles).

Planet Mercury is only 3,032 miles in diameter.

The International Space Station has its own phone number. Sorry, we aren't giving it our here! I wonder what the area code or codes are since they orbit the entire Earth in 90 minutes?????

ThrustCurve.org is a computer program you can download onto your phone to have at launch day when you are trying to determine if your rocket can successfully launch with different motors you have or that you've bought from a vendor like Merlin Missile Works. OK, I have a F24, will it work in my rocket designed for a "D12" motor??????