SOUTHWEST OHIO ROCKETRY ASSOCIATION (SORA)

LAUNCH REPORT JULY 07, 2024

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

Launch Conditions: Wispy clouds, temperatures High 80s, lttle wind

Total Number of Launches: 41 **Rockets Recovered:** 40 **Lost:** 1 **Found Rocket (not launched):** 0

Total Number of 100% Fully Successful Flights : 39

Success Rate: 95% **Failure modes:** one parachute failed to deploy, one rocket lost in high weeds with additional failure of 2nd stage motor installed upside down.

Number of Individuals Who Launched Their Rockets: 12 **Number of Family/Friends/Observers:** 3

Teams and Competitions: 1 **Scouts/Home School/4-H:** 0

Types and Number of Motors: 44 total

A: 12 B:114 C:14 D: 61 E:0 F: 0 G: 1 H: 0 I: 0 Higher: 0

One two stager and one three stage

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

Donations and drink/food sale, sale of merchandise:

straight out donations: $ 58.25

mugs: 0 at $10 = $0

food and drinks: 10 at $1ea = $17

t-shirts: 0 at $20 = $0

stickers: 0 at $0.25 = $0.0

Total: $75.25

Rocket Topics and Issues:

1. It was a great day for launching and 12 rocketeers did great with 41 launches with a success rate of 95%. Well done!
2. People were very generous in supporting the club during this launch. We took in $58.25 in straight out donations with $17 in purchases of food and drinks. This is the highest income during a launch this year!
3. Thanks to Lee Berry of Merlin Missile Solutions for setting up his store and supplying the rocketeers with needed equipment.
4. Thanks to Robb and Jon for running Range Safety. With a 95% percent success rate, it was a safe day launching.
5. Bob used his Altimeter 2 in his T-Loc.

Flight Data:

Altitude: 477 ft Top Speed: 138mph Coast to Apogee: 5.1 sec Decent Speed: 12 MPH Thrust Duration: 1.17 Sec	Ejection Alt: 476 Feet Peak Accel: 6.6Gs Apogee Eject: 0.2 sec Avg Accel: 5.49 Gs

6. Still working issues with the electronic system trying to launch multiple rockets at the same time. Two seems to be the limit for some reason. Batteries fully charged. Connections good. ??????

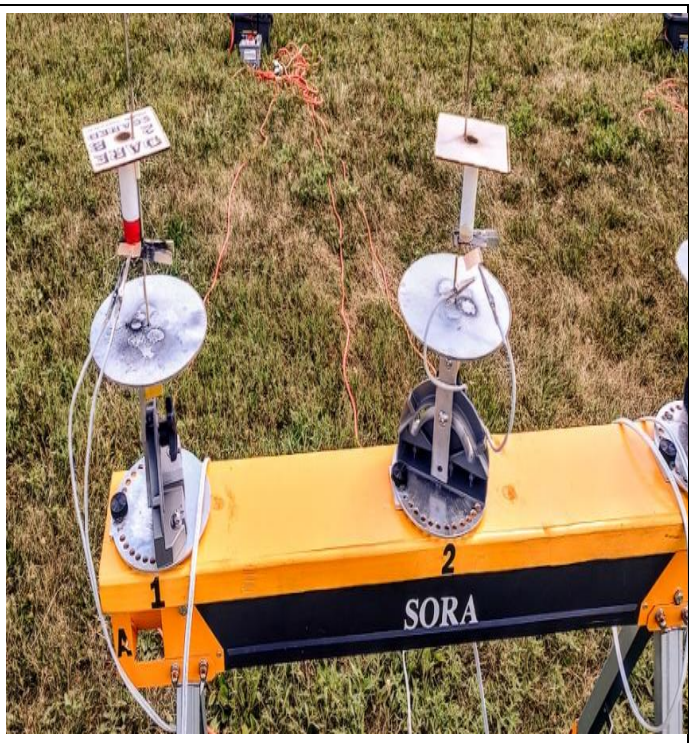
7. Rick (me) had a tough time with his three stage rocket. The second stage motor was accidentally inserted upside down! Focus, Rick, focus! Although the second stage was upside down, it still was able to fire the third stage suprisingly. Unfortunately, the rocket was lost in high weeds.

8. Rick and Lee ran a rocket drag race coupled with closest to the pad competition. Lee showed his superior skill landing his Dare To Be Square rocket within 8 feet of the pad. Free rocket kit to be picked up by Lee next month!

Next meeting: **Tuesday August 6th, meet at Lebanon Library 6:30PM**
Next Launch: **Sunday, August 11th, Hisey Park**

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

Bob prepping his L1 rocket beta test on a G74-6W



Rock and Lee doing a slosest-to-the-pad competition and a drag race at the same time

	
Bill's "Der German" on a D12-5	Watching aeronautics in action.
	
Drag racking rockets!	Rick's Commanche 3-stage

	
Safe landing for Gary's Mars Leaper	Ready to fly to the heavens
	
Beautiful craftsmanship	Go, Baby, Go!

FUN FACTS:

The suits most astronauts wear during the launch are usually orange in color. This allows rescue units to spot the astronauts in case there is a bailout over the ocean.

The first photograph of the Earth from a rocket was taken in 1946. It was taken by a V2 rocket launched from White Sands Missile Range in the United States. The rocket reached an altitude of 105 kilometers and crashed on impact when it returned to Earth. Because the film was in a steel cassette, it survived the impact.

Vernon Estes of Estes Rockets was born September 24, 1942. The first successful launch of a V2 rocket was October 3, 1942.

Sounding rockets carry scientific instruments into space using a parabolic trajectory and typically are in flight for 5-20 minutes.

The loudest rocket ever built was the Saturn V with a noise level of 120 decibels, at 1.5 miles.

Russia's Sputnik 2 carried the first animal into space: Laika the dog. He passed away during the flight after the fourth orbit due to overheating.

Placing the parachute at the end of the shock cord with the nosecone attached to the middle of the shock cord helps prevent the nosecone from tangling the chute.

The smallest rocket to go into orbit is the Japanese SS-520 and is 9.54 meters long. It can carry a payload of 3kg.

Most model rockets use parasheets not parachutes. Parasheets are a flat sheet. Parachutes are made of 28 independent panels (gores) sewn together such that a rip in one panel does not propagate to other sections of the chute.

Approximately 0.05% or rocket motors will malfunction. Not only should you contact the manufacturer of the motor to get a free motor replacement and a new rocket but you should also log your CATO with NAR website http://motorcato.org

Rockets are generally painted white to help reflect solar radiation that would damage the components due to over-heating.

Liquid oxygen is stored inside a rocket at negative 183 degrees Celsius (-297 Fahrenheit). That's cold!

Rockets primarily use Newton's Third Law: For action there is an equal and opposite reaction. Newton's other two laws are: First Law – the law of inertia states that an object at rest will remain at rest and an object in motion with continue in motion moving in a straight line with constant velocity unless acted upon by an external force Newton's Second Law is the equation Force equals Mass times Acceleration.

To date, Southwest Ohio Rocketry Association has launched 209 rockets this year and we are on track to surpass our highest launch rate of 337 which was in 2023.