



the KOSMONAUT

THE OFFICIAL JOURNAL OF THE KANSAS ORGANIZATION FOR SPACEMODELING

January/February 2022

Volume 41 No. 1

LARGE TURNOUT FOR ANNUAL MEETING KOSMO LOOKS FORWARD TO EXCITING YEAR

The home of Steve and Janet Hamous in Wichita provided the gathering place for 14 KOSMO members along with 4 members joining us by ZOOM. In addition there were 7 members of the Wichita Area TARC team in attendance and quite a number of their parents and guardians.

The first order of “business” was lunch provided by the Hamous’s and included Steve’s famous BBQ pork, hot links, beans, cold slaw among other goodies and cake and ice cream for desert. 100% of the donations for lunch would go to the Wichita Area TARC team and that amounted to \$300.

As we settled into the living room 4 members joined us via zoom, 3 of them from neighboring states. Minutes from the 2021 meeting were read (which had been totally via zoom) and the treasurer’s report given, with an ending balance about \$80 more than the beginning one. Significant purchases made during the year were a pa system and a commercial pop up. Thank you NAR for the grant money that helped make these purchases possible. It was noted that Zach Twigg also had acquired a PA system. It will require 110 voltage and still needs some wiring and other accessories and is some what bulky to transport but we will look into what is needed to make this viable.

The current officers were affirmed by vote for an additional year. Officers are listed on another page in this newsletter. The launch schedule was then worked on and that is also listed on a separate page in this issue.

This year we did not have any Jr. NAR candidates for the free NAR membership. President Keith Ravenstein made available a free Level One club rocket for a member who would like to achieve Level One HP and Jeremy Lepel took advantage of that offer.

We discussed what items we might want to acquire with the NAR grant money this year and it was suggested it was time to retire the club’s 12 volt lawn tractor battery and get a gel cell for that purpose. There was also discussion about possible fire fighting equipment that might be helpful (or upgrades to our present equipment.) Keith suggested that members might want to purchase themselves inexpensive 1 gallon sprayers to bring to the launch or to have at personal launches outside the club. The club also approved spending up to \$150 on rocket kits or motors to continue the fly it /take it program headed by Bill Lindsay. The club also voted to again present Bill with the Traveling Trophy for his work with the area TARC team.

Events for the 42nd edition of our competitive contest KRAMO were selected. Most of the event can be done with fairly basic rockets and it is hoped that we can include an under 18 age group this year in the competition.

Several members expressed interest in attending the launch out in Alamosa Colorado Memorial Day weekend and quite a few members are planning on attending NARAM in Springfield Mo. In July.

President Keith Ravenstein explained the changes to how Jr. Level 1 and Level 2 test are administrated and proposed a change in how we do Level 1 certs. His proposal is that all Level 1 certs also include a written test consisting of the Jr. Level 1 questions in addition to several safety questions for the Level 2 test. This is based on what appears to be too many Level 1 modelers (not necessarily our club members) not being fully aware of safety concerns as they continue to fly and also based upon concerns by the NAR board on safety in HP rocketry. This change was approved for our club for future Level 1 certs.

We will check into wither the Rush County 4 H rocket group is still active and if so how we can help. If the group is inactive we may approach them in acquiring back the launch system we gave them which was based upon them still maintaining an active group.

The meeting was adjourned and the auction began ! Various members brought kits or collectibles or other items which were auctioned off. Steve Hamous volunteered to be the auctioneer and the bidding at times was fast and furious. In the end \$537 was raised for the Wichita Area TARC team and that added to the lunch donations put \$837 in the groups coffers !!

We then checked out some members projects and the TARC teams projects that are underway. Keith Ravenstein shared a preview of his upcoming HP project. Keith is our sole Level 3 person in our group and his project hopes to achieve an altitude of 22,000' or so.

And so another annual meeting wrapped up with plans of flying high over Kansas in 2022!



(Left) Every annual meeting starts out with food ! (Above) Some TARC team projects in front, auction items on middle table, and more KOSMO projects towards the back.

ANNUAL MEETING PHOTOS



Keith Ravenstein displays a part of his extreme project with a goal of 22,000'.



Just a portion of the group sitting comfortably during the meeting.

(below right) Steve Hamous conducts the auction. Going once, twice, sold ! The Wichita Area TARC team benefits to the tune of \$537



The Wichita Area TARC team was in attendance at our meeting. This photo shows the young rocketeers and some of the mentors and support personnel.



KOSMO 2022 OFFICERS

PRESIDENT – KEITH
RAVENSTEIN
VICE-PRESIDENT – BILL
LINDSAY
SECRETARY – DUANE
LANTERMAN
TREASURER – SHARON
LANTERMAN

SR. ADVISOR – WEBMASTER
CONTEST DIRECTOR – STEVE
SANER

HISTORIAN – MARK JOHNSON



UPCOMING KRAMO 42 EVENTS

Our NAR Sanctioned Contest in June Each Year

“1/4A” Streamer Duration (NRC event)
“1/2A” Rocket Glider (NRC event)
“A” Parachute Duration (NRC event)
“A” Helicopter Duration (NRC event)
“B” Eggloft Duration
Open Spot Landing

More information on this event will be forthcoming in the next issue of the KOSMONaut.

v NARCON 2022

This years NARCON the last weekend in January was a virtual event again and was well attended with individual workshops, tours, manufacturers forms, keynote speakers and social gatherings. KOSMO members attending included Bill Lindsay, Bob Flagle, Steve Saner, John Palmer, Jeremy Lepel, and Duane Lanterman.

2022 MEMBERSHIP DUES ARE DUE

We have had a tremendous response to this years membership dues. If you haven't submitted yours please send \$15 (individual or family) to the address listed below or bring it to your first launch this year. Thanks to all who have paid your dues.

“The KOSMONaut” is published bi-monthly by the *Kansas Organization for SpaceModeling* NAR Section #427. Hard copy subscriptions are \$8 for 6 issues. *Membership in KOSMO is \$15 a year and includes the “The KOSMONaut” (please specify hard copy or digital) and all club launch fees except for our annual contest KRAMO. Newsletter editor is the current KOSMO secretary Duane Lanterman. Submissions are always welcome! Membership and subscription checks should be made out to KOSMO and mailed to KOSMO 642 N. Homestead Rd. Great Bend, Ks. 67530.*

FLY IT / TAKE IT PROGRAM CONTINUES

The Fly it/Take it program has been under the watchful eyes of Bill Lindsay the past number of years. Just recently Bill finished building and painting 12 Estes Wizard's that the club purchased last year. With funds approved at the annual meeting Bill ordered 16 Balsa Machining Service *School Rockets*. He has begun to assembly them, ready to join the other models out on the field. If you know of someone in the Hutch area or Ellinwood area that hasn't flown models before be sure to invite them out to our next launch. Bill does a great job helping the kids prep the model for launch and emphasizing the safety aspects of the hobby. Thanks Bill !



The 12 finished Wizard's. (center) The Wizard's prior to assembly. (right) The first School Rocket nears completion.



MEMBERS PROJECTS UNDERWAY

Bob Wingate – Bob is currently working on several rockets. The first is a mini-engine *Little Joe II* from the early '90's. It's mostly done except for the escape tower, masking, painting, and decals. Next is a *Saturn V* #2001 produced from 1988-1994 that he started years ago. So far only the engine mount is done so he has a long way to go but it's one he's wanted to build for years. (now that you are retired Bob it's time to finish that bad boy up !) Lastly Bob is working on an Estes Citation Patriot set up for 24mm or 18mm engines. Hope to see at least two of those out on the field this year Bob.



Bill Lindsay – What more can we say? Bill's "started but not finished" pile is like no other, and this isn't all of them. (he took time to set these up for the photo) Somehow I think Bill will probably see at kit online or in a store and it will join this pile soon. Bill has been working hard with his TARC kids and building fly it/take it rockets too. (story above.) All the while Bill is dealing with cancer and some kick butt treatments. Please keep Bill and his wife Tina in your thoughts or prayers as he goes through a tough time.

3D Modeling

by Steve Saner

Most of us have used software like RockSim or OpenRocket to model a rocket design. Of course a primary use for that is to simulate a flight with different motors and conditions. Also of benefit is the 2D CAD drawing of the design and the ability to export certain part patterns, such as fins, to help with fabrication. I have recently been doing a lot of work with 3D modeling for rocket design. My tool of choice has been FreeCAD, an open source 3D parametric modeler that is free to download and use.

Using FreeCAD, I am creating a 3D model of each part of the rocket, such as an e-bay bulkhead in Figure 1. Each part is modeled and saved to its own file. I can then create an assembly file by importing individual parts and defining constraints that determine how they fit together, such as the nose sub-assembly in Figure 2. You can see not only the nose, but an e-bay for a GPS tracker and hardware for shock cord mount. By adjusting the transparency of the outer part (the nose) you can see the inner parts as well. Finally, the main assembly of the full rocket, Figure 3, is made by importing sub-assemblies, such as the nose, e-bay, and motor mount, as well as parts like the forward and aft air-frame tubes. Again, the transparency is adjusted so inside parts can be seen.

The reason for doing 3D modeling, for me, is not just about having a pretty picture to show. By seeing how parts fit together in three dimensions, I can more easily spot problems. I now also have the design of each part that I want to fabricate and I can export an appropriate file to do so. For example, a part that will be 3D printed, I can create an STL file, from the model, that will then be sliced and printed. For a part to be laser cut, I can export an SVG or DXF file that the laser cutter knows how to use. And, for a part that I want to make with a CNC mill, I can generate the g-code necessary to run that machine. I can also generate 2D patterns for more manual fabrication processes, like turning a nose on a lathe. Unfortunately, I don't have a simulator that works with the 3D model (at least not yet). So I will still have to model the rocket in OpenRocket in order to run simulations.

3D modeling isn't particularly hard to do, but there is a fairly steep learning curve. The engineering and fabrication of a rocket is, to me, part of the fun of the hobby. These tools are what I am currently using on this and other projects.

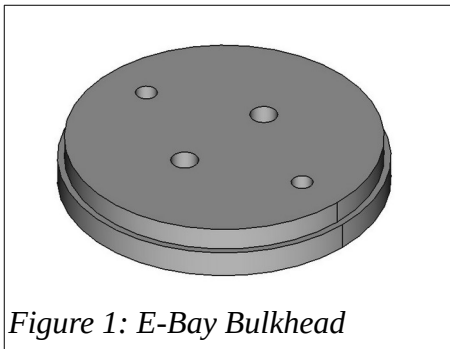


Figure 1: E-Bay Bulkhead

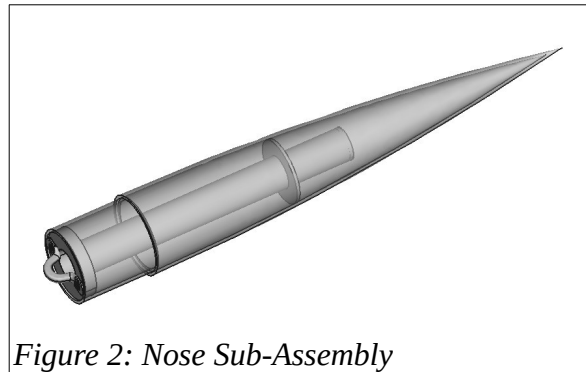


Figure 2: Nose Sub-Assembly

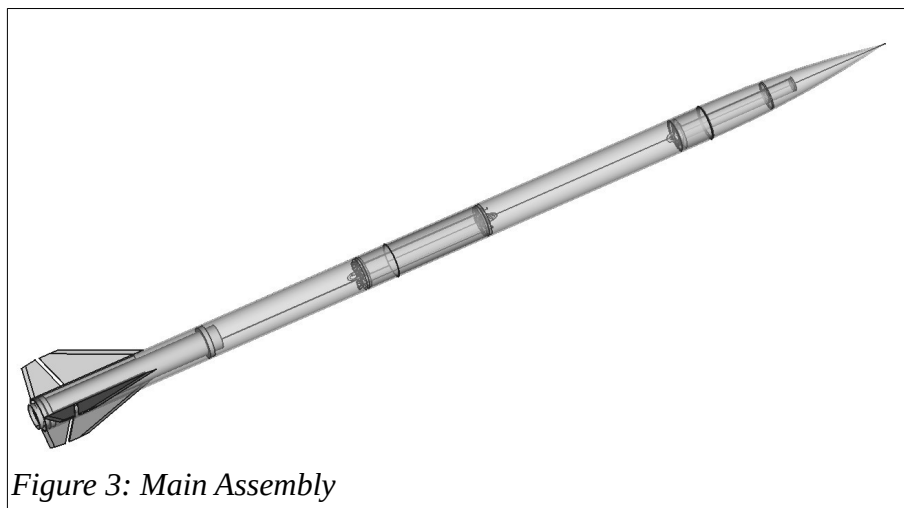


Figure 3: Main Assembly

KOSMO 2022 LAUNCH CALENDAR

**MARCH 12 – Ellinwood, Ks. -
SPRINGFEST – Lanterman Family Farm
10am-5pm 10,000' FAA Waiver**
Alternate weather dates, March 19 and 26

**APRIL 23 – Hutchinson, Ks. - Ks. State Fair
Grounds Parking Lot – 10am-4pm - Class 1 Rockets**

**MAY 21 – Hutchinson, Ks. - Ks. State Fair Grounds Parking Lot
10am-4pm Class 1 Rockets**

**JUNE 11-12 – Hutchinson, Ks. - Ks. State Fair Grounds Parking Lot –
KRAMO 42 NAR Contest and Fun Fly (see events in this issue) 10am-
5pm Saturday 9am-3pm Sunday**

JULY – no local launch – NARAM in Missouri

**AUGUST 13 – Hutchinson, Ks.- Ks. State Fair Grounds Parking Lot –
9am-2pm Class 1 Rockets**

**SEPTEMBER 10- Ellinwood, Ks. - Lanterman Family Farm – Final
Frontier Fun Fly – 10am-5pm -10,000' FAA Waiver**
Alternate date September 24

**OCTOBER 8 – Ellinwood, Ks.- Lanterman Family Farm- Rocket'tober
– 10am-5pm – 10,000' FAA Waiver**
Alternate date October 22

**NOVEMBER 12 – Hutchinson, Ks. - Ks. State Fair Grounds Parking
Lot – 2pm with illuminated rockets after sunset**

The parking lot at the State Fair grounds in Hutchinson is our low/mid power field. We do limit flights to Class 1 rockets (which generally means up to a G impulse motor max) *that can reasonably be expected to stay within the bounds of the field. (this is at the discretion of the range safety officer)*

At Ellinwood we will file an FAA waiver good to 10,000 ft above ground-level. Generally speaking, this will allow up to a K impulse motor. Note that you must be properly certified, or be getting your certification, to fly high power rockets. If you would like to get Level 1 or Level 2 NAR certification, we have members that can help you with that. Please contact us if you have any questions. While high power rockets are allowed at this launch, most flights tend to be of low and mid power rockets. So do not hesitate to join us even if you are not flying high power.

WITH KANSAS WEATHER THESE DATES ARE CERTAINLY SUBJECT TO CHANGE. UPDATES CAN BE FOUND AS THE DATES APPROACH ON OUR CLUBS FACEBOOK PAGE, OUR CLUB EMAIL LIST, AND OUR CLUB'S WEBSITE.

