

ZOG-43

Official Publication of NARHAMS
November / December 2024

Inside this issue:

Nov. Goddard Launch Report	pg. 3
Holiday Party 2024	pg. 4
Dec. Goddard Launch Report	pg. 6
The Ranger (a Retro Kit Build)	pg. 7
Haste / Leidos Missions	pg. 10
Real World Rocketry News	pg. 13
Trebelhorn Donation	pg. 14
Defect in Igniter Plug	pg. 14
NARHAMS Section 139 News	pg. 15
James Miers FROG Award	pg. 15
NARHAMS Nostalgia	pg. 17



**Volume 46 ; Number 6
November / December 2024**

Official Newsletter of NARHAMS model rocket club

Editor: Alex Mankevich

Associate Editor: Thomas Henderson

ZOG-43 is dedicated to providing current information about NARHAMS' activities, outreaches, sport launches, competitions and club business. We aim to provide updates on model and real world rocketry, educational material, and some entertaining information. We try to appeal to model rocketeers of all ages, abilities, and interest. We like to share the talents and accomplishments of our members. The ZOG-43 is authored by real people, no AI-generated content here.

ZOG-43 is published bimonthly and is available to all paid up members of NARHAMS. Club membership is open to all, dues are 10 cents per week. The content of ZOG-43 is copyrighted. Free and unlimited reproduction is granted with the proper credit to the author and/or ZOG-43.

If you have any questions about ZOG-43, NARHAMS, subscriptions, or if you have any comments, correspondence, or if you'd like to submit an article or event photographs, send them to:

zog43editor@yahoo.com

About NARHAMS:

The National Association of Rocketry Headquarters Astro Modeling Section, or NARHAMS, serves Baltimore, the state of Maryland, Washington, DC and the surrounding Metropolitan areas. The club is a section (#139) of the National Association of Rocketry (NAR). We are the oldest continuously active model rocket club in the United States, first established as a high school club in 1963, changing our name to NARHAMS when chartered as a NAR section in 1965. NARHAMS is the only seven-time winner of the NAR "Section of the Year" award (1997, 1998, 1999, 2001, 2004, 2006, and 2007).

NARHAMS members regularly fly their model rockets at NASA's Goddard Space Flight Center in Greenbelt, MD. and at Krimgold Park near Woodbine, MD. NARHAMS welcomes all persons interested in rocketry to our monthly meetings and launches.

For details, dates and directions to our club, meetings and launches, go to:

<http://www.narhams.org>

From the Editor:

This issue closes out volume 46 of the ZOG-43 rocketry newsletter. We extend a heartfelt thanks to all the persons who contributed articles, photographs and news during the course of 2024. We are confident going into 2025 that the ZOG-43 will continue to generate newsworthy articles and interesting images of the NARHAMS model rocketry activities. We'll continue to keep you informed of real world rocketry events as well.

In this issue James Miers provides a comprehensive report on the building and finishing of the classic Astron Ranger. Alex Mankevich reports on two visits to Wallops Island to view the Haste / Leidos launches. Get in the know as NARHAMS works with Estes Industries to track a problem with their motor plugs.

Finally, in a nod to the holiday season that is upon us, recount how The Grinch managed to steal the December sport launch.

Contributing to this issue:

Reporters:

Alex Mankevich, Thomas Henderson and James Miers.

Photographers:

Ole Ed Pearson, Eric and Thomas Henderson, Michael Cochran, Sarah Jackson, James Miers, Brian Beard, DJ Emmanuel, and Alex Mankevich.

Covers Credits:

Front Cover: The late John McCoy thrilled the 2013 Holiday Party guests with a display of his holiday-themed rockets. Several items from the John McCoy collection are included in this year's raffle. Credit: Alex Mankevich

Back Cover: Rocket Lab's Electron Integration and Control Facility (ICF) is located at NASA Wallops Research Park. The facility is used to provide launch vehicles and payload processing. The vehicle integration bay is capable of concurrently processing multiple Electron rockets. Also located in the ICF is Rocket Lab's own Mission Control Center. Credit: Alex Mankevich

**ZOG ROYAL COURT
(NARHAMS OFFICERS)**

ZOG (President) Edward Jackson

VICE ZOG (Vice-President) Alan Williams

**COLLECTOR OF THE ROYAL TAXES
(Treasurer) Sarah Jackson**

**KEEPER OF THE HOLY WORDS
(Secretary) Brian Beard**

**COURT JESTER
(Section Advisor) James Miers**

Goddard Launch Report

November 2024

Reported by: Alex Mankevich
ZOG-43 Editor



Ole Ed Pearson (left) connected the micro clip leads to his motor's igniter wire. Credit: DJ Emmanuel



DJ Emmanuel (R) did some launch photography along with launch pad assistance and recovery pole operations. Credit: Alex Mankevich



A colorful crowd of launch spectators was on hand to view the model rocket launches. Credit: DJ Emmanuel



An Estes Blast-off Blue Crayon model managed an in-flight rendezvous with the Rocket Garden's white Delta rocket. Credit: DJ Emmanuel

Michael Amster of Boy Scout Pack 8 planned to have his scouts participate in the November First Saturday launch. The Pack provided a heads up back in September to Amanda Harvey, the Goddard Visitor Center Program Coordinator, that they planned on having 30 to 40 scouts launching rockets during the November Goddard launch.



A scale model of Dr. Robert Goddard's "Nell" rocket graced the skies during the November Goddard launch. Credit: Ole Ed Pearson

Scale models saw some action during this launch. A Nell, a Saturn V and an SLS model took their turns exciting the launch spectators. Among the more popular models appearing on the launch rack were the Generic E2X, Octavius, Ghost Chaser and Starhopper.

A handful of rockets managed to get caught in the trees. Sarah Jackson had to spend most of her launch day inside the Visitor Center to assist modelers construct and prepare their models. Eric Henderson served as 'wrangler' for the modelers awaiting their turn to approach the launch rack.

The tally of numbers for this launch was impressive - they were springtime counts for participants and flights. So far, we had not experienced any significant drop off in modelers participating in the Goddard launches after the switch to Saturdays.

November Goddard Launch By the Numbers:

Total Rockets Launched:	118
Adults in Attendance:	202
Youths in Attendance:	137
Total Visitors at VC:	339
First Time Flyer Certificates:	48



Holiday Party - 2024

'Tis the season to be jolly and NARHAMS brought out the holiday spirit. It was a cold night - appropriate for a Holiday Party and raffle drawing. The raffle drawing was enhanced with several offerings of the late John McCoy's ample collection of kits, parts and motors.

We honored NARHAMS' Section Advisor James Miers with a well-deserved FROG (For Rocketeers Of Greatness) award. Befitting of his FROG, Mr. Miers arranged for the Holiday Party's venue and managed the table and chairs set up.

Several families join the festivities. The Shafers, Pearsons, Has, Solomons, Goldbergs and Avramovs turned out in multiples. Out-of-state visitors such as Jim Filler and Tom and Maria Ha attended our fête as well.

Vice Zog Alan Williams once again conducted the raffle, and he presented Mr. Miers with his FROG award.

Choices among the food included chicken nuggets, buffalo chicken dip, roasted sausage and sauerkraut, veggie trays, cheese and meat tray, meatballs and salads. The desserts included space themed cookies, pumpkin pies, holiday punch and holiday cookies. Ole Ed Pearson concocted the offering of holiday punch and the Shafers shared their artistically created space themed gingerbread cookies.



Fabrice Derullieux (seated) counted the money collected from the raffle. Proceeds are used to pay for storage fees and equipment repairs. Credit: Sarah Jackson



**Reported by: Alex Mankevich
ZOG-43 Editor**



Several raffle items awaited their new "forever homes". Credit: Alex Mankevich



Diane Pearson (L) and Alan Williams (R) got into a festive mode. Credit: Ole Ed Pearson



Sarah Jackson modeled a blue Holiday sweater and she was ready for the good times to roll. Credit: Ole Ed Pearson



James Miers (R) received a well-deserved FROG award presented by Vice President Alan Williams (L). Credit: Alex Mankevich



Holiday Party - 2024

Aaron Stansberry (L) and DJ Emmanuel (R) prepared the holiday punch. In the background, Sally Cook (L) and Santa Mike Cochran (R) waited their chance to get some punch. Credit: Ole Ed Pearson



Rich Ruth showed us all how to go "all in" on the raffle drawing. Credit: Alex Mankevich



Jim Filler (seated) and Tom Ha (standing) were among the out of state visitors at the party. Credit: Ole Ed Pearson



Rich Ruth previewed the items offered for the raffle drawing. Credit: Brian Beard



Kevin Johnson previewed the raffle offerings. Credit: Ole Ed Pearson



Brian Beard had his eye on an Astrocram model. Credit: Ole Ed Pearson

Goddard Launch Report

December 2024

Reported by: Alex Mankevich

ZOG-43 Editor

December Goddard Launch By the Numbers:

Total Rockets Launched:	51
Adults in Attendance:	75
Youths in Attendance:	34
Total Visitors at VC:	109
First Time Flyer Certificates:	11



NASA intern Katya (L) assisted Santa Michael (R)

at the launch rack. Credit: Ole Ed Pearson



A NASA Goddard Security Officer returned a rocket that went

over the fence line. Credit: Eric & Thomas Henderson

'Twas a cold day for a rocket launch at the NASA Goddard Visitor Center on December 7th. But, your fearless range crew braved the late Fall elements to close out the 2024 calendar year of Goddard Launches.

There was a lower volume, but a steady stream, of rocketeers at this launch. The check-in queue never got too long, so there was a slower pace to the launch. The little rocketeers were thrilled by the appearance of Santa Michael. He was capably assisted by NASA intern Katya Sanamyan.

Thomas Henderson did the firing officer duties and the color commentary in the absence of Edward Jackson. Sarah Jackson and Ole Ed Pearson were stationed inside the Visitor Center to assist visitors to build and prep their model rockets. Goddard Security did some retrieval of models that went over the fence. James Miers handled the safety check-in station. He had to reject some models due to poor construction and he advised modelers as to a better motor selection for their rocket's flight.

There was a problem for a while with the microphone. But, a change of microphone cord solved that problem.

An unlucky modeler had damage to a side booster of his SLS scale model. Later, he lost his Saturn V model to the trees.



Thomas Henderson did the firing officer duties and launch commentary. Credit: Ole Ed Pearson



Sarah Jackson (L) assisted modelers inside the Visitor Center to build their rockets and prep them for launch. Credit: Ole Ed Pearson



NASA recently announced that the next SLS flight has been delayed to April 2026. The next best option is to view a SLS 1:200 scale model launch at the Goddard Visitor Center. Credit: Sarah Jackson



The finished model on the launch pad at Great Meadows, minutes before its final flight. Mid-way along the body you can see the dimple where the shock cord attached. Credit: James Miers



All the parts cut to shape and laid out. Except for the engine blocks and the color of the tubing I imagine this is what the original kit looked like when it was first opened. Credit: James Miers

The Astron Ranger was a clustered payload model, first appearing in the Estes Catalog in 1963. Built around a 1.63 inch* (BT-60) frame, it was originally designed to fly on a cluster of three A.8-3 or B.8-4 (old designation) motors. Ranger was the prototype model from which the Big Bertha was designed two years later. The Ranger itself remained in the Estes catalog through 1971, and even after it was discontinued it remained a popular rocket to build, often by kit-bashing a Big Bertha.

In planning this project, I intended to remain as close as possible to the original Ranger kit in both materials and construction, what some historical reenactors I know refer to as Authentic with a capital A. This meant scratch building a Ranger from the closest parts available and using the original construction to the extent safe flying practice permitted. In fact, I did not adhere completely to original construction methods, but it came close.

Research:

I began this project by reviewing Estes catalogs from the nineteen-sixties, which can be found online at <https://estesrockets.com/pages/catalogs>. These provided basic information about the kit, and I was able to go back to them later for details about materials and dimensions of the original parts.

An original instruction set, including the fin pattern, was downloaded from Space Modeling (<https://www.spacemodeling.org/jimz/k-06.htm>). I obtained parts from several sources; the tubes, coupler, nose, and launch lug being bought from Balsa Machining Service (<https://www.balsamachining.com/>) with the remaining items either sourced locally (special shout-out to Scott Branche at Hobby Works, Laurel for assisting in this endeavor) or from my copious spare-parts boxes.

Building:

In the original kit, the fins needed to be cut out from sheet balsa, but all other parts were already at their correct dimensions. However, parts bought today are generally available only in standard stock sizes, accordingly the body tubes, engine mount tubes, and the balsa nose block all needed to be cut down to the correct size consistent with the original Estes parts. Here again, the old Estes catalogs proved invaluable.

Estes was aware of the limitations of its 1960's era builders, most of them teens with limited resources, and this kit used such simplified building techniques as the cut-out paper fin placement guide and door-jamb fin alignment. Today, however, we have more exacting tools available, including fin alignment jigs provided by Estes themselves, and I was not averse to using them. And while the instructions call for the fins to be cut out using a modeling knife or razor blade, I admit to using a saw, as modeling knives and even razor blades leave a fairly rough edge finish. If failure to adhere to the strict letter of the instructions downgrades my authenticity rating to a miniscule 'a,' so be it.

On the other hand, while there are better methods available today for sealing off the parachute bay, I stuck with the original plan, which called for packing in around the motor mounts with a sort of papier-mâché made up from facial tissue and white glue. I also used the original shock cord mount - a double slit cut into the main body which leaves a little dimple on the exterior surface. If building method occasionally deviated from the original plans, the actual construction remained spot-on. * (Continued) *

* All dimensions used in this article are in imperial units, consistent with the 1960's catalog and the Astron Ranger instruction set.

The Ranger (a Retro Kit Build) - continued

And of course I stayed with the original recovery, a pair of eighteen-inch parachutes. I used modern parachute sheets (which are essentially the same as in the original) attaching six individual shroud lines as called for in the instructions, a method which is a bit different from what we would use today. Per the instructions, one parachute attached to the booster, the other to the payload section, which allowed the sections to recover separately. But be aware, this is a lot of parachute area for a fairly lightweight model, especially given the Ranger can attain substantial altitude flying on a 3x C6-5 cluster. This is one model you will want to pay close attention to flying conditions, and you might well consider taping the shroud lines to reduce parachute effectiveness, or downgrading your authenticity level and using a single parachute.

Finishing:

Builders in the sixties had their choice of the same general finishing products we still use today; balsa filler, sanding sealer, bottled hobby paints, and spray paints. The particular products and techniques varied from builder to builder. I used automotive filler/primer to infill the balsa grain and prime the painted surfaces. The original Ranger kit had no color scheme recommended other than red or orange paint over a white base coat. I finished mine with white, black, and yellow in an overall pattern adopted from the 1964 catalog illustration. While not in strict accord with the printed instructions, I hold that Authenticity was not impaired. There were no decals included with the original kit, and none were used in this project.

Motor retention used the old friction-fit-with-maskings-tape method, which worked, but required a bit of back and forth balancing to get the fit correct; neither too tight nor too loose. The installed motors overhang the end of the engine holder tubes by $\frac{1}{4}$ " and as they are rather tight in their mounts, I found a pair of slip-joint pliers was helpful in getting a proper grip for extracting the casings after flight.

Flight History:

First flight (Woodbine, Maryland) was made on three old B6-4's (manufactured December, 1970 and thoughtfully provided by Kurt Beckman, a friend from NOVAAR). It was not an unqualified success. Of course I had to do this as Authentically as possible, so I used original igniters with original motors. The old-style Estes igniters were just a nichrome wire with some pyrogen dip and held in the nozzle with a small bit of wadded up recovery material. With this flight, there was a long delay after voltage was applied, and finally only one motor ignited. The rocket flew in a low loop over and ejected near ground level and broke off one fin at the root edge (later repaired). The one motor that did ignite worked normally, but the other two showed no sign of the igniters even getting hot. I have no idea what happened. Short circuit somewhere? Old igniters? Insufficient current? Don't know.

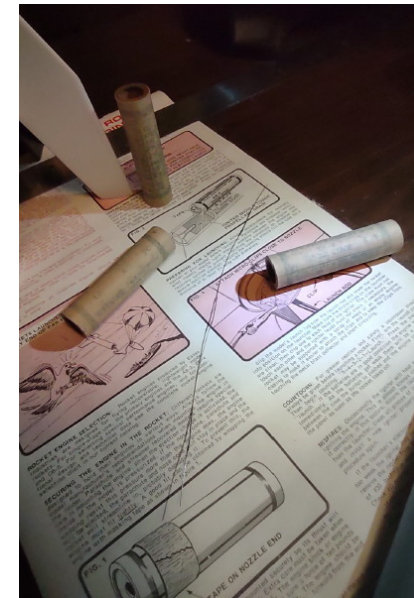
Second flight (The Plains, Virginia) on three B6-4's of more recent manufacture, and using modern Solar Igniters (with a pinch of black powder added to increase assurance). All three motors ignited, and the rocket lifted quickly. Ejections all fired as close to apogee as could be observed, both parachutes fully deployed, and both halves of the rocket drifted off with the wind. The boost stage came to rest in the top of a tree on the edge of the field, while the lighter payload section was last seen drifting off toward Prince William County. Two eighteen-inch parachutes on a model of this size and weight was definitely overkill. But it was Authentic.

Conclusion:

Is a classic model build worthwhile? Take an evening's nostalgic read-through online rocket catalogs from the sixties and seventies and you will discover many interesting kits that are no longer being sold. There are some interesting designs out there, many of which will out-perform their modern counterparts. Building classic models can add a new dimension to your enjoyment of the hobby, and instructions and parts are still often available. And if some improvisation may be required from time to time, nobody will judge right or wrong between building a classic design to truly Authentic standards as opposed to customizing it as you will. * (Continued) *



This method is not inconsistent with the instructions, and was available in the nineteen-sixties, but I doubt many builders carried it through to this level of precision. Credit: James Miers



Three motors manufactured December, 1970. Note the nichrome igniter wire with three thin pyrogen sections, and an extensive instruction sheet. Credit: James Miers

The Ranger (a Retro Kit Build) - continued

Appendix:

Parts included with the original kit, per the instructions:

	Quantity / Description	Original Estes Catalog Number	Dimension
A)	1 BT-60 Body Tube	BT-60D	11" long
B)	1 BT-60 Payload Tube	BT-60K	7" long
C)	1 Balsa Nose Cone ¹	BNC-60L	3-1/8" long
D)	1 Nose Block ²	NB-60	1-1/2" long
E)	3 BT-20 Engine Holder Tubes	BT-20J	2-3/4" long each
F)	2 Sheets Balsa Fin Stock ³	BFS-30	3/32" thick balsa sheet
G)	Shroud Line Cord	SLT-7	no length specified
H)	3 Engine Blocks ⁴	EB-20A	1/4" long
I)	1 Screw Eye	SE-1	1" long
J)	1 Launch Lug	LL1-C	for 1/8" rod - 5" long
K)	2 Parachutes	PK-18A	18" plastic parachutes
L)	12 Tape Strips	TD-2	1/4" x 3/4" each strip
M)	1 Shock Cord	SC-2	1/4" x 18" rubber band
N)	1 Fin Pattern	SP-6	
O)	1 Technical Report ⁵	TR-6	Technical paper on clustering



Author James Miers.
Credit: Alex Mankevich

Notes on the parts:

1 – The incredible shrinking BNC-60L was listed in the Estes catalogs for 1963 & 1965 as being 4" long (not including the base); in the 1966 – 1968 catalogs as being 3-3/4"; in the 1969 – 1971 catalogs as being 3-1/8". The latter dimension matches the Balsa Machining nose I bought. (All these are longer than the current Bertha nose, which is plastic and about 2-1/2")

2 – Nose block – this is a plain coupler, just a solid balsa bulkhead turned to fit the BT-60 tube.

3 – Fin stock – the original Estes product was a 3" x 9" sheet, each large enough for two fins.

4 – Engine blocks – in the catalog, these were the old-style engine blocks which were a dark gray spiral wound paper ring considerably thinner than the modern blocks (which double as BT5/20 centering rings). For this rebuild, I used the more recent, thicker style, having several in my parts box.

5 – Technical reports – Estes had a number of these available on different topics. Stine's Handbook was only first published in 1965, so when the Ranger was introduced, the Estes TR's were some of the best available resources for technical information for your average builder (the majority of whom were under 18 back in the day).

Haste Rocket and Mach-TB Missions:

Rocket Lab announced in September 2023 that it signed a contract with Leidos to launch four HASTE (Hypersonic Accelerator Suborbital Test Electron) missions. The Haste rocket is a modified Electron rocket designed specifically to test an experimental hypersonic glide body. Haste employs a modified third stage, and offers fairing options to accommodate larger payloads. Haste is designed to deploy sub-orbital payloads to be launched from Rocket Lab's Launch Complex 2 at Virginia's Mid-Atlantic Regional Spaceport (MARS) within NASA's Wallops Flight Facility (WFF).

Mach-TB Program:

Haste missions are to provide insight to the Department of Defense (DoD) under the Multi-Service Advanced Capability Hypersonic Test Bed (MACH-TB) program which focuses on hypersonic flight technology testing. This testing is performed for the U.S. defense and intelligence community. As such, details about DoD missions and their payloads remain classified.

Unlike Rocket Lab's commercial satellite launches, a Haste launch is not promoted by the company. Rocket Lab's website and X (formerly Twitter) account normally promote its "Next Mission" and provide launch viewing information which includes a mission overview, live webcast/livestream connectivity, real time launch updates and a downloadable media press kit. Not so for the Haste launches. Rocket Lab appears determined to underplay Haste launches. No live webcast is provided, no launch updates are posted, and no media press kit are made available.

NASA Wallops also downplays the upcoming Haste launches. The NASA Wallops' X site will post a generic announcement that *"the Wallops Range is scheduled to support a suborbital launch between [dates]. We will post an update when the launch is complete, but it will not be live streamed. The Wallops Visitor Center will not be open for launch viewing"*. The times of the launch window are not mentioned, neither is the rocket named or its mission detailed. The LED billboard outside the Visitor Center will not display any launch information.



Electron model on display at the NASA Wallops Island Visitor Center. Credit: Alex Mankevich

Astute launch spectators could observe subtle hints that a launch is pending at MARS/Wallops Flight Facility. Rocket Lab normally raises the Electron/Haste on its launch pad about four hours before lift-off. Seeing the rocket vertical on its launch pad is one indication. The parking lot at Rocket Lab's Integration and Control Facility (ICF) within Wallops Research Park will have at least 30 vehicles whereas on a normal day you may spot one-half dozen vehicles. Outside the facility you may view men in business suits walking about. Business dress is not the normal work attire for rocket integration specialists or mission control personnel. Three hours before T-0 a security checkpoint will be established at the junction of Wallops Island (Causeway) Road and Atlantic Road. A LED digital sign board just outside the Chincoteague National Wildlife Refuge will advise if the park will be closed for a "NASA Launch".

Leidos-2 Mission:

Rocket launch websites announced a postponement on the day prior to the November 19th original launch date. The new lift-off was scheduled for Thursday November 21st at a launch window that ran from 7:45 pm to 1:00 am local time. Sunset on launch day was around 4:46 pm, placing T-0 in night-time darkness well after Astronomical Twilight. A waning gibbous moon was to rise after 10:30 pm, so it was not to photo bomb the launch photograph if the rocket lifted off near the beginning of its launch window.

The weather on November 21st was undecided for the entire evening and night. The daytime's breezy winds diminished as the evening wore on. The sky above the launch range fluctuated between completely cloudy to intermittently clear skies. Brief episodes of light rain sprinkles popped up from time to time. By 10:30 pm the sky was clear from horizon to horizon, and the stars shone bright.

Since the beginning of the launch window Rocket Lab went into a continuous stream of 15 minutes holds and kept sending up weather balloons. Virginia Marine Police officers were the best source for launch status at the Old NASA Ferry Boat site. They advised early on that the launch would probably happen near the end of the five-plus hours launch window. A few launch spectators were able to get some bars on their cell phones and monitored X accounts for launch status postings. A "hard" T-0 time of 10:58 pm was posted at 10:37 pm. A launch scrub was posted at 11:00 pm. * (Continued) *

The Haste / Leidos-2 lift-off finally happened at 1:00 am on November 24th. Ignition took place three hours after the start of the launch window. The launch went into a hold at the 10:00 pm beginning of the launch window, then was delayed purportedly due to a tugboat that had intruded into the public ship avoidance area off of Wallops Island.

Later on launch day the NASA Wallops X account posted a brief statement that the mission was completed. Fifteen hours after the launch Rocket Lab's X account posted a brief statement "*our team completed a successful launch from LC-2 in the early hours of this morning EST*". Eventually (on December 9th), Rocket Lab "announced it successfully launched a suborbital mission in November to test hypersonic technology for the Department of Defense."

'Stonehenge' Mission:

New entries were posted to the Federal Aviation Administration's (FAA) Temporary Flight Restrictions (TFR) Website on December 11th that space operations were scheduled for the Wallops Flight Facility from December 13th to 18th. Rocket Lab's website and X account were quiescent (as per usual). The launch window initially posted on the TFR website ran from 5:45 pm to 7:45 pm EST, but was later modified to match the previous Haste launch window of 7:45 pm to 1:00 am.

It was just nineteen days after the Leidos-2 launch that Rocket Lab raised a Haste rocket to launch another secretive mission dubbed 'Stonehenge'. The actual payload was unknown and the customer was kept confidential. The weather for this launch was much more accommodating since the chances for precipitation were low and the wind speeds at ground level and aloft were expected to be calm. Launch window temperatures were a seasonal upper 30s. A thin veil of upper level clouds caused the moon to produce a halo.

The Haste rocket launched at 8:00 pm after just a 15 minute delay. The nine Rutherford engines produced an orange-gold flame that arced into the moon's halo. The throttled noise of the engines was satisfying. Later that night the NASA Wallops X site announced that the mission was completed. Rocket Lab released a brief statement three days later announcing "another successful mission from LC-2, our 15th launch of 2024."

These Haste missions were the fifth and sixth Electron/Haste launches from Wallops Island to date. Three previous Electron flights were orbital missions, and one flight (in June 2023) was also a Haste mission contracted with Leidos. Rocket Lab is on the hook for two more suborbital flights with its Haste rocket on Leidos missions that are expected to be launched from Wallops Island by the end of 2025. A Haste - Dart AE mission is tentatively scheduled for NET March 30, 2025.



Rocket Lab is constructing a new Neutron Production Complex on a 28-acre site adjacent to the entrance of the NASA Wallops Flight Facility and Mid-Atlantic Regional Spaceport (MARS). The 250,000 square foot complex will be home to the production, assembly, and integration of Rocket Lab's yet-to-fly 141 foot long Neutron rocket. The site will manufacture specialized light-weight carbon composites that will be utilized to construct what will be the world's largest carbon composite rocket, including its fairing. Credit: Alex Mankevich



Rocket Lab's Haste rocket on the pad at Launch Complex 2 within the Wallops Flight Facility for the Leidos-2 mission in November. This is the view from the Old NASA ferry boat site about two miles away. This image was taken around T-4 hours, so the body of the rocket is black. The rocket turns white as the super-cooled propellants are loaded, and the frost line develops on the outside of the rocket. Credit: Alex Mankevich



A thin veil of upper level clouds allowed the moon to create a halo. The Haste rocket's flight path arced its way seemingly into the moon's halo. This is a 136 seconds time exposure taken at the old NASA ferry boat ramp of the 'Stonehenge' mission on December 13th. Credit: Alex Mankevich

NOTAM and NOTMAR to Monitor Wallops Flight Facility Rocket Launches.

(Note: the hyper links are active.)

When the rocket's manufacturer and the launch range's owner provide scant launch notification, the alternative is to monitor the Federal Aviation Administration's (FAA) Temporary Flight Restrictions (TFR) Website (<https://tfr.faa.gov/tfr2/list.html>). Look for rocket launch postings under "Space Operations – Wallops Flight Facility, VA".

Another option is to view the postings on the US Coast Guard's Local Notice to Mariners District 5 - Mid Atlantic (<https://www.dco.uscg.mil/Featured-Content/Mariners/Local-Notice-to-Mariners-LNMs/District-5/>). Click on the latest week under the "D05 Local Notice to Mariners" header. In the page that opens up, click on the pdf document under "The Fifth Coast Guard District Local Notice to Mariners". Look for rocket launch postings in the Local Notice to Mariners for "Sector Virginia, Exclusive Economic Zone (EEZ)" and "Chincoteague Channel".

A third option is the Maritime Safety Office's Maritime Safety Information (<https://msi.nga.mil/NavWarnings>). Click on the gray bar for "NAVAREA IV" under "Daily Memorandum". After the document opens, look for rocket launch postings under "Western North Atlantic – Virginia – Hazardous Operations, Rocket Launching".

You are reminded that postings of launch dates/time by the FAA and the Maritime Safety Office do not "finalize" the launch date/time. These postings usually list a primary date/time with a few backup dates/times on the following days. They will list the launch window times in Coordinated Universal Time (UTC). Visit the WorldTimeServer.com website (<https://www.worldtimeserver.com/time-zones/utc-to-est/>) to convert UTC to Eastern Standard Time (EST). Remember that EST time converts to "before" UTC time – e.g.: 1:00 pm in UTC is 8:00 am in EST.



Real World Rocketry - October to December 2024

Reported by: Thomas Henderson
ZOG-43 Associate Editor

This article covers events from October 20 to December 27, 2024.

CASC launched Shenzhou-19 to space station Tiangong on a CZ-2F rocket on October 29. The crew of the previous expedition, Shenzhou-18, returned to Earth on November 3.

Blue Origin flew New Shepard rocket NS-4 and capsule RSS First Step on mission NS-28 on November 22 with six passengers, including two, Americans Marc and Sharon Hagle, on their second New Shepard flight.

SpaceX launched 32 Falcon 9 missions as well as the sixth integrated test of their Starship-Superheavy reusable rocket. In addition to Starlinks, the Falcon missions included an ISS resupply ship and a variety of commercial, scientific, and military satellites. The Starlink of December 4 marked the 24th launch and landing for its booster, number 1067, a new record for Falcon.

In addition to Shenzhou-19, CASC launched 13 Long March rockets of various types. Notable were the CZ-7 of November 15, with a Tianzhou station supply ship, and the CZ-12 of November 30, which was the first launch of that type.

Blue Origin launched a new New Shepard rocket, NS-5, and capsule, RSS Karman Line, on a test flight on October 23.

Roscosmos flew four Soyuz rockets with government payloads, two each of the 2.1a and 2.1b versions. The Soyuz-2.1a of November 21 launched supply ship Progress MS-29 to the ISS.

Mitsubishi Heavy Industries launched an H3-22S rocket with a geostationary communications satellite for the Japanese military on November 4.

Rocket Lab flew four missions, two of which were suborbital flights of the HASTE version of Electron from Wallops Flight Facility with secret payloads, while the other two were commercial launches of standard Electrons from New Zealand.

CAS Space flew two Kinetica-1 rockets, the second of which failed to orbit its payload on December 26 due to a failure in the third-stage attitude control system. LandSpace orbited a pair of technology demonstrators on a ZhuQue-2E rocket on November 26. The flight was the first of the 2E model of the rocket, which features an improved second stage. ExPace flew an Earth observation satellite on a Kuaizhou-1A rocket on December 3.

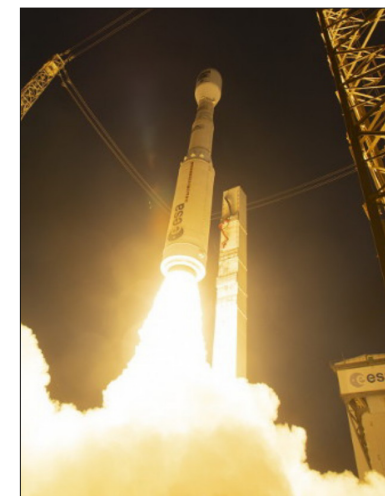
ISRO launched ESA's Proba-3 mission to study the solar corona on a PSLV rocket on December 5.

Arianespace flew a Vega-C rocket with an Earth observation satellite, also on December 5. The launch was the return to flight of Vega-C after an upper stage failure in 2022.

The Iranian Space Agency launched an experimental satellite on a Simorgh rocket on December 5.

SpaceOne made a second unsuccessful launch attempt of its KAIROS rocket on December 17 after a failure earlier this year. The rocket went out of control near the end of the first-stage burn.

Galactic Energy flew its Ceres-1S rocket from a sea-launch platform on December 19, with four satellites for a communications constellation.



An ArianeSpace Vega-C launches ESA's Sentinel-1C satellite. Credit ESA-S. Corvaja

Upcoming in January and February 2025:

- January 5: First flight of the Blue Origin New Glenn partially-reusable rocket.
- January 10: Seventh integrated test flight of the SpaceX Starship-Superheavy reusable rocket.
- NET January: Launch of Firefly Blue Ghost and ispace HAKUTO-R lunar probes on a Falcon 9.
- NET February 25: Second launch of the European Ariane 6 rocket.
- NET February: Demo mission of ISRO's Gaganyaan spacecraft on a LVM-3 rocket.
- Soon: Rocket Lab plans at least three HASTE missions from Wallops for 2025; these happen with short notice, so it is likely one or more may fly within the first two months of the year.



Trebelhorn Donation

Cathy and Rich Trebelhorn of Crofton donated their son's collection of model rockets and miscellaneous parts. Their email summarized their intention - *"I have twenty or so little rockets that my son built when he was in grade school (he'll be 51 next spring) and this pile of his old toys has been sitting in my basement for too darned long. I hate to throw anything away -- anything!, my wife observes -- and I'd be happy to deliver to your garage or to one of your launch sites".*



Model rocket donor Rich Trebelhorn with his son's scale model of the once-classified SR-71 Blackbird which he donated to NARHAMS at a secret undisclosed location. Credit: Alex Mankevich

The donated rocketry items included several motors, a launch pad, some body tubes and sixteen "serviceable" model rockets from back in the day. Among the model rockets are a Blue Bird Zero, a Laser, an SR-71 Blackbird, an Asteroid Explorer, a Centuri CCCP Sputnik, an Estes USS Hyperion, an Estes Halley's Tail, and an unfinished V2.

Most of the models are currently out of production. Most of them need their parachute shroud lines replaced and their elastic shock cords have long since deteriorated. None of the finished models have been expertly finished - not surprising since their son was in grade school at the time.

A single pack of igniter wires and a package of recovery wadding have been earmarked for the Goddard launches.

Defect in Standard Engine Igniter Plugs

Reported by: Alex Mankevich

NARHAMS had noted some misfires at the November Goddard Launch. It was discovered upon swapping out the igniter wires that defective standard engine igniter plugs were a contributing factor.

Some of the yellow standard engine igniter plugs were found to have an appendage at 90 degrees to their centerlines. The extraneous plastic is located just above the plug's flared-out base and below the raised ridges towards the tip of the plug. The extraneous plastic precludes the plugs from properly seating inside the engine nozzle. This defect was noted only for the yellow standard engine igniter plugs which are used for the 1/2A6, A8 and B4 motors.

NARHAMS Secretary Brian Beard contacted Estes stating *"Yellow igniter plugs. Some of these have a small defect on the side such that the plug does not want to remain in the nozzle. They pop out and the flyer loses the plug and ignitor [sic]. The small plastic projection can be cut off with a knife if one knows to look for it."*

Scott Hunsicker of Estes replied to Brian stating that *"we were unable to find any of those defects in our current stock. We will do a thorough review on the next batch that we have manufactured to make sure there are none in those as well".*

Estes Industries LLC offers a 30-Day money back returns and a One-Year Warranty against manufacturer defects. If you have any questions about Estes Industries LLC products, reach out to them. The Estes Industries LLC Telephone number is (719) 372-6565 and their email is service@estesrockets.com . An on-line form can be completed and forwarded at <https://estesrockets.com/pages/contact-us> .



A magnified view of the extraneous plastic appendage found on the yellow standard engine igniter plugs. Credit: Michael Cochran



FROG Award for James Miers

The NARHAMS award
For Rocketeers of Greatness
Is presented to

James Miers

James Miers has been “paying forward” in model rocketry for decades. He has been an American Rocketry Challenge mentor and Finals range crew member for several years. His video of an “ARC How-to” presentation is posted to our website.

James has participated in numerous outreach activities for the Section. He often attends the Goddard launches and helps out where he is needed. He eagerly instructs and assists others to construct their model rockets both for competition and for fun.

Mr. Miers has served as NARHAMS’ Section Advisor since 2019. He inaugurated the NARHAMS display at the Greenbelt Labor Day Festival. He has reliably secured the venue for the Section’s Holiday Party for several years.

James regularly attends our business meetings and launches. He regularly contributes articles to the ZOG-43 newsletter. James has successfully pursued High Power rocketry certification. His cautious and measured approach to model rocketry is a good example for us all.

Presented 2024 by a grateful club,
NAR Section #139



Miers served as Pad Assistant during the 2022 TARC Finals.
Credit: Alex Mankevich



Miers demonstrated a rocket during the NARHAMS September 2013 meeting. Credit: Alex Mankevich



Miers at the grill for the 2024 Independence Day picnic. Credit: Ole Ed Pearson



How The Grinch Stole Our December Sport Launch

November Business Meeting

Reported by: Alex Mankevich

The NARHAMS November Business Meeting was the Planning Meeting during which we hosted a much-anticipated pizza party.

The usual annual events such as the Goddard Contest, Rockville Science and the Pax River Naval Air Museum STEAM Day were put on the calendar. We also hashed out some themes for monthly meetings and the monthly sport launches.

President Edward Jackson continues to coordinate with both the Carroll and Frederick Counties Parks and Recreation Departments to get our sport launches booked at their parks.

President Edward Jackson (no relation to The Grinch) reported back in October that we had secured a permit to launch a Krimgold Park on December 21st from 10am to 4pm. He encouraged NARHAMS members to pass this information to any ARC teams looking for a launch.

NARHAMS needed to monitor the status of the Maryland state burn ban implemented by the Maryland Department of Natural Resources (DNR) on November first. This ban was enacted due to the on-going drought conditions and dry fuel accumulation that was persistently well above normal seasonal highs. The DNR stated that when fuel, drought, and weather conditions improve - requiring a significant rainfall - the ban would be lifted as soon as safely possible. Happily, on November 21, 2024, the DNR rescinded the state wide ban on open-air burning. So, The Grinch was foiled, and we could legally conduct the December sport launch.

Not to be deterred, "The Grinch got a wonderful, awful idea!" If fire could not stop NARHAMS, then maybe wind could do the job. NARHAMS noted in the days preceding the December 21st launch that high winds were forecast for launch Saturday. President Jackson opined "This is a tough one to call....I just checked the weather on two separate sites and we are at 19mph for the duration of the launch." He solicited informal feedback from those who normally perform range duty regarding the idea of cancelling the launch.

The day prior to the scheduled launch President Jackson (again, no relation to The Grinch) noted "The weather continues to trend towards the wrong direction. I have now seen 20 MPH for some of the duration of our launch so I think based on the trending direction and other people's input we should cancel tomorrow's launch."

A formal notice was issued on Friday December 20 stating "Unfortunately, we are going to have to cancel tomorrow's launch due to winds of 20 MPH or more. We monitored the weather all week and with every passing hour the predicted winds continued to get stronger so trying to hold a launch in the weather would be both miserable and outside of the limits of the NAR code."

The mean, vile, foul, nasty Mr. Grinch was victorious in stealing the December sport launch from NARHAMS.



NARHAMS Nostalgia

In case you've ever wondered - what gives NARHAMS its official recognition as a Section of the National Association of Rocketry (NAR)?

Presenting the original Section Charter for the National Association of Rocketry Headquarters Astro-Modeling Section (NARHAM) [sic]. The date on which the NAR Board of Trustees granted official Section status to NARHAMS was March 01, 1965.

The Section Charter was signed by none other than G. Harry Stine, then President of the NAR.

1965 was the year of the first American and Soviet space walks. It was also the year that the Mariner 4 probe performed the first successful fly-by of Mars.

NARHAMS anticipates celebrating its 60th anniversary (coming up shortly) on March 01, 2025.

Section Charter

GREETINGS:

BY THESE PRESENTS be it known that the National Association of Rocketry, a national non-profit society devoted to rocketry and astronautics, by virtue of action by its Board of Trustees does hereby grant official Section status to the following group of Association members comprising the

**NATIONAL ASSOCIATION OF ROCKETRY HEADQUARTERS
ASTRO-MODELING SECTION
(NARHAM)**

which was founded to further the aims and programs of the Association in its locality.

This CHARTER hereby conveys all rights and privileges of Section status to the above group and charges it with the responsibility for obeying and enforcing the NAR Safety Code and abiding by the NAR Official Standards & Regulations.

Given at my hand by order of the Board of Trustees this 1st day of March, 19 65.

G. Harry Stine
President

Attest:

James F. Ruskowski

National Association of Rocketry

