Zog-43

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Jan/Feb2021
Vol 43 No 1

Zog-43
Volume 43 Number 1
January/February 2021
Official NARHAMS Newsletter
Editor: Don Carson

ZOG-43 is dedicated to model rocketeers of all ages, abilities, and interest. We are committed to providing the most current, up-to-date information on model and real world rocketry, and to provide educational material, as well as, entertaining information.

ZOG-43 is published bi-monthly and is available to all paid up members of NARHAMS. Club membership is open to all, dues are 10 cent per week.

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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 Old National Pike Regional park near Mt. Airy, Md.

NARHAMS welcomes all to our monthly meetings and launches.

For details, dates and directions to our club, meetings and launches, go to: http://narhams.org

From the Editor - Where Does It All Come From?

Don Carson, NAR #11069

Your newsletter only exists if folks contribute material. I would run out of ideas pretty quickly if left to my own. I'm happy to say that I get great support.

Every year I do a quick assessment of where the content for the Zog-43 comes from. I count up the number of submissions - articles, photos (just 1 or a whole bunch counts as 1 submission), tips, news, etc - and who submits them. It is not rocket science, but it will give you the idea.

The results for 2020 (6 issues) are similar to previous years but down a little, mostly due to fewer launches and in-person events. We had approximately 133 "submissions." Of those:

- 104 of those came from 25 club members (Ole Ed contributed a club-high 26 submissions!)
- 21 came from 18 non-members (mostly single pictures, except for Stuart Lodge's terrific 4 articles)
- 8 came from institutions (Aviation Week and Space Technology, NASA, Rocket Lab, and Lockheed Martin)

What this means is we have a lot of members contributing material - thanks, keep it coming. We also get input from outside the club which provides us a good external perspective. I think it is a nice balance.

This year marks the 43rd Volume of the Zog-43! To mark the milestone, we've started a look back at what was happening in model rocketry 43 years ago

My thanks go out to everyone who contributes to make this a such an outstanding newsletter - the credit goes to you.

As always,

Fly 'em high, bring 'em back, and, for heavens sake, be safe...

For questions, answers, opinions, files, photos, and more NARHAMS, join the NARHAMS Groups.io group. It is free, painless, no ads, and may just be the cure for the common cold. Also: Facebook if you are not parnoid about that sort of thing.

Front Cover: An illustration of NASA's Perseverance rover landing safely on Mars. The rover is scheduled to land on Feb. 18, 2021.
Photo: NASA/JPL-Caltech

Back cover: SpaceX Starship SN8 test flight, December 2020, after transitioning from vertical launch to the high-drag horizontal reentry orientation. Shortly aftwards it returned to the landing site and sucessfully demo'ed the pre-touchdown flip to vertical.
Photo: SpaceX

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Spaceman Contest Results
By Ed Pearson

Oh you NARHAMSters; you are all so clever. The section held a Spaceman model contest; this article discusses the results.

The contest was to individualize Semroc Spacemen and then submit photos. Judges examined all photos and determined winner placement (using creativity, execution and believed flight stability as criteria).

Three photo entries were received/judged. The club put up to $43 in prize money and everyone won a place and some cash. Without further ado...

First place and $25 goes to club treasurer Ed Jackson. Ed made a model of the Black Knight from Monty Python and the Holy Grail. Ed adapted the nosecone, painted with premium flat black, and used a computerized cut-out for the jerkin's insignia.

The Black Knight from Monty Python and the Holy Grail grabbed first.
Photo: E. Jackson

Second (and a sawbuck) goes to Sarah Jackson—NARHAMS secretary. Sarah did Wonder Woman. Sarah mused a flight might muss up Princess Diana's hair!

(R) Photo: S. Jackson

Third honors (& $5) goes to Jen "Bubbles" Ash. Bubbles made an Ole Ed from a "prom" photo taken at AIA's 2019 gala. She used a Circut-produced NASA worm for the logo. (Judges suspected I was behind the third place entry...but it surprised me too)

Certainly the most dapper Spaceman.
Photo: J. Ash

Continued next page

Spaceman Contest, Continued

Some nerd-like background backstory details: The contest made a what-2-do activity during the virus-caused flying hiatus. It was advertised in the September/ October 2020 Zog-43. Contestants had three months to acquire and complete their models. Submission deadline was New Year's Eve.

An imaginative, three-person judging team was picked, consisting of science fiction writer and former NARHAMS president Roger McBride Allen; master builder and Hobby Works manager Scott Branche; and vice-Zog and long-time TARC special-events judging chief Alan Williams.

The judges were given the pictures, labeled Entries A-C, in the order they were received...judges didn't know who entered. The judges made their decisions independently (they were unaware of what others had decided). Their individual outcomes coincided, i.e., there was unanimous independent agreement.

Roger gave a definitive evaluation which is shared, "In terms of humor, and good heart, I'd have to score it as a three-way tie...

However, on the three criteria of creative thinking, execution, and perception of flight stability, I'd have to rank them this way:

(1) Black Knight
(2) Wonder Woman
(3) Ol' Ed.

The craftsmanship on the Black Knight, especially the painting and lettering, were excellent. I loved that the bits where the arms came off were blood-red. Tis but a Flesh Wound. And, as we all know, fin area ahead of the center of gravity tends to decrease stability, so my guess is that it would fly better with the arms off, giving it a better perceived flight stability. If the arms were there at ignition but came flying off during boost phase, extra points for style and for conforming to the real-life flight profile, like having your S7 Scale model stage properly.

Wonder Woman is bright, cheerful, and fun, and not too bad a paint job -- but all that hair and the golden lasso won't exactly reduce drag or tend to induce a clean trajectory, if you see what I mean. Plus the stars on her skirt look are draggy, if only in the aerodynamic sense (and certainly not in terms of fashion) and said stars might well sheer off under boost. Plus the fact that her tiara is asymmetrical could cause, pardon the expression, weathercocking. As is so often the case in the art world, the builder's commitment to detail and authenticity might lead to instability.

Just as with the full-scale version, Ol' Ed has clean lines and a real sense of style and panache, and knows how to pull off wearing a bow tie. And, as with the full-scale version, his stability is self-evident. Plus, just like the original, Spaceman Ed is quite literally a NASA booster, so points for that."

Roger adds, "(C)ongratulations to all the modelers for their skill, their powers of imagination, and their ability to imbue their creations with such obvious wit and good humor."

Second that; THANK YOU contestants and judges. That was fun.

NARHAMS Club Merchandise

New Online Store for NARHAMS Merchandise:

https://www.cafepress.com/narhams

NARHAMS now has an online store for club mechandise. No more waiting for a group buy. Lots more choices of colors and styles. Plus, a huge variety of items, much more than we have ever had in the past.

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Victor Rozhkov - We Say Goodbye

By Ed Pearson, Alexander Mitiuriev, and Alexi Korapin

Photo: Alexander Mitiuriev

Victor S. Rozhkov, a Russian spacemodeling father-figure, died January 8 at age 80.

Rozhkov wrote Cosmodrome on a Table, a seminal book on model rocketry that introduced the hobby to Russian youth. In his almost 40-years of writing he influenced countless with four other books and regular columns in Modelist-Designer and Russian Cosmos magazines.

(The western equivalent that comes to mind would have to be G. Harry who wrote a generation earlier in Popular Mechanics and American Modeler...Stine wrote in these in the late 1950s-mid-60s; Rozhkov's publishing began in 1982. Both were immensely impactful).

Rozhkov was primarily an educator being formally trained at the Moscow Region Institute of Education gaining his degree in 1970. But he was also a spacemodeler. From age 9 he became interested in aeromodelling, and starting teaching model rocketry at age 21 through his death almost 60 years later.

As manager, he led the Moscow Region's team to championship at the first all-Soviet children's spacemodeling competition in 1968.

Rozhkov joined the Soviet spacemodeling team in 1972 and in 1978 won his team's its first individual medal at a World Spacemodeling Championship—a bronze in S6 in Bulgaria.

After leaving the team, Rozhkov, continued teaching model rocketry, became a recognized/credentialed FAI judge and was named a Freeman of Elektrostal City (an honorific dating from guild times now equivalent to receiving the keys to a city).

Rozhkov leaves a legion of former students, now professionals in their fields and will be recognized first as a spacemodeler and then as building the infrastructure for spacemodeling in his country. His grandson (Rozhkov's wife and son preceded him), plans to publish Rozhkov's sixth book posthumously.

Farewell Victor Semienovich; your footprints trod large.

*Thanks to Alexander Mitiuriev and Alexi Korapin for their correspondence and many photos of Rozhkov...the latter show Rozhkov as a spacemodeling competitor, a teacher, an official at meets, and the ever interested contest observer. You can get a flavor of Russian spacemodeling through these photos.

Continued next page

Rozhkov, Continued


От увлечения к профессии — девиз авиа и ракетомоделистов СЮТ. педагог Рожков В.С.

Marin Georgiev

By Dr. Zoran M. Pelagic

CIAM Space Models SC Chairman

Former World and European Champion, International Scale Judge, Bulgarian spacemodelling pioneer and fellow modeler Marin Georgiev Joined Spacemodelling history yesterday morning at age 69.

A devoted modeller since he started , Marin Georgiev specialized mostly to glider classes and became an expert in S4 (Boost Glider Duration) and S8 (Rocket Glider Duration).

In 1978, at the WSMC in Bulgaria he won an individual bronze medal in S4D Boost Glider duration, and so contributed the Bulgarian team to win gold and repeated team gold in Streamer Duration. At the European championships he was even more successful. On three consecutive Championships Marin Georgiev always won an individual medal – a record only few other modellers have achieved. For many years Marin Georgiev was an essential part of the Bulgarian team.

After retiring from the national team as a competitor, Marin went on to be evenly successful as International Judge in Scale classes.

I had the pleasure to work with Marin at several World and European Championships. I still remember WSMC 2012 in Liptovsky Mikulas, when Marin, despite being a Scale Judge, helped the measuring team in the afternoon with the measuring protocols. This helped to finish in record time. Some of his improvements in the logistics and efficiency managing work in the judging hall can be considered nowadays as standards.

Marin Georgiev had a big talent to combine work with fun, so everyone around had a good time, but still managed to work as a professional. All who were judging Scale at the WSMC 2014 in

Continued next page

Marin Georgiev, Continued

Kaspichan remember that work couldn't start before the morning joke from Marin. This gave always energy and a good mood to the team for the whole day. Marin always knew how to "calm" the situation if there was any kind of problem. His positive energy on the field will be missed.

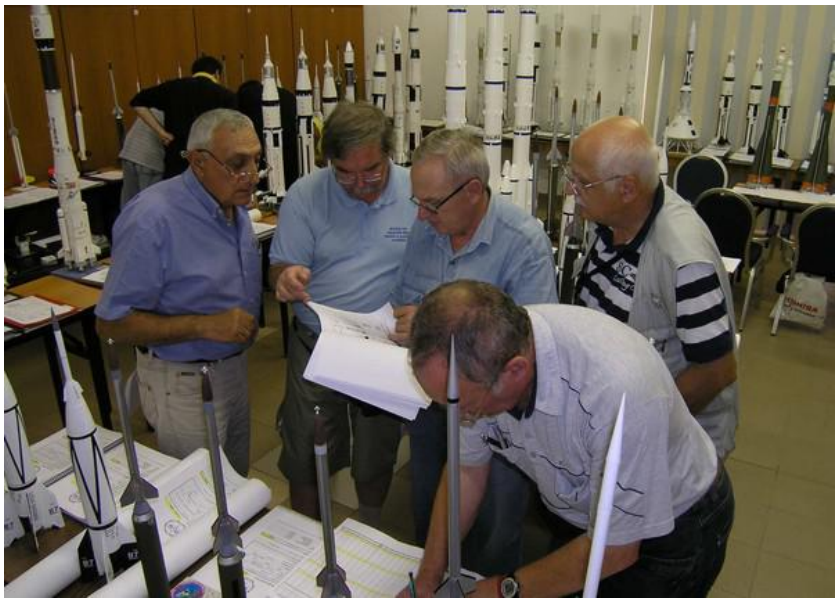
I consider myself lucky by knowing Marin Georgiev for many years and having him as a good friend. Last time we met was in 2019 in Sremska Mitrovica where he immediately brought good mood despite the rainy weather, with also winning a bronze medal in S8E/P.

Marin Georgiev was a man who has fully represented the "spirit" of our sport – have fun, always laugh, but maintain professionalism. He was always willing to help and contribute where he could. He will be missed a lot and never forgotten.

May Marin Georgiev rest in peace in the blue skies!

Condolences to:

Toshko Dragov
dragov57@abv.bg



Reflecting on Kook: Jim “Casey” Kukowski

By Ed Pearson

Most of NAR’s membership were introduced to Jim “Casey” Kukowski through the announcement of his death in January’s eRocketeer.

We read of the NAR former executive director‘s considerable accomplishments,* and that he had a two-plus decade career within NASA. We learned the NAR awarded Jim a Distinguished Service Award and NASA gave him two Exceptional Service Medals.

What obit readers didn’t learn, was of Casey’s** affiliation with this area and with our club.

This article tells a bit about Kook’s relationship with the NAR, our club and NASA. I hope you’ll find it of interest and will appreciate his work more.

Jim Kukowski at TARC finals circa 2014.

[This reflection is subject to a faulty memory and includes email excerpts. My last conversation with Jim on these matters occurred at the 2014 TARC (The American Rocketry Challenge—formerly Team America Rocketry Challenge) finals.]

How it started: Jim became acquainted with model rocketry and the NAR in Albany, New York. Why Albany? Raised in Minnesota, Casey got his college degree in the ‘50s from the University of Minnesota after serving in the Navy. His studied journalism and politics. For awhile he did newspaper work in Detroit, Michigan but moved to Albany to cover politics in New York’s state capitol. He also wrote of other human interest stories for the newspaper there.

In the early ‘60s Jim reported on someone attempting to build a rocket motor (an explosion ensued). The article attracted the attention of G. Harry Stine, NAR’s founder, who was then living in Stamford, Conn. Harry called Jim and later met with him to explain and demonstrate model rockets. The two hit it off.

When Jim moved to the D.C. area for radio work, Harry offered Jim a job as NAR’s first executive director.

The Academy of Model Aeronautics was then headquartered in D.C. AMA’s executive director was John Worth, a friend of Harry’s. John viewed model rocketry as model airplanes’ cousin. (Harry wrote a column about model rocketry in AMA’s American Modeler magazine—later the American Aircraft Modeler). John agreed to share office space with the NAR and thus NAR headquarters moved from Harry’s Connecticut home to AMA at 1239 Vermont Avenue, NW, Washington, D.C.

A pivotal moment for NAR’s history, and Casey’s career occurred when Jim scheduled Harry to speak on model rocketry at Goddard Space Flight Center.

Harry’s talk and a subsequent flight demonstration caught particular attention of a sounding rocket engineer and the head of Goddard’s public affairs office.

After the talk, the engineer, a one Howard Galloway, lit into both Harry and Jim. Jim remembered a livid Howard saying he knew rocketry and to let youth play with it was unsafe and irresponsible. They had to explain to Howard again what model rocketry was about, and this time Howard put emotions aside and listened.

Harry and Jim had made a “conversion;” Howard formed Maryland’s first NAR section (Star Spangled Banner) and became a legendary model rocketry advocate. Ironically, in 1969 Jim was awarded NAR’s then highest honor, the aforementioned Distinguished Service Award—later renamed the Galloway Award, after the sounding rocket engineer Jim introduced to model rocketry. ***

A demo launch Jim subsequently held (across the street from Goddard’s Bldg. 8), caught the interest of Goddard’s Public Affairs Office head, Charles Boyle. Boyle offered Jim a job in Goddard’s education office.

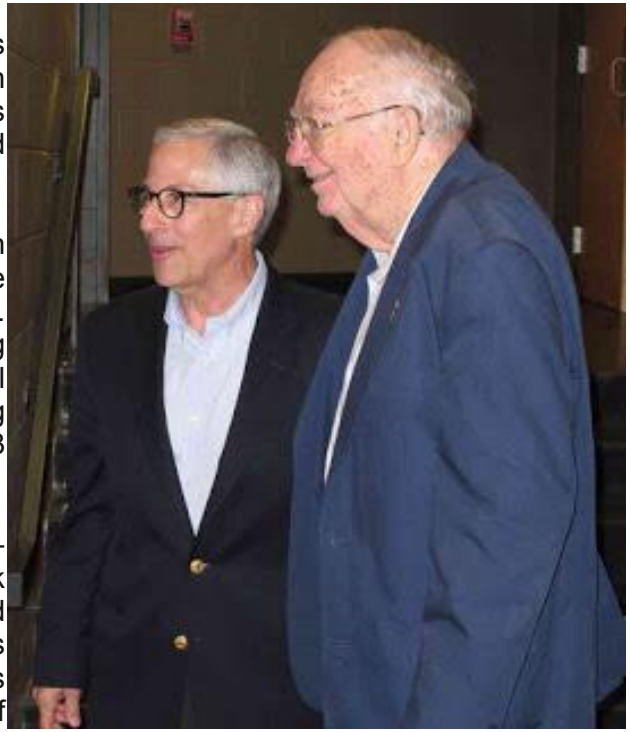
Continued next page

Jim Kukowski, Continued

Jim accepted, later moving to public affairs when the office required their spokesmen to hold education degrees. He was categorized as a broadcast specialist and public affairs officer.

Later Jim transferred to NASA JSC in Houston and headquarters in D.C. where he got to work with the Apollo astronauts. (This writer remembers Kook introducing him to Jim Lovell, around 1994, and Lovell talking about how Ron Howard was going to make a movie about Lovell's Apollo 13 mission).

Back to the sixties: One night at NARAM-6 (NASA's Wallops Station, 1964) Kook gathered a bunch of leader-aged rocketeers together and pressed upon us how important it was to form NAR sections and promote model rocketry. One of those in attendance was a junior-high aged rocketeer from Pittsburgh. Later, Jay Apt (founder of the Steel City NAR section) would fly on four space shuttle missions and visit the International Space Station.****



Jay Apt (L) and Jim Kukowski in 2019 at Stone Memorial High (TN).
Photo: J. Young

Our club (then a high school group—1963-5) then began to help Jim, after NARAM, with conducting periodic demos and with putting out the Model Rocketeer. [This was collating, addressing, sorting and bundling the newsletter at Jim's house in Maryland; pausing for pizza (Jim would feed us!), playing with Jim's kids (Barry and Amy) and talking with Jim's wife JoAnn].

When our school club became an NAR section (thanks in part to Casey's NARAM prompting), Doug Frost proposed the name NARHAMS for us to reflect our NAR headquarters volunteer work.

For awhile Casey was a club member, but true to seeing the NAR grow, he formed another section—the UFO section of Rockville (Rocketville?), MD.

A personal memory of Jim includes a bunch of NARHAMSters driving to NARAM-9 with him (1967, Mankato, MN) in his '58 Edsel. We spent a night at his childhood home in Winona and learned all about Minnesota's fabled fish flies.

Jim stopped being NAR's executive director in 1966, but still worked, as we all do, to promote model rocketry.

Kook retired from NASA after 25 years as the chief of internal information and moved to Tennessee.

In retirement he still continued to promote space education and model rocketry...relying on his NASA contacts to provide him photos for the local high schools. Jay Apt visited him at his invitation in 2019 (55-years later than NARAM-6) and gave an assembly at Stone Memorial HS on working/living in space.

Notes:

* For non-NAR readers, Casey died in October at age 90. He was NAR's first executive director, ran NAR's headquarters, was a trustee, Model Rocketeer editor, honchoed (manager of) the U.S. team at the first world spacemodelling championships ['72 Vršac, Yugoslavia (Serbia)], sponsored Tennessee TARC teams and helped TARC run the Virginia fly-off finals until 2017. That's a short summary; strong recommendation: Join the NAR yourself, learn more of others, and add your own contributions.

** Jim Casey was his radio name—yeah, he did radio work too as a classical and popular music DJ in this (DC) area. I found him inclined to call himself Kook; others preferred Casey or just Jim. He was fine with them all, and as a nod to him, all these personal appellations are used in this article.

*** Howard, in turn, introduced model rocketry and the NAR to so many...including rocket engineer Jim Barrowman who became NARHAMS legendary section advisor, demonstrated a practical way to approximate a model's center of pressure, succeeded Harry Stine as NAR's president and then in turn introduced model rocketry and the NAR to so many...illustrating the point that your good rocketry deeds can, does affect others' future actions/choices and in turn multiples.

**** Jay Apt honored us by flying in to College Park and attending NARHAMS 50th section anniversary in 2015.

***** Jim Young's article about Jay and Casey was called, Shuttle Astronaut Jay Apt Stops by Crossville to Talk about Space: https://jimyoungreporter.blogspot.com/2019/07/shuttle-astronaut-jay-apt-stops-by.html?m=1

Putties. More Putties.

By John Brohm

I may have mentioned in one of my earlier notes about Squadron Models and their line of putties. You're likely familiar with their putties – they had a white one and green one, primarily intended for seam and joint filling with plastic models. I liked their White putty; it was my secret sauce for finishing body tube seams. As much as I like working with Bondo, it shrinks as it cures, and so once the airframe was primed there was usually some remaining filling to do to get the seams fully filled. It was for the post-priming filling that I liked to use Squadron White putty; it dried harder than Bondo, and was finer grained, which made it ideal for wet-sanding. The following photo of my Old 54 shows the results of this finishing regime – Bondo in the dry seams, Rustoleum Automotive primer, Old Squadron White Putty as a post-primer glazing putty, and then paint. And a bit of wet-sanding.

A couple of years ago, for reasons not so clear, Squadron decided to reformulate their putties. I think their goal was to arrive at an even finer grained putty, and one easier to dry-sand, making it more competitive with the new putties coming onto the market from MIG, Vallejo, AK Interactive, and others. So Squadron came up with a reformulated White and Green putty, and introduced a new Gray putty. The different colors made it easier to see defects when applied to different colored Styrene plastic. The only problem was the "new" Squadron formulation was a disaster. The filler and the solvent would soon separate in the tube, and could easily be already separated by the time the tube arrived at the hobby store. So when you brought your newly purchased tube home and opened it, mostly it was just solvent that came running out. Pure junk.

After a lot of market complaining, Squadron revised the formula again, reintroducing the White and Gray putty, and deciding to put a bullet in the green one. Of the two new, new ones, I found I liked the Gray one the best (although it's tough to work with on something that's already gray, say like a primed body tube). But it does dry-sand reasonably well, wet-sand not so much. So while not nearly as good as the old White putty, I found the new Gray putty workable, even if it did mean I had to adjust my finishing method somewhat.

And then along comes 2021. I don't know the full story, but Squadron is shut down, and quite possibly may be out of business[. So what we're left with in the hobby world is a collection of both solvent and water-based putties that while perhaps are excellent for plastic model seam filling, aren't the best (in my view) for model rocket finishing, at least not for filling and finishing body tube seams. So I've been running some experiments here in the background, testing alternatives.

This week, it's the surface glazing putties from 3M. These are automotive finishing putties, and they come in three colors – White, Red and Green. White is the slowest drying with the longest work time,

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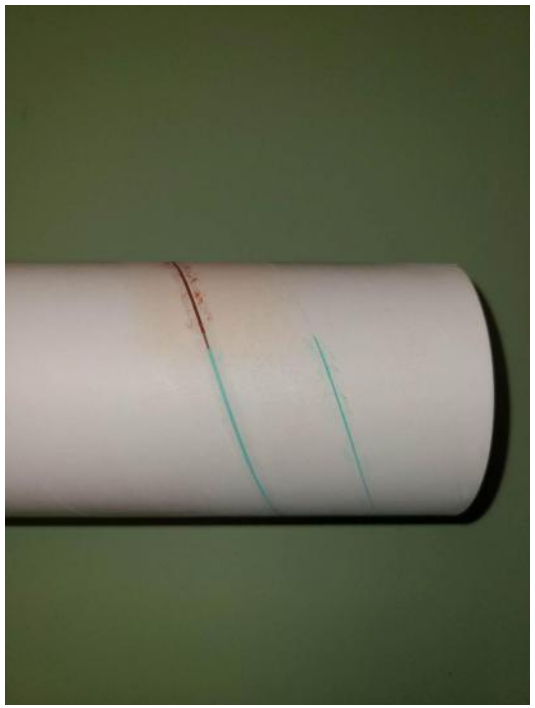
Putties, Continued



Green is the fastest drying and has the shortest working time.

I'm testing these putties on Estes' new Der Big Red Max, a 3" version of the old classic Der Red Max.

In the photo, you can see a portion of a seam filled with the Green putty, and a portion of a seam filled with the Red putty. I found both putties to be finer grained than Bondo and easy to work with, although both seemed to shrink marginally more than Bondo. The White putty shrunk the most, and I ended up refilling the White-filled seam with the Green putty. Based on what I've experienced so far, I'm inclined towards the Green as a glazing putty because of how it performed over the White, but I won't know for sure until I try it out post-primer. That will tell the story.

As for the Red putty, I can't say that it's better than Bondo as an initial seam filler. So I'm inclined to stay with Bondo for that purpose, if for no other reason than it's cheaper. Once I get this airframe into primer, we'll test each again as a glazing putty and see how they perform. But so far, the Green one is in the lead.

As they say in the News business, Film at Eleven.

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Book Review: *A New Dimension: the First Fifteen Years of Wallops Island*
By Joseph Adams Shortal
NASA Special Publication SP-1028
Reviewed By Alan Williams

This is an exceptionally detailed history of America's oldest continually operating research rocket range. The book guides us through its origins as an adjunct to the National Advisory Committee on Aeronautics' Langley Research Laboratory's World War II investigations of high speed flight. (NASA's predecessor agency was America's primary source for aerodynamic technology advancement in those years. The groundbreaking 1940's Langley-NACA wing section profiles are still used around the world today.)

In the 1940's, wind tunnel tests could not accurately create transonic (above about 500 mph.) flow around models. Airflow in the tunnel test areas "choked", generating semi-random shock pulses that made the tests useless. Eventually the problem was solved, but the clever interim solution was to launch the instrumented test shapes on rockets. This is why the Wallops Island firing facility was created, on Virginia's Eastern Shore. As the models flew in free air, radio links would send data back to recording systems. This was augmented by radar and photo-optical systems. Detailed changes to upcoming military planes could be swiftly tested in actual flight. Everything from the most basic studies of wing shape and structure to advanced propulsion systems were tried out. Thousands of individual rockets flew in support of these goals. In addition, some of the first practical (i.e. non-V-2 based) sounding rockets began to be developed here. That's what the book is about.

Over 750 pages are filled with arcania and photos documenting the Langley/Wallops contributions to the nation's defense and commercial aircraft industry. Many of the Langley/Wallops hardware and management methods led directly to major American space successes.

There are several hundred photos documenting individual flights; many point to absolutely unique scale building opportunities. One odd item is that for the first 10 years or so, almost anything moving was referred to as a "model". Hence, you would be making a "model" of a "model". Freaky, no?

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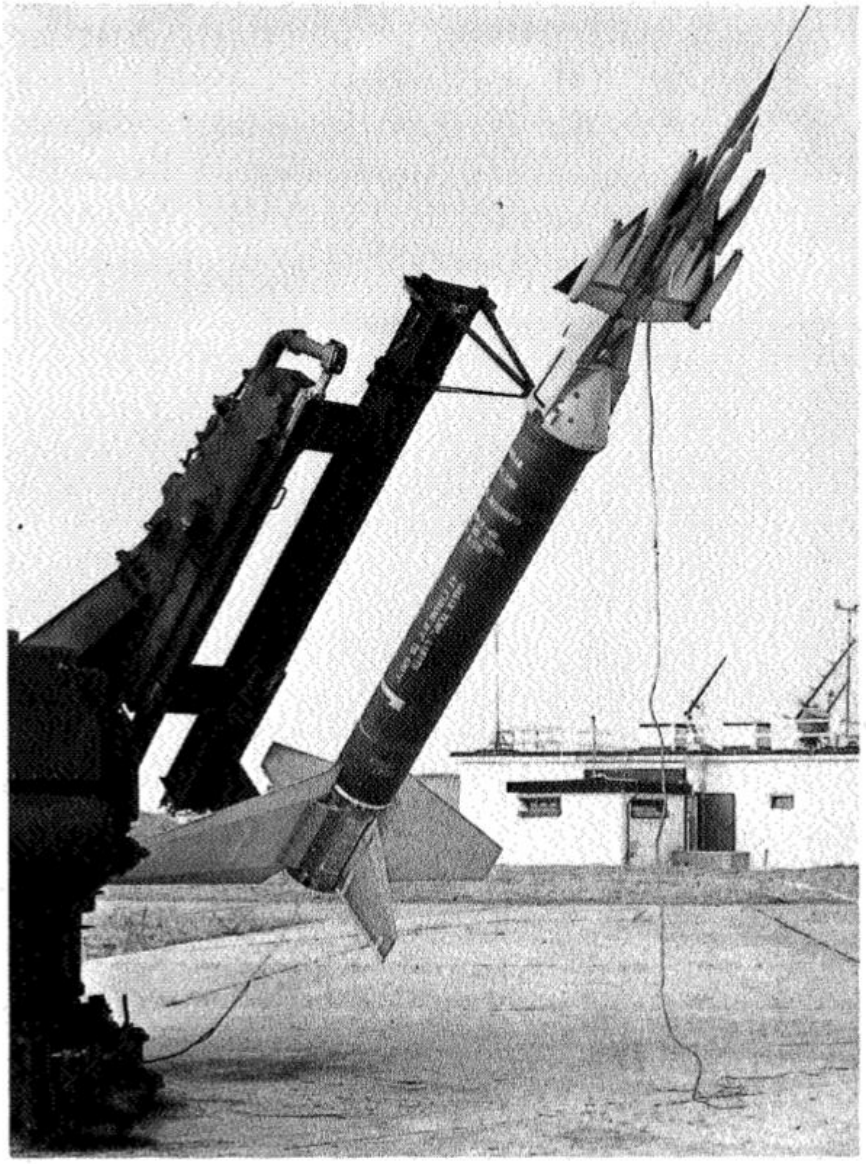


FIGURE 186. View of 1/15-scale model of Convair B–58 bomber with Nike booster, December 14, 1955.

In addition to the usual sounding rockets, there are a huge variety of strange looking rockets!

Book Review, Continued

In the later 1950's wind tunnel design improvements began to diminish the need for the specialized aerodynamic flight work Wallops was tasked with. The emphasis slowly shifted towards using rocket boosters to support more direct space and earth science research, which continues today.

How I got my copy of the book:
Back in July 1985 a number of NARHAMS members and friends went down to Wallops Flight Center to participate in its 40th anniversary open house and air show. That Saturday morning, when we started prepping rockets in the Visitor Center's storage annex there were stacks of this big fat brown book, waiting for the asking. We asked! Over the years it has become one of my most treasured information sources.

How you can get your copy:

There are hard copies available through various commercial internet sources. However, you can download free copies at the following NASA source code:
ntrs.nasa.gov/citations/19790011995
DJ tested it a few days ago and downloaded the whole publication in about ten minutes.

While not a constant rip-snorting read, (being largely built from government technical reports), it gives a good look at the work and the pioneering men and women who began the American space age.

All images from NASA SP-1028

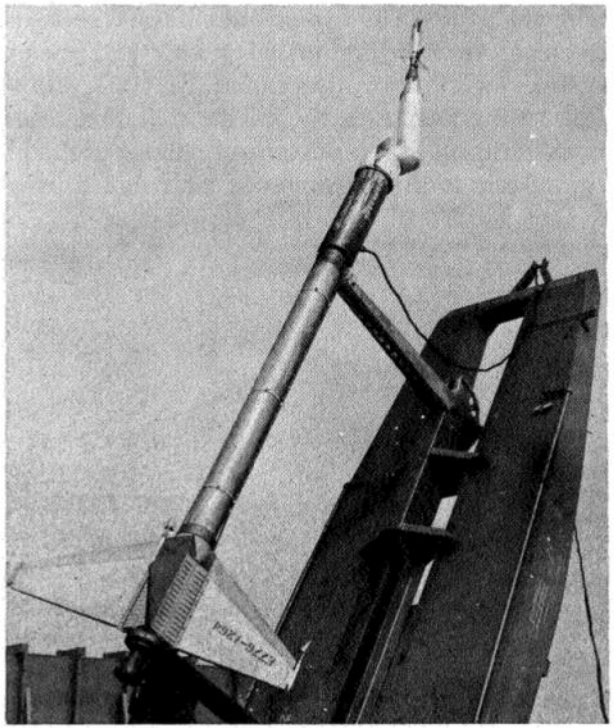


FIGURE 230. Small-scale model of Bell Rascal missile on bent sting of Deacon booster for special roll control study, August 4, 1953.

A scale subject for Jim Flis

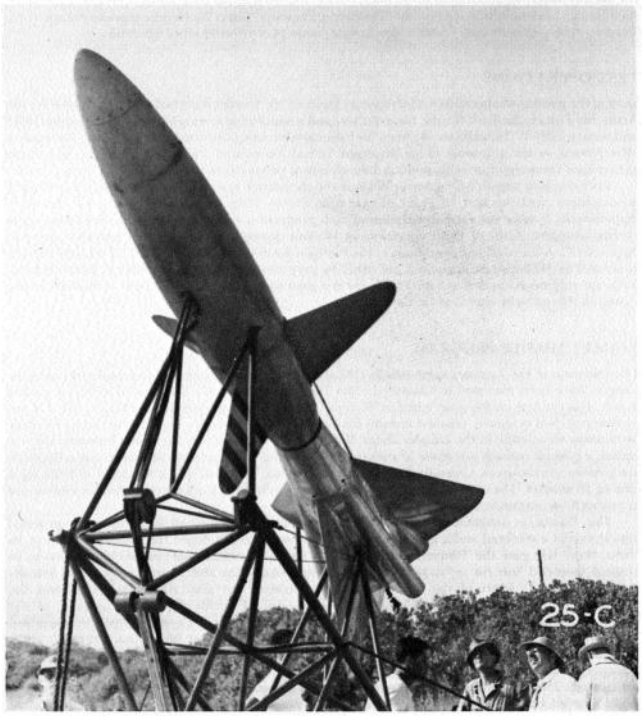


FIGURE 27(a). Front view of first Tiamat missile and booster on launcher, July 1945.

The Tiamat, check the Wallops Visitor Center to see the real thing.

FIGURE 358. Technician Roy Hindle connects firing leads to 10-inch spherical rocket motor mounted in special spinning launch bucket, July 8, 1958.

Test flight of a spinning spherical rocket. Did not go well.

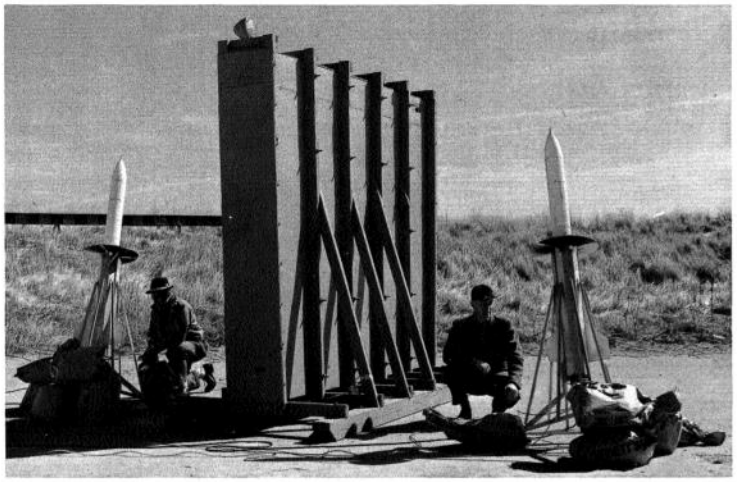


FIGURE 462. Truax steam rockets ready for launch at Wallops, February 25, 1959.

Steam Rockets. Holy Fulton, Batman!

Neat Space Stamps
By Ed Pearson

Space stamps are not model rockets but they can catch the imagination. Here is a look at selected U.S. space postage. These might pique your interest.

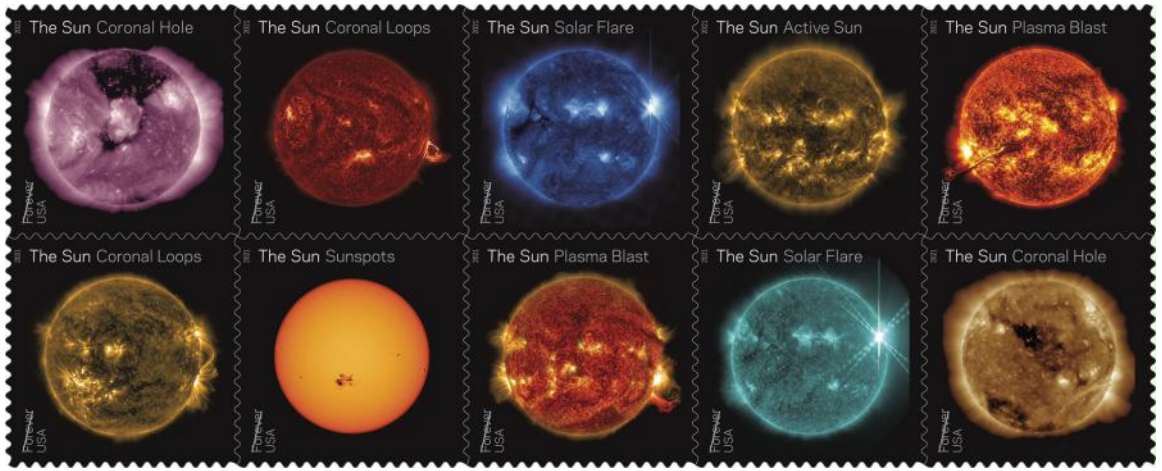
The post office announced January 15 that ten stamps depicting the Sun (at different wavelengths) would be released in 2021. The images come from GSFC's Solar Dynamics Observatory. SDO was launched in 2010. Say hello to the newest U.S. space stamps; they join more than 50 others in that theme.

Speaking of the Sun, a really neat stamp shows a total solar eclipse. The stamp is printed with thermochromic ink. If you hold a warm finger on the stamp, the Moon appears.

Regarding the Moon, in 2016 the post office released a circular Moon stamp for international mail.

The Moon global stamp was not the first circular space stamp. The Earth stamp of 2000 was USPS' first circular stamp and its first holographic stamp. It was issued for express mail—not costing 55 cents, but $11.75 and that was 20+ years back!

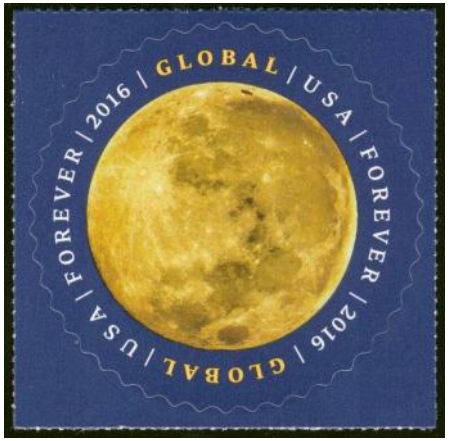
There are several stamps of astronauts on the Moon. Here are the seven that commemorate the first lunar landing.



SDO Solar Image Stamps.
Photo: USPS

2017 Total Solar Eclipse Stamp.

Total Solar Eclipse Stamp warmed.



(R) 2016 Moon Forever Stamp International Mail.

(R) 2000 Circular Holographic Express Mail Stamp (image from satellite photos of Earth).

Continued next page

Neat Stamps, Continued

Ever hear of setenant stamps? To stamp collectors it means two or more stamps in the same pane but with different colors, designs, or denominations. Here are four examples:

Two 5c Space Stamps Cojoined in a Single Pane—1967 (1st USPS Setenant in a Continuous Pane).

Two 8c Setenant Space Stamps from 1971.

(R) First Moon landing stamps - top row L-R: 1969 10c Airmail, 1989 $2.40 Priority Mail; middle row: 1994 $9.95 Express Mail, 1994 29c first class mail; bottom row: 1999 33c first class mail, 2019 Forever stamps.

Did these selections stir your interest, and do you want to see an amplified listing of U.S. space-theme stamps? Philatelist Bill Senkus compiled a chronology of space theme stamps, which I used heavily to write this article, and here is a link: https://alphabetilately.org/Space.html

Eight 18c Setenant Space Achievement Stamps of 1971.

(R) Four 29c 1992 Space Accomplishments Stamps —Joint Issue with Russia.

Bits and Pieces

The Next 3 Months -

Are still subject to change
Check the Club website Calendar for the most current information.

Date	*Time*	*Event*	*Location*
	5:30 - 9 pm	**Monthly Webex Virtual Meeting** Topic: FROG Award / Open Topic	Online
Feb 07	1 - 2 pm	**Goddard Public Launch** CANCELLED due to COVID	Greenbelt, MD
Feb 20	12 - 4 pm	**Sport Launch** (currently SUSPENDED due to COVID) – Old National Pike Park Theme: Stubby Rockets Roulette Launch Manager: Alex Mankevich	Mt. Airy, MD
Mar 06	5:30 - 9 pm	**Monthly Webex Virtual Meeting** Topic: Keith Koehler (NASA Wallops) virtual presentation	Online
Mar 07	1 - 2 pm	**Goddard Public Launch** CANCELLED due to COVID	Greenbelt, MD
Mar 20	12 - 4 pm	**Sport Launch** (GO with restrictions) Theme: Festival of Colors (tracking powders) Launch Managers: Ed and Sarah Jackson	Mt. Airy, MD
Apr 03	5:30 - 9 pm	**Monthly Webex Virtual Meeting** Topic: open	Online
Apr 04	1 - 2 pm	**Goddard Public Launch** CLOSED for Easter holiday	Greenbelt, MD
Apr 17	12 - 4 pm	**Sport Launch** (GO with restrictions) Theme: NRC launch / Rocket Run event Launch Manager: Don Carson	Mt. Airy, MD

National Sport Launch(NSL)

NSL "Spudnik" 2021 is being held in one of the nation's largest potato growing regions. In recognition of the area's agricultural significance we named the event Spudnik. Look for our special Spudlofting contest during the event.

Come and fly in beautiful Colorado! Alamosa has a base elevation of over 7,500' and sits in a valley surrounded by mountains. NSL "Spudnik" 2021 is being held in one of the nation's largest potato growing regions. In recognition of the area's agricultural significance we named the event Spudnik. Look for our special Spudlofting contest during the event.

When: Saturday May 29 through Monday May 31

Where the heck is Alamosa, CO? Alamosa CO is in south-central Colorado, in the heart of the amazing San Luis Valley. We enjoy 350 days of sunshine per year tucked between the San Juan and Sangre de Cristo Mountain Ranges.

Click Here For More Info

Welcome New/ Renewing Members

New

Valarie Barbalace, Brian Beard, Bill Handy, John Spirtas

Renewals

Michala Alexander, Michele Alexander, Sarah Alexander, Scott Alexander, Jennifer Ash, Bryan Barbalace, Ted Cochran, Steve Humphrey, Thomas Noyes

Not Reading Your Own Copy of the Zog-43?
Join NARHAMS and have your own copy emailed to you hot off the press. Only $5/ year! Click here.

43 Years Ago - *Model Rocketeer Headlines From The Past*

You can find the full articles in the NAR website, "Member Resources" Publication Archives, Model Rocketeer, Dec 1977 and Jan 1978

In December '77, it was business as usual planning to host the '78 World Championships

1978 FAI Championships:

Everything proceeding normally. NAR Trustee and CIAM Secretary John Worth has placed NAR's bid on the agenda for the CIAM Plenary Meeting in Paris scheduled for December 1977. No problems anticipated with acceptance of the bid by the FAI. Site proposed is NASA Wallops Flight Center, Wallops Island, Virginia, site of NARAM-6 and NARAM-10. Date will be early September 1978 to mesh with NASA Wallops schedule. Organizer is NAR Vice President, Dr. Gerald M. Gregorek, 1095 S. Beechview Drive, Worthington OH 43085.

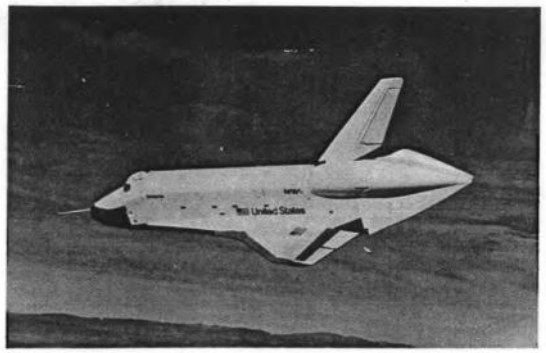
More Updates on Page Ten

The Space Shuttle was just getting off the ground, Greg Kennedy reported:

Enterprise Begins Probing 'Final Frontier'

The Space Shuttle— A Status Report

by Gregory P. Kennedy, NAR 12874



The *Enterprise* makes a slight turn and bank maneuver during the second free flight of the Shuttle Approach and Landing Tests. Photographer Bill M. Blunck of JSC's Photographic Technology Laboratory took this picture while riding in a T-38 chase plane. He used a 70mm Hasselblad camera with an 80mm lens. NASA Photo.

In January '78, US Delegation is shocked to lose the bid to host the '78 World Championships. Dr. Gregorek reports:

U.S. World Championships Proposal Spurned By Communists

Cold War Rivalry spills over into Spacemolelling. G. Harry Stine opines:

The Russians Are Coming! The Russians Are Coming!

Elsewhere, Greg Kennedy updated us on newly developed US space suits and rescue "sphere":

New Wardrobe For Space

By:
Gregory P. Kennedy
NAR 12874

The space suit which will be used on the Space Shuttle missions in the 1980's was recently unveiled by NASA. Properly referred to as the Extravehicular Mobility Unit, or EMU, it features many significant departures from previous EMU designs. The EMU consists of two primary assemblies, the Pressure Garment Assembly (PGA), and the Life Support Unit (LSU). The EMU will be reusable, with a 15-year lifetime. The days of custom-fitted and tailored space suits will be a thing of the past. For the shuttle flights the suits will come in several standard sizes which will be adjustable to fit individual re-

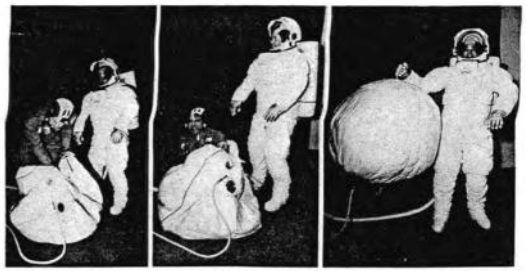
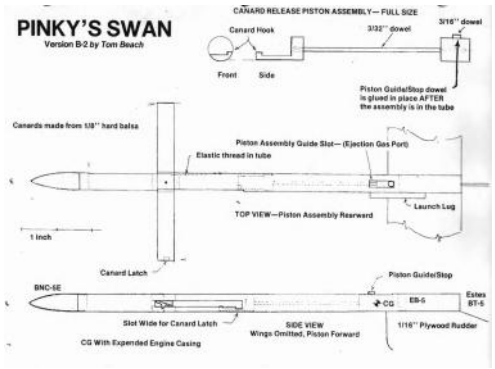


Photo of an astronaut having a ball. For short-term use in rescue operations, a flexible pressurized sphere is provided for Shuttle passengers. You just climb in, see, and zip it up and turn on the air and wait for your suited companion to serve you like a volleyball. (NASA photo)

Modernized "Pinky's" Swan

by Tom Beach, NAR 23741

Tom Beach updated a classic design



The Canadian Connection....

Some things are the same round the world

Even in Canada, model rocketeers work for months getting ready for a contest. Photo taken at 2:40 a.m. on the day of the contest...

Competition Corner:

NARAM-62 Is A GO!

Rocket Contests Are Up In The Air

What We Know or Think Is Happening With Contest Flying These Days

NARAM-62 - Great News, Rocketry Festival 2021/NARAM-62 is a go! Updated links should be posted shortly. Keep an eye on the NAR website for more info.

ECRM-47 is a go for now (June 19-20), as long as State and Local COVID provisions do not get worse. Right now we have groups size restrictions of 50, so we will be registering attendees for launches to control groups size.

Steel City Smoke Trail (SCST XXI) June 5-6 is on!
1/2A SD, 1/2A Flexi, 1/2A HD, 1/2A Alt. with altimeter, 1/2A PD
Info: http://www.psc473.org/Schedule.html

Plus, all the PSC monthly launches are NRC events (except for July, of course)

NSL Cup Event - Matt has said he is planning an FAI Cup-style (may not be an actual Cup if we cannot get foreign participation) event the Friday/ Sat of NSL at NSL. Contact: Matt Steele <mattmsteele@gmail.com>

Can Am - Scheduled for June 25-27 but TBD depending on the status of the WSMC. Contact: Nowak Mike <mikemnowak@gmail.com>

WSMC - Go-No Go decision expected in first half of May

Rocketry Festival 2021

NARAM-62 Events:

1/2A Parachute Duration*
1/2A Streamer Duration*
1/2A Helicopter Duration*
1/2A Altitude w. altimeter*
1/2A Boost Glider*
B Payload Altitude w. altimeter*
1/2A Flexwing
D SuperRoc Altitude w. altimeter
Sport Scale
Research & Development

July 24-30 2021
National Warplane Museum
Geneseo, NY

For current info, go to
www.nar.org

East Coast Regional Meet - 47

ECRM-47 Events:

1/2A Streamer Duration*
1/2A Helicopter Duration*
1/2A Altitude w. altimeter*
1/4A Flexwing**
Open Spot Landing

Note: Currently you must comply with COVID procedures
June 19-20, 2021
Old National Pike Park
Mt. Airy, MD

***NRC & NARAM Events**
****Similar to NRC & NARAM Event (1/4A instead of 1/2A)**

Build Guide For ECRM-47 and Some NRC Events

By Jim Filler
Enduring ECRM CD

The Forty Seventh East Coast Regional Meet is currently scheduled for June 19th & 20th of 2021. NARHAMS is the host section for this NAR contest. The first one I attended was in 1977 and was held at Fort AP Hill in Virginia. I have been the contest director for this event since ECRM 24 with the exception of ECRM 41. The list of events this year is; 1/2A HD, 1/2A PD, 1/4A Flex, 1/2A ALT (altimeter), OSL. What exactly does this mess of numbers and letters mean? I am going to offer you some more detail on this and what some options are for you to participate in some or even all of these events. All events must use contest certified motors. The list is located here: http://www.nar.org/standards-and-testing-committee/nar-certified-motors/ You need to read the specific rules for every event to clarify details. The link to read the sporting code events is here: http://www.nar.org/contest-flying/us-model-rocket-sporting-code/ Altimeters you can use in an NAR contest can be found here: NAR Altimeters

1/2A SD The abbreviation stands for Streamer Duration which is flown with a contest certified "1/2A" engine. You can use any kit that recovers in one piece utilizing streamer recovery. Plans and tips are available here: Streamer Duration Many sport models can be used for this event. Kits are available from several vendors. Aerospace Speciality Products offers high performance aluminized mylar streamers and kits here: ASP-Competition-Model-Rocket-Kits. Apogee components also sells parts for 13mm to 40mm models and a FAI style 40mm kit Thermal-Sailor. Tips from the NAR webpage: Streamer Duration is about building a light, low drag rocket that can boost very high and still carry a large enough streamer of the right material and design to descend slowly. The model has to remain in one piece throughout the flight and cannot be staged. The streamer must be at least five times as long as it is wide, must be made of a single material, and must be connected to the model by a single line going to one of its narrow ends. Streamer Duration models can be flown with a piston launcher to increase altitude.

ASP Thermal Seeker.
Photo: Aerospace Specialty Products

Photo: Apogee Component

SEMROC Heli-Roctor.
Photo: eRockets

1/2A HD The abbreviation stands for Helicopter Duration which is flown with a contest certified "1/2A" engine. You can use any kit that recovers in one piece utilizing helicopter recovery. This is a very challenging event to build and fly. Plans and tips are available here: Helicopter Duration. Kits are sold by Apogee components here: Helicopter-Rockets, Estes also offers a model the Mini-"A" Heli, and eRockets offers the SEMROC Heli-Roctor. Tips from the NAR webpage: "Weight is an important issue for helicopter models, regardless of design. The lighter, the better, as long as the blades (and the rest of the model) are physically strong enough. Try to find reasonably light balsa for the rotor blades,

Continued next page

Be A Winner, Continued

A Flexwing "Glider."
Photo: NAR

but without being so weak that the blades will bow outwards too easily when the blades are folded for boost." Helicopter models can be flown with a piston launcher to increase altitude. Before you launch that HD model be sure your rubber bands are hooked up to deploy those blades!

1/4A Flex The abbreviation stands for Flex-Wing Glider Duration flown with a contest certified "1/4A" engine. This is a very challenging event to build and fly. I am unaware of any kits commercially available. NARHAMS is doing a build session at the April business meeting. Plans and tips are available here: Flexwing Duration. Tips from the NAR webpage: Flexwing gliders must be light. The spars are made of very thin spruce sticks (1/16 x 1/16 is common for smaller power classes) and the wing material is the thinnest plastic you can find — dry cleaner bags or 1/4 mil Mylar — attached to the spars with a thin bead of contact cement, or thin strips of double-sided tape. Flexwing Duration models can be flown with a piston launcher to increase altitude.

Estes Baby Bertha.
Photo: Estes Rockets

1/2A Alt (altimeter) The abbreviation stand for Altitude using a contest certified "1/2A" engine, carrying an altimeter for performance measurement. From the NAR webpage: Altitude. The purpose of this event is to the highest possible altitude on a specified amount of total impulse. The model has to be returned after flight for data recording. I will have Firefly altimeters available to borrow with the stipulation you lose it you pay for it. For altimeters, the smallest lightest version contest approved altimeter is the Adrel BMP, available from NCR herre at Adrel-Altimeter. Other good choices are the Firefly by Perfectflite, and the MicroPeak by Altus Metrum.

OSL The abbreviation stands for Open Spot Landing. This event can possibly be flown with your favorite sport model. You only get one flight and your model has to come back in one piece, it cannot separate intentionally or unintentionally. Some flyers will use a saucer style model if the spot is close enough, some like to use a larger model with a minimum engine. Streamer recovery is usually the preferred method for a traditional style rocket. One of my favorites is the Estes Baby Bertha.

These events might seem overwhelming, but can be better understood by reviewing the rules for each event in the sporting code referenced earlier in this article. I would encourage you to come fly at the contest even if you think it will be tough to win. Anyone coming out to the launch will be able to fly Open Spot Landing with no contestants fee if you are an NAR member. Come out and join the contest flyers and you might just surprise yourself. If you have questions let me know, I am always happy to answer questions about flying contest events. You can reach me at zog139@yahoo.com

You can be a winner.
Photo: D. Carson