



THE LAUNCH RACK

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National Association of Rocketry Section No. 439

New Jersey's Oldest Model Rocket Club

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*** 2014 LAC NEWSLETTER AWARD HONORABLE MENTION ***

*** 2015 LAC NEWSLETTER AWARD HONORABLE MENTION ***

*** 2016 LAC NEWSLETTER AWARD RECIPIENT ***

James Duffy (TX) is RSO as Chris Flannigan's (CA) Saturn 1-B FAI-S7 scale model takes to the sky
at the 2017 US Team Selection FlyOffs during NARAM-59, held at The BIG ICKY, Muskegon, MI.

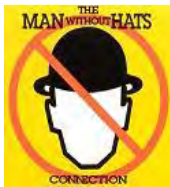


Photo by: "The Drone"



President's Message

Arnie Klein



Presidents Report

The June launch I arrived at the launch site to find a horse show going on, I called the park and they told me we could not launch rockets during horse shows so the launch was cancelled with no advanced notification at all from the park. This is the third failed launch in a row.

The July launch finally went off OK but it was brutally hot. I arrived to find three fences on the park. I called the park

ranger to open the gate (first fence) only to find two more fences for the 4H fair. We managed to find an opening in the orange fence (second fence), and I was able to open the metal fence on the field (third fence). A new problem is going to occur now, it turns out that when TRUMP is at his golf course all rocket and model airplane launches are banned within a 30 mile radius and that includes North Branch Park. This means that we will not be notified if a launch is cancelled randomly when TRUMP arrives in the area. This time we were able to get off 17 launches with no losses to trees.

NOTE: The April Launch Rack was put out by our demented editor, I did not even receive a copy even though I paid my dues, (I later found out the my name was dropped from the mail list) and was totally trashed by this editor who wrote a fake Presidents message under my name. He is so busy with himself that he did not even remove the LAC award from the shipping box he received it in. From now on readers can assume that we have a lying TRUMP as a editor not to be trusted at all with what he writes.

Arnie Klein
President GSSS

-Arnie

~~Lackey's~~
The Editor's Pad

Guest Lackey: Lyin' Bob Trump

IF it'll FIT - I'll Print IT!
If not, I'll probably print it anyway...



First off, CONGRATULATIONS to Don Carson, editor of ZOG43 the newsletter of the NARHAMS Section! Zog43 is the latest recipient of the LAC Newsletter Award. Don produces a voluminous newsletter packed with articles and reports from fellow NARHAMsters. Thought I'd mention that with a wink-wink, nudge-nudge (come on GSSS, that's a BIG hint...)

Well, looks like I got put in my place again by our Glorious Leader. I'll have to check why he's not getting the Launch Rack-that IS a problem but one which I can only control from the "Send" button. The other half, that I can't control, is the "Get Mail" button, so I hope all our readers have it working! In general, I think most Lackeys out there would respond with some sort of return put down or retort but I fear there is no room for that, since I'm supposedly limited to 8 pages by the Chairman of the Board based on outrageous paper costs. Besides, didn't Arnie vote to get rid of the Launch Rack as an

"unnecessary," before it was recognized as the NAR's runner-up and then eventually the LAC Newsletter Award recipient? Well, few readers get the paper edition these days. I'll just conclude with an apology for not including Our Grand Poobah on the Launch Rack email, if I actually did. Again, Sorry. Now, if I didn't send it to him, how in the world did he know all those fine details about the issue??? Perhaps we will never know...

Last issue: I hope you got the joke - "Lucille" or were you looking for the new Estes "Daryl's Crossbow" model in this issue? Surprise! It was a prank left over from April's issue. I just couldn't resist sticking it in and I couldn't wait until April 2018. Although, as newsletter editorship goes, that is quickly approaching! I had better start working on my goofs for April 2018 or I may miss the deadline! Are you ready, Arnie?



Getting back to my own column, let me start again with more on the content of the present issue. NARAM was

cool but I was only there for the CAN-AM FAI Cup and the US Team Selection Trials (USTST?) commonly known as the "Fly-Offs." Huh? What? NARAM? Is that old thing still around? Let's talk The **NEW** NRC!!! You're going to read reports in various newsletters and rocket magazines covering NARAM, the FlyOffs and the The Big Icky. We will bring you our obligatory report through photos and captions but, the remainder of our newsletter will introduce facets of the new National Rocketry Competition (NRC).

4TECHNOPIHILES presents information on the Polish made Adrel Altimeter, which is now NAR certified for competition and national records. They are also available here in the US for good ole American greenbacks, through Matt Steele. No Euros needed!

Got a **SOAPBOX** from someone other than myself (guess I complain about a lot of things - huh?) Maybe my missive in the Lackey's Pad really did motivate readers to SPEAK UP!

GSSS ELECTIONS

Call for Nominations for all Club Officers

Send your nomination(s) for President, Vice Presidents I and II, and Sec/Treasurer to Robert Nee at: robnee@hotmail.com

Deadline: **October 31, 2017** - You **MUST** include the name of the GSSS member(s) who will "second" your nomination.

All individuals must be members in good standing.

RE:ENLISTMENTS

>>WELCOME<< ((BACK))
ONE & ALL FOR 2017!!!

Everybody: Please **WELCOME** our latest Member - Alexander Fadeev, of Summit! Son Richard maybe interested in flying with us too!



LAC TROPHY GETS PACKED FOR NEXT RECIPIENTS



Dr. Bob Kreutz with the North American Rockwell Trophy (LAC Award)



Dan Domina congratulates GSSS Newsletter Editor Jack Sarhage after presenting the LAC Newsletter Award for The Launch Rack for the very first time.

Countdown!

2017

Please **Note:** All Launch Dates are **SATURDAY** Except where noted.



- Jan 28 – Sport Launch (Festival of the New Moon Launch)
- Feb 25 – Sport Launch (Eve of the Annular Solar Eclipse Launch)
- Mar 25 – Sport Launch (Launch of the Vernal Equinox)
- Apr 2 **[SUNDAY]** – Sport Launch (Pre-Jovian Opposition Launch)
- May 20 – Sport Launch (Great Mercurial Elongation Launch)
- Jun 25 **[SUNDAY]** – Sport Launch (Aestival Solstice Launch)
- July 22 – Sport Launch (Delta Aquarian Meteoric Launch)
- Aug 26 – Sport Launch (Thanks for the Eclipse! Launch)
- Sept 23 – Sport Launch (Launch of the Autumnal Equinox)
- Oct 28 – Sport Launch (Orion's Annual Meteoric Launch)
- Nov 25 – Sport Launch (Launch THIS You Turkeys! Launch)
- Dec 30 – Sport Launch (Grand Hibernial Solstice Launch)

Our WebMaster Rob Nee says: Check the GSSS Website! If you go to the launch dates page on the new website there is more info. You can add calendar subscriptions to most phones and Google Calendar. If the launch dates change they show up on your phone or in Outlook automatically!

NEW URL --> <http://www.gsss.club/launches.php>



THE SOAPBOX

STAND UP AND SHOUT!

Shout, shout, let it all out
These are the things I can do without
Come on, I'm talking to you, come on...

Here you can say what you want: So SOUND OFF GSSSS – right here on anything you would like! May similar minds come together - or secret plans be revealed...

Speaking of the NAR Annual Rocket Festival NAR-ARF, Manuel Mejia from Florida writes in with his opinion – “Loudly” From a Broken Soapbox:
(A letter from Manuel Mejia)

What has happened to NARAM? It has gotten very hard to find a host for the event. NARAM has largely been held in remote parts of mostly western states like Colorado, Arizona, Michigan, and Missouri. If it is held east of the Mississippi, it is held by the Canadian border. Gone are the days when NARAM was held in accessible places like Manassas Junction in VA or at Pittsburgh or Center Valley in PA. What happened to Houston, TX or Chester, Ohio?

In talking to Florida section advisors, past and present, we have agreed that NARAM is too difficult and expensive to host. It runs too long and the same past champions come to collect their newest trophies. Local competitors seldom win any trophies. We see no reason to host the annual rocket country club operation that NARAM has become. There have been years where NO Florida rocketeers attended the event other than possibly one vendor.

Attaching NARAM-59/"Rocket Festival" to an FAI event may make matters worse given that FAI contests are very costly events that 95 % of rocketeers would skip.

It is hard to attract new people to a hobby that has gotten set in its ways, gotten expensive, and gotten old. NAR is also a great deal more secretive than it used to be. The lack of "glasnost" about rule changes and additional fees does not help with the recruitment process. The Millennial Generation that we are trying to recruit from are very protective of free time and often do not have the funds for a 9-10 day junket to some remote area of the us. This is not Burning Man.

Sincerely,

Manuel Mejia, Jr.

NAR 34611-GSSS 120

NAR International Liaison, 1994-2004?

(I was never "officially" dismissed from the post)

My wife would disapprove of a trip to NARAM given that the annual event cost the same as going on a vacation in London! Enough said.

[Manuel – All I can say is that there has been a lack of Sections coming forward to host the event. That limits the “host” sections basically to those that are interested and organized for competition rocketry. Whether or not the new rules for national competition increases competitors’ interest or host section participation, is still an unknown at this time. We may need a cycle or two. – DrB/Da Lackey]

Disclaimer: “The SOAPBOX: Stand Up and Shout,” “The Editor’s Pad,” “Rocket eMail” and “President’s Message” are instruments of personal opinion and expression. The Launch Rack and the GSSS Board neither support nor oppose the opinions expressed in these columns and wash their hands of these affairs... [-RTK, AsstEd & Beast of Burden]



Hi Bob,
Great job!
Looking forward to the next one!
Verna & Randy

Nice. I could use an Estes Lucille right now. Can I preorder?
Kevin Kuczek

Kooch – I understand they are on back-order, get on line!
<G> DrB

...But the rule is Rules are made to be broken. Or maybe the rule is: There are no rules.

Steve Pantuck

The Eye of the Beholder, Steve? Thanks Buddy! We all appreciate your submissions, past, present, future! --DrB

Great edition Dr Bob,

I am particularly taken with the KF Aerofoil and will give it a go on a model. We have a wind tunnel at Stow Maries WW1 Aerodrome (where I volunteer) where I hope to test it. Possibly at our next club day the first Saturday in the month, ie August, if not before.
I was at the Paris Airshow for the TARC Finals with the winning UK Team, so will be interested in how the result will be reported, in particular what would have been the result were all teams eggs to have broken. Anyhow 2017 proved my belief that eggs and concrete don't mix especially if they are dragged across by gusts of wind!
Kindest regards from across the pond,
John (Jacomb) – UK

John – Would be very interested in your results! Perhaps you could report on them here? --DrB

Hi. Great seeing you there. Here is a pic of a rocket seen in the scale room. I think I remember it from Frau Im Mond, or if it's a coffee urn or a cremation vase.

Ed (Pearson)

Sorry Ed, that's actually a coffee "pot." I guess I'm wrong too. It's the Royal Rocketeers Team's 1/255 Concept Scale model of Spaceship One from the 1937 German film titled Weltraumschiff I Startet (Spaceship 1 Launches)!



Here's the ship you were thinking of from the 1929 German film: Frau Im Mond (Woman in the Moon). It was aptly named "Friede" or "Peace." Hey, when you've seen one old German spaceship, you've seen 'em all. Guess they all look alike.
--DrB



**Messages
Channeled
through
the
Oui-GSSS
Board**

The GSSS BOARD will discuss matters that relate to the Club and affect the membership. A synopsis and the results of any votes will be presented here.

...Or "Stuff We've Heard That's Been Floating Around In Empty Space"

> Jackson Hobby Shop Up For Sale <

The business was started in 1969, a lucrative hobby shop and one of the oldest one in NJ. I will be retiring in March of 2018 because of medical reasons. The business is up for sale for \$200,000 firm. Any one that is interested can contact Brad Palmer, at Crown Business Brokers, at (908)364-6920 or email him brad.palmer1@aol.com. Anyone that has ever been to the shop knows we have an extensive amount of inventory for all facets of the hobby industry. For all of my customers and friends, which are more like family, this is a sad time in my life and one that I am sorry to see happen.

Thanks again for all the wonderful years this has given me. It's been my pleasure to serve you.

Frank Gustafson

Jackson Hobby Shop
2275 West County line Rd
Jackson NJ 08527

Bennetts Mills Plaza
732-364-3334

jacksonhobby@aol.com



March 19th
April 16th
May 21st
June 18th
16th
August 20th
September 17th
October 15th
November 19th
December 17th

SoJARs 2017 Launch Schedule



July

Website: <http://www.sojars.org/>

SoJARS (NRC) Sojourn

We will also be having our first NRC contest using the new NRC contest format and rules. The events will be:

- C Eggloft Altitude – Altimeter
- A Payload Altitude – Altimeter
- A Helicopter Duration
- A Streamer Duration
- 1/2A Parachute Duration
- 1/2A Boost Glider Duration

We will have entry forms and results cards along with a thermometer and stop watches.

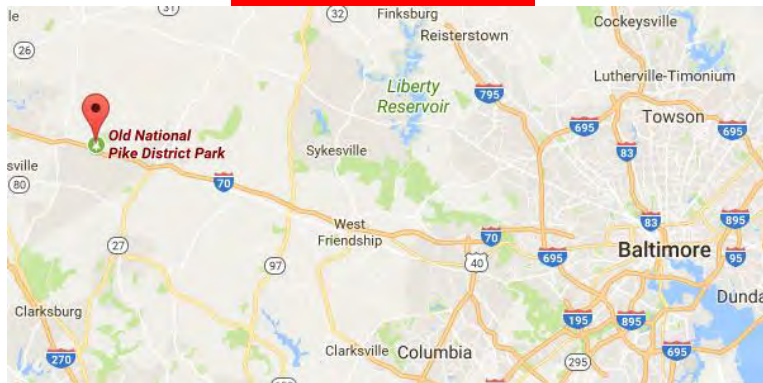
Altitude events fliers -you need to supply your own egg or payload along and an NAR approved Altimeter.

SoJARS plans on having the same contest events every month at all our upcoming club launches.



If you have any questions, please contact info@sojars.org

N N R C - 1



NARHAMS will be hosting its first NRC launch on September 16th at Old National Pike Park in Mt. Airy Md. All NRC events may be flown. NARHAMS will provide launch equipment, flight cards, entry forms and stopwatches. If you choose to fly altitude you must provide your own approved altimeter. If you choose to fly payload you must provide your own payload. If you choose to fly egg loft, you must provide your own egg(s). This event will coincide with the club sport launch and will be followed by the annual night launch. Go to narhams.org for more details on the sport/night launch.

Jim Filler

["Jim Filler" zog139](#)

RAMTEC-20

3 September, 2017



Date/Time 09/03/17 - 09/04/17 9:00 am - 5:00 pm

Location [Ft. Indiantown Gap, PA](#)

Category: [Regional Meet](#)

It's the 20th anniversary of the RAMTEC series of competition launches. This year will include the new National Rocketry Competition (NRC) format. Three events will be selected from the NRC list of events and a fourth event will include Classic Model Competition. Trophies will be awarded for first place in each event. Support will be provided for launching and posting of all NRC event results to the national scoreboard. The range will be open on Saturday from 0900-1700 hrs and on Sunday from 0900-1400 hrs. There will be two ranges available; one for competition flights and one for sport flights. A waiver to 4,000 AGL has been applied for.

Contact &Event Director: Glenn Feveryear

feveryear1@verizon.net | 410-838-6928

Events: NRC Events and Classic Model Competition

NARAM-60 Competition and Events Announced

Including:

The Old Rocketeer Reunion (8/4)

NARAM-60

August 4-10, 2018

Pueblo, CO

hosted by SCORE

CD: Scott Alexander

1/2A PD *
1/2A B/G *
A SD *
A HD *
A PL Alt *
C EL Alt *
B Cluster Alt
C SR Alt
Classic Model
Sport Scale
R&D
*** - NRC Events**

NARARF 2017 (NARAM-59) IS OVER - NOW THE NEW NRC BEGINS HERE IS HOW IT ALL WENT DOWN IN PICTURES



JUST A PORTION OF THE NARAM CONCEPT SCALE ENTRIES NOT ONE WAS THE SAME (HOW'D THEY DO THAT?)



Oh, Its just Chad...



Mike Nowak, FlyOffs
Contest Director



Its "Cousin Itt!"
(Matt Berk timing)



The BIG ICKY
Muskegon's Sewage
Treatment Plant

CANAM CUP AND THE FLYOFFS



"Love In The Icky"
Betty & Steve Humphries

Range Head at the CanAm Cup

Spain

Catalonia

Canada

USA



The Headless Norseman?



Bryce Stephens
Loads his Arcas



Trevor Harrison
With a Falcon 9



Some days are just perfect
for flying rockets!



It was like this ALL DAY!



Matt Steele
Prepares to
fly S1 Altitude



Check-In for S2P (TARC)
Altitude Data Download



Ooooo, what fortune!
A near miss for the ICKY

THIS Is IT! The (New!) National Rocketry Competition!

NRC is a year-round competition with everyone across the country.

This means you compete against all the competitors in your respective age division.

A Division	Individuals and Teams, ages 0 – 14
B Division	Individuals and Teams, ages 15 – 22
C Division	Individuals ages 23 years old and older
D Division	Teams ages 23 years old and older

And in the NRC, A and B division members can form teams! D Division teams may be made up of an adult and include an A or B Division member. Just remember- **Teams must compete in the division of the oldest member.**

You compete at any NRC launch.

It doesn't matter where the NRC launch is held or who is hosting it. If the launch is shown on the NAR Launch Calendar as a sanctioned NRC launch, **anyone** can participate and fly **any** of the selected NRC events*.

Fly as often as you like.

There is **no limit** to how frequently you can attend an NRC launch. And there is **no limit** to how often you can sanction an NRC launch.

Three Easy Steps:

1. **[Sanction a launch at nar.org](http://www.nar.org)** – it's easy, and your launch is added to the NAR Launch Calendar to attract other competitors.
[\[http://www.nar.org/find-a-launch/register-an-nar-launch/\]](http://www.nar.org/find-a-launch/register-an-nar-launch/)

Sanctioning an NRC launch only requires two people - one of whom must be 18yrs of age or older. Whoever sanctions an NRC launch becomes the Contest Director for the NRC launch. This means they must see that the **[Sporting Code](http://www.nar.org/wp-content/uploads/2017/06/USMR-SC-2017.1.pdf)** **[\[http://www.nar.org/wp-content/uploads/2017/06/USMR-SC-2017.1.pdf\]](http://www.nar.org/wp-content/uploads/2017/06/USMR-SC-2017.1.pdf)** is followed and work with whomever is in attendance to help time, verify altimeter results, verify eggs are not cracked or broken, etc.

In the "Event Details" of the online sanction/registration form, be sure to clearly state important information, such as, how long you will be flying and if you are supplying anything such as stopwatches, eggs, etc. Otherwise clearly state, "competitors must be self-sufficient. Assume there will be no contest entry forms or flight cards; no stopwatches, egg's, NAR payloads; thermometer or altimeters available."

Download links to **[Contest Entry Cards](http://www.nar.org/contest-flying/contest-resources-forms/attachment/ec-1/)** (EC-1) **[\[http://www.nar.org/contest-flying/contest-resources-forms/attachment/ec-1/\]](http://www.nar.org/contest-flying/contest-resources-forms/attachment/ec-1/)** and **[Flight Cards](http://www.nar.org/contest-flying/contest-resources-forms/attachment/fc-1/)** (FC-1) **[\[http://www.nar.org/contest-flying/contest-resources-forms/attachment/fc-1/\]](http://www.nar.org/contest-flying/contest-resources-forms/attachment/fc-1/)**.

2. Fly any of the NRC events at your launch.

An NRC launch is an opportunity for all competitors to come and fly any of this year's six events:

***NRC Events List- 2017-2018**

- 1/2A Parachute Duration
- 1/2A Boost Glider Duration
- A Payload Altitude – Altimeter
- A Helicopter Duration
- A Streamer Duration
- C Eggloft Altitude – Altimeter

An **NRC** launch **IS** a competition. **NRC** events are flown as events have always been at a contest per the Sporting Code. Example: If you were to fly 1/2A Parachute Duration, you would get two flight attempts and your score is the sum of those two flights. Done. Fly your next **NRC** event.

Teams are treated as one of the minimum two competitors needed to sanction an NRC launch.

Teams are treated as one competitor at any NRC launch they attend.

3. **Post launch results on the [National Scoreboard](http://www.nar.org/nrc-scoreboard/)** **[\[http://www.nar.org/nrc-scoreboard/\]](http://www.nar.org/nrc-scoreboard/)** at **[nar.org](http://www.nar.org)** -- see how you are ranked across the country.

When an NRC launch concludes, the Contest Director must do the following **within 7 days**:

- Collect all the competitor Flight Cards and Entry forms (save them in the event of any protest or dispute.)
- Using **[Contest Manager](http://www.narhams.org/ContestManager/index.html)** (CM) software, enter all the **[\[http://www.narhams.org/ContestManager/index.html\]](http://www.narhams.org/ContestManager/index.html)** competitor's scores from all the flight cards for each event flown.
- Go to the **[National Scoreboard](http://www.nar.org/nrc-scoreboard/)** and upload all the **[\[http://www.nar.org/nrc-scoreboard/\]](http://www.nar.org/nrc-scoreboard/)** scores from the CM file - those scores are immediately visible to all competitors and are ranked. Scores shown on the Scoreboard are only each competitor's BEST score in any event.
- The sooner competitors can check to see how they rank among the other competitors in their competition division in any of the **NRC** events they flew, the better the Scoreboard works for everyone!

Section Competition and the NRC

MANY more contest opportunities and possibilities!

- A **[sanctioned](#)** contest simply means **NRC** events are either part of the contest or that the CD is allowing **NRC** competitors access to his/her launch to make **NRC** flights. Record trials are also sanctioned.

- Any **NRC** event may be flown at a sanctioned contest regardless of the other events scheduled.
- Sections may hold **NRC** sanctioned launches, unsanctioned contests, or sanctioned contests with **NRC** as often as they wish.
- Unsanctioned contests may include as few or as many events as they wish.
- Unsanctioned contests may include Sporting Code events, (retired) Sporting Code events, fun events and/or gentleman agreements!
- Section contests can be tailored to suit the interests and experience levels of its competitors!

The biggest takeaway regarding Section competition is that in the absence of the old points system, under the new Sporting Code there is much more opportunity for a section to fly what it wants and as many or as few events as it wants. You can use the [points schedule](#) (Page 11, Rule 13.2.4) in the new Sporting Code in order to determine who wins what, and still present awards just like you did under the Pink Book.

What's my reward?

The NAR will recognize - in the Model Rocketeer (eNewsletter), on its Facebook Competition Group, and in Sport Rocketry, the top 10 competitors in each event at the end of the NRC year- June 30th.

Win Event Specialist Award at NARAM:

1. Select one or more NRC events.
2. Post a qualified flight in your selected event(s)
3. At the close of the NRC year finish in the top 10 or 10% (whichever is greater) in your selected **NRC** event(s).
4. Compete at NARAM in your selected event(s).
5. Be the **NRC qualified competitor** (See Rule 13.3.1 in the Sporting Code) with the highest finish in your selected event(s) *at* NARAM to earn that year's EVENT SPECIALIST AWARD.

Win a National Champion Award at NARAM:

Understanding Combined Rank:

- At the close of the **NRC** year (June 30th) competitor scores on the Scoreboard become final. Final scores determine a competitor's rank in each of the **NRC** events they flew.
- A first place in any of the **NRC** events is equal to a rank of **1**. Second place is a rank of **2**, and so on.
- For competitors seeking a National Champion Award, the qualifying process hinges on a competitor's **combined** Scoreboard rank resulting from flying all six **NRC** events.
- Therefore, a perfect NRC is a combined rank of... **6**, from 1st place finishes in all 6 NRC Events.
- Example of combined rank at the end of the **NRC** year and after having flown the required six **NRC** events:

Contestant X – 1st + 3rd + 2nd + 1st + 4th + 3rd = **14**
(combined rank)

All competitors begin NARAM with zero points!

National Champion Award – Winning a National Championship requires:

1. Individuals and teams must post a qualified flight in **ALL** six **NRC** events.
2. At the end of the **NRC** year, based on their final Scoreboard position or rank in each NRC event, the individuals and teams whose **combined rank** places them in the top 10 or top 10% (whichever is greater) of all competitors in their respective division, **qualify to go onto NARAM and compete for a National Championship.**
3. The **NRC** qualified competitors accumulating the most points at NARAM shall receive the National Champion awards in their competition division. **ALL NARAM events are scored and count towards the National Championship- NOT just the six NRC events.**
4. NARAM competitors will want to enter **ALL** the events because:

Points at NARAM will be awarded in each event according to this schedule:

1 st -25pts	2 nd -20pts	3 rd -17pts	4 th -14pts	5 th – 12 pts
6 th -10pts	7 th -8 pts	8 th -6 pts	9 th -2 pts	10 th - 2 pts
		Flight Points – 1 pt		

Competitors who [qualify via the NRC](#) (Rule 13.1.11.7) to compete to fly at NARAM for a National Champion award will be required to declare their intent when they register to attend NARAM. And those that do, can only win either the National Champion or Reserve Champion award- they are not eligible to win the NARAM Meet Champion or Reserve Champion award.

Therein lies another important distinction regarding awards at NARAM!

A member can come to NARAM, **and even if they have flown NO NRC**, they can compete to win event awards AND even become the NARAM Meet Champion or Reserve Champion.

All because everyone starts with zero points!

It can't be stressed enough that competition of any kind requires understanding the rules. No difference here. The largest part of the changes by far is in [Section 13](#) so it's important to read this section **s l o w l y** in order to understand the rules.

Fly the National Rocketry Competition!

Ed LaCroix, Expanding Competition Subcommittee

[[We Thank Mr. LaCroix for making the effort to explain how NRC works and how Club Members can participate – EdLky]]

The **NAR's Annual Rocketry Festival** will be more than just NARAM



IN PLAIN ENGLISH PLEASE....

Here Quite Possibly is A More Common Sense Description of the New National Rocketry Competition, How it works and what YOU can do to participate under the new rules. Let's take that last Article on the NEW NRC and...

PRESS "2" FOR INGRISH

BY: Your Lying Trump Lackey

Weighting Factors, Point Accumulations, Prerequisites, Competition Reports, Documentation, Range Personnel, Equipment, Pre-NARAM Points – just a few of things you would have to consider if you wanted to hold a good *old* model rocket contest...

They're GONE-OK!

Thar's a New Sheriff in Town folks, and there are gonna be some new rules, too. Rules that you need to understand because, the classic structure of rocketry competition in the US has just been retired. Imagine, if you could compete any time you wanted, anywhere you wanted (as long as you got permission to fly,) and you and your buddy were the only 2 people that had to show up...

The NAR's Expanding Competition Committee has worked for over a year to revise the way we compete. Was there something wrong? Generally, only a decline in the over-all number of competitors and a noticeable lack of new competitors showing up. Seasoned flyers would go into NARAM holding an advantage with points they already accumulated. The rules were confusing and difficult to the newcomer and not novice friendly. What the ECC did was level the playing field and make it easier for first time competitors to try their hand at competition - if not making it more interesting, fun and accessible. How do the new rules level the playing field? First off, when you go to NARAM, no one has any points that they have accumulated beforehand. Its head to head, mano a mano on the field. So, now you no long have to worry about getting 12 contest factors and maximum points before the end of the competition year just to stay in the game. Forget those weighting factors and contest points. Had

they had some fear or trepidation, now first-timers can think about doing it because everyone starts out the same and ITS FUN!

So, if there is no Local, Section or Regional meets required to compete, who am I competing against? The short answer is: everyone else in the US - and yourself. You can always check and see how you are doing in any one or multiple events, online, at the NAR Scoreboard – a web page dedicated to the tally and reporting of individual performances throughout the year. But in all reality, you also compete against yourself – that is: to become better and better at the events you are flying. You may have one model you use for a particular event all throughout the year, but you study its performance, make changes and improvements and ultimately try to achieve your very best performance.

HEY LOOK!

Here's what you can do with your Old Pink Book!



"Betty's Retired Pink Book Rocket"

Shouldn't we ask: why would anyone "want" to compete? Here's my story: I got into it because of GSSS. Second launch I attended was a Local Meet. Everybody was flying against each other and there were even folks from other clubs. It was exciting and a *personal challenge*. That's all it took - So I got involved.

However, as of the last few years (ok, a decade or so) GSSS has had little if any, competition activity. How come? Well, no one was really interested. Without some motivated club members, there was no reason for administrators to go through the effort. It's a shame. I'm sorry, but the reality is not: "If you build it, They will come."

Do you realize that previous to this hiatus, GSSS held the honor of Reserve National Champion Section? Yeah, we were that good...

No, we weren't a bunch of elite fliers, just everyday guys, some with wives and a bunch of kids, many of whom are still around as club members. One is our President. Another is President of SoJARs (Bruce, you traitor...@!<G>). It can be done.

As part of “easing the process,” EEC has made competitors responsible for “running” their own competition and NRC just makes it easier for them to do so. Who knows? Maybe the feeling is others will get interested once they see it.

So what does that mean for the Club? Well, we can go on having our monthly sport launches. Fly for fun! But if you and your buddy think having “fun” is “having it out” on the rocket field, you can do that too. Only, you run it yourselves and bring what you need, follow up by submitting your scores online. As a courtesy, just get permission from Arnie at least a week before the club launch you plan on attending. It is GSSS that holds permission from the Park to fly.

Scanning the new rules, one of the first things I noted was, there seems to be an infusion of international-like rules under NRC. In FAI competition, only certain events are designated as core events of a World Cup Continental or World Championship contest. Year after year, these same events are used as the basis for competition. There are certain individuals that get very good at what they do - because they do it all year. In a way, so it will be here and now, with the new National Rocket Competition.

Of the 21 competition events (shown in our NRC table above) 6 are selected on an annual basis. Most likely they will change from year to year but they will always come from that core of 21 competition events on the NRC Events List. Why is this important? Because you are, in effect, trying to become a “specialist” or the very best in one or all of these events, much like international competition.

The results you achieve in each of the NRC events are entered into the annual National Scoreboard, which is maintained on the NAR web site. You are competing against everyone else in the US, but also yourself, in that you are trying to achieve your very best score. To get there, you can fly as many times as you like during the year.

Ultimately, the top 10 competitors (or top 10%) in each competition event age division will then qualify to compete in these same events at the Annual Rocketry Festival (its still called NARAM). These are called the “Event Specialist Awards” at NARAM. You may seek the Specialist Award in one or all 6 of the year’s selected NRC events. It is something similar to FAI and international competition, where there is always a “Champion” for each event held at a World Cup. Under NRC, there will be Event Specialists selected annually. We can get into how you can go for the “valuable prizes” at NARAM in another article but for now let’s stick with how all this could affect our Club.

Now, since you can fly as many times as you like, sections *or individuals* may host as many competitions as they like during the year (can you imagine competing in 365 contests??? Well you can if

you want to). My first thought here is that sponsoring NAR sections might start considering holding their NRC meets during those times of the year that might produce the best results for their members. I doubt you will see many NRC contests in the dead of winter here on the East Coast or north of 40° Latitude. But those poor guys down in the South West – well, they’ll just have to fly all year, won’t they! Secondly, I would think it might be common that the first or second NRC meet a club hosts, at the beginning of the contest year, might be reserved for qualifying in all 6 of the annual selected events. Then their members can concentrate on obtaining their best performances for the remainder of the year, especially if they plan to attend NARAM. Here on the East Coast, quite possibly a winter scheduled contest could be used to quickly and efficiently complete the basic annual 6 event qualification flights, without concern for performance. *Individuals* may sponsor their own competition. It doesn’t have to be the club, but fliers could show up during a club launch to hold their meet (with permission.)

NRC competitions must be sanctioned through the NAR at least 7 days beforehand and must have at least 2 NAR members attending. The person holding the NAR sanction must be at least 18 years old and becomes the Contest Director (CD) who is responsible for submitting all results. Its simple. I’m sure any 10 year old could do it but for legal reasons, you have to be 18 to host a launch. Only one person needs to fly. Only ONE person is needed to time! That means you and your friend can sanction a competition and hold it in your back yard if you wish! And you know what else? There’s no return rule for timed events! You must still return an altimeter to determine your score and of course, ANY event where the model contains a NAR payload or egg. OK, those are the “basics,” just remember – there are new Contest Entry Forms and new Flight Cards. You must use the new ones – not the old ones.

You know how the competition works now: You bring your own launcher, eggs, payloads, stop watches, altimeters (with thermometer!) Although some club sponsored meets may provide some of this equipment for you if they can or have it available - you bring it yourself, primarily. How much easier can it get? Are you interested in giving the NRC a try? Let’s hear back from you, GSSS!!!



<< Summation >>

The (New!) National Rocketry Competition!

The NRC is a year-round competition with everyone across the country.

- You compete at any NRC launch.
- Fly as often as you like.

Three easy steps:

1. [Sanction a launch](#) at [nar.org](#) -- it's easy, and your launch is added to the NAR [Launch Calendar](#) to attract other competitors.
2. Fly any of the NRC events at your launch.
3. Post launch results on the [National Scoreboard](#) at [nar.org](#) and see how you are ranked across the country.

What's the reward?

- Top 10 competitors in each event recognized by the NAR at the end of the year.
- Win Event Specialist Awards at NARAM
- Become the National Champion at NARAM

YAY!!! THE STANDARD PAYLOAD THAT FINALLY FITS A BT-20!!!

Payload Specifications

To quote from the **OLD**
Pink Book, rule 25.2:

*“The standard NAR model rocket payload is a non-metallic cylinder containing fine sand, with a mass of no less than 28.0 grams. This cylinder shall be **19.1 +/- 0.5** millimeters in diameter, and 70.0 +/- 10.0 millimeters in length.*



Payload Specifications

To quote from the **NEW**
NRC Rules, rule 22.3:

*The standard NAR payload is a sealed non-metallic cylinder containing fine sand, with a mass of no less than 28.0 grams. This cylinder must be a **minimum of 17.0 millimeters in diameter**, and a minimum of 60.0 millimeters in length. No holes may be drilled into it, no changes made in its shape, and no material may be affixed to it.*

Jim Filler - He Da “17” Man!

There is absolutely nothing standard about the old **19.1mm standard competition payload**. It was either a seemingly subjective, arbitrary choice of dimension or an intentional hoop to make competitors jump through. No one I asked knows for sure. So why, you ask? Because, the old standard payload didn't fit any frequently used or commonly manufactured body tube. You had to specially adapt it to your model or fabricate a model around it. What a PITA! I've been in competition at NARAM and had to produce my first fiberglass rocket to contain this oddball payload. However.....

The NEW NRC Payload is different, smaller and able to fit inside a BT-20, thanks to a suggestion from NARHAMS member Jim Filler, to the National Rocketry Competition Committee. They (re)wrote the *new* rules.

Now competitors do not have to make up some oddball diameter or rocket just to fit an arbitrarily defined diameter, rather than having to find, order or make 19mm tubes and

having all that fun of (read: a lot of trouble) finding nose cones for them.

Enter Jim Filler with a better idea... The NRC Committee had a goal to refine the rules so first timers might find it little easier to begin competition. This idea certainly goes a long way to providing that!

But wait a second – the old 19.1mm is definitely an odd-ball tube size however, the old rules stated “19.1 +/- 0.5mm” which would bring the minimum dimension down to 18.6mm, the size of a BT20. And since the rule stated the payload must be *enclosed* it would still require a larger or custom made tube. So, where do I get the new odd-ball 17 mm tubes for my NRC payload which does fit a BT20?

First thing you should note, the rules say “a minimum of 17.0mm.” That roughly translates to ≥ 17.0 when looking for a sand payload tube. The inside diameter of a BT20 is 18.034mm. So, what you want is a tube with an outside

diameter between 17.0 and 18.034 millimeters. That, is a lot easier to find.

First thing you might consider is a BT20 tube coupler. They are available all over the place, including 36" long coupler stock from Balsa Machine Service. BMS has long sections of BT 20 coupler "C20-34" Coupler .708" (17.98mm) It is coupler stock so it will be tight in a .710" id BT-20. I have some, this tubing is going to be a little fuzzy on the outer surface which increases friction and a relatively tight fit. You might want this, I don't. Maybe a lot more work than you want, but very common and available. There are other options.

Aerospace Specialty Products makes a kit from which you can assemble a payload.

http://www.asp-rocketry.com/ecommerce/Competition-Payload-Kit.cfm?item_id=207&parent=9&navPanel=

This payload at .740" (18.8mm) will fit their competition payloader: The Versi-Loader-18, but at that diameter, you can be certain it will not fit an Estes BT-20. Best to match and use the ASP products together.

http://www.asp-rocketry.com/ecommerce/Versi-Loader-18-Kit.cfm?item_id=626&parent=9&navPanel=

Lastly eRockets web site has the Semroc "BT-19" (eRockets has bought out Semroc) tubing which is a GREAT slip-fit inside 18mm (BT-20) tubing. It's a little smaller in diameter .700" (17.78mm) than the coupler stock and has a white glassine covering for a "slip fit." Available in 3 lengths, it would be and is my personal choice.

BT-19

BT-19-60 NEW	0.674"	0.700"	6"	0.013"	0.08 oz
BT-19 NEW	0.674"	0.700"	18"	0.013"	0.25 oz
BT-19M NEW	0.674"	0.700"	6.9"	0.013"	0.10 oz

To restate, diameter and weight of tube is inconsequential as long as the final payload is >=17mm and at least 28.0 grams in weight. The Semroc option seems to be easier in overall handling but it appears from their website that all sizes of tubes are presently "out of stock" – let's hope this doesn't turn into one of those Quest Q2G2 fiascos... (I haven't seen them on the Quest website for over 2 years!!!) More recently, Semroc has been sold to eRockets so you can find the tube there. I sometimes have problems navigating the eRockets site. Its one of those online stores that got really carried away with building everything into their site, instead of describing product. Something like the old Estes site was with all videos UFOs and graphics, but you couldn't tell where anything was. eRockets likes to "list" product. There are more menus and pull down windows than I could count. Product descriptions are minimal, absent or hard to find without going through multiple pages or menus. Searching for a product yields pages upon pages with everything they offer, but having nothing to do with what you're looking for. They list a lot of product and prices as if you would prefer to "shop around" in their store, instead of just finding what you want, ordering it and getting out. (So, I ordered 2 x 18" BT-19 tubes and then wrote this.) Payload models used to require a payload section that was

larger in diameter than the payload in order to house the BT-20 diameter payload inside. Not anymore. The new payload is designed to fit inside the more common BT-20 tube. The payload length can vary from 60mm (2.362") to 80mm (3.15") depending on the density of the sand inside and the thickness of the end caps.

The payload itself gets filled with sand for the majority of its mass. It is known and expected that sand will vary in density and weight per unit volume. For example, I live at the "Shore"

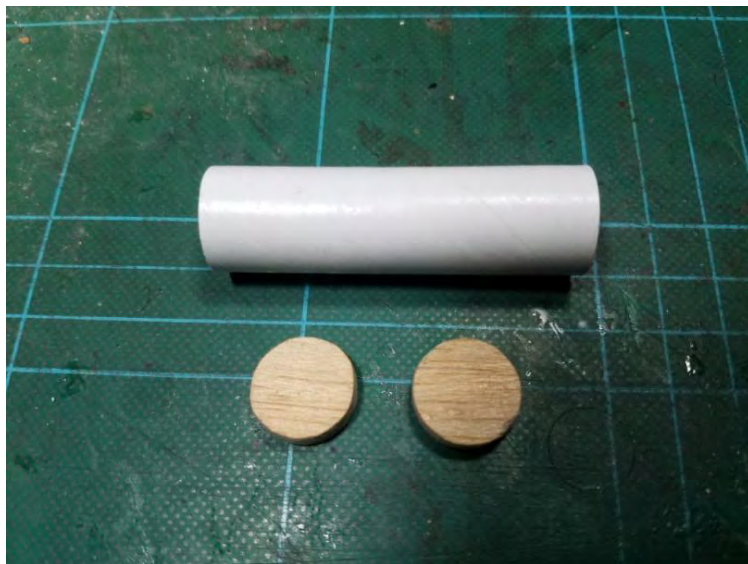


so I get my sand from the beach and the sand varies from beach to beach. Some is powdery, some is granular, some is a mix of fine sand with small pebbles in it. I can't say it is ever "pure" and have noted that in general it contains shell fragments, used lead split-shot, sinkers (hint-hint!), whole clams and sand worms. I suggest you either let them go or go fishing with them, but don't put the worms in the payload. Keep the clams - they are good on the grill with drawn butter. You can use the empty, broken shells afterwards in the payload if you wish. Because, its all "Sand."

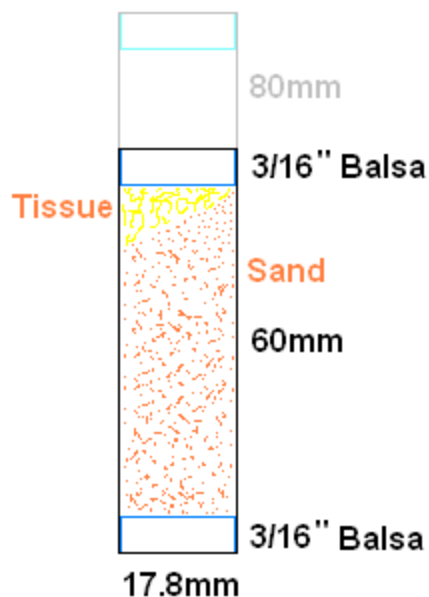
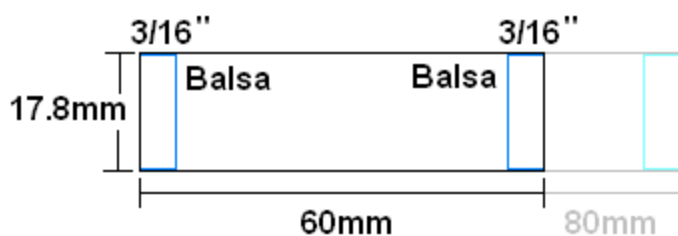
Here's how to make yours (or how I made mine):

You're going to need at least 80mm (3.15") of Semroc BT-19 from eRockets, home-made round balsa end caps, an accurate scale and plenty (1 oz) of "sand".

I got my scale off of Amazon, its small, battery powered and has an accuracy of 1/100th gram. Simply start by weighing all your parts; I'm using 3/16" balsa for my end caps, roughly sanded to a circle so that they are a snug fit in the BT-19.



Parts: BT-19 (60mm) 2 x 3/16 balsa discs, tissue/cotton ball (if needed,) glue, and of course: sand. If you can hit 28.1g, then simply shave balsa disc ends.



Weigh the parts before and after gluing in one of the end caps. Make a note of it – the difference will be the weight of your glue and remember: you’re trying to get as close to 28.0 grams without going over. The weight of the glue will add up. Do a trial and fill of the tube with sand. Make note of the volume needed to get up to about 27.5 grams. If it turns out you need a longer tube (do not exceed 80mm in length) what you really need is “heavier” sand. Go look for some with the sinkers and split shot in it that will weigh as much in a smaller volume (denser sand). Add the thickness of your remaining end cap



and adjust the payload tube length. Re-weigh, you will need to add a little sand to compensate for the weight of the tube you just cut off. You can also go “minimal” by trimming your tube to the length you want first (60mm) then look for sand dense enough that you can reach 28 grams in that pre-determined volume. Sand does not “pack” well, so don’t think you can just compress it into a smaller, more specific volume.

Now here are a few tricks to tuning in that weight to exactly 28.0 grams – because every 1/10th of a gram in excess weight is a 1/10th of a gram you have to lift that your competition doesn’t have to.



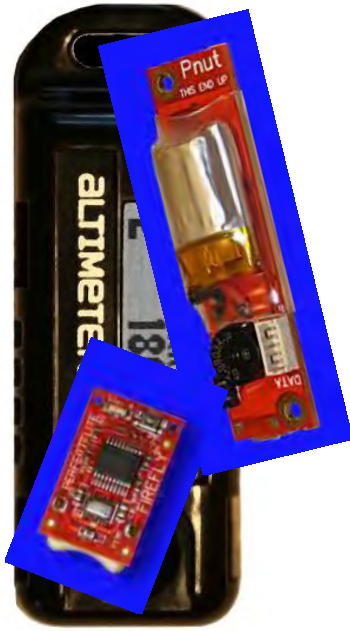
First – remember the glue you use to seal the final payload end cap with might weight about 2/10ths of a gram. Consider leaving a millimeter or two of the balsa end cap exposed beyond the end of the tube. If you end up going 1/10th (slightly) over 28 grams, you can shave a little balsa to fine tune. Just don’t trim it less than 60mm. Balsa is compressible and can be squeezed back to be flush with the tube end. If your final weight is slightly less than 28 grams, try adding a drop of glue to one end. You can add and subtract a few grains of sand at a time by placing or removing them with tweezers or needle nose pliers. Lastly, *Always* take fresh weights, never rely on the scale to self adjust - and weigh everything 3 times.

...And the Answers are:

D-I, .S, E-Z, 4-U

Oh Magnificent and All Knowing Karnack...

Which Altimeter Should I Use?



The obvious answer is the one that works best for you! What is it you want? Simplicity vs. Dual Deployment? Cost a factor? Size and Weight? Well there's something on the list for everyone, so let's go over what you get for your buck.

Basically, the one and only thing you need from an altimeter is: how high did it go? Which will also help answer the first question you'll get from any first-time observer (premised by: "WOW!" then you'll be asked "how high did it go?") So, you'll need a result or "read-out." That can be in the form of an audible "beep," a visual blink or flash of light from an LED, a text message on a small display screen, or a flight display graph from analyzing software.

Next, how much room do you have? Are you limited by the constraints of a particular payload section or hollow nose cone? There are tiny units that can fit in a 10mm tube – smaller than an Estes BT-5! Or, do you need one with more bells and whistles-like to deploy a drogue chute at a specific altitude? Then, you may need an altimeter with a computer download for an analysis of the entire flight. These types of altimeters are available in various packages, sizes and weights. Lastly – are you on a limited budget? As you can see from the comparison chart below, some of these units can get a little expensive when you consider the necessary support equipment and accessories. So, "Which One Would Work Best 4 You?"

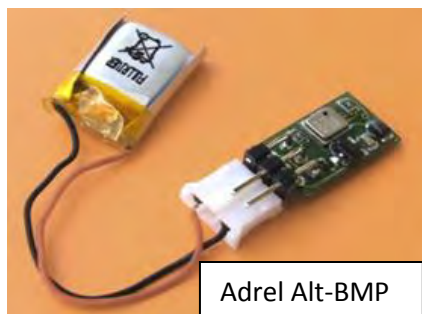
I'm an Altitude Competition flyer – as well as many, if not most NRC competitors may be. To fly the highest, I would want a minimum diameter rocket – so I would need the smallest package available – AND – I would want the unit that will add the least weight to my rocket. As far as read out is concerned – I don't care. It could be immediate from on board the altimeter or even to the extent of full flight analysis. Hey, as long as I don't have to send it in to the manufacturer to get a result (like the old Estes CamRoc film discs) then I would be satisfied. Looking at the comparison chart in this article, I can see 2, maybe 3 that would be suitable, right away: the Adrel **Alt-BMP**; The Altus Metrum **Micropeak** and maybe the PerfectFlite **FireFly**. I would remind you, the purpose of this article is not to single out any one altimeter as the "Very Best," only to discuss what you should be thinking about when you select "one that would work the easiest or the best 4 you." Cost could be a factor – do you want one expensive fancy altimeter - or – maybe you have already lost a few and would prefer a couple of cheaper altimeters, for when you lose another one, you'll have a back-up. Consider what you need – there will be a product that should fit your requirements very closely. The NRC Committee has done an excellent job certifying different types of altimeters which can be used for different or specific needs. It was not the intent; it just turned out that way. All altimeters that qualify under the stated requirements will eventually end up on the certified list.

What are the basic requirements for a NRC certified altimeter? And what's the difference between basic compliance and certification for records? All you really have to know is which ones are and which are not. But let's find out anyway... According to the NRC White Plaid Pink Book (<G>) in a nut shell, a certified altimeter: 1) Uses barometric measurement; 2) Uses a digital integrated pressure sensor with at least 16 bits of resolution; 3) Recalculates launch pad pressure altitude by sampling local

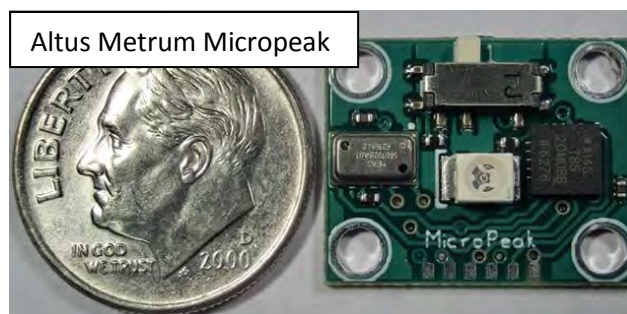
pressure at least once per minute after activation; 4) Has a resolution of 1 meter or better; 5) Has an accuracy of 1 percent of recorded altitude; 6) Has a sampling rate of at least 10 readings per second; 7) Rejects false short-duration launch or apogee altitude transients (wind gusts); 8) Provides a readout of apogee from the most recent flight and 9) Is capable of being placed in a preflight state of readiness which must be audibly or visibly verifiable. Great! So, they all have that and comply. OK, but what's the difference between "certified" like this and certified for establishing national "records?" In our compiled list of approved altimeters, simply look at the column labeled "Accessories." Funny, the 5 altimeters that have accessories are all the ones that are approved to be used in setting a national record. Why? Those accessories are components that allow you to download the entire flight data file to a computer or storage device (flash drive, ect.) It is this data file that is required to verify your altitude. It also allows judges to analyze your flight for anomalies. So a Records Approved Altimeter is one that is capable of storing and downloading the flight data file, simply that. The table below should show you most of what you need to know.

NRC Allowable Altimeters

Model	Verifying "Zeroed"	Verifying Altitude	Support Records?	Unit Price	Dimensions (L x W x H)	Weight	Features	Accessories	Total Cost	Fits Estes
Adrel										
ALT-BMP	read zero	read altitude	yes	\$64.99	19.3 x 7.9 x 4.9 mm	1.4g	Needs PC / program for download	Batt \$10 Charge/Data Port \$12	\$87.00	BT5
Altus Metrum										
Micro Peak	steady blink	altitude blink	yes	\$32.10	18 x 14 x 6 mm	1.9g	Blinks-for Download Needs Adaptor	Adaptor/Reader \$50.00	\$82.00	BT20
Jolly Logic										
Altimeter One	read "Ready"	read altitude	no	\$49.95	49 x 18 x 14.5 mm	9.9g	Rechargeable - Altitude Read Only		\$50.00	BT20
Altimeter Two	read "Ready"	read altitude	no	\$69.95	49 x 18 x 14.5 mm	9.9g	Alt, Accel, Max Vel, Duration, Anal		\$70.00	BT20
Altimeter Three	read "Recording"	read altitude	yes	\$99.95	49 x 18 x 14.5 mm	10.5g	Requires Smartphone and App	Blue tooth smartphone \$795.00	\$895.00	BT20
PerfectFlite										
ARPA	steady beep	altitude beep	no	\$29.95	69.9 x 14 x 15.7 mm	15.9g	Beeps - No Data Logging		\$30.00	BT20
pNut	steady beep	altitude beep	yes	\$54.95	59.9 x 16 x 12.2 mm	7.4g	Rechargeable Download for Analysis	DT4U data transfer kit \$24.95	\$80.00	BT20
Stratologger SL				\$54.95	69.9 x 22.9 x 12.7 mm	12.8g	Two Event Deployment Capable	DT4U kit \$24.95 Audio/LED	[OOP]	
Stratologger CF	steady beep	altitude beep	yes	\$57.50	50.8 x 21.3 x 12.7 mm	10.8g	Two Event Deployment Capable	Conn +\$2.55 9V Batt Clip \$0.99	\$84.00	BT50
FireFly	steady blink	altitude blink	no	\$24.95	27.9 x 17.3 x 7.9 mm	3.4g	Blinks-Can't Store Full Flight Curve		\$25.00	BT20



Adrel Alt-BMP



Altus Metrum Micropeak



Jolly Logic Altimeter-1

DO NOT insert Dime in Rocket!



Jolly Logic Altimeter-2



Jolly Logic Altimeter-3



Perfectflite APRA



Perfectflite Firefly



Perfectflite Stratologger SL-100
(Out Of Production)



Perfectflite Stratologger-CF

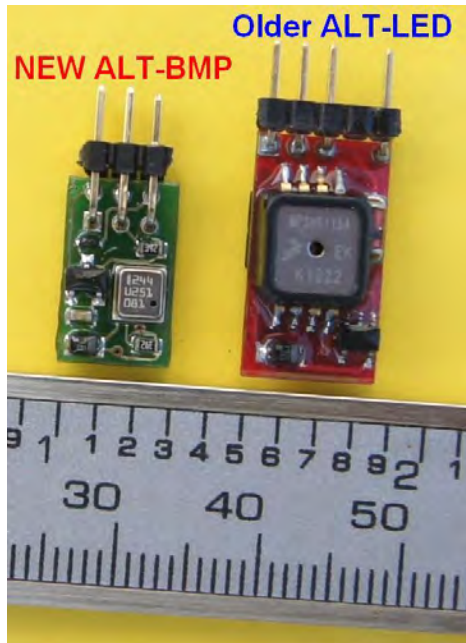


Perfectflite Pnut

Which Altimeter Should I Use?

The Answer Is: The One That Fits Your Needs!

I recently received an email from Bruce Canino, from down in the SoJARs Section in South Jersey. He was down an altimeter for an up-coming altitude competition at the Pittsburgh (PSC's - Carl McLawhorn Memorial Fly-Off 4) and wanted to borrow my Adrel ALT-USB. This is the same kind of altimeter I used to set a recent World Record at the World Spacemodeling Championship in Lviv, Ukraine. Why did he want it? Well, it's the smallest & lightest altimeter certified for contest use by the NAR. Why shouldn't it? The ALT-BMP is "The Go-To" altimeter chosen for all FAI spacemodeling altitude competitions.



Altimeters all have their quirks, the Adrel unit is no different, but it has come a long way in recent times. Now with software and drivers for Windows 7 thru 10 compatibility, the new ALT-BMP has also been reduced in size and weight as well. For altitude events – we know **that** is very important!

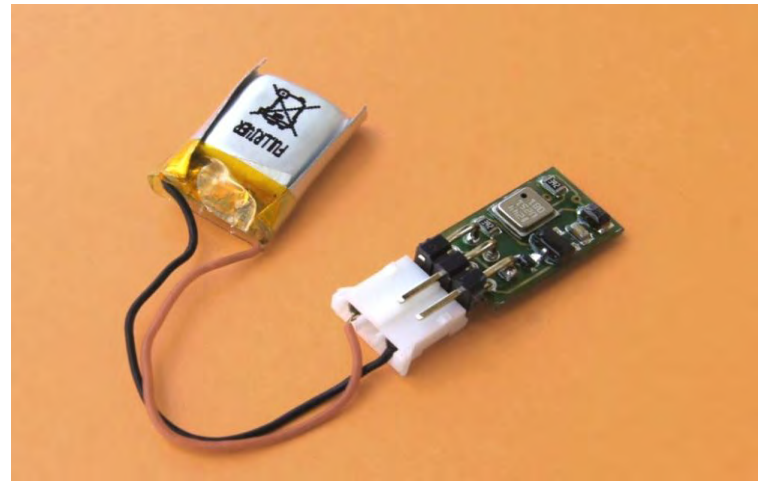
So I contacted Leszek Szwed of Adrel in Poland and this is what he told me about the newer version – and how to get it.

Bob,

When it comes to altimeters: The problem (with the older ALT-USB's) was never on the side of (the) altimeters or their software. It was just W8/8.1/10 had a different set of drivers and the problem was on side of windows (MSoft) with digital signature of the drivers. So, to answer your question shortly, all "old" and new altimeters will work under newer version of windows. You just have to configure the system according to instructions available at my website. No on-board altimeter software (firmware) update or altimeters themselves is required. Adrel = <http://www.adrel.com.pl/modeler.html>

"Where do things stand right now with the altimeters?"

Software for altimeters is the same for every Windows version. The software is INDEPENDENT from Windows, even the oldest ones will work under W10, as well as XP Vista, 7 etc. The drivers are an intermediate element between the physical connector (here it is USB) and the software. The drivers are dependent upon each Windows version. This is why with every new Windows software version; I am publishing a new set of



drivers (for Windows 7, 8, 10.) After correctly installing drivers for each Win version, every program version will work (and every altimeter as well).

So, as I understand it, the Adrels that would only work with Windows XP was due to a USB driver signing issue. Apparently Microsoft changed some of the parameters of their USB drivers with the Windows OS after WinXP. Of course, those drivers are only available from MS and net them the big bucks to use those protocols in your USB communications software. The new Win10 Adrel drivers were released recently and should be available by the time of this publication.

No problem now – and Adrel Altimeters should be available soon through the new US distributor: Matt Steele. Stay tuned for an announcement from Matt on how to get yours. Until then, you can still do what Bruce did and order them from Poland.

ALT-BMP Technical Specifications

Method of Measurement	Barometric Sensor
Measuring Range	-500 ...9000 m
Resolution	0.25
Accuracy of altitude measurement	0.5 %
Supply Voltage	3.6V to 6V
Frequency of measurement	1.2 measure/sec, & 5, 10, 15, 20 measure/sec
Detection of take-off	set range of 2m - 100m
Dimensions	7.9 x 19.3 x 4.9 mm (with connector)
Weight	0.6 grams
Current consumption	6 mA
Battery life	for LiPo 50mAh - 8 hrs, 20mAh - 3 hrs
Memory size	8050 measurements
Battery	LiPo 20mAh
Battery with connector	(LiPo 20mAh; 3 x 10.5 x 13mm; 0.8g)
Total Weight	1.4g

Parting Shots - (or) - "Whasuuup" in Space?



MARS ROVER 2020

WALL-E



WAIT! - Did We Miss Something Here???

Above: The Projected Design of the 2020 Mars Rover has some eerie similarities.

No one knows precisely why the 2020 Mars Rover has a striking resemblance to an all too familiar droid of Disney's imagination: WALL-E!!!! Probably the most loved animated droid, even Penny from Big Bang Theory could not resist expressing a loving sentiment recalling how WALL-E saved the day and got all the fat people out of their floaty-chairs! And guys couldn't resist the tantalizing EVA, WALL-E's hovering somewhat Vulcan-esk girl friend. Guess we needn't ask "Why" is it that the MARS Logo has a remarkable similarity with the original STAR TREK's Command Badge Logo? Come On! I'm a Doctor Jim, not some potential Red Planet Rover! I'd say there's a definite lack of the imagination going on over at NASA's Mars 2020 Rover Office...

Seriously now, The Mars 2020 Rover design is largely based on the engineering design for Mars rover Curiosity. Utilizing a proven system reduces mission costs and risks. The rover's long-range mobility system allows it to travel on the surface of Mars over a distance of 3 to 12 miles. For the first time, the rover carries a drill for coring samples from Martian soil. It gathers and stores the cores in tubes using a strategy called "[depot caching](#)." Caching is a new rover capability of gathering, storing, and preserving samples. The Mars 2020 rover helps prepare for future human exploration of Mars with a technology for extracting oxygen from the Martian atmosphere, which is 96 percent carbon dioxide. This new technology may help mission planners test ways of using Mars' natural resources to support human explorers and improve designs for life support, transportation, and other important systems for living and working on Mars.

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We are quickly approaching that dreaded time which comes each year: YES! The Time to RENEW! Exciting, isn't it? So, should you wish to continue receiving the Launch Rack, Watch for your renewal notice which will appear below in the address box, typically: "This is your LAST issue," with a red "X" placed in the Renew Now check box. Thank You!

The Launch Rack is the official publication of the Garden State Spacemodeling Society and is published for the enlightenment and entertainment of the membership. It is published bi-monthly (or more frequently) and is read by the NAR President AND the LAC Newsletter Award Committee – so you're in good company!. (So Far!!!)

You are invited to send your articles, photos, letters, valuables and hard earned cash to the editor for his enlightenment, entertainment, and eventual publication. This periodical is by and for the membership.

Articles appearing here may be used by others provided credit is given to the author and this newsletter.

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You're Good!

So this is Not your last Issue

Issue 205 Submission Deadline: 10-15-17