

Jackson Model Rocketry Club



JMRC NEWS VOLUME 17, No. 1

August 2017

Inside This Issue:

AIM-4E Falcon Scale Data	3
Altimeter Comparison	5
Apollo 7 40th Anniversary	6
New NAR Competition Rules Pt 1	8
Name the Newsletter Contest!!!	8
Rocketry Festival 2017/ NARAM 59 Report	10
New Product News	13

AIM-4E Falcon Air-to-Air Missile Scale Data



Coming Soon:

Aviation Day Report
Operation Sandy Scale Data
JMRC August Launch
New NAR Comp Rules Pt 2
Name the Newsletter Entries
And More!

Launch/Event Calendar

- August 26 (MIS)
- September 23 (MIS)
- October 14 (TBD)
- November 11 (TBD)

NOTE: Launch dates are subject to change without notice. Be sure to call the "launch hotline" at 517.262.0510 for the latest weather and field information or sign up for the JMRC Notification GroupMe chat.

APOLLO 7 40TH ANNIVERSARY: REQUEST FOR SATURNS



CLUB OFFICERS

President: Scott Miller
Vice President: Roger Sadowsky
Treasurer: Tony Haga
NAR Advisor: Buzz Nau
Secretary: Rob Dickinson
Communications: Dan Harrison
Board of Director: Dale Hodgson
Board of Director: Bob Dickinson

MEMBERSHIP

To become a member of the Jackson Model Rocketry Club means becoming a part of our family. We have monthly launches and participate in many educational events. We encourage our members to actively participate in our club projects, running for office in our annual elections, contributing to our quarterly newsletter with articles or tips, and offering services to the club in their area of expertise. We have many members comprised of children, men, women, professionals, lay people, educators and people from many other walks of life.

You may fill out an application at a launch or request an application from one of our board members at scott@sfsmindustries.com and mail it along with a check for the annual membership dues (17 and under \$10.00 or 18 and over \$30.00) to our mailing address of: 4788 Moon Lake Rd., Jackson, MI 49201.

Members enjoy reduced launch fees (for engine sizes "F" and higher), receiving the quarterly newsletter, participating in club projects and meeting an incredible group of positive people.

COMM CHANNELS

There are several ways to keep in touch with the JMRC and it's members.

Website: <http://www.jmrconline.org>. Information includes directions to launch sites & schedule, range procedures, and instructions on how to join the club.

Yahoo Group: The JMRC Yahoo group is a place to share files and also serves as our primary e-mail list serv. Follow this link to join, <http://groups.yahoo.com/group/jacksonmodelrocketryclub>

Facebook: If you have a FaceBook account search for "Jackson Model Rocket Club JMRC" and request to be added.

GroupMe: Our new chat channel for broadcasting notifications instantly using a free download client for IOS and Droid as well as by SMS text messaging. You can join the notification chat after creating a free account and following this link, https://groupme.com/join_group/28013422/zc5IC1

FROM THE EDITORS'S RANGE BOX

I'd like to welcome you to the resurrected *JMRC News*! The Jackson Model Rocket Club is a healthy and prosperous group and one sign of this is a regular newsletter that provides communications, news, instructional, and technical information to its membership. It is a reflection of its members and it is my hope that sufficient material and articles can be contributed to publish a new issue on a regular monthly or bi-monthly schedule. Much of that success will depend on you. Below is a list of articles and other materials that we are looking to publish.

Request for articles,

- Product Reviews
- Build Reports
- Event Reports
- Technical or "How-to" articles
- Photos!
- Space History
- Scale Data
- Sport Plans
- Competition Plans / Techniques
- Support Equipment
- Model Rocket History
- Certification News
- Vendor News

About JMRC News

JMRC News is the official newsletter of the Jackson Model Rocket Club (JMRC), Tripoli Prefecture 96, NAR Section 620. Published Monthly, *JMRC News* is a space-modeling newsletter devoted to representing the diversity of interests in today's hobby of model rocketry.

This newsletter is in the public domain except where otherwise marked. Unmarked articles, photographs, and drawings may be reprinted elsewhere, but credit to the author and this newsletter is expected. Material marked as copyrighted may not be re-printed without the consent of the author.

The editor of *JMRC News* accepts material for inclusion from anyone.

Send correspondence to:
 Jackson Model Rocket Club
 Buzz Nau, Editor
 5170 Reno Rd
 Manchester, MI 48158

Deadline for submissions to the editor is the 15th of the month. Material received after the 15 will be published in the next month's newsletter.

You can submit your material or inquiries to the editor at Eagle3@cv41.org.



The President's Corner

We have exciting times ahead of us yet again! Buzz Nau is taking the massive effort underway to bring back the JMRC newsletter. This will give us as an organization a great venue to share vital information on a media that can easily be looked back at for years to come.

As I think back at the start of the club, it all stemmed from a free high power rocket kit offered to Roger and myself if we started a rocket club with the first Rockets for School program which culminated with a 4" phenolic rocket that was launched in Shebyogan, Wisconsin and landed in Lake Michigan. Needless to say the decision was not difficult as we agreed in a matter of seconds. Roger and I both had tiny 4 cylinder trucks at the time that we crammed every nook and cranny in order to get the launch equipment to the field; and at the time our equipment was in the early development phase. If we fast forward 20+ years we can take the time to look back and reflect on how far we have come... achieved 501(c)3 non-profit status, built/acquired club equipment that builds a luxury type launch environment... and with all of the schools, programs, monthly launches that we have performed over the decades I think we could arguable say we have flown more rockets than almost any other amateur rocket club to date.

All of this could not be possible if it wasn't for a great membership! It seems that everyone likes to lend a hand which is the secret to our success. We as an organization have grown leaps and bounds over the years and seeing new and excited faces at launches all the time just proves that we as a group can continue to grow for decades to come!

Huge thanks go out to our membership, our BOD, and all of our guests that make this the greatest hobby. Here is wishing all of you Blue skies and happy landings.

JMRC CLASSIFIED ADS

Looking to buy or sell a rocketry related item? Contact the JMRC News at Eagle3@cv41.org to place a classified ad. Ads are free for members.

AIM-4E FALCON AIR-TO-AIR MISSILE SCALE DATA

ELDRED PICKETT & KATHY KIPPEN



This is an actual size Falcon. It is on display at the AMVETS Post in New Baltimore, MI. It came from Selfridge Air National Guard Base. All Photos by Eldred Pickett



The AIM-4F was the first air-to-air guided weapon to enter service with the USAF, becoming operational in 1955. The Falcon 4F originally designated GAR-3A had a new dual-thrust (boost/sustain) M46 rocket motor, and improved SARH (*Semi-active radar homing*) guidance that gave it increased accuracy.

Data for GAR-3A (AIM-4 F):

- Length: 2.18m (85.5 in)
- Wingspan: 0.61m (24 in)
- Diameter: 0.168m (6.6 in)
- Weight: 68 kg (150 lb.)
- Speed: Mach 4
- Range: 11.3 km (7 mi)
- Propulsion: Thiokol M46 dual-thrust solid-fuel rocket
- Warhead: 13 kg (29 lb.) high-explosive





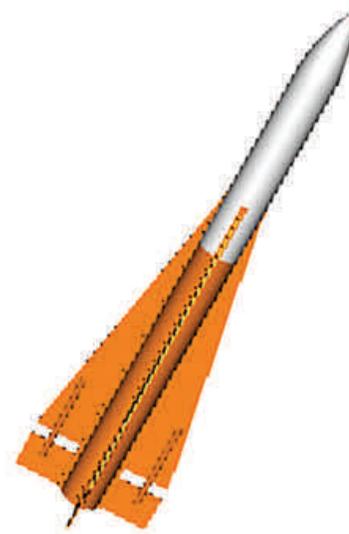
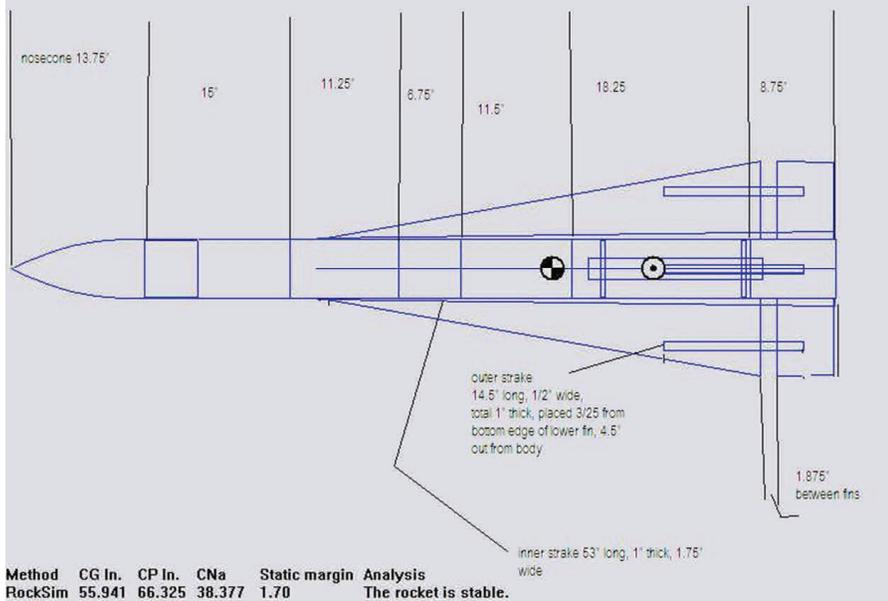
Looking in the business end, view along the side, the forward end and nosecone.



A view from the side showing Cp and vent, a close-up of the vent opening between the fins, looking closer inside the aft end, and a view of the fins.



Falcon AiM-4F Scale: 1/11
 Rocket length: 85.100 In. , diameter: 6.155 In. , span diameter: 22.259 In.
 Rocket mass 238.203 oz. , Selected stage mass 238.203 oz.



Rocksim file by Kathy Kippen

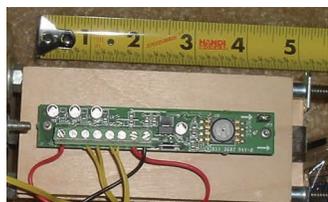
Continued on page 9

View From The Flight line

ALTIMETER COMPARISONS AND EVOLUTION

DALE HODGSON

Where has the time gone? I've been flying with the club since 2001 I believe and first got into dual deploy in 2002 or 2003. Electronics was new to me then and I had a lot of help along the way. What is outlined here is my journey through the altimeter world. I still have these altimeters and they all work perfectly; I would just like to show a brief outline of each and how they perform. As you read, look closely at the costs, functionality and size of each. As the years progressed the altimeters became cheaper, more functional and smaller giving us more versatility than ever when designing projects.



G-Wiz LC800: My first altimeter; cost back then was about \$140.00. Not a lot of features but very functional. There

were a few downsides; the first being there was no sound to indicate continuity. There are a series of three lights indicating the function and altitude readout. To get around this I built a bay with a see-through plastic window. The other downside was that there is no data download; motor performance data could not be captured. Lastly, main event altitude was not adjustable; it was preset at 800 feet. Still though the altimeter served me well and got me my L2 in 2004.



ARTS-1: A big step up for me; about \$180.00 A very versatile altimeter, fully programmable

with data capture and download. It has both baro and accelerometer sensors (the only altimeter I own that has this) to increase accuracy in readouts. It was, and continues to be a great altimeter. I had to make one change though. Originally the altimeter ran on one 9v battery and did so flawlessly....up until DaveyFire and Orxal e-matches were no longer available. The newer e-matches required just a



touch more "juice" to fire them so I had a couple instances

of a brownout...when the altimeter tried to fire the main deploy charge it shut itself down. The problem was easily remedied by wiring two 9v batteries in series. I have 2 ARTS boards wired this way and have had no issues whatsoever.

PerfectFlite: From my perspective this is where the true evolution of altimeters has taken place. The first was the



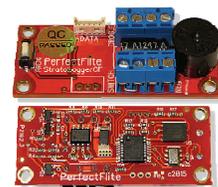
MAWD; it had a baro sensor, ran on one 9v battery (has an onboard condenser so firing e-matches is no problem), fully programmable (even had Mach delay) and downloadable data. The first one I bought was \$85; a considerable price drop. Another favorite was the **Hi-Alt 45**. It had all the same features of the MAWD but no memory to store flight data other than the last altitude. It was a little cheaper; about \$70 if memory serves. Very functional and reliable altimeter; still have at least one in use.

considerable price drop. Another favorite was the **Hi-Alt 45**. It had all the same features of the MAWD but no memory to store flight data other than the last altitude. It was a little cheaper; about \$70 if memory serves. Very functional and reliable altimeter; still have at least one in use.

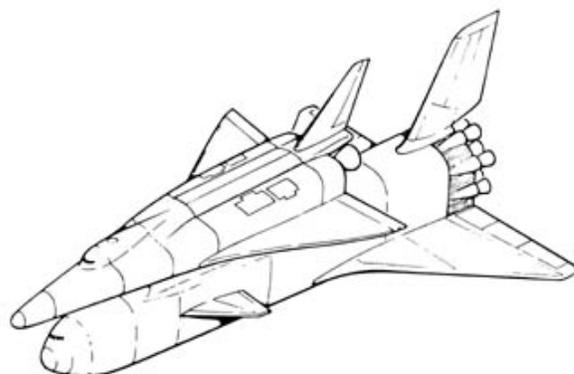


cheaper; about \$70 if memory serves. Very functional and reliable altimeter; still have at least one in use.

PerfectFlite discontinued both the MAWD and Hi-Alt some years back; they were replaced by the **Stratologger SL100**; a fully programmable, data capture capable workhorse of an altimeter. The cost was around \$60. I have used one extensively and found it to be very easy to use and ultra-reliable. What could be better? PerfectFlite discontinued the Stratologger SL100 and came out with the **Stratologger CF**. All of the features of the original Stratologger but it is a smaller version (the CF stands for compact footprint) meaning the size of the bay could be smaller. The current price of this little unit is \$55 directly from PerfectFlite.



Who knows what is next? Although not an altimeter the Jolly Logic Chute Release has changed the game big time. A review is coming.....next time!



Apollo 7 40th Anniversary: The Call For Saturns

Buzz Nau

On August 28, 2008 I was one of several modelers contacted by Carl McLawhorn of Semroc requesting builders for a massive Saturn 1b project to celebrate the 40th anniversary of Apollo 7. Semroc and Launch Magazine were co-sponsoring the event and wanted to use 30+ Semroc 1/70 scale Saturn 1b's as table center pieces. The idea was originally thought of by Dot Cunningham, wife of Apollo 7 astronaut Walter Cunningham after she saw one at NARAM.

The celebration was scheduled for October 17, 2008 at the Frontiers of Flight Museum in Dallas and would include a panel discussion and luncheon. Notable speakers scheduled to attend included astronauts Neil Armstrong, Bill Anders, Alan Bean and Mission Control Director Gene Kranz. NASA Administrator Mike Griffin would also be there to present a mission award to Walter Cunningham, the last surviving member of the crew as well as posthumous awards to fellow crew members Walter Shirra and Donn Eisele. The crew never received their awards after the flight due to Mission Commander Shirra's irritable attitude towards mission controllers during the mission. Though Shirra had announced his retirement prior to the flight the bad feelings were so bad that neither Cunningham nor Eisele would ever fly again. Despite the abrasion, NASA Administrator Chris Kraft stated in a recent interview that he considers Apollo 7 one of the most successful missions ever especially for an 11 day flight of a brand new vehicle.

Construction

The Semroc 1/70 scale Saturn 1b is a faithful reproduction of the 1967 Estes kit designed by Gene Street. While the Semroc kit has some improvements (Kevlar shock line, laser cut parts), it is still a skill level 5 "modelers" kit. One of the most difficult parts of the kit, the Apollo capsule, was side-stepped by Semroc supplying Apollo capsule kits from Apogee Components. This reduced the amount of work tremendously. When I build my next Saturn 1b I will probably splurge and buy an Apogee capsule kit not only for the simplicity, but also because it is an extremely accurate and detailed capsule.



Building the Saturn 1b kit took nearly every modeling skill I have developed over the years. There is a little bit of everything in this model and despite being a challenging build it was very rewarding and fun.

Semroc mailed the kit to me in a large 36x12x12 box full of popcorn packing. This box would be used to ship the assembled model to John Dyer of Red River Rocketry. John was coordinating things at the site of the luncheon as well as helping assemble 10 Saturn 1b's with the Dallas area club DARS. The kit parts were in a bag that could have fit in a shoe box. It's amazing how compact the parts are in kit form compared to how big the finished model is.



Having never built the Gene Street Saturn 1b I knew after looking through the instructions (several times) what the difficult steps would be, 1) built up fins, 2) fuel tank scallop shroud, 3) embossed wraps, and 4) painting. The built up fins are composed of a card stock shell over a frame made of 5 balsa parts. There are eight fins on a Saturn 1b, so we're talking forty individual balsa parts. It took a few nights watching football to get the fins completed. I was amazed how well all eight came out looking. The built up fins do not take a lot of skill, but they do require a lot of patience.

The tank shroud was every bit the problem I thought it would be. Regardless of how carefully I cut it out, there were gaps between the shroud and tanks. These were filled with multiple coats of thinned FillnFinish. After several days I finally had a result I was pretty happy with.

The five paper embossed wraps model the Saturn 1b's corrugated surfaces. There are two popular ways of applying these wraps, adhesive spray and white glue.

I went with white glue with the advantages being it is more forgiving than the spray and it adheres well. I didn't have a problem getting any of the wraps on straight the first time so "forgiveness" was not needed. Next time around I'll try the spray. The problem I had with the white glue is that areas of the wraps flattened somewhat due to the glue softening the wrap. This happened despite applying a very thin layer of the white glue. Overall I was happy with the results.

The Saturn 1b kit also includes a lot of what we called "fiddly bits". These included antennas, retro rocket housings, etc. Some of these involved forming paper over launch lugs or dowels. In the case of the retrorocket housings my initial attempts to form the paper and dowel pieces came out horribly. I found it easier (and more accurate) to just sand pieces of balsa to shape.

As with most scale models a good paint job will make the difference between a great model and an OK one. Even though the Saturn 1b is primarily black and white there is a major amount of tape masking involved. There are four areas that are masked for black paint, a stripe just below the LEM shroud, a roll pattern around the second stage, the first stage fuel tanks, and the fins. The fins are by far the hardest to mask. Two are all black, two are all white, and four are half black and half white. The tanks are also difficult in that you need to mask around the scalloped shroud and white stripes on the fuel tanks.

From that point it was crunch time to get mine finished and in the mail. I applied the decals, installed the "fiddly bits", and put a label with my name on the rear centering ring before packing it up and taking it to UPS. Due to the problems I had with masking for the black paint I knew I wouldn't be getting mine back. There were just too many nitpicky errors. I was just hoping mine would get there on time and be respectable compared to the others I had seen photos of posted to the secret forum on YORF.

The Luncheon

Events from the luncheon were relayed to the builders by Mark Mayfield, editor of Launch Magazine, Carl McLawhorn, and the event broadcast on the NASA channel. Mark mentioned that Walt's wife Dot was very excited about all the models and Walt was stunned when he saw them all in front of the Apollo 7 capsule. Dot grabbed one to hug and everyone was afraid she was going to crush it. There were some photos taken of Walt and Dot with the models before they were put on the tables.

Prior to the luncheon there was a panel discussion that included Mike Griffen, Bill Anders, Alan Bean, Neil Armstrong, and Gene Kranz. Each made very moving remarks regarding Walt, Apollo 7, and the Apollo program. As always, Alan Bean was a crack up to listen too. Many also spoke at the luncheon when Walt was awarded his NASA Distinguished Service Medal.

The Saturn 1b's were very impressive looking on all the tables and many of those in attendance commented on them. Earlier in the day the Saturn's built by Craig McGraw, Caleb Boe, and Carol Marple were judged as the best. Those models were signed by Walt and returned to the builders. Of the remaining models, several went home with astronauts, many were sold for

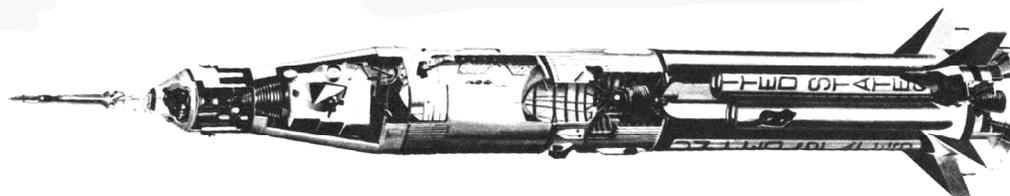


\$500 which went to the Be An Angel charity, and the rest are to be auctioned later for the charity.

It was a fun project and one I'm proud to have been a part of. It's nice to know Walt finally received his award and that Apollo 7 has finally been recognized for the outstanding success that it was.

August 2017— Since this article was originally written, our good friend and steward of hobby rocketry, Carl McLawhorn passed away. Carl was amazing. He volunteered to support this and many other events while he build the gold standard in customer service with Semroc. He brought us so much during those short years and I often wonder what more he could have done given the time. Fair winds Carl.

Editor's note: This article was originally published in the October 2010 issue of JMRC News



Competition Corner

NAR Competition Changes Part 1

Buzz Nau

Now that NARAM 59 has concluded, competitors are flying under a new Sporting Code. The old "pink book" sporting code was first published in 1962 and this marks the first major revision. The changes were made by special expanding competition sub-committee in an effort to simplify competition and therefor make it easier for non-competitors to give it try and thus, increase the percentage of NAR members that fly competitively.

This article attempts to highlight the big changes and what competition on the JMRC range that National Rocketry Competition (NRC) will look like. First off, with the exception of payload altitude all other event rules remain unchanged. Payload no longer has size restrictions making it easier to enclose with common tubing. Also, all altitude events use altimeters. Tracking is no longer an option.

The big changes are in how contests are defined, sanctioned, and national implications. At the beginning of the season the NAR contest board and NARAM contest director will choose 6 of 8 NRC events to be included at NARAM. The CD will add more events for NARAM, but these will not be included in the NRC. During the contest year, you can sanction as many NRC launches as you like as long as there are two competitors flying. Gone are weighting factors and points. Instead you are competing nationally on the NRC events. This makes the role of contest director much, much easier. Instead of a six-week notification you can now sanction a NRC launch 7 days prior to the launch. You can fly other events, but they will not have any national impact. If a section likes to fly a

certain event and it is not on the NRC list for that year you can do so, award prizes, etc. it just won't be reported. Also gone is attending NARAM with all the points you compiled during the year. Everyone starts at NARAM with a clean slate.

The NRC consists of eight events,

- 1/4A-A Parachute Duration
- 1/4A-A Streamer Duration
- 1/4A-A Helicopter Duration
- 1/4A-A Boost Glider Duration
- B-C Egg Lofting Duration
- 1/2A-B Altitude-Altimeter
- A-B Payload Altitude-Altimeter
- B-C Egg Lofting Altitude-Altimeter

You'll notice that most of these events are 13mm. Eggloft and Payload are the exceptions. These were selected for their low cost and ability to fly fields of all sizes. Again, the goal is inclusion and ease.

Results of an NRC competition will be submitted within 7 days of the conclusion of the launch. These will be posted to the National Scoreboard, a webpage at NAR.org. As the year moves along you will be able to see your ranking against other fliers. This becomes important if you attend NARAM.

In part 2 of this article I will explain how NARAM will work. The changes are significant and should prove for

Name the JMRC Newsletter Contest!

The JMRC newsletter needs a clever, unique name that expresses the scope, range, and atmosphere of the Jackson Model Rocket Club. Examples of other rocket club newsletters include, *T-Minus 5*, *Perigee*, *Cosmic Steppingstone*, *The Leading Edge*, *Warp 9*, and *Peak of Flight*. Send your submissions to

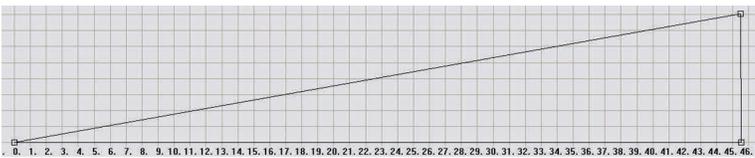
Eagle3@cv41.org and I will compile the entries in the next issue. Entries will be judged by the membership and the winner will not only name the newsletter, but also receive an Estes D Region Tomahawk. Good Luck! - Buzz



Continued from page 4



Another shot between the fins, the info tag, a close up of the info tag, the fin edges – it says “Triggering area, handle with care” – these are on all four upper fins. Another view of the fin edge, a close-up of the Falcon “logo”, a view of the rail guides – two sets, one up, one lower and the 3-D view from RockSim.

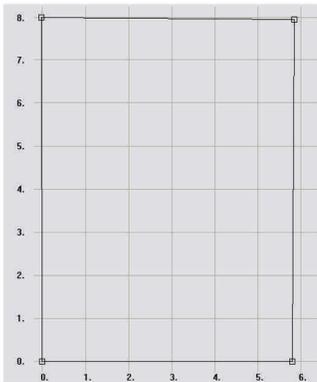


There is a measured gap between the upper (top diagram) and lower (left diagram) fins. The “inner” strake on the RockSim file measured 1 & 7/8” wide and 3/4” thick. It is rounded at the bottom. The top end was tapered to a rounded point about 1/2” beyond the tip of the fin.



Inner strake showing rounding of the ends

The “outer” strake bottom edge is 3 & 1/4” from the bottom edge of the lower fin. It is 1/2” wide by 12 & 1/2” long. I estimate it is 1” thick, 1/2” on each side of the fin. The lower edge is rounded and its top end is tapered to rounded point like the inner strakes. Its placement wasn’t measured, but I guesstimate it is slightly off-center in the direction of the airframe. In the .rkt file I used Estes BT-5 tubes to simulate these strakes for proper placement.



The lowest section of airframe had four cutout sections that may have been used for vents as the end of what seemed to be the motor nozzle was recessed 7 & 1/2” inside the airframe. This Falcon may or may not have had a boat tail as there wasn’t one on the photographed rocket; however, there are rivets that indicate one may have been there at one time.

The .rkt file airframe is divided up into sections based on how we measured the Falcon for placement of the “rivets” and the paint scheme. I did not include couplers except for a possible avionics bay.

Editor’s note: This article was originally published in the December 2010 issue of JMRC News



Rocketry Festival 2017 / NARAM 59

Event Report

Rob Dickinson & Buzz Nau

NARAM 59 Contest Range—Buzz Nau

Tempus Fugit.... I attended and competed at NARAM for the first time in 21 years. Man, I can't believe it's been that long! I entered in teams division with my old time team mate Al de la Iglesia and new team member, but well-seasoned, Mark Chrumka. We decided on a lark to do this year. We were all busy with life and did not attend any other meets during the year, but it going to be that last time competing with the old "pink book" rules and we wanted to be a part of that ending and look forward to the new beginning with the National Rocketry Competition (NRC).

We divided the events among ourselves, Mark did Scale and Concept Scale with two models he'd entered in the past and did very well with, an Athena H for Scale and the Project Pluto low altitude supersonic missile for Concept Scale. We were 2nd and 3rd respectively after static judging. Additionally, we used Mark's "egg on a stick" model for B Eggloft Altitude since it was already built and flown successfully.

Al tackled G Helo and also brought bits and parts for some of the other events. He had to leave Wednesday, but we managed to get everything put together ahead of time. Often, when we competed in the past, we'd build stuff at the host event hotel, so this was a change having most of the models built ahead of time.

I took on C Flexie and had a B SuperRoc Alt model ready. I also brought a Lil Ivan for open spot landing.

Monday was C Flexie and C Altitude tracked. We flew Flexie first and loaded one in the heavy booster before the winds picked up. In testing I managed to lose a flex wing on a A8-3 and no surface wind to speak of, so we wanted to use something that would deploy around 300'. We got a respectable 3+ minute flight that landed on the field. The winds picked up before we could get it ready to go again in the smaller launch vehicle. It had a great boost, but the timers were only able to see it slightly longer than the first flight before sailing out of sight. Still, it did well enough for second place so we were pretty happy with the result.



Chris Taylor photo—NARAMLive

We got two good tracked flights for C alt, but we learned one thing this NARAM and that is fixed Zero Volume pistons are no longer viable. If you want to keep up you need 64" of BT-20 and a floating head piston. In all the altitude events, we performed about 15-20% below the rockets that placed in the top 3 to 4 positions.

We had the last shift for range duty and we manned the three tracking stations. The baseline was LONG! Al was stationed down by the observatory while Mark and I were on the berm road around Lake Icky. All the flights we tracked closed with the excep-

tion of one that didn't have tracking powder. Tracking duty is challenging, a lot of fun, and we're sad to see it going away for the most part with the new NRC rules.



Tuesday was B Eggloft Altitude and G Helo Duration. We started the day with range duty and tracking again. This time the baseline was much closer for B Eggloft. After tracking we got to business with our two events. Al had two rockets for G Helo. One was a high-performance model that resembled a rose-a-roc. The other had enclosed rotors. The first model was a shred though it "almost" made through powered boost. It was close. The next flight we suffered a separation as the shock line burned through. G Helo was an entertaining event with plenty of shreds and other malfunctions.

Next was B Eggloft Altitude. Our first flight tipped off and to add insult, the motor kicked without blowing out the chute. Though the model hit hard, nothing was broken except the egg. We reloaded and got a much straighter boost and full recovery. A qualified flight, though not well enough to place.



Wednesday was B SuperRoc Alt and C Payload Alt. We flew C Payload first since it was the most difficult to prep. Our first flight coned a bit and when we re-prepped it for the second flight we noticed that the nose cone wasn't aligned correctly. We made some adjustments and got a much straighter boost, but neither Mark, nor I saw it after ejection. The RSO called it a good flight and we looked for it quite a while, but were unable to find it. We gave up and hoped someone else would come across it and return it. In B Super Roc both flights kicked or ripped out the motor with the recovery harness. This was especially frustrating since we got a great boost and altitude on the second flight. Afterwards I kicked myself for not just recovering both pieces separately, which you can do with this event, but again; it's been a few years and that thought just didn't occur to me. Also, the next time my teammate asks if we should add some more shock line I'm going to say hell yes.

Our C Payload model was eventually recovered and returned by someone else, but too late to turn in as an official flight. It did have a higher altitude as we thought, but not well enough to place. We were happy to get the altimeter back though.

Thursday's event was just Open Spot Landing and we put in a respectable 17-meter flight early in the day, but by the end of the day we were knocked down to fourth. That's OK; we'll take it after all the troubles from the day before.

Rocketry Festival 2017 / NARAM 59—Continued

Event Report

Rob Dickinson & Buzz Nau

On Friday, it was windy and rainy... and the weather only got worse as the morning dragged on. When we first got to the field we found several tents and pop ups were down or destroyed. Again, we got our flights in early. First was the low altitude supersonic missile concept scale. It had a core motor and three strap-ons that pop off. It was a great flight and recovery. All motors lit and all pieces recovered. Next was the Athena H with its cluster of five motors. Again, all lit and the model boosted straight despite the wind and was recovered without issue. The rest of the day we spent assisting Chris Flanigan with his Saturn



1b and Doug Frost with his AQM-37 Jayhawk. Both flew well and Chris took first in C division. We moved up one place in concept scale due to the misfortune of the Flying I-Beam Kids team having two DQ flights with their Von Braun Space Plane. They took a strong first place in Team Scale with their Argo D-8, one of the finest scale models I've ever seen. John Brohn is a master scale modeler and the three-stage flight was perfect except for the loss of the upper stage in a soy bean field.



The best part of the week was hooking up with a lot of great folks I haven't seen in ages and some for the first time though I've known them on line like John Brohm. John and his team mates, Steve Foster and Rod Schafer are some of the finest modelers and gentlemen competitors you will ever meet. Mark and I really enjoyed sitting with them at the banquet.



The Flying I-Beam Kids and Uncertainty Principle Teams

It was also great to see Gary and Fran Miller, Scott Alexander, Dan Wolf, Chad Ring, Dean Fox, Chris Timm (thanks for the kits Chris!), David Miller, Bill Saindon, Chris Flanigan, Doug Frost, and Vern and Gleda Estes. Most of all, I want to give thanks to my team mates for a great week. I'm looking forward to sanctioning NRC events and hopefully we'll make it to Colorado for NARAM 60.

The Sport Range—Rob Dickenson

Although sport launches at the NARAM annual events

draw relatively little coverage, there are a lot of people who come out to NARAM looking to sport fly. For 2017, the field and the waiver allowed flights of M and N size rockets, and the Muskegon sport range saw several large flights over the week. Saturday and Sunday were the busiest days, and roughly 500 sport flights went up over the 2 days. The host club MMAR, had obtained two 2-hour windows each day where the standing 16,000' waiver actually went up to 25,000'. Although no rockets went up to challenge this higher waiver, it's great that the higher waiver was approved by the FAA at all, and it bodes well for future flights at the Muskegon field.

An early flight with a sparky motor made it VERY clear that the field conditions were too dry for those type of motors. The brief blaze was quickly extinguished, and only a few launch wires were damaged. Flight operations continued into the afternoon when the first of the NARAM's 2 level 3 attempts launched. Kyle Webster went after his L3 certification on a rocket powered with a single use Aerotech M1350. Kyle's 5.5" Tembo Massive rocket had a great lift for the first second of it's flight, until the motor case failed just behind the forward closure. The resulting CATO not only cost Kyle his L3 aspirations for the day, but the fuel grains stayed in the booster, and VERY thoroughly cooked the back half on Kyle's rocket! Everything forward on the booster seemed to have escaped without major damage, so Kyle will have only 1/2 a rocket to rebuild in his continued search for Level 3.



Kyle Webster's L3 attempt



V-2 Launch on the Sport Range

Ryan Smith also attempted his L3 flight on Saturday, twice! In both cases, Ryan had his Madcow DX3 Massive on the rail when he found issues with his electronics that drove him to pull the rocket down and take it back to his worktable for diagnosis. Ryan's calm review of the problem and willingness not to get caught in "Go Fever" led him to find a failed switch in his system. He took the time to replace the switch, and on his 3rd trip out to the away cell, this time on Sunday morning, his systems booted properly. His rocket made a perfect ascent on its Aerotech M1600 motor and recovered flawlessly to give Ryan the right to add L3 to his list of rocketry accomplishments.

Alongside Ryan and Kyle, the Intercollegiate Rocket Engineering Competition (IREC) team from the University of

Rocketry Festival 2017 / NARAM 59—Continued

Event Report

Rob Dickinson & Buzz Nau

Michigan - Dearborn campus also put up a rocket on M power. Their contest rocket wasn't able to fly at the competition event in New Mexico last month, and the team members were anxious to see their project take flight. They loaded their rocket on the away cell, and had an excellent ascent, until the main chute deployed at apogee. Unfortunately, the rocket drifted south, and landed in the Big Icky. In the hours that it took the team to locate the rocket, enough damage was done to their systems and rocket



(L-R) David Miller of Sirius Rocketry and Dean Fox

that they decided to let the settlement pond claim its prize. The team was glad they were able to fly their rocket and looks forward to more successful attempts on the coming year.

Level 3 flights were not the only certifications sought at NARAM. Six Level 1 certifications were awarded, along with five Level 2s. Most certification flights were successful to the credit of the rocketeers putting up the flights. Even the few that had unfortunate events keeping them from certifying, took the flights as valuable learning tools. Those who were unsuccessful left the field glad of the time they spent, and determined to make the next attempt a successful one!

Several sport contests were flown during the week at the Sport range, in keeping with the rocketry festival theme of the event. Saturday saw 2 events. Horizontal Super Roc had an 'H' and 'I' division, with the goal of putting up the widest rocket to the greatest height. Steve Lubliner won the 'I' division, with Dave Gilmore taking honors in the 'H' class. In addition, there were commemorative flights made Saturday, to honor Apollo and Sputnik. Bob Kaplow took the prize in both these categories.

Sunday saw the VERY POPULAR carnival launch on a special range next to the sport range. One of the 'basins' at the Muskegon field was marked out with stakes, and contestants put up their rockets to land in that basin. The stake closest to the rocket determined what prize they won! On the sport range itself, the Set Altitude contest was run with a target height of 420 me-

ters. Trip Barber took the medal in this event with an altitude of 417 meters!

Monday at NARAM saw many of the dedicated sport flyers leave the field, and the contest range became the center of the event. However, the 'R.I.P. PinkBook' contest on the sport range did draw a lot of entries. The Pink Book, the longtime rule book for NAR contest rocketry, is being retired this year as the rules for contests have been rewritten. Barb Tobin won this sport range contest with 'Pink Book', a rocket whose exterior was actually covered with pages cut out of the Pink Book! Her D-powered rocket flew well, and was the popular choice of the voters who decided the winner on Monday afternoon.

Tuesday's sport range contest was the Odd Roc challenge, and Bob Kaplow won the popular vote to take the medal for his Turbo Copter that flew on a C motor.

Wednesday and Thursday also saw flights on the sport

range, but then the weather closed in Thursday night, with a storm that blew in causing the range tents to collapse. Friday morning saw a momentary lull in the bad weather, and the sport range crew took the opportunity to pack the sport range away before the worse weather arrived Friday afternoon. While the NARAM sport range went out with a whimper, over 800 rockets were flown from Saturday to Thursday.



Al de la Iglesia's Maxi Alpha 3

At a contest-centered event like NARAM, the sport range struggles to get enough volunteers to make the range run. I'd like to thank those who did step up and kept the sport range running, especially during the busy days on the weekend. Thanks go out to Mandy Dickinson, Eldred Pickett, Steve Lubliner, and especially to Tom and Maria Ha, who's 'fly-it, take-it' saw over 100 youngsters fly their very first model rocket, one they were able to choose, fly and take home for free thanks to the generosity of the Ha family, and those who donated rockets to their effort.

More Photos From Rocketry Festival 2017 / NARAM 59



New Product News

“Mystery” Box Kit From Estes

New Estes kit revealed through Estes “Mystery Boxes” at Cannon Auction – Estes donated several large “mystery” boxes to be sold at NARAM 59’s Cannon auction. Named after long-time Estes education director, Robert Cannon, the proceeds of the auction are used for teacher grants to promote model rocketry. These boxes are large and jammed packed with all kinds of great items from kits, tools, parts, etc. I was lucky enough to get the winning bid on one at NARAM 59 which included a kit that hasn’t been released or even mentioned as “Coming Soon” called the Red Nova. It had a note affixed to it stating it was an unreleased kit and may differ slightly from the released version. It uses a BT-60 tube and ram jet nose cone that was once used on the Starchaser Thunderstar kit. Estes designer John Boren confirmed all the boxes contained this kit and that it was the first time it has been mentioned. No comment on when it may be released.



by the Coast Guard. 18 rockets are covered in this 42 page booklet which sells for \$15.

Apogee Components Product News

Tim Van Milligan of Apogee Components discussed his latest products also at the NARAM 59 manufacturer’s forum. Highlights included new kits based on ShroX designs and models that can be used for the upcoming National Rocketry Competition (NRC) events.



Semroc New Release News

Randy Boadway of eRockets announced the latest kit releases. These include the BlueJay boost-glider, a small helicopter model that is simple enough for novices, the MapleSeed, and a SLS (Semroc Large Scale) version of the Estes LilAugie design of the month kit (http://www.spacemodeling.org/jimz/eirp_10.htm). Also available now are the Thunder Storm and reproduction Farside-X



NewWay Rocketry New Releases

NewWay Rocketry, known for their square rocket bodies announced several new kits including an Exocet, Starship Deceptor, Too Square, and Cornered. Several come with nice decals and Cornered is a 2 motor cluster.

New “Rockets of the World” Supplement

Peter Alway announces a new supplement to his popular “Rockets of the World” tomb. This supplement covers gunpowder rockets going back as far as the oldest known rocket to rescue rockets used

Balsa Machining Service Announces New Kits

Bill Saindon, President of Balsa Machining Service announced new versions of his popular School Rocket Kit at the NARAM 59 manufacturer’s Forum. Upgrades include multiple body tube and motor sizes. Accessories include payload sections and dual deploy options. Pricing, especially in bulk, will be very attractive for educators wanting larger sized models. Availability TBD.

OUR MEMBERS IN THE FIELD... IRON MAN II ENTRIES



Jay Calvert



Trevor Harrison



Dale Hodgson



Daniel Harrison



Greg Eilers



Dave Glover



Buzz Nau