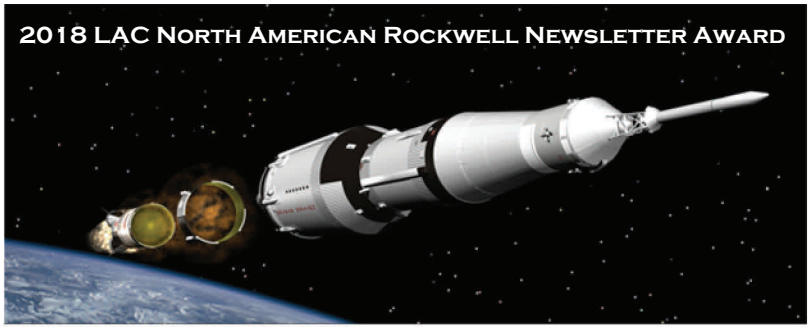

Total Impulse

Jackson Model Rocket Club

Total Impulse Volume 18, No. 5

September - October 2018

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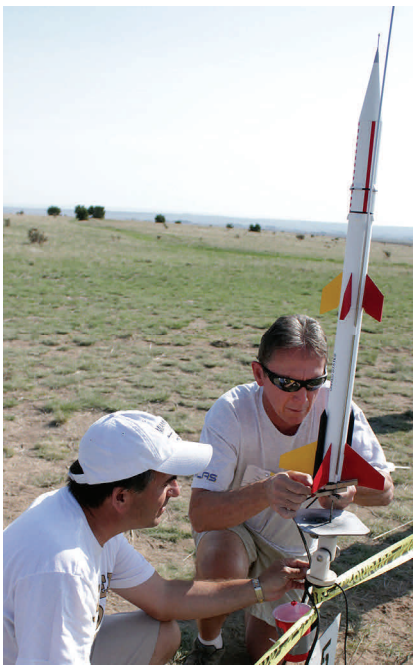


GPS Tracking

CLUB OFFICERS

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

MEMBERSHIP

To become a member of the Jackson Model Rocketry Club and Huron Valley Rocket Society 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 monthly 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 ($30.00 individual or $40.00 family) to our mailing address:

JMRC/HUVARS
C/O Rob Dickinson
6237 Arroyo Vista Dr.
Rockford MI 49341

Members enjoy no launch fees, 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/HUVARS 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.

Groups.io: The JMRC groups.io site is a place to share files and also serves as our primary e-mail list serv. Follow this link to join, https://groups.io/g/jmrc

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

EDITOR'S RANGE BOX

Welcome to the September - October 2018 issue of *Total Impulse*. A lot has happened since our last issue. Trevor Harrison, Emma Kristal, and Steve Kristal competed at the World Spacemodeling Championships in Poland. Myself, Al de le Igelsia and Mark Chrumka traveled to Pueblo, CO for NARAM 60.

Trevor and Emma both medaled at WSMC with Trevor winning an individual bronze and team gold in S1A. At NARAM 60 the Uncertainty Principle team took 3rd in A Payload, 1st in Classic kit, and 1st in Sport Scale. JMRC also won the LAC Rockwell trophy for best club newsletter for the year. I'd like to thank the judges for recognizing and appreciating *Total Impulse* and you the members that have made this such and amazing club to belong to. Let's see if we can do it again!

About Total Impulse

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

The editor of *Total Impulse* accepts material for inclusion from anyone.

Send correspondence to:
Jackson Model Rocket Club
Buzz Nau, Editor
E-mail: USSMidway@gmail.com

Welcome New Members!

Please welcome our new members and make sure to say Hi and introduce yourself at a future launch.

Larry Dasch - March 2018
Jeremy Sell - May 2018
Don Nichols - May 2018

Launch/Event Calendar

- Oct 13, 2018 (MIS Graves Campground) Scale Day
- Nov 10, 2018 (TBD)
- Dec 8, 2018 (TBD)
- Holiday Party (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.

PRESIDENT'S CORNER

Exciting changes on the forefront for us and we can officially share the news! HUVARS and JMRC are merging together so we can become one organization. A lot of questions have surfaced as this discussion started a while ago and we believe we have done our best to address the logistics that we know about to date, and we can certainly tackle anything that surfaces later on. HUVARS will maintain their NAR club #463 and will assimilate into the JMRC administration profile. JMRC will also maintain the club numbers TRA #96 and NAR #620.

What does this mean to all of you as JMRC/HUVARS members?

Well you will automatically be affiliated with both clubs and for NAR members you can be referenced on both club's section number; this can be updated at any time on your personal license or during renewal time. This also means that current JMRC members will gain access to the rich library and history that HUVARS has created/maintained over the years and HUVARS members will get all the perks that JMRC currently has in terms of equipment, reduced launch fees, and our robust technical infrastructure for websites, accounting, and communication. As part of this merger we are creating an additional board of director seat to represent HUVARS. Mark Chrumka will take on this position through the end of the year when we will have our annual officer elections.

I did mention *changes* on the first line and merging of the clubs is technically only one change. We value our membership greatly and want to encourage everyone to join us. In an effort to thank all of our current members and hopefully entice others to join we are changing our fee structure starting in 2019. A single adult will pay $30 annually and a family package is now offered at $40 annually; in addition to the new family structure we are also reducing all launch fees for current members down to ***FREE!*** We are hoping this will encourage enough membership growth that we can maintain this model for the foreseeable future. All clubs have overhead, and after 20+ years of growing as a club we have managed to figure out our general expenses and truly believe we can cover our costs with just memberships alone, I hope we are proven correct and can maintain our incredible collection of equipment and keep it cheaper for everyone to play.

Launch fees will still be in effect for non-members. The amount will be $10 for G motors and below and $15 for H motors and above.

On the Cover:

(top) Tony Haga and a young maker launch his rocket at the Henry Ford (bottom left) Trevor Harrison at the WSMC with his Gold and Bronze medals (bottom center) Al de la Iglesia and Mark Chrumka prepare Mark's Wasp sport scale model at NARAM 60 (bottom right) Art Upton's GPS payload rocket Miss Chivious

LAUNCH REPORT

World Spacemodeling Championships 2018 - Wloclawek, Poland

Trevor Harrison
Photos by Kara Kelly

The FAI World Championships for Space Models of summer 2018 was, by far, the best experience I've ever had. The competition was held in Wloclawek, Poland. I enjoyed learning the history of the area, trying unfamiliar foods, and meeting competitors from all over the world. I thought it was neat hearing many different national anthems at the award ceremonies throughout the week. The banquet, held at the end of competition week, was a lot of fun, too. During the competition, I competed in three events, which were S1A (altitude), S3A (parachute duration), and S5B (scale altitude).

On my first competition day in Poland, I competed in S3A and S1A. My first flight for S3A achieved maximum time. I was very happy with this flight. My second flight didn't achieve maximum time, but I tried not to get too discouraged. Then, my third and final flight for S3A disqualified. In the end, I came in 39th place in the S3A event.

My next event of the day was S1A. I was excited when my first flight in this event reached a height of 332 meters. I held 2nd place in this event for approximately thirty seconds! My second flight reached a height of 354 meters. When it came time for my third flight in S1A, I wasn't expecting much more altitude. I flew my rocket. When I had my altimeter read it showed 402.9 meters! I was so happy. That final flight put me in 3rd place, overall. My teammate, Allison, had a flight that reached 407.5 meters, and she was in 2nd place at this time.

Our team only needed one more qualified flight to get a gold medal, and we had only five minutes left to make it happen. We were under a lot of pressure, but our team pulled together and was able to help my teammate, Ashley, prepare her model within a few minutes. Her rocket launched successfully. Her flight qualified. Everyone cheered! When her altimeter was read, there were more cheers. Ashley's flight reached 381.5 meters, securing our spot on the medal stand the following night! S1A turned out to be my most successful event of the competition. Standing on the podium, receiving an individual bronze medal and a team gold medal, was the highlight of the World Championships, for me. It felt amazing.

My next event would take place two days later, when I competed in S5B. I flew my one-third scale Rohini, an Indian sounding rocket. During my first flight, the shock cord snapped, causing my nose cone to separate from the airframe of the rocket. That flight was disqualified. My next two flights reached altitudes within one meter of each other, at 349 and 348 meters. The S5B event ended with me in 20th place.

Overall, I preferred competing in altitude events, in comparison to duration events at the World Championships. My mentor, Dr. Steve Kristal, told me, "In duration events, you have three chances to fail, unlike altitude, where you have three chances to succeed." I agree with him. I also don't like waiting for thermals, which is necessary when competing in duration events. One important thing I learned through this experience is that however frustrated you are, never give up. I am planning to attend the next US team tryouts in 2019, and hopefully go to Romania to compete in 2020! The FAI World Championships for Space Models 2018 was an experience I will never forget.

Maker Faire 2018 At The Henry Ford Museum

Buzz Nau
Photos by David Glover & Buzz Nau

On the weekend of July 28 and 29, 2018, volunteers from JMRC, HUVARS, and MMAR assembled at the Henry Ford Museum in Dearborn, MI to participate in Maker Faire, an event created by Make magazine to "celebrate arts, crafts, engineering, science projects and the Do-It-Yourself mindset". The weather for this year's Maker Faire was perfect for rocketry. Mild temperature and a light breeze provided an excellent environment for launching and recovery.

We provided an Alpha III type kit with an A8-3 motor for a nominal price and the means to build and fly it at the Henry Ford. After signing up, participants sat down with volunteers who instructed the assembly and flight prep of their rocket. Next, they were escorted to the launch range on the front lawn of the Henry Ford Museum where they loaded their newly built rockets on the launch rack in preparation for flight. One by one the builders were announced on the PA and allowed to press the launch button at the end of a countdown.

You may recall that we did not participate in Maker Faire last year due to losing the lawn area to R/C Drone pilots and instead we participated in the Delta Aviation Day event. This year however, we were back in our usual spot on the main lawn for the two-day event, and what an event! How many rockets were built and flown? On Saturday we assisted 185 would

Maker Faire 2018 At The Henry Ford Museum

be rocketeers and Sunday there was an additional 165 rockets built and flown. How many were lost? Only two, one to a tree and another to landing on the road and being run over, but both rocketeers received replacement kits.

Of course, pulling off this successful of an event doesn't happen without outstanding volunteers.

Rob Dickinson
Mandy Dickinson
Dave Glover
Tony Haga
Doug Houseman
Patrick Houseman
Robert Houseman
Steve Kristal
Buzz Nau
John Potts
Roger Sadowsky
Rick Sharp
Roger Wilfong

We would also like to thank the staff at the event for the excellent support and additional build volunteers. It would have been nearly impossible to be as successful without their assistance.

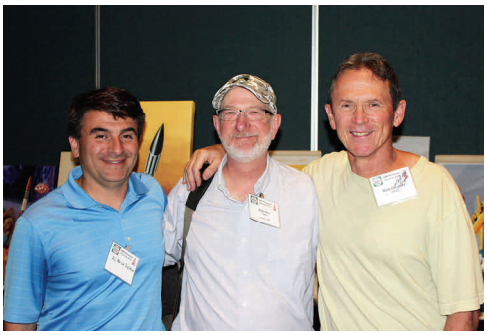
LAUNCH REPORT

NARAM 60 Pueblo, CO

BUZZ NAU

Entrance to Hudson Ranch - photo courtesy of Hans "Chris" Michielssen

This was a year of several firsts. It was the first year of the new Model Rocket Sporting Code and the National Rocket Competition (NRC) rules. It was the first full year that myself, Al de la Iglesia, and Mark Chrumka flew as the team, *Uncertainty Principle* T-034, and it was the first NARAM any of us have attended in the Mountain Time Zone. Typically, western NARAMS are not as well attended as those in the Midwest or East Coast. However, without checking numbers, NARAM 60 in Pueblo, CO seemed to have a higher than average turnout. It's probably too early to tell if the new rules attributed to this. Certainly, one of the draws to NARAM 60 was the Rocketeer Reunion on Saturday night. We loaded up the car and headed out Friday morning for a 20+ hour drive so we would get there in time for the reunion. Thankfully the drive out was uneventful except for a late-night thunderstorm in Nebraska that was more entertaining than threatening. We rolled into the host hotel early Saturday morning and fortunately Mark got his room right away so we had a place to crash and nap before the reunion.



Al, Buzz, and Mark at the Rocketeers Reunion

Saturday: Rocketeer Reunion

The Rocketeer Reunion was an entertaining time where we caught up with old friends and made several new ones. I spent time chatting with Mike Helmund, former Estes designer and current teacher as well as Hans "Chris" Michielssen of the Model Rocket Building blog. There were also nice speeches by event organizer Trip Barber, Vern Estes, Lee Piester, and Bill Stine. There were displays of model rocket memorabilia throughout the conference room as well as catalog artwork canvas prints that sold through a silent auction. The evening was a lot of fun and a great start for the week.

Sunday: Sport Range – State of the NAR

The S.C.O.R.E. launch site is a ranch about 20 minutes south of Pueblo. The area is HUGE with sparse juniper bushes, cactus, and rattlesnakes. At least there weren't ticks. The sport range was equipped with plenty of pads and was well run. There was a large community tent as well as vendor row which included the Estes courtesy tent. They were there the entire week with snacks, cold water, and staff that were always pleasant to chat with. It was very encouraging to see the commitment Estes made to the success of NARAM 60.

Mark didn't bring any sport models so Al loaned him some of his. I flew a few I brought, nothing special except my 2-stage Space Eagle decided to not cooperate and stage at all. There were many interesting high power flights including three M's, a Starburst with multiple E motors cato, and an upscale Goblin drag race.

That evening was the competitors meeting followed by the State of the NAR address by president John Hochheimer who had just returned from the Internats in Poland. The stats look good for the organization. Membership continues to grow slowly, but seems mainly due to TARC.

Al preps his Maxi Alpha 3 on the sport range

Other topics discussed were national events and the fund raising to assist in the organization and cataloging of the Stine/Estes/Piester collections at the Museum of Flight.

Madcow Pike

Monday: C Eggloft Alt – 1/2A Boost Glider – Manufacturer's Forum

Monday started the weeklong reminder that we are rusty in competition and prone to novice mistakes. Winds were a steady at 4-6 mph and expected to get worse as the day progressed, so I wanted to get my BG flights up early. My first flight suffered an early separation with the glider attachment coming off due to the wind torqueing on the glider. Rookie mistake #1. I immediately prepped the next one and got a mediocre time due to no lift. Later in the day the wind died down for a spell with thermals. Mistake #2, believing the weather service. We placed 6th with a total of 67 seconds.

Next, we prepped our first C Eggloft altitude flight. I had tested a couple of new MicroPeak altimeters and felt confident they were working well. We got an excellent boost and recovered an undamaged egg only to have the MicroPeak flash out 45 meters. Now lacking trust in them, we fell back to the reliable Perfectflite Firefly. Our second flight was not nearly as good with a bad piston boost and tip off for only 152 meters and 6th place. (Note: we had heard the newer MicroPeaks were not susceptible to sunlight. In discussions and flight testing afterwards we found that to be untrue. You need to cover the baro sensor if the altimeter is to hang out of the airframe.)

The manufacturer's forum that evening was noteworthy with many announcing new products. Bill Saindon of Balsa Machining Service revealed that he would be introducing a low coast Level 2 rocket kit similar to his Level 1 offering.

Aerospace Specialty Products (ASP) was represented by Bill Dauphin. He went over the latest scale kits that were released over the past few months as well as the re-release and upgrading of their Payloader and Eggstravaganza kits. Bill also mentioned his own startup venture offering editorial, proofreading and content development services.

Modelrocketparachutes.com, aka

Frank Burke's YF-12 makes a flyby on the sport range

Frank Burke of Dynasoar Rocketry with his YF-12

Douglas Kirk Chutes showed off a variety of interesting nylon chutes as well as a prototype carbon fiber rocket and lightweight aluminum HPR launch pad.

New Estes owner Ellis Langford was there to announce and answer questions about the future of Estes. I was encouraged when he said they want to be stewards of Estes. He talked about the new Saturn V that will contain lots of updates and a "bonus". Ellis also spoke of the other new releases that are in the 2018 catalog with the Little Joe coming soon. There was also a hint that a 1:200 Saturn V was in the works.

Doug Frost of Frost Rocketry announce his AQM-37 Jayhawk kit that includes many 3D printed parts.

Gary Rosenfield discussed the new Quest Q jet motors. The next run of A and B's will see a smaller diameter case to address fit problems. Also, the C12 and D16 would be available for order and should be shipping by the time this article is published. Gary also spoke of the new long burn G11 and G12 motors and that Frank Burke would be flying some on the sport range during the week.

Frank Burke of DynaSoar showed off his great looking foam RCRGs. I saw several of his flights over the week and they are amazing to watch. Mark picked up one of his kits after the forum.

Randy Boadway of eRockets talked about the Semroc catalog and Micro Max kits. He also announced that a 2.6" diameter Blue Bird Zero was in the works and would be available next year. Randy showed off a cool little Micro Max pad that slips right over a normal launch rod. He also explained that they would release an improved Orbital Transport with tricks they learned from developing the Micro Max version.

ARA Press, Jack Hagarty spoke about the X-20 Dynasoar book in the works by Roy Houchin. (I'm really looking forward to this release) Also, Jack revealed he has released all of the old Extreme Rocketry "how to" booklets. Another book that is coming soon is titled, *Everything I Know from Rocketry I Learned From Der Red Max*.

Matt Johnson of Altaira Rocketry talked about his two N1, Freida, and Ring Enterprise kits. He also announced his Cremator rocket for launching your ashes.

Hans "Chris" Michielssen the owner of Odd'l Rockets introduced his heavy-duty BT-20 tubing that will be useful for creating more robust scratch-built kits and can also be used for superroc events. He also showed off his cool little fin jig for attaching and lining up fins. These items will be available from vendors carrying Odd'l Rockets products.

Finally, Bob Kaplow showed off a 3D printed Omega and Cineroc capsule. The files were created by Jamie Clay and available on thingverse.com.

Tuesday: A Payload Altitude – A Streamer Duration

Our first flight of the day was A Payload Alt. We had to convert one of the models I built to accommodate a Firefly altimeter between the nose cone and payload since we shelved the MicroPeaks. It actually came out pretty well and though we didn't get a perfect piston boost, the flight was straight and true to 158 meters. The second flight had a deployment malfunction, but the altitude was less than flight 1 anyway, so it really didn't matter. We had a pretty good first streamer flight though there was no lift. Again, we fell for the forecast and flew early when there ended up being better air later in the day. Our second flight suffered a separation as we continued to reestablish our consistency from the past.

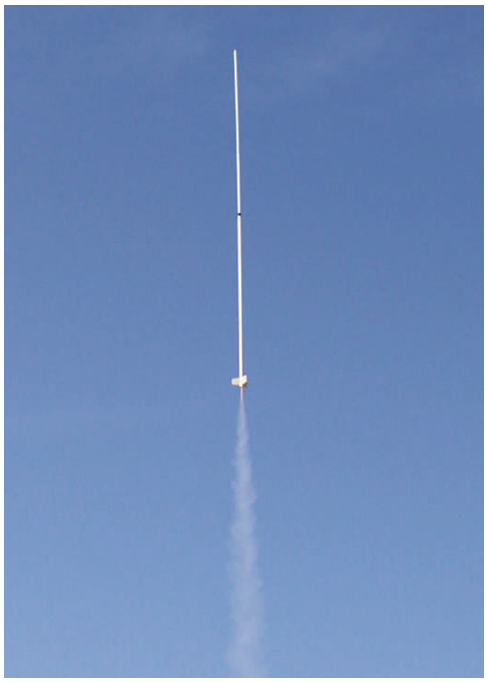
Flying I-Beam Kids prep their A Payloader

Wednesday: A Helicopter Duration – B Cluster Altitude

This was a real heartbreaking day for me. I had been looking forward to B Cluster Altitude for weeks. I had built a boiler plate that performed really well and I thought, with a good straight boost we would be in contention and that's what we got on our first flight. We also hooked a thermal. Even with a huge spill hole, the model drifted over a ridge into no man's land. Another mistake was not getting one of us stationed downwind with a radio, it just wasn't a model we expected to walk far to recover. Between the three of us, we spent hours scouring that field for any sign of it. We found other rockets and parts, but not ours. In between searches we flew our backup which tipped off badly for a miserable altitude, but at least it was a qualified flight. For A Helicopter Duration Al had built a couple of very cool lightweight models. The first flight deployed the rotors, but failed to flip around and rotate well. It qualified, but was a self-defeating flight. To play it safe Al then flew one of the new Estes mini engine helo models that actually flew pretty well, but there was no lift so the duration suffered. A very disheartening day on the range.

Thursday: 1/2A Parachute Duration – C SuperRoc Altitude – Cannon Education Fund Auction

Our first flight was a C SuperRoc. It was a full 2 ½ meters and we decided to go without a piston on the first flight. It was a good straight flight and respectable altitude, but without the piston it wasn't going



Uncertainty Principle's first SuperRoc flight

Mark checks in Lenora Olds' SuperRoc

to place. We reloaded with the same model, this time with a piston. The wind had picked up and the model looked a little bowed in the tower, but we launched anyways. Another mistake. The bowing was enough to loop under boost and DQ the flight. In parachute duration Al used minimum diameter models, but they just didn't have enough mass to snap open the chutes all the way. There was a 3 to 4 hour stretch later in the day that produced thermals the likes of which we've never seen. People were getting 5 minute flights and not even placing in the top 3. Bonnie Dall had a single flight of over 33 minutes and returned it! It was insane and a ton of fun to watch

Thursday evening was the Cannon Education Fund Auction. This is always a highlight for me as there is always plenty of cool items in the mix and it's for a great cause. Estes provides around six large "mystery" boxes that are filled with kits, partial kits, and various parts. I won one last year that included a new kit that hadn't even been announced at the time, the Red Nova. I was fortunate and won another that contained a lot of parts and "almost ready to fly" kits. This worked out well since my daughter is interested in building several of them.

Friday: Classic Kit – Sport Scale – Banquet

When we arrived at the range it was announced that everyone should fly as early as possible since high winds were predicted to hit around noon. Mark prepped his Centuri T-Bird 3-stage classic kit and in the process of loading it on the pad the first stage fell off and broke a fin. Mark took it back to the table, rendered repairs and thankfully you couldn't tell at all it had happened. The launch was perfect straight through stage 1 and 2, then slightly arced into the wind as the 3rd stage lit. All three stages worked, but we still needed to recover it. Mark and I retrieved the boosters, one with a broken fin. Al was set to recover the upper stage in case it was a long recovery, but it actually landed close to the range…. Right in the only water hazard for miles! It wasn't in the water long and that may have prevented landing damage. We were docked points for the broken fin, but not for getting wet thankfully.

Other Classic Kit entries included Neutron Fusion's large upscale Orbital Transport that failed to deploy the chute at ejection and was painful to watch streamline into the hard ground. They didn't give up and were able to repair it for a qualified flight. There were also several Semroc Farside X entries that all staged successfully. The Flying I-Beam Kids entered John Brohm's beautiful Estes Space Transport America model. The picture in the catalog doesn't give this model justice when you see it in person. It is a really nice kit and looks great on the pad. Our staging added enough difficulty to overcome the static score deficit and Mark's T-Bird earned us 1st place! Other honorable mentions for classic kit include Team Estes' upscale Multi-Roc, Them Filler Boys' Omega/Cineroc that suffered a wild double cato. Chris Kidwell took 1st in C division with a flawless USS Pleiades 2-stager, Chad Ring flew a Farside X, and Chris Flanigan entered a beautiful Centuri SST Shuttle.

Mark' Centuri T-Bird Classic Kit entry

Mark's Wasp ready for launch

Now it was time for sport scale. Mark's entry was a scale model of the Wasp sounding rocket. It was electronically staged with a PerfectFlite Mini Timer 4 and also had a cluster of two recruit side pod boosters. Mark did a lot of research on this round for additional detailing and successfully flew a boiler plate over the summer to make sure the electronics performed as expected. All that prep work paid off as the flight went off without a problem and both stages were recovered near the sport range.

There were so many other great scale models I'm afraid I can't mention them all. Tom Beach's Sudden Impulse team entered a very nicely built large Saturn V that flew well on a G motor. John Boren of Team Estes flew a complex Soviet SA-5 model with a lot of 3D printed parts and details. Neither of these models attempted mission points where our Wasp was staged and clustered. That was the difference in the final results netting us another first place! Other sport scale entries included Rebecca Zurek's 3D printed V-2 and Ray King's Rheintochter that also included a lot of 3D printed parts. Ed Chess flew a clustered giant scale version of the Project Farside Rockoon sounding rocket. It was one of my favorites and it flew extremely well. Mark "Bunny" Bundick's Saturn V suffered an unsafe recovery on the first flight, but his second attempt flew well. The best C division model once again went to Chris Flanigan's Saturn 1b. The wind had picked up just as predicted, but the Saturn 1b flew straight and true just like last year at NARAM 59. The clusters and three stages went off perfectly for one of the best flights of the day.

Ray King and his Rheintochter

The Farside Rockoon by Ed Chess

The banquet is always a bitter sweet event. It's a time to celebrate the winners, enjoy a good meal, and the company of your friends, but it also signifies the end of NARAM. Mark, Al and I sat with our friends Steve Foster and Rod Schafer of the Flying I-Beam Kids team. We had a great time together over the week and we were glad to be there as they picked up many of the specialist awards for best performance in a NRC event. We got a surprise when we were called up to accept 3rd place in A Payload Altitude. We didn't pay much attention to the standings over the week and totally missed that we medaled in that event. We also were proud to accept 1st place in Classic Kit and Sport Scale for Mark's models. I was humbled to win the LAC Trophy for best newsletter of the year. I can't thank and credit the members of JMRC enough because it is this club and it's contributions that make *Total Impulse* what it is.

Also, announced at the banquet was worst kept secret of the entire week, the date and location of NARAM 61, July 27 to August 3, 2019 at Muncie, IN. It will be an 8-day event that includes sport flying the entire time, FAI USA Team flyoffs, and NARAM, which will only be four days instead of the historical five. The sport range will have a 6k' waiver up to K motors. With the event this close to home it is hopeful many club members will take advantage and spend some time there to sport fly or compete.

The NARAM 61 events will be,

1/4A Parachute Duration *

1/4A Helicopter Duration *

A Boost Glider Duration *

B Eggloft Duration *

B Payload Altitude (Altimeter) *

C Eggloft Altitude (Altimeter) *

C Rocket Glider – Multi-round

E Altitude Altimeter

Scale

Research & Development

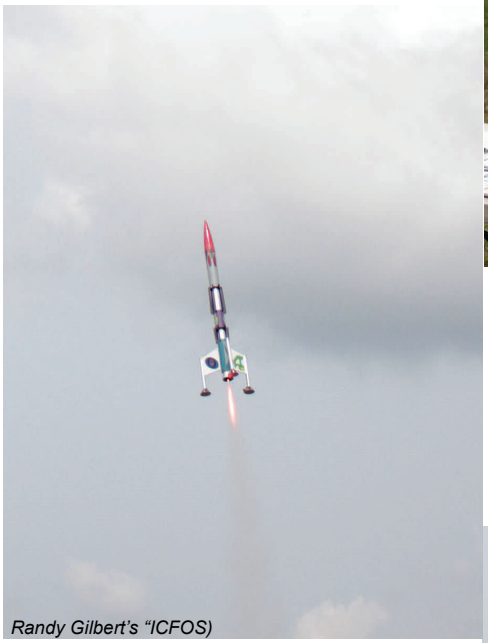
*denotes NRC event

Your editor and the LAC trophy for best newsletter

LAUNCH REPORT

JMRC August Sport & NRC Launch

August marked another month this year that JMRC enjoyed amazing good flying weather for our monthly sport and NRC launch and flyers took advantage! There was a total of 136 flights with 31 alone coming from Trevor Harrison. Not content with winning an individual bronze and team gold medals at the WSMC in Poland, Trevor set out to break the single day launch total by an individual at a JMRC launch. If that wasn't enough, he also shared the launch control officer (LCO) duties with Tony Haga.



Randy Gilbert's "ICFOS)

Sport Flights

The Penny Family of John, Clara, and Isaac also put in a fair number of flights with 14 between them. New member Larry Dasch also put up double digit launches with 12. Several were a little long in the delay and the models suffered some damage. Hopefully Larry can get them repaired for a later launch.

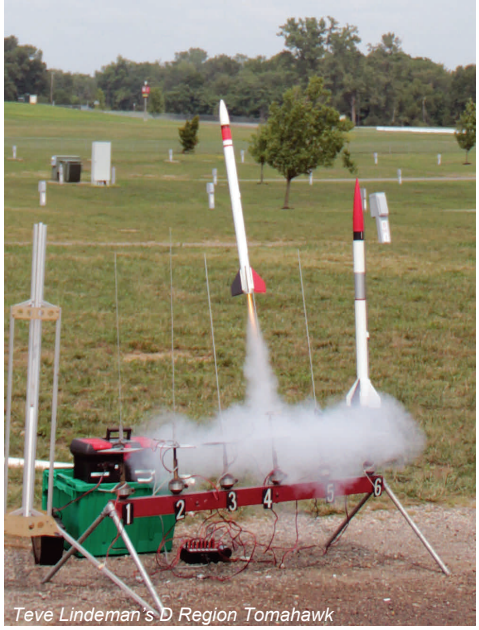
It was great to see Ron Watkins and his wife enjoy the excellent flying weather. Ron's rockets always have an excellent finish. His D Region Tomahawk and Estes Red Nova are nice examples of his work and flew well. Chris Palmer put in a couple of high power flights, but no debauchery. The H182 Red in his "Silverthing" was impressive non-the less.

Trevor running the pads

A Red Nova was also flown by Randy Gilbert, however his was modified for 2-stage and flew perfectly. Randy also flew a kit-bashed Patriot on a 4xE12-8 cluster, a NewWay Rocketry Squaros, and "Dragon Train", a Mega Der Red Max in an oriental dragon scheme. Finally, he flew his scratch built "ICFOS" (It Came From Outer Space) lander-type rocket on a G125-5.

Fred Diesness' EMP 010

Fred Diesness put up 7 really nice flights including a QCC Explorer, EMP 010, Photon Disruptor, and Mean Machine. The only sparky, a H100 was flown by Mike Jacobs in his Calypso. Mike also flew his LOC IV "Phoenix" on a G80. Both were great flights. Tony Haga only put up one flight, his Warlock with an I405, but it suffered a complete recovery deployment failure and was destroyed. Amazingly, the altimeter and other hardware survived.



Teve Lindeman's D Region Tomahawk

There's a new glider addict around and his name is Dale Hodgson. Dale tried a couple gliders, his Apogee Condor and Semroc BlueJay. The Condor had a tight spiral glide and Dale is working on the trim. The BlueJay suffered a "Red Baron". That's when the glider and power pod get tangled at ejection and they come down together looking like the Red Baron shot it out of the sky. Dale also tried his Apogee Aspire with two strap-on boosters. One booster failed to ignite causing the rocket to prang, but it didn't suffer any damage.

Also on the receiving end of bad luck was John Potts and Mark Chrumka. John tried flying his black 3D printed "Stealth Lander" on an E9 which went unstable shortly after launch and destroyed itself against the equipment trailer. He had


Mark Chrumka's Outlander

much better success with his regular 3D printed Mars Lander on a D12. Mark put in 7 flights, and most were successful including his ISQY Tomahawk, Launch Pad Bullpup, Trident II, X-15 Delta and Estes Outlander that stuck the landing. However his nicely built QModeling Stiletto had a recovery system separation. The main body core sampled and to add insult, the nose cone and parachute thermalled away.

Art Upton put up a couple of nice flights with his Accender trying out a GPS tracker, though he mentioned it wasn't working "the way he planned it", so there's a little work to be done there. In addition to competing, Mike Rangtisch also put in 9 sport flights for a total of 15 launches. His sport flights included a LOC Lil' Nuke, Big Betty, Macho Mosquito, Der Red Max, and Mini Max.


And Mark's QModeiling Stiletto

Al dela Iglesia and Buzz Nau also put up competition and sport flights. Al flew his Mini Mars Lander, Big Bertha, and Super Big Bertha, while Buzz put up 5 Sky Dart flights trying to dial in the trim. He also flew his Super Screamer with three altimeters (one Firefly and two MicroPeaks) to check them all against one another They were all within .5 meters of one another.

Competition Flights

As mentioned earlier, NRC flights were flown by Mike Rangtisch and the Escape Velocity team of Al and Buzz (Mark Chrumka took the day off). Buzz tried using a very old, off the shelf A BoostGlider which Red Baron'd the first flight and separated under boost on the second flight. Mike had much better luck with flights of 48 and 35 seconds.

The only eggloft flights were put in by Buzz. Their B EggLoft Duration flight went for 103 seconds before snagging a tree about 20' off the ground. Al was able to successfully recover the model and the egg was fine. Escape Velocity also flew C EggLoft Altitude. The model had a slight wiggle coming out of the tower, but still managed a respectable 257 meters.

Al put up a single 1/4A Helicopter Duration flight of 16 seconds. The model was just too heavy for a 1/4A. This is an event Mark wants to tackle this year. Maybe he'll have something to fly by September.

1/4A Parachute Duration was a hoot. There were thermals to be had all day long. Mike put in two nice flights of 45 and 70 seconds. Al flew a new 24mm Velum paper design. His first flight was 54 seconds and he hooked a great thermal on flight 2 of 141 seconds before it disappeared behind the trees. Their total of 195 seconds exceeded the NRC max of 180 seconds. Not bad for the first NRC launch of the new competition year.


Mike Jacobs' Loc IV

Finally, Mike and Buzz each flew B Payload Altitude with different strategies. The event calls for launching a standard NAR 1 ounce payload and altimeter on a B impulse. Mike used a B6-6 and Firefly, while Buzz staged an A10 to an A3 and a MicroPeak. Mike hit 140 meters while Escape Velocity reached 227 despite a bad piston launch.

Thanks as always to everyone that attended and helped with the set up and tear down. Your assistance is greatly appreciated. Also, special thanks once again to the Jacob's for excellent donuts, ice water, and some sandwiches. They were great!

VIEW FROM THE FLIGHT LINE

Ain't Learnin' Fun?

DALE HODGSON

Well, before I delve into the actual article I want to say a couple of words about the club. To quote Ben Stiller's character in *Dodgeball: A True Underdog Story*; "Now he's a philosophizer"; so here goes: We've been doing this club thing a very long time now and we pretty much know the upsides to all that. But, it has never come into focus as sharply as it has this summer. Talk about paying it forward; Trevor Harrison medaled in the Worlds. We all know it and we're all very proud of his accomplishments. But think about this for a moment; along with some great support by his Mom and Dad he needed a place to learn and develop those skills he needed to compete on a world stage. Where did it happen? Our launches, so we as an entire club should be very proud and that; if for no other reason is why we exist. Not to be outdone the grownups do pretty well too. Buzz Nau, Mark Chrumka and Al de la Iglesia had a great showing at NARAM this year and although I am sure they acquired their skills at other places and other times over the years we give them a place to hone their craft. Proud of those guys too! Not to be left out Steve Kristal is a perennial at the worlds and always a good representative. Now there's Buzz, our editor in chief of this newsletter which took top honors at NARAM as well. He works very hard on this thing with every issue and it shows. Obviously, others have noticed as well. So, this club is not just a local thing; it's outgrown that; it went national and World-Wide. A job well done by all involved. We just finished up Maker-Faire; two days of kids building and flying. Unfortunately work intervened and I couldn't go. But, there were tons of flights. Who knows what seeds were planted that weekend? Kids grow up and do crazy things; like maybe even sign on for a mission to Mars. Think about that one for a second old dudes!

And now, for something completely different……

So, I've been doing this glider thing for a little while now. I was told to build a bunch because before all was said and done I was going to crash a bunch. And trust me, it has been happening with regularity. As a fairly successful high-power guy (a legend in my own mind to be sure) it has been quite the blow to my ego to crunch so much balsa. I am not used to that; after all, I did do all three cert flights on the first try (there's that ego). But somewhere in all that mess I did manage to learn something from each and every crash. I'll try and pass a few things along, for the humor of it if nothing else.

First and foremost, practice glides do not a successful flight make. I've had two gliders that when hand tossed fly a good 20 feet at least with a very gentle sweep; Buzz-esque if you will. But, twice now I have had two spirals in from apogee. They had as much glide as a set of keys. Haven't figured that one out yet but we will see. Maybe, just maybe trim the things to just be at the point of stalling. Theories, theories, theories.

Secondly, sometimes a blind squirrel finds a nut. I have a Semroc Hawk which is similar to the Estes Falcon from the 1960's. I built it exactly as shown; put a ½ A in it and let it go. Motor popped as it was supposed to then the glider came in…fast and hard; nose straight down. The thing was so light it suffered no damage. So I was wondering, how do I get the nose up quickly? Less weight? Nope, then it would fall flat. The thing looks like a plane, how do they control pitch? Yep, an elevator. So, I glued a piece of balsa across the rear tail assembly. Test glides had the thing nose up really quickly, almost too quickly but at that point the additional flight surface wasn't adjustable. So, I flew it again anyway. The thing took off, again with a ½ A and when the motor popped the glider did a complete loop, then the unthinkable. It *glided*….and I mean like it's namesake, a hawk. In my mind, coolest thing ever. It landed perfectly. Upon examining it there was a change to the elevator I installed; the motor actually burned through the center of it, leaving two tabs at the end. So, why not? Reinstall a little better elevator but just have the two tabs at the end. That was done and it's ready to go as soon as I get a couple more ½ A's; 18 mm of course, just to be retro.

Lastly for now, motor choice is everything when it comes to a glider. I've been flying high power for so long that I got used to the fact that I built stuff so ridiculously strong that throwing in a bigger motor meant better results. Quite the opposite is true with these gliders though. I just finished a Blue Jay which if nothing else looks like an old Edmunds Deltie 18mm. The thing is as light as a feather and glides like crazy, at least it did when I trimmed it (see point one above, probably just shot myself in the foot). I wanted to try it at the last launch so I chose a B6-2, a recommended motor. But, when I mentioned that to Al he looked at the glider

and thought I might want something with a more gentle boost; like a B4-2. Whaddya mean, a more gentle boost? From a B6 to a B4; are you kidding me? Remember, I'm used to jumping from H's to J's and back just because. But, I took Al's advice especially when he offered to trade my B6 for his B4. Alas though; he ended up not having B4-2 but gave me a B4-4; two added seconds of delay. Shouldn't be a problem, right? Got that more gentle boost thing I was after. So, we flew it, perfectly vertical boost and gently, just as described. But, that extra two lousy seconds of delay were very critical. A B4-2 would have separated glider and pod while it was still vertical. The B4-4 allowed the entire assembly to go horizontal before the ejection charge popped. What that did was cause the nose cone and cord to go up through the wing assembly and get hung up. I had a Red Barron on my hands. Everything came down together. Fortunately, though, the flat spin was very gentle so there was absolutely no damage done. Lesson learned; again. I'll get the right motor with the right delay and see how that goes.

I have quite a few gliders to try out yet including a couple of D projects…but those will have to wait until we get to Horning's, that way there will be some cushion on the ground you know, just in case. I was born at night but not last night. I still have a lot of learning to go but I have some excellent resources so I will keep on trying. But, I'll be sure and sneak a high-power flight in there as well to keep my ego intact. Seems it is just as fragile as those gliders I am trying to master. Happy flying everyone!

CV-16 USS Lexington Museum Tour

Corpus Christi, TX

Jeremy Sell

US Navy photo

Since it was first commissioned in 1943, the USS *Lexington* (CV-16) aircraft carrier has played a variety of important roles in United States military history. First and foremost it was crucial in the Pacific Theater during the second half of World War II. Later in life the "Lex" helped keep the peace in the post-war Pacific, helped train seamen and naval aviators during the Vietnam conflict and beyond, and now serves as a floating history museum moored in Corpus Christi, Texas. I visited this museum last summer and thought it was an impressive up-close look at not only some amazing naval and aviation hardware, but also the human stories and history that made it great.

US Navy photo

CV-16 was originally designated as the *Cabot* during construction in 1942. After the previous *Lexington* (CV-2) was sunk at the Battle of the Coral Sea, CV-16 was re-named to carry on the legacy. The apparent quick resurrection of the *Lexington* along with ongoing repeated reports of it being sunk only to then reappear quickly lead the Japanese to call it "The Blue Ghost."

The CV-16 *Lexington* played pivotal roles in several WWII battles including a variety of raids, the Battle of the Philippine Sea, and the Battle of Leyte Gulf. In just over two short years this ship and her personnel and aircraft helped destroy numerous Japanese aircraft and ships. Soon after the war the ship was decommissioned but before long would be called back into service.

Throughout the 1950s and 1960s the *Lexington* helped to keep the peace in the Pacific. In one particular 1958 disagreement between Taiwan and mainland China the *Lex* was deployed to suppress tensions. At the time this ship was the first to have aircraft armed with AGM-12 Bullpup guided missiles.

During the Vietnam conflict the *Lex* served as a training vessel for seamen and aviators from its home ports of Pensacola, New Orleans, and ultimately Corpus Christi.

After being decommissioned in 1991, CV-16 started a new life as a floating history museum. Today you can roam the stairways, bulkheads, 5" deck guns, hangar deck, flight deck, and even the bridge. The hangar and flight decks are filled with a variety of aircraft from WWII to the present, including an SBD Dauntless, TBF/TBM Avenger, F-4 Phantom, F-18 Hornet, and F-14 Tomcat. It's great to see these aircraft up close and personal and read about their roles in recent military history. It's even more impressive to wander the tight steel passageways that line this ship to get an appreciation for the environment Navy personnel had to adapt to for months on end.

If you ever find yourself in or around Corpus Christi, Texas, the USS Lexington museum should be high on your "must-see" list. For $17 you can easily spend an entire day exploring a seemingly endless labyrinth of naval and aviation history from the last 75 years. They even have a mess desk and gift shop so you and your family can eat and shop along the way.

US Navy photo

More information:
https://usslexington.com/
http://www.navy.mil/navydata/nav_legacy.asp?id=33

GPS in Model Rocketry Part 1

Art Upton

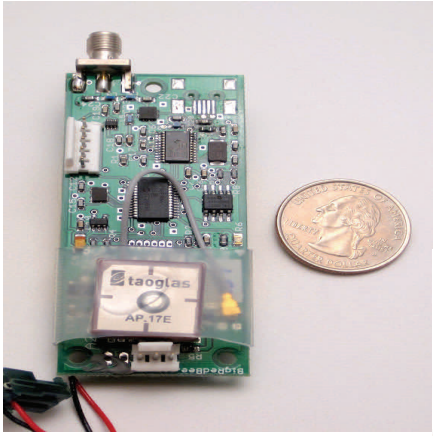
Hi, I am Art Upton and have been a member of JMRC since 2003 when I discovered them in my back yard (I am from Sylvania Ohio the currently occupied "former territories" of Michigan). The longer-term members will remember I ran a company called "BoosterVision" at the time, but closed in 2012.

BoosterVision made real-time transmitting cameras for rockets and later, a SD-card recording camera. The popular key chain cameras and $100 HD sport cameras eliminated the need for my specialized products. Along the way, I got to be friends and acquainted with the manufactures of most other rocket electronics, including the owners of the popular Perfectflite altimeters.

I hope to start a regular column on rocket electronics, and I am starting with an area many newer members may like to know more about, GPS tracking in rockets. This first issue we'll start with is the units you can buy off the shelf and how to use them in real life with examples that myself and Tony Haga have done. Then we'll look at those units you can modify to work, followed by those you can build yourself with simple soldering skills. Don't be afraid if I use Ham/Amateur Radio terms you do not understand, I will have website references that will explain Ham radio for you in the footnotes. Also, there will be options later in the story about products that do not need a Ham radio license.

BigRed Bee GPS Transmitter Solutions

The JMRC team was planning a trip to the Black Rock Desert in 2005. In late 20004 I started looking for inexpensive Direction Finding Trackers for the team's various sized "Desert Dart" rockets; fast, minimum diameter rockets. I found Greg Clark of BigRedBee.com had $59 Tracking Transmitters that used UHF FM Ham radio frequencies(1) and beeped out a noise sounding similar to the $500 CW 220mhz trackers being sold by Rocket Hunter. (FYI if you look on the far-left side of the picture on Greg's website https://shop.bigredbee.com/ you will see the JMRC trailer and the tip of the Saturn V logo on the side!)



BigRedBee BeeLine GPS. Details at their website, https://bigredbee.com/BeeLineGPS.htm

I got two of the Tracking Transmitters and the team also purchased units. I told Greg in an email that if he put a modem chip on the product he could make an APRS(2) (automatic packet reporting system) tracker with GPS. He said he had that idea as well and glad that I validated a demand for a low-cost product. Previously it took a large sized rocket and $600-$900 dollars to put GPS on a rocket. When JMRC met Greg at "The Rock" in 2005, he showed us a GPS tracker that would fit in a 54mm tube. I had to have one as soon as they were available for sale and so did others on the team like Tony Haga.

Receivers and Radios

Originally, we used base station Packet Radio modems on mobile Ham radios to display the packets received on a computer screen. We have a video (https://www.youtube.com/watch?v=y3CEcTIfu2E) of the launch at Blackrock the next year in 2006 that shows Greg reading off the altitudes of my rocket in real time from the table computer setup at his vendor booth behind us in the picture. Almost no-one does it that way anymore, so I will skip references to that process until the last installment of this series.

Current Kenwood and Yaesu GPS Transceivers

It sends APRS data packets to a Ham radio which some brands today include compass directions, like my Yaesu FT-8G. They came out with the FT8G a year later and all the Ham guys at the NASA Student Launch(3) (NAR volunteer operations team) acquired them from a local Ham distributor, Gigaparts in Huntsville. Kenwood DT72 and Yaesu FT-8G, FT-1DX are all good radios you can find used at a decent price. I do not recommend a FT-8R as it will work but has some dorky issues.

Currently manufactured and available radios are the Yaesu FT-2DR [~$365] and the Kenwood TH-DT72A[~380] and TH-DT74A. You can find these radios for sale at Hamradio.com or Gigaparts.com

If you have a Ham radio already, and don't want to buy one dedicated to APRS, you can add the capability with the $65 Mobilink product and display the GPS on your Bluetooth Cell Phone: http://www.mobilinkd.com/

A Mobilinkd TNC with Transceiver and Bluetooth Cell Phone

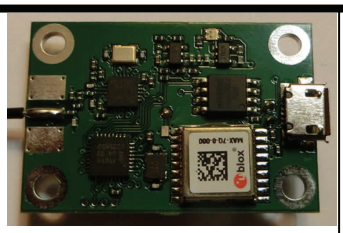
The lowest cost receiver setup is a $25 BaoFeng UV-5R Ham Handheld on Amazon plus the $65 Mobilinkd above with your cell phone.

These radios display the GPS information on the screen including the coordinates, altitude and speed. When the rocket lands on the ground you can use the compass heading to walk to it. If you see the needle move to the left or the right, you walk towards that direction, "WOW!" we all said. Kevin Trojanowski started a game after dinner at the host hotel in the days before the launch. Imagine a bunch of Ham Rocketeers tracking each other with these radios. They transmit APRS also like the BigRedBee and Search and Destroy..err… Search and Find was happing all that night in the halls and rooms the volunteers were gathering in.

Altus Metrum Solution

That year I met Keith Packard of Altus Metrum (https://altusmetrum.org/). He would be on our sub-group for rocket safety check along with Greg Rothman, myself, and Kevin. NASA SLP (Student Launch Project) or USLI (University Student Launch Initiative) as it is also known by requires the rocket of each student team to be checked by L3 NAR/TRA volunteers at the host hotel days before the launch.

The teams had to fix the many issues we found and then resubmit for checking each day. These inspections went from Wednesday to Friday night before the Saturday launch when 50 Student L2/L3 type projects were flown during the 8AM to 4PM launch window. There Keith showed us his Altus Metrum TeleGPS product that would be similar to the BeeLine GPS.



Altus Metrum TeleGPS specifications here: https://altusmetrum.org/TeleGPS/

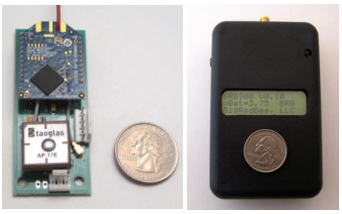
Then in 2010, folks had iPhones and Android phones using Google Maps. We were using them at the NASA SPL event for our groups and teams to, like get to the launch site even. Keith from Altis started looking at blue tooth and now you can get his unit to hookup to your cell phone to display the telemetry data in real time. https://altusmetrum.org/TeleBT/

BigRedBee "No Ham License" Solution

The following year at the NASA SLP/USLR event several student team projects were using a mix of BigBee and TeleGPS. Competition in a free market is a good thing and we would see more products from both companies develop into the low cost rocket GPS tools that we have today to select from.

One issue that arose was that some student teams and rocketeers did not have Ham licenses. While a Ham license is easy to get in a month(6), as most cities have monthly tests available, it still made sense to produce a tracker that operated on non-Ham radio frequencies and are license free like 900mhz(4).

Around 2010, BigRed Bee introduced their 900mhz based on Xbee(5) devices made by a firm not related to BigRed Bee in anyway. It was a weird coincidence. https://bigredbee.com/brb900.htm



This is the BigRedBee 900mhz license free units. They use a custom receiver shown here to read out the GPS coordinates. You'll get a compass reading If you're using a regular radio without APRS built in, the Mobilinkd using the APRSDriod application on your cellphone or Tablet to provide a map.

If you're using an APRS built in radio you will get a heading up compass display like this to walk to your rocket like Geo Caching. Just move to the right to get that arrow pointing up

Next month I will detail how to use both built-in APRS radios using my FT1D and FT8G as well as an inexpensive regular ham radio using Mobilinkd and APRSDroid on the cell phone. After this article is published, I will post in the JMRC Groups.io list how I recommend to get a HAM license easy and quicker than the web links you find especially if you don't know anything about radio or math and don't want to learn it through the cram method. Many members in JMRC have gotten Ham radio licenses just to use Rocket Electronics and had fun with it.

This is my favorite handbook to the new 2018-2022 Ham Tech study guide that explains radio and electronics for those that wish to learn it in a no-nonsense way. He gives this out free as a PDF and soon you will be able to order the actual book: https://www.kb6nu.com/study-guides/

Footnotes
1: http://www.arrl.org/what-is-ham-radio/
2: http://www.wb8nut.com/aprs/
3: https://www.nasa.gov/audience/forstudents/studentlaunch/home/index.html
4: https://en.wikipedia.org/wiki/33-centimeter_band
5: https://www.digi.com/xbee
6: https://www.wikihow.com/Get-an-Amateur-Radio-License-in-the-US

Member Highlight - Mark Chrumka (BOD)

When did you first get into model rocketry, what was your first rocket and what was your inspiration?

In 1992, my two brothers and I were discussing the good times we had playing on our Strombecker slot car track. I decided to check out the local hobby shop to see whether they carried slot cars. While walking out of one of the stores I noticed a wall full of model rockets and started perusing the inventory. I noticed a Mars Snooper Commemorative Edition and thought it would be fun to build. After launching it with my kids, I decided to buy more and join HUVARS. Earlier, I only recall building/flying a Centuri Black Widow and Estes Manta Bomber for my 7th grade science class.

Describe your early activities when you started? (i.e. what kits did you like to build and fly and did you fly with others?)

I mostly enjoyed the kits that incorporated scale, multi-stage, and cluster. I joined HUVARS in 1994 and met a nice bunch of experienced rocketeers who introduced me to competition. I remember one of my first contests flying a Ken Brown F105 PMC at a field in Ypsilanti. If I recall correctly, the boost was straight, but the chute didn't fully deploy and the model came down fast in a field of tall grass. I expected the flight to be a DQ, but Roger Wilfong-CD said, "Midwest Qualified". That was my introduction to MQ. I eventually became the HUVARS President, which lasted for about 10 years.

How did you find out about JMRC and when did you join?

The launch site that HUVARS was using in Lyon Township was marginal, at best. I learned that that a former HUVARS buddy, Buzz Nau was launching with JMRC, so I decided to attend a launch at Horning #2 in September 2011.

What moment in model rocketry stands out as your most memorable?

That would be attending my first NARAM (41), near Pittsburgh, PA. The weeklong event was an intensive, exhausting, and gratifying experience. I did much better than expected and took fourth place for the event. I also met a number of great competitors, like Rod Shafer and Steve Foster.

What out of production rocketry item do you miss the most?

The Estes Maxi Brute Pershing-1A.

What do you like flying these days?

I enjoy flying an assortment of scale-like models, ones that are staged and clustered, and unusual designs like the Flis Kits-Deuce's Wild, Rocketarium-Mega Rebel, 3D printed Estes LTV Scout, etc.

If high power certified, what level?

I'm currently Level 1, and have constructed a Madcow Patriot for a Level 2 attempt.

What plans do you have in the future?

I'm presently constructing a 2-stage boilerplate model that incorporates fall away boosters for a possible NARAM scale model.

What would you like other flyers to know about you?

I enjoy a good laugh and try to learn something new everyday.

Are you willing to mentor other club members and if so, in what area?

I'd be happy to mentor anyone who enjoys the craftsmanship aspects of rocketry.

Are you looking for help from the membership on a specific area of rocketry?

I'll be looking for advice in preparing for my Level 2 attempt.

If you could have lunch with anyone in history who would it be and why?

This question is the toughest, but it would be Abraham Lincoln.

LAUNCH REPORT

JMRC September Sport & NRC Launch

Our run of good weather finally came to an end at our September 8th launch at Graves Campground near Michigan International Speedway. Not to say the day was a loss. In typical JMRC fashion, we persevered in spite of the windy conditions. We did have to secure the range early when the gusts finally started hitting 20mph. At that point we had nearly 90 flights for the day from a total of 21 rocketeers.

It was great to see the Penny's who put up six flights between Isaac and Clara. It was also Clara's birthday! They brought a friend, Cora who launched rockets for the first time. It's always encouraging to see more kids attending our launches.

Rick Arden and Zack Griggs also attended and flew for the first time. Dr. Arden brought his Estes Trajector and booster. His first flight was single stage on a F15. It was nice flight and landed near the pads. His second flight was two-stage with the addition of a F15 booster. All went well until staging when the nose cone drag separated. There was no damage, so Rick and Zack loaded it up for a third flight. This time the staging and ascent were perfect. The F15 is a great motor providing a slow realistic liftoff. Unfortunately, the wind carried the sustainer into a corn field and was lost. Regardless, Rick and Zack really enjoyed the flights and expressed interest in joining JMRC.

Rick Arden's Trajector

Steve Lindeman put up four flights. His D Region Tomahawk flew really nice on an E12, but unfortunately his scratch built White Knight also on an E12, pranged. It was a really night looking starfighter design and I hope Steve can repair it.

Dave Glover also put up four flights. His mini Quad Runner only lit 3 motors, but still flew and recovered OK. Other flights included his Quest Harpoon and Rocketarium Mega Vortico on a F44.

Dave Glover's Mini Quad Runner

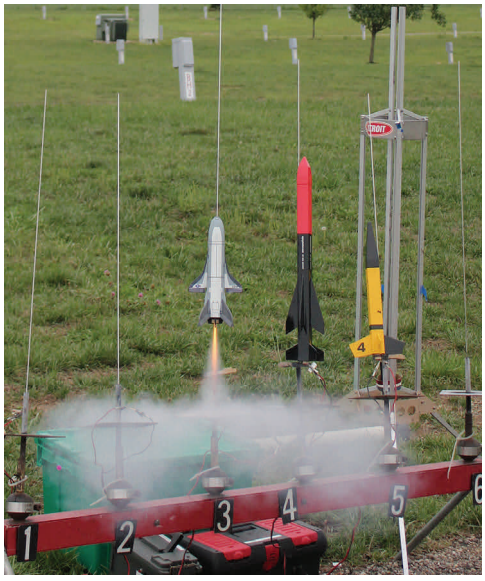
Mike Jacobs put up a single flight launching his Calypso on a Loki H100 Spitfire for an excellent flight. Mike and Natalie also provided donuts and ice water again. Next time you see Mike and Natalie on the range be sure to thank them for all the support they give JMRC!

Randy Gilbert had a total of seven flights including several of the unique New-Way Rocketry square airframe kits. He also flew his "Der Dubl Red Max" that looks like a 2-stage Der Red Max. Other flights included his Estes Astron Explorer, 60th Anniversary Alpha, Heatseeker, and scratch built X-37B.

Mike Jacobs' Calypso

Rick Sharp flew his 38 Special on a F32, a PML AMRAAM on a G80, and Aerobee Hi on a E20. All three launches flew really well.

Tony Haga and Dale Hodgson put up a single flight each. Tony made the only hybrid flight for the day with his LOC EZI-65 on a SkyRipper I119. The dual deployment worked for a perfect flight. Dale flew his upscale FatBoy on a H144 and was also a great flight.



Randy Gilbert's X-37B

Dan Harrison flew several home-brew motors with impressive flame colors! First was a 3D printed Saucer on a G43. Next was his "Spool of Life" on a I117. The chute stripped during boost but it landed safely downrange. Finally he flew his Darkstar on a H223.

Eldred Pickett put in the most launches of the day at twelve. Among his flights included his Small Endeavor on a G80, U-tube on a C11, Screaming Mimi (which never screams), Stormcaster, and his signature Blue Ninja.

Eldred Pickett's Small Endeavor

Al de la Iglesia was next with ten flights in total. These included a pair of MRC kits, the Standard ARM and IronMan. He also put the hurt on his Maxi Alpha 3 when the wind slammed it unceremoniously against the JMRC trailer. Other flights included his National Space Plane, Shark, Big Bertha, and Estes UFO, the predecessor to the Snitch saucer.

Al de la Iglesia's Maxi Alpha 3

Buzz Nau had a total of nine flights. His first flight was his 3-stage Estes Farside clone on a A8-0 to A8-0 to A8-5. The boost was great with all three stages lighting, but the shock line on the sustainer let go and the payload section drifted off to the next county. He also flew his Mega Mosquito, Centuri Scram-jet, and Estes Stiletto.

Buzz Nau's Farside

Peter Alway flew his "Bumblebee" Baby Bertha kitbash and his Quest Aerobee-Hi. I hope to see Peter show up more often as he often has interesting and unique models.

Mark Chrumka put up some really nice and "different" sport flights. First was his DeeCee Thunder glider on a D12. He nearly lost as it used up the entire field and then some. He also put up a really nice 3D printed Scout launch vehicle. Finally, he flew his "Tony Haga, Spy vs Spy" rocket adorned with the Mad Magazine Spy vs Spy characters sporting Tony's face. I'm trying to remember exactly what Tony's reaction was to it but I'm pretty sure it was positive.

Ron Gutzeit made his first appearance at a JMRC launch putting up 5 flights. In addition to his Red Max he also flew an Estes Arcas, MPC Nike Smoke, and a really nice V-2.

Art Upton flew a AVRT5 APRS Transmitter with a GPS chip set payload in his 12 year old "BoosterVision" rocket on a CTI H110. It draped across the guard shack on the east side of the field narrowly missing the pond. Check out his article on GPS payloads in this issue!

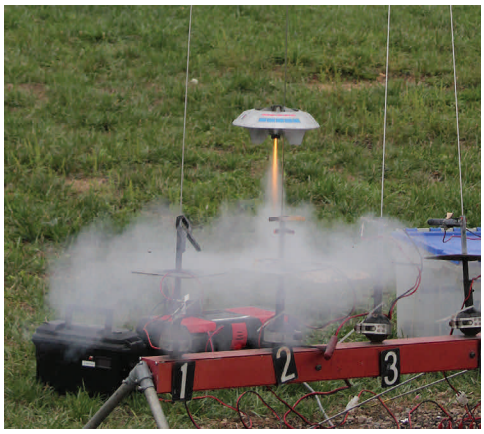
Competition

There were only a handful of competition flights throughout the day due to the weather. Buzz from the Escape Velocity team tried a new A boost glider that suffered a Red Baron. He believes he knows the problem and will adjust the recovery and release lanyard for next month.

Rick Sharp's Aerobee Hi

Steve Kristal and Trevor Harrison made several altitude record attempts. Trevor successfully set the 1/4A Altitude (altimeter) record with a flight to 61 meters. Steve put up a great A Altitude vellum model. So great in fact that it disappeared in the gray sky never to be seen again. He followed that up with a pair of NRC B Payload flights. One with a B6-6 and another staged with a A10-0 to A3-4. Both flights rounded out to the same altitude, 265 meters. It doesn't get more consistent.

Many thanks for everyone that came out to fly, help setup and tear down the range. This help is always greatly appreciated. The more that assist the sooner it all gets done. If the weather cooperates we likely only have two more launches this year. Hope to see you all at MIS in October!



Al de la Iglesia's UFO

COMPETITION CORNER

A Payload Altitude

Buzz Nau (T-34 Escape Velocity)

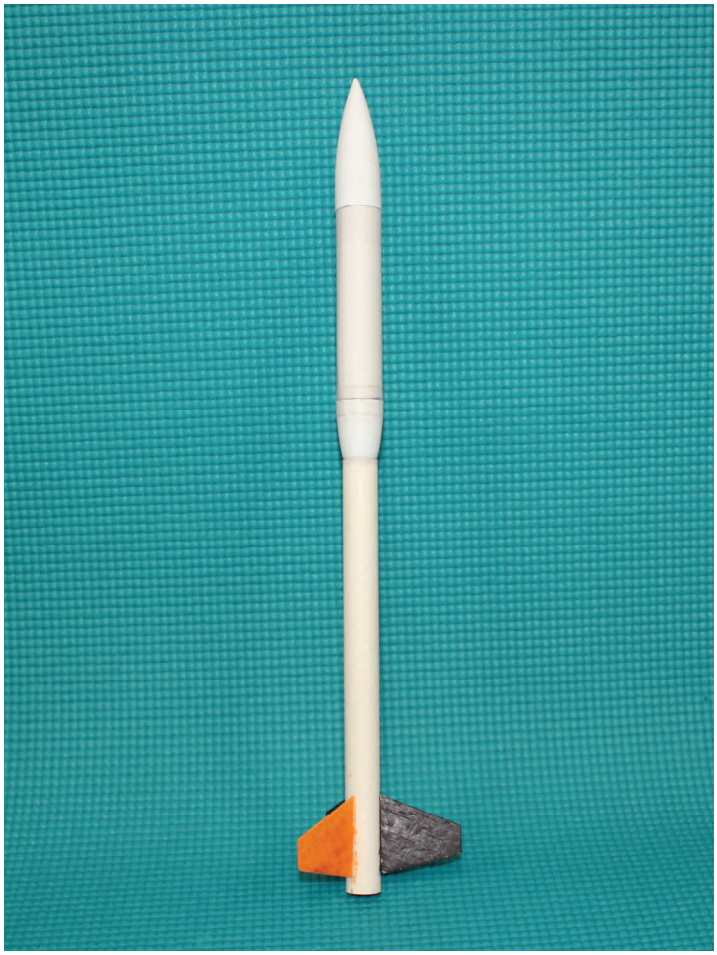
A Payload Altitude (altimeter) was a NRC event for the 2017-18 season. The goal is to loft a standard NAR payload and altimeter to the highest altitude using an A impulse. It was the first competition season using the new payload specs. The minimum diameter was reduced from 18mm to 17mm . This simplified the event significantly. The Standard Payload is filled with fine sand with a mass of no less than 28.0 grams and a minimum length of 60.0mm.

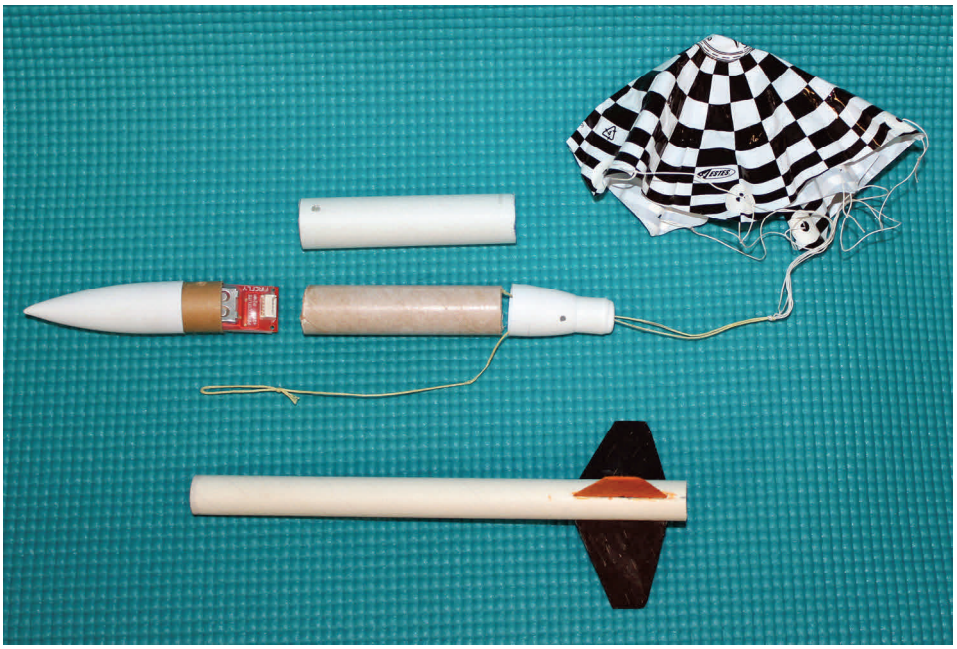
Rather than use a standard 18mm tube to house our payload we used a double wrap of vellum paper. Our initial design called for using a MicroPeak altimeter in the transition, we modified the model on the field at NARAM to use a FireFly by adding a 1” section of 18mm tube joiner and a longer vellum wrap.

The recovery harness is attached to the altimeter either above or below the payload depending on altimeter used. It is fed through the bottom of the transition to a small parachute. The model is allowed to recover in two parts. The booster section can tumble recover. When the payload section is assembled and verified everything is in proper alignment we used BlemDurm tape around the nose cone / vellum and transition / vellum joints. This is extremely stick tape that lays down well around curves and is very strong.

The booster section is standard white 13mm tubing. The fins are made from 1/32” balsa, though in the future I will be switching back to Waferglass.

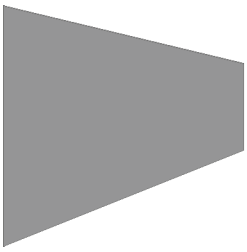
We launched the model from a tower with a 34” 13mm floating head piston. During the NRC season we qualified with a single flight of 160 meters. Our 3rd place flight at NARAM 60 was 158 meters. We have already flown a 2-stage version of this design for B Payload to 227 meters.





Parts List

1 – Apogee VFNC-18 Nose Cone
1 – 17mm NAR Payload
2 – Wraps of vellum paper around Payload
1 – 13mm to 18mm VF Transition
1 – 13mm Body Tube (8”)
3 – Fins from 1/16” balsa
1 – 6-8” Parachute
1 – MicroPeak or Firefly Altimeter
1 - 1” JT-20 Tube Joiner (if using FireFly)



Full Size Fin Template

THIS MONTH IN AEROSPACE HISTORY

Source—NASA Archives

60 Years Ago - 1958

September 17: NASA-ARPA Manned Satellite Panel established. The NASA/ Advanced Research Projects Agency Manned Satellite Panel was formed to draft plans for future manned spaceflight. Langley Research Center and Glenn (then Lewis) Research Center were the primary NASA centers involved.

September 30: Last day of NACA operations, Washington, D.C.

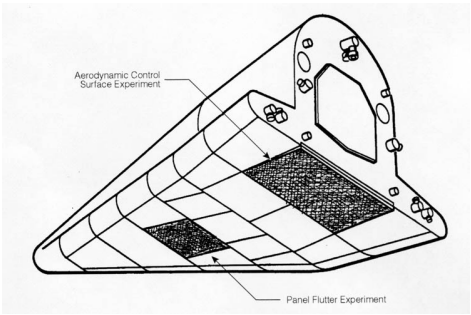
October 1: First day of NASA operations, Washington, D.C.

October 11: Pioneer 1 launched on a Thor Able from Cape Canaveral, Fla. A project inherited from the US Air Force, Pioneer 1 was the first spacecraft launched by the new NASA. An attempted lunar probe, the rocket failed at 70,700 ft.

October 15: X-15 rocket plane rollout, North American Aviation plant, Los Angeles, CA.

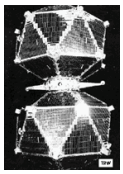
55 Years Ago - 1963

September 18: Asset 1 launched to an altitude of 39 miles aboard a Thor rocket from Cape Canaveral, Fla. The first successful suborbital lifting body flight, the Asset vehicle served as a proof-of-concept for the idea of a reusable winged spacecraft.



September 28: Transit V-B launched by Thor Ablestar from Vandenberg AFB. This Transit satellite was the first US satellite to be powered entirely by nuclear electric power (RTGs).

October 16: Vela 1 and 2 launched by Atlas Agena from Cape Canaveral, Fla. Sponsored by the US Air Force (USAF) and the Atomic Energy Commission (AEC), the satellites were designed to detect nuclear tests from orbit. Vela satellites were also used to warn NASA astronauts of potentially dangerous solar flare activity.



50 Years Ago - 1968

September 5: Zond 5 launched from Baikonur by a Proton K. An unmanned precursor for Soviet circumlunar cosmonaut program, it was the first Soviet circumlunar flight to successfully reenter Earth's atmosphere.

October 11-22: Apollo 7 launched aboard a Saturn 1B from KSC. Crew: Walter M. Schirra Jr., Donn F. Eisele, and Walter Cunningham. A flight of many firsts: first manned flight of Apollo Project, first test of Apollo Command/ Service Module in Earth orbit operated by astronauts in flight, first three member crew mission flown by the US, first launch from Launch Complex 34, first manned launch of a Saturn IB, first CSM rendezvous & station-keeping maneuvers, first flight of Block II Apollo spacecraft, first live network TV broadcast from space during a manned flight, first astronauts to come down with an illness during a space flight, first flight of the redesigned Apollo space suits, and first crew to drink coffee in space.

October 23: First HL-10 powered flight, piloted by Jerauld R. Gentry, DFRF, CA.

October 24: Last X-15 flight (No. 199), piloted by William H. Dana, DFRF, CA.

October 25: USSR launched Soyuz 2 aboard Soyuz rocket from Baikonur. Although this spacecraft was designated Soyuz 2, it was an unmanned test flight. On October 23 or 27, it served as a target vehicle for radio search and attempted docking by the manned Soyuz 3.

October 26: USSR launched Soyuz 3 aboard Soyuz rocket from Baikonur. Crew: Georgi T. Beregovoy. Soyuz 3 was a successful return to flight for Soyuz spacecraft

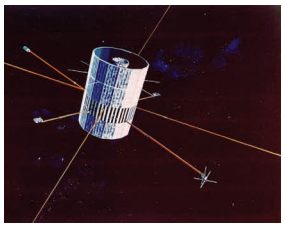
45 Years Ago – 1973

September 25: Skylab 2, with astronauts Bean, Garriott, and Lousma, splashes down in Pacific Ocean. Crew was retrieved by recovery ship USS New Orleans.

September 27: Soyuz 12 launched aboard a Soyuz rocket from Baikonur. Crew: Vasiliy G. Lazarev and Oleg G. Makarov. Test flight to check improvements made to the Soyuz craft following a fatal depressurization on Soyuz 11 in June 1971.

October 9: Cape Kennedy restored to its original name of Cape Canaveral by the Department of the Interior, acting on unanimous recommendation by an interagency committee of the Board of Geographic Names.

October 25: Explorer 50 (IMP 8 or J) launched aboard Delta from Cape Canaveral. Last of the Interplanetary Monitoring Platform (IMP) satellites designed to study Earth's magnetosphere and interplanetary radiation. Continued to return scientific data until October 7, 2006, which was a world duration record for spacecraft until surpassed by the Voyagers in 2010.



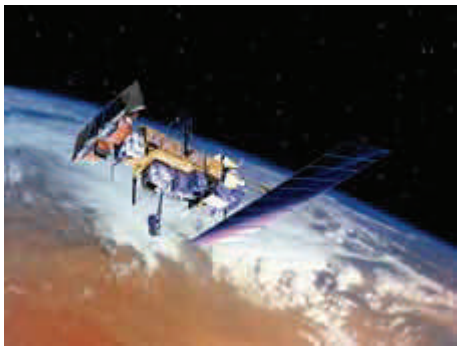
40 Years Ago – 1978

September 9: Venera 11 launched by Proton K from Baikonur. A combined Venus flyby and landing probe, Venera 11 would land successfully on Venus and return data.

September 14: Venera 12, twin to Venera 11, launched by Proton K from Baikonur.

Venera 12 would land successfully on Venus and return data. It is not known whether either lander photographed the surface.

October 13: TIROS N launched by Atlas F rocket from Vandenberg AFB. TIROS N was the first weather satellite to carry a suite of instruments to measure atmospheric properties, as well as cameras. Previous weather satellites focused on photographing cloud cover.



October 24: Nimbus 7/Cameo launched by Delta from Vandenberg AFB. Through its Total Ozone Mapping Spectrometer (TOMS), the satellite provided global evidence of ozone depletion in the 1980s.

35 Years Ago - 1983

September 26: Soyuz T-10-1(or T-10a) attempted launch aboard a Soyuz rocket from Baikonur. Rocket exploded on launch pad. The crew, Vladimir G. Titov and Gennady M. Strekalov, were pulled clear of the explosion by the launch escape system. They were the first people to have survived an off-the-pad abort.

October 10: Venera 15, a Soviet probe, entered orbit around Venus.

October 17: TDRS 1, launched on April 5, arrives at its planned orbit after five months of gradual maneuvering with its attitude thrusters.

30 Years Ago – 1988

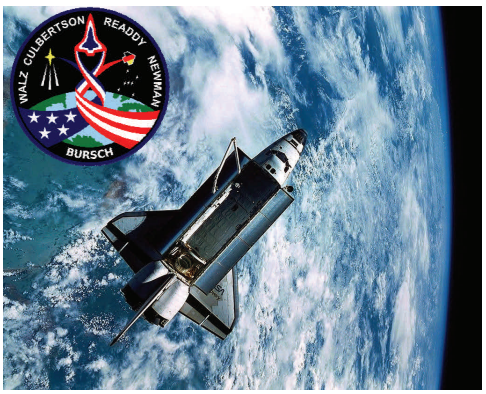
September 19: Ofeq 1 (Horizon 1) launched by Israel aboard a Shavit rocket from Palmahim, Israel. First space launch by Israel on Israeli soil.

September 24: NOAA 11 launched, on Atlas E from Vandenberg AFB. In addition to meteorological instruments, the satellite also carried a relay for search and rescue beacons.

September 29: STS-26 (Space Shuttle Discovery) launched from KSC. Space Shuttle return to flight after Challenger loss. TDRS 3 deployed successfully from cargo bay of orbiter Discovery. Landing on October 3, 1988 on Runway 17, Edwards AFB. Mission Duration: Four days, one hour.

25 Years Ago – 1993

September 12: STS-51 (Space Shuttle Discovery) launched from KSC. Deployment of two payloads: Advanced Communications Technology Satellite (ACTS) and Orbiting and Retrievable Far and Extreme Ultraviolet Spectrograph-Shuttle Pallet Satellite (OERFEUS-SPAS), first in series of ASTRO-SPAS astronomical missions. Landing September 22 at KSC. Mission Duration: nine days, 20 hours.



October 18: STS-58 (Space Shuttle Columbia) launched from KSC. Columbia 's crew performed a series of experiments to gain knowledge on how the human body adapts to the weightless environment of space.

25 Years Ago - 1992 - Continued

Landed on November 1 at Edwards AFB. Mission Duration: 14 days, 0 hours.

20 Years Ago – 1998

October 24: Deep Space 1 launched by Delta 2 from Cape Canaveral. A technology testbed, it was the first mission under NASA's New Millennium Program. Deep Space 1 was the first deep space use of an ion engine. On its extended mission, the probe encountered Comet Borrelly. The spacecraft was retired on December 18, 2001.

October 29: STS 95 (Space Shuttle Discovery) launched from KSC. Mission objectives included conducting a variety of science experiments in the pressurized SPACEHAB module and the deployment and retrieval of the Spartan free-flyer payload. STS- 95 returned John Glenn to orbit - 36 years, eight months and nine days after he became the first American to orbit the Earth. Landed November 7 at KSC. Mission duration: 8 days, 21 hours.

15 Years Ago – 2003

September 21: Galileo spacecraft ends its 14-year mission when it plunged into Jupiter's cloud deck at approximately 108,000 mph.

September 27: Small Missions for Advanced Research in Technology 1 (SMART 1) was launched by an Ariane 5 rocket from Kourou, French Guiana. SMART 1 was an ESA lunar mission to test solar electric propulsion technology and to ascertain the surface minerals on the Moon. ESA intentionally crashed the spacecraft into the moon at the end of the mission.

October 15: Shenzhou 5 launched by a Long March 2F rocket from Jiuquan Satellite Launch Center (JSLC) in northwestern China (PRC). The spacecraft name Shenzhou means Divine Vessel. The flight was the People's Republic of China's (PRC) first manned space mission. The astronaut, called in China a taikonaut, was Yang Liwei.

October 18: Soyuz TMA 3 was launched by a Soyuz-FG rocket from Baikonur.

10 Years Ago – 2008

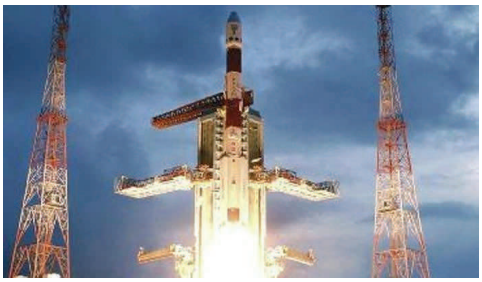
September 6: GeoEye 1 launched by a Delta 2 from Vandenberg AFB. The commercial imaging satellite with the highest resolution in the world at time of launch, the satellite was co-sponsored by the National Geospatial Intelligence Agency (NGIA) and Google.

September 28: Demosat launched by a Falcon 1 rocket from Omelek Island in the Kwajalein Atoll in the Pacific Ocean. It was the first successful launch of the rocket after several earlier failures. Demosat is a 165 kg aluminum dummy, also named Ratsat. It failed to separate from the second stage. The Falcon 1 rocket was a test vehicle for the larger Falcon 9 rocket

October 12: Soyuz-TMA 13 launched by a Soyuz-FG rocket from Baikonur.

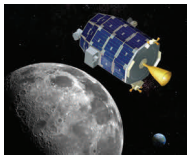
October 19: Interstellar Boundary EXplorer (IBEX) launched by a Pegasus-XL rocket riding under the belly of L-1011 cargo plane over Kwajalein Island. The heliospheric probe will monitor the energetic hydrogen and oxygen atoms arriving from the boundary between heliosphere and the interstellar medium.

October 22: Chandrayaan 1 launched by a PSLV-C11 (also called PSLV-XL) rocket from Sriharikota, India. It is the first Indian (ISRO) lunar orbiter. Its mission is to map the lunar surface.



5 Years Ago – 2013

September 6: Lunar Atmosphere and Dust Environment Explorer (LADEE) launched by a Minotaur V rocket from WFF. LADEE was designed to examine the lunar atmosphere and determine the effects airborne lunar dust may have for future lunar exploration missions.



September 18: Cygnus launched by Antares rocket from Wallops Flight Facility (WFF). The spacecraft was an ISS cargo carrying demonstration mission.

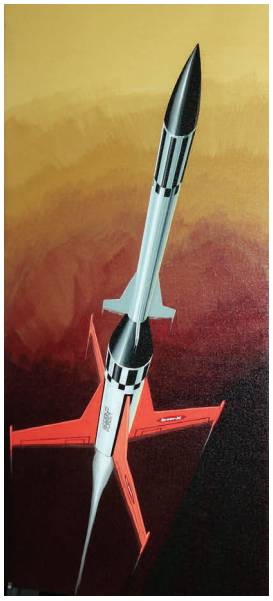
September 25: Soyuz TMA 10M launched aboard a Soyuz FG rocket from Baikonur.

More Photos From Maker Faire

More Photos From NARAM 60


Vern and Gleda Estes at the Rocketeer Reunion


Mark Bundick's Delta/Camroc clone

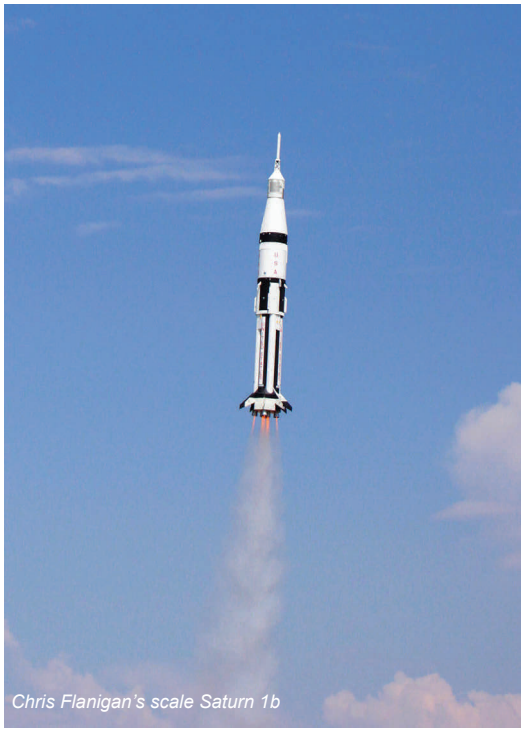



Roger Wilfong's "closest to the pad" strategy revealed


LOC Goblin drag race on the sport range

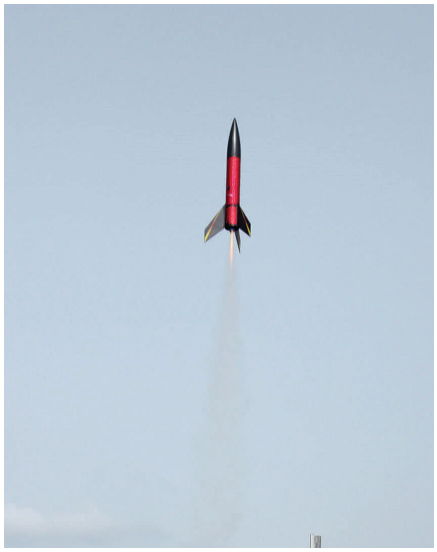

Ray King's all fiberglass 1st place C SuperRoc

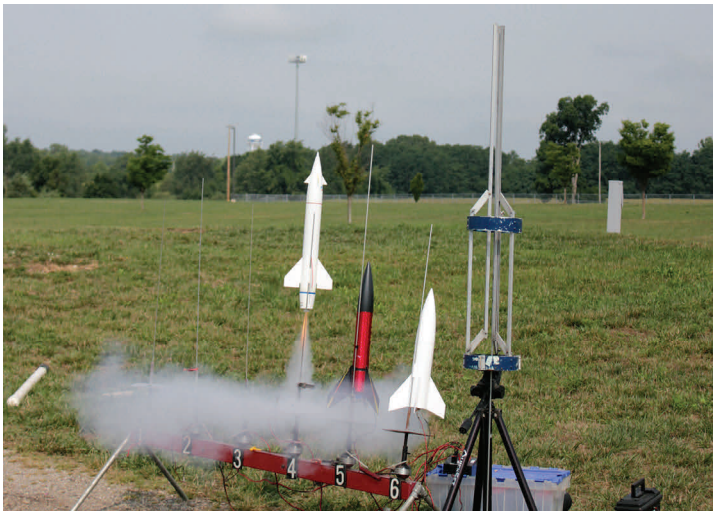
Even More Photos From NARAM 60

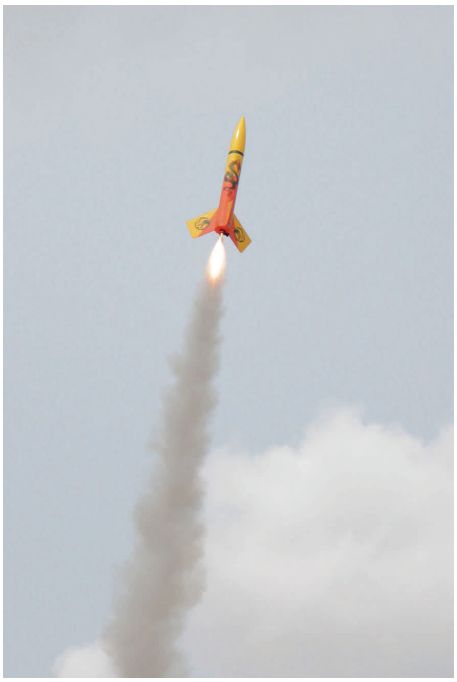


Chris Flanigan's scale Saturn 1b

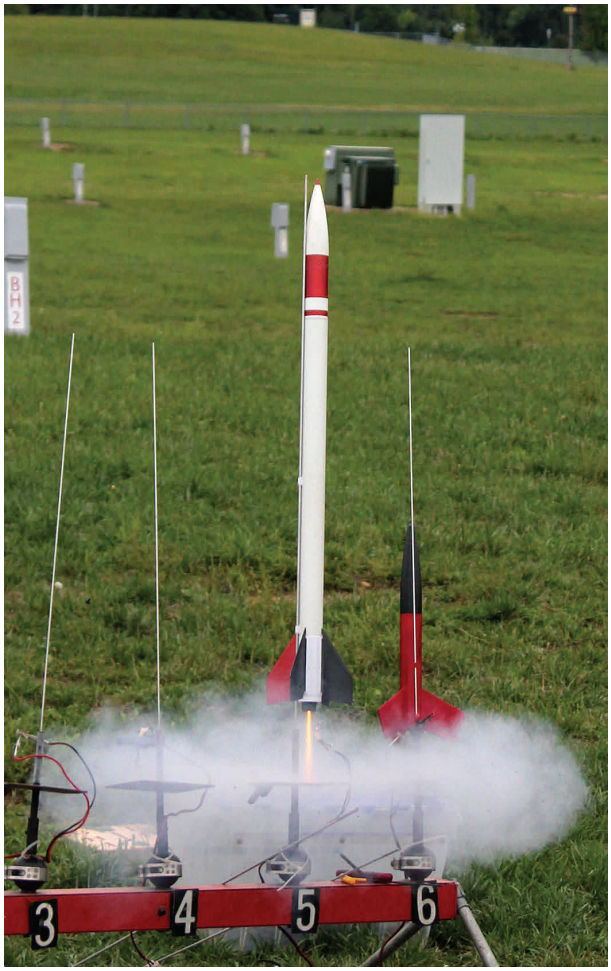
More Photos From the August Launch







More Photos From the September Launch



Latest News in Space Exploration

NASA

NASA introduced to the world on August 3, 2018 the first U.S. astronauts who will fly on American-made, commercial spacecraft to and from the International Space Station – an endeavor that will return astronaut launches to U.S. soil for the first time since the space shuttle's retirement in 2011.

"Today, our country's dreams of greater achievements in space are within our grasp," said NASA Administrator Jim Bridenstine. "This accomplished group of American astronauts, flying on new spacecraft developed by our commercial partners Boeing and SpaceX, will launch a new era of human spaceflight. Today's announcement advances our great American vision and strengthens the nation's leadership in space."

The agency assigned nine astronauts to crew the first test flight and mission of both Boeing's CST-100 Starliner and SpaceX's Crew Dragon. NASA has worked closely with the companies throughout design, development and testing to ensure the systems meet NASA's safety and performance requirements.

"The men and women we assign to these first flights are at the forefront of this exciting new time for human spaceflight," said Mark Geyer, director of NASA's Johnson Space Center in Houston. "It will be thrilling to see our astronauts lift off from American soil, and we can't wait to see them aboard the International Space Station."

From left to right: Sunita Williams, Josh Cassada, Eric Boe, Nicole Mann, Christopher Ferguson, Douglas Hurley, Robert Behnken, Michael Hopkins and Victor Glover.

Starliner Test Flight Astronauts

Eric Boe was born in Miami and grew up in Atlanta. He came to NASA from the Air Force, where he was a fighter pilot and test pilot and rose to the rank of colonel. He was selected as an astronaut in 2000 and piloted space shuttle Endeavour for the STS-126 mission and Discovery on its final flight, STS-133.

Christopher Ferguson is a native of Philadelphia. He is a retired Navy captain, who piloted space shuttle Atlantis for STS-115, and commanded shuttle Endeavour on STS-126 and Atlantis for the final flight of the Space Shuttle Program, STS-135. He retired from NASA in 2011 and has been an integral part of Boeing's CST-100 Starliner program.

Nicole Aunapu Mann is a California native and a lieutenant colonel in the Marine Corps. She is an F/A-18 test pilot with more than 2,500 flight hours in more than 25 aircraft. Mann was selected as an astronaut in 2013. This will be her first trip to space.

Boeing's Starliner will launch aboard a United Launch Alliance (ULA) Atlas V rocket from Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida.

Crew Dragon Test Flight Astronauts

Robert Behnken is from St. Ann, Missouri. He has a doctorate in engineering and is a flight test engineer and colonel in the Air Force. He joined the astronaut corps in 2000 and flew aboard space shuttle Endeavour twice, for the STS-123 and STS-130 missions, during which he performed six spacewalks totaling more than 37 hours.

Douglas Hurley calls Apalachin, New York, his hometown. He was a test pilot and colonel in the Marine Corps before coming to NASA in 2000 to become an astronaut. He piloted space shuttle Endeavor for STS-127 and Atlantis for STS-135, the final space shuttle mission.

SpaceX's Crew Dragon will launch aboard a SpaceX Falcon 9 rocket from Launch Complex 39A at Kennedy Space Center in Florida.

After each company successfully completes its crewed test flight, NASA will begin the final process of certifying that spacecraft and systems for regular crew missions to the space station. The agency has contracted six missions, with as many as four astronauts per mission, for each company.

Starliner First Mission Astronauts

Josh Cassada grew up in White Bear Lake, Minnesota. He is a Navy commander and test pilot with more than 3,500 flight hours in more than 40 aircraft. He was selected as an astronaut in 2013. This will be his first spaceflight.

Sunita Williams was born in Euclid, Ohio, but considers Needham, Massachusetts, her hometown. Williams came to NASA from the Navy, where she was a test pilot and rose to the rank of captain before retiring. Since her selection as an astronaut in 1998, she has spent 322 days aboard the International Space Station for Expeditions 14/15 and Expeditions 32/33, commanded the space station and performed seven spacewalks.

Crew Dragon First Mission Astronauts

Victor Glover is from Pomona, California. He is a Navy commander, aviator and test pilot with almost 3,000 hours flying more than 40 different aircraft. He made 400 carrier landings and flew 24 combat missions. He was selected as part of the 2013 astronaut candidate class, and this will be his first spaceflight.

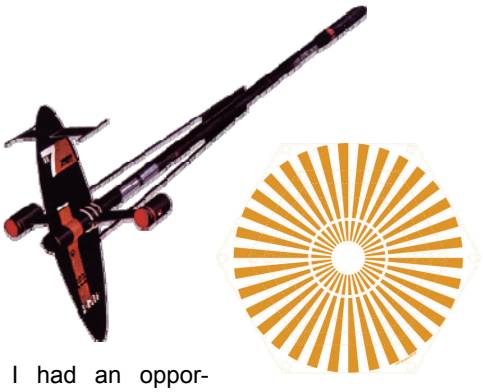
Michael Hopkins was born in Lebanon, Missouri, and grew up on a farm near Richland, Missouri. He is a colonel in the Air Force, where he was a flight test engineer before being selected as a NASA astronaut in 2009. He has spent 166 days on the International Space Station for Expeditions 37/38, and conducted two spacewalks.

NASA's continuous presence on the space station for almost 18 years has enabled technology demonstrations and research in biology and biotechnology, Earth and space science, human health, physical sciences. This research has led to dramatic improvements in technology, infrastructure and medicine, and thousands of spinoff technologies that have improved quality of life here on Earth.

The new spaceflight capability provided by Boeing and SpaceX will allow NASA to maintain a crew of seven astronauts on the space station, thereby maximizing scientific research that leads to breakthroughs and also aids in understanding and mitigating the challenges of long-duration spaceflight.

NASA's Commercial Crew Program is facilitating the development of a U.S. commercial crew space transportation capability with the goal of achieving safe, reliable and cost-effective access to and from the International Space Station and low-Earth orbit. The public-private partnerships fostered by the program will stimulate growth in a robust commercial space industry and spark life-changing innovations for future generations.

eRockets / Semroc -



I had an opportunity to chat with Randy Boadway at NARAM 60 and he slipped me an exclusive on the future release of a new Semroc retro-repro by the end of year. I'm happy to announce we can expect to see the USS Andromeda sometime in December. In addition to the usual upgrades of laser cut parts and Kevlar shockline, the kit will also utilize thicker walled ST-7 and ST-9 Centuri tubing. This will create a much stronger rocket that will better resist crimping and warping

eRockets released a new Apollo-like parachute that can be cut to 12", 15", 18", and 24". They will be available separately and also come with all Semroc kits

LOC Precision -

More and more new releases from LOC!

4" Patriot

4" Black Brant X

2.26" Terrier style booster

Coming Soon: 2.26" IQSY Tomahawk, Iris, and Black Brant X

Estes Industries LLC -

The Sterling Silver kit is now available. It is a 22" tall minimum diameter 18mm 2-stager that retails for $14.99 Also available now is the re-release of the Explorer Aquarius listing at $38.99. The scale Little Joe is due for release in October.

Our members in the field...

Trevor Harrison and Steve Kristal shooting for altitude records

Scott Miller, Dale Hodgson, and Tony Haga at the September Sport Launch