The COS-Rocketeer

The Official Journal of the Colorado Springs Rocket Society (COSROCS)

NAR Section #515

2000 LAC Award Winner!

Volume 11, Issue 6 November/December 2000

Tom Thomas poses with his scratch-built X-wing Fighter
(Photo by Nadine Kinney)

Space Trivia: A space vehicle needs to be moving at a rate of at least 7 miles per second to escape Earth's gravitational pull. That's about the same as going from New York to Philadelphia in 20 seconds!

Inside this issue:

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The COS-Rocketeer is the official journal of the Colorado Springs Rocket Society (COSROCS), NAR section #515. This journal, published bi-monthly by members of COSROCS, serves to provide information on all aspects of rocketry. Articles, rocket plans, and photos are always welcome. Items for publication should be submitted to the editor:

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COSROCS' membership dues are $20.00 per year per family. Junior memberships (under age 18) cost $5.00 per year. Checks should be made payable to COSROCS. Applications and payment should be mailed to the following address:

COSROCS
P.O. Box 15896
Colorado Springs, CO 80935-5896

The COSROCS phone number is (719)575-0060

If you have access to the Internet, COSROCS has a web site and a listserv. The COSROCS web site is:

http://www.cosrocs.org.

The e-mail address for the listserv is cosrocs@egroups.com. To subscribe to the listserv, go to

http://www.egroups.com/subscribe/cosrocs

COSROCS is a family-oriented club. Everyone is always welcome at our launches and meetings. Please join us. You'll have a blast!

COSROCS Officers

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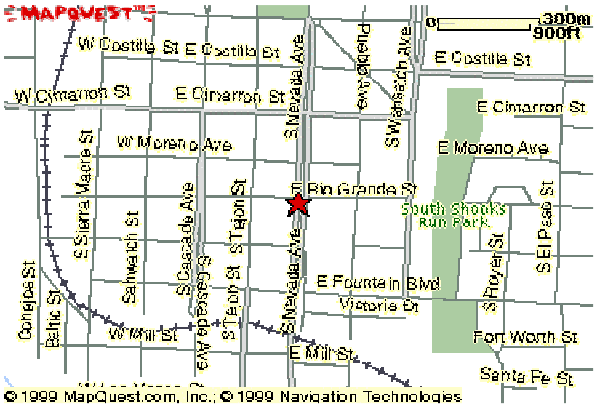
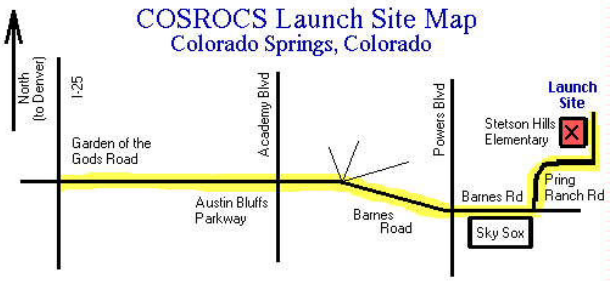
Launches and Meetings

COSROCS holds a business meeting on the second Wednesday of every month from 7:00PM until 9:00PM. The meeting location is the Gold Hills Police Station at 705 South Nevada Ave., Colorado Springs.



COSROCS holds a sport launch on the first Saturday of each month, weather permitting. The launch is held at the Stetson Hills Elementary School, located at 4910 Jedediah Smith Rd. in Colorado Springs. The launches begin at 9:00AM and last until approximately 12:00 noon. Our launches are free and open to the public. A one pound weight limit is imposed for rockets launched at Stetson Hills.



The Nagging Editor

By Greg Elder

It's hard to believe that this is the 6th issue of the COS-Rocketeer that I have edited and the year is almost over. My how time flies. The one goal I did not achieve as editor was publishing plans of rockets designed by COSROCS members. I hope to achieve that goal next year by sponsoring a COSROCS design contest. With Winter weather fast approaching, now is a good time for designing and building rockets. More information about the design contest appears later in this issue.

Once again I am indebted to the members who have submitted articles and photos for our current issue. A "tip of the hat" to Stan Huyge, Nadine Kinney, Dave Jolly, Warren Layfield, Dave Nauer, and Greg Sandras.

Section News

Safety First. Please remember that due to the number of houses in the Stetson Hills area, we as a section have set a limit on what we may fly there. Specifically, we limit ourselves to model rockets. This means all rockets we fly at Stetson Hills may weight no more than a pound. (This is the entire weight of the rocket, including motor and recovery system.) According to the vendor literature, all NCR rockets weigh one pound or more. (The Big Brute and Interceptor-G weigh one pound without motor. All other NCR rockets weigh more than a pound.) The following Aereotech rockets weigh over a pound—Astrobee, HV Arcas, Mirage, Strong Arm, and G Force. We do have a scale at out launches in order to weigh rockets that appear close to the weight limit.

In addition, the largest class motor to be flown at Stetson Hills is F. It also goes without saying that we fly certified motors only. Finally, keep in mind that safety is everybody's responsibility. Even though we have an RSO, if you see something that appears to be unsafe, please bring it to the attention of the RSO to clarify the situation. Until we locate a new launch site near us for flying mid-power rockets, we must be content with driving to Hartsel for launching the larger birds.

Christmas Party and Elections. Our annual Christmas party will be held either December 6th or December 13th. This will be discussed at our November meeting. The location will probably be the Bittinger's house again. Final details will be posted to our listserv for those unable to make the meeting. We will ask those attending the party to bring something to share with everyone—drinks, chips, cookies, cakes, salad, etc. At the party, we hold elections for next year's club officers. If you are interested in running for a position, please inform a current club officer. Hope to see many of you there!

T-Shirts. Nadine has asked for ideas for club t-shirts. If you have a suggestion for a new t-shirt slogan, or if you really like one of our existing ones, please let Nadine know. Here are the slogans we have had on COSROCS t-shirts in the past: "In Thrust We Trust," "As a Matter of Fact, I am a Rocket Scientist," "Just Launch It," and "Peace, Love, and Rockets."

August Launch Report

By Warren Layfield

Name	Rocket	Motor
Cory Rucker	Mosquito	A3-4T
Byron Rhodes	Mosquito	A3-4T
Eric Threet	AMRAAM	B6-2
Pete Gerrard	Heatseeker	A8-3
Ryan Davis	Hot Shot	B6-4
Josh Voitl	Flash	C6-5
Zack Ellis	Rattler-7	B4-4
Mitchell Sexton	Scorpion	C6-5
Kyle Rucker	Death Star	C6-3
Jeremy Harsh	Mosquito	1/2A3-4T
Katie Haux	Manta	B6-4
Cameron Honner	Quark	A10-3T
Richie DeMark	Alpha III	B4-4
Nick Rucker	Twister	A8-3
Eric James	Exo-Skell	C5-3
Brian Thayer	Sea Hawk	D12-5
Stan Huyge	Sea Hawk	D20-5
Cody Stotenberg	Mosquito	A3-4T
Greg Elder	Tinee	1/2A3-2T
Brandon Richard	Wildfire	A8-3
Jaynie Fraser	Matra	D12-5
Pete Gerrard	Heatseeker	A8-3
Joshua Johnson	Mosquito	1/2A3-4T
Josh Voitl	Flash	C6-5
Zach Ellis	Rattler-7	B4-4
Blake Fraser	Aurora	B4-4
Eric Threet	AMRAAM	B6-2
Jeff Proffitt	Mini Rotaroc	B2-3
Matt Huyge	Outlaw	1/4A3-3
Davis Harsh	Alpha III	C6-7
Sean Haux	Flash	C6-5
Cameron Honner	Quark	A10-3T
Michell Sexton	Scorpion	C6-5
Brandon Richard	Gold Star	A8-3
Dave Virga	Solar Venture	D12-7
Ryan Davis	Hot Shot	B6-4
Blake Fraser	Big Bertha	C5-3
Eric Threet	AMRAAM	B6-2
Zack Ellis	Rattler-7	C6-7
Eric James	Flash	C6-5
Matt Huyge	Outlaw	1/4A3-3T
Jeff Coons	X-18B	E15-7
Greg Elder	Warhorse	D12-3
Buzz Mast	Super Nova	D12-5
Mitch Sexton	Scorpion	C6-5
Jaynie Fraser	Matra	D12-5
Bob Haux	Flash	C6-3
Alex Virga	Rattler-7	B6-4
Edison Bruce	Missile Command	B6-2
James Hitchens	Shadow	E28-4

Boost-Glider Techniques—Tissuing

By Stan Huyge

Covering your boost-glider with Japanese tissue is a great way to improve its strength and visibility at the same time with very little weight penalty. To accomplish the task, you will need some nitrate dope, thinner, a stiff brush, and some Japanese tissue. I use a cheap one inch wide brush. A stiff brush will help you get a nice even coat of dope applied to the glider. I choose tissue colors for gliders based on looks and visibility. A dark color on the underside of the glider will improve visibility when the glider is flying. A bright color on the top of the glider will help you find it once it has landed.

Mix some nitrate dope 50:50 with thinner. This is what you'll be using so mix enough for three coats for your glider. By thinning the dope, we add less weight because more of the mixture that is put on the

glider will evaporate off. Brush on a coat of the thinned dope and let it dry. You will want to do this outside because the fumes are very toxic and flammable. Let the glider dry for a few hours and give it a light sanding with some 220 or 320 wet-or-dry sandpaper used dry. Just sand enough to smooth the surface off. Then give the glider another coat of the thinned dope mixture and let this dry too. Your glider is now ready to have the tissue applied.

Cut a piece of Japanese tissue oversize by at least 1/2 inch in all directions. Lay the tissue over the piece to be covered and brush some nitrate dope thinner over the tissue. The thinner will loosen the dope that is already on the surface and the tissue will adhere to the balsa nicely. I press the tissue down with my thumbs and make sure that the tissue is smooth and attached to the entire surface that I'm covering. After the tissue is stuck to the balsa on the entire bottom of the wing, use a razor blade to trim the tissue as neatly as possible around the edges of the part. If you have some tissue that won't stick, put a little bit of full-strength dope on it and stick it down.

When I cover an airplane with tissue, I like to cover the bottom of the wing first. This gives a nicer finished look because the seam should be on the bottom of the wing. I like to leave my seams exactly at the leading and trailing edges. When this is done properly, it's very difficult to see the seams. When you're done covering the glider with tissue, give it one more coat of 50:50 dope/thinner to give the glider a nice gloss and to help protect it from the elements.

Winterfest X Announced

By David J. Nauer

COSROCS will hold its eleventh winter contest on the 6th of January at the start of the new millennium. The contest will be a NAR Sanctioned open event featuring several events similar to those planned for NARAM-43 this year, although we will not hold any altitude events. We have four sanctioned events and one fun event, all of which will count towards the contest championship.

Winterfest has a long tradition going back to the early days of the club. We have experienced wonderful summer-like weather, and in other years have gone for months trying to reschedule the event. If we are unlucky we have stand-by dates of Saturday 1/20/01 and 2/3/01 as alternate contest times. The contest will start at 9:00AM and go through 2:00PM with no extensions. The goal is to fly the required events in that time window under possible poor flying conditions. Here is a brief description of each event:

A Streamer Multi-Round (12)

This event features a maximum flight time of two minutes. Any time on a single flight above this will not be recorded or credited. The goal is to use no more than two models to fly three flights up to that maximum time – the idea is to prove consistency while attaining a difficult but attainable flight time goal. There is no return requirement for any flight, but only two models can be used so some type of return is implicit. If a tie exists after three flights, a fly-off between those tied will be conducted using the remaining models – the fly-off must be conducted with one of the two original models. The winner will be the contestant attaining the best total of three flights. All normal duration rules stand, including the requirements for streamer size, the absolute that the rocket remains in a single piece, and for the rocket to be recovered by a deployed streamer.

C Egglofting Duration (16)

Although NARAM will feature an altitude event, we simply cannot run altitude contests in January – so we've decided to make this a duration event. The contestant is allowed two flights, but only the better of those two flights will be used to determine the winner. The Egg must be recovered intact with no cracks, and must be opened at the contest table. The rocket cannot be caught, and must be returned.

1/2 A Boost Glider (17)

This event combines the total times of two flights. The rocket must feature at least one part that performs a glide, and only that part will be timed. The contestant should fly two flights, and the totals are added together. Highest total time will win. Other parts, which are not part of the glider, must be recovered safely, and ejected engines are not allowed.

1/4A Super Roc Duration (13)

Super Roc is often a bizarre event with extremely long rockets flopping around in the sky. This impulse reduces the strangeness of the event, because rockets between 25cm and 50cm are allowed. Any rocket with a length beyond 50cm can be flown, but credit for 50cm only is given. Note that these are relatively short rockets, BUT they must be flown on 1/4A impulse engines! The total of the rocket's length in centimeters times the duration in time are MULTIPLIED together for a point total. Two flights are allowed, and the total of the two flights will be used to determine the winner. For this short of a rocket your best strategy is to build as light of a 50cm rocket as possible.

Fun Event: Micro Maxx Streamer Duration

This event will feature the micro MAX motor system introduced by Quest, which is about 1/3 of a 1/4A motor and very small in diameter. The successful competitor will fly a micro MAX rocket recovered by ANY TYPE of streamer for the best duration. The streamer must come out of the rocket, and it doesn't have to meet the formal Pink Book requirements for a streamer.

This contest should be fun because of a mix of easy and subtle challenges, ranging from a low impulse glider through a multi-round event in the winter. I hope to see you there. If you have any questions about this event please give David Nauer a call at 719-487-8737. Keep flying!

November Space History

Nov 6, 1966: Lunar Orbiter 2 was launched. It was the second of five robotic lunar orbiters launched by the U.S. to survey the Moon, and in particular, potential Apollo landing sites.

Nov 12, 1966: Astronauts on board Gemini 12, the last flight of the Gemini program, viewed a Solar eclipse from space.

Nov 12, 1980: Voyager 1 flew past Saturn.

Nov 13, 1971: Mariner 9 became the first spacecraft to go into orbit around Mars, and eventually map the entire surface of the planet.

Nov 19, 1969: Apollo 12 made the second human lunar landing.

Nov 30, 1954: A 10-pound meteorite punched a hole in the roof of a house in Alabama and hit a sleeping Elizabeth Hodges. She sustained only minor injuries. This is one of the only recorded instances of a meteorite hitting a human.

NARAM 2000 Sport Range

By Greg Sandras

This was my first NARAM, and what an experience it was! I tried to go into it head first by being part of the committee. Most of my work didn't really start until July 29th, the start of NARAM. I have met a lot of dedicated and friendly people while I was on the committee and I fully understand why everyone loves the NARAM and why they go year, after year, after year…. I would like to say thanks to all who let me be apart of the committee!

I arrived early Saturday morning around 6 a.m. I didn't want to be late on my first day. What a beautiful morning! No wind, no clouds. It was a perfect day to start NARAM. By 6:15 am though, the winds had kicked up around 10 mph with gusts to 15 mph. A number of us had showed up to set up the sport range. CRASH was familiar with their equipment, while COSROCS was familiar with theirs. It took us a little while to figure out how to set up each other's equipment. Inevitably, the COSROCS equipment was set up using the individual wires to each pad instead of the single cable going out to the rack. This would eventually cause confusion on the COSROCS pads, thinking the igniter clips where not working. It would be two days before we realized people where using the clips for the single cable which were also attached to the rack, instead of the ones attached to the individual wires.

The sport launch started about an hour late, due to the fact that everyone working the sport launch was still learning how and where to put everything together. I was busy running around when the first rocket of NARAM was launched. I don't know who launched the rocket. Even though there was a 'High Power" restriction, this did not stop people from launching quite a few "Mid Power" motors. There were only 2 Level 1 Certification attempts on Saturday. Dave Jolly went for his Level 1 Certification with a LOC IV using an H128-M motor. This was the first of 7 successful Certification flights throughout the week. I launched my ¼ scale NCR Patriot for my third attempt at a level 1 Certification (after two failures May 20th). I used the new Aerotech Igniter. No special clip required. At the time of NARAM, these igniters were hand dipped. In less than a ½ second, the motor roared to life. It was a beautiful flight! The "Nadine" built black and red 48" parachute could be seen clearly in the blue sky. Third time was a charm! Even though it was windy, people didn't stop from launching a total of 204 times that day. Ken Busse had the most launches with 12. There were 15 G and 5 H motors used Saturday with Dwight Kimsey using the largest, and H238-L in a scratch Silver Bullet.

Sunday was another beautiful day. There was only a slight breeze. The sport range was ready on time. John Barrett's Rocket R&D Jayhawk using a F25-4 let everyone know the range was open. This was the busiest day for the sport range! There were 304 launches with John Barrett and Dave Nauer having the most launches, each with 10. John Barrett used 10 different rockets, while Dave was testing the durability of his Estes Astrocam with 10 launches. Eric Amundsen had his successful Level 1 Certification using a LOC Maveric LI on a H128-M. James Hitchens used a scratch built rocket using an H128-M for his successful Level 1 Certification. Glen Solverf also had a successful Level 1 Certification with an Aerotech Astrobee D with a H128-L. There were 30 Gs and 15 H motors with Bill Spadaforz, Dwight Kimsey, and Greg Lyzenga using H238s. By the end of the day, the sport range personnel realized why there were so many failed launches on the COSROCS pads. People were using the wrong clips.

Monday was the start of the competition and the effects of the fires in New Mexico could be seen (or should I say not seen?) in the sky. The haze was obscuring higher altitude rockets. Everything was running smoothly except for all the failed launches. We had taped up all the non-operational clips with a lot of electrical tape, only for people to remove the tape. John Barrett started the day with a THOY Wren using an E15-4. He also had the record with 9 launches. Perry Mefford's PML Excaliber with a H128-M earned Perry a Level 1 Certification. 6 G and 6 H motors lit the sky today. Steve Piette used a H180-S in his NCR Phantom 4000. The total launches for the day was 119. People's nerves were starting to get a little short with all the problems with the clips. Something had to be done.

Tuesday morning I decided to end the failed launches once and for all. I removed the 10 individual wires to Pad A and used the single cable. There! No more problems, right? Wrong! A couple of connectors in the box that connected the cable to the launch pad had broken and could only be repaired with a soldering iron. Unfortunately it took us most of the day to locate and fix the problem.

If the Tallahassee Volunteer Fire Dept. coffee didn't wake people up Tuesday morning, John Barrett's Aerotech G-Force with a G80-4 did. The entire week had been very dry and the worry of a fire was always on our minds. Today was the first and only fire the sport range had. A rocket (type and owner unknown) left the pad and catoed (an E or F motor) 10 feet above the pad and landed a few feet away from the pad. Within seconds a sport range worker was pouring water from a 5-gallon water jug on the burning rocket with two other range personnel standing next to him with another water jug and a fire bottle. Only the rocket burned. The dry grass was intact! A few minutes after the excitement had subsided, the launching continued.

By now, people have been to the vendors and were completing some of the rockets they had bought over the weekend. There were two insane launches today. Jeff Coons launched a modified Estes Mini Mars with a D12-3! One second it was on the pad, a split second later, it was heading south at the blink of an eye! Greg Simonsen was testing the laws of physics, again. He stuffed a G55-15 in a Custom Razor. Even at 5 frames/second from my camera, all you could see was a few sparks just before the motor ignited, and 1/5 of a second later all you saw was smoke on the pad! It took Greg a couple of hours to locate the rocket. The decals were the only things damaged. Was it from the heat of the motor or the velocity?

Care to take a guess who was the first to launch on Wednesday? It was John Barrett using his beautiful Aerotech G-Force again with a G80-4. Greg Simonsen came back with his stuffed Razor only to never see it again. I launched a PML Cirrus Dart with a H128-M. The Dart disappeared in the haze from the fires in New Mexico. Everyone heard the loud pop from the ejection charge. I spent three hours looking for it, but couldn't find it until I started looking for someone else's missing rocket. John Barrett won again with7 launches for the day—adding to the total of 115 launches. 14 G and 7 H motors were used today. Bill Spadaforz and Russel Payne launched their Scratch No Mass and scratch Delta Red respectively on H238s.

John Barrett was 10 minutes late Thursday morning so Preston Hebert and Jeff Polzin of the CAP were the first to launch with Aerotech Mustangs. They both used F20-7s. Like father, like son, John Simonsen decided to test the laws of physics. He launched an Estes AMRAAM with a F24-7. Now that's how a missile is supposed to move! Craig Saunders put a G55-15 in a Rocket Vision Mach Buster. I hope he found it. The CAP was out in force today with 13 Aerotech Mustang launches, all using F20-7s. Dave Williams still had more launches, 14 in fact. There were 13 G and 8 H motors used. Brian Thaye launched a NCR Phantom 4000 with a H238-L and Glen Overby with a scratch Aerobee 150 with a H238-M. There were 147 launches for the day.

John Barrett started the last day of NARAM with the Aerotech G-force using the G80-4T. Even though it was only half a day, there were still 87 launches—the most coming from John Barrett, Randall Red, and Willie Alston, all with 5. The highlight of the day was Vernon Estes' launch of his original Big Bertha. John Barrett had a beautiful launch from his NCR Phantom 4000 with 4 D-12-5s! Another highlight was the Quest Micro Max launch. Depending on the age, a person had to launch a Micro Max rocket of their choice outside of a 50' circle and have the rocket land on or near a prize that was inside the circle. Thanks to Quest's generous donation of prizes, every child that participated ended up with a prize! There was a total of 91 Micro Max launches. There were 11 G launches and Frank Bittenger was the only H launch for the day. He used an H128-M in his LOC H-45 to get his Level 1 Certification. Way to go Frank!

All in all, there was a total of 1201 launches with John Barrett launching 57. The most popular motor was the C6 with 250. Of those, Dave Nauer used 21—17 were for the Astrocam! I hope Dave got some good pictures! The most popular rocket manufacturer was Estes with 490 launches. The most popular rocket was the Astrocam with 31. Dave Nauer stacked the deck in the Astrocam's favor with the 17 launches coming from him. The Fatboy was the other most popular rocket with 27 launches.

This was a very enjoyable experience. I would like to thank everyone who managed, helped, launched, or loitered around to the sport range to make this experience one to remember! I would like to thank Mr. and Mrs. Estes for their hospitality, their smiles, and the use of their land! The Tallahassee Volunteer Fire Dept needs to be thanked again for their wonderful food and coffee. Thanks also to Aerotech's donation of H128 motors and igniters for the Level 1 Certifications, and Quest's huge donation of Micro Max silos, and all the other sponsors, vendors, and participants. Thanks again for the experience!!

PML Announces Thrusters

Public Missiles Ltd. is proud to announce their line of Thrusters™ single-use 29mm motors and Rapidfire™ igniters! PML now provides "one-stop-shopping" for the midpower rocketeer with kits, igniters, and motors all in one place. They have combined the safety and reliability of the Aerotech rocket motor technology and the convenience and customer service of PML. They currently offer five F & G motors and delays, available singly or in three-packs, the F50-6T, G40-4W, G40-7W, G80-4T, G80-7T. Visit the new rocket motors page in the PML webstore for more information and to find out about the PML Rapidfire igniters included with each Thruster. (http://www.publicmissiles.com)

Kit Review: Binder Design IRIS

By Dave Jolly

In the process of getting back into rocketry, I started looking for a larger rocket to supplement my tried and true LOC IV at the high end of my fleet. Being something of a scale buff, I chose the Binder (Sign and) Design IRIS, based on a 4 inch body tube.

I ordered the kit online from Discount Hobby Center, who provided an excellent deal, but not without a small glitch. I had ordered the 38mm motor mount (I do want to see the rocket again!) but received the 54mm mount with a 29-39mm adapter. After a quick call and friendly chat speckled with good advice (excellent customer service there!), I was swiftly shipped the correct 38-54mm mount adapter and was on my way.

The kit is pretty conventional in design and components with a couple of exceptions. The 3 motor mount centering rings are made of stiff 1.8 in fiberboard (much like you find on pegboards) versus the more typical plywood. As I planned to do significant structural beefing up in that area anyway, it wasn't a concern. The material seems strong enough, and obviously has a successful history in the Binder rocket lineup. Additionally, the body tubes are not pre-slotted, but are clearly marked to assist the builder in cutting the slots. This would come back to bite me during construction.

I assembled the motor mount with the forward 2 centering rings and added basswood stiffeners between the rings to add some strength and gluing surfaces. Instead of simply attaching the shock cord mount eyebolt to the front centering ring, I chose to use an allthread through all three rings. (did I mention that weight isn't a factor for me??) Copious amounts of epoxy were used in the Motor mount construction, as well as some fiberglass cloth to add further strength to the rings.

This set aside, I went to cut the fin slots. Carefully cutting according to the lines in the body tube, this was fairly straightforward using my trusty Zona saw. I then test fitted the motor mount and fins, but something didn't look right…a significant misalignment somewhere. I double checked that all four fin slots were to the right of the fin lines marked on the tube, then realized the problem. One of the fin lines was mismarked by 3/16 of an inch. Had I placed the fin on the "wrong" side of that line, it would have fit perfectly. A careful measurement of the distance between the guidelines confirmed the error. Had I done this prior to cutting, I would have saver myself a lot of additional work and consternation, but, being a trusting soul, I didn't. Word to the wise…measure the guidelines before cutting!! Cutting my own slots was no big deal, but I expected the lines to be correct.

After widening the errant slot, I went on to install the motor mount (without the rear centering ring), then the installed the fins. The fins needed a fair amount of shaping, as the fins were not completely squared up. I C-clamped them together, cut and sanded furiously to get the desired 4 identical fins. I then sanded them individually and rounded the leading edges. Again, lots of epoxy, fiberglass, wood sticks and the like were used in the motor mount area. I wanted the attachment points on the motor mount tube and the body tube to be strong. I added some additional wood strips to the large gap in the fin area caused by my "double wide" slot. Lots of epoxy on the outside fillet rendered this snafu invisible. After all the reinforcement, the rear centering ring was installed and the kit was taking shape.

My kit came with a couple of spare parts—additional "IRIS" marking and a spare payload bay bulkhead. The instructions called for one bulkhead in the aft end of the payload tube coupler. I added the spare at the front end of the coupler, both bulkheads being reinforced with glass/epoxy. If I do go with big motors, I will need to add vent holes here to avoid any over pressurization problems.

The all-thread extended a few inches below the body tube allowing for a rear anchoring washer and bolt as well as a motor anchor (1/16" brass strip). The long nylon strap recovery bridle is attached to the forward eyebolt using a quicklink. The two launch lugs were attached, all seams filleted (generously) and the model was prepped for painting. I chose the black and white finned scheme and used Krylon throughout, with a satin overcoat.

The press-on-decals were something of a disappointment. While absolutely perfect in sharpness and appearance, they are significantly oversized and would probably fit nicely on a 7 inch body tube version. I used them anyway and the kit looks nice, albeit the markings are not quite scale. This is a sport scale model, and comes in about 12 inches (3 scale feet) short, with the fins being a bit off as well. However, it still has the "look".

Overall, this was not a difficult kit to build, though the fins and mismarked body tube added some work. It makes a nice representation

of what I like to think of as one of the most "handsome" of the sounding rockets. The enormous fin area allowed my massive construction in the motor mount/fin area without danger of destabilizing the rocket. RocSim calculations show a good stability margin even with large 52mm motors and slightly overstable conditions with smaller motors (Barrowman and RocSim numbers). I haven't yet put it on the postal scale at work, but the bathroom scale shows about 4.5 lbs without engine. Overall, a nice kit that builds into a good-looking bird.

September Launch Report

By Warren Layfield

Name	Rocket	Motor
Mark Rice	Yellow Jacket	A8-3
Mark Rice	SR-71	C6-5
Mark Rice	Hawk	C6-5
Mark Rice	Bumblebee	B6-4
Mark Rice	US Army	C6-5
Nathan Coit	Sprint	C6-5
Nathan Coit	Phoenix	2XD12-5
Nathan Coit	Helicopter	1/4A3-3T
Nathan Coit	Solar Sailor	A8-3
Nathan Coit	Torpedo	D12-3
Nathan Coit	Scratch Built	1/2A3-4T
Nathan Coit	Javelin	A8-3
Greg Rice	YF-22	C6-5
Greg Rice	Sky Winder	B6-4
Blake Fraser	Big Bertha	C5-3
Blake Fraser	Matra	D12-5
Blake Fraser	Alpha	A8-3
James Hitchens	Meanie	D12-5
James Hitchens	Firebird	C6-3
Lee Simonsen	Archer	
Greg Simonsen	Rocket	
Greg Simonsen	Broadsword	D+
Greg Simonsen	Turbo Copter	A8-3
Greg Simonsen	Patriot	E28
Marvin Maples	Scud	2XD12-3
Marvin Maples	Red	F39
Marvin Maples	Arm	2XD12-3
Marvin Maples	Sidewinder	D12-3
Matt Huyge	Alpha III	A8-3
Matt Huyge	Harpoon	1/4A3-3T
Matt Huyge	Whiplash	C6-7
Dave Sanderud	Deep Surface Probe	C6-3
Dave Sanderud	Sport	C6-5
Dave Sanderud	Fat Boy	C6-3
Dave Sanderud	Super Shot	B6-4
Tom Dembowski	Iris	B6-6
Tom Dembowski	Mini V-2	1/2A3-2T
Tom Dembowski	Big Bertha	C6-5
Tom Dembowski	Rattler-7	B6-4
Dave Jolly	Lil Orange	C6-7
Dave Jolly	Maniac	C5-3
Dave Jolly	Firebird	B6-4
Dave Jolly	Nike Smoke	B6-4
Dave Jolly	Initiator	F23-4
James Hitchens	Quantum Torpedo	1/2A3-4T
James Hitchens	Tuts Tomb	E18-4
James Hitchens	Tomahawk	A6-4
James Hitchens	Meanie	D12-5
Greg Elder	R2-D2	D12-3
Greg Elder	Aztec	B6-0/A6-4
Greg Elder	Gemini DC-3	3XC6-5
Greg Elder	X-15	C6-3
Brent Bradley	Athena	B6-6
Brent Bradley	X-1	B6-6
Buzz Mast	Super Nova	E18-7

Rocket Vision Releases Grymm

Grymm is the newest rocket from Rocket Vision. With its 2.88" diameter airframe and 10.5" footprint, Grymm has a solid presence on the launch pad and in the air. The slow, powerful boost and strong smoke trail might make you think you're launching high power!

Features:

- Non-spiral phenolic is highly durable, with no groove to fill
- Pre-slotted airframe
- Pre-machined G-10 fiberglass fins
- 24" rip-stop nylon parachute
- Kevlar shock lines
- Reusable Nomex parachute protector
- Color waterslide decals

COSROCS Supports Pueblo

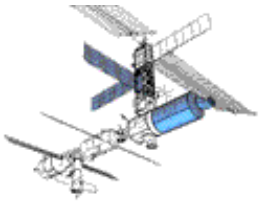
By Dave Jolly

It was a cold and dreary weekend in Pueblo but the atmosphere in the hangar was warm and friendly. The occasion was an air festival paying tribute to the country's Congressional Medal of Honor winners, and to our delight, there were several in attendance.

COSROCS set up a booth next to the Pueblo CAP's "make it and take it" booth, and, as luck would have it, at the end of the chow line. Needless to say, we had many folks dropping in to see the current state of the art in model rocketry. Warren, Tom D and Dave J spent most of the time chatting with folks, many of whom like ourselves have a childhood history of Vern's earlier models. We talked to young and old alike about the advancing technology in model rocketry, the availability of safe reusable motors, safety, higher power rocketry, electronics, and rocket science in general.

Many moved from our display on to the CAP booth where the youngsters (and quite a few parents) had the chance to build an Estes rocket and take it home. Warren is working on a launch day in Pueblo with the CAP folks, as "it ain't a rocket till ya fly it!!"

All in all, a fun weekend, filled with lots of rocket talk, and the opportunity to meet a number of CMOH winners. Thanks to Warren and Tom for the great work.



NAR and BATF Update

Mark B. Bundick, President
National Association of Rocketry

In the September Model Rocketeer, my most recent President's Corner, "Bad Moon Rising," outlines in clear language the future of the sport rocket hobby if the Bureau of Alcohol, Tobacco and Firearms succeeds in its effort to impose more regulations on your hobby.

It's not a pretty vision.

You will continue to have to put up with the expensive, time-consuming, bureaucratic procedure of obtaining and renewing your explosives permit with no idea if or when you'll receive it.

You will continue to be subject to restrictive, expensive, and generally unnecessary magazine storage requirements for sport rocket motors.

You will continue to be subject to periodic inspections by BATF employees who have had no formal training in and employ no standard procedures for such inspections.

You are likely to run into considerable barriers, even prohibitions, from local laws and ordinances, on "explosives storage" in your homes, simply because of the BATF's classification of your motors.

Any rocket motors with more than 62.5 grams of propellant, including some existing model rocket motors, will fall under BATF regulation—a condition unprecedented in the hobby's 40+ year history.

In the past 19 months, and after five trips to Washington, DC, what have I learned about BATF and its tactics?

BATF has promulgated explosives regulations in direct violation of the Administrative Procedures Act.

BATF can provide no substantive technical test data on why they've included ammonium perchlorate composite propellant (APCP) on the explosives list.

BATF has no definition or procedures for determining what constitutes a "propellant actuated device," an obvious classification of sport rocket motors that should be open to us.

Having my government tell me that "we don't care what you think the law says, we don't care that we've not performed any technical analysis on this material, and we don't care that you think we implement regulations without proper procedures and training," strikes me as completely unreasonable and unacceptable.

If you want to help put an end to this unnecessary, illegal regulation of your safe, educational, and enjoyable hobby, please consider making a donation to our legal fund.

To those of you who've already contributed, my thanks and appreciation for your generous support. I've posted your names on a special page at the NAR website so that all may know of your financial sacrifice and support to our fight. If we're going to see the suit through, we're going to need to raise about $75,000 over the next six months. Please consider donating to our cause.

In addition to cash donations, I'd like you to consider three new contribution options.

1. Check with your local bank to see if they have the ability to do periodic automatic payments from your account.

I know that via my online banking, this is easy to set up. A $25 per month automatic payment to the NAR Legal Fund probably won't kill your budget, but over a year's time provides $300 to our cause. Let us know if you've set up this option as a way to support the cause.

2. Consider a stock donation to the NAR Legal Fund.

More Americans, through their employers, are stock owners today than ever before. With the appreciation in stocks over the past few years, our cause represents a good opportunity to pass on a sizeable donation at little out-of-pocket cost to you.

There are also additional tax benefits to you from a stock donation. If you donate stock without cashing it, you owe the government no capital gains tax, and you still get the full stock value worth of charitable deduction Consult your tax advisor for full details, and contact me directly for instructions about how to execute a stock donation to the NAR.

3. Finally, check again with your employer about matching donations. The NAR is a tax-exempt, non-profit corporation, registered as a 501(c)(3) corporation with the IRS. Basic information about a non-profit seeking matching donations is often required by such matching programs, and can be found at the Guidestar website. Please consider this option as a way to enhance your donation to our fight.

Your tax-deductible contributions will be used 100% to pay our legal bills as we proceed through the federal courts to obtain an unregulated sport rocket hobby for you and for future generations. Please help us out to the greatest extent you possibly can. And thanks again to all of you who've already graciously donated to the NAR Legal Fund.

If you can help out at all by donating to our Legal Defense Fund, please visit our online donation form and help us roll back this illegal and overreaching regulation. Any amount will be greatly appreciated.

December Space History

Dec 7, 1972: Apollo 17, the last manned lunar mission, was launched. It was the only Apollo night launch.

Dec 14, 1962: The first flyby of another planet by a spacecraft occurred as the U.S. robotic spacecraft MARINER 2 flew past Venus.

Dec 14, 1972: Apollo 17 astronaut Gene Cernan became the last astronaut to walk on the Moon.

Dec 21, 1968: Apollo 8 was launched on Dec. 21, 1968. It was the first manned mission to go around the Moon

Dec 24, 1968: Apollo 8 astronauts, shortly after becoming the first humans to go around the far side of the Moon, transmitted a live TV broadcast of readings from the Book of Genesis.

Apogee's Big Product Announcement!

By Tim Van Milligan

Late next Spring, Apogee Components will begin shipping two new scale kits. They are a 1/70th scale Saturn 1B and a 1/70th scale Saturn V !!!

There are other scale models of these rockets, so you're probably asking yourself what makes these so special? The first thing you'll notice about them is their huge size. They are big! The Saturn V is about 5-1/2 feet tall and 5.6 inches in diameter. The Saturn 1B is about as big as the Estes Saturn V. The impressive size will make these models noticeable at all rocket launches.

But what I am pleased about is the level of detail in these two kits. We spent over 2 months researching these rockets so that we could get it "right." We discovered a lot of gaps and inconsistencies in other scale data packs; so we had to basically start from scratch and create a CAD package of the real vehicles. I can't wait to show you these data packs, because they are incredible. To prove the data is accurate, the kits will each come with a photo CD-ROM, so that you can make the comparison yourself.

Here's the deal on the prices:

Regular price of the Saturn V will be $185.
Regular price on the Saturn 1B will be $150.

If you place your order now and send me your check, here are the pre-production prices:

Saturn V: $150
Saturn 1B: $135

If you buy both, I'll throw in a Apogee Aspire kit free. This is the F10 powered model that can easily fly higher than 1 mile!

Bottom line: These are great prices for these models! For more information and ordering instruction, visit the Apogee web site at http://www.apogeerockets.com.

Build the Gemini DC-3

By Greg Elder

Recently, I built an Estes Gemini DC but modified it to fly as a 3-engine cluster rocket. The modifications to make are fairly simple. Here are the basic steps involved.

Glue strips of paper over the vent holes on the main body tube. Glue the two smaller, side pods to the main body tube as in the instructions except have their vent holes face out. (These holes will vent the ejection charges from the two outer motors in the cluster.) I also installed a motor block in each of the side tubes. Install a shock cord at the front of the main body tube. The critical part is ensuring the CG is at the right location for stable flight. After you have assembled all of the rocket (except for gluing the main nose cone together), place a motor in the center (main) body tube. Mark the CG on the rocket. Now, add two motors to the outer body tubes. At this point, add clay to the main nose cone until the CG is back at the original location. (I added almost 2 ounces of clay to the nose cone to get the CG back at the proper location.) You can now glue the two main nose cone pieces together. Add a parachute and your Gemini DC-3 is ready.

To fly the Gemini DC-3, install three motors of the same type. (I used three C6-5's for my initial launch.) Use masking tape to friction fit the outer motors. Install igniters and twist the ends together in parallel. Add wadding to the main tube, install the parachute, and you are all set for launch. Ensure you use a launch battery that is capable of igniting a 3-engine cluster.

You may not want to use the plastic Estes 'chutes with your Gemini DC-3. I did this for my launch but the two 12" parachutes were stripped at ejection and my rocket broke two fins upon landing. I'd recommend using a nylon parachute. That's it. Have fun with your Gemini DC-3.

Octoberfest: Hartsel Launch, Sept 23-24

By Nadine Kinney

We got up early on Saturday morning, and looked out the window. There was low fog and cold rain conditions and you couldn't see more than ¼ mile (or less). We wondered if there would be a launch with that type of weather. We packed the car and headed up the road. We met some friends that wanted to go (another photographer) and then met Jon in Woodland Park. We had a nice little caravan going up the pass, complete with radios in each car so we could talk.

When we came up over the Wilkerson Pass summit, it was like we drove into another state! The fog that had been baring down on us as well as the rain was gone! All that we saw in front of us was blue skies, and high puffy clouds. We arrived at the launch site, and found that there had been about 6 launches, and they were mainly F and G motors. The weather had turned out pretty good….for now. There were about 25 cars and I suspect about 40 people there. This is the weekend where Tripoli Colorado brings out the grill and supplies the meat, buns, and some beverage. The flyers are asked to bring a side dish to share and have a potluck lunch on both days.

Just as we were getting set up, (Neil was helping Jon Hodge get his Level-1attempt ready), I noticed the wind was picking up. Marvin was also getting his Level-2 rocket ready, as well as the many other people from the other clubs (Denver) getting ready as well. John Jamison and his son JP were out there on the pad with his Pterodactyl and it was ready to go! It flew flawlessly on a J390HW Aerotech Hybrid engine and reached an altitude of 2,156 feet.

There were several flights from the other flyers that were out there, including an M-flight from Ed Crone (Denver). His launch was perfect, it climbed and climbed – but due to the wind, it was so far away, that nobody saw where it came down. After that flight, there were mainly smaller rockets, and smaller impulse engines. Then, it was time - Jon was ready for his flight. He was nervous as he put it on the pad. He flew on a H-238 and BOY! It ripped off of the pad!! I wasn't ready for this one—it was gone in a flash!! (sorry no flight picture!) Greg Simonsen (Crazy Greg!!) also flew in the wind. He flew his Big Bertha (beautiful paint job!) on a H-238. Yes, that is what I said, H-238. I don't believe that he ever found it either—it went into the sun, and they lost it. The potluck went okay, except the wind had picked up so much, that things were blowing off of the table. It was so unforgiving, that many people were just sitting in their cars now. The range basically was closing down at that point because the wind was so bad and people were leaving to go home.

The second day was brisk and cold, and it was snowing in the Springs. Again we wondered what the weather conditions were like at the launch site. We got up there again, in time to see the rockets fly. It was just beautiful – the ground was covered with a light dusting of snow and frost, the air was crisp, and no wind! Tom Thomas was one of the first large flights. He flew his scratch built X-wing on a G-80. He was excited yet, nervous too – since this was the maiden flight. It was a perfect flight, however the rocket received some minor damage, upon landing.

Marvin Maples had several flights as well, one of them was his Level 2 certification. He started off with his red white and blue rocket, and experienced some difficulty with the chute coming out. It apparently was wound too tightly (or in the tube wrong) and never deployed. Although it landed horizontal, it didn't have much damage, if any. He followed up by flying his scratch built, green rocket on a J-350 and it went with out a hitch, and he got the certification.

Marvin Maples Rocket's Successful Recovery
(Photo by Nadine Kinney)

JD LaVasser flew his Level 3 project. What a sight to see! The ground was covered with a light dusting, and the awesome flame of an M1913 was just outstanding. He pushed the button for his own flight, and it was up in the skies with his 7foot red and white rocket. Greg and Lee Simonsen had multiple flights to report, as well. He flew his Iris on a J-800 and then turned around to fly it on a J-570. The J-800 flight had a "chute packing" problem and it came down on streamer recovery only. Unbelievably, there was only a small crack to fix, and it flew again on a J-570, just moments later. He also flew his Excell Plus on a H-180 and I-300 with no problems to speak of. There were several other flights as well, from the Denver folks, and they were pretty great flights too.

All in all, the whole 2 days of Octoberfest was a fun time for everyone that attended. Too bad it was so windy on the first day, but that's how it goes in the wonderful state of Colorado.

Editor's Design Contest

By Greg Elder

In an effort to generate plans for the newsletter, I am sponsoring a COSROCS model rocket design contest. Those of you who have been with the club since the early 1990's may remember when we had President Challenges. This is somewhat similar in concept. Here are the basic rules.

1. The contest is open to any current, dues paying COSROCS member.
2. Since next year is 2001 and the movie "2001: A Space Odyssey" had some great looking spacecraft of the future, the theme for this contest is futuristic. Design what you think a rocket or spacecraft may look like in the year 2051.
3. Designs must be original and must be for a model rocket. The design must be built and must be flown at the first COSROCS launch in May. Rockets that are unstable or unsafe will be disqualified.
4. Along with your rocket, you must provide a set of written instructions (plans) for the newsletter.
5. Rockets will be judged on originality, appearance, and flight performance.

That's it. You have from now until our launch on the first Saturday of May 2001. So, use these winter months to put your creativity and design skills to work.

I will donate an out of production MRC Sidewinder as a prize for the winner. I would also like a volunteer or two to act as judge(s). If anyone else would like to donate a prize, let me know.

Chicago Model and Hobby Show

The following information was taken from information posted to the Internet by Chad Ring and Bob Kaplow. It contains information about new rocketry-related products shown at this year's Chicago Model and Hobby Show.

Apogee will be releasing two new scale kits—1/70th scale Saturn V and 1/70th scale Saturn 1B. Expected release date is Spring 2001.

Aerotech will be introducing HPR kits suitable for certification and sport flying soon. In 2001, Aerotech will release a Redline propellant with unique lift-off characteristics.

Estes is bringing back several older kits. These are the Mean Machine, Comanche-3, Mercury Redstone, Saturn V, Black Brant II, Nova Payloader, and Phoenix. New rockets from Estes include the Echostar which uses the fins from the Heatseeker; the Menace (cruise missile type rocket); the Nightwing (uses some of the SR-71 parts); and another new rocket with the over used name Sizzler. Estes is also bringing back land rockets, now powered by D11-P motors.

Fun Rockets is really Holverson Designs redesigned by a new manufacturer. The models now use pre-colored foam, rather than balsa. Same kits as before (Zoomie, Swinger, Silver Hawk, Tangent) but with foam.

Heller has plastic models of the International Space Station, MIR, and the Patriot Missile.

Polar Lights is releasing a Dick Tracey Space Coupe.

Public Missile Limited is now distributing 3-packs of 29mm motors produced by Aerotech. The packs include the new Aerotech igniters.

Quest has plans to expand and improve their product line. The Micro Maxx motors will undergo a change. The plastic casing and nozzle will be replaced by conventional paper and clay. The thinner casing will allow more propellant which means more power. The new motors are expected to be twice as powerful.

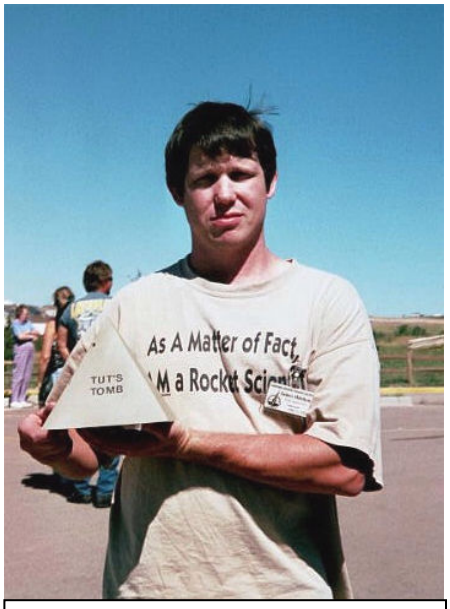
UROC to Host 2001 NAR National Sport Launch

The Utah Rocket Club, NAR Section 523, is proud to host the National Association of Rocketry's National Sport Launch in 2001. This is the first time that UROC has hosted this particular national launch, but we do have experience with big launches. In 1998 we hosted LDRS 17 on the Bonneville Salt Flats. The launch will be May 26, 27 and 28 (Memorial Day Weekend) and will be held on our normal club launch site. The launch director is David Urbanek, a relative newbie, but he's got lots of backup from a seasoned crew of hard core rocketeers. For more info, visit the NSL 2001 web site: http://public.surfree.com/urbanek/rockets/UROCNSL.htm.

COSROCS Calendar

Unless otherwise noted, all launches are at Stetson Hills. Business meetings are at the Gold Hill Police Station.

4 Nov:	Sports Launch, 9AM
8 Nov:	Business Meeting, 7PM
18 Nov:	Sports Launch, 9AM
2 Dec:	Sports Launch, 9AM
13 Dec:	Business Meeting, 7PM
16 Dec:	Sports Launch, 9AM
6 Jan:	Winterfest, 9AM
10 Jan:	Business Meeting, 7PM
20 Jan:	Sports Launch, 9AM



James Hitchens with Tut's Tomb
(Photo by Greg Elder)

JD's Level 3 Launch at Hartsel
(Photo by Nadine Kinney)

A Rack of COSROCS Rockets Ready to Launch
(Photo by Greg Elder)

An Astrocam view of the NARAM-42 vendor row and parking area
(Photo by Dave Nauer)

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