

# WASHINGTON AEROSPACE

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Special points of interest:

- Washington Aerospace is sponsoring a competition at Monroe in June. The contest is Parachute Duration. For those 18 years old and under—"A" engine Parachute Duration. For those 19 years old and older - '1/2A' Engine Parachute Duration. Jim Pommert @ jppommert@smithfire.com will be able to answer your questions.
- BMR/BSD join together to offer a weekend of flying in Touchet, WA on June 9th and 10th.
- OREO has a 3-day event over June 16-17. Monday, the 17th is an EX day.
- SPARC has a 2-day event (Wheat Chex 2001) over June 23-24.

## FROM THE PRESIDENT.....

BY KENT NEWMAN

"And now for something entirely different....."

The third issue of the 2001 Washington Aerospace newsletter is being presented in a new format. Not so much because the old format was faulty, just because I decided to toy around with MS Publisher and try something different :-).

There is some thought behind the change, however. We'll try to incorporate more news and comments from the world of hobby rocketry as well as continuing with articles and construction reviews from the Puget Sound area. The new format better lends itself to doing such things.

### Area Launches

This is the start of the "special event" season where numerous organizations are holding multiple day launch events. If you can fit the events into your schedule, you should try to do so. These get-togethers are excellent opportunities not only to launch rockets but to enjoy the camaraderie and family activities that go with our hobby. Each event typically offers both reasonably-priced motels and camping facilities. This is an excellent way also to see how others approach our hobby. Make plans to attend launches at Brothers, OR, with the OREO gang; Touchet, WA with the Blue Mountain Rocketeers and Scott Binder's group; or the Spokane Area Rocket Club (SPARC) flying North of Spokane.



**Chuck Layton readies his "Big Asp" for an L2 certification flight last September.**

And there are always plenty of model rocket pads for the kids and the kids at heart. Bring the family and plan on picnicking at the site.

## REDLINE PROPELLANT DEBUTS AT NSL

Aerotech's new Redline propellant debuted at the National Association of Rocketry's National Sport Launch (NSL) in Utah over the Memorial Day weekend. It was simultaneously flown at other launches in selected markets in the Western half of the country.

By all counts, the H210R (29/240) and the

I218R (38/360) motors met expectations in performance and bright red color. Aerotech expects Easy Access motors to be available at their dealers about two weeks after becoming certified. Restricted access motors will take three weeks after certification to reach retail. Be sure to call Ursula at All Hobbies to pre-order your Redline motors!

## SAFETY OFFICER PROGRAM (TSO)

*Check out the TSO program at [www.nar.org](http://www.nar.org)*

One of the most notable aspects of our hobby is the excellent record of safety that exists in both Tripoli and NAR affiliated launches. The self-imposed safety codes used at our launches have been a significant factor in establishing this history of safe flying. As such, NAR has developed the Trained Safety Officer (TSO) program to reinforce such safety codes by providing practical guidance and training for individuals experienced in model rocketry and familiar with high power rocketry. The program is intended to help individuals perform range safety officer (RSO) functions on a high power rocket range. And although the program is geared to HPR, it obviously has application to model and mid-power rocketry operations as well.

The course is a self-paced program intended for any certified HPR flier. The program exposes individuals to range and rocket safety guidelines by exposing them to "real world" situations. Participants are required to complete rocket safety check-ins and to perform range safety officer tasks on an operating high power range. The program may be started at any time and may be finished at any time.

The process begins by downloading the TSO record keeping forms from [www.nar.org](http://www.nar.org). The forms are to allow individuals to pursue practical experience in reviewing the safety consid-

erations of all types of rockets from simple apogee ejection models to multiple staged, electronics recovered projects.

A second area of focus is the experience in setting up and administering a proper high power launch field.

Another interesting requirement is the challenge to investigate flights that experienced something less than "nominal" flight. Working with a mentor, the opportunity is presented to do some "flight crash scene" investigation that can be very beneficial. Determining what went wrong can be as important as assuming what went right during a rocket flight.

The flight activity at Monroe provides an excellent variety of rocket flights to observe. Volunteering for RSO at Monroe would provide an excellent opportunity to do double duty. It facilitates the operation of the launch while also helping to achieve greater knowledge, experience and, ultimately, accreditation as a Trained Safety Officer (TSO).

We are fortunate to have one of the very first NAR TSO-certified fliers in the country in Christopher Scott, the Launch Director at our Monroe launch site. Please see Christopher if you have any questions about the program.

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## SRB TEST BURN AT THIOKOL PLANT

**BY GREG DEPUTY**

The SRB burn was quite impressive.

We got a late start getting out of here, and it was a race against time to get there. We left Wednesday night at 6pm, drove until 4am (mountain time) got up at 7 and continued driving until we arrived at Thiokol (about 20 miles west of Brigham City off I-84, approx 800 miles from Sumner) about 10 minutes before the test.

The SRB was situated in a niche in the hillside about 1 mile from the road, now crowded with spectators. The nozzle end of the motor was not visible, just the fore half of the motor. We found a spot to park and got out to wait for the firing. At 1 pm, a siren sounded and a small puff of smoke was seen around the motor. I'm not sure what that was. About 5 seconds later a huge plume of orange flame and white smoke erupted from the hillside. About 2-3 seconds

after that the sound hit. Wow. A guttural rumbling that you felt in your chest. Just plain loud. Felt it as well as heard it. The burn continued for about 2 minutes, lots of flame, smoke, and noise. Then it abruptly stopped.

The entire hillside was engulfed in flames, and continued to smoke and burn for quite some time. The hillside where the blast from the motor was directed appeared to be burned entirely clean. Nothing but sand, no plants, no nothing.

After the test we headed down the road to the Thiokol campus, where there is an area set up with all kinds of static motors and information. Everything from a full size SRB motor, sidewinder motor, minuteman, FFAR, tons of test motors, all kinds of cool stuff. I got pictures of it all, will have a page up with them in a day or so.

Editor's Note: see Greg's pictures at [www.blastzone.com](http://www.blastzone.com).

*"A guttural rumbling that you felt in your chest. Just plain loud. Felt it as well as heard it."*

# THE SKY'S THE LIMIT?

Are you aware that altitude records for hobby rocketry are maintained? You, too, can push the envelope with an altitude attempt! Use aerospace materials and a cutting edge design and get your name listed in the Tripoli list of altitude records!

Tripoli maintains a list of recognized individuals whose rockets have attained the highest altitudes. Records are kept on the basis of total motor impulse beginning with "F" engines or those engines with 40.01 to 80 newton-seconds. Altitude records then parallel certified motor classes all the way up to "O."

Requirements for setting an altitude record include the following:

- Rocket must have recovery device deploy. Recovery is not necessary, however.
- The record class will be based upon the total impulse of the motor(s) used. In staged or clustered models, total impulse will be the total of all motors used.
- Optical tracking must have closure within 10%. Altimeters must have accuracy within 5%. Tested accuracy may be provided by the manufacturer.
- A Tripoli Record Application Form must be completed to provide details and verification of the record attempt. A \$5.00 filing fee must be postmarked within thirty days



Greg Deputy's view of the Thiokol SRB test burn in Utah in May.

of the launch and sent to the Contest and Records committee.

- A clear photograph of the rocket is required. Detailed dimensions and a material listing is encouraged but not required.
- The new record must exceed the previous official record by 2%.
- Certified motors are required. Metal airframes may only be used at launches where the use of metal airframes is permitted.

Tripoli Altitude Records must meet all of the criteria listed. The Contest and Records Committee reserves the right to request additional information for any altitude record attempt.

*How high can you go?*

## ALTITUDE RECORDS(AS OF 4/27/01)

Motor Class	Altitude( ft)	Altitude (m)	Name	Date
F	6,266	1910	Mark Herndon	5/6/00
G	7,567	2306	William Inman	6/6/99
H	8,363	2519	William Inman	7/25/99
I	13,728	4184	William Inman	11/27/99
J	16,184	4933	Adam Gervais	7/29/00
K	20,274	6180	Kurt Gugisberg	9/30/00
L	23,689	7220	Mark Jeghers	9/13/98
M	22,260	6785	Mark Sims	9/4/99
N	32,024	9761	Richard King	9/11/99
O	n/a	n/a	Unclaimed	n/a

## NATIONAL SPORT LAUNCH

**BY GREG DEPUTY**

Saturday morning was clear and warm. We got up around 7 and headed out to the Pony Express Test Range, UROC's launch site. A great location for flying rockets, miles of flat space with low scrub/grass and occasional sage. I was surprised they only had a 10k AGL waiver. For recovery purposes, the site could support much more.

We arrived at about 8, got registered, and pulled out the rockets. Clay was ready with his min diameter 54mm project on a J350. It rocketed off the pad and had a perfect recovery, the dual deployment setup working flawlessly. My first flight was my level 3 bird, as yet unnamed, on a K700 for a shake-down flight. The rocket is a 6" diameter G-10 fiberglass with fiberglass fins and nose, total weight with motor about 35 lbs. Once the rocket was on the rail, igniter in, altimeters armed I retreated to the flight line. At this point the digital camera I had died, so I didn't get any liftoff pictures. Argh!

The launch was beautiful! The K700 took a second to come up to pressure, then WHAM! The motor fought hard as the rocket lifted off the rail and rose to apogee. The drogue deployed, and then immediately following came the main. DUH! Guess I need a few more shear pins in the main chute compartment. That's what shake-down flights are for, right? The K700 only put it to about 2500 feet so it wasn't far away, even with the R18 main out at apogee. Good flight.

I still had time for one more flight. I got Carbon Black prepped with a J415, and

Clay got his U.S. Rockets Megaroc ready to go on a K185 for its 15th (!) flight. But then Murphy bit both of us in the butt.

I got Carbon Black on the rail, armed the altimeter and waited for the beeps. Nothing. Hmm... Tested OK last night. Well, I pulled it off the pad and headed back to the truck. I pulled the thing apart and looked at the Olsen M2. It was hung up in the firmware boot sequence. I powered it off, then back on again, and it came up fine. I was a little worried. I shut it down and back on again, and it started throwing strange characters on the LCD screen during boot-up. More worried, I shut it down and back on again, and this time it fired the main deployment charge! OK, enough of that, packed it up and sat back to watch Clay's flight.

Clay got his bird on the 1/2" rod and armed his altimeter. It beeped happily away, then stopped. Beeped again, then stopped. The wires he twisted together to arm the altimeter appeared to have a break somewhere, so he pulled it off the rod to take it back and check it out. In the process the bottom launch lug got popped off! Blargh!!

Back at the truck, Clay got his altimeter issues fixed, and quickly installed some rail guides. Back out to the pad, and it was ready to go. The LCO counted down and hit the button. The K185 smoked for



**Greg Deputy's 6" L3 rocket prepped to fly on a K700.**

a moment, then the Megaroc took for the sky! The flight was majestic, slow and long. The altimeter fired at apogee, but both the drogue and main chutes deployed together. Hmm... Time to walk. Well, drive actually. Another nice thing about the launch site is you can drive out to recover your bird. After overshooting the actual landing site of the rocket and stumbling across it on the way back in, Clay broke down the rocket and checked the altimeter. 6500 feet. Good flight!

All in all it was a great trip. If you ever have the chance to make it out to Thiokol for a static burn of the Shuttle SRB, do it! The same goes for flying with UROC. Great people, great site, great fun!

*"The launch was beautiful. The K700 took a second to come up to pressure, then WHAM!"*

# ESTES BIG DADDY REVIEW

BY JIM STUCKMAN

The Estes Big Daddy™ qualifies as a "stubby" rocket because it is 19" long and has a 3" diameter giving it a less than 10:1 ratio (6.3 to be exact). The Big Daddy™ could be the next step in the Fat Boy family, however, they are very different, especially the longer nose cone.

The Big Daddy™ includes a 10" long paper glassine coated airframe. It is pre-slotted for the four fins. The plastic nose cone makes up the remaining length. There are four (4) 1/8" thick balsa fins that are die-cut. There are also two (2) 1/16" thick paper centering rings (die-cut). The motor mount is 24mm and 4" in length (2 5/8" is where the motor block is). It includes a standard Estes motor hook. The recovery system consists of a standard 24" plastic parachute and 36" of 1/4" wide elastic. There is an 1/8" launch lug and some decals to complete the kit.

## CONSTRUCTION:

The instructions for the Big Daddy™ were consistent with the clear step-by-step method that we expect from Estes. No surprises and the illustrations were clear to allow an easy build.

I deviated from the instructions with the recovery system. They gave 36" of shock cord which isn't too bad in light of Estes norm, however, I feel is was still too short and didn't like the attachment method either. I added a 2' piece of 1/8" Kevlar which I

tied around the motor mount and through a hole I made in the upper centering ring. I then tied the provided elastic shock cord to that. The directions did deviate from Estes' normal 3-fold method and instructed you to attach it to the upper centering ring which is a nice change, however, I don't like elastic so close and unprotected to the motor mount and ejection path. So by adding the kevlar I'm sure to extend the life of that attachment and I extend the length of the shock cord at the same time.

Another technique I tried while building this rocket was on the balsa fins. I tried gluing paper to them, like a laminate, to give them strength and ease the finishing job. The first was accomplished but it did not ease my finishing job. As you can see I used a thin notebook paper. First I put CA all over the fin and spread it out thin, then applied the notebook paper and then CA'd over the top of the paper. On a couple of the fins the paper seems to bubble which left a problem for finishing. I feel this was due to the thickness of the paper and next time I will use tissue paper. The thickness also made the edge more prominent and it actually had to be filled and hit with several coats of primer to finally get it smooth. You may also notice in the picture the color of the fin fillet. I used a ProBond glue

for the initial fillet and then filled over the top with epoxy. I have used this technique several times and really like it. (additional comments about ProBond glue)

For finishing, I didn't use anything to fill the spirals and just started in with several coats of Plasti-Kote Sandable Primer. After many coats on the fins, I finally was able to hide the paper edge and fill in the paper "bubbles" to a "as good as it gets" finish. I then moved on to the painting. The instructions are clear in how to paint the rocket and the nose cone technique is well described. I chose not to paint the nose cone tip and simply painted the entire rocket gloss black using Walmart's paint. (additional comments about Walmart paint)

After the paint dried I applied the peel-n-stick decals. They applied nicely and look great on the black rocket.



*"The Big Daddy™ could be the next step in the Fat Boy family, however, they are very different, especially the longer nose cone".*

## Aero Pack's New Quick Change Motor Adapters

Aero Pack International / Missile Systems is pleased to announce their new Quick Change Motor Adapters. They are available in two sizes; A2938 for adapting 29mm motors to rockets with 38mm Aero Pack retainers and A3854 for adapting 38mm

motors to rockets with 54mm Aero Pack retainers. In keeping with Aero Pack's tradition of high quality the adapter kits are made from precision CNC machined and anodized 6061-T6 aluminum and include a special cap to fit your existing retainer. The motor

and adapter easily slide in and out with no forcing or friction fitting required and the adapter retains the motor from moving forward or backward. The A2938 and A3854 are priced at \$21. and \$25.

## Club Meetings

The first Saturday of every month!

Where: Peace Lutheran Church  
214 East Pioneer  
Puyallup, WA 98372

Time: 7:00 p.m.

We're on the Web!

[www.hawkfeather.com/wa-aero/](http://www.hawkfeather.com/wa-aero/)

### NAR Section 578 Super Discounts

All club members get the  
following discounts at All  
Hobbies store

20%

Special Discount on single  
item purchases of over  
\$300.

15%

Estes  
Dr. Rocket Motors  
& Parts

10%

On all of the following:

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IMPULSE AEROSPACE  
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AEROTECH MOTORS  
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THE LAUNCH PAD

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ALL HOBBIES STORE  
1430 E. Main  
Puyallup, WA 98372  
253-841-0089

<http://allhobbies.net/>

## Regional Launch Schedule

Notes:

1. Monroe winter launches are weather permitting (as if the rest of the year isn't)
2. BEMRC launches (Boeing) are model rocket only. C impulse maximum.
3. No EX motors or allowed in regular launches; Kosdon motors not allowed.
4. No certified motors allowed on EX Only launches.

May 5<sup>th</sup> (Saturday)  
May 6<sup>th</sup> (Sunday)  
May 12<sup>th</sup> (Saturday)  
May 12<sup>th</sup> (Saturday)  
May 13<sup>th</sup> (Sunday)  
May 19<sup>th</sup> & 20<sup>th</sup> (Sat & Sun)  
May 26<sup>th</sup> (Saturday)

June 2<sup>nd</sup> (Saturday)  
June 3<sup>rd</sup> (Sunday)  
June 9<sup>th</sup> & 10<sup>th</sup> (Sat & Sun)  
June 9<sup>th</sup> (Saturday)  
June 16<sup>th</sup> (Saturday)  
June 16<sup>th</sup>, 17<sup>th</sup> & 18<sup>th</sup> (Sat - Mon)  
June 22<sup>nd</sup> - 24<sup>th</sup> (Fri- Sun)  
June 23<sup>rd</sup> & 24<sup>th</sup> (Sat & Sun)  
June 30<sup>th</sup> (Sat)

July 1<sup>st</sup> (Sunday)  
July 7<sup>th</sup> (Saturday)  
July 7<sup>th</sup> (Saturday)  
July 7<sup>th</sup> (Saturday)  
July 14<sup>th</sup> (Saturday)  
July 15<sup>th</sup> (Sunday)  
July 21-23 (Sat-Mon)  
July 28<sup>th</sup> (Saturday)

August 4<sup>th</sup> (Saturday)  
August 5<sup>th</sup> (Sunday)  
August 11<sup>th</sup>  
August 11<sup>th</sup> (Saturday)  
August 12<sup>th</sup>  
August 18<sup>th</sup> (Saturday)  
August 24-26<sup>th</sup> (Fri\_Sun)  
August 25<sup>th</sup> (Saturday)

### Launch Contacts:

Washington Aerospace  
Tripoli Puget Sound  
Monroe Launches  
Blue Mountain Rocketeers

B.E.M.R.C.  
Seattle NAR (SEANAR)  
Spokane Area Rocket Club (SPARK)

Tripoli - Oregon  
Tripoli - Portland

Puyallup, WA (WA Aerospace Meeting)  
Monroe, WA (TRAPS-WAC)  
Dayton, WA -Smith Hollow Site (BMR)  
Kent, WA (BEMRC)  
Spokane, WA (S.P.A.R.C.)  
Boise, ID (TRA - Idaho) SpudRoc VI  
Redmond, WA (SEANAR)60 Acres Park

Puyallup, WA (WA Aerospace Meeting)  
Monroe, WA (TRAPS-WAC)  
Lowden, WA-Fire in the Sky(BMR/BSD)  
Kent, WA BEMRC)  
Offutt Lake, WA (Washington Aerospace)  
Brothers, OR (OREO) Mon EX Day  
Black Rock, NV "Mudrock" AeroPac  
Spokane, WA "Wheat Chex 2001" (SPARC)  
Redmond, WA (SEANAR)60 Acres Park

Monroe, WA (TRAPS-WAC)  
Washington Aerospace Mtg @ Offutt Lake  
Offutt Lake, WA (Washington Aero)  
Kent, WA BEMRC)  
BMR Dayton, WA Yvette Smith Mem'l  
Spokane, WA (S.P.A.R.C.)  
Brothers, OR (OREO) Mon EX Day  
Redmond, WA (SEANAR)60 Acres Park

Puyallup, WA (WA Aerospace Meeting)  
Monroe, WA (TRAPS-WAC)  
Dayton, WA BMR  
Kent, WA BEMRC)  
Spokane, WA (S.P.A.R.C.)  
Offutt Lake, WA (Washington Aero)  
Black Rock NV Aeronaut 2001  
Redmond, WA (SEANAR)60 Acres Park

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