CENTRAL ILLINOIS AEROSPACE

Informant

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Greg Smith's Cow rocket takes off on an AeroTech F20 motor at GARLO 2004. Photo by Jonathan Sivier.

GARLO 2004

Rain and Rockets Don't Mix

By Jonathan Sivier

The Great Annual Rocket Launch Of 2004 was held on Saturday, July 3, 2004. Due to the buckets of rain that fell the event was called off after only a couple of hours of flying. However we were able to fly around 40 rockets in that time. While many of the rockets intended for the various contests were not able to be flown, we still had enough flights to award some of the ribbons.

The primary theme for the day was Moon Rockets, historical or fictional rockets intended for flying to the moon. Unfortunately none of these were flown. Perhaps we will see some of them next year.

In addition we had a Lunar Lander contest. The objective was to get your rocket to land on its legs or the tips of its fins. Here are the results of this contest.

Lunar Lander

1. Adam Joseph - Snitch, an excellent landing on the rocket's legs
2. Greg Smith - Cow on an F20, landed on one fin stuck into the ground
3. William Carney - Zoom on an A8-3, a short flight, but landed on its 3 fins
4. Chris Deem - Uranus Probe, it made a good landing on its legs, then one leg broke and it tipped over

Honorable mention: Chris Deem - Snitch on an E15, landed on its legs with flames shooting out the top

Here are the rest of the prizes awarded.

Best of Show (Static)

1. Greg Smith - Thoy Robin on an E9, very nice paint job of flames on the nose

2. Michael Lohrum - Marvin the Martian Lunar Lander, scratch built, but had an unstable flight
3. Alan Carroll - PML Io on F20, red rocket with gold fins
4. J. Kroenke – AeroTech Arreaux on an F20, a very nice paint job

Best of Show (Flying)
1. Adam Joseph - 2 stage "Eggs"perimental Moon, 2 stage Sputnik-type model with small styrofoam ball around the 1st stage. A very imaginative design and a good flight
2. Lon Westfall – PML Ariel on an H148, the red flames made quite an impression
3. Chris Deem - MX774 on F25
4. Michael Lohrum - Birthday Hat on a C6-3. Similar in design to the Centuri Point. It really took off on the C6

Spot Landing
1. Chris Deem - Snitch, 64.5 feet
2. Adam Joseph - Snitch, 89 feet

Greg's Cow lands with one fin stuck into the ground. Photo by Jonathan Sivier.

Prang Ribbons

A first place prang award was given to Tom England for his Ouranos LV34 and LV56. They both flew on F21 motors and both had shock cord failures and crashed. One hit in the middle of Bradley Avenue. This sort of thing has happened to all of us at one time or another. Hopefully they will be repaired and flying again soon.

Another first place prang award was given to Michael Lohrun for his Marvin the Martian Lunar Lander. It looked nice, but was very unstable in flight. It made several loops right over the launch pad and then plunged to earth. I think some additional nose weight might have made a difference, but you never know.

GARLO 2005 is tentatively scheduled for Saturday, July 2, 2005. In honor of the X Prize and Space Ship One we will be featuring winged spacecraft, real or imaginary.

Another rocket is placed on the pad at GARLO 2004. Photo by Will Carney.

Illinois Missile Crisis VII Contest Results

By Christopher Brian Deem, Contest Director

We held our Illinois Missile Crisis VII contest during our June 26, 2004 launch. It was windier than we usually like for contests, but since the NAR contest year ends June 30th of every year, we decided to go for it. We had a total of five competitors fly the three events, Set Duration (40 seconds), B Boost Glider Duration, and E Streamer Duration. The five contestants were: Jeff Deem, Greg Smith, Jonathan Sivier, first time competitor Lon Westfall, and of course, myself.

As per NAR rules, Set Duration was the first event everyone flew. The goal here was to come as close as possible to the preset time of 40 seconds, with the score being the percentage of error.

For his first contest flight at his first contest, Lon Westfall chose his trusty Alpha III, which has seen many successful flights. This was not

to be one of them, as he had a separation, and was thus disqualified. In Set Duration, there is no second chance. It's all or nothing on the first try.

Jonathan Sivier flew an Estes Star blazer, a kit from the 1960's, unfortunately, his parachute was slow to open and he only got a duration of 18.8 seconds. This gave him an error percentage of 52.5 %. Jeff Deem flew a cloned Starfire, a Centuri kit from the same time frame as Jonathan's Star Blazer. He achieved a duration of 28.7 seconds, and a score of 27.5%. Jeff tried to claim he thought the target time was 30 seconds, but nobody believed him. Greg flew his all-purpose contest rocket for a time of 41.4 seconds, and a score of 2.5%.

I flew a small rocket, my Oasis, which is 2.6 inches in diameter and 7 feet tall. Well, O.K, maybe it's not that small, but loaded up with an AeroTech G80-4, it weighs less than 1500 grams, so it's a model rocket. Legally, it's a large model rocket. Anyway, I got a duration of 39.2 seconds and a score of 2.5%. Since NAR rules state that all times are to be rounded to the nearest full second that meant that Greg and I tied for first place. And duplicate ribbons were awarded. This was the first tie we have ever had in any of our contests, and moved Jonathan and Jeff up one place each.

Our second event was B Boost Glider Duration, and only three of us chose to compete. The three were: Greg Smith, Jeffrey Deem, and Christopher Deem.

Jeff was using his cloned Centuri Mach 10, which we have seen actually glide. On his first flight, it didn't so much glide, as fall horizontally for a seven second duration. That's kind of lame even by our standards, with B engines, we usually get double digits (most of the time). His second flight did slightly better, at nine seconds, for a total of 16 seconds.

Greg was flying an actual purpose made contest boost glider that had a perfect straight up flight. Then, after the pod separated, it plunged pretty much straight down. It turns out the recovery wadding hung up on the tail of the glider, something we have never seen before, and that kept Greg's duration down to 11 seconds. On his second attempt, Greg got another straight up boost; unfortunately, the pod didn't separate at ejection. This adversely affected the glide characteristics of his entry, so his duration was 27 seconds for a total time of 38 seconds.

I made my first attempt with a Quest Flat Cat with a B4-2. I angled the launch rod a little; so that the glider wouldn't go into the trees (the wind had shifted some). Unfortunately, this meant that when the launch angle combined with the weathercocking caused by the wind, my glider went almost horizontal. Well, it has wings so it can after all, fly like an airplane, just not as high as I would have liked. After ejection, it did glide fairly well for a duration of 14 seconds.

For my second flight, I wisely decided to launch straight up, but the glider fell off the pod before it could be launched and broke the boom right in front of the tail. So, borrowing some CA from Greg, I started to glue it back together. TODAY'S HANDY ROCKET REPAIR TIP: when you are gluing flimsy balsa structures back together, and the wind blows said structures off your table, don't grab them. After gluing all the various pieces into some semblance of a glider, it was back to the launch pad. Where the glider blew off of the pod. Again. So, I put it back on the pod. Again. And it blew off the pod. Again. And broke the boom. Again. Manfully resisting the urge to stomp it into little pieces, I got my back up glider, which had been slightly burnt during our last contest. Launching it quickly, before it could blow off of the pod, I got a reasonably good boost. It wasn't properly trimmed, so it stalled some. But I got a 31 second glide for a total of 45 seconds and first place.

Our last event was E Streamer Duration. When planning the events for this contest, C Streamer Duration was suggested, but we felt

that the park was too small for that, so we went with E Streamer Duration. You might want to read that last sentence again, it pretty much sums up the way we do things. But anyhow, we had all five contestants give this a shot.

Lon Westfall had a minimum diameter rocket that had a really nice boost on an E9-8. Unfortunately, at ejection it blew apart into several pieces for a DQ. Now, every contest year, there are several poor souls who for one reason or another, compete in one or more contests, but don't win any points. Faced with this utter humiliation, most go to live in the woods, subsisting on twigs, leaves, and the occasional slug, or worse, become telemarketers. In order to help Lon avoid this terrible fate (he was already muttering about needing to call some people around dinner time), I asked if he had any rocket that could fly on an E. So, flying his Tall Boy in its shortest configuration, he managed a nice flight, and a duration of 51 seconds. Thus, grabbing not only some contest points, but also double-digit points, allowing him to sneer at those who only managed single digits.

I started off with a minimum diameter rocket that went to the very limits of visibility, and apparently got stuck in a cloud. The next day, I managed to find the streamer, still rolled up with the shroud line burned thru, about 350 to 400 yards away from the launch area. The rocket itself was never found. So, next try, using my back-up rocket. A larger model, with a Big Honking™ Mylar gift-wrap streamer. It had a nice boost, the streamer ejected and started to unroll and then tore. That's right; the majority of my streamer just ripped off and fluttered away. After what happened with my boost glider, I consider this proof that the rocket gods really were messing with me. Anyhow, with its severely shortened streamer, I managed a duration of 70 seconds.

Greg started off with another minimum diameter type rocket, but his held together, and didn't get lost, for a duration of 78 seconds, the longest duration of the event. For his second flight, he went with a larger model with a larger streamer. Unfortunately, he got what we in the rocket business refer to as a "shred". Back in the old days, when we were kids, we called it "exceeding the speed of balsa". Greg managed to find the nose cone and shock cord, as well as the fin the shock cord was connected to. The next day, while I was searching for my lost rocket, I found the other two fins from Greg's rocket. We never did find the body tube. How does something like that just vanish? I guess the rocket gods were hungry.

Anyhow, after Greg, Lon, and I managed to lose, or destroy half of the rockets we used for this event, Jonathan decided he didn't want to play that game. Jonathan used his Estes Eliminator, which is a Maniac with an E engine mount, and a large cloth streamer for a 45 second flight. He then proved it was no accident, when he did it again for his second flight, same duration, 45 seconds, for a total of 90 seconds. You can do that when you don't screw up one of your flights, but some of us thought Jonathan wasn't playing fair, I mean he didn't lose or destroy anything, and where's the fun in that?

My brother Jeff Deem elected to use a two times upscale of a Carlisle Rock-A-Chute Mark 1, the first model rocket ever made. As it took off under the power of its mighty E9 (the same motor used on everybody's flights), Jeff asked in a rather puzzled tone of voice: "Did I put recovery wadding in that?" No, he did not. Fortunately, he was using the crepe streamer material used for party decorations, which is by law fire resistant. He got a duration of 49 seconds, and a singed streamer. Tearing off the singed portion of the streamer, and using recovery wadding, his second flight got a duration of 51 seconds for a total of 100 seconds, and first place.

So, we managed to gather a total of 896 contest points for our club, divided as follows: Lon Westfall, 12 points, Jonathan Sivier 104 points, former club champion Greg Smith 242 points and Jeff Deem, who didn't notice the five

gallon bucket with “recovery wadding” written on the side, 244 points. Our new club champion, with 294 points, is Christopher Brian Deem. Me, that’s right, me, not Greg, not you, ME!! For which I win, absolutely nothing, which I will treasure forever. Remember, you too can compete and become a big time competitor like us, and lots of times, we aren’t that hard to beat.

The final Atlas 2AS rocket lifts off. Photo from International Launch Services

Final Atlas 2 Launch

By Chuck Greenwood

Well, out with the old, in with the new. The final flight of the highly successful Atlas 2 went up last night after a string of bothersome delays, and just in time to miss the approaching foul weather. On August 31, 2004 at 7:17 pm EST the secret spy satellite mission began with a flash and a roar. I dodged out into the front yard with my kid, and we watched the ten-foot diameter rocket noiselessly rise 15 miles away.

The entire ship was visible, with the flared payload shroud obviously wider than the booster. The four SRBs were invisible, but their effects were noticed! Nearly a minute into flight, the Air Lit pair fired, increasing the exhaust and making it more noticeable. Two slender exhaust plumes could be seen snaking away from the booster as the Ground Lit pair fell away.

The ground track of the vehicle was north-easterly, to match a nearly 60-degree orbital inclination. This meant the rocket was flying almost straight away from us. This would normally mean a louder launch, but the wind was away from us, so the sound was faint. There was also an effect that I haven't noticed before. As the rocket rose, the thinner air permitted the exhaust plume to widen. Since it was traveling away from us, I expected the cloud of vapor to look smaller with distance. However this time it actually grew in apparent size.

Long after the flight, I noticed a pair of very bright dots – brighter even than Venus. These were weather balloons, which are always released before rocket flights to monitor upper level winds. One disappeared a few minutes later, after bursting I suppose. A strangely knotted cloud drifted by, too. I think this was probably rocket exhaust, since there were few other clouds and they were all very different in appearance from the knotted cloud. I use the word knotted because it looked just like some fancy knotwork on an old sailing vessel - like a rug or doormat made from old rope - but spread out so you could follow the cord through the knot.

If we make it through the approaching hurricane, we'll be anxiously waiting for the Delta 4 - Heavy demonstration launch scheduled for October 20. That will be a sight - three liquid cores strapped together to provide launch capabilities not available since the days of Apollo. The Atlas 5, which replaces the 2, will have a similar gargantuan mode.

As seen from the Cape Canaveral press site, the Lockheed Martin Atlas 2AS vehicle launches just before sunset. Steven Young/Spaceflight Now

High Power Humor

Overheard by Greg Smith during the demo launch at the Boy Scout Jamboree held at the former Chanute Air Force Base on Saturday, September 18.

We had been talking to one of the Scouts about rocket motors -- how they use different types of propellant, that some are reloadable, etc. He walked over to where someone was filling a rocket with cellulose insulation from our wadding bucket and said,

"You mean they fly on LINT?"

Ask The Experts

This section is devoted to answering technical questions posed by CIA members. If you have a question you would like to have answered in a future edition of the Informant send them to the editor.

Question:

Nick Cassavaugh asks -

I want to move up to a dual-deployment rocket, since I want to move up in power and certify level 1. I would love comments from everyone on who has a good kit or what other way to get started with dual deployment. I've been looking at buying a Public Missiles kit with the CPR3000 system. Has anyone used this system? Any other comments in general are welcome.

Answers:

William Carney replies –

Dual deployment is tricky. For level 1 I would suggest you skip it. I flew my Phantom 4000 with an H and did not need a dual deployment system. On the other hand I am working on my Level 2 rocket for which I am considering using dual deployment. I did see a radio transmission/reception device to use as a backup in case of the timer or altimeter failing. The most successful flights I have seen have all had backup systems.

Chuck Mack replies –

A few comments to add to the discussion -

I have had a great deal of success with dual deployment using a PML Eclipse and a Sudden Rush, both using CPR3000.

The key to CPR 3000 is to replace the phenolic altimeter bay with a fiberglass 38mm tube from Hawk Mountain Enterprises. Check out their website for same.

If you go with a fiberglass altimeter bay, you will probably need to substitute a slightly thicker o-ring to get a good seal between the CPR3000 ends and the altimeter tube. Also, use plenty of grease.

I have several Adept dual-deployment altimeters. They are well made, easy to use and work every time. I prefer Adept altimeters because they augment the charge that ignites the electric match with a capacitor which really zaps it. Their instructions are informative, practical, and extensive.

Also, in my experience, Quantum tube is far more durable, far easier to finish, and much easier to work with than phenolic or cardboard. I've core-sampled with Quantum tube without any damage that would have destroyed phenolic or cardboard. It is a little more expensive, but, in my experience, is much more durable than cardboard or phenolic.

For level one stick with a simple motor ejection rocket. I would highly recommend the PML Tethys - which is what my L-1 cert was on. With a four inch rocket it is easy to fillet the fins because you have a lot of room between the fins and the motor tube. Also a two part foam works well to fill the fin canister, just don't mix up too much or you wont have enough room for your motor bulkhead.

For level two I strongly suggest a PML Eclipse and an Adept Altimeter. They fly great and are easy to build. My Eclipse routinely flies to about 3000 feet on small J motors, high enough to be impressive, low enough to still see and recover.

For cold weather flying one trick with phenolic tubing is to let the rocket cold soak in your car overnight because it shrinks a little (a one time event) in extreme (winter) cold. After it shrinks, you can lightly sand the piston to ensure a smooth piston ejection.

I also spray the inside of the Quantum tube and the piston with hardware store silicon spray to provide minimum friction between the piston and tube wall.

Better yet, leave the piston out and use a Nomex pad chute protector - check out Pratt Hobbies website for same. Piston ejection is problematic, in my opinion. Ejection residue, dirt, etc. can cause the piston to bind. A Nomex pad is simple and light, just be sure it is large enough to cover the entire tube so you don't burn your chute.

When gluing Quantum tubing make sure you rough it up with 80 grit sandpaper. West systems epoxy is by far the best. Stay away from hardware store epoxy; I've had it fail in summer heat. I use JB Weld for gluing metal CPR components to the altimeter tube. Aeropoxy is a good epoxy putty for fin fillets. It is strong, sandable and light. Check out the Shadow Composites and/or Aircraft Spruce website for epoxy information.

For the ultimate in quality, I like filament wound fiberglass rockets - again check out Hawk Mountain Enterprises. You may lose the rocket, but you'll never destroy it. I regularly fly their Raptor. I have a Bad Attitude under construction for my Level 3, and recently purchased a Transonic 2. The kits are expensive, but indestructible.

Tim Lehr, at Wildman rockets, is a good source and is very knowledgeable in all areas. He has flown a lot of fiberglass rockets. Check out his website and give him a call. He is more or less the motivating force behind Tripoli Quad Cities and a great guy.

Jonathan Sivier replies –

I would agree that using a fairly basic, though larger, rocket for your level one certification is a good idea. You will have enough new things to deal with building a larger and stronger rocket and learning to use reloadable motors. I would recommend the LOC EZI as an excellent high power rocket to get started with. It is 4 inches in diameter, has through-the-wall fins and a 54 mm motor mount.

Probably the person in our club with the most experience in flying dual-deployment systems is Gary Buck. I would suggest talking to him at the next meeting or launch and watching him the next time he is prepping one of his larger rockets.

Goddard and Stumpy

By Mark Page

Episode four was dreamed up to tell the venting story in a humorous way. I recall being

quite desperate for a punch line. This led me to consider other ways to get the episodes to flow. I found the one-liners to be very difficult to construct, and not very satisfying. Subsequent episodes followed a storyline. Regarding the supercharger, I haven't seen this in the field.....yet!

Other Clubs

Tripoli Central Illinois

The Tripoli Central Illinois folks launch from November to April at the Tuscola Airport on various Sundays. They have a 10,000' waiver. Newcomers are always welcome. They do require that people who fly motors larger than G be NAR or Tripoli members with insurance.

Contact: Don Reasor
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http://www.tripoli.org/launches/TRA_Central_IL.shtml

Northern Illinois Rocketry Association

NIRA holds regular launches in the Chicago area

http://www.NIRA-rocketry.org/

Peoria Area Rocket Society

A model rocket club serving Peoria, IL and surrounding communities.

http://www.piars.us/

Tripoli Quad Cities

Model and High Power rocketry for Eastern Iowa and North Western Illinois.

http://www.tripoliquadcities39.com/

Tri-State Rocketry

Serving Quincy, Illinois and surrounding communities.

http://www.geocities.com/tri_state_rocketry

Indiana

There are various clubs in Indiana who hold regular launches.

http://www.indyrockets.org/

St. Louis Rocketry Association

The St. Louis Rocketry Association holds model and high power launches approximately monthly.

http://www.stlouisrocketry.org/

Local Vendors

Here are local places to get rocketry supplies.

Hobby Lobby: next to County Market near the corner of Mattis and I-72.

Leisure Time Pet & Hobby: 807 N. Mattis.

Rocket R&D: Gary Buck at 217-841-4777.

Slot and Wing Hobbies: Just north of I-74 on the east side of Prospect.

Call For Submissions

If you have something to share with the other members we would love to hear from you. Possibilities for submission include: reports on launches or other events, technical articles, rocket plans, contest and flying tips and hints, reviews of models or motors, books software or other items of interest to rocketeers and photos taken at launches. If you have something in mind to submit for the next issue, in early 2004, contact the editor.

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