



Informant

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Gary Buck's rocket takes off on a Silver Streak motor at GARLO 2003. Photo by Jonathan Sivier.

GARLO 2003

By Jonathan Sivier

The Great Annual Rocket Launch Of 2003 was held on Saturday, June 28, 2003. Despite

some brief moments of light rain in the morning and more wind than we might like, it turned out to be a fine day. We had a good turnout of fliers and spectators and more rockets were flown than has been the case at some previous GARLO's.



A couple of kids check out Jeff Deem's CHAD-staged upscale Carlisle Roc-A-Chute. Photo by Greg Smith.

The main theme for this year was, "Look Ma, no fins!" That is rockets using non-traditional methods of guidance, such as tube-finned rockets and cones. In addition we featured old-time model rockets, 25 years old or older.

Here are the results of the contests:

Non-Traditional Guidance

1. Mark Joseph - Lampshade on an E18
2. Chris Deem - Ramjet
3. Rick Kramer - Utimately Tubular
4. Jonathan Sivier - Monocopter on an E9

Best of Show (Static)

1. Chris Deem - Roc-a-chute
2. Jeff Deem - Roc-a-chute
3. Jeff Deem - Roc-a-chute, 1.6X upscale
4. Chris Deem - Roc-a-chute, 2X upscale

Best of Show (Flying)

1. John Kallend - Aerotech Phoenix RCRG
2. Greg Smith - BecTec Fun Bird 24 on an E6-6
3. Gary Buck - Iris on an H220SS
4. Chris Deem - Big Brute on an F62-4

Spot Landing (Controlled)

1. John Kallend - Aerotech Phoenix RCRG, 15.38 meters

Spot Landing (Uncontrolled)

1. Gary Buck - 8.23 meters

Classic Rocket Kit

1. Greg Smith - Estes Cobra
2. Gary Buck - Coaster Pegasus
3. Jonathan Sivier - Estes Star Blazer
4. Jeff Deem - Centuri Groove Tube

Prangs

1. Nick Cassavaugh - Monocopter on an F12
1. Nick Cassavaugh - V2 on an F12
1. Mark Joseph - Estes Fat Boy on a D24
1. Greg Smith - BecTec Fun Bird on a D3-5
2. Chris Deem - Centuri Point
3. David Harris - Serval on an F20

We would like to thank Art Applewhite (www.artapplewhite.com) and Jeff Deem of BecTec for providing kits for prizes.

GARLO 2004 is tentatively scheduled for Saturday, July 3, 2004. Since next year will be the 35th anniversary of the lunar landing in

1969, we thought a good theme would be "Bang! Zoom! To the moon!" featuring any spacecraft, real or fictional, which may be associated with the moon, or any other moon for that matter.

Insurrection V Contest Results

by Christopher Brian Deem, Contest Director

We held our Insurrection V contest on August 10, 2002 during our sport launch at Dodd's Park in Champaign. We only had four contestants competing in three events, so it didn't interfere much with the regular launch activities.

Our first event was the dreaded Plastic Model Conversion, sometimes referred to as Flying Plastic Death. We only had two participants, Greg Smith, and myself. Greg had an incredibly beautiful V-2, while I was trying with a 1/200 scale Saturn 1B.

The object of this event is to take a plastic display model, that wasn't intended to fly, and make it fly. This can be quite difficult, as you are limited to models of guided missiles, space vehicles, rocket vehicles, and jet aircraft with rear mounted engines. In real life most of these have active guidance systems, so making them stable in flight is a challenge.

Anyway, Greg's V-2 had one of his well-known, multi-coat, incredibly beautiful paint jobs. He chose a black and yellow paint scheme from one of the White Sands test flights. Greg got lots of static points for his well built, and incredibly good-looking model. Did I mention that this thing was gorgeous? For its flight, Greg used an E30-4 teleportation unit. At ignition, it pretty much vanished. We heard the ejection charge, but couldn't find the rocket on its 24-inch nylon parachute. Just as we were about to give up on ever seeing it again, Mark Joseph turned around and saw it about to land behind us. How it passed over us without anyone seeing it, I don't know.

My effort didn't fair so well. A Saturn 1B has eight fins, but they are relatively tiny. I had

modeled a simplified version of my rocket in RocSim, and did a swing test, both of which showed that I had a stable model. However, in practice, it seemed to lack enough corrective force. In other words, it tended to wander a bit. O.K., it wandered a lot. The first flight, with a C6-3 was really sub-optimal, and ejected the parachutes barely above ground. After a bit of discussion, everyone let me launch it for a second attempt. I think they just wanted a good laugh. With a B4-2, it performed slightly better, but still left a lot to be desired. However, at ejection, the upper portion of my model drifted over and landed on the passenger seat of my van. Now that's a short recovery walk. So Greg won PMC going away.

Our next event was B Streamer Duration flown By Greg Smith, Jonathan Sivier, Jeff Deem and myself. In what is rapidly becoming CIA contest tradition, both Jonathan and Greg claimed they were only going after flight points, and didn't care how they did. After their first flights, they were tied at 18 seconds each. This is the point at which Jonathan cracked. Seeing that he actually could beat Greg, he decided that he cared after all. Unfortunately, since he didn't have a smaller, lighter rocket, or a bigger streamer, he basically just fine tuned his launch angle and tried to will his rocket to perform better. It must have worked, because he got one more second duration for a total of 37 seconds. Greg, repeating his first attempt, got one second less, for 35 seconds total. This gave Greg fourth place, and Jonathan third, which made Jonathan quite happy, if his little dance is any indication. Jeff chose to fly an over thirty year old Estes WAC Corporal for times of 41 and 36 seconds for a total of 77 seconds.

My first flight was with a scratch built Quest T-20 sized rocket that was actually kind of heavy for its size. That got me 39 seconds, or two seconds behind Jeff. So for my second flight, I used a full-length BT-20 sized rocket with a Big Honkin' Streamer™ and got 47 seconds for a total of 86 seconds and first place.

To give everyone an idea of how we measure up in the competition scene, that total of all eight of our flights was 235 seconds. The National record for B Streamer Duration (best single flight) is 299 seconds. So we are a little off a record setting pace.

Last, and least, our final event was Parachute Spot Landing. The last few times we've done a spot-landing event, we've had some fairly close landings, several in single digits. That was not to be this time.

I used my CIA Front on a C11-3 to set a spot on one of the soccer fields, so far, so good. Jonathan was up first with his 24mm motor Fat Boy. It had a really nice flight on a D12-5. Unfortunately, it weathercocked to the south quite a bit, and Jonathan, well, missed the park. He even missed Heritage Park across the street, and landed in the parking lot at the body shop. Jonathan was able to get his Fat Boy back (and a nice car stereo ☺) but was way over the 50 meter limit for getting a measurement.

My attempt was next. The flag we were trying to hit was northeast of the launchers, so I very carefully adjusted the launch angle. And I nailed the North part of it! Yep, my rocket went right over the flag at an altitude of 100 feet or so, and kept on going, and going. It went over the soccer field, over the sidewalk, over the stream to finally land next to the materials storage area next to the park. Well, it might not be in the park proper, but it's on Park District property, so we're getting closer.

Jeff was up next and managed to uphold both club and family honor by actually landing in the park. The flag was in the northwest corner of a soccer field, and he landed south of the soccer field, so he was still too far away for a measurement, but what the heck, he hit the park! Lastly, Greg, while muttering about how we were all thinking too much, launched his B SD rocket with a parachute, and got 35.65 meters, for first place. Thus being the only one to get anywhere near the flag, and making the rest of us look bad.

The final points results are: Greg Smith 318 points for first place, Christopher Deem 250 points and second place, Jeff Deem 58 points and third place and Jonathan Sivier fourth place with 40 points. The club as a whole received 666 contest points (my, what an odd number ☺). This makes Greg club champion, at least until our next contest. Greg is a humble man of the people, so it's not necessary to kneel in his presence, a simple salute will suffice.



Mark Joseph's monocopter takes off. Photo by Jonathan Sivier.

Alien Enterprises' Monocopter

A review by Jonathan Sivier

The Alien Enterprises' Monocopter seemed like a perfect fit for the "Look Ma, no fins!" theme of GARLO 2003 so three CIA members, Nick Cassavaugh, Mark Josephs and myself, decided to get the kits and build them. The instructions come on a mini-CD and are very well written and very detailed. At first glance they appear a bit daunting since there are so

many steps. However this is just because the instructions are so detailed and the steps are broken down completely to make it easy to understand how the kit goes together.

The kit went together very easily over the course of a few evenings. The only real modification I made from the instructions was to put plenty of epoxy along the joint where the wing attaches to the body.

The model flies very nicely on a wide range of motors. It works best with plugged motors such as the D11-P and the E9-P, and reloads with no ejection charge, but will work fine on motors with short delays such as the E9-4. The ejection charges of these motors do make the model a bit dirty, but they function fine.



Alien Enterprises Monocopter 24 on the pad. Photo by Jonathan Sivier.

We did discover that the joint between the wing and body is the weak point of the model. Both Nick and Mark's models broke at this point on their second flights at GARLO. I think the extra epoxy I applied kept mine from breaking. In light of this Mark added some extra strips of carbon fiber across this joint when repairing his monocopter and I added some as well, just to be on the safe side.

The monocopters fly very well. They make a real change-of-pace from the usual model rockets at our launches. They don't go too high, but are quite impressive, making a very

distinctive sound as they fly. Mark videotaped the flight of his monocopter and when he analyzed the sound he found that it rotated at around 3600 RPM.

If you would be interested in getting a monocopter of your own, contact Ed Miller at thunderhead@ihs2000.com.



Deep Space 1 takes off on a Delta II rocket on October 24, 1998. NASA Photo.

Deep Space 1

Careful Planning and Quick Improvisation Succeed in Space Biz

By Tony Phillips

On December 18, 2001, ground controllers at JPL commanded NASA's Deep Space 1 (DS1) spacecraft to go to sleep. "It was a bittersweet moment," recalls Marc Rayman, the DS1

project manager. Everyone was exhausted, including Deep Space 1, which for three years had taken Rayman and his team on the ride of their lives.

DS1 blasted off atop a Delta rocket in 1998. Most spacecraft are built from tried-and-true technology-otherwise mission controllers won't let them off the ground. But Deep Space 1 was different. Its mission was to test 12 advanced technologies. Among them: an experimental ion engine, a solar array that focused sunlight for extra power, and an autopilot with artificial intelligence. "There was a good chance DS1 wouldn't work at all; there were so many untried systems," recalls Rayman.

Nevertheless, all 12 technologies worked; the mission was a big success.

Indeed, DS1 worked so well that in 1999 NASA approved an extended mission, which Rayman and colleagues had dreamed up long before DS1 left Earth-a visit to a comet. "We were thrilled," says Rayman.

And that's when disaster struck. DS1's orientation system failed. The spacecraft couldn't navigate!

What do you do when a spacecraft breaks and it is 200 million miles away? "Improvise," says Rayman.

Ironically, the device that broke, the 'Star Tracker,' was old technology. The DS1 team decided to use one of the 12 experimental devices-a miniature camera called MICAS-as a substitute. With Comet Borrelly receding fast, they reprogrammed the spacecraft and taught it to use MICAS for navigation, finishing barely in time to catch the comet. "It was a very close shave."

In September 2001, DS1 swooped past the furiously evaporating nucleus of Comet Borrelly. "We thought the spacecraft might be pulverized," Rayman recalls, but once again

DS1 defied the odds. It captured the best-ever view of a comet's heart and emerged intact.

By that time, DS1 had been operating three times longer than planned, and it had nearly exhausted its supply of thruster-gas used to keep solar arrays pointed toward the Sun. Controllers had no choice but to deactivate the spacecraft, which remains in orbit between Earth and Mars.

Rayman has moved on to a new project-Dawn, an ion-propelled spacecraft that will visit two enormous asteroids, Ceres and Vesta, in 2010 and 2014. "Dawn is based on technologies that DS1 pioneered," he says.

Even asleep, DS1 continues to amaze.

Find out more about Deep Space 1 at <http://nmp.jpl.nasa.gov/ds1>. For kids, go to <http://spaceplace.nasa.gov/ds1dots.htm> to do an interactive dot-to-dot drawing of Deep Space 1.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



This was the final image of the nucleus of comet Borrelly, taken just 160 seconds before Deep Space 1's closest approach to it. This image shows the 8-km (5-mile) long nucleus from about 3417 kilometers (over 2,000 miles) away. NASA Photo.

Goddard and Stumpy

By Mark Page

This second episode was inspired by an actual event back in high school. We were flying Dave Harris' Estes Honest John rocket near our home in Mahomet Illinois. The rocket looped and flew horizontally past us at chest height then ricocheted off the nearby road into Stedham Woods.

Kids, don't try this at home!

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

Phone: 217-253-2586

Email: Don.Reasor@netcare-il.com

http://www.tripoli.org/launchad/TRA_Central_IL.html

NIRA

NIRA holds regular launches in the Chicago area

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

Indiana

There are various clubs in Indiana who hold regular launches.

<http://www.indyrocks.org/>

St. Louis

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: In Homer, 217-896-3041
<http://www.rocketrd.com/>

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

Director of Operations: Greg Smith, 217-352-9655, gd-smith@uiuc.edu

Secretary and Treasurer: Jonathan Sivier, 217-359-8225, jsivier@uiuc.edu

NAR Liaison: Jeff Deem, 217-328-2858, jdbectec@aol.com

Tripoli Prefect: Gary Buck, 217-344-8803, garyrd@cu-online.com

Member-At-Large: Robert Brunner, 217-351-5499, rbrunner@uiuc.edu

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Editor: Jonathan Sivier
Phone: 217/359-8225
Email: jsivier@uiuc.edu
<http://www.prairienet.org/cia/>

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.

CIA Officers

Here is the contact information for the officers of the CIA.

President: Alan Carroll, 217-359-3221, amc@cisco.com

Vice President: Chris Deem, 217-356-9808, chrisdeem@pdnt.com