



Informant

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Kevin Trueblood prepares his upscale Orbital Transport for launch as Dave Harris and Matt Trueblood look on. Photo by Jonathan Sivier.

GARLO 2005

By Jonathan Sivier

The Great Annual Rocket Launch Of 2005 was held on Saturday, July 2, 2005. Overall it was a very successful event. The temperature was nice, the sky was clear and the winds were

light. The only real downside was that the wind was forecast to be from the northeast so we carried the launch equipment pretty far out onto the field. In the end the wind shifted around quite a bit, sometimes being from the northeast and sometimes due north or even northwest. However it was so light that we had very little trouble. I think only 2 or 3 rockets failed to land in the field.

We had well over 100 people attend GARLO this year. There were lots of people flying rockets, but also a large number of spectators. There were several young kids flying rockets, some for the first time. It was good to see so many young people getting involved in the hobby. At least one family came from the build-and-fly we did in Paxton in May. We also had fliers come from the Peoria club and Iowa.

I think this was one of the best GARLOs I can remember as far as having a large number of flights of rockets based on the main theme of the day. This year's theme was "Winged Spaceships" and we had quite a few winged rockets of various kinds flown during the day.

As we were discussing the results of our various fun contest events we came to the conclusion that one rocket really was the most impressive one flown during the day. This was Kevin Trueblood's upscale Orbital Transport.

We awarded it 1st place in the Winged Spaceship category and it easily won the Spaceplane Glider Duration. It also would have been awarded the prize for best looking rocket and best flight of the day, except that we like to spread the glory around and so try not to award additional prizes to rockets that have already won in a judged category. Anyway isn't it true that when it comes to flying rockets, everyone is a winner.



Chris Deem's 8-engine BATFE Special had a successful flight, despite the CATOing of 2 motors. Photo by Jonathan Sivier.

Here are the results of the GARLO 2005 contests.

Winged Spaceships

1. Kevin Trueblood - Upscale Orbital Transport with R/C glider on an I211
2. Jonathan Sivier - Centuri Mach 10
3. Jonathan Sivier - Orbital Transport
3. Greg Smith - Orbital Transport
4. Ben Evans - Space Shuttle

Spaceplane Glider Duration

1. Kevin Trueblood - Orbital Transport, 47.9 seconds
2. Angus Rockett - Find Me Now, 35.8 seconds
3. Jonathan Sivier - Orbital Transport, 33.0 seconds
4. Greg Smith - Orbital Transport, 22.3 seconds

Best of Show (Static)

1. Greg Smith - LOC Onyx
2. Bill Fryers - Talon 2B
3. Rick Kramer - Air Mail (covered with space stamps)
4. Will Carney - Interceptor G

Best Flight

1. Mark Joseph - BSD Horizon on an I161 with dual deployment
2. Chris Deem - BATFE Special on eight engines, four E9's and four D11's. Two engines CATOed, but all eight lit and it still boosted straight.
3. Gary Buck - Red on an H100
4. Kevin Trueblood - Purple Crayon on an H128

Honorable Mentions

- Lon Westfall - Hawk Mountain Raptor on a G75
- Mark Patsavas - Calisto on a G80
- Gary Buck - Iris on an H220 Silver Streak
- Ben Evans - Lil Kahuna on a G38
- Greg Smith - Video Rocket on a G64
- Chris Deem - Airspike on an F50 Silver Streak

Spot Landing (Uncontrolled)

1. Aidan Wefel - Alpha IV (13' 11")
2. Greg Smith - LOC Onyx (27' 11")
3. Rick Kramer - V2 (34' 9")
4. Mike Plotts - Executioner (41' 7")

Moon Rockets (from 2004)

1. Will Carney - Little Joe II

Prangs

1. Greg Smith - Orion, arced over and lawn darts
2. Dave Ketchledge - Ecee glider, came apart in the air
3. Bill Murphy - SPEV, D12 engine CATO, like a roman candle

Future GARLO Themes

Here are the themes we have planned for GARLO for the next few years so you can be planning your rocket construction.

GARLO 2006: Cluster's Last Stand. The featured rockets will have multiple engines, clusters and multi-stages. This event will be held on July 1, 2006.

GARLO 2007: The NAR was founded in 1957 so we will celebrate the 50th anniversary with classic model rockets and their clones. Upscale versions will also be welcome. Also Sputniks and similar rockets will be featured to celebrate the 50th anniversary of the flight of Sputnik.

GARLO 2008: The 50th anniversary of the formation of NASA will be highlighted by scale models of American space program rockets.

Paxton Build-and-Fly

In May the club went up to Paxton to hold a build-and-fly workshop for the Ford County Big Brother, Big Sisters organization. We felt it went pretty well. In the end there were only 10 kids (and at least an equal number of adults) who attended. Apparently they had several last minute cancellations. However this means there may very well be a number of kids who would be interested in doing another workshop at a future date. Having less than 25 kids was probably a good thing. We could have handled a few more with no trouble, but 25 would have been a lot and we would have had trouble flying all those rockets in the available time.

There were 5 CIA members present and the building portion of the day went well, once someone came to open the door to the park building. The flying also went well, with very few, if any, misfires. Whatever it was that we said to them about putting in their igniters really did the trick. If we could just remember what it was.



One of the kids at the Paxton build and fly prepares to launch his Alpha III. Photo by Jonathan Sivier.

A couple of the rockets came apart on their first flight. We suspect there wasn't enough time for the glue to dry, or the amount of glue used was non-optimal. However most of them held together for all three flights, two A's and a B. We did have two motor mounts fail during the first round with A8-3s, one of them tore the blue motor tube in half and ejected the fin unit. There were one or two nose cone/shock cord separations, and a fair number of wadded up 'chutes, but those caused no damage. It was gratifying to see that they did get better at packing the parachutes as the day went on. Three of the rockets got caught in trees, but Robert Brunner was able to recover two of them with the CIA Rocket Recovery Pole™. One briefly hung on a power line at the south edge of the field, but blew off almost immediately. (Whew.) Another rocket separated and fell somewhere out of sight to the south of the field.

Chris Deem, Jon Sivier and Lon Westfall flew a few rockets as demonstrations and one of the adults in attendance also brought a couple of rockets. He had a Super Big Bertha that he flew beautifully on D12's and an Aerotech Initiator that he flew on an E15. Unfortunately the

Initiator failed to deploy its 'chute and crashed in the adjacent field. Whether this was due to an extra long delay or a clogged baffle or some other cause we weren't able to tell.

We gave out a few schedules and we may see some of the kids and/or adults at some future launches. All in all it was a good day. Not surprisingly there is a Monicals in Paxton so we were able to end the day with our traditional pizza.



Jonathan Sivier's Centuri Mach 10 ignites at GARLO 2005. You can see the igniter plug flying away to the right of the rocket after bouncing off the blast deflector. Photo by Corwin Carroll.

Flying the Mach 10

By Jonathan Sivier

One of my favorite rockets has always been the Centuri Mach 10. I had one back in the early 70's and lost it in tall grass at a launch. I've always wanted another one and was lucky enough to find one, still in the bag, for sale at

NARCON a few years ago. Since the theme for GARLO this year was "Winged Spaceships" it seemed appropriate to build and fly it.

It went together very quickly. If I had used quick drying glue I suspect I could have put it together in a couple of hours. As it was I spent a few minutes each evening for about a week and got it built and trimmed.

One hard part was to know how much weight to put in the nose cone. The instructions say to fill it with clay, but some people had said that it still didn't really fly straight even with that weight, though I couldn't recall any problems with mine back in the 70's. I calculated the weight of the clay that would fill the nose cone, it came to 18 grams, and so I put 20 grams of lead shot in the nose instead of clay. I figured if it needed more weight this would leave room to add more lead shot.

When trimming it the Mach 10 seemed to glide better than I had expected from the instructions and other peoples stories. Hand launching it from shoulder height I got 20 to 30 feet of glide.

Flying it at GARLO was a real blast. It flew much straighter than I had heard or expected. It seemed to boost straight up with no arcing over. It glided very fast, of course, and isn't in any sense a competition boost glider, but it flew extremely well and was a real crowd pleaser.

One thing I need to figure out is a way to make it circle. I think it flies a bit too straight and could easily get lost. In fact I nearly lost it at GARLO. The first flight landed on the field not far from the pads. However the second flight went much further away. I thought it flew over a hedge of bushes on the eastern edge of the field, but it actually must have hit those bushes and fallen into the long grass at their base. I wasn't able to find it on the day of GARLO, but I went back the next day and found it after looking for about 20 minutes.

This is definitely a fun rocket and one I hope to enjoy flying for many years. I'm planning on building an upscale version that will use 24 mm motors as well. It should be fairly easy to build a clone of this kit and I would highly recommend it as an interesting project. The plans can be found on line at "Ye Olde Rocket Plans". The URL for the Mach 10 plans is "<http://plans.rocketshoppe.com/centuri/cenKA-4/cenKA-4.htm>".



Greg Smith's Quantum Leap boosts on an H242 at Flatville on November 13, 2004. The upper stage had a G80. Unfortunately the payload section separated at staging and the rocket did loop-the-loops. The booster stage then landed on some power lines. It sure looked good taking off though. Photo by Greg Smith.

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.

Given that GARLO 2006 will feature rockets with clusters and multiple stages the Ask The Experts article for this issue and the next will focus on techniques for clustering and staging rockets.

How multistage rockets work

The advantage to using multistage rockets is that the rocket leaves behind the weight of the earlier stages as the upper stages fire. This lightens the rocket and results in better performance of the upper stages. Thus you get a much higher flight than the same motors in a single stage, even if they were fired sequentially. All motors can be staged using electronic timers and onboard ignition systems. This can be rather complex though. Luckily black powder motors can be staged using the booster motor in the lower stage to ignite the sustainer motor in the upper stage. There are two basic methods of achieving this, tape staging and gap staging.

Black powder booster motors, such as the Estes C6-0, don't have either a delay element or an ejection charge. The propellant is in an end-burner configuration so as it finishes its thrust it burns through and a small amount of flame, hot gases and burning particles come flying out of the forward end of the motor. If another black powder motor is in position the burning particles will ignite it and the upper stage will take off. The trick is to keep the stages together until the upper stage motor fires. They need to be held together tightly enough that the gases from the booster won't blow them apart, but not so tightly that they won't come apart when the upper stage engine fires. Also it is very important that the booster motor stays in place. If the booster motor is kicked out instead of the stages separating the booster stage will probably be burned up by the upper stage motor's exhaust. You want the stages to separate when the upper stage fires, not when the booster burns through and you want the entire lower stage to be ejected not just the booster motor

Taped staging

The simplest method of staging black powder motors is to tape them together. You butt the forward end of the booster motor to the aft end of the upper stage motor and wrap a layer of tape around them. Use cellophane tape instead of masking tape. Cellophane tape will burn

through as soon as the upper stage fires. Masking tape is less reliable. You have to use friction motor retention, since there's no room for a motor hook between the stages, so be sure to get the motors fitted in tightly. Usually the way to do it is to fit the upper stage motor into place, then tape the booster motor to the nozzle end of the motor. Then wrap tape around the booster motor and slide the lower stage onto the motor.

Gap staging

Gap staging is also used with black powder motors. The burning particles from the booster motor will ignite the upper stage motor even if it is several inches away. Some articles say as far as 12 inches if there is a motor tube ducting all the way between the motors. Since you don't have tape holding the motors you can use motor hooks to secure the motors in the rocket. However without tape holding the motors together it is very critical that the stages don't come apart when the booster motor burns through. The right fit between the stages is important. You can also avoid a problem by venting, or porting, the lower stage. This is done by drilling a couple of small holes, say 1/8 inch, in the side of the rocket so the gases from the booster motor will be vented and won't separate the stages. The burning particles will travel straight up into the upper stage motor despite the porting. The exhaust from the upper stage will produce much more pressure and separate the stages. The motor tube can also be vented into the body tube cavity if the body volume is sufficient so the pressurization from burn through doesn't separate the stages.

Electronic staging

Electronic staging is required for composite motors. It is also useful when the distance between stages is greater than allowable for gap staging. There are a wide variety of timers available for this purpose. These include the PerfectFlite miniTimer3 and the Xavien XSSET-1. These have various features including sensing of lift-off and/or motor burn

out and allow you to program a short coast period between stages.

However you go about it give multi-stage rockets a try. They can be easy to build and fun to fly.

Goddard and Stumpy

By Mark Page

Episode six is based on a practice I have observed many times in High Power (where it rarely works) and practiced myself in low power (where tape often beats balsa, well...some of the time). P.S. - The "P.S." on the letter was my brother Ward's idea. Personally, I was shocked and offended. ☺

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.indyrocks.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: Call Gary Buck at 217-841-4777 for rocket parts.

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

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 2006, contact the editor.

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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,

