CENTRAL ILLINOIS AEROSPACE

Informant

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Gary Buck's Iris takes off on an H220 Silver Streak at GARLO 2003. Photo by Robert Brunner.

Highlights of 2004

Here are some highlights of Central Illinois Aerospace activities for the remainder of the year.

Meeting Topics

We have scheduled topics for all of the monthly meetings this year. However we are always looking for ideas for topics at future meetings, so let us know if there are any topics you would like to see covered.

June 1: Rocket books.

July 6: GARLO follow-up.

August 3: Introduction to model rocketry for new members, and rocket building workshop.

September 7: Introduction to mid-power rocketry for new members, and rocket building workshop.

October 5: Annual Swap Meet. Bring your surplus rocket related equipment and supplies to buy, sell and trade with other members.

November 2: Rocket electronics and payloads.

December 7: Rocketry nostalgia and tall tales. Bring artifacts and stories to share.

Special Events

July 3: GARLO 2004: Bang! Zoom! To the Moon

August 14: Annual Nostalgia Launch: prizes for oldest rocket and/or motor flown.

September 11: Annual Night Launch.

GARLO 2004

"Bang! Zoom! To the Moon!"

The Great Annual Rocket Launch Of 2004 will be held on Saturday, July 3, 2004. This is our big annual event, a purely-for-fun rocket launch. We will be awarding ribbons and prizes for winners of 7 fun events. First, in honor of the 35th anniversary of the first lunar landing, Moon Rockets, real or fictional spacecraft involved in lunar exploration, past, present or future. Next, Lunar Lander, land your rocket on its fins or legs. Then the events we hold every year, Best of Show (Static), Best of Show (Flying) and Spot Landing (controlled, uncontrolled rocket and uncontrolled glider). We also have a large number of "Prang" ribbons as consolation prizes.

Welcome New CIA Members

We would like to welcome some new folks who joined the CIA over the past year. The new members are, Dan and Miranda Bullock, Aidan Watkins Carlson, Harry Glinos, Charles Hopkins, J. Kroencke, Mark Patsavas, Larry Shaffer and Lon and Robert Westfall. Take a moment at the next launch or meeting to welcome them aboard and get to know them.

Russ Durkee with a telescope he has been restoring.

Where Are They Now

In this section we will periodically catch up with the current activities of former CIA members.

Russ Durkee was a member of the CIA during the early to mid 1990's. He was voted CIA Rocketeer of the Year in 1995. He has returned to join us for GARLO and NARCON from time to time. Here is what Russ has to say about his activities over the past few years.

After I finished school at the U of I, I worked in a number of system administrator jobs before landing a great job as an exhibit prototyper for the Science Museum of Minnesota in St. Paul. I actually get paid to play, thinking up and building interactive physics exhibits. I have also become very serious about my other hobby(?), astronomy. In fact. I now have a backyard observatory where I do real research, measuring asteroid rotation rates and monitoring variable stars.

I am still flying rockets but I am concentrating mostly on boost gliders and radio controlled rocket gliders. Some of you may remember my early attempts at RCRG, but over the last 8 years I have learned to miss the ground more often.

After moving to Minneapolis in the summer of 95, I really missed the camaraderie of CIA so I decided to start a club of my own. In 1996 a few new friends, and I founded the Minnesota Amateur Spacemodeler's Association (MASA). MASA now has over 100 members. We fly monthly year round and have monthly meetings. In fact the first club launch was held in January, it was 20 degrees, with 2 feet of snow on the ground we nearly fell over when 20 people showed up.

I think about my CIA days a lot when I am out flying rockets. Those were some wonderful years for me. I hope to fly with you again sometime!

Russ and his wife Brenda, share a home in Minneapolis. He can be reached at: russdurkee@earthlink.net

MASA Website:
http://www.mn-rocketry.net/masa/
Russ' Website (under construction)
http://home.earthlink.net/~shedofscience/

National Rocketry Month

By Mike Erpelding

Take This Hobby to the Moon!
National Rocketry Month July 2004

Thirty-five years ago this July, the entire world's attention and imagination were captivated by one event. On July 16, 1969, one Saturn V rocket carrying the Apollo 11 mission Astronauts: Neil Armstrong, Buzz Aldrin, and Michael Collins embarked on the greatest undertaking mankind have ever attempted, to land a manned craft on the moon and then return the craft safely back to Earth. Three days and about 245,000 miles later, the crew arrived in lunar orbit. The Lunar Module touched down in the Sea of Tranquility in the early hours of July 20. Even those of us who weren't present for this great event know Neil Armstrong's famous first words as he stepped off the LM's ladder. "That's one small step for (a) man, one giant leap for mankind." They left behind a plaque for future explorers to find stating that, "we came in peace for all mankind." After some exploring and collecting several samples from the surface, they left the surface of the moon and returned to the command for the trip home. The command module returned safely back to Earth on July 23.

This event had a big impact on the hobby of model rocketry. Around this time model rocketry was at it's all time peak. Model rocketry has always been intertwined with the space program since its creation. The hobby started just before the launch of Sputnik, the world's first artificial satellite on October 4, 1957. As we started to reach out to explore the heavens, the youth of the day reached out to learn more about rockets through the hobby of model rocketry. Model rocketry spread across the world more as space travel increased. Both boys and girls and people of all ages developed an interest in Model Rocketry.

Unfortunately over time our country lost interest in manned space travel. The last trip to the moon happened in December 1972. The Apollo/ Soyuz mission in July 1975 was the last time an American was in orbit in that decade. The next time America launched a manned space vehicle, it was the Space Shuttle Columbia, which was launched in April 1981.

The numbers active in model rocketry also dwindled at that time.

Interest in rocketry again began to increase in the mid 90's when high power rocketry gained popularity. During the late 90's, and into this decade, interest in space exploration began to increase with several successful space probe missions, such as Pathfinder and Sojourner and more recently Spirit and Opportunity. The future looks bright for future space exploration after the recent announcement of President Bush's Return to the Moon initiative.

Many critics of the space program say: "What have we gotten out of it?" and "It's just a waste of tax dollars." Many critics of model rocketry say: "What do you get out of it?" These statements are based on not being able to see the whole big picture. Model rocketry is the spark that can start a child's creativity and imagination. Even if model rocketry isn't the initial spark, it provides a creative outlet for a child to pursue other skills and talents.

What can you gain by building a model rocket? Model rocketry improves children's reading skills. Each kit comes with instructions for the proper construction of that kit. Following the instructions limits problems in assembly and makes the experience more enjoyable. It also teaches a life skill that can be used in any field. A good employee can follow his superior's instructions.

Building model rockets teaches patience. It takes time to assemble a complex model rocket. If you rush certain steps of the assembly process, you can create more problems. Learning patience can be used with dealing with other people as well. The world could use a little more patience.

Model rocketry teaches design and construction skills. To scratch build a rocket of your own design, you first have to envision what the rocket is going to look like. This is model rocketry's contribution to the arts. What theme do you want your rocket to have? What color should it be? What features can be added to attract the attention of others? The next step is to learn how to transfer these ideas to paper. This develops drafting and engineering skills. Today a child might be designing a rocket, tomorrow a skyscraper or the next automobile. Building the actual rocket develops fine motor skills and craftsmanship. Today the child is building a rocket, tomorrow a house or a microprocessor.

Model rocketry also develops problem-solving skills. Today children will be answering the questions: "How do I make my rocket fly higher, or faster, or straighter, etc.?" Tomorrow they will be solving problems like: "How do I make a product production facility more automated, or how can I make an automobile more fuel efficient without compromising horsepower, etc.?"

Model rocketry is a hobby that encourages interaction with others. It's more fun to build and fly a cool looking rocket if you have friends and family to share the experience.

Model rocketry can be a catalyst to develop these and other skills.

Someone might ask: "Where are these rocketeers now?" Just look at your average NAR section membership to answer that question. There are some who actually became astronauts. Others are engineers who develop real rockets and components, both for the space program, the private sector, and national defense. Other members have a less obvious career such as: electrician, computer analyst, software technician, physician, carpenter, statistician, teacher, scientist, engineer, sculpture artist, and the list could go on and on!

Just like the space program developed new technologies, improving old ones, and creating new products; model rocketry is more than just the sum of its parts.

The idea for a National Rocketry Month was first introduced by Jonathan Sivier from Champaign, IL on rec.models.rockets. The idea was then posted on The Rocketry Forum where it gained interest. The idea is to create a national model rocket event around the nation and maybe internationally, to commemorate the 35th Anniversary of the Apollo 11 moon landing. The other goal is to promote model rocketry to the public as a safe, fun, and educational hobby. This can be accomplished by:

#1. Holding a mass model rocket launch around the country on the same day or by dedicating each club’s July launch to the Apollo 11 anniversary.

#2. Plan a scale rocket theme at this launch; especially encouraging models of rockets used in the space program like the Saturn series.

#3. Plan extra community outreach efforts like Make It and Take It Launch Days to reach out to kids and possible new members in your community.

#4. Contact your local media to get the word out about both the anniversary and model rocketry.

#5. Contact your senators and encourage them to declare July National Rocketry Month to promote America’s past successes and to inspire future generations.

Insurrection VI

By Christopher Brian Deem, CIA Contest Director

We held our Insurrection VI contest during our regular launch on August 9, 2003. Due to the wind direction we had to fly from the north side of the park, where they are building the new softball diamonds. The Weather Channel had said that the wind would be dropping steadily all day long, and would only be about 3 mph in the afternoon. Well, the Weather Channel lied. The wind didn’t die down; it slowly and steadily increased as the day wore on. And it shifted direction from the relatively clear area, to the trees, the dreaded rocket eating trees. Oh, the humanity! Despite that, we had a total of six contestants, Robert Brunner, Jeff Deem, Christopher Deem, Mark Joseph, Jonathan Sivier and Greg Smith.

Our first event was A Boost Glider Duration. There were three contestants, Jeff Deem, Christopher Deem and Greg Smith.

For my first flight, I used a glider that I had built for B engine Boost Glider, so I would be assured of getting it back. The wind was a little brisk at this time. I used an A8-3, which in retrospect was a mistake, because when the initial thrust spike quit, the glider fell off the pod. The glider then proceeded to glide upside down (that ain’t right), and when it hit the ground seven seconds later I found that the motor exhaust had burnt through the wings. One flight, three errors, it wasn’t good, but it sure was efficient. For my second flight, I used an actual A engine design and got a nice 41 second flight. Should have started with that one.

Jeff was flying a Manta, a delta wing with a front canard design from the late sixties/early seventies. He used A3-4’s with an adapter, and got two good, consistent flights, 30 and 32 seconds.

Greg started out with a small, elliptical winged design that performed excellently, in fact it worked so well it’s still up there. We lost sight of it at 68 seconds. In this event you have to return one model, so for his second flight he went the old A engine in a B engine glider route. Unfortunately, he got a Red Baron (pod streamer tangled with glider), which limited his duration to nine seconds, but his first flight was already in excess of Jeff and my two flights, so Greg got first place.

Next on the agenda, was C Egg Lofting Duration, otherwise known as "let’s break some eggs". We had five contestants, the three from the first event as well as Robert Brunner and Jonathan Sivier. Robert, Jonathan and Jeff were using Custom Rockets Elite egglofters, while Greg and I had scratch built models.

The Elite is a nice model, with a very nice egg capsule; but it's only a BT-20 size body tube, which limits the size of parachute you can use. Jeff managed to get his parachute out, and deployed. However his shock cord broke, which is a disqualification, and his egg capsule drifted off to parts unknown. That was his only egglofter, so he was out of the competition.

Robert discovered one of the problems with using a BT-20 sized body tube, namely getting the parachute out is only half the battle. On his first flight the parachute deployed, but didn't open resulting in a broken egg. Not to be deterred, if at first you don't succeed, try again. Second attempt, parachute out and open, 26 seconds.

Jonathan got his first attempt out and open for 31 seconds. His second attempt didn't fair so well. His shock cord broke, and his parachute didn't open. His egg capsule hit the ground right by his prep area, breaking the egg. His rocket body landed in parts unknown.

Greg's first flight was excellent, 115 seconds on a great big ol' honking 36 inch Mylar parachute. Greg then proceeded to head off after his rocket. He was gone a long time, and couldn't find it. So second try, with his back up model. Not nearly as long, only 45 seconds, still pretty good.

By the time I did my first attempt, the wind had picked up a little more, and had shifted … towards … the … trees, … those … nasty … rocket … eating … trees. I got 60 seconds, and the upper branches of one of the medium sized trees. Oh well, off I go with our recovery pole and Mark Joseph along to help. The good news was: we got the rocket out of the tree. The bad news was: we tore the rocket apart (we also got part of the tree out of the tree) and the egg capsule (after I broke the shock cord) fell free, and bounced, about three and a half feet. That's usually not too good for the egg.

As we were walking back to the launch area, Mark commented on the fact that the grass in that part of the park hadn't been mowed for what seemed like several decades. In fact, Mark blamed the tall grass on our inability to find the body of Jonathan's egglofter. Just as he said that, I almost stepped on … the body of Jonathan's egglofter. "Oh, you mean this?" I said picking it up, and retaining my reputation for making witty (or half-witty) remarks. Jonathan was pleased to get it back, so he can repair it and break it again.

Despite of the best efforts of Mark and myself in dropping my egg capsule out of a tree, and even whacking it a couple of times with the recovery pole, my egg was unbroken. At that point, I decided against trying a second flight, the wind had increased yet again, and was blowing towards the taller trees, and there is a limit to how high our recovery pole can reach. So the final determination for fist place would have to wait until we could see if we could find Greg's first rocket.

Our last event was the ever-popular Drag Race. Jeff had left by this time, but Mark Joseph was overcome with competitive zeal, and decided to try his luck.

In Drag Race you fly in heats of two rockets. Scoring is one point for first motion, one point for lowest altitude and one point for longest duration. Lowest altitude and longest duration are fairly obvious, but sometimes we have a hard time determining first motion. Robert used his digital camera to determine first motion. Ain't technology wonderful?

Mark and Greg went first and Mark found out that we are really serious about that lowest altitude part. Mark's rocket didn't go very high, but Greg's barely got high enough to eject the parachute. That set the tone for the rest of the event, rockets barely clearing the pad.

While Greg had managed to knock Mark into fifth place, he suffered technical malfunctions on his next two heats. That's a polite way of saying that his igniter clips fell off. Twice! In a row! He nailed the lowest altitude part, but completely missed out on duration, and any motion. That gave Greg fourth place. Jonathan, who has mastered the arcane art of connecting igniter clips, got third place.

That left Robert and myself to fight it out for first. Robert had been using his digital camera on every heat, in case we needed to determine first motion. The last heat was the only time it was needed. The camera showed that Robert got first motion (and lowest altitude) by 1/30th of a second. Now that's close!

After we packed away all of the launch equipment, it was time for the great egg hunt. We moved to the southern end of the park to search for Jeff's egg capsule, and Greg's egglofter. If we could find Greg's rocket, and the egg was unbroken, Greg would have first place in Egg Lofting Duration. Before he left, Jeff said he would like his capsule back since he's personally attached to anything he's paid money for. As we were searching, a couple out for a stroll pointed out Greg's rocket. A quick check, one unbroken egg, one more first place for Greg. We never did find Jeff's egg capsule, if you happen across it sometime, he would still like it back. You can keep the egg.

After totaling up the points, Mark got sixth place, Robert fifth, Jonathan fourth, Jeff third and I got second. Greg is once again club champion, for the second contest in a row (even if he can't connect igniter clips). If Greg wins one more club championship, we will have to retire the belt, or take away his belt so his pants fall down and he can't chase his rockets, or go to the tavern and have a few belts. Something belt related.

Goddard and Stumpy

By Mark Page

This third episode depicts an event I witnessed (complete with choo-choo sounds) in Southern California at Mile-Square Park. The flyer was a founding member of the Lucerne Prefect. This sort of thing happens to all of us at one time or another. It's more a criticism of the rocket manufacturers than the poor rocketeer that has to assemble these fussy motors.

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:
Alan Carroll asks -

I'm trying to put a workshop in my basement. I primarily need to put in ventilation to remove the fumes. I'm concerned about paint fumes and electric motors. What is the best way to avoid any unfortunate ignition events?

Answer:
William Carney replies –

There are some brush-less electric motors that can be used. They don't use the wire brush contacts but magnets or other methods and don't produce any sparks. Computer fans for instance are brushless but are not very strong.

C&H Supplies does sell surplus AC or DC fans that might work. Their web site is at "http://www.candhsales.com".

Daniel Bullok replies -

I am NOT an expert in fire hazards, but I have a bit of experience with paint, so if you're willing to take an amateur's advice, here it is. I tend to be very conservative about any hazards, because:

1) I like being alive and intact.
2) My wife and kids like me that way.
3) I like my wife and kids that way, too.

You almost have to TRY to start a fire with spray paint. You need a good flame or spark, and there needs to be a very high concentration of paint in the air around that flame or spark. In order to ignite paint with a lighter (I learned this because I didn't always have reasons 2 & 3 above, or much common sense), the flame needs to be in the dense part of the spray. The rest of the paint plume will burn, but it's very hard to get it to ignite more than a few inches from the nozzle. If the concentration of paint fumes is high enough to ignite when passing over a ventilation fan, you should be wearing a respirator.

There was a story in some rocket magazine a few years back about a guy who built a paint booth. He sprayed directly on a 100-watt bulb, and couldn't get it to ignite. Of course, the spark from a motor is a more efficient igniter, but it is still pretty hard to do.

I sometimes spray in a small room in my basement, and have a 12" window fan in each of two windows. I turn them on before I spray, and leave them on for a while after I'm done. If you can keep the concentration low enough that the smell is very faint about 60 sec after you're done, I'd call that level very safe. I'm much more worried about breathing the paint fumes than burning the house down. I do, however, have a fire extinguisher handy, just in case. The real safety equipment I use is a pair of goggles to keep paint out of my eyes, and a dust mask/filter (not a respirator).

I almost always use Krylon, because it dries very fast, and this probably has an impact on the flammability, so if you're using different paint, you may have different results. Again, I'm no expert, but I've never been burnt, either.

Greg Smith replies -

I'm mostly with Dan on this. Most of the commercial spray booths I've seen have a pretty conventional AC synchronous motor driving their fans/blowers, and this passes muster with UL and NFPA for use in a paint-spray environment. Those *are* brushless motors that would be expected to produce minimal sparking, but I think that is true of most of the motors that drive ventilating fans in general -- you wouldn't want to be replacing brushes all the time anyway, so they have the advantage from a lifespan and serviceability perspective too.

Bigger units generally have the motor mounted outside the ductwork and drive the actual fans through a belt, so those could be expected to encounter less concentrated paint vapors, sitting outside the main airflow path.

But I think the big argument is that *anything* you do to move the vapors outside will lower the concentration on the indoor side and therefore reduce the overall risk of fire or explosion. The motor doesn't add as much danger as the total system reduces it.

Lon Westfall replies -

How about a squirrel cage blower mounted outside your house? If there were an "unfortunate ignition event" it would happen outside. You could use a negative pressure system that draws air through a duct in a window.

I would think that a blower from a central air system would have all the desirable properties as well as be capable of moving plenty of air. Some of them use two coil induction (aka synchronous) motors that switch off the second coil after start up. These are brushless and arc free.

I would bet Gary Buck could help you out with a used or surplus unit.

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.indyrockets.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.

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, hopefully in August of 2004, contact the editor.

CIA Officers

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

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