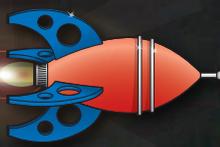


# MASA PLANET



The Official Newsletter of the  
**Minnesota Amateur Spacemodeler Association**

Established January 1998

2006 and 2007 NAR Medium Section of the Year

Host of NARCON 2007 and NARCON 2008

2008 and 2009 LAC Newsletter Award Recipient

**July-August 2010**  
**Volume 13, Issue 4**

Hey, I found  
your rocket.



**NAR Section 576**

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## Mark your calendars.... 2010 MASA Picnic

It's summer time, and the 2010 MASA Picnic is scheduled to be on Saturday, July 17th at the VFW Soccer Fields located at 7350 Quaday Ave, Elk River, MN .



Carrying on with tradition, the picnic will also include the 13th Annual Swap-n-Sell, so this is your chance to sell or trade some of those kits that have been sitting on the dining room table.

If the weather permits, we will also do some rocket launching before the picnic. Rocket launching is scheduled to go from 2:00 PM until 5:00 PM, and the picnic is scheduled to go from 5:00 PM until 8:00 PM.

### Important Reminder:

## Banned From ALL MASA Launches...

As a reminder, MASA does NOT allow the use of the tissue paper style motor wadding at any MASA launch. This includes the tissue wadding that comes with a lot of commercial black powder motors, and this ban applies all to MASA members and guests.

The only wadding allowed at MASA launches is the cellulose insulation type commonly referred to as "dog barf". This approved wadding is provided free of charge at all MASA launches – just look for a white bucket labeled "WADDING" near the flight card table. When you grab a handful of wadding from the bucket, please use care and minimize your spillage in the grass. If you see a pile of wadding on the ground, please be considerate and replace it in the bucket or throw it away. Thank you!!



Volunteers are needed for a variety of jobs like:

- Fabulous Grill-Meisters (FGM's)
- Condiment Provider (CP)
- Beverage Supply Officer (BSO)
- Watermelon Carving Wizard (WCW)
- Fun Activities Augmentator (FAA)
- LCO/RSO's for 3 shifts (2-3PM, 3-4PM, and 4-5PM)
- Or anything else you'd like to volunteer to do.

Sign up to bring a food dish to share. Check the info page on the MASA web site (below) to see what is needed. Also consider donating a rocketry-related item or two for the Door Prizes.

It would be greatly appreciated if you could RSVP by July 11. Please list: how many people will be attending, what pot-luck food item you'll be bringing to share, if you'll be filling any of the volunteer positions, if you'll be donating any door prizes, and any items you'll be bringing for the swap -n- sell (if you want them listed on the web page beforehand).

Please RSVP to: [MASARocketry@rocketmail.com](mailto:MASARocketry@rocketmail.com)  
Please use "Picnic RSVP" in the subject line.

[www.masa-rocketry.org/news/2010/2010-03.htm](http://www.masa-rocketry.org/news/2010/2010-03.htm)



## The Alien Has Landed - Badly!

**A Kit Review of Leading Edge Rocketry's "Alien" Kit  
By Ken Hoyme**

Back when the new NAR Member Guidebook arrived, I looked at the coupons it contained and decided to order some things from the more obscure manufacturers. I was drawn to the Alien kit from Leading Edge Rocketry out of Eugene, Oregon ([www.leadingedgerocketry.com](http://www.leadingedgerocketry.com)). They make several kits designed for night flying, with arrays of external LED lighting. The Alien is a mid-power kit, featuring 39 LEDs – 30 of them in flashing pattern with an enclosed electronics module. As a aside, Tim Ziegenbein, who runs this company also runs LumaLaser ([www.lumalaser.com](http://www.lumalaser.com)) which does special effects for movies and laser displays for rock bands, and other entertainment venues – he knows special effects electronics!

Since our Solstice Launch is MASA's only one approximating "night", I decided to be ready by then. The kit was delayed a bit, and arrived on the Monday before the launch. Most of my evening hours were taken up getting this thing done that fast!

### Construction

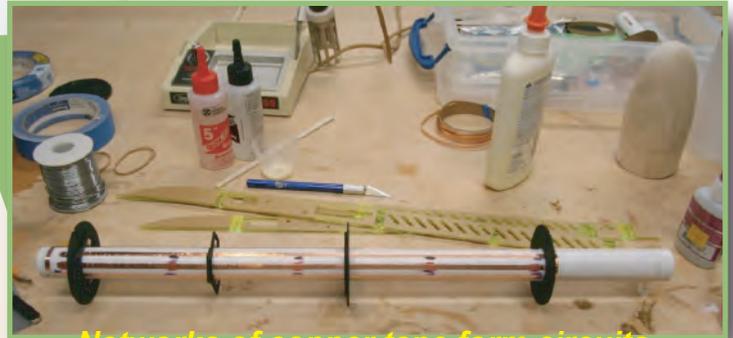
The Alien comes in a plain white box – nothing to look at from the outside. Inside, everything is precisely laser cut, and fits tightly. For example, the ribs come with protective paper attached. Fitting the ribs and centering rings together was tight until I removed the paper right at the contact points – then it fit perfectly.



*Unique to the Alien are the packs of LEDs, wiring and the three green fluorescent ribs – and a 22 page 8.5x11 color assembly guide!*

Construction starts with dry fitting the centering rings and ribs on the airframe tube. There are three main sections along the this tube – the rear section, where the batteries, electronics module and switch will be installed, a mid section which has a strip of 6 green LEDs between each set of ribs, and the forward section, with connections to the white LED ring that is part of the parachute tube.

Once everything is marked, an extensive network of copper tape is built up. Cross connections of copper tape need to be tacked with solder to make good connections. I found the tape to tear easily, so I had to be careful applying it. The instructions direct you to specifically color mark each tapeline, which comes in handy in final electronics assembly – all the wires are color coded for easy connections.



*Networks of copper tape form circuits to power LEDs in all rocket sections.*

Next is the build-up of the centering rings – making the solder joints small helped when sliding the rings into place. Centering rings were tacked in place with CA, then an engine cover was installed, which had precise slots cut in it to help align the ribs and later the fins. With the ribs epoxied next, it was time to turn to body wrapping.

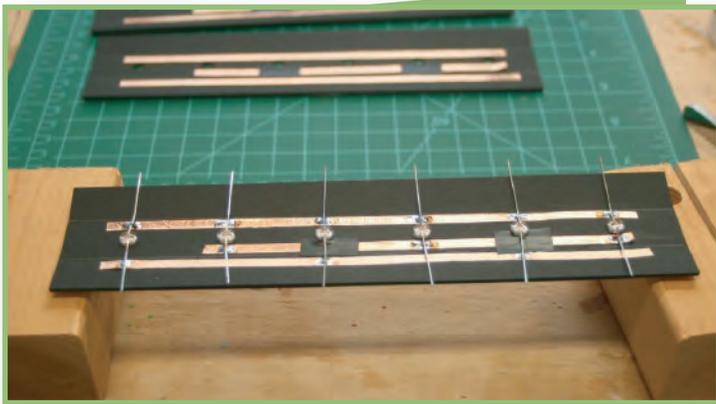
The Alien comes with a set of high quality vinyl wraps for the entire exterior, except the fins and nose cone. Like the rest of the parts, the sizes are very precise. From an Alien review on EMRR I used several suggestions on how to get these wraps on precisely without invoking a second pair of hands.



*For the body tubes, I removed a small strip in the middle of the wrap, and cut one edge of the wrap precise to one end of the body tube, and then used a cutting board to ensure that the wrap was square to the tube.*

# Alien Continued...

The next step was building up the LED panels. The LEDs were epoxied on the back, and I later learned I should have avoided getting any epoxy on the folding joints – made later installation difficult.



*The 6 LEDs alternated between two circuits requiring more copper tape magic behind the scenes.*

The instructions next recommended that the LED panels be permanently installed. Instead, I decided to go out of order and build up the rest of the electronics and test everything first. I completed the rib lighting and LED rings assembly. Once tested, I completed assembly of the LED panels and the body tube sections.



*I then temporarily tacked the circuits together and applied power – all was fine!*

To speed final assembly, I had already completed sealing of the basswood fins and balsa nosecone. I complete fin assembly with 5 minute epoxy. Final painting, shock cord mounting and assembly was completed with hours to spare before the launch!

*As recommended, I used Krylon chrome paint with a Krylon Crystal Clear overcoat, which matched the silver of the vinyl wraps.*



## The Launch

I wrestled with the motor choice for the first launch. The instruction book estimated weight at 12.5 oz. The Rocksim file downloaded from EMRR – 15.6oz. My final empty weight was 16.3oz. (Since I measured the raw weight of the kit components at 17 oz, I don't think the 12.5 value can be right). Running through RockSim, I thought the rod departure speed of a recommended E9-4 was way too slow (around 20 fps off a 4' rod). I also worried about using a RMS motor on a night flight, in case the lights failed and I lost the whole thing. Since Hub had the 24mm single use E20-4W in stock, I decided to give that a try.

Strangely, this motor was not in the Aerotech Rocksim engine files. An E18-4W was (an RMS motor, though) and it estimated a 680 ft altitude and a 37 fps departure speed – a little slow, but in calm winds it should be OK. It also estimated an optimal delay of 4.6 seconds, and an ejection near apogee. As long as it was calm, I thought I was good.

Just before 9PM, I set this up on Alan's launch system, on a required 1/4" rod. I waited until a bit past sunset to launch – more darkness would have been more dramatic. With the sun over the horizon, it was time to go. Winds were pretty much calm. The Alien came off the rod and was a bit unstable for 30-40 feet, and then stabilized out as it gained speed. It made a perfect arc over the road

and down towards the adjacent field. Everyone was shouting for the ejection charge to go off, but apparently black powder is not susceptible to the power of suggestion.



*Lift off!*



**Continued on the Next Page...**

## Alien Concluded

Several folks helped search the field of knee-high grass, and we found it broken into many pieces. While the engine specs indicate a +/- 20% on delay duration, this seemed well past the 1.7 second burn and 4 second delay that was quoted on the engine package. I wish I had a video of the launch to make more accurate timing estimates.



### Conclusions

The Alien was a fun kit to build. Being an Electrical Engineer, it was fun to get out the solder and mix hobbies. (As Alissa noted – this kit was “geek squared.”) Pushing to build it in 5 days was a bit too much, as there were finishing details I wasn’t happy with that just had to be ignored to move on.

But the fit of the components, and the details of the instructions made this a great kit to build. I wrestle with whether to replace it, as building a second one on a reasonable schedule would allow me to make it much better. But without enough night launch opportunities on a field that can handle mid-power, I might just try one of his smaller night kits that could find use on a much smaller field.

Ken



### Only a Few Days Left

## NARAM 52 Online Registration Closes July 5

Online registration for competition flying at NARAM 52 will close on July 5, so hurry up and get registered in these final days. However, sport flyers will still be able to register at the door on site. NARAM 52 will be held just southwest of Pueblo, Colorado July 30 thru August 6. For more NARAM information visit [www.peakcity.org](http://www.peakcity.org).

MASA has 10 registered members so far, which puts us in third place for club registrations, behind SSS from Arizona and Peak City (host club) from Colorado.



## 2010 Launch Windows

### Subject to Change

Check MASA Website or Yahoo Group for updates

All MASA Launches are “Misfire Alley”  
(bring your own launch pad and controller)

### MASA Summer Picnic and Launch

Saturday, July 17 - 2:00 pm to 9:00 pm

Location: Elk River VFW

Info: [www.masa-rocketry.org/news/2010/2010-03.htm](http://www.masa-rocketry.org/news/2010/2010-03.htm)

### MASA July Launch

Saturday, July 24 - 9:00 am to 4:00 pm

Location: Nowthen\*

Theme: “Hey, Fat Boy!”

Events: Fat Boy Drag Race

Contest: Fat Boy Beauty Contest

### NARAM-52 - [www.peakcity.org](http://www.peakcity.org)

July 30 - Aug 6 Pueblo, Colorado

NAR National Event



### MASA August Launch

Saturday, Aug 28 - 9:00 am to 4:00 pm

Location: Nowthen\*

Theme: “A Day at the Races”

Events: 12th Annual Great UFO Drag Race

9th Annual Comanche-3 Drag Race

Multi-Staging Drag Race

Kids Only Drag Race

### MASA September Launch

Saturday, Sep 25 - 10:00 am to 4:00 pm

Location: Nowthen\*

Theme: “Walk on the Wild Side”

Events: Deuces Wild Drag Race

Cluster Drag Race

Clusters Day

Contest: Deuces Wild Beauty Contest

### MASA October Launch

Saturday, Oct 23 - 10:00 am to 3:00 pm

Location: Nowthen\*

Theme: “OddtoberFest” (Goony rockets, Odd-rocs, Halloween-themed rockets, SteamPunk, Birdies, and anything out of the ordinary)

### MASA November Launch

Saturday, Nov 20 - 10:00 am to 2:00 pm

<<One week earlier than normal>>

Location: Elk River VFW

Theme: “Walkin’ in a Winter Wonderland” (Winter or Holiday theme rockets)

Scheduled dates and launch sites are subject to change due to weather and/or field conditions. Check the MASA Web Site or MASA Yahoo Group for up-to-date changes.

\* FAA waiver will be in effect at the Nowthen Field permitting high power flights to 4,500 feet agl. Field size supports up through J motors.

## MASA Welcomes the Following New Members:

- **Timothy Barr** (Returning)
- **Corey Bedford**
- **Glenn Bedford**
- **Kevin Bedford**
- **Lilia Bedford**
- **Caylin Bowman**
- **Cindy Bowman**
- **Craig Bowman**
- **John Clifton**
- **Ben Ericksen** (Returning)
- **Gideon Griswold**
- **Brian Kilberg** (Returning)
- **Don Kilberg** (Returning)
- **Laurie Kilberg** (Returning)



© Jeff Taylor

## Contributors to this issue of the MASA Planet.... Thank You!

- **Jason Colt**
- **Mike Erpelding**
- **Alan Estenson**
- **Ken Hoyme**
- **Carol Marple**
- **Jeff Taylor**

To contribute pictures, stories, build reviews, or just about anything, email to [jeff.taylor@mn-rocketry.net](mailto:jeff.taylor@mn-rocketry.net)

## 2010 MASA Members

Registrations Received as of June 19

|                   |                 |                    |
|-------------------|-----------------|--------------------|
| Cheryl Anderson   | Mike Erpelding  | Mike Murphy        |
| Hunter Anderson   | Alan Estenson   | Scott Murphy       |
| Kevin Anderson    | David Gensler   | Eric Myers         |
| Levi Anderson     | Art Gibbens     | Heather Myers      |
| Timothy Barr      | Hannah Gibbens  | Jim Myers          |
| Corey Bedford     | Philip Gibbens  | Justine Myers      |
| Glenn Bedford     | Renee Gibbens   | Julia Nelson       |
| Kevin Bedford     | Caleb Griswold  | Justin Nelson      |
| Lilia Bedford     | Gideon Griswold | Mark Nelson        |
| Caleb Boe         | Andy Heren      | Nicole Nelson      |
| Daniel Boe        | Neal Higgins    | Glen Overby        |
| Don Boe           | Alissa Hoyme    | Audra Rudys        |
| Joshua Boe        | Julie Hoyme     | David Schaffhausen |
| Caylin Bowman     | Ken Hoyme       | Nancy Schaffhausen |
| Cindy Bowman      | Kirsten Hoyme   | Cathy Schwartz     |
| Craig Bowman      | Ken Jarosch     | Joy Schwartz       |
| Alex Brown        | Paul Jarosch    | Larry Schwartz     |
| Luke Brown        | Charles Jerve   | Ryan Schwartz      |
| Steve Brown       | Abby Juntunen   | Todd Schweim       |
| Thomas Brown      | Andy Juntunen   | Dwayne Shmel       |
| Allison Carpenter | Karen Juntunen  | Elizabeth Shmel    |
| Elliot Carpenter  | Brian Kilberg   | Richard Shmel      |
| Laura Carpenter   | Don Kilberg     | Susan Shmel        |
| Todd Carpenter    | Laurie Kilberg  | Alyssa Taylor      |
| John Clifton      | Abby King       | Jeff Taylor        |
| Kevin Cochran     | Eric King       | McKenna Taylor     |
| Seth Cochran      | Ray King        | Mark Thell         |
| Ted Cochran       | Sharon King     | Cheryl Vatsaas     |
| Jason Colt        | Carol Marple    | Christian Vatsaas  |
| Jim Copple        | Buzz McDermott  | Ingrid Vatsaas     |
| Kaylee Copple     | Tim Melody      | Rick Vatsaas       |
| Paige Copple      | Lyle Merdan     | Aimee Whitaker     |
| David DeHaut      | Bob Moyle       | Austin Whitaker    |
| Ben Ericksen      | Lance Murphy    | Cindy Whitaker     |
| Ethan Erpelding   |                 | David Whitaker     |

Roster provided by MASA Secretary/Treasurer Jason Colt

**104** Members to Date!

## Upcoming MASA Planet Features:



**Alan shows how to build inexpensive launch pads**

**Getting goony with the Honest Goon**



**Jeff shares some fillet tips**



## Star Camp 2010

Model Rocket Outreach Report

By Mike Erpelding NAR #79922

I first want to thank my sister, Theresa, for volunteering to help me for two days with this outreach project. When I was first contacted last winter to help with the Scouts, for their state celebration of the 100th Anniversary of the Boy Scouts of America, the plan was to have approximately 7,000 of the expected 15,000 Scouts attending build and fly a rocket in one day. I consulted Ted Cochran on the logistics of making this happen safely in one day. To make this possible, I would need pads for about 240 rockets at a time; with loading and launching racks of 10 rockets going on simultaneously for 12 hours.



The event was at first going to be held at the MN National Guard's old ammunition plant/now wildlife area by Arden Hills. For some reason the State of MN wouldn't certify the site as safe, even though the Scouts have been using this facility for camping for years. The event was then moved to Camp Stearns by Fairhaven, MN, definitely a lot closer for me.

I went through my range equipment and took a tally of what I already had with Estes Porta Pads, "MASA" PVC pads, and my old 4-H 2X4X8' - 4 rocket saw horse pads; with rods 2 foot on center. I came up with 50 pads. I guessed if I request to borrow pads from other MASA members, at best I might get 40 pads. That would leave me about 150 pads short.

I did a little pricing and found out that I could build a "Super Saw Horse Pad" of 10 rockets for a little less than 2 "MASA" PVC pads. The only draw back would be the pad would require a 20 foot 2X4 or 2X6. Being I live so close to the camp and I own a car hauler flat bed trailer, it wasn't really an issue. I had most of the supplies on hand already. I have been saving old power cords from appliances and light fixtures that were installed for several years. I found a spool of 16 gauge lamp cord leftover from making launch equipment with the Kimball TARC team years ago. With salvage receptacles and scrap wire, the supplies needed were more clothes pins, alligator clips, blank box covers for blast deflectors, lumber, 30 sets of 5 1/2 inch long 3/8-16 bolts/washers/nuts, and launch rods. I found out that it is cheaper to buy launch rods by getting round rod stock from a metal supplier and then cutting them to the proper length. Standard round stock comes in 12 foot lengths. I was able to get them locally from Midway Iron in St. Cloud. I had ordered stainless steel 1/8 in. round rod stock; but by accident they ordered steel rods instead. The price was right though at 12 1/2 cents per 3 foot launch rod, so I went with them anyways. That was a lot better

price than paying \$1.98 plus tax for each rod at the home improvement stores.



Work picked up after I started making these new 20 foot pads, but, I managed to finish them the weekend before the event. MASA also got busy for the weekend of the camp. With many club launch and outreach launch rain outs, plus a fundraiser/public rocketry demonstration to help get 2 members to the FAI Internats, we were spread out pretty thin. Ted was kind to offer the use of his pads, but I decided to just go with just 200 pad capacity and save a little on fuel. Thank you though, Ted! I was able to talk my sister in to helping. MN Tripoli was also going to have a rocketry display and do a couple rocket demo launches. We also had some Scout volunteers. It was decided that there should be multiple ranges (4 or 5) set up to speed up the launching. The Tripoli group would be supplying one launch controller. I decided to bring my old 4 pad wooden box controller that I build when I was 16. This would allow us to have up to 3 ranges.

It was decided to have the Scouts build paper pyramid rockets and fly them on Quest B6-2's using the new Q2G2 igniters to save money. This meant continuity safety testing of Double Dozen and my old wooden launcher. Double Dozen proved to be continuity safe at 50 +/- 1 milliamp on all 24 continuity light bulbs. My wooden launcher proved to be continuity safe at 46 milliamps on its only continuity light bulb.

### Launch Day 1

We both were tired on Saturday morning. Theresa normally works until 11 p.m. at UPS. I was still working until 10 p.m. on Friday wiring an asphalt plant in Becker. Fortunately I loaded the truck before I went to work on Friday. Theresa met me at the farm at 6:30 a.m. to head out to Camp Stearns 15 1/2 miles away. We arrived at the camp gate a little after 7 a.m., and were directed at the gate to where the Space and Aviation Activity Area. It was named Activity Area 51. :>) We were located all the way in the back of the camp. We were told that after we unloaded the truck and trailer, I would have to move the vehicle to the exhibitor parking area. We met Bob Hudson, the Scout leader in charge of the



**Continued on the Next Page...**



# Star Camp Continued

rocket activities. After showing Bob what equipment we had to offer, it was decided to just set up 2 ten rocket pads (wired for a ten rocket drag race each) with Double Dozen and Tom Tweit's controller with 4 four rocket metal saw horses that the Tripoli team brought. It was quite impressive to see a 1,000 motor bulk pack of Quest B6-2's. They come in a heavy duty cardboard box with a plastic bag liner. A cardboard sheet separates the stacks of motors from each other. We finished setting up at about 8:30 a.m. While we were setting up, I was reminded twice that the trailer had to go. I started driving to the designated parking area a little over a mile away.



Leaving Area 51, I was met by a sea of Scouts and parents coming up the road. Being careful not to run into anybody with the trailer, a traffic jam on County Rd 44, and trying to find the parking area took 40 minutes. Since I missed the planned 8:30 a.m. transition from setup to start up of the event, there was no parking attendant or shuttle bus to get me back to Area 51, so I wound up walking back. Keeping a brisk pace, I made it back in about 20 minutes.



The first wave of Scouts was starting to launch their rockets on Tom's launch system. The two other Scout volunteers, Reggie Rasner and his son Aaron, didn't know how to operate Double Dozen. We quickly loaded up 20 of the kid's rockets and started flying off of both ranges simultaneously. Bob Hudson and Theresa were the only volunteers assisting the Scouts with constructing their rockets. Bob and Theresa had a VERY long day on Saturday. A little before lunch time we gained another Scout volunteer, Phil Goodrich, to help build rockets.

Around 10 a.m. it started to rain. I disconnected the battery from Double Dozen and turned the relay box on its side, to let the water drain out better. I took the control box portion with me. Tom's controller was placed under my 5 foot round table, with other supplies, to keep dry. There was one building at our site: the Whitney Activity Center. NASA had an awesome 3/4 scale space shuttle flight simulator, complete with mission control, set up inside for the Scouts to try. That building became packed once the rain started. We stood under the gable eave of the building to try to get out of the rain. The

# MASA PLANET

Tripoli tent was also packed. It rained for about an hour. We got all the tables wiped down and the launch controllers set back up. We barely got two racks of rockets launched when it started to rain again. Once again, we packed everything away. This time we took shelter under the Tripoli tent. We were served lunch by the BSA at this time. We had a nice salami sandwich, green apple, bag of potato chips, a couple Oreo cookies, and a juice pouch. The rain stopped a little after we finished lunch. We got everything set up again. The weather cooperated the rest of the day.

After a little while the kids began to come out again. Both ranges were kept busy the rest of the day. The ten rocket drag races were very popular. With many variations of the pyramid rockets: quality of holes cut out, alignment of glue joints, and level of glue dryness; few rockets flew the same on each salvo. In the afternoon, when we had a good crowd, Tripoli member Bill Kalsow brought his red "G" powered pyramid down to the pads for a demonstration launch. This rocket was a big hit with the crowd. The kids were impressed when I told them that Bill's rocket used a motor 32 times as powerful as their Quest B6-2's. Bill had a great flight. There were plenty of volunteers to recover the rocket for him. Bill flew his rocket two more times on Saturday and two times on Sunday. Each launch was a good attention-getter to bring more kids and parents down to the Space and Aviation Activity Area 51.

Tripoli member Brian Elfert had a nice display of model rockets and rocket motors to show to the participants. He also had a huge HPR rocket named "Old Yeller" on a trailer launch pad on display. The whole Tripoli team did an excellent job answering the kids' rocket questions and directing them to the different rocket activities in Activity Area 51. Some other Scout volunteers were also launching 2 liter bottle water rockets on Saturday.



The last Scouts of the day flew their rockets around 5:30 p.m., when activities were scheduled to end for the day. I walked back to the exhibitor parking lot to get the truck and trailer. Most people were back at their campsites for supper, so the

**Continued on the Next Page...**



## Star Camp Concluded

drive through the camp to pack up went fairly quick. We packed up everything but my two saw horse pads and my tables. After all the commotion with the trailer; I decided to leave the trailer home and bring the cordless trim saw to convert the 20 foot pads into 10 foot pads.



### Launch Day 2

We arrived back at the camp on Sunday morning around 7:45 a.m. to setup. This morning went a lot smoother. When we arrived at the checkpoint gate, the attendant noticed we already had our parking pass, but said "You guys just park down there anyways don't you? Have a great day!" The program today didn't start until 9:00 a.m. After getting everything setup, all the volunteers were invited by the NASA people for a tour of the simulator before we opened for business. The simulator was very cool! There will be a permanent simulator installed in a building being renovated at Fort Snelling.

Returning to the field, I counted how many motors were in the tackle box. Based on how many we put in there the day before, we launched 557 rockets on Saturday. We had more volunteers on Sunday, with nine Scout volunteers, six of which were teenagers. For the most part, kids kind of trickled in all morning. It was a much slower-paced day than Saturday. More people started to come over after Bill Kalsow flew the red "G" powered pyramid rocket again.



Bob Hudson had a great idea to get the kids to help clean up the spent motor casings and other trash from the field. Whenever we had a good size group of kids, we had a contest to see who could find the most motor casings. The top kids would receive their choice of a Quest Falcon or a Quest Big Betty kit. We had a total of 12 kits to give away. When we were about to finish, we had one kit left. We awarded that kit to the last Scout to fly his rocket. The event ended at noon. We got everything packed up in the truck and headed for home.

Later on we were told in an e-mail that approximately 11,500 Scouts attended Star Camp with a total of about 700 Scouts building and flying a rocket. It was a lot of fun to do an outreach project again!

Mike

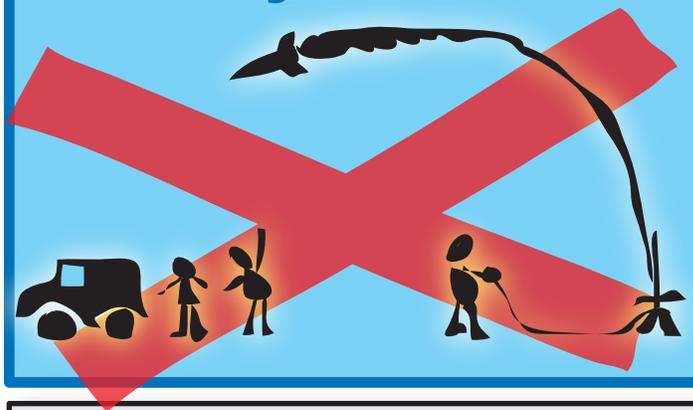
## Safety. Who's Job is it Anyway?

MASA does not have a designated "Safety Officer". Sure, we have Range Safety Officers (RSO) and Launch Control Officers (LCO) who have authority over the range, but safety is ultimately the job of every single flyer and spectator, whether a MASA member or a guest. When you put a rocket on a pad, it is your responsibility to assure that the rocket is safe to fly with the motor you selected in the weather conditions at the time of launch.

If you see something that you believe is unsafe, fix it. If it is something that another flyer is doing, let them know that you have safety concerns – but be diplomatic about it.

It is your responsibility to assure that the launch rod or rail is properly angled so that you have no reason to believe that your rocket will fly over the flight line towards the spectators, cars, road, or buildings. If you do have a flight that flies over the flight line, you must adjust your rod or rail angle before your next flight so you make sure it doesn't happen again. Fly your rockets to the safe recovery area downrange from the flight line. That is what it is there for.

## Safety is Everyone's Job.



### 2010 Meeting Schedule

#### Subject to Change

Check MASA Website or Yahoo Group for updates

#### MASA July Meeting (a.k.a., Picnic and Launch)

Saturday, July 17

See Page 1 for Details

#### MASA August Meeting

Thursday, August 5 - 7:00 pm to 9:00 pm

Location: Science Museum of Minnesota, St. Paul

Topic: TBA

#### MASA September Meeting

Thursday, September 2 - 7:00 pm to 9:00 pm

Location: Science Museum of Minnesota, St. Paul

Topic: NARAM-52 Discussion



# Inexpensive Onboard Video Flying the "Gum Camera"

by Alan Estenson

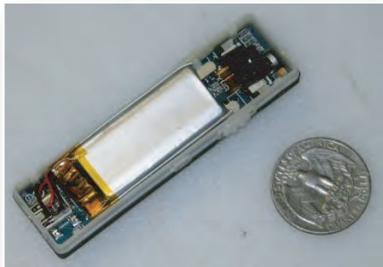
It all started last fall when I read a thread on Ye Olde Rocket Forum (YORF) titled "Why Pay More For A Video Rocket???" It was about these tiny, inexpensive digital video cameras that were flooding ebay. The sellers usually refer to them as "gum cameras" because they're about the same size as a small pack of chewing gum. While they can take still photos or record only audio, the true appeal for rocketeers is that they can record video (with audio) at 640 x 480 resolution and 30 frames per second. You can buy them with or without built-in memory, and they also have a slot for a micro-SD memory card. Because each video is saved to a separate AVI file in the flash memory, you can record multiple videos – limited only by the memory capacity – and not have to download the video after each flight. The cameras have a built-in rechargeable battery with sufficient capacity to record video for up to about two hours. To transfer your video and recharge the battery, you just connect the camera to your PC or laptop using a USB cable or remove the micro-SD card and use a card reader.



So, what's the catch? Well, nearly all of the sellers are in Hong Kong, so it can take up to three

weeks for your camera to arrive. [There are some U.S. resellers; the camera price will be higher but the shipping a lot quicker.] The hardware defect rate on these is high enough to be worth noting. The sellers will typically exchange a defective camera, but you have to ship it back to them. There are also several slightly-different versions of this camera, and you won't really know which one you're getting until it arrives. Because of the sensor type and scanning method used in these cameras, you will get image distortion during very rapid movement.

However, I just couldn't resist. They're little, cheap, cool, and I've always wanted to mess with onboard video! I went on ebay and purchased two gum cameras for about \$18 each including shipping from Hong Kong. [Note – that price has now dropped down to about \$13.] While waiting for them to arrive, I rounded up 1 gigabyte and 2 gigabyte micro-SD cards. (Each minute of video will use roughly 40 megabytes of space.)

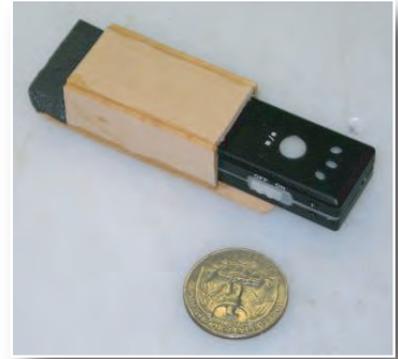


Finally, the cameras came in the mail. Each camera included a USB cable, AC adapter for charging the battery, and a mostly-incomprehensible instruction sheet. Fortunately, readable instructions had been posted to the YORF thread. Each

## MASA PLANET

gum camera measures 3 by ¾ by ½ inches and weighs only 0.7 ounces. The camera lens is the small hole on the opposite side from the push button and LED's, just above the clip.

My first step was to remove four screws using a tiny Philips screwdriver. This allowed me to take off one side of the case and then remove the clip. After reassembling the case, I started pondering how I could quickly rig a camera mount in, or on, a rocket and get it done in time for the November MASA launch.



Also, during flight, did I want the camera looking horizontally out the side of the rocket or vertically down the side of the rocket?

Contemplating the rockets littering my workshop, I spied my old, battered, much-repaired, D-powered Fat Boy. Its diameter was large enough to fit the camera body horizontally within the nose cone while keeping the lens just outside the rocket and looking down. Inventing as I went, I glued together scraps of wood to fabricate a small tray to hold the camera. I then cut some openings in the nose cone, fit the tray, and glued it in place. I added a screw eye to the top of the nose cone for shock cord attachment; this would let the camera continue viewing the ground during descent. Finally, I whipped up a crude aerodynamic fairing out of cardstock and glued it into place.



A few days later, the November MASA launch arrived, and we had a pretty nice day for flying at the VFW soccer fields near Elk River. As a first experiment, I taped one of the cameras onto a Quest SPEV Flying Saucer and launched it on a C6-0. Well, the weight of the camera evidently displaced the center of gravity too far from the thrust axis, and the saucer went into a tumbling spin upon leaving the rod. The camera flew off but was readily located. Note to self: that was a bad idea...

Next, I prepped the ol' Fat Boy for its first camera-carrying flight on a C11-3 engine. I had to turn the camera on, start it recording, then insert it into the rocket and use a piece of tape to secure it. Then, I could put the rocket on the pad, hook up the igniter, and launch. And... the motor CATO'ed as the rocket left the rod! Fortunately, neither the rocket nor camera were harmed. Determined, I prepped it

**Continued on the Next Page...**



## Gum Camera Concluded

again on another C11-3. And... that one CATO'ed too! This time, the parachute was a bit scorched but still useable. Grumble, grumble...

Determined to get a successful flight, I prepped again; this time using a D12-5. Finally, I had a successful flight with an onboard video camera! I was having fun, so I flew the Fat Boy twice more on D12-5's.

Trying something different, I then took a camera and simply taped it to the outside of a Big Bertha and launched it on a B4-2. It didn't fall off in flight, so then I taped it to the outside of my "Screaming Yellow Zonker" and launched it on an E9-6. Having flown eight times with onboard cameras, I called it quits for the day.

At home, I hooked up each camera to my PC using a USB cable and transferred off the video files. That seemed easier than dealing with removing the itty-bitty micro-SD cards.

Amazingly enough, I got video during the tumbling saucer flight and both Fat Boy CATO flights. Because of the rapid movement, there was a lot of distortion, though. I didn't get video on one D12 Fat Boy flight, but I did get video on the other two flights. For the Big Bertha flight, I accidentally stopped the video recording when I taped the camera onto the rocket. However, I got great video from the flight of the Screaming Yellow Zonker.

The Fat Boy flights, with the camera looking down the rocket towards the ground, gave some cool in-flight shots and views of the launch pads, smoke trail, and ejection. The Screaming Yellow Zonker flight, with the camera looking horizontally, gave much better shots of the landscape and scenery.

Postflight is when you get to mess with video editing. Because I was starting the video well before launch and stopping it after recovering the rocket, the interesting part was in the middle of many minutes of boring stuff. Plus, the raw AVI files straight from the camera varied in size from 70 to 200 megabytes. Video editing can be done with something as simple (and free) as Windows Movie Maker, but I decided to splurge and purchased Adobe Premiere Elements. Once I figured out how to use it, I was able to cut down the footage, add titles, slow down the replay, and save the results to much smaller video files than the originals.

I have placed video footage from these first flights on YouTube. Just search for "mnrocketry" or go directly to <http://www.youtube.com/user/mnrocketry>. The video quality suffers a little on YouTube, but they're still fun to watch.

I'm looking forward to having more fun with the gum cameras this year. In fact, I went on ebay and bought two more of them!



**Longshot  
Screen Shot**

**Screaming Yellow  
Zonker  
Screen Shots**



# WSMC Launch/Fundraiser Report

## Todd and Caleb's Big Day

By Carol Marple



Nearly 20 MASA members attended the Todd Schweim / Caleb Boe WSMC Launch and Fundraiser at Chateau St. Croix Winery on Sunday, May 23.

A huge thanks to all the MASA members who helped at the launch: Todd, Caleb, Linda, Jeff, Alan, Lyle, Dwayne and Susan, Ken and Alissa, Dave and Nancy, Buzz and Kathy, Mark, Craig B., Kevin A., Hunter, and Levi.

The MASA-hosted launch started shortly after 3:00 p.m. and finished around 5:30 p.m. We had around 100 launches, ranging from birdies and a Mini Marz Lander on 13mm motors up to a pyramid on a G motor. At one point, we estimated about 75 spectators, including some very energetic kids who were willing to run around and pick up our rockets. Considering how hot it was, we were all grateful for the help.

Caleb also launched one of his competition rockets as a demonstration for the crowd. As we all watched the rocket float away, I heard one little boy tell Caleb "Wow, you guys are definitely going to win!"

After the launch, we headed to the Chateau for dinner and the auction. The Chateau is beautiful, and dinner was great. There were a number of raffle items, plus a lot of silent and live auction items to bid on. One auction item was a build session and launch with Caleb and Todd, at the school of the winning bidder's choice. I saw a couple of kids elbowing their parents when that item came up (one lucky boy will be building rockets with 23 of his classmates). I thought it was a great way to pay it forward to the next generation of rocketeers.

Good luck at the WSMC, Todd and Caleb!



## Summer Regional Results

MASA held the 2nd Annual Summer NAR Regional Event on June 5 and 6, under the direction of Contest Director Mike Erpelding. The final standings are below, and all the details can be found on the contest web page at:

<http://www.masa-rocketry.org/lreports/2010/2010-06.htm>

| Division   | Place | Name - Section No.     | Total Points |
|------------|-------|------------------------|--------------|
| B Division | 1     | Caleb Boe - 576        | 192          |
| C Division | 1     | Alan Estenson - 576    | 1038         |
|            | 2     | Ted Cochran - IND      | 882          |
|            | 3     | John Cieslak - 558     | 750          |
|            | 4     | Buzz McDermott - 576   | 528          |
|            | 5     | Dave Shaffhausen - 576 | 372          |
|            | 6     | Mark Thell - IND       | 198          |
|            | 7     | Lyle Merdan - IND      | 153          |
|            | 8     | Jeff Taylor - IND      | 54           |
|            | 9     | Carol Marple - IND     | 48           |
|            | 10    | Todd Carpenter - IND   | 27           |
|            | 11    | Mike Erpelding - IND   | 21           |

| Section Standings | Place | Name - Section No. | Total Points |
|-------------------|-------|--------------------|--------------|
|                   | 1     | MASA - 576         | 2130         |
|                   | 2     | Independant - IND  | 1383         |
|                   | 3     | WOOSH - 558        | 750          |

### MASA Directory

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#### Club Yahoo Group

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