

Winter Newsletter

Volume 1, Issue 1

February 2007

Upcoming Launches:

- February 10, Gumbert Field
- March 10, Gumbert Field
- April 14, Gumbert Field

Inside this issue:

<i>Homemade Igniters</i>	2
<i>Batteries</i>	2
<i>Launch Summary</i>	3
<i>NARAM 49</i>	3
<i>JMRC's Annual Meeting</i>	3
<i>51,000 Feet</i>	4

2006—Year in Review

In February, JMRC acquired a portable launch tower for large projects. Constructed by Mike Schneider, the tower offers 16 feet of extreme rail mounted to an antenna frame. The tower made its debut at the March JMRC launch and was used heavily at Team1's Three Oaks launch in the Spring. Several large projects utilized the tower, including Mark Palmer's two-stage cluster of 10 J570s.

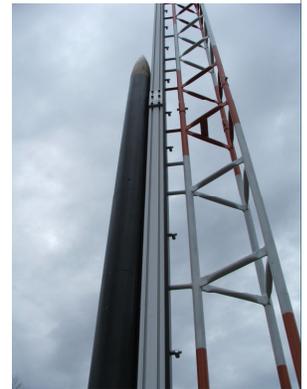
June brought a bit of sadness to the club as we mourned the loss of Matt Kuzewski. Matt's rockets continue to fly as we pay tribute to a fellow rocketeer.

Our launch trailer received a face lift from JP

Signs of Mason. The JMRC logo of the Saturn V at staging was beautifully reproduced as a vinyl graphic. Additional information about our club was added to the trailer.

JMRC members entered the history books, if not the record books, during the XPRS launch in September. Jim Russell, Art Upton, Scott Miller, and Mark Palmer flew an extreme altitude flight. The JMRC trailer and graphics can be seen in numerous launch photos and videos. Many other JMRC members participated in the Nevada desert launch.

August brought JMRC's yearly fund-raiser. During the Thunder Over



JMRC launch tower with 2001 "J" Project.

Michigan Air Show, members assisted the Yankee Air Museum in the coordination of vehicle parking. The show gives the club both funds and exposure. Often, the parking lot yields some of the best views of the aircraft. Plan to join us this year on July 7th and 8th.

BATFE Changes Rocketry Regulation

Rocketry continues to suffer from a battle between the National Association of Rocketry, Tripoli Rocketry Association, and the Bureau of Alcohol Tobacco and Firearms. In October, the BATFE put out a ruling which re-

quired Low Explosive User Permits (LEUP) for the purchase and storage of motor reloads containing over 62.5g of ammonium perchlorate regardless of grain configuration. The BATFE has effectively restricted access

to high power reloads and some 'G' impulse reloads.

Motors containing less than 62.5g of propellant remain exempted from BATFE regulation.

Hybrid motors remain un-affected by this ruling.

Homemade Igniters

By Tony Haga

As everyone knows, the Copperhead igniters that come with the Aerotech motors can be a pain to get to work. My goal here was to come up with an igniter that can be made with more-or-less off the shelf materials that will light small composite motors more reliably than the Aerotech Copperheads.

You will need the following:

- “Wire Wrap” wire (32 gauge). It looks like Radio Shack is discontinuing this item. You made have to order from an electronic supply house like Digikey
- Wire strippers
- Drill for making “twisted pair” wire
- Dry graphite lubricant
- Yo-Yo sparklers (available at Commonwealth)
- Acetone

You will first need to twist a length of wire into a twisted pair. Cut a length of wire, about 20 ft or so, and double it over. Tie one end to a doorknob, or other con-

venient fixture, and place the other end into your drill. Start your drill and let the wire twist until you get 6-8 turns per inch. Next, cut the wire into sections about 12-18 inches long. Strip about ¼ inch of insulation off one end (this will be the hot side) and about 2 inches off the other end, this will be the clip side. Now for the hard part: you’ll need to take the hot end and bend the bare wires parallel to each other and about 1/5mm apart.



These igniters do make a good amount of fire:

Mix up some of the graphite with some acetone until you get slurry. You’ll have to experiment until you come up with the correct consistency. Too thin and you won’t get a good coat; too thick and you’ll get too much. You want to make sure that when you make the dip you get a good bridge across the wires. Dip the hot end of the wires into the graphite. You may need to dip a couple of times to get a good coat.

While the graphite dip is drying, you’ll need to prepare the pyrogen. The Yo-Yo sparklers seem to work well. When my kids lit an

entire box at once, the resulting fireball was most impressive. Take a couple of the sparklers, put them between a couple of pieces of heavy paper and carefully tap with a hammer to knock off the pyrogen. I then used a mortar and pestle to carefully grind the pyrogen into a fine powder. Prepare a slurry with acetone the same way as with the graphite. Now take the igniter that you just dipped in the graphite and dip in the pyrogen. Make sure you don’t get too thick of a coat or the igniter won’t fit into the small nozzles of the E and F motors.

Let the igniter dry and then dip into some clear finger nail polish. This will make a hard coat to protect the pyrogen layer

Completed Igniter:

If you measure the resistance with an ohmmeter, you should see about 30 ohms. As a result of this fairly high resistance, you will need a good power source to fire these igniters and they will not be a good choice for air-starts. These have not been tried in a cluster, so let us know how they work.



Completed Igniter

JMRC Plans Large Scale Drag Race

JMRC members purchased approximately 15 Scout2 kits from Rockets by Melissa (LOC Precision). The Scout2 includes a pre-slotted airframe, plywood thru-the-wall fins and centering rings, and a plastic molded nose cone. The kit comes standard with a 24mm motor mount and is de-

signed for D,E, and small F motors. The finished kit stands 24” tall with a 2.6” airframe. The kit also includes a shock cord, launch lug, and 14” parachute.

Since the kits are comprised of cardboard and wood, either epoxy

or wood glue can be used for the construction. The Scout2 drag race seems to be an extension of long running Fat Boy races.

The completed Scout2’s are anticipated to debut in March and continue to fly in many drag races throughout the summer.

Launch Summaries

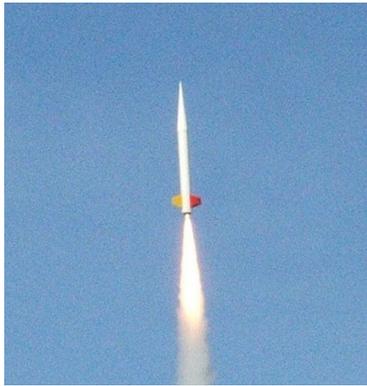
Each flight is recorded based on information provided on the launch card. Flyers are encouraged to be thorough when completing launch cards.

939 rockets flew over 11 launches.

2006's Big Motor award goes to Tony Haga with his Nike Smoke on a K960.

A total of 1003 motors were burned in 2006. The most common motor

flown was the infamous C6.



Tony Haga's Nike Smoke on a K960

A Motors	94
B Motors	89
C Motors	295
D Motors	147
E Motors	77
F Motors	96
G Motors	77
H Motors	55
I Motors	39
J Motors	30
K Motors	4

635 Black Powder
342 Composite
26 Hybrid

Aerotech	241
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Animal Motors	1
Apogee	3
Cesaroni	46
Ellis Mountain	11
Estes / Quest	635
HyperTek	7
Loki	24
RATT	3
RoadRunner	16
SkyRipper	16

On-site motor vendors for 2006 included Cowboy Rocketry, Impulse Buys, Red Arrow Hobbies, and SFSM Industries.

NARAM 49

JMRC has been asked to provide ground support for the 2007 NARAM event in Kalamazoo, MI. The event will be held from July 28 through August 3 at the Michigan Farmers Hall of Fame in Delton. The Southwest Michigan Association of Spacemodeling Hobbyists (SMASH) is the sponsoring NAR section. (<http://www.homestead.com/smashnar500/>)

NARAM is an acronym for NAR Annual Meet. The event is broken down into various areas. JMRC will be participating in the weekend sport range activities, before the competition flights begin on Monday. Manufacturer Q&A sessions and R&D presentations are also included

in the week of activities.

Our club will provide 11 low power pads, 5 mid-power pads, and up to 11 high-power pads. JMRC hybrid equipment for both mono-tube and Hypertek will be made available.



JMRC's Annual Meeting

This year's annual meeting took place on December 9 at Gene Davis Convention Center. The business portion was presided over by Scott Miller. NAR and Tripoli elections were held. Scott Miller was re-elected President/Prefect. Roger Sadowsky will



Photo by Eldred Pickett

continue his role as Vice-President. Paul Tobias and Mark Palmer were re-elected as treasurer and secretary, respectively.

The club decided to continue parking cars at Willow Run Airport as a fundrais-

ing event. Last year, \$1,500 was raised from the Thunder over Michigan event.

Plans for 2007 expansion include: 4' x 6' equipment trailer attached to the mule, expansion of hybrid ground support, and the addition of more high-power launch pads.

JACKSON MODEL ROCKETRY CLUB

NAR Section # 620
Tripoli Prefecture # 96



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*Rocketry.... It's a real **BLAST***

www.jmrconline.org

JMRC is a 501(c)3 non-profit corporation focused on Science and Math education and the expansion of the rocketry hobby, both model and high-power. We continue to grow in many ways with each new member. We encourage our members to actively contribute to our club with their diverse talents and ideas. We coach our younger members who are just learning the trade and support our seasoned veterans in their quest for the next level of certification.

If you would like to join us, please check our launch dates for the next launch and bring along your rockets for a fun, relaxed day of sending our creations to the great blue sky.



Individual membership is \$30 annually, or \$40 for a family membership. Mid Power launch fees are \$5 members and \$10 non-members. High-Power launch fees are \$10 members and \$15 non-members. Low-Power fees are an optional donation.

51,000 Feet...

What do you get when you combine a Loki M1882 and an Ellis M1000? A beautiful flight to 51,000 feet.

Jim Russell constructed a two stage rocket using 5.7 oz carbon fiber laid up over a 3 inch phenolic mandrel. Jim then reinforced the ends with 5 oz Kevlar to prevent zipper damage.

Jim's fins were constructed using carbon fiber over S-Glass and attached using carbon fiber and Kevlar tabs. Unlike most two-stage rockets, Jim's design used identical fins for both the booster and sustainer.

Due to high heat produced from the motors, 500 degree epoxy was used to attach the fins, in addition to using three

inch phenolic as an insulator. A channel was cut into the sustainer insulator to route igniter wires.

The sustainer was ignited by a Xavien and a PerfectFlite timer after a seven second coast. Two Loki ARTS boards were used to recover the sustainer. A PerfectFlite HighAlt 45K altimeter was also part of the electronics package for recording purposes. A Big Red Bee and a Rocket Hunter were used to assist in the recovery.



Ellis Mountain Sustainer after ignition.

The electronics were contained in a carbon fiber bay lined with Kevlar, using machined T6061 Aluminum for bulkheads. The bay was secured to the airframe using

three grade eight bolts fastened to tapped holes in the aluminum bulkhead. The added strength in the electronics bay was needed to allow the Ellis motor to thrust against it.

A Defy Gravity tether was used to provide dual deployment. A HALO drogue was deployed at apogee, while another HALO chute was held by a custom deployment bag.

Mark Palmer and Jim Russell assembled the electronics

package, while Scott Miller assembled the igniters and the motors. Art Upton was on the scene to document the entire experience.

