

MASA PLANET



May-June 2010
Volume 13, Issue 3

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

YOU
ARE
HERE




NAR Section 576

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Second Annual MASA Summer Regional

MASA Hosts NAR Regional Event

**BEGINNERS
AND SERIOUS
COMPETITORS
WELCOME!**

MASA will host a NAR Regional Contest this summer, directed by Mike Erpelding. More details will come as they are finalized, so check the MASA Yahoo Group.

Contest Dates: Sat & Sun June 5 & 6 (Rain dates: June 12 & 13)

Location: Nowthen launch site

An HPR sport launch will be held in conjunction with the contest.

Events Include: B Streamer Duration, 1/2 A Parachute Duration, 1/4 A Boost Glide Duration, D Helicopter Duration, and A Cluster Altitude.



MAYDAY, MAYDAY...

Saturday, May 1st First Annual National Model Rocket Day

Help get a new national tradition started and fly rockets on Saturday, May 1st. Since MASA's April Launch was rained out, it has been rescheduled for May 1st. Be there!

New Local Rocketry Vendor Gives Back to MASA

Tim Melody, owner of "Off We Go Rocketry", has announced that starting with the Elk River launch on 27 March, 2010, 10% of sales at or delivered to MASA launches will be donated to the club at the end of the season (before the yearly party). Off We Go Rocketry carries AeroTech and Cesaroni motors in stock as well as recovery items from Rocketman, and Top Flight Recovery, and kits from Public Missiles LTD. Check out the web page at www.offwegorocketry.com.

Tim Melody - Owner - Off We Go Rocketry, LLC
Cell 763.486.9267 Fax 763.757.0183





Tim Melody

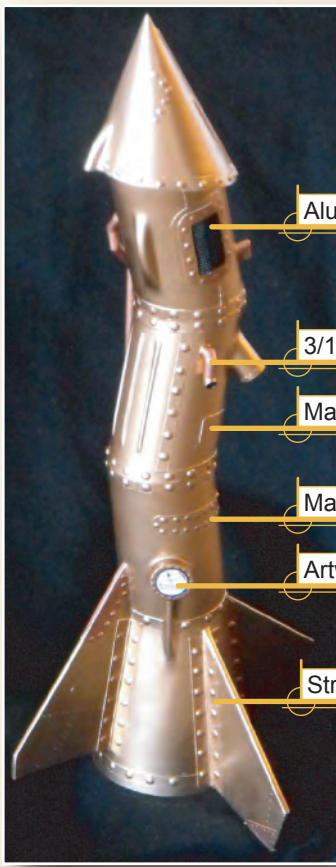
**OFF WE GO
ROCKETRY**

1762 132 Ave NW Phone: (763) 486-9267
 Coon Rapids, MN 55448 Fax: (763) 757-0183
www.OffWeGoRocketry.com tim.melody@offwegorocketry.com

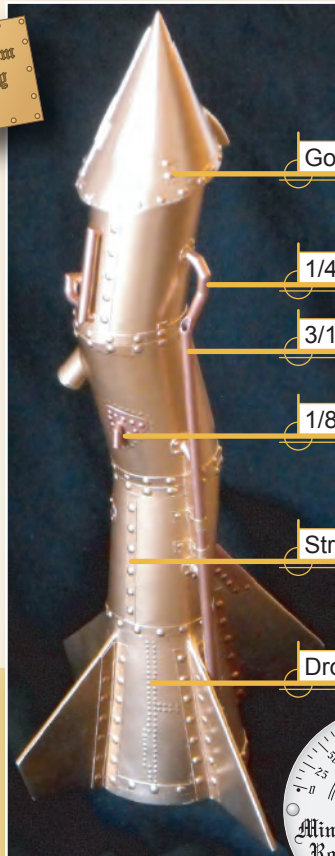
Anatomy of a Steampunked ACME Spitfire

By Jeff Taylor

This steampunked project was inspired by the works of the great Pro-master Builders Rick Vatsaas and Todd Carpenter. I figured that the ACME Spitfire from FlisKits would make a great project for this particular genre, so I took a good look at one I built a few years ago and started taking some notes. This is what I ended up with....

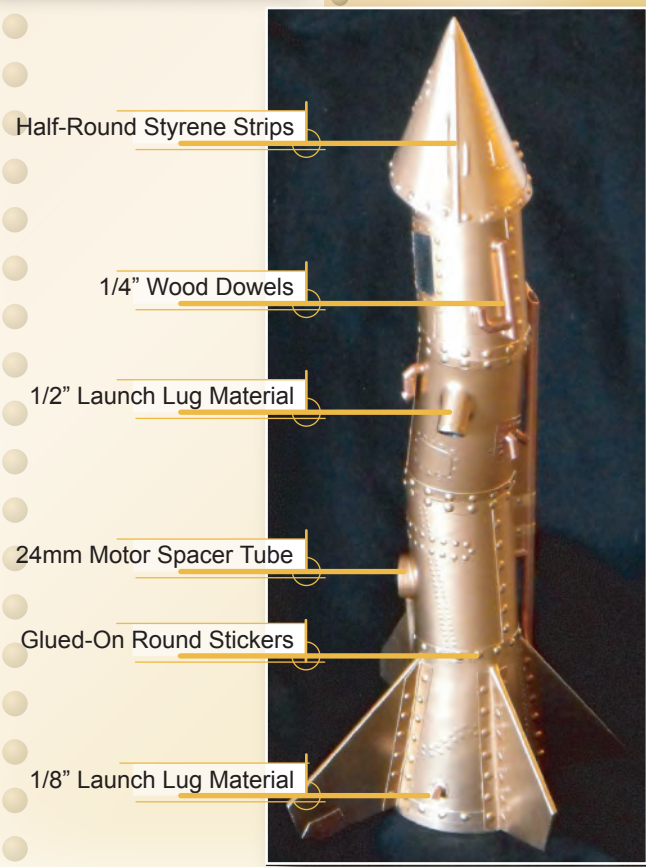


- Aluminum Screen
- 3/16" Launch Lug Material
- Manila File Folder
- Manila File Folder
- Artwork printed on Photo Paper
- Strips of Manila File Folder

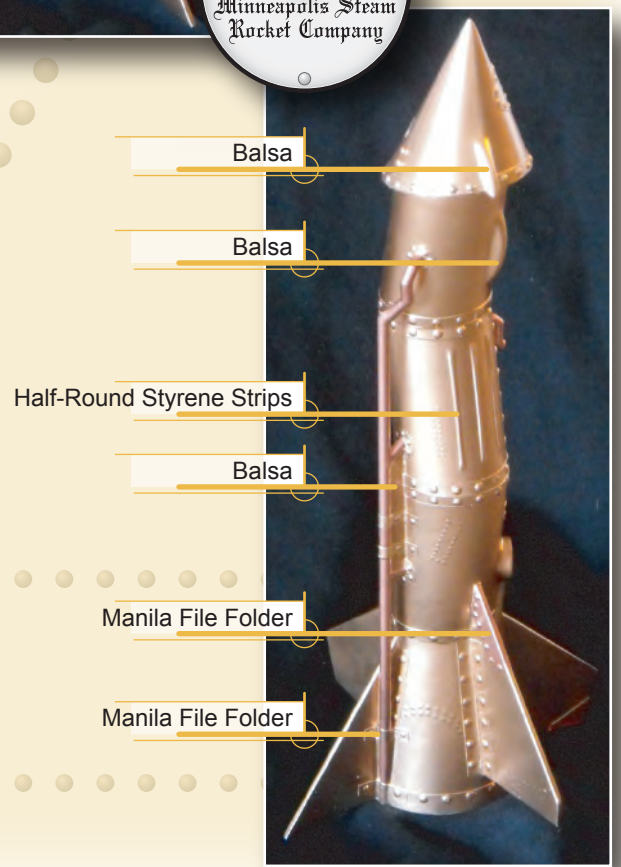


- Googly Eyes
- 1/4" Wood Dowels
- 3/16" Launch Lug Material
- 1/8" Launch Lug Material
- Strips of Manila File Folder
- Drops of White Glue

- Body Paint: Testor's Metallic Gold Spray Paint
- Details: Testor's Brush-On Flat Black, Brass and Copper



- Half-Round Styrene Strips
- 1/4" Wood Dowels
- 1/2" Launch Lug Material
- 24mm Motor Spacer Tube
- Glued-On Round Stickers
- 1/8" Launch Lug Material



- Balsa
- Balsa
- Half-Round Styrene Strips
- Balsa
- Manila File Folder
- Manila File Folder

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 April Launch - **RESCHEDULED** -

Saturday, May 1 - 9:00 am to 3:00 pm

Location: Nowthen*

MASA May Launch

Saturday, May 22 - 9:00 am to 4:00 pm

Location: Nowthen*

National Sport Launch - www.nsl2010.com

May 29 - May 31 White Sands, New Mexico

NAR National Event



MASA Summer Regional Contest

Saturday, June 5 & Sunday June 6 - 9:00 am to 4:00 pm

(Rain dates: June 12 & 13) Location: Nowthen*

NAR Regional Event



MASA Summer Solstice Evening Launch

Saturday, June 19 - 5:00 pm to 9:00 pm

Location: Elk River*

MASA June Launch

Saturday, June 26 - 9:00 am to 4:00 pm

Location: Nowthen*

MASA Summer Picnic and Launch

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

Location: Elk River*

MASA July Launch

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

Location: Nowthen*

NARAM-52 - 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

12th Annual Great UFO Drag Race

9th Annual Comanche-3 Drag Race

Location: Nowthen*

MASA September Launch

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

Location: Nowthen*

MASA October Launch

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

Location: Nowthen*

MASA November Launch

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

Location: Elk River*

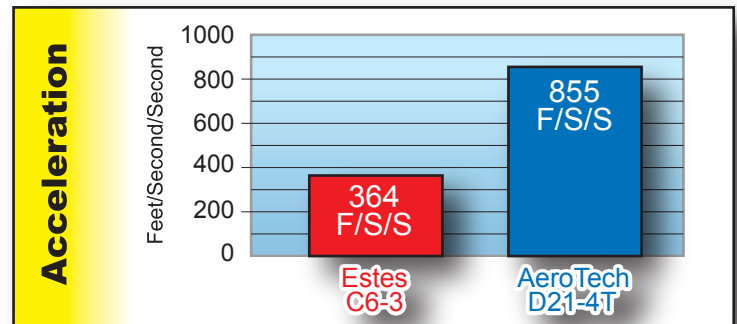
* Locations subject to change depending on field conditions

MASA PLANET

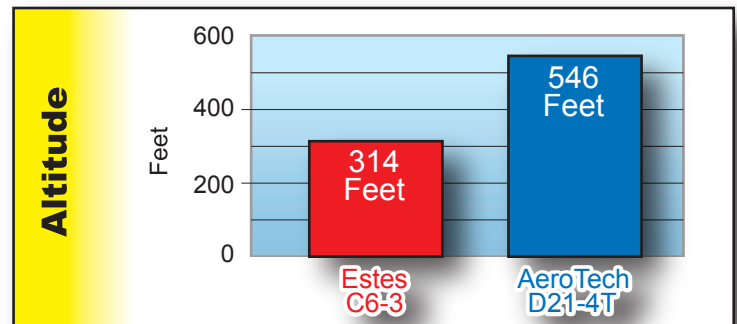
Looking to Get More Performance Out of Your Model Rockets?

For decades, single use black powder motors have been the standard for model rockets. But if you are willing to pay a little extra for your motors, composite propellant easily out-shines black powder when it comes to motor performance. The data in the charts below are from simulations ran in RockSim, and is based on a model of a standard Estes Fat Boy with a standard 18mm motor mount. The black powder motor used in this comparison is an Estes C6-3 (MSRP = \$10.29 for a 3 pack). The composite motor used in this comparison is an AeroTech D21-4T Blue Thunder (MSRP = \$15.90 for a 3 pack). Your actual performance will vary, depending on rocket weight, construction, finish techniques, weather, etc., but look at the differences possible with composite motors:

Composite propellant has about three times as much power as the same weight of black powder propellant. This allows composite motors to rip your rocket off the pad much quicker. A Fat Boy with a C6-3 motor has a maximum acceleration of 364 feet/second/second, while a the composite D21-4T more than doubles that to 855 feet/second/second.



Your Fat Boy's maximum velocity will also increase dramatically with a composite motor from 137 feet/second to a whopping 339 feet/second, so make sure all of your glue joints are optimum! The trade off for the increase in power is a decrease in burn time. The black powder C6-3 will burn out after 1.86 seconds, twice as long as the composite burn-out time of 0.94 seconds. Even so, the increased power of a composite should almost double your maximum altitude from 314 feet up to 546 feet! On the other hand, a higher altitude means a farther walk to recover your rocket on a breezy day with an increased risk of losing it.



Is it worth the extra \$1.87 per flight to get the increased performance? Maybe not, especially for a rocket that already flies well on black powder motors. But for heavier 18mm rockets that really need the extra power like an Outlander, Venus Probe or Mars Lander, it might definitely be worth it.



Rebuilt from Ruins

A Third Life - The New B4-2R

By Ken Jarosch

After many fun flights with various G motors, my Sumo 1 was lost to the tops of a small tree grove.

There it spent most of the summer and fall until late November. Finally, the ice filled fin can stretched the elastic shock cord to the ground where I retrieved it. The following spring those trees were knocked down for development. That's when I got the nose cone and chute back. The nose cone and fins/motor tube assembly was all that was left.

With the plastic parts still intact and the motor tube assembly strengthened with CA and laminated with a coat of 30 min. epoxy, I decided to rebuild the rocket. With a LOC 4" tube I cut a section for the fin can with the leftover to be a payload section. I just notched out fins slots in the back of LOC tube and epoxied the assembly into the tube from the rear. With the payload section this became the original B4R. (Basic 4" Rocket) This rocket was then flown for years without the payload section with G35W and G38FJ motors. It was too heavy for most G motors with the payload section attached. Although it did fly well to about 600' on an old 120Ns G80-4T.

Clearly, these larger rockets needed larger motors. I used the B4R for my L1 on a H128W. This then became my HPR rocket of choice for small H motors. Usually I would get a low level altitude of about 1000-1100 ft for small field flying. Again, after flying this dependable rocket on H128W's, H165R's and H238T's for years fate caught up to it. While flying the B4R at a MASA launch with my last H238T, the ejection charge failed to ignite and the rocket crashed.

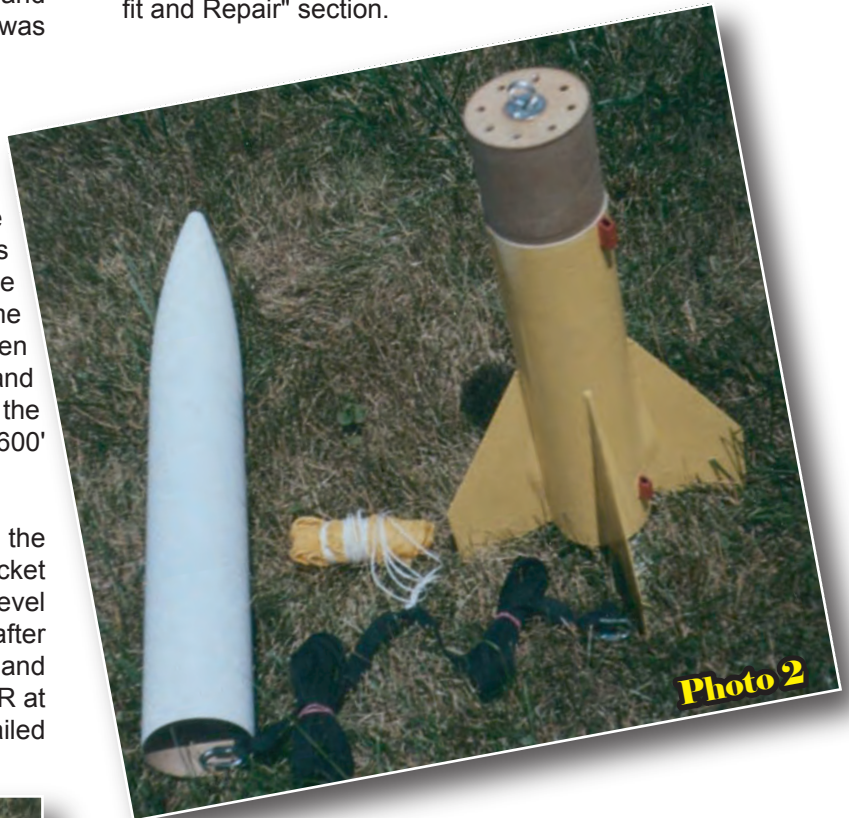


It seems that the old (2000) RDK-01 delay element failed to ignite or burn to fire the BP. I've been told that at burn out of high thrust motors you can get a burst of power and/or a vacuum that blows out the delay element. I also noticed a surface scale on the old elements that I now scrap off.

See Photo #1 for the results of that delay failure. The nose cone and the payload section were completely destroyed.

Note, the bulkhead is useable. While the fin can survived, there is barely enough tube length for a coupler tube for a repair.

My son, Paul, asked if he could have the rocket IF I wasn't going to repair it. He was going to add the tube coupler and a length of 4" tube to bring it back to Sumo size. After trimming the damaged fin can back to solid tubing we tested the tube coupler in the rocket. While looking at the fin can with the coupler test fitted, I noticed the salvaged bulkhead from the payload section. Then it dawned on me, why not repair it Zipper-less design. Just as I did to the Executioner 1 in my article "Baffles and More" in the March/April 2010 Sport Rocketry, page 23. See "Executioner - Retro-fit and Repair" section.



The 90° baffle part would be the original AeroTech plastic motor tube end piece with the fiber deflector installed. The bulkhead would be the tube coupler and the salvaged payload bulkhead with a heavier eye bolt. The bulkhead had the required gas ejection holes drilled into it. See Photo #2 for the finished fin can, recovery tube, new nose cone and chute/shock cord assembly.

Paul labeled the rocket the B4-2R (Basic 4" - 2nd edition Rocket) Photo #3 shows Paul and the B4-2R, that he had painted in the old color (Red & Yellow) scheme, on a launch pad at North Branch.

The New B4-2R is a little shorter and lighter than the original B4R. It is 46.75" long and weighs in at 46.1 oz. CP is about 36.5" and the CG is 28.75" empty. Stability margin is 1.92 cal. This still is a lot of rocket to be pushed by a G motor but we figured Paul could get about 650' on a high peak thrust motor



Continued on the Next Page...

B4-2R Continued

like a G76-4G. This day at North Branch we had a fair amount of wind and I would have felt better with a H motor in the B4-2R but Paul wanted to fly his rocket with his motors.

See Photo #4 for the lift off of the B4-2R on a G76-4G motor. It did climb higher than I thought it would. The wind drifted it into a corn field. With radio direction for line, Paul found the rocket with some delay.

Paul later told me that the rocket did a little fish-tailing in the wind off the pad. But other than that it was a great flight.

Also, it shows that the Baffle/Bulkhead design is a good way to retro-fit and repair a damaged rocket. Many of the Aero-Tech rockets could be made this way from the start. The 'Sumo' could start out this way. My 'G Force' could have the payload section reversed into a recovery section and the fin can could be made into a baffle/zipper-less bulkhead design, with heavier parts for the bulkhead. It would make a nice HPR rocket conversion, too.

Ken Jarosch and Paul
NAR 56442 SR
TRA 10290
MASA 148



Photo 3



Photo 4

MASA PLANET

Model Rocket Safety Code Reminder

Safety Code #4: Misfires

If my rocket does not launch when I press the button of my electrical launch system, I will **remove** the launcher's safety interlock or **disconnect** its battery, and will wait **60** seconds after the last launch attempt before allowing **anyone** to approach the rocket.



SAFETY FIRST ALWAYS

MASA Directory

Established January 1998

Founding President: Russ Durkee

2010 President

Carol Marple - masarocketry@rocketmail.com

2010 Vice President

Neal Higgins - nthiggins@gmail.com

2010 Secretary/Treasurer

Jason Colt - artimus772000@yahoo.com

MASA Planet Newsletter Editor

Jeff Taylor - jeff.taylor@mn-rocketry.net

MASA Planet On-Line

www.masa-rocketry.org/planetonline.htm

Club Website

www.masa-rocketry.org

Webmaster

Alan Estenson - estenson@mn-rocketry.net

Club Yahoo Group

<http://groups.yahoo.com/group/masarocketry/>



It's HAMR Time.....

PML "HAMR" Motor Retention System

By Alan Estenson

My standard mid/high-power motor retention scheme has always involved installing blind nuts or threaded inserts in the aft centering ring and then using homemade "Kaplou Klips" or PML's "PMR" retaining plate to secure the motor. However, while scratchbuilding a new mid-power rocket, I realized that my standard scheme wouldn't work on it. Instead, I decided to try something fancier.

Back in 2007, Public Missiles Ltd introduced their HAMR system – Highly Adaptive Motor Retainer. It consists of two machined aluminum components – a threaded sleeve and threaded knurled cap – and is available in sizes to fit 29, 38, and 54 mm motor mount tubes as well as with adapters to fit PML's "Kwik-Switch" system. PML says that the HAMR is compatible with virtually all of the popular motor brands and types. It works by trapping a motor's thrust ring between the sleeve and cap.




I purchased a HAMR 29 mm set (list price \$24.95). It came with sleeve, cap, and detailed instructions. The sleeves are designed to fit PML's phenolic motor mount tubing. [Note that cardboard motor mount tubing has a thinner wall than phenolic, so the sleeve has a very loose fit on it. Greater care would be required during installation to keep the sleeve centered.] Installation of the HAMR sleeve requires that at least 3/8 inch of the motor mount tube be exposed.

I began installation by sanding the end of the motor mount tube with 100 grit sandpaper; I also scuffed up the inside bonding surface of the sleeve. Once the sleeve would slide smoothly onto the tube, I cleaned up both parts with alcohol. Using the recommended "JB Weld", I then epoxied the sleeve onto the tube and let it cure overnight. While the glue was still soft, I used a hobby knife to clean out the excess that had squeezed out of the inside joint.



The next day, I tried out the HAMR with my Aerotech 29 mm reloadable casings, and they all fit perfectly. Because I installed the sleeve during rocket construction, I'll have to remember to tape it up to keep paint out of the threads during finishing.



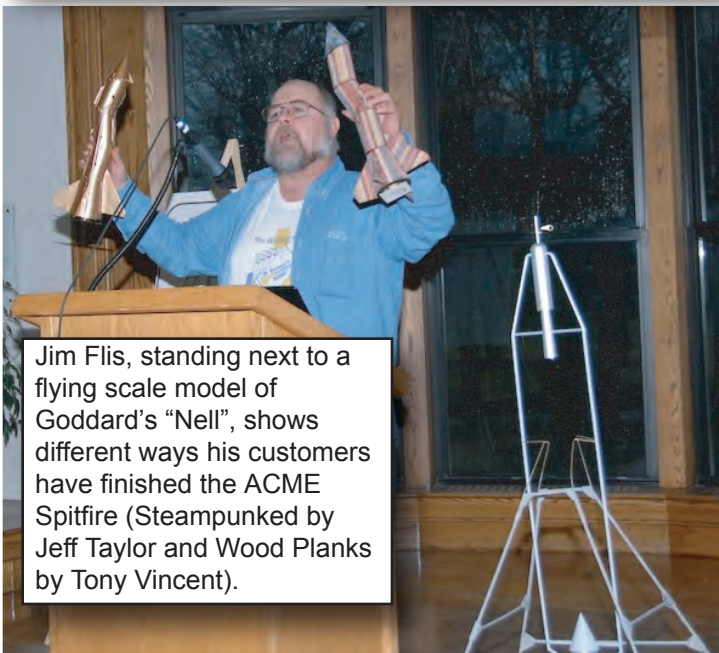
The quality, simple installation, and ease of use of the HAMR have left me impressed. I'll definitely be installing it on more rockets in the future. While the HAMR system isn't cheap, I can save some money by buying just the sleeve for each new rocket instead of the full set. 



NARCON 2010 Photos

Pictures from Todd Schweim

Todd stands on a rain-soaked golf course by the monument that marks the location of Dr. Robert Goddard's famous 1926 launch of the world's first liquid-propelled rocket "Nell".



Jim Flis, standing next to a flying scale model of Goddard's "Nell", shows different ways his customers have finished the ACME Spitfire (Steampunked by Jeff Taylor and Wood Planks by Tony Vincent).

MASA PLANET

Upcoming Outreach Opportunities for MASA Members

Sunday, May 2

Fly It/Take It Rocket Build Session at Buzz McDermott's House. A relaxing build session to build rockets to be donated to the Fly-It/Take-It event at NARAM-52. Check the MASA Yahoo Group for more details.

Saturday, May 22

Boy Scout Star Camp Rocket Launch at the Stearns Scout Camp near Fairhaven. Spend an exciting day helping boy scouts launch their rockets. Check the MASA Yahoo Group for more details.

Sunday, May 23

Fundraiser Rocket Event at Chateau St. Croix Winery & Vineyard in St. Croix Falls, WI. This fundraiser will help send MASA members Todd Schweim and Caleb Boe to Serbia to compete in the World Spacemodeler Championship in August. There will be a rocket launch, social hour, and a silent auction. Dinner will also be available for purchase. Check the MASA Yahoo Group for more details.

Friday, May 28

Westwood Elementary School in Blaine. Fourth Grade Build Session for the 12th year 1:45-2:45. Check the MASA Yahoo Group for more details.

Thursday, June 3

Westwood Elementary School in Blaine. Fourth Grade Rocket Launch for the 12th year 1:30-3:00. Rain date: June 8. Check the MASA Yahoo Group for more details.

2010 Meeting Schedule

Subject to Change

Check MASA Website or Yahoo Group for updates

MASA May Meeting & Build Session

Saturday, May 15 - Alan's House

See more details on Page 12

MASA June Meeting

Thursday, June 3 - 7:00 pm to 9:00 pm

Location: Science Museum of Minnesota, St. Paul

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

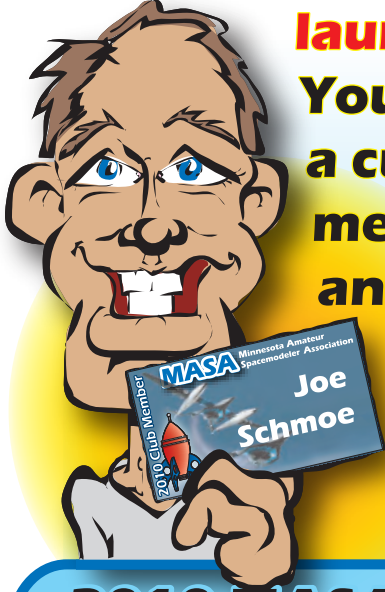
Saturday, July 17 - 2:00 pm to 9:00 pm

Location: Elk River



MASA PLANET

Don't forget to wear your 2010 MASA badge to the launches.



You need to be a current MASA member to fly an "E" or larger motor at a MASA launch.

2010 MASA Members Registrations Received as of April 28

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

Roster provided by MASA Secretary/Treasurer Jason Colt
90 Members to Date!


MASA Welcomes the Following New Members:

-  **Steve Brown**
-  **David DeHaut**



Congratulations to Caleb Boe!

Caleb's TARC (Team America Rocketry Challenge) team qualified to attend the Nationals! Caleb's team, the 4-H Hearty Homer Club (team #8076) and the Apple Valley High School Team 2 (team #8257) where the only two Minnesota teams to qualify.

For more information on TARC, visit www.rocketcontest.org
Good Luck, Caleb! 

MASA Planet's Mystery Rocketeer Contest

Identify This Future MASA Member...



Be the first to submit your guess to jeff.taylor@mn-rocketry.net and you could win. Cash prize will not be awarded. Bragging rights prize becomes the sole possession of the contest winner. Contest void where prohibited - which is pretty much everywhere. Batteries not included. Your mileage may vary. Shipping and handling are extra. Tax, title and license are the responsibility of the winner.

Submit your fun photos for next issue's contest.



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

- Jason Colt
- Alan Estenson
- Ken Jarosch
- Carol Marple
- Tim Melody
- Todd Schweim
- Jeff Taylor

To contribute pictures, stories, build reviews, or just about anything,
email to jeff.taylor@mn-rocketry.net

March MASA Meeting Goes High Power

At the March MASA meeting held at the Science Museum on March 4th, Alan Estenson presented the basic steps on how to prepare for making a Level 1 or Level 2 High Power Certification flight. Alan's presentation was full of tips that spanned from which kit to select, construction techniques, recovery devices, and how to obtain a high power motor for your certification flight.



Alan discusses using tubular nylon for
high power shock cords.

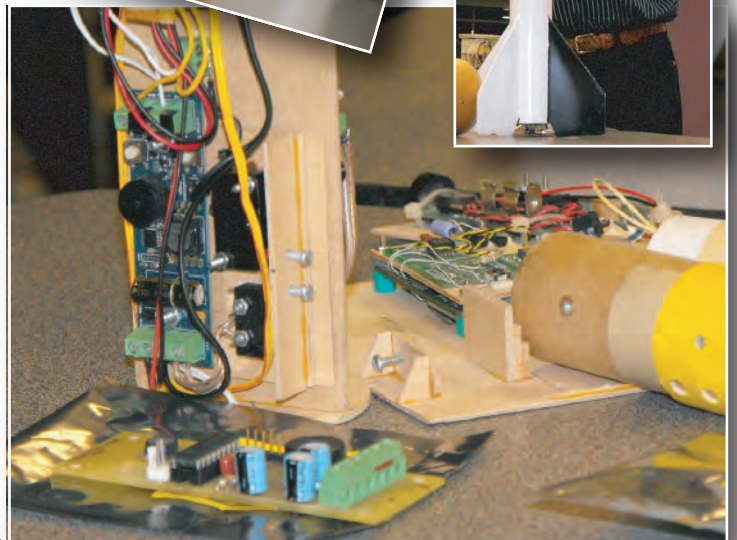
Elastic belongs in
your underwear, not
in your rocket.



MASA PLANET

April MASA Meeting Goes High Tech

At the April MASA meeting held at the Science Museum on April 1st, Glen Overby presented the basics on electronics for rockets. Glen explained the different types and features of altimeters, and explained the basics on how to build an avionics bay to protect your electronics during flight. Glen also talked about how to make electronically-activated ejection charges, and showed a video of him and David Whitaker running some static tests of the charges in David's backyard.



From the MASA President: **That's What She Said**

By Carol Marple

It's hard to believe, but the summer launch season is upon us. It's been a busy spring, and it looks like it will be an even busier summer...

Our first-ever MASA Membership Drive was successful. About 80 members joined or renewed their membership before the March club meeting, and all the names were entered in a drawing for a chance to win one of two \$10 Hub Hobby gift cards. Congratulations to the lucky winners, Laura Carpenter and Cindy Whitaker.

We've already supported 5 outreach events for local Girl Scout groups. We helped with 3 build sessions and 2 launches for at least 30 enthusiastic young ladies. Thanks to everyone who helped with these outreach events.

We have additional outreach events coming up in the next month, including a build and launch at Westwood (our 12th year working with this school!), a launch with a home school group (20-40 kids), and the Boy Scout Jamboree, which could involve as many as 10,000 Scouts! Watch the Yahoo email list for details on outreach opportunities, and let me know if you're available to help.

There has been a good response to my request for donations for the NARAM 52 Fly-it/Take-it event, but we can always use more rockets. This is the 3rd year that MASA has supported the NARAM FiTi events; we donated 10 rockets two years ago and 36 rockets last year. Let's try to match last year's donation. Remember, Buzz is hosting a FiTi build session at his house on Sunday, May 2. He has generously offered to let us take over his basement workshop for building, plus he has offered to provide parts to build rockets that are appropriate for donating to the FiTi event.

Alan has graciously agreed to host the May meeting, including a build session, at his house on May 15th. There will be club talk, rocket talk, and rocket building from 6:00 – 8:00 p.m. Once the rocket-related stuff is done, we get to take over Alan's game room.

There is a fundraiser planned to help with travel costs for Todd and Caleb's trip to the World Spacemodeling Championships in Serbia in August. The event is being held at the St. Croix Chateau Winery and will include a rocket launch, dinner, and silent auction.

We'll be hosting our 2nd Annual Regional Contest on June 5 and 6 (rain date is June 12 and 13). The Regional will be held at our Nowthen launch site, and will include a variety of contests. A sport launch will be held in conjunction with the contest, but contest flying will take priority over sport flying. Details can be found on our website.



Gleda and Vern Estes with MASA Pres Carol

Don't forget that NARAM-52 will be held just outside of Pueblo, Colorado the first week of August. To date, at least eight MASA members are already registered to attend. This should be a great time and I am looking forward to my first NARAM. Hope you can join us!

Carol
MASA President



<p>NSL 2010 Alamogordo, NM May 29 - 31, 2010 www.nsl2010.com</p>	<p>NARAM 52 Pueblo, CO July 30 - August 6, 2010 www.peakcity.org</p>	<p>TARC Finals The Plains, VA May 15, 2010 www.rocketcontest.org</p>
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At the next launch, PLEASE consider coming early to help set up or staying later to help tear down the range equipment. Thanks!



"I'll buy that for a dollar!"

Inexpensive Rocket Recovery Alarm

by Alan Estenson

While walking the aisles at the local "Dollar Tree" store, I spotted a "Sunbeam Battery-Powered LED Light with Panic Alarm." For only a buck, I couldn't resist buying one to see if it would work as a cornfield paranoia buzzer. At 2-5/8" long by 1-3/4" wide by 7/8" thick and a weight of one ounce, it should fit in most mid and high-power rockets. The package claims a loudness of 110 decibels, and activation is by pulling out a pin. I can verify that it is LOUD and has a wavering tone. Powered by three coin cell batteries, it'll probably be cheaper to just buy a whole new alarm after the batteries go dead.



To prepare this alarm for rocket use, I removed the pull chain and installed a knotted Kevlar loop on the pull-pin. I also bent the battery tabs inwards for a more secure connection. When installing in a rocket, I secure the alarm to the shock cord with strapping tape - taking care not to cover the speaker hole. I then tape the pull cord to a loop of the shock cord so that, when the shock cord pulls taut at parachute deployment, the pin is pulled out - setting off the alarm to help you find your rocket in that #\$\$% cornfield.



52 BY 52

5,200 Members by NARAM 52

**MEMBERSHIP
DRIVE**

Join the National Association of Rocketry or recruit a new member before the end of July, and you and your recruit will get valuable prizes. For details, log on to www.nar.org

National Association of Rocketry



Congratulations Laura and Cindy!

Laura Carpenter and Cindy Whitaker are the winners of MASA's Membership Renewal Incentive, and each won a \$10.00 Hub Hobby Gift Card. The incentive was to entice returning MASA members to complete their 2010 MASA registrations by the March MASA meeting. Each member registered by that date had their names entered in a drawing for a chance to win one of the two gift cards.



Boost Gliders and Asteroids...

May MASA Meeting to be Held at Alan Estenson's Home

Alan has graciously volunteered to host the May MASA Meeting & Build Session at his house on the evening of Saturday, May 15. If you're planning to attend, **please RSVP** to Alan (his email address is in the Club Directory on Page 5) so that he can plan accordingly.

The MASA Meeting & Build Session will be from 6:00 PM to

8:00 PM, and Alan has extended an invitation to stay after the build session to have a little retro fun with "Arcade Flashback" starting around 8:00. If you've ever been to Alan's house, you know exactly what that means!

Alan's address is 7006 Ives Lane North, Maple Grove, MN. Directions: From I-94, take exit 28 onto County Rd 61 / Hemlock Lane. Go south on Hemlock approx 1/2 mile. Take a right on 69th Ave N. Take an immediate right onto Ives Ln N. 7006 is the townhouse at the end of the street, off the NW side of the cul-de-sac. Alan asks that you please park along the street.

Build Session:

Micro-Deltie boost glider: limited quantities, cost per kit is \$7, **please specify in your RSVP** if you want to purchase one

"Birdie" odd-roc: limited quantities, FREE (first come, first served)

Arcade Fun:

Alan has a room full of his private collection of classic video arcade games including: Asteroids, Battlezone, Galaga, Lunar Lander, Major Havoc, Ms. Pac-Man, Defender, Robotron, Joust, Neo Geo, Red Baron, San Francisco Rush, Space Duel, Tempest, and Tron (subject to the whims of 30-year-old electronics!). Pinball Games include Doctor Who, Space Shuttle, and Star Trek The Next Generation.



ADDRESS SERVICE REQUESTED

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