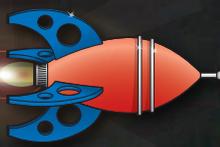


MASA PLANET



November - December 2010
Volume 13, Issue 6

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, 2009 and 2010 LAC Newsletter Award Recipient



NAR Section 576

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2011 Officer Elections

Nominations are open for the 2011 club officers, which includes the positions of President, Vice-President,  **VOTE** and Secretary/Treasurer. Each term is for one year, and **MASA officers must be current NAR members and MASA members.** Nominations will remain open until November 30th, and nominees have until December 10th to accept or decline their nomination. Voting will be held at the January 2011 MASA meeting. You may nominate yourself or a fellow club member by sending an email to masarocketry@rocketmail.com, or by posting the nomination to the Yahoo email list. Nominees do not become candidates until they accept their nominations. If no other candidates come forward by November 30th, club members present at the December meeting vote and confirm the current officers as your 2011 MASA Officers.

Current nominees are:

- President: Carol Marple (incumbant)
- Vice President: Neal Higgins (incumbant)
- Secretary/Treasurer: Jason Colt (incumbant)

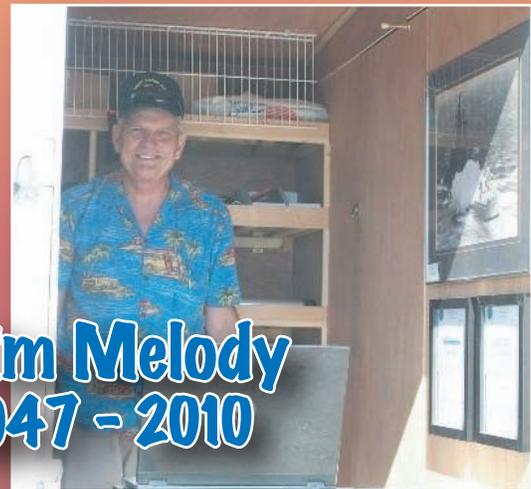


We Will Miss You, Tim

MASA member Tim Melody passed away on October 18, 2010 after a hard-fought battle against pancreatic cancer at the age of 63. Retired from the Navy, Tim lived in Coon Rapids as a brilliant engineer for BAE. Tim recently started up his business "Off We Go Rocketry", and traveled to club launches around Minnesota and Nebraska selling mid and high power rocket motors, hardware, kits and supplies. Tim joined MASA earlier this year, and was able to attend a few of our launches sporting his signature hawaiian shirt and US Navy hat. To honor Tim, MASA dedicated the October launch to Tim and his memory.



Carol - MASA President



Tim Melody
1947 - 2010

Tim at the helm of his Off We Go Rocketry trailer



Steve Brown, Alan Estenson, Jeff Taylor, Caleb Boe, Carol Marple, Todd Carpenter and Neal Higgins pay tribute to Tim at the October MASA Launch

Honest Goon

Scratch and Bash Goony Rocketry

By Jeff Taylor

In the 5 or 6 years that I have been in the rocketry hobby, I have never built a Goony - until now. For my first Goony, I logged onto the web site of Excelsior Rocketry at www.excelsiorrocketry.com to get some ideas and clicked on the link at the top of the page titled "Goony Retro-Bash Decal/Plansets" and found the perfect project: The Honest Goon, a Goony based on the popular Honest John missile from the early 50's.

What You Need:

Excelsior sells the plans, patterns and decals for this Goony as a set for only \$6.00. The plans outline the additional parts needed, provide the fin pattern, and give you step-by-step building instructions. In addition to the plan set from Excelsior, I also gathered the following parts:



- Estes Baby Bertha kit – Belleville Hobbies \$6.15
- BNC70AJ Balsa Nosecone – BMS \$8.25
- TA-6070 Balsa Transition – BMS \$4.05
- BT-70 Body Tube – BMS \$4.00
- 3/32" Balsa Sheet – I had laying around

Building the Rocket:

Using Elmer's Wood Glue throughout the entire build process, I started with the motor mount, which was built according to the instructions from the Baby Bertha kit. The only exception here is that when you glue the motor mount into the body tube, it needs to be mounted further into the tube, until the end of the motor hook is even with the end of the body tube. This is to provide some extra stability according to the Excelsior instructions.



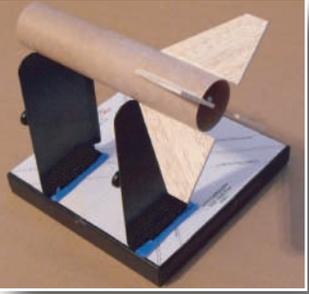
The plans provide the pattern used to cut the four fins from your sheet of 3/32" balsa. I found that there is enough extra balsa on the Baby Bertha fin sheets that the Honest Goony fins can be cut from them, so there really is no need for an extra sheet of balsa. After cutting out the four fins and sanding the edges, I use a Standard Rockets Assembly Tool and the 4-fin, 3/32" template available at www.standardrockets.com



with magnets. The tool allows you to set up all four fins at the same time and set it aside to dry. I call the Standard Rockets Assembly Tool my GIFI Tool (Glue It and Forget It), because once it is set up, you just have to let the glue dry. The Honest Goon plans say to mount the fins so they hang off the back of the body tube by 1/2", so I set the body tube 1/2" off the base of the assembly tool and set the fins on the base.

for alignment. If you have never used one of these tools, they are amazingly versatile, and a must-have for any hobbyist. To mount fins, all you have to do is place your body tube at the desired height on a threaded rod and you align the side brackets to the markings on the template. Then you put glue on the fin root edge and attach it to the rocket while it is held in place

After the fins were dry, I added glue fillets. Another nice feature of the Standard Rockets Assembly Tool is that there is a cradle at the top of each bracket that allows the rocket to lay horizontal while the fillets dry. Placing a small magnet inside the body tube assured that the rocket stayed securely balanced in the cradle.



The shock cord was mounted in the body tube with the standard Estes tri-fold retainer per the Baby Bertha instructions. I also used the standard parachute from the Baby Bertha kit, but I cut a spill hole in the center.

Building the Nosecone:

The next step for me was to build the big nosecone that gives the Honest Goon its distinctive appearance. I used a sharp hobby knife to trim off a piece of the BT-70 body tube that was 7/8" long. To get a straight cut, I tightly wrapped a piece of paper around the tube and taped it together after the edge of the paper was aligned to use as a guide. This short piece of body tube goes between the balsa nosecone and transition.



Since the body tube is only 7/8" long, the shoulders of the balsa nosecone and transition needed to be trimmed down to properly fit. Using a razor saw, I trimmed both shoulders so they were each about 3/8" long. The nosecone and transition both included a fluted wood dowel and a screw eye from Balsa Machining Services. The dowel provides a



Continued on the Next Page...

Honest Goon Continued

stronger material for mounting the eye screw. The transition comes with a hole drilled in it for the dowel, but the hole is only at the large diameter end. Since I was using this transition reversed, I needed to drill a hole in the small diameter end to accept the dowel. I used wood glue to securely mount the dowel into the transition hole and to securely mount the eye screw into the dowel. I glued the nosecone and transition to the 7/8" piece of BT-70 body tube to create the new nosecone. The launch lug that comes in the Baby Bertha kit was cut in half, and I glued one half of it to the BT-70 body tube. This completed the nosecone construction. The other half of the launch lug needs to be glued onto a side of one of the fins, and needs to be properly aligned with the launch lug on the nosecone.



Smoothing it All Out:

The last step before painting was filling. I put a small amount of Elmer's Wood Filler into a disposable container and added a very small amount of water (a little goes a long way) to thin it down to the consistency of pancake batter. I then applied a layer of this mixture to just about everything: fins, fin fillets, body tube spirals, balsa transition and balsa nosecone. After the filler had dried, I started rough sanding using 220 grit sandpaper. To sand the fin fillets and launch lug fillets, I used a wood chopstick as a sanding block, with a piece of 220 grit sandpaper wrapped around it so that the rough side was out. This gave me a consistent size fillet along the entire length. I sanded the fillets with the chopstick until I could just barely see the body tube and fin balsa showing through. I then used the 220 grit to feather the fillet radius with the fin and the body tube, and to sand the fins smooth. The wood filler sands very easily, but generates quite a bit of dust, so make sure you work over a sheet of newspaper. I found a few spots that needed another thin coat of wood filler, so I repeated the process until all the balsa seams and fillets were completely filled and smoothed. Then I gave it a final sanding with 400 grit sandpaper.



Paint and Decals:

After all the sanding was finished, I removed all the extra dust by blowing on it and wiping it down with a damp paper towel. I sprayed the entire rocket with a coat of Plasti-Kote White Sandable Primer. This is my favorite primer for finishing rockets, and I used to be able to find it at Michaels Craft Stores, but it seems to longer be available. After the first coat was dry, I sanded with 220 grit sandpaper, removed the dust, and

sprayed it with a second coat of primer. The final primer coat was sanded with 400 grit sandpaper for a nice smooth surface. I sprayed Rustoleum Painter's Touch Gloss White over the entire rocket with three or four light coats, allowing about a half hour dry time between coats. Then I set the rocket aside for a few days for the paint to completely cure.

The waterslide decals provided by Excelsior Rocketry are very thin, and I am not good with decals – specially thin ones. Unfortunately I managed to rip a few and ruin them, so I had to switch to Plan B. Instead of using decals for the black stripes around the Body and the roll pattern on the Nose, I masked those areas off and applied Rustoleum Gloss Black spray paint. For the rest of the markings, I made my own decals based on the original Excelsior decals. I cut each decal from the sheet and dipped it in a mixture of lukewarm water and a few drops of dish soap for about 30 seconds. I brushed on a little bit of Micro Set onto the area of the rocket where the decal was going to be applied, and slid the decal off of the paper backing and into position. After the decal was positioned correctly, I gently blotted it with a paper towel and gently brushed on a layer of Micro Sot and let it air dry. Once all the decals were applied and dry, I brushed on a coat of Pledge with Future Floor Wax to give it a high-gloss layer of protection.

Flight Simulations:

I modeled this rocket in RockSim 9.0 to get an idea of its flight characteristics. The Excelsior Rocketry plans recommend A8-3, B6-4 and C6-5 motors. With the finished weight of my model being 3.6 ounces, the RockSim simulations using an A8-3 only launched it to 46 feet with parachute deployment only 6 feet before impact. That would be an obviously bad motor choice. The simulations with a B6-4 reached an apogee at 161 feet with deployment at 135 feet. And simulations with a C6-5 resulted in an apogee of about 505 feet with nearly perfect deployment at 497 feet. I even tried simulations with a C6-3, but it deployed the parachute a bit too early before it even reached apogee.



Continued on the Next Page...

Honest Goon Concluded

Actual Flights:

The first flight was on a B6-4. It weather-cocked into the wind a little bit, so I doubt it got the altitude it could have. The ejection seemed a bit long too, and it deployed while on its way down. Luckily it was a damage-free flight, but it seemed a bit underpowered on the B6-4. The next flight was at a different launch when it wasn't so windy, and I launched it with a C6-5. This turned out to be a perfect motor for this rocket, with ejection right near apogee. Both flights pretty much mimicked what Rock-Sim said they would be like.



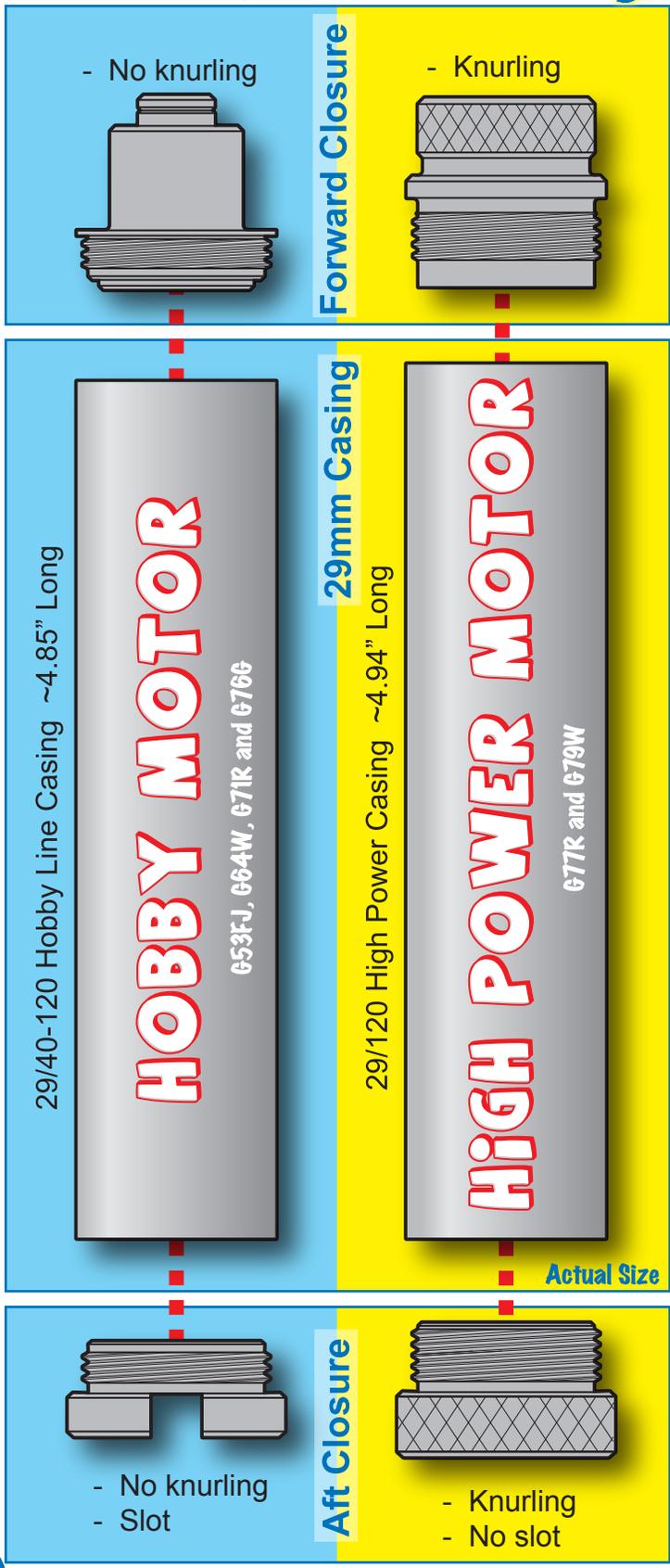
Final Thoughts:

The Honest Goon definitely holds its own in the family of Goonies. I was extremely pleased with the service and product quality that I got from all the vendors (Excelsior Rocketry, Balsa Machining Services and Belleville Wholesale Hobbies), and would recommend them to anyone. The Excelsior Rocketry web site lists this rocket as a skill level 2, but the plan set lists it as a skill level 3. At any rate, I found that the build was fun and fairly simple, and would rank it maybe a skill level 1.5 at most. The only differences between this rocket and any skill level 1 kit is that the balsa shoulders of the nosecone and transition needed to be trimmed down, the BT-70 body tube needed to be trimmed down, and the transition need a hole drilled in the back for the wood dowel – none of which were beyond basic building skills. I look forward to building more Goonies from the Excelsior Rocketry Retro Goony web site, and will be starting the Nike-G Goony next.



G... What's the Difference?

Not all AeroTech 29mm "G" reload kits are the same. Some will only work in the 29/40-120 Hobby Line Casing (G53FJ, G64W, G71R and G76G) and some will only work in the 29/120 High Power Casing (G77R and G79W), and they are NOT interchangeable. The illustration below identifies the differences in the hardware. Make sure you buy a reload kit that fits the hardware you have. MASA Public Service Announcement 



2010 MASA Members

Registrations Received as of October 30

Cheryl Anderson	Owen Fredrick	Bob Moyle
Hunter Anderson	David Gensler	Lance Murphy
Kevin Anderson	Art Gibbens	Mike Murphy
Levi Anderson	Hannah Gibbens	Scott Murphy
Timothy Barr	Philip Gibbens	Eric Myers
Corey Bedford	Renee Gibbens	Heather Myers
Glenn Bedford	Scott Gleason	Jim Myers
Kevin Bedford	Caleb Griswold	Justine Myers
Lilia Bedford	Gideon Griswold	Julia Nelson
Rohn Blake	Andy Heren	Justin Nelson
Caleb Boe	Neal Higgins	Mark Nelson
Daniel Boe	Alissa Hoyme	Nicole Nelson
Don Boe	Julie Hoyme	Eric Oakley
Joshua Boe	Ken Hoyme	Glen Overby
Caylin Bowman	Kirsten Hoyme	Nic Rosenau
Cindy Bowman	Ken Jarosch	Seamus Rosenau Blake
Craig Bowman	Paul Jarosch	Audra Rudys
Alex Brown	Charles Jerve	David Schaffhausen
Luke Brown	Abby Juntunen	Nancy Schaffhausen
Steve Brown	Andy Juntunen	Cathy Schwartz
Thomas Brown	Karen Juntunen	Joy Schwartz
Allison Carpenter	Brian Kilberg	Larry Schwartz
Elliot Carpenter	Don Kilberg	Ryan Schwartz
Laura Carpenter	Laurie Kilberg	Todd Schweim
Todd Carpenter	Abby King	Dwayne Shmel
John Clifton	Eric King	Elizabeth Shmel
Kevin Cochran	Ray King	Richard Shmel
Seth Cochran	Sharon King	Susan Shmel
Ted Cochran	Cathy Komada	Bryan Sullivan
Jason Colt	Jacqueline Komada	Alyssa Taylor
Jim Copple	Jeffery Komada	Jeff Taylor
Kaylee Copple	Vanessa Komada	McKenna Taylor
Paige Copple	Edward LaCroix	Mark Thell
David DeHaut	Ellison Lenz	Cheryl Vatsaas
Ben Ericksen	Sarah Lenz	Christian Vatsaas
Ethan Erpelding	Stuart Lenz	Ingrid Vatsaas
Mike Erpelding	Alex Lundeen	Rick Vatsaas
Alan Estenson	Phyllis Lundeen	Charlie Weisman
Allison Fliger	Randy Lundeen	Henry Weisman
David Fliger	Carol Marple	Joe Weisman
James Fliger	Buzz McDermott	Mabel Weisman
Melissa Fliger	Bruce McLeod	Aimee Whitaker
Espen Fredrick	Tim Melody	Austin Whitaker
Kris Fredrick	Lyle Merdan	Cindy Whitaker
Kristina Fredrick	Gerald Meux Jr	David Whitaker
	David Miller	

Roster provided by MASA Secretary/Treasurer Jason Colt

136 Members to Date!

**Remember:
Fly Safe or Stay Home.**



Safety First - Always.

MASA PLANET

MASA Welcomes the Following New Members:

-  **Rohn Blake**
-  **Edward LaCroix**
-  **Ellison Lenz**
-  **Sarah Lenz**
-  **Stuart Lenz**
-  **Bruce McLeod**
-  **Nic Rosenau**
-  **Seamus Rosenau Blake**
-  **Bryan Sullivan**



Pay It Forward at the Next MASA Launch

Many MASA launches have visitors that just come out to enjoy watching a day of rocketry or to see what a club launch is all about. A lot of these visitors are first-time rocketeers or have never even tried building or launching a rocket.

Because of this, MASA is starting a new "Visitor Fly It/Take It" program, where these first-timers can pick out a simple rocket from a box, fly it that day, and keep it for free.

Consider building a beginner kit to donate to this worthy cause and pay it forward to the next generation, and to potential new club members.



Building the Genesis for My L1 Certification - Part 2

Continuation from the Last Issue

By Art Gibbens

I waited for the June launch to roll around and got ready to make another stab at it. Phil and I left our house under sunny skies heading right into the clouds we saw coming from the NW. We stopped at Bethel University to pick up Mathias and rolled into the launch area a little after 10:00 am. Again, it was overcast with a low ceiling but folks are still flying. I checked in with my cert team Carol and Alan, and started to finish up the motor assembly. After the motor was assembled, I had to wait until the ceiling rose to make my cert attempt, so I flew some of our smaller rockets with my boys.

With small patches of blue sky showing through, I sensed that I might get this done yet that day. The ceiling continued to rise as the day wore on. So I pulled my chute out and made it blossom so that it wouldn't stick coming out. I put the motor in using my retainer plate and waited to put in the igniter until after the rocket has been checked. I had Carol and Alan give it the once over, inserted the igniter and put it on the launch pad. Then I waited for a large opening between the clouds.

The launch: The engine lit right away and the rocket wiggled a little after it cleared the rod but settled in for a nice high ascent. It had angled a bit off to the NW but still had plenty of altitude. It arched over and came down a full third of the distance before the ejection charge ignited and forced the two pieces apart. Unfortunately, the chute did not make it out of the cavity. It "back-slid" horizontally and ended up in the alfalfa field, which I think was a fortunate occurrence. When we picked it up there was only a little dirt on one fin and absolutely no damage to it anywhere.

Before my next attempt I made three changes before flying. One, I relocated the knot for the parachute on the shock cord closer to the fin can so the chute stands a better chance of being pulled out. Two, I drilled the delay so that ejection happens closer to apogee and the rocket will not be going so fast when the parachute is supposed to come out. Three, I added a little nose weight to try to stabilize the lower altitude wiggles.

The July MASA launch had beautiful skies and lots of other rocketeers wanting to certify that day and I was the second person to try at a certification flight. Neal Higgins was first of the day with a successful L2 launch.

A couple of pre-flight suggestions encouraged by my cert team included sanding the coupler so that the two sections separate easier, and drilling a pressure equalization hole just below my bulkhead so when I put the two pieces together the recovery bay is not pressurized or causing a vacuum when pulled apart.

Once those two minor tweaks were made, I finished packing the parachute, installed the recovery wadding and armed my corn abatement buzzer/siren thingy. I walked out to the pad where I slid the rocket onto the rod after installing the igniter. After hooking up the leads and taking the obligatory photo ops, I walked out towards the middle of the field to get a good view of the launch.

Even adding weight to the nose did not alleviate the wiggle, so the general consensus is that the fins are a bit too small – right on the edge of being large enough to keep the pointy end aimed in the right direction. Drilling the delay was perfect as the ejection charge popped the rocket apart just after apogee. And having the parachute tied-off closer to the fin can definitely helped pull the chute out. However, I will engineer some kind of "stuffer tube" that will direct the charge to the front of the rocket causing it to push the laundry out instead of relying on air resistance to drag the chute out.

I got my paperwork signed off and sent in, and in just over three weeks I had my new NAR wallet card showing that I was now certified at L1 for high power rocket flying.

So there it is, from beginning to end, the story of one man's journey to L1 certification. Hope you all enjoyed it.



Kit Review

The Quest "Planet Probe"

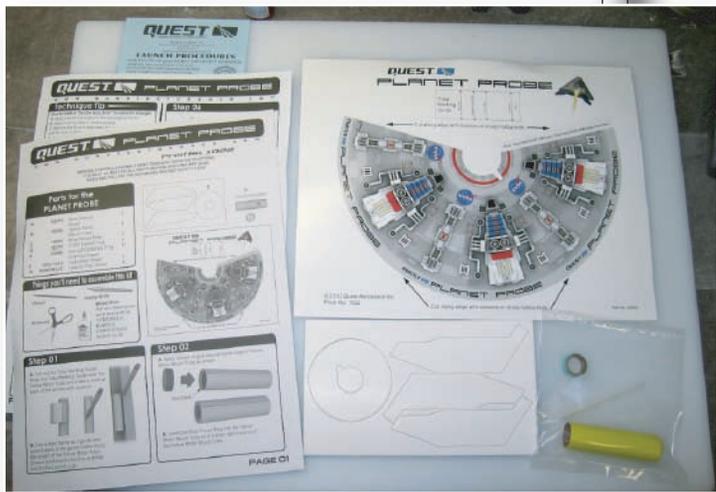
By Alan Estenson

Quest #1022, MSRP \$6.99, Skill Level 1

Quest bills this new flying-saucerish kit as "Fun to fly and easy to build. This cone shaped rocket is perfect for small flying areas." Since it was both neat-looking and cheap, I picked one up and built it in spare moments over a few evenings.



MASA PLANET



down" to put a plain white surface on top that they could decorate.

While listed as optional in the instructions, I went ahead and painted the fin assembly. After masking off the edges where the assembly would be glued to the shroud, I shot it with primer and then semi-gloss black spray paint. After test fitting, the shroud was glued onto the fin assembly with yellow glue; I used small pieces of blue masking tape to hold the shroud against the fins while the glue dried. Done! Not counting glue drying time and painting, the total build time was well under an hour.

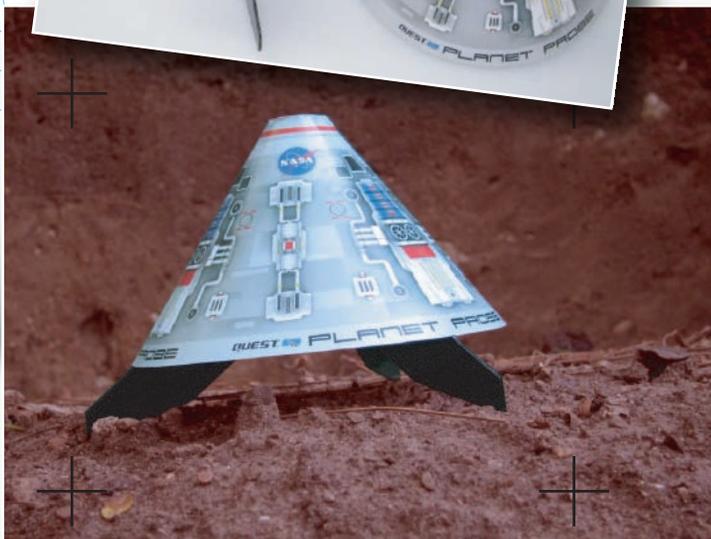
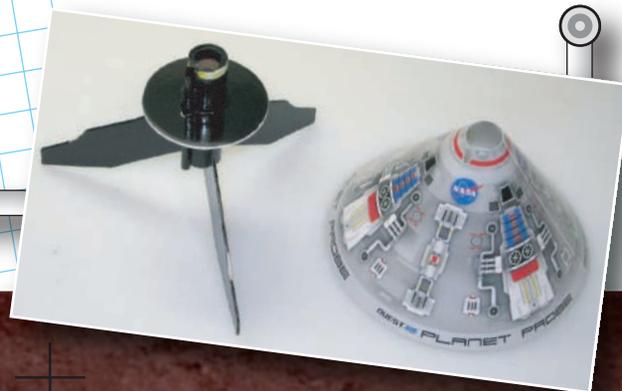
First flight of the Planet Probe was on a B6-0 at the MASA launch on September 4, and it flew nicely! Later that day, I flew it in the annual Great UFO Drag Race on a C6-0. Both flights were straight up and landed not far from the pad.

The kit contents included the instruction sheets, printed "aero shroud", motor mount tube, engine block, launch lug, and a die-cut cardboard sheet with the three fins and a centering ring. The instructions were quite simple and easy to follow. While I did a few extra things, I pretty much followed them as written. The motor mount tube had a shiny yellow coating on it, so I sanded that off for better glue and paint adhesion. I also lightly sanded both sides of the die-cut cardboard sheet. After removing the die-cut parts, I lightly sanded their edges smooth. My Standard Rockets Assembly Tool made quick work of gluing on all the fins at once. After adding the launch lug and single centering ring, it was time for glue fillets at all the joints. I also wicked thin CA into the edges of the fins for added durability.

This kit lives up to its advertising; it was quick to construct and enjoyable to fly. It would work well for outreach group builds. With estimated altitudes of 200 – 300 feet and easy tumble-recovery, it can definitely be flown from small areas. 🚀

After carefully cutting out the aero shroud, I gave it a slight curl by working it over a chunk of 38mm motor mount tubing. This made it easier to curve and glue into the cone shape.

While not mentioned on the instructions, the Quest web site says that kids could glue together the aero shroud "upside



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/>

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

-  Jason Colt
-  Carol Marple
-  Alan Estenson
-  Alyssa Taylor
-  Art Gibbens
-  Jeff Taylor
-  Ken Jarosch

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

Coming Up in Future Planet Issues.....

- **Sirius Rocketry's Deimos**
- **Vendor Spotlight**
(Get to know some rocket vendors)
- **Member Spotlight**
(Get to know some MASA members)



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 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.

Model Rocket Launch Site Safety Reminder

For those of you that might want to launch your rockets on your own at a local park, field or schoolyard, please remember that you should first check with your local authorities to see if rockets are allowed. Some local Twin Cities suburbs (like Brooklyn Park, for exmple) don't even allow rockets at all, while others may have their own ordinances that govern these activities. Your local police department, parks and recreation department, or city hall would be good sources to check before you fly. In addition, the National Association of Rocketry (NAR) has established the Model Rocket Safety Code, which addresses launch site sizes as described below. For more information on the Model Rocketry Safety Code, visit www.nar.org.

From the Model Rocket Safety Code (Does not include High Power Rockets)

I will launch my rocket outdoors, in an open area at least as large as shown in the table below, and in safe weather conditions with wind speeds no greater than 20 miles per hour. I will ensure that there is no dry grass close to the launch pad, and that the launch site does not present risk of grass fires.

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Site Dimensions (ft.)
0.00 - 1.25	1/4A, 1/2A	50
1.26 - 2.50	A	100
2.51 - 5.00	B	200
5.01 - 10.00	C	400
10.01 - 20.00	D	500
20.01 - 40.00	E	1,000
40.01 - 80.00	F	1,000
80.01 - 160.00	G	1,000
160.01 - 320.00	Two G's	1,500

Source: www.nar.org

Low Amperage Igniters for Small AP Motors - Field Notes

Part 2 - Continuation from the Last Issue

By Ken Jarosch

The Applewhite Rockets were chosen for the Test Vehicles simply because I like to fly them and could make use of the motors used in testing the igniters. Also because of the short flight time and distances, I was able to get more testing done. The motors used were the AeroTech E15-4W's and the E30-4T's to try the two different propellants as they work with the igniters. At this time I hadn't done any Static Testing but went right into the field work. That was a mistake that was corrected later.

Q2G2 Igniter Test Vehicles



Art Applewhite Gold Cone
E30-4T



Sunward Red Pyramid
E15-4W

FS-12-LA Igniter Test Vehicles



Art Applewhite Stars & Stripes
E15-4W



Art Applewhite Black Scimitar
E30-4T

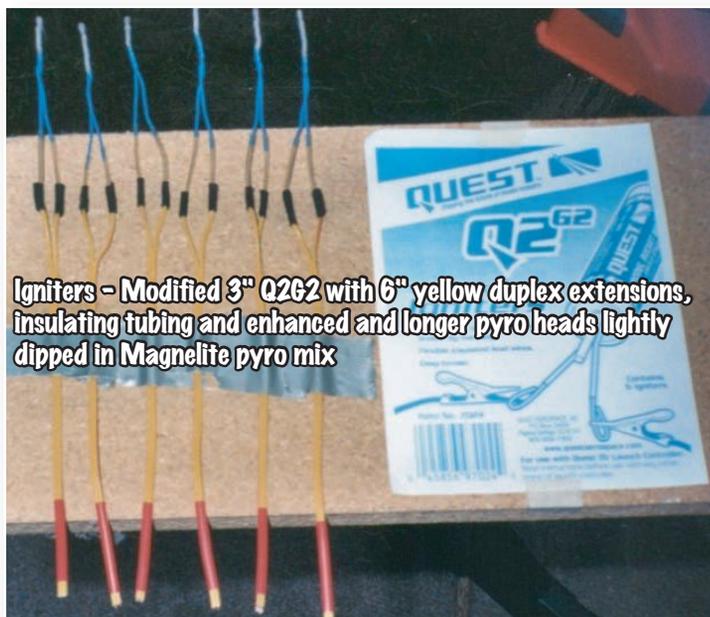
The results below were both surprising and disappointing during the actual launch time. But the end results would balance that out. So here are the results.

Modified Q2G2 Notes:

I was pleased with the results of the Modified Q2G2 Igniters as they apply to the SU individual 24mm AP motors flown at the MASA launch on Oct. 24, 2009. The previous tests (Igniter Review article) of the stock 3" Q2G2 igniters showed that the pyrogen head was too weak, too short and only forward bursting. The other problems were the short lengths and excessive bare wire showing causing shorts. All this makes them unsuitable for reliable single AP motor use. Forget clusters.

My modifications included clear plastic tubing over the bare wire and a 6" duplex wire extensions. Too bad the manufacturer does not make them in a 6-8" length* for AP motors. The Pyrogen head was enhanced and lengthened to 3/4" by dipping in Magnelite Regular pyro. Results were a large pyro burst out the rear of the motors with instant ignition. Great for single motors so far.

Except for the extra work, these Modified Q2G2 Igniters look promising for cluster work. Especially at only 120ma (1/8 Amp.). Many combo hookups could be possible. I'll have to try the igniters in 2 and 4 motor rockets using the E30-7T's.



Igniters - Modified 3" Q2G2 with 6" yellow duplex extensions, insulating tubing and enhanced and longer pyro heads lightly dipped in Magnelite pyro mix

NOTE: After all the tests and this article was written, in early February 2010 Quest offered on their Website the Quest Q2G2 "LONG" igniter for AP motors. (N/F 150ma, A/F 350ma) But more on that later.

Blue 3" FFJR Notes:

While a small motor igniter, at 3 amps with 12 volts, it is not a Low Amp unit. But still they are ones that come with selected 24 and 18 mm SU AP motors.

While not recommended for clusters, I wanted to see if enhancing might improve the chances. All past stock tests passed 100%, but the first enhanced unit failed to ignite an E30. The igniter was completely burnt but did not start the AP. Maybe it's just not touching the fuel.



Igniters - Aerotech 3" FFJR enhanced with a light pyro dip of Magnelite pyrogen

Fire Star FS-12-LA (Low Amperage) Notes:

Saturday's resounding failures with this New LOW AMP igniter was a great disappointment. We really like the regular FS-12 igniter for all our small motor work. Even in the tiny E11's, F12's and the D10's. These tiny twisted pairs of WIRE-WRAP fit in all the small motors.

In September 2009 we ordered 65 more of the FS-12. Along with the order I requested another 13 of the FS-12-LA for testing. The regular igniters come with about 10 turns of 30 AWG wire for the bridge head and use a min. 3 amps of current to fire. 36 AWG wire has 4 times the resistance, so if you had the same number of turns you would have 4 times the resistance and 1/4 the current. To my surprise, the manufacturer only had about 2.5 spiral turns in the same length of head. This

Continued on the Next Page...



Low Amperage Igniters Continued

means both the regular and LOW AMP igniters have the same average resistance (actually measured) which means the same current draw. Only the thinner wire may burn sooner and at lower voltage.

My first thought was that the little area of bridge wire was NOT going to fire the regular pyrogen dip. I was expecting a problem at the Saturday launch using these blanks and the regular pyrogen. I turned out to be correct. The 12 volt 230 amp battery at the relay controller 15' away just popped the bridge wire without firing the pyro.

It was suggested to me to use a lower voltage battery to give the wire time to heat before blowing. Seems plausible, but I was using standard launch range equipment. I didn't want to have special equipment for single motors much less lower power for clusters. Anyway, we were out of time so further tests had to wait.

Follow-up FS-12-LA Static Tests:

Monday Oct. 26, 2009. I don't have a 6 volt or 9 volt battery setup. So today we ran further 12 volt tests on the FS-12-LA igniters with the Magnelite pyrogen.

1) I wired two LA igniters in series figuring 1/2 the current and a voltage drop of 6 volts cross each igniter. Using the same 12 volt 230 amp battery on an AeroTech controller direct with 30' cord, the two igniters burst into large balls of fire. Great for two.

2) Just to check on the controller difference, we went back and retried a single igniter. Sure enough, the bridge wire popped with no pyrogen burning. Paul even heard the pop. Seems to confirm these need 6 volts or so for timed burn.

3) Following that up, I tried a three series of the LA igniters. What happened was interesting. On ignition, the two outboard igniters lit while the middle one remained intact. A check revealed that the middle igniter bridge wire had not burnt or fired the pyro.

Conclusion: While the LA igniters did fire two in series, a single igniter will not fire with regular pyrogen at 12 volts. And more than 2 only fired two of the units. In this case the outboard units. Single units could use a 6 or maybe 9 volts hand controller. Standard 12 volt field equipment is going to be a problem. And for clusters, I want the power and instant ignition.

It would seem that these FireStar FS-12-LA igniters may benefit from a Low Amp pyrogen such as the MagFire LA pyro from RocketFLite for \$39.95.

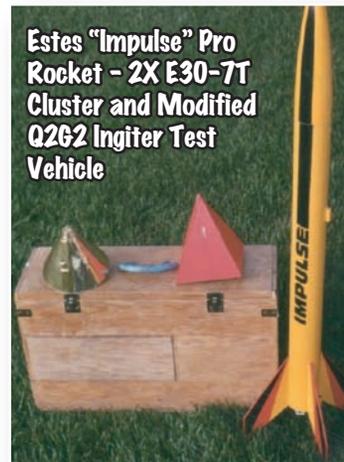
Final Notes:

Regarding the clusters, the 3" Q2G2 igniters show some promise when modified for AP motors, and the FireStar FS-12-LA work in 2 igniter series units with standard pyrogen and standard range equipment.

In early February 2010, the Quest Website offered their new Q2G2 "Long" igniters for small AP motor use. They come with the 8" long wire leads I wanted, thus eliminating all that insulation and extension work that was done for this article. They lengthened and narrowed the pyro heads to accommodate the AP motor structure. The bridge wire resistance is about the same ohms as the 3" Q2G2 igniters considering the longer leads. The pyrogen seems to be the same material, so while this may be fine for a single motor, I'd want to enhance the heads with a Magnelite pyro dip for cluster use.

At a May 2010 TRA-MN launch I tested a stock 8" Long Q2G2 Igniter in my Baffle/Bulkhead Executioner 1 using an E30-4T motor. We got instant ignition and a good flight. I am sure the pyro enhanced "Long Q2G2 Igniter" is going to be the igniter of choice after a few AP cluster tests.

The planned "Low Amperage Igniters - for Small AP Motors - Actual Launches" are as follows:



1) Estes Pro "Impulse" on 2x E30-7T with 2 modified Q2G2 Igniters.

Photo #8 Estes Pro Impulse (See Photo Index)

2) The Launch Pad "Martin Pescador" (Kingfisher) on 2x E30-7T with 2 FS-12-LA Igniters in series.

3) "Lil" Viper III" on 3x D21-7T with 3 enhanced Long Q2G2 Igniters.

Photo #9 Lil' Viper III (See photo Index)

4) Estes Pro "Patriot" on 4x E30-7T with 4 FS-12-LA igniters hooked up in two strings of 2 LA igniters in series. (Series/Parallel Setup) Note; these will be X crossed to opposite motors and not adjacent motors.

For ease of operation the easy starting, Blue Thunder Motors (E30T) were chosen for an AP Cluster launch with these enhanced special igniters. Also the motors were chosen so that if only 50% light, the rocket will be carried away from the launch range safely. Further Safety Issues are that the rockets will be launched 115' away from the relay controller which itself should be 85-100' away from spectators. Of course, the launch rod will be angled away from the crowds.

I will report back later on the results.

Ken Jarosch
NAR 56442 SR
TRA 10290
MASA 148

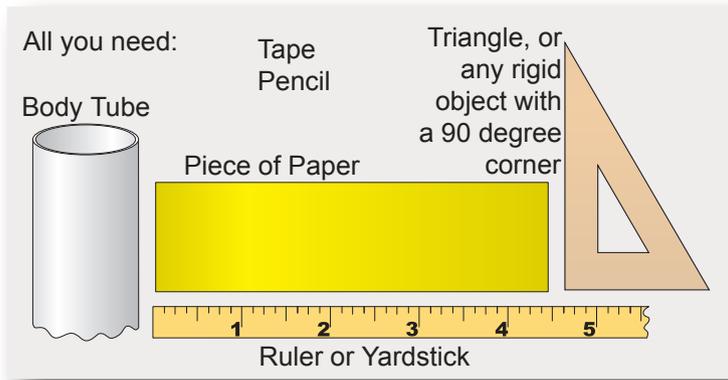


Simple Fin Marking Guide

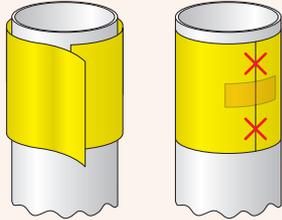
You don't even need to know what "pi" is

By Jeff Taylor

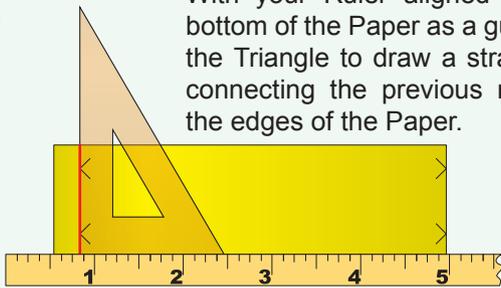
This easy method allows you to mark ANY size Body Tube for ANY number of Fins, using only simple tools with no need for a calculator.



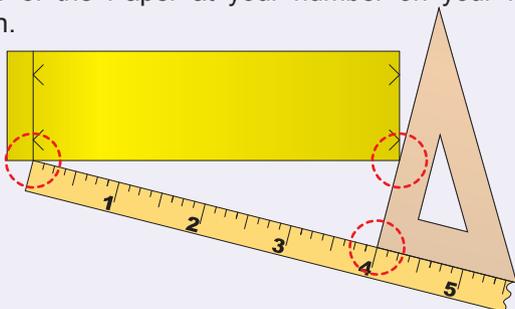
1 Wrap and Tape the Paper tightly around the end of your Body Tube. Place two "X" marks across the seam. Remove the Paper and lay it flat.



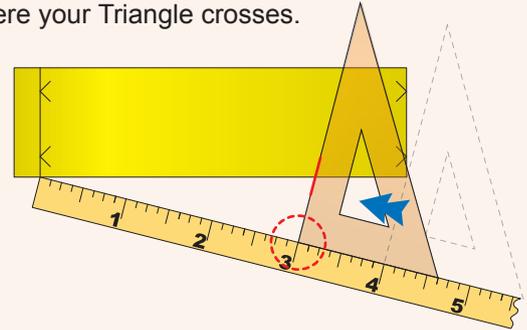
2 With your Ruler aligned with the bottom of the Paper as a guide, use the Triangle to draw a straight line connecting the previous marks to the edges of the Paper.



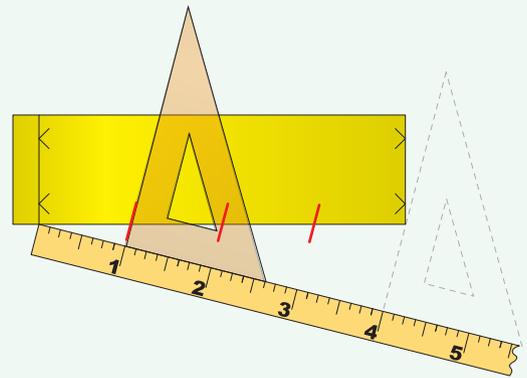
3 Pick a convenient number on your Ruler that is easily divisible by the number of Fins you will have (for example: 6 for 3 Fins, or 8 for 4 Fins). Just make sure your number is a little longer than your Paper. This example is for 4 Fins, and 4" on the Ruler just happens to be longer than the Paper. Align the end corner of your Ruler where the line meets the edge of the Paper, and align your Triangle with the corner of the Paper at your number on your Ruler as shown.



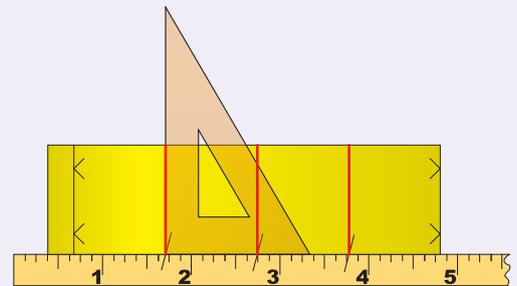
4 Hold the Ruler steady, and slide the Triangle up to the next number that you picked in the previous step on your Ruler. Make a mark on the edge of the Paper where your Triangle crosses.



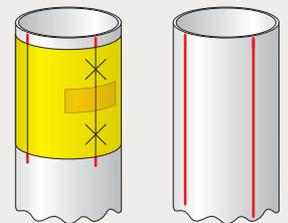
5 Continue marking the edge of the Paper at each mark on your Ruler.



6 Align the Triangle with the bottom edge of the Paper, and extend each previous mark along the height of the Paper.



7 Rewrap the Paper on the Tube and align the "X" marks. Transfer the lines on the Paper to the Tube. Remove the Paper and extend the lines as long as needed using a doorjamb or piece of angle iron.



DONE!



MASA's Annual Holiday Party Returns to Chaska

All MASA members, their families and guests are invited to attend the 2010 MASA Holiday Party on Saturday, December 4. This year, the Holiday Party returns to the Chaska Community Center. RSVP's are welcome, but not necessary.

Saturday, December 4, 2010 6:30 - 9:00 PM

MASA will provide beverages, plates, utensils, etc. We ask that each family bring a potluck food item to share with the group. No alcoholic beverages, please!

This is an evening of fun, socializing, the wacky gift exchange game, the 2010 MASSY Awards, free door prizes, and much more!

There will be tables set up to display rockets, projects, memorabilia, or whatever! Feel free to bring something along.

We'll also have a few fun rocket "beauty" contests, including:

- Scale (any scale model)
- Kitbash (anything you've kitbashed)
- Kid-constructed (anything that's been built by one of our younger members, open to those who are currently 17 and younger)

(Sorry, there are no real prizes for the beauty contests, just bragging rights)

For all the details, check out the 2010 Holiday Party page which can be found on the MASA website, or enter this URL:
<http://www.masa-rocketry.org/news/2010/2010-05.htm>

Location:

The "Sun Room" at the Chaska Community Center
1661 Park Ridge Drive, Chaska, MN 55318
<http://www.chaskacommunitycenter.com/ccenter/>

The Sun Room is on the right half of the building (as you face it from the parking lot), just outside of the theater near the back of the building. It's easiest to use the doors labeled "Theater Entrance" and walk straight back in that hallway. The Sun Room will be on your left at the end of the hallway. Overflow parking is across the street at the middle school.

We'll have seating for 40 plus extra tables for food, rocket and project displays (or whatever).

Thank you to Lyle Merdan for arranging this party location!

Bring:

- Yourself and your families
- A tasty food item to share
- Your MASA name badge
- Optional but recommended: A wrapped rocket-related mystery gift item, total value no more than \$15, for a fun gift exchange. Do not include identifying information. (No gag gifts, please!)



Mars or Bust!

The brand-new Sirius Rocketry Deimos Mars Exploration Vehicle stands almost three feet tall and is built to fly gracefully on 24mm motors from D to F.

Have you tried a Sirius Rocketry kit lately?

Visit our website for more details on the Deimos and other exciting Sirius Rocketry kits that will take your enjoyment to the next level. You will also find an ever-expanding line of model and HPR rocket kits and motors ready to ship, plus parachutes, adhesives, parts, accessories, tools, space-related plastic models and more! Stop by our web store to order direct online. It's time to have some serious fun with rocketry. Try us today!

Since 1998, it's been Sirius Rocketry - For the Serious Rocketeer!



www.siriusrocketry.com

10% Discount for MASA Members! Enter Coupon Code MASAPLANET1210 at checkout. Expires 12/10/10

MASA Improves Safety With a Little Help From the NAR

To help clubs purchase safety equipment, the National Association of Rocketry offers safety grants. MASA has applied for and received NAR safety grants to help cover the cost of a smoke chaser, extra PA loudspeakers, new first aid kit and other miscellaneous items.



The Men's Retreat "Build It, Fly It and Take It Home" Adventure

By Art Gibbens

Saturday September 18, 2010

Last year I was approached by the District Committee for the Minnesota Baptist Conference to do a building/flying session for model rockets this year because they were aware that I enjoyed doing this as a hobby. They were looking for something new for one of the presentations for the guys to go to. (I was one of about 20 presenters that day for the 400 or so guys that were there this year.) I was assigned the 11:00 am slot to build them and the 3:00 pm slot to fly them.

Nine guys showed up and eight of them had never built or flown a rocket. They ranged in age from early 20's to mid 60's. Thankfully, most of them had worked with their hands on other projects like model cars, model planes and various wood working hobbies. If I recall, only one of the younger guys had never done many "crafty" things but he was able to build a fine model rocket.



I asked the guys when they walked into the Craft Shack if they wanted to build an orange and black rocket or a white and silver rocket when they got there. So we built both generic Estes E2x and Alpha 3 kits. Because it was such a cool morning we found that if you used your breath to warm the CA it stuck quicker than letting it harden at ambient temperature. No real problems with the build. I did make the call to use white glue for attaching the shock cord mounts down inside the tube so that they guys' fingers wouldn't be stuck inside their rocket. I knew we had time for the white glue to dry before we flew at 3:00 pm.

I had purchased A8-3 Estes engines for these kits because I knew we would be on a small field surrounded by trees and



past them on two sides of the field was the lake. Because of wind direction I set up my launch pad near first base and my controller was on the bench so all the spectators could be safely behind it for handy-dandy crowd control. I would venture that we had over a hundred guys watching the flights all around the field.



As we were prepping the rockets for flights I had the guys "reef" their chutes with masking tape so that they would not drift as far because of the swirling breezes we were experiencing that afternoon. We had only 2 misfires, so not bad for a bunch of beginners.

Tally is as follows: there were 4 E2x's and 5 Alpha 3's built. One guy with an Alpha never showed up to fly it. We had 14 successfully recovered flights and on the first flight of one of the Alphas it got caught up in an oak about 40 feet above the ground. So we had a total of 15 launches. It was a good day for flying rockets!



Pictures from NARAM-52

By Alyssa Taylor



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