THE 206-43

The Newsletter of NARHAMS, NAR Section #139.
NAR National Champions 2001, 2004

June 05, 1986 - COLUMBIA STS-40 SPACE SHUTTLE
Payload: Spacelab SLS-1 Module
www.astronautix.com

Maryland Science Center "Space Day" May 6, 2006

Reported by: John McCoy – NAR-15731

In an e-mail from Carolyn Slivinski and Jim O'Leary MSC's events coordinators ask that I pass along a Big Thank You to the Club and all the Hamsters who helped to make Space Day a success. I'll second that with a big thank you to all 7 members of the Narhams Space-Day team consisting of Scott Branche, Eric and Thomas Henderson, Kevin Johnson, Paul Miller, Mark Petrovich and my most wonderful better 2/3rds Mary McCoy for all their help and support putting together a very nice Static and micro flight demo at the inner harbor museum in Baltimore.

Photo by John McCoy

The weather turned out to be just fantastic with temp in the mid 70's, bright and sunny with a slightly stronger then we like to see 12-25 mph breeze blowing toward the water from the NNW.

Inside the museum our six table booth went up sporting the clubs banner in it's new 10-foot high support. Supplied tables were cover with Narhams blue felt table covers and light blue plastic skirts. Working around the Horse shoe positioned tables we tried to cover as many facets of Model Rocketry as we could cram on the allotted six 6-foot tables.

Thanks to Eric, Thomas, Kevin and Scott we had 3 laptop and TV/DVD videos going all day showing flight videos, aerial videos and RC Glider flights.

Our Display; if my count came out correctly, proudly laid out 145 models, launch range diorama, at least 4 types of launcher set ups, all kinds of electronic, Egg, Camera and night payloads, gliders, sport and competition models. Model types ranged from Micro to a couple Cluster motor large model rockets, with the 119.75" Long Tall Grumpy Dog and ELE-1 (103" Extreme Length Experiment) micro Super-roc positioned on a back table getting a lot of questions.

Across and around the exhibit hall Tom Milnes and the AIAA folks were building straw and paper ring gliders, rolling straw rolled puff models, paper SR-71's , Balloon/string races, and Lego/ spud "pinewood derby type track racers in which our own Thomas

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JUNE 2006
VOL 28 ISSUE 06

Inside this issue:

ZOG-43

Volume 28 Number 06

June 2006

ZOG-43 is the official newsletter of NARHAMS the National Association of Rocketry Headquarters Astro Modeling Section # 139

NARHAMS is the oldest model rocket club in the United States!

ZOG- 43 is dedicated to model rocketeers of all ages, abilities, and interest. We are committed to providing the most current, up-to-date information on model and real world rocketry, and to provide educational material as well as entertaining information. ZOG -43 is published monthly and is available to anyone on a subscription basis. Current rates are $10 for meeting pickup or email or $15 for postal mail U.S. Funds for 12 issues a year, payable to NARHAMS Material in ZOG -43 is not copyrighted. Free and unlimited reproduction is granted with the proper credit to the author and/or ZOG-43.

For more information.....

If you have any questions about ZOG-43 or NARHAMS, or if you have any comment(s), correspondence, free merchandise or if you'd like to submit an article, send them to :

ZOG-43, 700 Cliveden Road West,
Batlimore, MD 21208
E-Mail ZOG-43 at:
zog43editor@yahoo.com

ZOG-43 is edited by Roy Lappalainen, and is an eight-time winner of the NAR/LAC "Rockwell" Trophy, recognized as the best NAR section newsletter.

Years won: 1969, 1973, 1975, 1990, 1991, 1992, 2003, 2004 & 2005

Zog-43 staff typist is none other than Jennifer Ash-Poole a.k.a. Secretary to the Stars !

Photographs: by Roy Lappalainen, except where noted.

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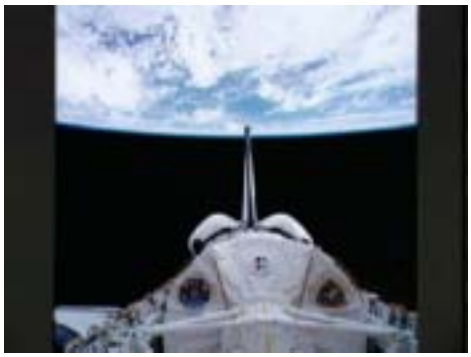
This Edition: ***25 copies***

NARHAMS ON THE WEB

http://www.narhams.org

Send and receive E-mail with other NARHAMS members through NARHAMS Web page grouplist via yahoo-groups.



Spacelab – NASA Photo

NARHAMS serves Baltimore, the state of Md., Washington DC and the surrounding Metropolitan areas. The club is a section of the National Association of Model Rocketry (NAR) and we are the oldest continuously active model rocket club in the United States, first established as a high school club in 1963, changing our name to NARHAMS when chartered as a NAR section in 1965. NARHAMS is the only five time winner of the NAR "Section of the Year" award.

Years won: 1997,1998,1999, 2001, 2004

NARHAMS members regularly fly their model rockets at NASA's Goddard Space Flight Center on Soil Conservation Rd. in Greenbelt Md. The launches are open to the public and are held the first Sunday of every month (weather permitting), starting at 1 PM.

Sport Launches are usually held the second Saturday of every month at Middletown Recreation Park in Middletown Md. Check the web page for updates.

NARHAMS welcomes all prospective new members to our monthly meetings. They are held on the first Saturday of the month from 5:30 to 9:30 PM at the College Park Airport Annex Building. Dues are 10 cents a week, with an initial 50 cents up front (good for 5 weeks) as a sign of good faith.

NEW: Monthly meetings available on-line via chat-room , simply go to the NARHAMS homepage and click on the link.

ZOG ROYAL COURT

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KEEPER OF THE HOLY WORDS (Secretary)

Chris Kidwell 571-434-7507

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(Section Advisor)

Jim Filler 301-524-4447

Directions to College Park Airport:

Follow I-495 to Kenilworth Ave. South. Make a right onto Paint Branch Parkway, then make a right on Cpl. Frank S. Scott Dr. At the airport entrance go straight to the Operations Building, the annex building is adjacent to the "Ops" building.

June Musings from the Zog

I have just gotten back from TARC 2006, and although I am exhausted, it was a great experience as always. During the BBQ, and every place we ran into the kids, we kept getting thank yous, and great jobs. Even the next day, as we all stumbled out of the hotel exhausted, adults and kids alike kept coming up and saying thank you for running a great launch.

On the Goddard Range, Jay Apt called for debrief at the end of each every round. Each area: timers, LCO, Radio, Deputy RSO, etc, get a chance to state if they found they had any problems. Some were minor things like the noise was getting too loud to the pad managers needing to remind the kids about keeping a few feet away from the fence for safety. This was helpful for us to improve the way we ran the next round.

If something ever happens at a sport launch, I hope we as a club will Remember to stop, debrief and see what we can do to improve the way we run things. This is a good tool even off the flying field.

As a reminder, the section of the year paperwork is due, so if you did an outreach, mentored a team for TARC, please let me or Chris Kidwell know. We will make sure we include it in our Section of the Year paperwork.

Zog Bubbles

The forecast on Wednesday was calling for thunderstorms all day on Saturday May 13th. That same day my wagon died and my hot water heater sprang a leak. So, with being occupied with buying a new car and cleaning a flooded basement, I forgot to call in the NOTAM.

I was certain that we were going to be rained out but, decided that I would go ahead with the launch, figuring that I could have a nice lunch at James Gang with those who braved the elements. When I left my home at 7:30am it was pouring down rain with thunder and lightning. I was pretty sure the lunch idea was going to be a sure thing. By the time I passed the Route 29 intersection on I-70 the sun was out with only scattered clouds so, I opted for breakfast at the Myersville McDonalds.

After breakfast, I picked up the equipment and drove back to the range. I had everything setup and ready to go by 10:06.

Jennifer was the first to arrive and for a while it looked like the first rack was going to be a Bubbles only power series but, Dick Stafford and Christopher Silvia showed and filled the open pads.

One of the TARC teams showed up for a last-minute practice flight. (I didn't catch the name of the school).

Notable flights included: Christopher Silvia's QED on 4 B6-4s, Astron Ranger with 3 B6-4s and a 49er with an F20-7W; Alex Mankevich's Fire Bolt a clustered multistage 2 C11-0 and a C11-7. Dick Stafford flew his Hat of Death on a F23 (always a crowd pleaser); Thomas Henderson did an excellent job of targeting trees, having several of his gliders crash into the trees to the west of field.

Thomas was the only person to bring models for the record trials. Since he was the only one and they we for altitude events, he was did not request that we setup the trackers.

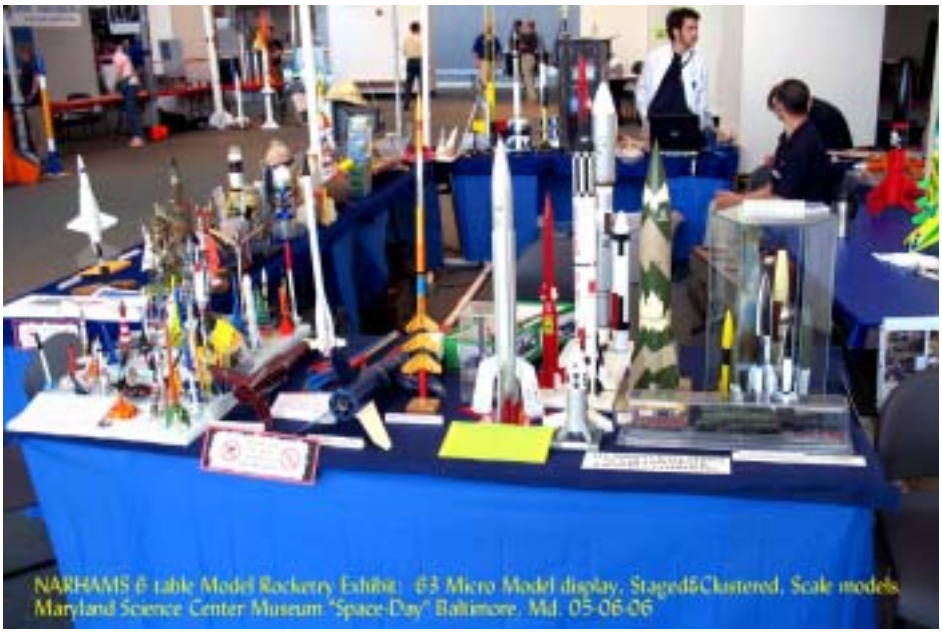
It was a really nice day. The usual "W" at Middletown was absent until around 2:30pm. By then everybody was pretty much done.

I closed the range at 3pm.

My thanks to those who stayed to help pack-up the range.

MSC Space Day - Continued

managed to Tie his video camera to one of the Spud racers for a "Track view" run or two. Our Stack of 400 puff Rocket (200 supplied by Lockheed Martin)



shank pretty well considering we didn't have anyplace for folks to actually build them. We still really need to come up with a 15-minute paper model.

On the other side of the exhibit hall the MDRA folks had a selection of nice HPR models in which Mr. Miller did a bit of double duty adding some of his excellent HPR model to their layout as well as the many great Scale & Odd Rocs displayed on our tables. Wish I could have gotten a better photo of his On-30 scale V-2 loaded on a train. It's quite impressive.

Scott, Kevin and Mark answered questions on flight cameras, movies, video and electronic payloads, Gliders, RCBG and RG, Helicopters, as well as NAR and FAI competitions.

Other areas that seemed to get a lot of interest were Night Vehicles display, PMC, Odd-Roc cluster, staged, and Micro Models, all well represented.

Our exhibit hall had a 40-foot ceiling at the glass front overlooking Light Street and the Harbor. Carolyn and other museum folks demonstrated electric RC helicopter, electric powered flying ring thing and other odd flying contraptions. We briefly considered launched one of the Estes Hydrogen system models from our display, but I chickened out fearing we would surely take out one of the ceiling mounted spot lights if we did.

"Museum" astronauts roamed the Halls and galleries in full spacesuit gear. Old Friend David Fair and others all pitched in to make loads of very

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Photo by John McCoy

GODDARD SPACE DAY
By Jennifer Ash-Poole

May 4 was Space at Goddard Space Flight Center. 4000 6th graders and their parents were expected to come and see what Goddard was all about. Alan Williams, Tom Bagg, and I were slated to do 2 demos that day. Lockheed Martin paid for the Quest Bright Hawks that we used for our power series. Alan built 8 of them, for A-D, converting 2 for 24mm motors.

I brought my UFOs a glider and a helicopter model. Tom Bagg brought a few of his Star Wars models, a 2-stage rocket, and a couple of other sport models. The first demo was in the morning. My glider decided to go back into pieces, Alan's Astrobee had a misfire. My helicopter model worked, but decided to fly upside down. Every other model went up and wowed the crowd, including Tom Bag's 2-stage model. Most models were recovered, except the D powered Bright Hawk, which is somewhere in the Building 17 parking lot.

For the afternoon session, the glider couldn't be flown, but we still had enough models for 2-3 racks. Alan's Astrobee did go off this time, and landed in the tree. My helicopter decided to fly right side up, and Tom had another successful 2-stage flight. Alan will need to do some repairs on the Astrobee, but we had another successful demo.

OUTREACH UPDATE
By Tom Bragg III

Rocketeers!

I had a very successful launch with the Westchester Elementary School 3rd Grade Friday 5/19/06. The launch was supposed to be Thursday 5/10/06 along with my rocket talk to the class. The talk went well. We started with demonstrations of the white EVA suit and Blue Shuttle suit from GSFC, and the bunny suit I used when I went into the B-29 clean room. I discussed the history of rocketry, physics of rocketry, mathematics (how high did it go), parts of a rocket, and model rocket safety. Unfortunately it started raining during the talk, so the launch was postponed till 5/19/06.

On 5/19/06 I had some 5th grade help carting the launch equipment to the field when it started to rain. We covered everything with tarps and went in for lunch. Weather.com showed the rain clouds moving off. After lunch it was beautiful! About 85 students and 8 school staff including the Principle, Vice Principle, and several teachers each launched a rocket. The students each built and flew their own Estes Alpha III. The teachers flew my models including: Estes Fire Streak, Gen E2x, Star Wars Naboo Fighter, Wacky Wiggler, Fat Boy, and the FlisKits Pheord X-150. The Vice Principle flew the FlisKits Acme Spitfire, and the Principle flew the Mongoose 2-stage.

It was a bit breezy, so we dropped five rockets in the low trees at the other end of the field. All were recovered easily with the yellow pole. We had one parachute/nosecone separation from rocket body, but both pieces were recovered.

The students and parents had such a great time that a group of them are planning to get together to attend one of the monthly open launches at the GSFC Visitor Center this summer.

I am glad to hear that TARC did not need the yellow pole as it was a great help at Westchester.

My next event is the Girl Scout Community 51 Encampment at Broadcreek Scout Reservation on June 3, 2006. 27 troops have each built an Alpha III. They are scheduled for 3 troops every half hour throughout the day. I will run the launch, have a display, and answer questions.

SPORT LAUNCH Statistics

Rocketeers:	**17**
Flights:	**75**
Impulse:	
1/2A	**6**
A	**20**
B	**30**
C	**14**
D	**8**
E	**2**
F	**3**
?	**2**

Most Flights: Bubbles -13

Designing & Building Engine Mounts Part 2

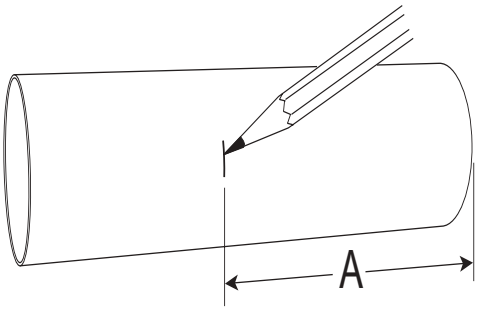
By Tim Van Milligan

In the first part of this article about designing and building engine mounts, we talked about selecting the parts. This is a critical step, as it controls the quality of the engine mount. If the parts don't fit together well, then we'll spend more time during the assembly phase trying to get them glued together.

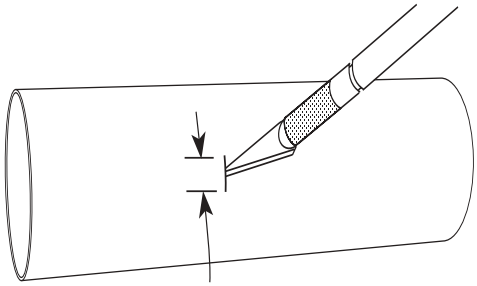
On the other hand, when the parts fit together nicely, we'll be able to quickly assemble the engine mount and it will be stronger. And it will be lighter weight because it will need less glue.

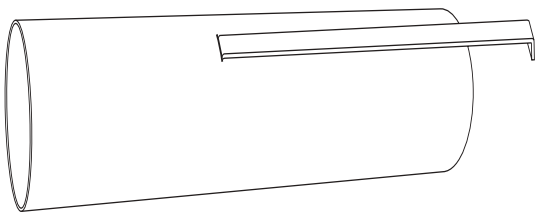
Step 3: Attach the engine hook.

Attaching the engine hook is pretty straight forward. Begin by cutting a small slit in the body tube. This slit is 1/8 inch wide (3mm), and is positioned from the rear of the tube as shown in the illustration below.

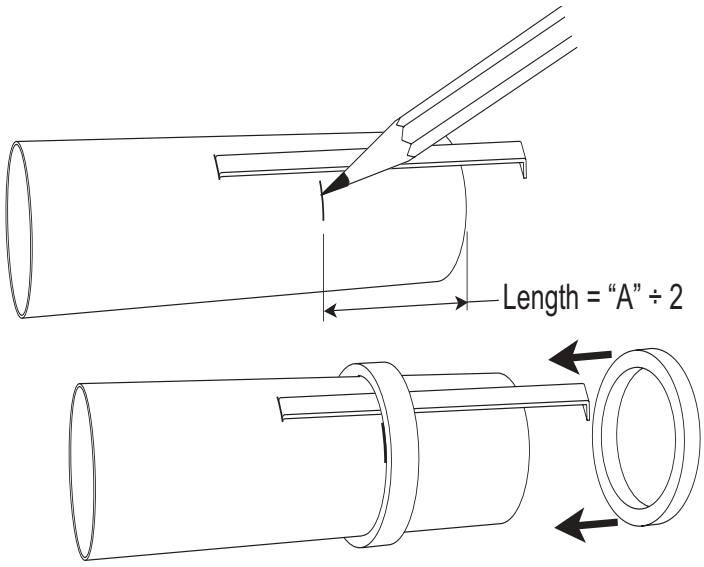


A= Enging Hook Length - 0.5 inch



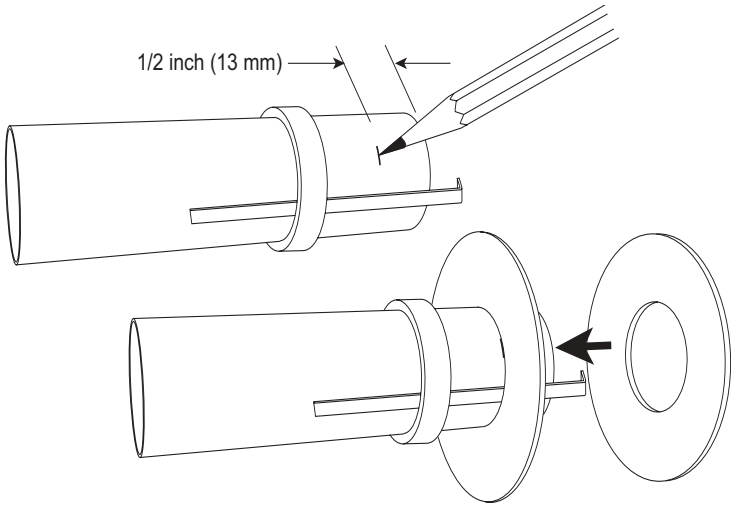


Once the hook is inserted, it is held in place either with tape or a paper centering ring. I would use a ring if your engine mount will have disk type centering rings. This is because the disk type rings won't hold the hook in position as well as wider rings.



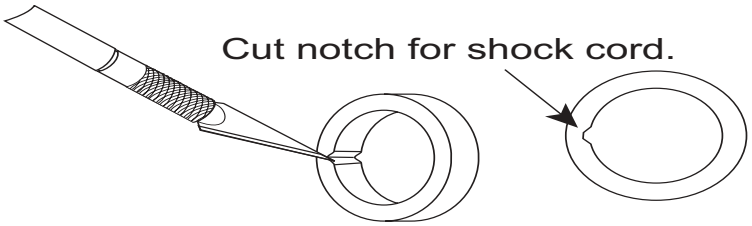
The position of the ring (or masking tape) is in the middle of the portion of the hook that lays on the tube. I should mention here that I only use wood glue when assembling the engine mount. It is plenty strong, and is forgiving enough that you can reposition parts if they are initially placed wrong.Step 4: Attach the aft centering ring.The aft ring is attached next. I like to glue it in place 1/2 inch (13mm) from the aft end of the tube.

The reason it isn't all the way at the end of the tube is because it would make it difficult to bend the metal hook back far enough to insert the engine.

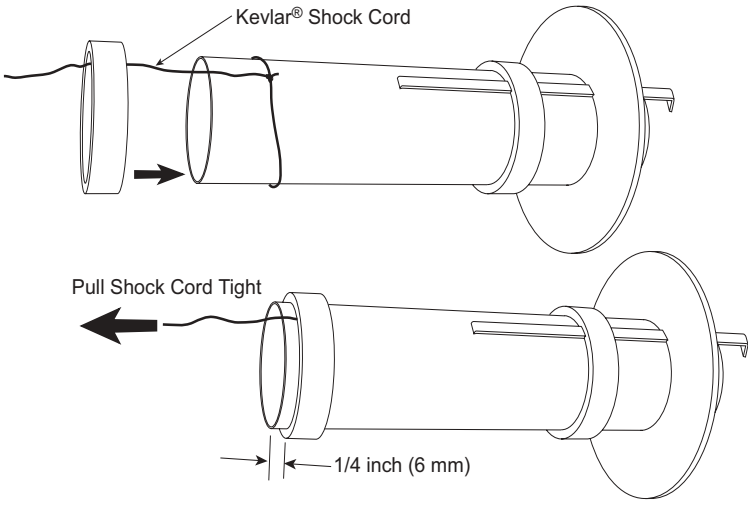


Step 5: Attach Kevlar(r) Shock Cord

This step may not be needed, depending on how you want to attach the shock cord. If you use the Estes style paper shock cord mount, then this step is not necessary. I recommend this step only if you are using Kevlar(r) as the shock cord material. This material is heat and fire resistant, so it can be used around the engine mount. If you are using elastic shock cord, do not attach it to the engine mount as described below.Start by cutting a notch on the inside of the thick ring that fits over the engine mount tube.



Take one end of the kevlar cord, and tie it around the perimeter of the engine mount tube. Then slip the ring over the cord, and onto the tube. Pull the cord tight up against the ring. Slide the ring so that it is approximately 1/4 inch (7mm) from the front edge of the tube. Then glue it into place.
Smear glue into the fibers of the Kevlar(r) where it wraps around the tube. This will hold it in place, and make a very solid anchor.



If you aren't using disk type centering rings, you can use the correct centering ring for this step, and then skip the next step. The part then does double-duty and becomes the shock cord anchor and the ring to center the mount in the outer diameter tube.

Step 6: Add the forward centering ring

The forward centering ring would be added next. It is glued in place near the front of the tube. You typically want the rings in the assembly as far apart as possible. This will make sure the engine mount tube does not get cocked inside the rocket. If it does, it will create off-axis thrust. That would cause the rocket to do cartwheels across the sky.

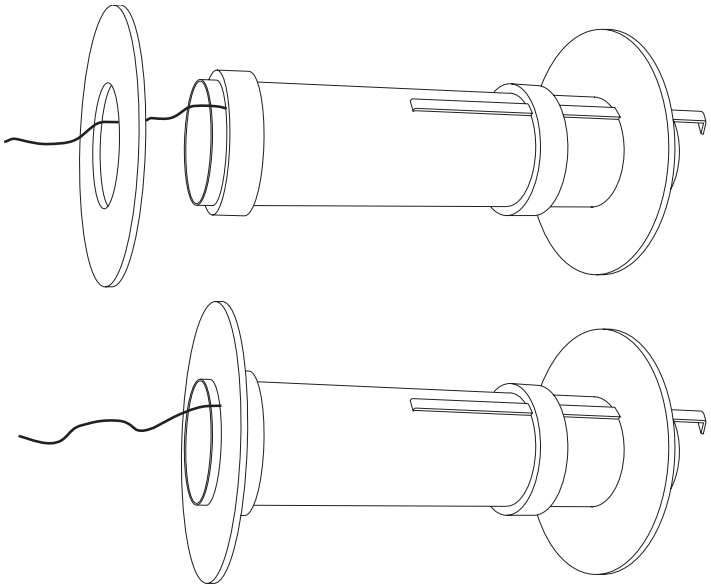


Photo by John McCoy

MSC Continued from page 4

Photo by John McCoy

interesting "spots" around the museum for visitors to stop and explore " THE OUTER REACHES" of space.. There were places to have your photo taken in a spacesuit on the moon.

Speaking of Astronauts, Astronaut Tom Jones was there to sign copies of his new book, and Astronaut Ken Reightler talked to visitors about his experiences in space travel.

Narhams did a small but well received Micro Flight Demo between 1:30 and 2:00 attempting to fly 7 models of which two just refused to leave the rack. Those that did take to the air in very breezy conditions were a semi-Scale Sputnik, Bic Pen, US Flag Monocopter, Venus rockets PD model that hung up a bit on the rod, and a 5" Flex-wing glider. Our Space Freighter Little Plastic Brick, and a last minute Stand-in streamer model refused to budge. All were recovered except the Flex-wing, which as expected found its way into the harbor and promptly sank:D

By 4:00 pm we were all ready to call it a day. While packing up we were complimented several times by the museum staff on our presentation. Jim O'Leary reports 1450 visitors walked through the exhibit hall during Space Day.

Someone ask if I thought the day was worth all the time, work and trouble, I have to say without hesitation OH Yes, Well worth it. We get so few opportunities to really show the gambit of all we can do in and with our hobby. I feel privileged to share the joys I've received through the hobby.

I know I've left some things out, like stomp rockets just popped into my head…way to much going on to keep everything straight:(Thanks again to all who made this great day possible. From the many of the comments overheard and reported we did a Bang up Job!

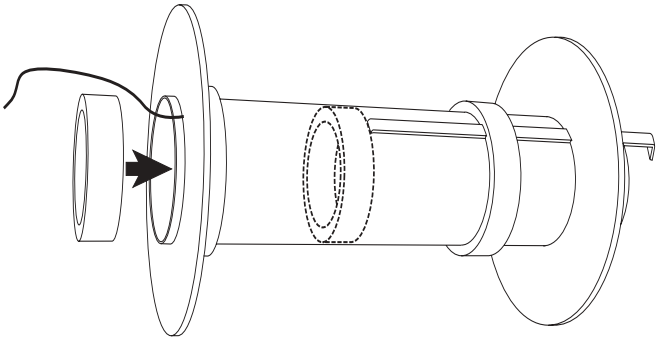
Keep em fly'in micronized and well demonstrated!

Photo by John McCoy

Step 7: Engine Block Installation

he last part in the engine mount is the engine block. It is used the prevent the engine from sliding forward into the body of the rocket.
The metal engine hook can sometimes slide around in the engine mount, since the glue doesn't really stick to the metal of the hook. Because of this, you should always use an engine block in front of the engine hook.

Installing it is easy. Just push it into the front end of the engine tube until it butts up against the tab of the engine hook that protrudes into the tube.



I used to tie the shock cord to this part and use it as the anchor point. But the surface area is pretty small compared to the mounting it on the outside of the tube. In fact, after several models tore out their engine blocks, I stopped trying to use the engine block as an anchor point.

Step 8: Apply glue fillets

At this point the assembly of the engine mount is completed. All that is left to do is apply the fillets of glue to each side of the big rings.
When the glue on the fillets is dry, you can now install the engine mount into the tube.

In conclusion, designing an engine mount is not hard. All it takes is a little bit of planning and researching the available size tubes and rings.
If you have any questions about designing rockets, you can contact me at: http://www.ApogeeRockets.com/contact_us.html

Kevlar(r) is a registered trademark of E.I. du Pont de Nemours and Company for its brand of aramid fiber.

Tim Van Milligan (a.k.a. "Mr. Rocket") is a real rocket scientist who looks forward to helping out other rocketeers. Before he started writing articles and books about rocketry, he worked on the Delta II rocket that launched satellites into orbit around the earth. He has a B.S. in Aeronautical Engineering from Embry-Riddle Aeronautical University in Daytona Beach, Florida, and has worked toward a M.S. in Space Technology from the Florida Institute of Technology in Melbourne, Florida.Currently, he is the owner of Apogee Components (http://www.apogeerockets.com) and the curator of the rocketry education web site: http://www.apogeerockets.com/education/. He is also the author of the books: "Model Rocket Design and Construction," "69 Simple Science Fair Projects with Model Rockets: Aeronautics."

Space Day at Goddard

by Jennifer Ash-Poole

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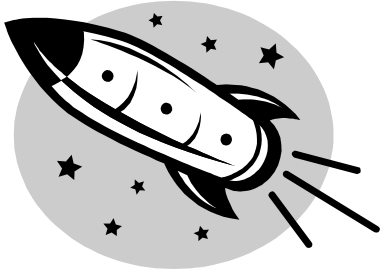
Calendar of Events for 2006

May 06		Build-and-Blast, Hobbytown USA, Frederick, MD
May 06		Maryland Science Center Space Day, Balt., MD
May 06	05:30 – 10:00 pm	Monthly meeting, club history discussion
May 07	01:00 – 02:00 pm	Goddard public launch
May 13	10:00 – 04:00 pm	Sport launch, Record Trial-2
May 20	06:00 – 06:00 pm	Team America Finals, Great Meadows, VA
May 27-28		RAMTEC
May 27-28		National Sport Launch (NSL), McGregor, TX
Jun 03	05:30 – 10:00 pm	Monthly meeting, missile building session
Jun 04	01:00 – 02:00 pm	Goddard public launch
Jun 17-18	10:00 – 04:00 pm	ECRM-33
Jul 01	05:30 – 10:00 pm	Monthly meeting, sci-fi discussion
Jul 02	01:00 – 02:00 pm	Goddard public launch
Jul 15	10:00 – 04:00 pm	Sport launch, paratrooper spot landing 2pm
Jul 16		Goddard Contest
Jul 30-Aug 04		NARAM,Rainbow Valley, AZ
Aug 05	05:30 – 10:00 pm	Monthly meeting
Aug 06	01:00 – 02:00 pm	Goddard public launch
Aug 19	10:00 – 04:00 pm	Sport Launch
Sep 02	05:30 – 10:00 pm	Monthly meeting odd-roc, NARAM review
Sep 02-03		RAMTEC
Sep 03	01:00 – 02:00 pm	Goddard public launch
Sep 16	10:00 – 10:00 pm	Sport Launch, night launch, R/C fun fly 2 pm
Sep 19-26		World Space Modeling Championships
Oct 01	01:00 – 02:00 pm	Goddard public launch
Oct 07	05:30 – 10:00 pm	Monthly meeting, "Tactical Turkey" building session
Oct 21	10:00 – 04:00 pm	Sport launch sci-fi 2 pm
Nov 04	12:00 – 05:00 pm	Planning meeting
Nov 04	05:30 – 10:00 pm	Monthly meeting, R/C and glider building session
Nov 05	01:00 – 02:00 pm	Goddard public launch
Nov 18	10:00 – 04:00 pm	OPOSSUM-11, "Tactical Turkey" 2 pm
Dec 02	05:30 – 10:00 pm	Potluck Dinner
Dec 03	01:00 – 02:00 pm	Goddard public launch
Dec 16	10:00 – 04:00 pm	Sport launch

Sport launches are held at Middletown Park from 10am-4pm, waiver up to 3.3 lbs and "G" motors not exceeding 62.5 grams of propellant. All flights "E" power and above are restricted to 5 degrees from vertical and Questions? Call Club President Jennifer Ash-Poole at 410-674-6262 or visit NARHAMS online at http://www.narhams.org



Not a Moment Wasted

By Dr. Tony Phillips

The Ring Nebula. Check. M13. Check. Next up: The Whirlpool galaxy.

You punch in the coordinates and your telescope takes off, slewing across the sky. You tap your feet and stare at the stars. These Messier marathons would go much faster if the telescope didn't take so long to slew. What a waste of time!

Don't tell that to the x-ray astronomers.

"We're putting our slew time to good use," explains Norbert Schartel, project scientist for the European Space Agency's XMM-Newton x-ray telescope. The telescope, named for Sir Isaac Newton, was launched into Earth orbit in 1999. It's now midway through an 11-year mission to study black holes, neutron stars, active galaxies and other violent denizens of the Universe that show up particularly well at x-ray wavelengths.

For the past four years, whenever XMM-Newton slewed from one object to another, astronomers kept the telescope's cameras running, recording whatever might drift through the field of view. The result is a stunning survey of the heavens covering 15% of the entire sky.

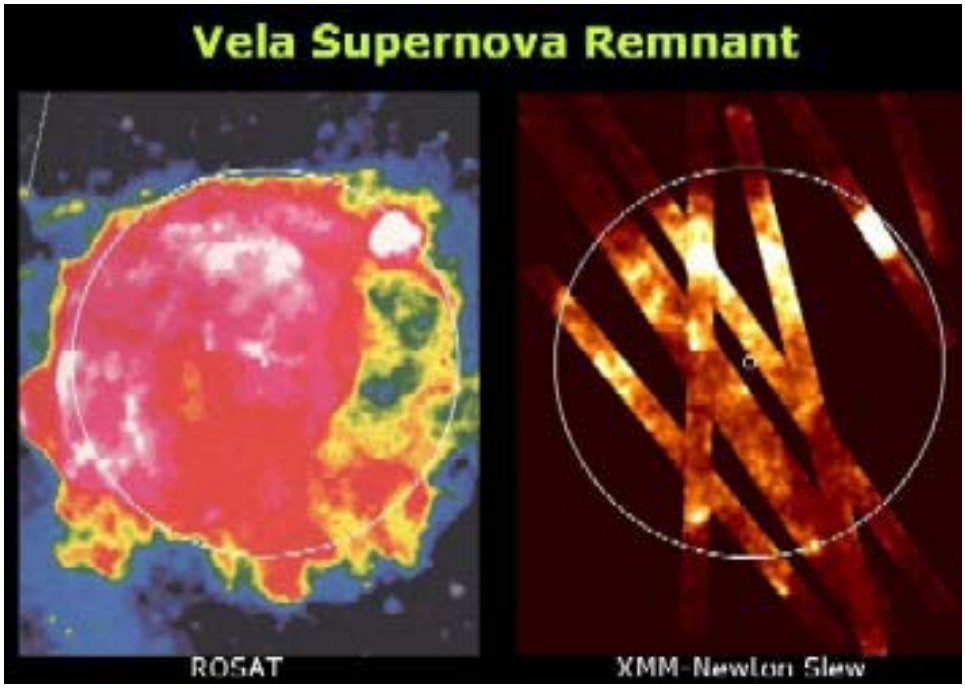
Sifting through the data, ESA astronomers have found entire clusters of galaxies unknown before anyone started paying attention to "slew time." Some already-known galaxies have been caught in the act of flaring—a sign, researchers believe, of a central black hole gobbling matter from nearby stars and interstellar clouds. Here in our own galaxy, the 20,000 year old Vela supernova remnant has been expanding. XMM-Newton has slewed across it many times, tracing its changing contours in exquisite detail.

The slew technique works because of XMM-Newton's great sensitivity. It has more collecting area than any other x-ray telescope in the history of astronomy. Sources flit through the field of view in only 10 seconds, but that's plenty of time in most cases to gather valuable data.

The work is just beginning. Astronomers plan to continue the slew survey, eventually mapping as much as 80% of the entire sky. No one knows how many new clusters will be found or how many black holes might be caught gobbling their neighbors. One thing's for sure: "There *will* be new discoveries," says Schartel.

Tap, tap, tap. The next time you're in the backyard with your telescope, and it takes off for the Whirlpool galaxy, don't just stand there. Try to keep up with the moving eyepiece. Look, you never know what might drift by.

See some of the other XMM-Newton images at http://sci.esa.int . For more about XMM-Newton's Education and Public Outreach program, including downloadable classroom materials, go to http://xmm.sonoma.edu. Kids can learn about black holes and play "Black Hole Rescue" at The Space Place, http://spaceplace.nasa.gov/, under "Games."



The image on the left is the Vela Supernova Remnant as imaged in X-rays by ROSAT. On the right are some of the slew images obtained by XMM-Newton in its "spare" time.

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ZOG - FORTY THREE
700 CLIVEDEN ROAD WEST
BALTIMORE, MD 21208

Launch Schedule

PUBLIC LAUNCH
Goddard Space Flight Center
Visitors Center
1:00PM - 2:00PM

June 4th

ECRM-33/SPORT LAUNCH
Middletwon Park
10am - 4:00PM

June 17-18th

PUBLIC LAUNCH
Goddard Space Flight Center
Visitors Center
1:00PM - 2:00PM

July 2nd