

# THE ZOG-43

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

1965-  
2005



40th  
Anniversary



## Rockets Around the House?

One of the saddest thing about my own rocket fleet is the large number of models that aren't flyable, not because they had a prang or broke during flight, but because they get damaged in my house or travelling to the flying field.

Rob Edmonds sent me a neat picture of how he stores some of his gliders and that got me to thinking-- what sort of rocket storage strategies do other club members use?

A quick query on the NARHAMS yahoo group returned a couple of different techniques and I present them here, along with Rob's picture that started it all.

*Richard Hickok:*

Many of my rockets less than 3 feet long are stored in the same Sterlite/big Tupperware-style plastic storage box with lid, (check Walmart etc. for these) that they travel back & forth to the launches in.

A method that stores a fair amount of rockets in a fairly compact space is a wine rack. I picked up a wine rack at a yard sale or thrift shop for a buck or two.....it's shaped like an upside letter "U" & has nine circular

rings on each side. It's currently holding 8 rockets, 2 inches in diameter or more. Other styles of wine racks should work as well.

*Steve Humphrey:*

I store most of the contest rockets in boxes in the garage attic—except for those I forget to put away after a contest.

I haven't yet unpacked from last year's NARAM. Buried under the two Lampshades are clones of favorite Estes models and models I built from old Estes plans.

Steve also uses unfinished spaces in his house, like the master bathroom, to store rockets. You can see more of Steve's collection on-line at <http://mshumphrey.home.att.net/rocketry/fleet/>



Above and left-Photos by Steve Humphrey.



*John McCoy:*

Model home storage? Oh man you asked for it!

I'm sure you've heard me say I have model rockets in every room of the house except the kitchen and bathroom. I do however, keep the bulk of my

*Continued on page 7...*



*Rob's Wall of Models, a great use of space. Photo by Rob Edmonds.*

**JUNE 2005**  
**VOL 27 ISSUE 6**

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## ZOG-43

Volume 27 Number 6

June 2005

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

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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, 5269 Rivendell Lane, Apt 5,  
Columbia, Md. 21044  
E-Mail ZOG-43 at:  
zog43editor@yahoo.com

ZOG-43 is edited by Kevin Johnson, 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

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

Photographs: by Kevin Johnson, except where noted.

ZOG-43 is produced on a Compaq Evo PC with a Pentium 4 processor using Adobe PageMaker. Masters are printed on a Canon ImageRunner 5000 copier/printer.

**This Edition: 35 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.



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

( NARHAMS OFFICERS )

**ZOG** (President)

Jennifer Ash-Poole

410-674-6262

**VICE ZOG** (Vice-President)

Jim Filler

**COLLECTOR OF THE ROYAL TAXES** (Treasurer)

Ed Pearson 301-577-7775

**KEEPER OF THE HOLY WORDS** ( Secretary )

Chris Kidwell 571-434-7507

**COURT JESTER** (Section Advisor)

Khim Bittle 301-293-2399

## 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's Message from The Zog

Every month I have to find something witty to write about. Sometimes I yammer on just to see if anyone is listening. Most of the time I find something timely.

Occasionally I look back to see what I wrote at this time last year. In June 2004, I wrote about the Team America launch, and how we needed timers for this year. It was nice seeing a few new faces out on the TARC range. The timers got to see both ranges in action, and see the differences (and similarities) between the RSOs. Maybe one of the newbies will write a piece on their view from the timers' prospective.

I also noted that Kevin was late with the June issue last year. It seems his company likes to roll out software in the summer when he is trying to get rocket building and flying done. Since Kevin only has a few more issues left, now is the time to step up and either become an editor, or write some things for the Zog. This is also the time to think about the section advisor position.

For the Middletown launches, I would like to institute a sign-up sheet. You would sign up for a month, be in charge of set-up, teardown, call in the waiver, fax the paperwork to the park. If you know of a month you think you would like to do this, please let me know, and I'll start a list. You don't have to do this by yourself, you can partner with someone if you wish. I'll be discussing more of this plan in July, and on the yahoo boards.

Zog Bubbles 



**Pratt Hobbies** is proud to announce that we are now a QUEST dealer! Contact us for all your Quest and MicroMaxx products.

.....  
New T-Shirt! Check it out at  
[www.prathobbies.com](http://www.prathobbies.com)

Mention your NARHAMS membership on the online order form for a Special Ludicrous Discount!

.....

## New Editor for Zog-43

Please join me in welcoming Roy Lappalainen to the rank of Zog-43 editors. Roy has graciously volunteered to take up the reins of the newsletter, so treat him right and keep sending in articles, photos, plans and other submissions!

Roy will have access to the email account at [zog43editor@yahoo.com](mailto:zog43editor@yahoo.com) so you can continue to send them in to the same place.



*What does this picture have to do with NARHAMS? Find out on page 10.*

## New Earth Science Image Gallery Online

Middle-school educators have a new, free resource to supplement Earth science units and to beautify their classrooms at the same time. The SciJinks Weather Laboratory Web site has added an image gallery for educators. Just go to <http://scijinks.nasa.gov> and click on the "Educators" link at the bottom.

The images have been collected and categorized specifically to enrich topics usually covered in middle-school science texts. You will find beautiful, high-resolution color images with simple captions in a large font.

The images are sized for printing on 8-1/2x11-inch paper. Categories include weather, clouds, oceans, landforms, glaciers, volcanoes, and Earth-observing satellites.

This SciJinks Web site resource joins an existing collection of original articles describing unique classroom activities related to weather and Earth science. NOAA and NASA are happy to provide these additional resources to dedicated science and technology educators everywhere.





## June Meeting Minutes

Reported by Dr. Chris Kidwell

Preceding the meeting was a discussion/demonstration of making FAI style fiberglass tubes. Notes from the demonstration can be had by emailing [zog43editor@yahoo.com](mailto:zog43editor@yahoo.com) and requesting them.

Meeting called to order at 8:02 pm 6/4/2005 by Jennifer Ash-Poole

Members attending: Jennifer Ash-Poole, Kevin Johnson, Chris Ha, Tom Ha, Zach Ha, Tom Henderson, Chris Kidwell, John McCoy, Jim Miers, Ed Pearson, Mark Petrovich, Alan Williams

Minutes from May meeting read. Motion to accept (Tom Ha/Alan Williams) passed.

### *Old Business:*

Jennifer has flyers for Goddard Contest for distribution to various hobby shops in the area. Goddard building session July 10. Scott Branche donated 25 Star Hawk Kits (plastic fins). Matt at Quest may give us a deal on some balsa fin models. Alan reports we received 10 kits from Estes. He will put an announcement in the Goddard newsletter.

TARC is done with for another year.

Building session at Hobbytown went well on May 14. 9 people built models, 4 came to Middletown to launch.

OPOSSUM went well. 4 A div, 7 C div, 2 teams. Set 2 records in 1/8A SRD, 3 records in 1/8A HD

### *Treasurer's Report for May:*

Collected \$30.00. Spent \$161.70. Income: \$5 dues, \$25 raffle. Expenses: \$161.70 ribbons. Cash: \$15.91 Bank: \$1502.44 Total: \$1518.35 Motion to accept (John McCoy/Tom Ha) passed.

### *New Business:*

Would be nice to have a trash can

on the range (park takes away trash can during winter months). Motion for Jennifer and Chris to look at Home Depot for a collapsible trash container (Kevin Johnson/John McCoy). Passed with 1 opposed

September 10 record trial/night launch: We should request to move to the center of the field as at ECRM. This should be the policy for all future night launches.

Tomorrow is launch at Goddard. Jennifer, Chris, and Kevin will not be there. Anyone else who can help would be appreciated.

Kevin is stepping down as ZOG-43 editor in September. He can help with the transition process for whoever wants to take over.

Cordless PA microphone in the Middletown system needs to be repaired. John will do the repairs and also has another corded microphone. If it can't be repaired, we would have to replace the whole system for about \$52.

Ed: Why 43? 43 years between 1926 and 1969. Only problem with this is that the first issue of ZOG-43 was issued in 1965.

ZOLMIR is next week. Events: B PAY, C ALT, PRA, 1/2A BG MR, A RG MR. Altitude events require altimeters. Duration events are 1 flight only.

Motion to adjourn (Alan Williams/John McCoy) passed. Meeting adjourned at 8:56 pm. ✨

# You know you want one.

Shockcords.com Now Open  
(ROL Newswire)



Shockcords.com is pleased to announce they are open for business. They currently stock one inch and two inch diameter tubular nylon shockcords for the mid and high power rocketry hobby in different colors with sewn loops in the ends using heat resistant Nomex thread.

Kay Carroll, owner of shockcords.com, says her business was borne out of a need in high power rocketry to have ready made shockcords to make assembling the recovery system simpler and more efficient.

Shockcords.com currently offers shockcords in four standard lengths with custom lengths also available. Visit [www.shockcords.com](http://www.shockcords.com) or contact Kay Carroll via email at [sales@shockcords.com](mailto:sales@shockcords.com) for more information. ✨



Order today at [www.pratthobbies.com](http://www.pratthobbies.com)

# 2005 NAR Points List: As of June 1 2005

Reported by Tom Lyon

Individuals

## A DIVISION

NAME	NAR#	SEC#	Points	WF	NAME	NAR#	SEC#	Points	WF
Caroline Steele	78080	506	8064	12	Evan Jaramillo	83416	577	810	3
Kaitlyn Steele	80121	506	6492	12	Michael McCarty	76684	488	700	2
Cassidy Steele	81474	506	6096	12	Max Dalberth	84234	482	642	6
Michael Humphrey	75192	139	2460	6	Connor Sesso	81518		636	2
Katherine Humphrey	81367	139	2442	6	C J Quay	84274	577	580	2
Victoria Blessing	79364	308	1995	3	Dylan Quick	84477	365	564	3
Sarah Wolf	53453	558	1992	3	Nick Perhala	81581	113	548	2
Matt Filler	71947	139	1979	9	Anita Rodgers	81124	139	546	3
Craig Vinyard	82566		1896	3	Jeeven Hugh	83335	139	544	3
Kate Bittle	79934	139	1536	7	Jacob Rose	83725	500	540	3
Grant Dreasher	84224	482	1395	6	Daevin Hugh	83349	139	471	3
Jill Rose	83801	500	1212	3	Daniel Anthony-Ceres	82917	482	462	3
Kindra Bittle	76125	139	1018	4	Rick Heretick	84226	203	448	2
Amanda Boadway	82337	500	999	3	Alex Calvert	77370	500	300	3
Ryan Anthony-Ceres	82918	482	900	6	Cody Calvert	77389	500	294	3

## B DIVISION

NAME	NAR#	SEC#	Points	WF	NAME	NAR#	SEC#	Points	WF
Cody Steele	46810	506	9504	12	Steven DeMar	59438	577	920	2
Cory Hough	83707	506	4170	12	Jessica Muckelroy	84245	672	879	9
Kris Bittle	74626	139	2744	7	Marcia Kennedy	84249	672	684	9
Chris Mook	84244	672	2691	12	Sean Williams	84250	672	549	6
Mary Wolf	46379	558	2400	3	Anthony Panettierre	84251	672	480	6
Zain Marvi	84252	672	2199	12	Jason Harbin	84248	672	411	6
Chase Hrcir	83490	498	2028	9	Mark Beever	78630	503	360	6
Remon Maximos	84246	672	1848	9	Maloree Allen	pending	672	120	3
Scott Vinyard	82567		1368	3	Anthony Lipscomb	84247	672	84	3
Andrew Alway-Cooper	82080	500	1134	3	Chris LaPanse	84281		72	3
Stephanie San Luis	84253	672	1095	9	Nick Jaramillo	83065	577	48	3
Bryan Love	pending	672	966	3	Robert Even	83545	632	4	1

## C DIVISION

NAME	NAR#	SEC#	Points	WF	NAME	NAR#	SEC#	Points	WF
David Belhorn	59351	585	6252	12	William Wright	84139		1614	12
Bruce Markielewski	38377	482	4227	9	Peter Riddell	75228	663	1476	12
Russ Anthony	81741	482	3486	9	Mark Chrumka	58182	463	1455	4
Steven Clapp	79622	482	3465	6	Tim Berg	83013	365	1380	3
Ernst Strother	76992	365	2955	9	Tom Secrist	12463	113	1294	4
Jim Filler	27862	139	2908	9	Rick Boyette	31375	481	1288	6
Warren Benson	70956	365	2904	9	Steve Humphrey	17888	139	1287	6
Trip Barber	4322	205	2034	5	Paul Miller	51615	139	1270	6
Bruno Dipasquale	73505		1834	6	Jim Stum	73208	519	1260	3
John Sitarz	79075	506	1776	12	Robert Koenn	19196	342	1208	6
Chad Ring	50652	519	1770	3	Jay Calvert	71767	500	1134	3
Glenn Feveryear	24931	503	1770	6	James W Basler	36808	577	1122	5
Larry Rice	33323	113	1764	5	Bruce Canino	39989	593	1116	4
Harvey Miller	79111	498	1752	6	Ron Dreasher	83980	482	1095	6
Bill Harvey	76228	139	1628	6	Jim Hartman	22368	473	1074	3

# 2005 NAR Points List: As of June 1 2005

## Teams and Sections

### SECTIONS

CLUB NAME (state)	SEC#	Points	WF
SSS (AZ)	506	50286	12
NARHAMS (MD)	139	29476	9
STARS (TX)	672	16749	12
CRASH (CO)	482	16500	9
NASA/Houston (TX)	365	10353	12
WOOSH (WI)	558	9411	3
SMASH (MI)	500	8775	3
Launch Crue (IN)	519	8094	3
FSA (FL)	481	5572	8
NOVAAR (VA)	205	5407	5
PSC (PA)	473	5256	6
AARG (TX)	585	4608	9
HUVARS (MI)		463	3930
Challenger (TX)	498	3720	9
Vikings (VA)	203	3246	2
CSAR (OH)	113	3092	5
DARS (TX)	308	2949	3
SPAAR (PA)	503	2946	6
FLARE (NM)	577	2076	3
SCRA (FL)	342	1948	6
SOJARS (NJ)	593	1730	4
QUARK (OH)	624	1494	3
RRAZ (AZ)	663	1476	12
UROC (UT)	523	1126	1
CMASS (MA)	464	1010	1
SMRA (NM)	488	808	2
CIA (IL)	527	598	1
ROCC (NC)	608	593	1
SCORE (CO)	632	440	2
HCR (TX)	671	324	3
WTR (TX)	673	216	3
RFC (OH)	597	90	1
SEVRA (VA)	621	28	2

### TEAM DIVISION

Team Name	Team#	Sec#	Points	WF
Pod Bay Doors		T-201	506	9348
12				
Pod Babe Doors	T-202	506	5526	12
Saenz, Saenz, evrywhr Saenz	T-300	672	4137	
9				
Slightly Harmful		T-609	139	4036
9				
Battlerock Warriors	T-040	365	3054	12
Flying I-Beam Kids	T-473	473	2634	6
Drei Woebkenbergs	T-711	519	2256	3
Spanish Inquisition	T-111	558	2094	3
Meatball Rocketry	T-684	139	1566	6
Russian Illuminati	T-023	558	1554	3
Calvin & Hobbes	T-721	205	1464	5
Round Tuit	T-500	500	1164	3
Krispy Kremers	T-890	473	1122	3
Why Us?	T-109	519	1080	3
Bumblng Bros F. C.	T-011	463	948	3
Trash Always Wins	T-007	205	944	2
Over 40 Victims of Fate	T-503		503	816
6				
Ho Ho	T-207	205	796	2
Jekyll & Hyde	T-001	498	630	3
Bud Lizards	T-025	203	444	2
Dizzy Dog	T-020	523	400	1
BOFUS	T-033	523	108	1
Interkosmos	T-010	523	64	1

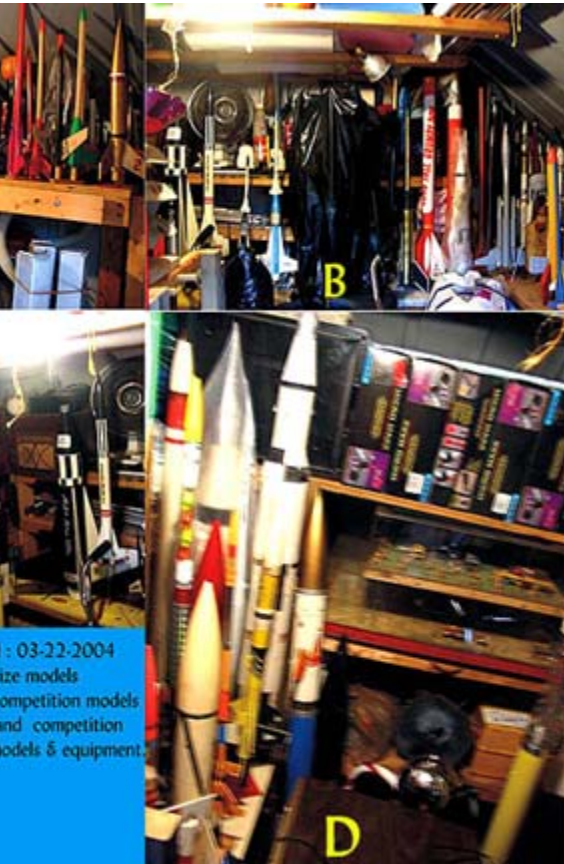


John's Rocket Shed- A: ri  
B: right side back wall, L  
C: left side rear wall, mo  
D: left side and front, loa




# NARHAMS





right side entry, small and mid size models.  
 LMR and competition models.  
 are LMR's and competition.  
 ds of models & equipment. Photos by John McCoy.

standard and LRM's housed in a 10'x 10' shed in the backyard.

Here's a quick trip around the shed. One more thing- my 100+ micros aren't shown, but are still kept in their storage transport box in the basement. 



## Calendar of Events for 2005

Jun 4- 5 - 10 pm Monthly meeting, fiberglass tubing (Mark Petrovich)  
 Jun 5- 1 - 2 pm Goddard Public Launch  
 Jun 11- 10 am - 4 pm Sport launch, cluster/staging theme  
 Jul 2- 5 - 10 pm Monthly meeting, open building session, focus on staging  
 Jul 3- 1 - 2 pm Goddard Public Launch  
 Jul 9- 10 am - 4 pm Sport launch, airborne trooper spot landing, special prize for 40 troopers deployed  
 Jul 10- 12 - 4 pm Goddard building session, open to public, tie in to Goddard Contest  
 Jul 17- 10 am - 4 pm Goddard contest  
 Jul 30 - Aug 5 24/7 NARAM-47 OH  
 Aug 6- 5 - 10 pm Monthly meeting, pirates discussion (Alan Williams)  
 Aug 7- 1 - 2 pm Goddard Public Launch

Aug 13- 10 am - 4 pm Sport launch, pirate theme  
 Sep 3- 5 - 10 pm Monthly meeting, elections, night launch discussion (John McCoy)  
 Sep 4- 1 - 2 pm Goddard Public Launch  
 Sep 10- 10 am - 10 pm Record trial, FAI S6A (A SD), night launch  
 Sep 25- 12 - 4 pm AIAA Picnic Launch  
 Oct 1- 5 - 10 pm Monthly meeting, leftover parts scratch building (Jim Miers)  
 Oct 2- 1 - 2 pm Goddard Public Launch  
 Oct 8- 10 am - 4 pm Sport launch, Oktoberfest theme, microbrew launch  
 Nov 5- 5 - 10 pm Monthly meeting, glider building session (Robert Edmonds)  
 Nov 6- 1 - 2 pm Goddard Public Launch  
 Nov 12- 10 am - 4 pm OPOSSUM-10  
 Dec 3- 5 - 10 pm Monthly meeting, holiday party  
 Dec 4- 1 - 2 pm Goddard Public Launch

Dec 10- 10 am - 4 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 between the hours of noon and four PM. Call ahead to confirm launch and waiver availability.

Business meetings are held at the College Park Airport Annex Building. Meetings begin at 5pm with building sessions or presentations and last until 10:00pm or so.

Questions? Call Club President Jennifer Ash-Poole at 410-674-6262 or visit NARHAMS online at <http://www.narhams.org>

# HobbyTown USA<sup>®</sup>

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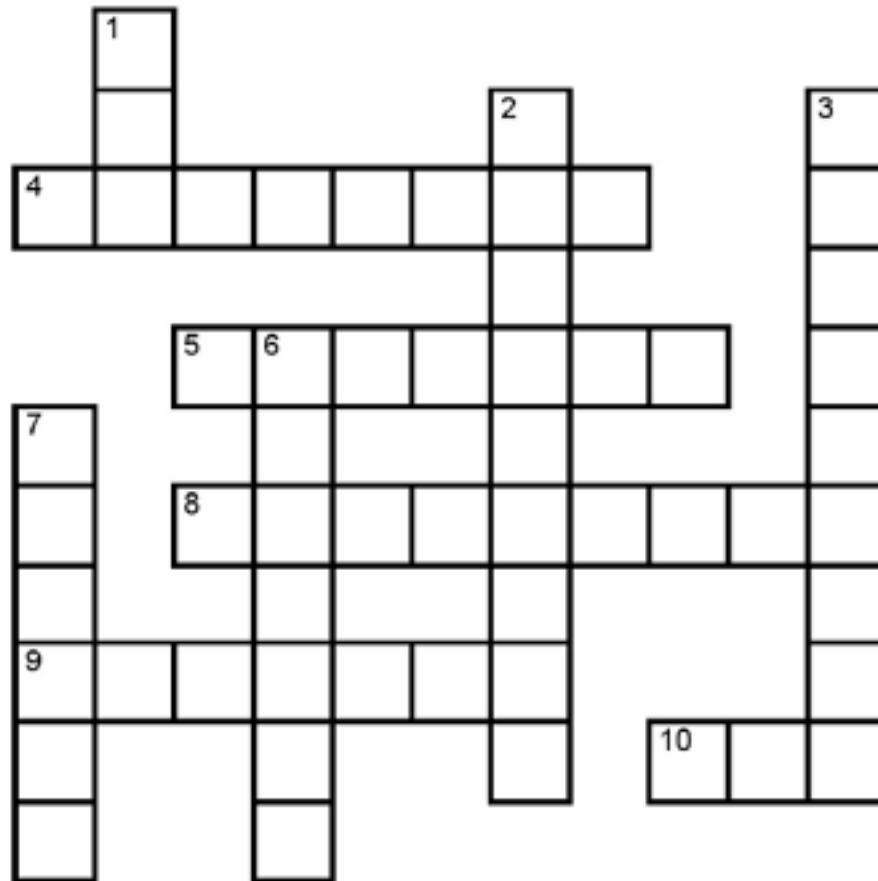
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Show your NARHAMS membership card and receive a  
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 supplies!!**



# So You Want to Be a Rocket Scientist?

## Space Firsts Crossword



### Across

- 4. Man in Space
- 5. Made Rockets
- 8. Rocket Fuel
- 9. Satellite
- 10. Animal in Space

### Down

- 1. Put Man on Moon
- 2. First Rockets
- 3. Man on Moon
- 6. Word from Moon
- 7. Country in Space

**TEXAS**

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[http://www.tsgc.utexas.edu/space\\_games/](http://www.tsgc.utexas.edu/space_games/)





## Moving a Mountain of a Dish

by Patrick L. Barry

Your first reaction: “That’s impossible!

”How on earth could someone simply *pick up* one of NASA’s giant Deep Space Network (DSN) antennas—a colossal steel dish 12 stories high and 112 feet across that weighs more than 800,000 pounds—move it about 80 yards, and delicately set it down again?

Yet that’s exactly what NASA engineers recently did.

One of the DSN dishes near Madrid, Spain, needed to be moved to a new pad. And it had to be done gingerly; the dish is a sensitive scientific instrument full of delicate electronics. Banging it around would not do.

“It was a heck of a challenge,” says Benjamin Saldua, the structural engineer at JPL who was in charge of the move. “But thanks to some very careful planning, we pulled it off without a problem!”

The Deep Space Network enables NASA to communicate with probes exploring the solar system. Because Earth is constantly rotating, a single antenna on the ground can communicate with a probe for only part of the day, when the probe is overhead. By placing large dishes at three locations around the planet—Madrid, California, and Australia—NASA can maintain contact with spacecraft around the clock.



*Giant Deep Space Network antenna in Madrid is moved using four 12-axle, 24-wheel crawlers.*

To move the Madrid dish, NASA called in a company from the Netherlands named Mammoet, which specializes in moving massive objects. (Mammoet is the Dutch word for “mammoth.”)

Placement on the new pad had to be perfect, and the alignment was tested with a laser. To position the dish, believe it or not, Mammoet engineers simply followed a length of string tied to the pad’s center pivot where the dish was gently lowered.

It worked. So much for “impossible.”


Find out more about the DSN at <http://deepspace.jpl.nasa.gov/dsn/>. Kids can learn about the amazing DSN antennas and make their own

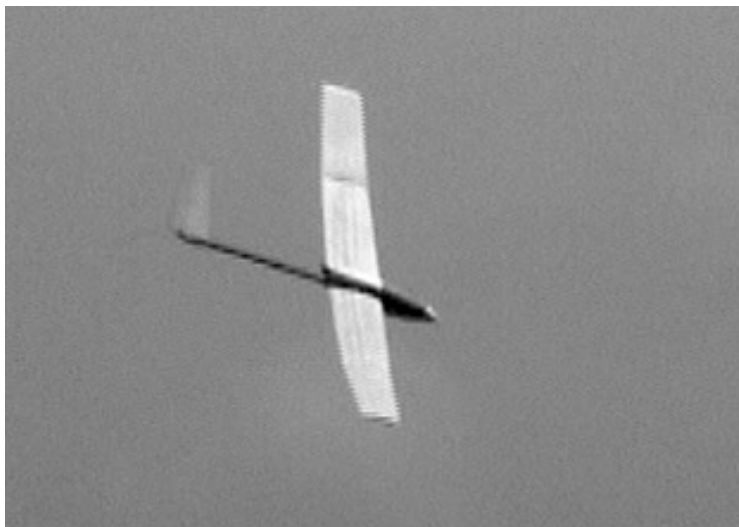
“Super Sound Cone” at The Space Place, <http://spaceplace.nasa.gov/en/kids/tmodact.shtml>.



*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

# Picture Page

Club member Thomas Henderson can always be found at the range with scratch-built gliders and rockets. But he's also always attached to his camera. Here are some photos Thomas took at the NARHAMS sport launch June 11th. 



## Semroc Javelin Kit Review


By Tom Lyon, NAR 16558

This is yet another Semroc “Retro-Reproduction” kit replicating the Centuri Javelin from 1965. The Javelin was a beginner type model that Centuri produced using 9 inches of their version of BT-20 body tube called ST-7. The original version used a balsa nose and 4 fins that were cut out of balsa sheet stock.

Later Centuri versions transitioned to having die cut fins and a plastic nose cone. Semroc replicates the original Javelin with balsa nose cone and laser cut fins. This makes the kit much easier to assemble now than in 1965 by deleting the step(s) needed to cut out the fin template and then cutting out the fins.

Assembly is pretty much straight

forward, and the current instructions are clear enough for the beginner to understand. I assembled my Semroc kit in about 20-30 minutes while baby-sitting my nephew.

The production number Semroc has for my Javelin kit is #192 



Watch this space  
for another  
EXCITING  
Semroc Kit Review!!



NEXT ISSUE'S SUBMISSION DEADLINE IS JULY 15!

Aug 7th

Visitor's Center  
Goddard Space Flight Center

PUBLIC LAUNCH

July 17th

Visitor's Center  
Goddard Space Flight Center

PUBLIC LAUNCH

July 9th

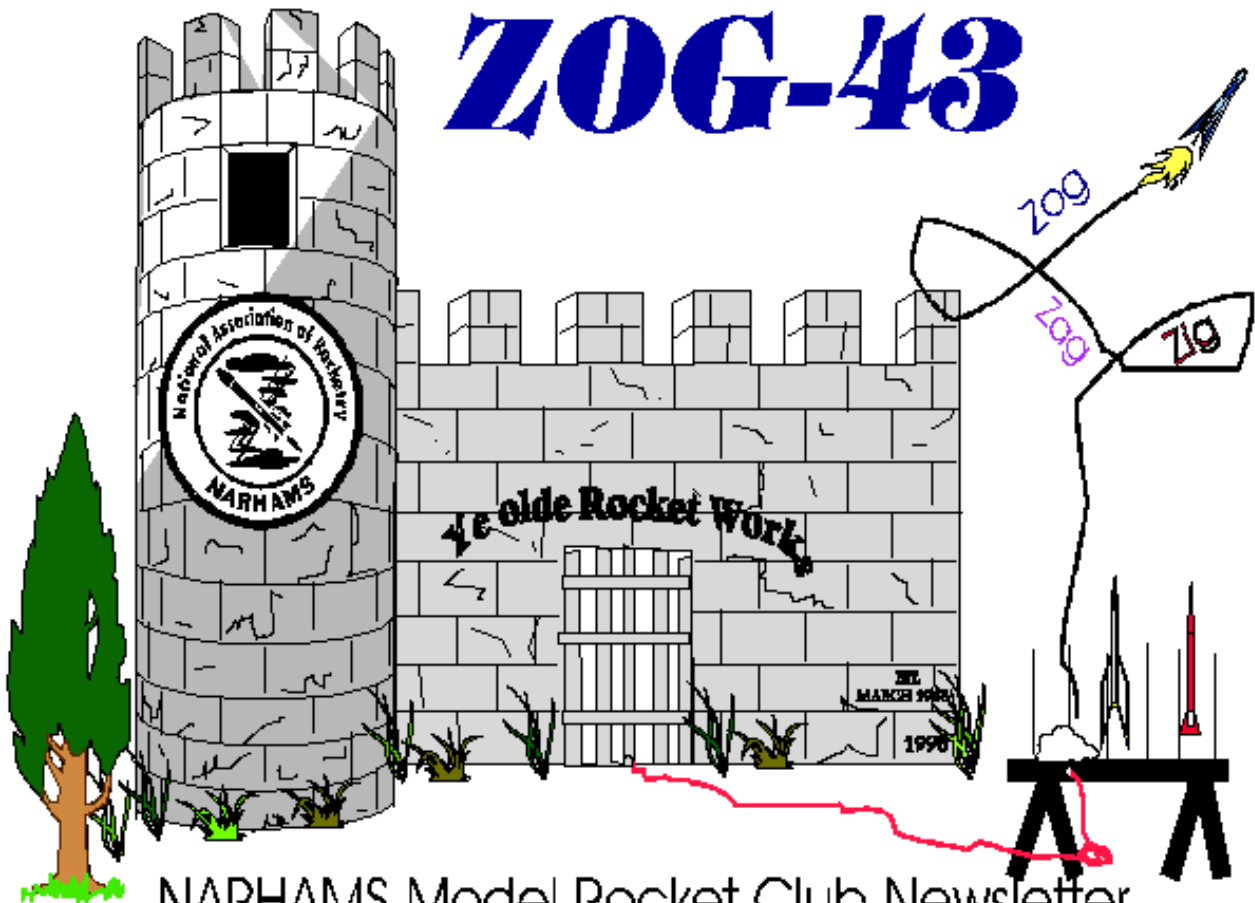
9:00AM-4:00PM  
Middletown Park

SPORT LAUNCH

Launch Schedule

206 - FORTY THREE  
5269 RIVENDELL LANE, APT 5  
COLUMBIA, MARYLAND 21044

# ZOG-43



NARHAMS Model Rocket Club Newsletter