



NSL 2006—More to Come

By James Gartrell



Member - National Association of Rocketry ("NAR").

Special points of interest:

- Long awaited, Richard Benavides' article on the Icarus Saturn V has finally made the press. Yippee!! He's been real patient. You've been missing a great build story. Richard fills you in on what went right and what went wrong as he built his rocket to compete in last year's Gulf Coast Regional competition. Great article, Richard! See page 2.
- More NSL photos are provided on page 6, including a photo of a new Texas vendor's rockets, Hawks Hobby (more in Did You Know, too). Also, catch up on DARS Events while you're there. Lots of cool things happening on meeting days. Check it out!
- Also, check out the new Hobby-Town ad on page 7. Now, they've included a reminder that DARS members always get 10% off their rocket purchases. Yippee!!



Left—Blake Gartrell poses with his prize and certificate for winning 2nd place in the '80s category of the Classic Rocket contest. Right—A shot of my clone/mod of the GARGAS Paradox, the NSL 2006 Commemorative kit, just before a beautiful liftoff on D-power. Yeah!! Photos by James Gartrell.

Well, last issue I told you to make sure you marked your calendar for May 27-28 to attend the NSL 2006 event. If you missed it, you missed a lot. Don Magness compiled the stats from the launch, and if you didn't make it out for the event, you missed the equivalent of an "O" motor! Yep, that's the approximate N-seconds of impulse from all of the motors flown over the 2-day event.

Unfortunately, your going to have to wait a little longer to hear all about what else happened there. Since I promised to write and coordinate articles for Sport Rocketry, I didn't have enough time to prepare articles for timely distribution of this newsletter. You can bet on lots of coverage in the next issue, though. I took almost 140 photos myself over the two days, so there'll be lots to see. I couldn't resist telling you just a little about what happened, though.

Folks came to fly, despite the windy weather and high grass at the field on both days. And regardless of the conditions, I'm betting they left thinking they had experienced one of the best launches attended in a long time. Due to the hard work of the DARS NSL Committee and the generosity of the vendors, I'm also betting they left with more rockets than they came with! There were probably 5 to 10 prizes handed out every hour on the hour during both days of the event. Wow!

The best part of the event, though, was evidenced by one statistic—more than 1 out of every 3 fliers was under the age of eighteen. That's a fantastic statistic for our hobby. You could almost count that as an outreach event! Of course, one reason for the success in getting the kids out for the launch was the Iron Rocketeer event. Thanks, Don and Terri!! Stay tuned, though! There's more to come next issue.

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Dallas Area Rocket Society ("DARS")

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WWW.DARS.ORG

SHROUDLINES

A Dallas Area Rocket Society Production

The Icarus Saturn V By Richard Benavides

It all started a long time ago with a PMC entry for an April Madness competition for my teammate, Steve Murphy and I, Team 'Duck and Cover'. I clustered three motors into



an old Monogram Apollo/Saturn 5 in 1/144th scale for a previous PMC when I found an old copy of Sport Rocketry with an article about the Icarus equipped with drawings. Its first flight got us a first place with only a tiny crack in a fin. It had the capsule and Command Service Module fall on a streamer for mission points.

Then in April 2002 the Austin club AARG was hosting NARCON 2002 with a model building contest that consisted of four categories of different craft. My entries were: for 'Factual Ships,' my Estes Mercury/Redstone; for 'Ships of the Imagination,' my Enterprise NCC-1701D; I didn't have an entry for 'Ships of the Future;' and when I first decided to enter the contest, I did not have a ship for 'Concepts and Proposal Ships'. I did, however, have most of what I would need to make the Saturn Icarus V. I had the Estes 30th Anniversary kit of the Apollo/Saturn 5 just out of the box, and having already planned on having it clustered, Balsa Machining had made me centering rings. All three of the entries won first place with a prize of the Kosrox's Saturn 1B.

So then the work began. I didn't need



a lot of the plastic parts as in the capsule and escape tower but I did need a couple of nose cones for the main body and for a falling warhead. To make the nose cones I used my drill press, some files, sandpaper and used as a vertical lathe. Glued scrap blocks of balsa and formed into the shape of the cones. On the main cone



I sealed with epoxy resin and made raised panel lines using fine styrene rods. The warhead also was sealed with resin but covered in card stock sealed with CA, Super Glue and made raised panels with cardstock cut to the size and shape of the hatches.

Using RocSim 7.3 I commenced to design the whole project; wish 8.0 was out then. The motor mount is a

mass of tubes for five motors and exhaust ports. The main center mount



is in 24mm and extends up two thirds the length of the body for a stuffer tube. I could not see how the original D12 motor would have enough of an ejection charge to push out the chutes that came with the kit in the first place let alone the extras I will be adding. The outer four tubes of 18mm are for the F/X motors for smoke and flame to get more mission points since the Saturn 5 booster had five F1 motors. First tried to get some of the Smokies that just give just that, Smoke and Flame, but no luck. So went to some ESTES boosters, but this brought up another possible problem. Where do the booster charges go? I know there is hardly any pressure but still there is some, and fire. I attached 5mm tubes alongside with channels cut at the top and sealed around to have the pressure and flame exit down below. The one main goof done here was in the center 24mm where I installed the kits motor block and the clip. It will only allow a 24 x 70-mm motor to fit. This I did not think of nor find out until I was loading an E9 the day of launch.

Now to help strengthen the fins and fairings I decided to fill with foam in a can insulator. But grabbed, goof two, the wrong kind for the fins, it really did not get stiff as the type I put

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Dallas Area Rocket Society

-- NAR Section #308

Currently expires:	_____
Renewal through:	_____
Email to Secretary:	_____ card sent: _____
Date processed:	_____

Membership Application

Name: _____

Address: _____

City, State, Zip: _____

Phone Number(s): _____

New Membership OR Renewal

OR Single Membership (\$10/yr) *(Make checks payable to DARS)*

Family Membership (\$15/yr) List family names: _____

Member of: NAR # _____ or / and TRIPOLI # _____

Certification Level: 0 1 2 3
(circle one)

Certification Level: 0 1 2 3
(circle one)

DARS event notification by: _____ OR phone call at this number _____
e-mail at address below

(please print clearly) _____

Mail to: DARS Membership, c/o Suzy Sprague, 1104 Ellard Dr., Hickory Creek, Texas 76210-3900

For additional information contact Suzy at 940-321-2132 or 940-497-7009

DARSAPP.doc revised September 2004



The Dallas Area Rocket Society is a non-profit chartered section of the National Association of Rocketry ("NAR"). Its purpose is to promote the hobby of consumer rocketry in the Dallas/Ft. Worth metropolitan area.

Membership in DARS is open to all interested persons. Membership in NAR is encouraged, but not required. Annual dues are \$10.00 for individuals and \$15.00 for families. The entire family, including children, are welcomed to the meetings. Fill out and send the application, above, to join or renew your membership.

The club meets on the first Saturday of each month at 1:00 p.m.

Meetings are held in Plano, TX at:

Plano Late Night Bingo
1805 Ave K (18th and K St.)
Plano, TX 75074

Exit off Hwy 75 to East Plano Parkway (just north of George Bush Turnpike—Hwy 190) and go east, turn left on K St., and turn right into the shopping center just north of 18th St.

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DID YOU KNOW?

There's a brand new rocket company, Hawks Hobby, in Texas that sells up-scales of some of the old Estes kits; they're "Super." Got to visit some with them during NSL 2006 (see photo on page 6). Nice folks! Even though they're just starting out, they donated kits for NSL 2006 prizes. Let's help them get started! Check out the Super Trident, among others, at their website: www.hawkshobby.com



Stay connected! All of us will reach greater heights with your attendance at the club meetings.

DARS Events By James Gartrell

Let me know if you have a rocket-related event planned and I'll try to get it into the next newsletter. With the year half gone, there's plenty of room to post that kind of information here. ;-) Hey, Don still needs launch directors, too!

I don't have any Outreach events listed, but they come up all the time between newsletter issues. So, don't hesitate to drop George Sprague a line to find out what's happening. I know he can always use a hand. Visit the DARS website and click on Outreach for his email.

By the way, you really should make the meetings. Don seems to have found someone every meeting to provide an after-meeting special event. The last couple of meetings involved learning how to make micro rockets and gliders and building a Cochran rocket. Thanks guys! Also, we had an after-meeting launch at a nearby park in May. There's supposed to be another one in June, too, after building a clone of an old Centuri classic, the Point, courtesy of Bob Wilson. I think Tony Huet may be planning some build events during the meetings for the kids, too. If that sounds like fun and something you'd like to see more of, let your DARS officers know. I know they're all interested in making club events as fun as possible, but your feedback let's them know they're on the right track. Stay in touch!

DARS LAUNCH SCHEDULE

DATE	EVENT	CONTACT
7/22-23	Sport Launch—McGregor	Annie Scheidemantle
8/12	Model Rocket Launch—TBD	TBD, Contact Don
8/26	Model Rocket Launch—TBD	TBD, Contact Don
9/16-17	NTHP Sport Launch—Windom	Tim Dixon
9/30	Model Rocket Launch—TBD	TBD, Contact Don
10/28-29	Shoot for the Stars Sport Launch—Windom	Royce Frankum
11/18-19	Turkey Shoot Sport Launch—Windom	Annie Scheidemantle
12/16	Model Rocket Launch—TBD	TBD, Contact Don

OTHER DARS EVENTS SCHEDULE

DATE	EVENT	CONTACT
1st Sat. of each month, 1pm-?	DARS Club Meetings	Don Magness
12/9, ?	DARS Potluck Lunch	Don Magness

OK, here's a sneak peak at some more of what happened at NSL 2006. Photos by James Gartrell.



Above—Rags and Shea Fehrenbach receive one of the many prizes awarded. Two fine rocketeers!
Below—Rocketeers, young, old and in between, look skyward as another bird takes to the sky.



Below—Speaking of birds, Hawks Hobby displays their line of rockets. Very cool!



into the fairings.

I rebuilt the parachute chamber to strengthen and to compress the area so as to help the ejection charge shove everything out. Still had more than enough room for the three rip-stop nylon chutes. I replaced the plastic, kit ones and of course the warhead.

Third goof is when I used 1/4 inch aluminum plumbing tubing for an internal launch lug thinking it would be 1/4 inch ID. Nope, the rod I got to use for display was a 3/16th so when it came to launch day the 1/4 inch rod was too tight.

Now for painting. I used a couple of small cans of Testors Model Master gloss white for the whole body and their flat black for the roll patterns. I used the kit decals but was not that happy with them. Some would not stick without help from some white glue and some just were not that great looking. On the few spots for decals on the black I hand painted a little clear gloss for the decals to stick and not silver. At NARCON, Tango Papa Decals was there and they had New and Improved decals for the kit. I had another A/S5 kit waiting to be used later for a Sport Scale entry so went and got a sheet, which has enough for two kits.

Fourth mistake; covered it all, but the frosted areas that was done in a flat Krylon white, in Model Masters semi-gloss. It was ok for a couple of years but started to yellow so noticeably against the frost white I had to give it a new paint job for the Gulf Coast Regionals. This time I used Krylon gloss white with Testors MM flat black but tried something new called Minwax Acrylicpoly semi-gloss. It was supposed to be water based, but after two weeks of a Sharpie pen drying, the spray still made it ran. The overall finish isn't all that great either.

The Warhead

Saw an ad in Sport Rocketry of the Perfect Flite Mini Timer and came up with the idea of an actual working warhead, but I did not have it ready for NARCON. Using the plans in the magazine article I was able to make the warhead in the same scale as the rest of the craft.



Already had the capsule when I made the first one so now needed the CSM. Looking at photos and diagrams of Apollo capsules etc I had an idea on how to make one. First needed a body strong but light, so fiberglass was the choice. The body tube in the kit turned out to have an inside diameter of 38mm so I took a toilet tissue roll, slit and removed excess paper until, when wrapped around a clothes rod dowel, it had an outside diameter of 38mm to use as a mandrel. I covered the rod with packing tape to seal it and a strip on the inside to hold the paper together. Covered that with 1/2 oz fiberglass and hobby resin, wrapped in waxpaper, then vacuum bagged the whole thing. Shaved off the ends, dowel and glass, to square then moved the paper/glass over the dowel to cut the individual pieces for the body and the excess for a coupler. The lower part, after sanding smooth, I covered in aluminum duct tape. Long ago I got a photo scanned copy of the panel pattern of Apogee's Command Module; so using it as a

template, wrapped it around the body and lightly engraved the lines into the aluminum. Then, using Monocote peel and stick white vinyl I cut out the radiators. The decals on the capsule and module are from the ESTES kit. The nozzle is made from two layers of cardstock cut from a 96th-scale paper model pattern I found on the net. I cut a square of balsa and covered in Real Foil and attached all with epoxy to a disk of 1/8th inch plywood for the bottom of the electronics bay as well as the mounting board and the upper disk. Also, from Perfect Flite I got a rechargeable battery and mini Christmas tree light ejector system.



All parts are tethered together with 80-lb Kevlar cord and a multi-strand of crepe paper streamer for it to fall with.

The timer is a break wire/pulled pin activated type. When the warhead is ejected, the pin is pulled starting the timer to set off a charge and release colored chalk for a simulated nuclear burst.

The Flight of the Icarus

The Gulf Coast Regionals—I have been waiting a long time for this day and now I was so nervous I was shaking and getting short of breath. There were very few participants so it took only one judge, Warren Benson, to do the job. I had a regular novel of documentation including an article from the Florida Science magazine covering the Icarus Project.

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After static judging I had 730 points. Now, if all goes well, the Mission Points ought to take it all.

Mission Flight points required the lighting of five motors. The center main was an ESTES E9-4 and the four outer ones were B6-4s. Again, RocSim 8.0 told me that the outer motors should have no effect on the flight since they were low enough in impulse. To light the motors I had a little dilemma of what happens if the outer motors light but not the center? Warren and I had corresponded earlier and he sent pictures and facts of his version of an Engine Sequencer to launch his Apogee Apollo/Sat 5. My version is slightly different but works on the same principles.



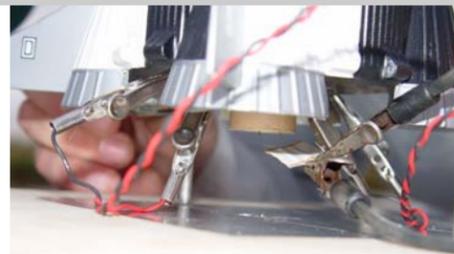
Now here is where I found out there are a couple of problems, as mentioned earlier. Tried to install the



E9 to find out the mount was made for a shorter, kits original choice, motor length. Taped for friction fit of all motors with 1/4 inch tape thrust rings and taped the center motor to the motor retaining hook for added insurance. The launch lug is not 1/4



inch inside diameter so instead of a six-foot length of rod I had to settle for four feet of lesser strength. I made an igniter whip that is connected to a



six foot length of heavy speaker cord for the outer motors to get that extra second to light after the main burns through the dental floss. That's when



two springs are released to send washers soldered to lines, to complete
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the circuit to the outer igniter lines. At the first twenty or so feet it was a really impressive straight up flight.



Then it started to list toward, what is seen in the photos, one of the motors that did not light. It now appears that the outer motors did provide thrust. As can be seen in other shots, as they are running out of power the more unstable the rocket becomes. Fortunately it crash-landed in the tall grass flat on its side breaking one fin and cracking another.

Realizing I didn't have enough power with a bigger motor or bigger boosters



I didn't try to make repairs for another attempt.

Looking at the RocSim simulation again it showed that it should have gone to an altitude of 344ft but was only traveling at about 69 mph. I ran the simulation using an Aerotech E12 but at the time I thought it had been decertified for contest use. I had not seen the certified motor list because I had not yet read the copy of Sport Rocketry, which I later bought because I let my membership lapse. Doh! It has been rectified and now I have two! If I had brought them along I would have used them.

I did get a laugh in the field when I picked up the warhead that was still armed and beeping continuity. I pulled the pin and the gang backed up real quick. Poof, and out came the chalk.

After all the smoke had cleared I ended up with the following points:

NAR Points
Contestant: Benavides, Richard Dean Sr.
NAR Number: 75209
Section: 308
Prototype: Icarus Saturn 5
Static: 730
Flight 1: NVB
Flight 2:
Total: 0

Well, I can see where the problems are and the repairs are minor, I think I can do it again and this time I will save the world from destruction. Eat your hearts out Bruce and Sean. *

*Bruce Willis in Armageddon and Sean Connery in Meteor.

(Editor's note: This is a great article! I have to apologize to Richard for taking so long to get it into the newsletter. I had it when the last two newsletters went out, but just didn't have room for an article this large. Definitely worth the wait, though. James Gartrell)