

# SHROUDLINES

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Robert Hildinger's rocket takes off on an awesomely green motor spewing flames all over the blast deflector. See what happened next in the Parting Shots. This great shot was taken by Chris Bender with the camera up close on a tripod.

## Ignition!

By Gary Briggs

Ah summer.... That time of warm days with extra daylight to help you get those rocket projects complete before the next launch... At least that is how it is supposed to be, and hopefully has been for most of you. My summer has been a little different this year as I changed careers and have spent the summer building the new business. There are still miles to go before I sleep, but I can at least see some future opportunities to participate in rocketry again in the not too distant future.

Meanwhile, DARS has been pretty busy, with good weather and no burn bans allowing for both Gunter and Frisco launches to go off as planned for July and August. Also in July was the annual moon day where this uncredited photo comes from. Passed along by Suzy Sprague, I thought it was a great one, and would look really good on page one of the newsletter. Looks like John Dyer has another young rocketeer staged up to get into the hobby.



Back at the June meeting I mentioned the Fall Classic with the hope that it would go off as planned in October as it traditionally has. Unfortunately, I don't see that happening right now with the aforementioned work. My target now is November, which should make George Sprague

very happy. More details to come as time allows. This year is number 10 and I am planning something special for all of those that have competed over those years. And if you have some spare cycles to help out, please let me know.

Thanks to all of this months contributors. I sent out the "bat single" early in the month and people came through as they

always do, with great content for your reading and viewing pleasure. This monthly line up includes Bill Gee's something #10 which covers Experimental Motors. Then we have Suzy Sprague telling us the interesting tale of the gate replacement in Gunter. Next up is O. Lee James and his experiences at this year's NARAM. It looks like a tremendous amount of fun and something I need to try sometime in the future. Wrapping us up is George "the other" Sprague in his usual spot, discussing altimeter testing with Vacuum Chambers.

We finish with the Parting Shots, with some of the best photos posted on the Shutterfly site. It keeps getting harder to pick these as there are so many good ones. If you aren't already looking at the Shutterfly site, you should check it out at <http://darsrocketrypics.shutterfly.com>. Keep 'em flyin' DARS.  
GB

## Bill's Something #10

By Bill Gee

After enjoying a few rocket kits, many rocketeers decide they want to try their hand at designing their own and building from scratch. It is only human to seek to test gained knowledge and combine it with creativity. Naturally, some may want to go further and see what they can do better or differently with propulsive technology compared to what can be bought.

A thread on YORF recently discussed how the NAR actually blessed homemade motors in its early years. The horror! At a time when commercial motors were not very plentiful, the fledgling organization understandably felt the need to be a guide to a safer way for those wishing to make their own black powder model rocket motors.

The NAR changed their tune to discourage the practice after Vernon Estes succeeded in mass producing motors in sufficient quantity to satisfy market demand. Making a black powder motor is the most hazardous part of the creation of a functional model rocket. By eliminating the need to do this, an activity safe for casual participants was born. Using only certified commercial motors has since become religious doctrine.

I seriously doubt the NAR will ever sanction an experimental motor program.

It is not that an experimental motor is inherently unsafe. Many

years of experience has shown that an EX motor is not significantly more prone to fail than a commercial one, especially when casing pressure is not pushed to the limit. The launch separation distances currently mandated in the High Power Safety Code are sufficient to protect launch personnel and spectators from a catastrophic motor failure. The Tripoli Research Code provides additional safety margins in the altitude waiver and separation distance requirements to account for the possibility that experimental motors may not have performance characteristics as consistent as those of the mass produced counterpart.

It has everything to do with the history of the NAR. One of the main reasons the organization was formed was to legitimize model rocketry and to differentiate it from fireworks. In order to do that, the NAR had to form an alliance with the fire fighting community and prove that model rocketry does not pose an inordinate danger to the general public.

That cooperation led to the creation of a set of model codes by and with the National Fire Protection Association; the presence of these codes made fire authorities more willing to allow rocketry under their jurisdiction. Arguably, that partnership made the legalization

of high power rocketry possible or at the very least, easier.

In the same way that high power was developed outside of "the system," techniques for making ammonium perchlorate composite motors have been refined over the years and documented in several outstanding books. It is much safer than making a black powder motor.

When asked about an EX program, the NAR has always said write up a detailed proposal and they will consider it.

Some people are philosophically opposed to amateurs making motors. They can be convinced otherwise or merely voted off the board if the membership desires.

I am convinced the biggest obstacle is that the NAR will not sanction an experimental motor program unless it can be written into an NFPA code.

The NFPA is much more interested in preventing structure fires than grass fires because more people are hurt by fires starting in buildings than on open fields. Unless it can be shown that EX activities will not increase the risk of structure fires, we will not get a blessing from the NFPA in the form of a code for making motors in a non-commercial setting. Few people have access to the necessary property, namely a separate building for propellant handling, that the NFPA will likely

insist is required to safely participate. Some may be willing to bear the risk of mixing propellant in their attached garage or workshop; insurance companies probably will not.

It may well be possible that a consensus can be eventually reached on sufficiently safe procedures for handling energetic materials at home. For those

curious, the resulting code will likely consist of a slightly modified version of NFPA 1127, the existing Code for High Power Rocketry, combined with portions of NFPA 1125, the Code for the Manufacture of Model Rocket and High Power Rocket Motors. But will those who wish to engage in EX be willing to abide by those requirements? Or will

they prefer to continue to fly under the radar as they are currently doing?

If you would like to discuss this further, post your comments to the DARS-General Yahoo group at <http://groups.yahoo.com/group/DARS-General> or Ye Old Rocket Forum at <http://oldrocketforum.com> where I like to hang around.

## A New Gate for the Gunter Launch Site

Words and Pictures By Suzy Sprague

How many Rocketeers does it take to put in a new gate? Sounds like the beginning of a joke....doesn't it!!! Or if you want a title to a movie...."Four Rocketeers, a Lady and a Gate". No matter which way you look at it....we now have a "mighty fine" looking new gate at the Gunter launch site.

Let's back this story up and start at the beginning. Our May launch took it's toll on the poor old gate on the east side of the launch field at the road. As we left the field later that afternoon, we noticed that the gate was barely hanging on by a wire and a prayer. So, with some wrangling and scouting around we found enough wire to at least put this gate back into operation to keep the cows for making a break. More on that later! This poor gate looked like it had been put into service sometime before the turn of the century and I don't mean this last one either!

We had another high power launch scheduled for June. So far, we hadn't worked on the gate like we talked about at the June meeting. It was getting closer to the launch weekend. Jack and I headed up there on that Wednesday afternoon before the launch to get the measurements for the gate. After getting all the measurements that he wanted, we headed up toward the north end of the field via the road. As we came up on the corner, standing in the middle of the road was a Momma cow!!! She looked at us as if to say....."WHAT?" We noticed that she was out of "our " field.....the one that we lay claim to for launches. We knew this because there was a calf waiting on the other side of the fence looking at momma and getting a wee bit up-

set. His "snack on the hoof" wasn't available to him! Jack saw where she possibly had gotten out and decided to move her toward that hole in the fence. She really had other ideas!! Which didn't go along with Jack's idea of where that cow needed to be. She decided to head further east on the road. I'm watching all of this from the car! Jack heads into the north pasture, keeping a distance from her while she walks down the middle of the road. He then goes under the fence and figures that he would push her back toward me. I can't see him very well at that point. Now my cell phone is ringing....it's Jack. He wants me to get out of the car and keep her from going past me. Okay....this isn't my first rodeo!! I get out of the car and start waving my arms and whooping it up at her. I'm sure she was thinking...."Holy guacamole!! What's got her all worked up!". But, I kept it up until she had enough of me whooping and waving. She headed for that same spot that she came out of. Mission accomplished!!! Jack came up and he wired that spot closed...or the famous...."it will have to do". Now that our job was done...we headed for home.

Now, the winds keep picking up to the point that Jack cancels the June launch. We have more time to fix the fence....right? No! Canceled launch day was the perfect time to do it! We had bored rocketeers hanging their heads that they couldn't go out to the field to launch. Have we got a deal for you! Originally, Jack thought just the two of us could get the gate put in. Hmmmm....not a good idea!!! So, since there is strength in numbers....we

invited a few people to join us for the "gate party fun"!

Dave Schultz came up to the house and the three of us took off for Tractor Supply in Denton to purchase the 16' gate. After getting the gate into the parking lot, the guys got it strapped on to the old Bob truck.



Jack drove the Bob truck with the gate, while Dave and I followed in my car at a "safe" distance heading east on 380 to Gunter. We got out to the field and started getting things figured out on how to attack this project. I helped where I could...when called upon. I'm good at..."hold this" and playing "go-fer". I've had plenty of training in those two departments over the years! I was glad when more "stronger than me" help arrived...this would be John Dyer and later Chuck Crabb. I decided since I wasn't needed for some of it...what better time to take pictures!



Between us all, we were able to get done about 3:30pm. Jack then decided that we should take the old gate parts up to the location of where the Momma cow had her "great escape". Used the truck to drag the gate up the dirt road. The rest of us drove our vehicles up to the north location to get that job done. That didn't take too long to do....just wire it up to the fence that is "sort of" there. With that done, we all decided to go celebrate with some Mexican food for a late lunch/early supper. As we passed the brand new gate, I said out loud...."that's a mighty fine lookin' gate there!"



*Editors Note—That is a great looking gate, and more importantly it isn't going to self destruct the next time someone touches it. Thanks to everyone who pitched in here.*

## The NARAM Experience

Except as noted, all photos by O. Lee James, III

The first NARAM I attended was NARAM 19 in 1977. I did not compete, just watched. The next year I was in Germany and would not attend NARAM again until this year. NARAM 56 was the first NARAM in which I have competed.

I am Oscar Lee James, III, NAR 15058 SR L1. I go by Lee because Oscar is my dad. I have been flying and competing with DARS folks since 1977. Some of you also know me as the NAR's Southwest Region Contest Board Chairman.

Life has been very interesting this year and I was not certain I would be able to compete in NARAM 56 until two months from the start date. Thus, I did not have time to prepare for the two craftsmanship events and the Research and Development. Amazingly, I was able to finish painting everything before I packed the Caravan to leave for Pueblo, Colorado.

The NARAM experience starts at home. Planning, preparing, painting, packing. Trying to keep all the pieces straight when the children come over or my wife decides there is too much clutter in the house. Then there is travel, flying, mingling, competing, celebrating, more travel, and recuperating.

Attending every day and competing in most of the events of NARAM felt like the first time I saw a three ring circus ... too much going on to take it all in. I am already working toward NARA 57. More on that later.

Pueblo is a two-day trip from Elgin, Texas. Mostly because of the obligatory stop to visit the in-laws in Lubbock. Rocketeers from both coasts find it amusing that we Texans measure travel in time rather than distance.

Arriving in Pueblo on Thursday, so I could attend the NAR Board of Trustees meetings, I unpacked at the very nice hotel.

Then, I made the pilgrimage. You know, the one all of us "older" rocketeers have been dreaming of ... Penrose and Estes Industries. A thirty minute trip

fulfilled a fifty year-old dream. I was so overwhelmed with emotion that I took my first selfie.



Saturday and Sunday were hot on the sport range. I watched a bit, talked a bit, and helped set up the competition range so I could get a good parking place.

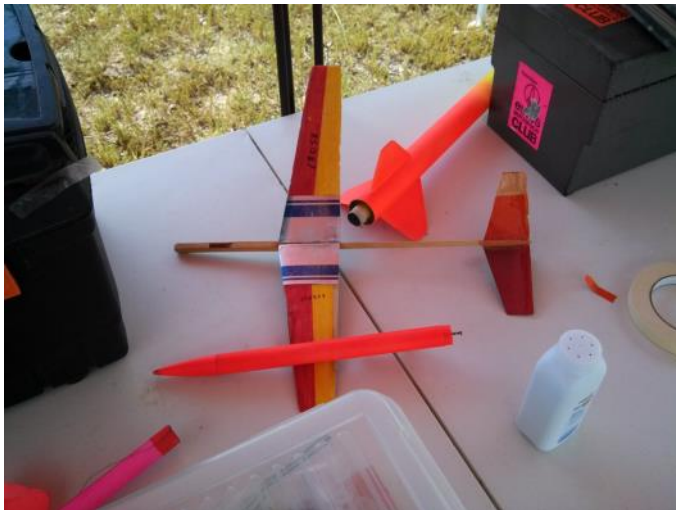
Monday's first event was Set Altitude (160m). My Quest Courier went much higher in the thin air Colorado than in humid central Texas. Still, it was a qualified flight. My first flight at a NARAM was qualified! I am satisfied placing 30<sup>th</sup> out of 36 C division contestants. This was my first NARAM flight and it was qualified!



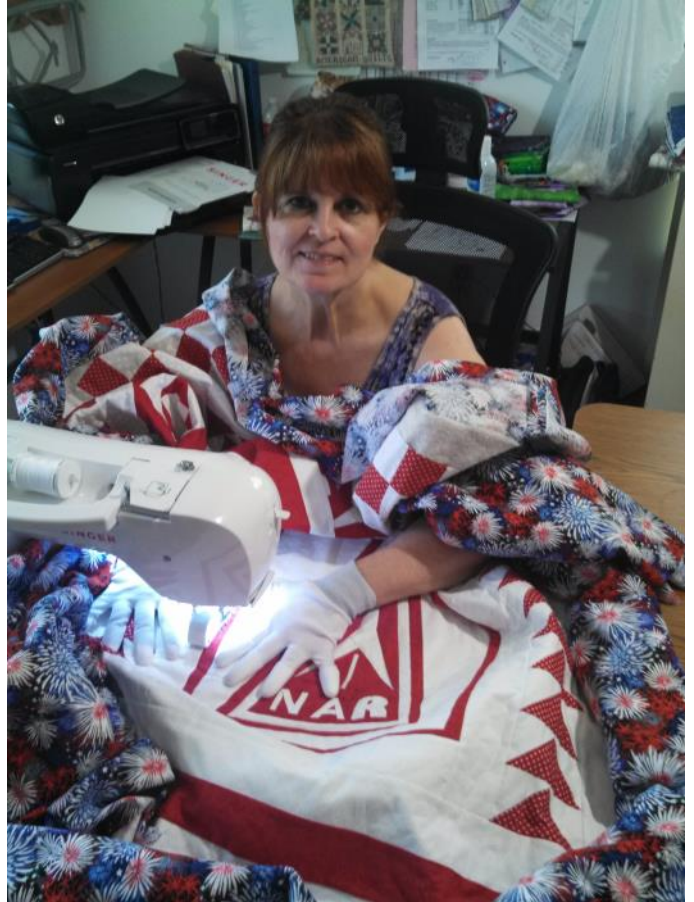
Next was C Boost Glider Duration (Multi-Round). My Edmond's Deltie re-kitted itself during boost. I have the boost pod.



I did get two qualified flights with my backup Quest Flat Kat. 19<sup>th</sup> out of 28.



Monday was for talking. Meeting old friends, making new ones, and the Canon educational fund auction. For this auction, my lovely and talented wife, Cherylene James NAR 95506, created a NARAM 56 quilt. NAR President, Ted Cochran, did an excellent job of modeling the quilt. (Photo by Chris Taylor) Auctioneer Steve Lubliner coaxed the bidding to \$330, the highest of all the items and one tenth of the total \$3300 raised.



Each contestant at a NARAM will help in running the range by serving a shift at one of the many posts such an event requires. Mine was data entry. The data entry crew consisted of only one person. Despite the number of flights, the system worked well.

The contestants could see their results in near-real time using a computer at the main range tent. You can see it behind the good-looking data entry guy in the red suspenders. (Photo by Chris Taylor)



Tuesday was B Streamer Duration and B Payload Altitude. The weather was cooperating, but the gremlins were not. On my first B SD flight, the nose cone separated. I grabbed a spare and prepped to fly again. The second flight was good enough to place 21<sup>st</sup> out of 41. Most of my flights were from the Apogee Components tower. At \$150, it is an excellent value. It is easy to assemble, transport, and adjust. (Photo by Chris Taylor)



B Payload Altitude, as were all altitude events, was optically tracked. The trackers did a good job overall, but my first attempt at flying a standard NAR payload resulted in Track Lost. The second flew to 139 meters and 22<sup>nd</sup> place out of 32.

A cold front and rain cut Wednesday flying short. Good thing I brought two jackets! B Cluster Altitude and C Helicopter Duration moved to Friday. The night sessions were Research and Development. You can get to the sessions at [namlive.com](http://namlive.com).

Thursday was cool for D Super-Roc Altitude, FAI Parachute Duration (multiround), and B Cluster Altitude. I left my phone on the charger in the hotel room, so I did not get any pictures. That is OK, because what was left of my Super-Rocs was not pretty. Failing to follow my own advice, I went for max length and minimum weight. Both my primary and backup birds folded like a cheap umbrella in a hurricane. A few years ago, James Duffy gave me a kit for FAI competition. You can see the rules at the link above. The FAI A PD (multiround) event allows three flights, but only two models. It is a very specialized rocket and I had no backup. I flew an 18 inch Estes parachute on an Estes A3-4T from my Apogee tower on the first two flights. The flights were good and I

got the rocket back after each one. For the third flight, I used a 36-inch, 2-mil Mylar parachute with 12 shroudlines from Aerospace Specialty Products. The parachute deployed at apogee and instantly inflated. I last saw the rocket still heading in the general direction of Pike's Peak. 8<sup>th</sup> out of 22. I did manage to ignite all five motors on the B Cluster Altitude and scored 10<sup>th</sup> out of 24.

Friday's flying as packed with C HD, Giant Sport Scale, and Concept Sport Scale. Fortunately for me, I was only flying in HD. For this event, I built two Gyro Chasers by Tim Van Milligan of Apogee Components. Tim designed the kit well. It has high quality parts and excellent video instructions. I also had a home-built Gyroc as back up. I did not need the backup, but flew it on the sport range rather than taking it home unflown. Even with a DQ for Separation on one flight, I still placed 7<sup>th</sup> out of 27. (Picture by Chris Taylor)



After packing up my stuff and helping pack the contest range, we all headed back to the hotel. You can see pictures of the banquet and awards presentations on [namlive.com](http://namlive.com). At the end, Chris Taylor



(naramlive.com) took a picture of me. My phone holster is empty because Chris was using it as a hot spot to stream video to the web, but my pistol holster, as always, is full.



NARAM 56 was great fun. NARAM 57 promises to be just as great. You can see the brochure at naramlive.com.

In addition to great rocketry fun, there is a lot to see in Arizona, such as a big hole in the ground. I am also going to find a corner in Winslow on

which to stand, with my pistol on my hip, and have my picture taken. That will be another decades-long dream fulfilled.

More pictures at <http://naramlive.com>

NARAM results at <http://naram56.org/index.php/contest-info/competition-results>

Details on competition rules are on: <http://www.nar.org/wp-content/uploads/2014/06/2014July-PinkBook.pdf>

*Editors Note—Thanks for sharing Lee! For those of us that didn't get to go, it is great to get a view from a competitors perspective. Looks like a great time. Here are a few more pictures that Lee included that fill out the article.*



Above and below by Chris Taylor



## Vacuum Chamber

By George “The Other” Sprague

Last time we discussed several ways to make ejection charges for use with dual deployment altimeters. Now let's take a look of how to ground test your altimeter before sending it, or them, up in your bird!

If you happen to be using any of the Adept Rocketry altimeters, you can purchase a vacuum chamber from Adept Rocketry, specifically designed to fit and work with Adept Rocketry altimeters. Basically it is a sealed plastic container just large enough to house the altimeter, already set up with the wiring that Adept Rocketry altimeters use, and comes with or without the syringe that is used to remove air from the chamber; you can also purchase one without the cable harness.

What if you are using altimeters from another manufacturer? You could modify this Adept Rocketry product to work with them, just make sure the chamber is totally sealed. Or you can choose to make your own.



Here is an idea for an inexpensive vacuum chamber: you will need a glass jar (such as a mason jar) with screw on lid that is large enough to hold one altimeter, its battery, the wiring harness and the “charges”. Also, one piston sy-

ringe, the 60 ml type.

You'll need to drill a hole in the top just large enough so that you can push the tip of the piston syringe in and create a positive seal. See Picture 2, courtesy of Rocket Team VATSAAS. I like to use plumbers putty on the lid and piston syringe joint to insure a good seal. You can also use that blue tack stuff from office supply places.

To test the altimeter's firing of the deployment charges you may use Estes Igniters, the actual igniters or electric matches you will use, or better yet, LED lights that have wires attached so you can connect those to the altimeter.

Prepare and connect everything, turn the power on, place altimeter in jar, screw on lid, insert the tip of the piston syringe into the lid, seal, pull back on the plunger and release – the altimeter should read the



pressure difference and fire the drogue and main “charges” in sequence. You should see an interval of a second or two between each firing. If instead of a piston syringe you use a hand held pump, such as an automotive one, you'll get more of an interval between firing. Here, take a look at this video demonstration (notice Christmas tree lights are being used!): <https://www.youtube.com/watch?v=b2fR2jYYzFM>

And that is it! Remember, ground test everything you can – if it works on the ground, the probability of it working in flight is quite high!

### Use Your DARS Card and Save Money—Member Discounts



8.25% Discount on the field and at meetings



10% Discount on all rocketry related items. The Dallas store carries Estes, Quest, Aero-tech, and PML kits with a great selection of Estes and Aerotech motors.



20% Discount on all rocketry related items. Great selection of saucers, odd rocs, and launch equipment.



Additional 5% discount on regularly stocked motors. Enter DARS in the coupon field at check out. Huge inventory of Aerotech motors. Shipping available or pick up at meeting/field



10% Discount on all rocketry related items. Lots of kits and motors from Estes and Aerotech

## R\C Zone

Plano @ Parker and 75

10% Discount on all rocketry related items. Estes kits and motors. Great selection of plywood and balsa.

### DARS supporters not currently offering a discount



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## Parting Shots

Photos by Various Artists



This row by Amado Pereria



Kimberly Case



John Dyer



Chuck Crabb





**Nick Viggiano**



**Nick Viggiano**



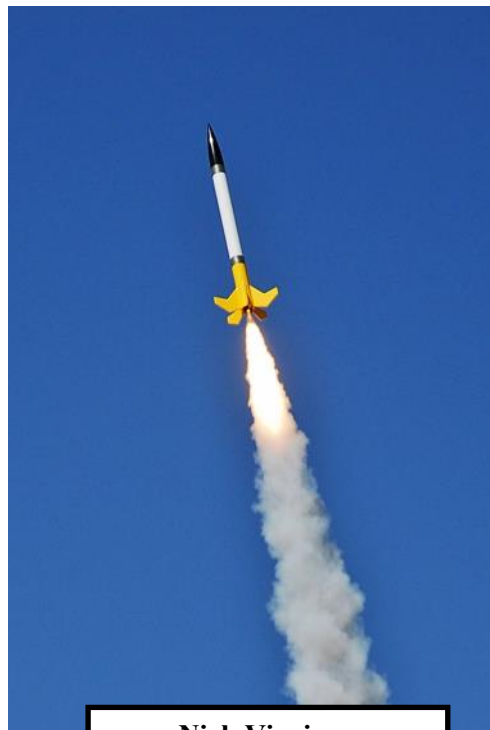
**Chris Bender**



**Nick Viggiano**



**Keith Pate**



**Nick Viggiano**



**David Smith**



**Nick Viggiano**

**How to Contribute to Shroudlines**



We all share a love for the rocketry hobby and all have different experiences and expertise to share. You don't have to be a Pulitzer Prize winner to write for this publication. Anyone can do it!

Submissions can be in the form of plain text files, emails, or MS Word documents. Pictures can be of most any format, but .jpg files are generally the norm. Keep the content family friendly and free of political discussion; just rocketry.

We publish every 2 months so we need your content submitted by the 15th of an even numbered month (.i.e February 15, April 15, June 15, etc.). You can submit via the contacts page on [dars.org](http://dars.org) or direct to the editor at [garyb2643@att.net](mailto:garyb2643@att.net).

**DARS Officers**

<b>President</b>	<b>Jack Sprague</b>
<b>Vice President</b>	<b>Dave Shultz</b>
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<b>Secretary</b>	<b>Bill Gee</b>
<b>NAR Senior Advisor</b>	<b>Sam Barone</b>

**Upcoming Events**

<b>9/6</b>	<b>DARS Business Meeting @ Coppell</b>
<b>9/20</b>	<b>Monthly Launch @ Frisco</b>
<b>9/27</b>	<b>High Power Launch @ Gunter</b>
<b>10/4</b>	<b>DARS Business Meeting @ Coppell</b>
<b>10/18</b>	<b>Monthly Launch @ Frisco</b>

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. Go to the website, fill out and send in an [application](#), to join or renew your membership.

The club normally meets on the first Saturday of each month at 1:00 p.m. and the current meeting location is in Coppell, just off the Sam Rayburn toll way and Denton Tap Road.

Visit the DARS website for the meeting location: [www.dars.org](http://www.dars.org)