

SHROUDLINES

A Dallas Area Rocket Society Production



Member of the
National
Association of
Roketry

Section #308



November/December 2015
Volume 24, Issue 6



Panther Creek Pkwy
& Honey Grove Dr

New Development
Coming Soon!

What's Inside

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This updated image from Google Earth pretty well describes our current challenge in Frisco. The fields to the east and north were previously free of development. Now that development has decreased our flyable area the message should be clear that it's only a matter of time before what remains is also domesticated.

Ignition!

By Gary Briggs

In November I attended the Snap Launch, which was flown on the 3rd Sunday, since Saturday's winds were unrelenting. Sunday was a beautiful day with wind generally under 5 mph, crystal clear skies and cool temperatures. The original intent of the launch was to support TARC teams needing air time, but none showed. We did get a couple of students working on science projects and the few of us that could sneak out on a Sunday afternoon to fly rockets.

My theme for the day was flying other people's rockets. I haven't done much of this to date, at least not without significant modification, refinishing, or an all out rebuild. I don't know why this is true, but I guess I have always felt the need to make the rocket my own before flying it. With my schedule severely reducing my available build time, my attitude here has changed out of necessity. My desire to fly was higher than my ability to build so you get this result.

With the reduction in real estate in Frisco, I needed some flyers that we easy to keep on the field, although with almost know wind, the challenge there wasn't that great.

The fleet consisted of my Alien Invader, as it is always an enjoyable flight on a B6 and a great wind test.

Next up were 3 rockets from my father in laws stash that he had me clean out this summer due to his lost interest. These are pretty generally, stock Estes builds, with nary a spiral filled or elastic shock cord replaced. but solid construction just the same. I put up the Silver Comet on an E20 that went off like a shotgun blast, for the fastest ascent I have ever seen on one of these motors. That was followed by the Sea Hawk on a D12, which I ended up flying twice for the day. The rocket has great long lines and performs very well on D motors. The dual chute deployment is also a crowd pleaser. Finally I flew the Sizzler that I discussed in the last issue. It proved once again why rear ejection hasn't caught on all that well. It managed to eject and stay connected this time, but the shock cords tangled around the motor tube so tightly they cut it in half. It did another face plant, into soft ground, so no damage. This one is being converted into conventional ejection as we speak.

The final rocket is of unknown origin as it was picked up at a DARS meeting at some point. It is an Estes Loadstar. It required some fin repair when I got it, which was accomplished with epoxy clay and body filler. It flew great on a C6/B6 combo.

I guess the takeaway for me here was that flying rockets with no emotional attachment (i.e. no blood sweat, or tears involved in its construction is kind of

liberating. With nothing invested, the fun was not impacted in anyway and the may have even been somewhat enhanced. Most of it is just getting over my own prejudices around construction, like the unfilled spirals, elastic shock cords and such. At the end of the day the flights were just as much fun as if the paint had been gleaming flawlessly in the sun. Necessity forced growth I guess. I have gotten far to philosophical here so suffice it to say it was a great day to fly and thanks to everyone who came out.

On a more serious note, the threat to the Frisco field and the monthly launches that it supports is very real. Development continues in all the sub divisions around the field and it is only a matter of time before residents demand that the empty field become something more domesticated for their use. It is always important to keep your eyes open for new DARS flying locations, but this is true now, more than ever. The bounty program is back up and running and details can be found on the homepage at dars.org. After Bill's Something, I cover a bit more on our fields over the past several years and the need to keep finding them. Up next is a Star Wars article that discusses PMC techniques used to make the models fly . George Sprague finishes us out with his anti-zipper techniques. It's been a great year DARS. Here's to 2016 being even better!

Bill's Something #17- Competition Rule Changes Revisited

By Bill Gee

I was going to write about something else this month, but the proposals for changes to the competition rules just came out and as usual, they provide ample fodder for debate.

At first, I thought it was Groundhog Day. Many of the items which failed last year are back. Give it up, Matt, those will never pass...unless you somehow believe you will be much more successful in motivating those who happen to agree with you to bother to vote this time.

Other than those, many of the proposed changes do make sense: abolishing motor reload kit impound, simplifying team entry forms, harmonizing the FAI glider event to the latest FAI rules, increasing the incentive to break ties and replacing F and G impulse duration events with a single E+ class. These changes would tend to make things easier and quicker for contest participants and staff or increase competition. It is almost enough to get me to jump through the hoops to vote. Almost.

There is no dispute that allowing electronic altimeters in place of optical tracking enables some clubs without theodolites or the manpower or knowledge to use them to hold altitude contests. The use of on-board electronic altimeters in competition continues to be controversial, though the issues today revolve more around questions of how rather than if.

The nature of the proposed changes do seem to indicate that the use of altimeters was adopted before it was truly ready.

The proposal to require that altimeters support downloading flight data will render more units unusable for competition. How many people are going to want to collect altimeters? The job of processing returns will become more complicated and take more time. Fewer people will be bothering to compete in fewer altitude events.

The proposal for temperature correction has the potential to place a major burden on the range operations staff. There may likely be fewer altitude events held. Is the temperature reading taken at each pad just prior to liftoff? At the launch control panel? At the safety check station or the return station? Only once per hour? Obtained from some site on the 'Net? The ultimate conclusion may be that the only fair way is to fly all the altitude entries at the same time - to drag race them all - oh wait, there are rules against that now too...

My objections to the use of altimeters in competition revolve around several aspects.

Firstly, it makes for a different event. An on-board altimeter requires that the model is returned. With optical tracking, returning an entry is not a requirement unless

there is a question about the motor. Having to recover the altimeter can dramatically change the strategy for flying the event.

Secondly, it places the cost of the measuring equipment on the participant. In an event in which flights are easy to lose.

Thirdly, even units of the same model and manufacturer report different readings. The only fair way is to calibrate each altimeter in a vacuum chamber before flight and apply a correction factor to the reported result. I do not see that happening.

Finally, the technology presents plenty of opportunity to manipulate the result. Heating or chilling the altimeter before flight. Having a heated or chilled altimeter bay which reverts to ambient temperature during flight. Having a flat black or mirrored finish on the altimeter bay or an insulated compartment. Some of these tactics may be difficult for contest staff to detect. I fly in local contests only for fun so I have no intent to cheat in them. But I do love an engineering challenge, so do not be surprised to see me flying some altimeter experiments in the next year or two.

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> where I like to hang around.

DARS Launch Sites—A Brief History

By Gary Briggs, Jack Sprague, and George Sprague

I have been flying with DARS since late 1999 and in that time we have seen many launch sites come and go. Our current situation of needing new sites is not a new problem. Over the years we have lost sites due to development, change in ownership (including the death of the owner), development (yes, I meant to do that), but I think it has been exacerbated and accelerated in recent years due to fear of litigation. NAR insurance helps here and the fact that the face amounts of the insurance have been raised in recent years is an aid in combating the arguments for the worst case scenarios. Fortunately, the worst case is very rare, but with the recent death in California, we are, no doubt, under the microscope again. We all need to keep our eyes and ears open for opportunities to find new sites. It seems that TARC has provided some good leads on fields in recent times, but most often it has been a club member that knew someone that had the space and the interest. What follows is a brief history of some of the fields we have flown on over the past 20+ years.

The Frisco field has been significantly reduced by development and it's time as a viable launch site may be measured in months not years. It has provided the backbone of the clubs activities for model and mid power flying, as well as contests since 2006. It's close proximity to the North Dallas corridor and easy access have made it a great choice for families, youth groups, and new flyers. It was originally discovered by a DARS member who lived close to the site and worked with the city to give us access.

Corsicana is the newest site discovered by a club member. A friend of the land owner had heard George Sprague talk about rocketry, and was telling him about these large rockets and launches. The land owner's grandson was interested, to say the least, and they looked at the DARS website. Out of the blue George received an email from the friend who told him that the land owner sure would like to see some big rockets flying on his farm; his grandson would love to see them too! The field is 2 square miles of farmland, just barely above lake level near Kerens, TX. To date, conditions have not allowed us to launch there.

Gunter was the first site that was discovered as part of the bounty program. A club member lived near the area and knew the land owner. It has hosted a number of high power launches starting in June of 2013. Unfortunately, the owner of the largest of the sections we use has decided that we offer too much risk, and no benefit.



Frisco, April 2013



Gunter, June 2013

Valley View, December 2011



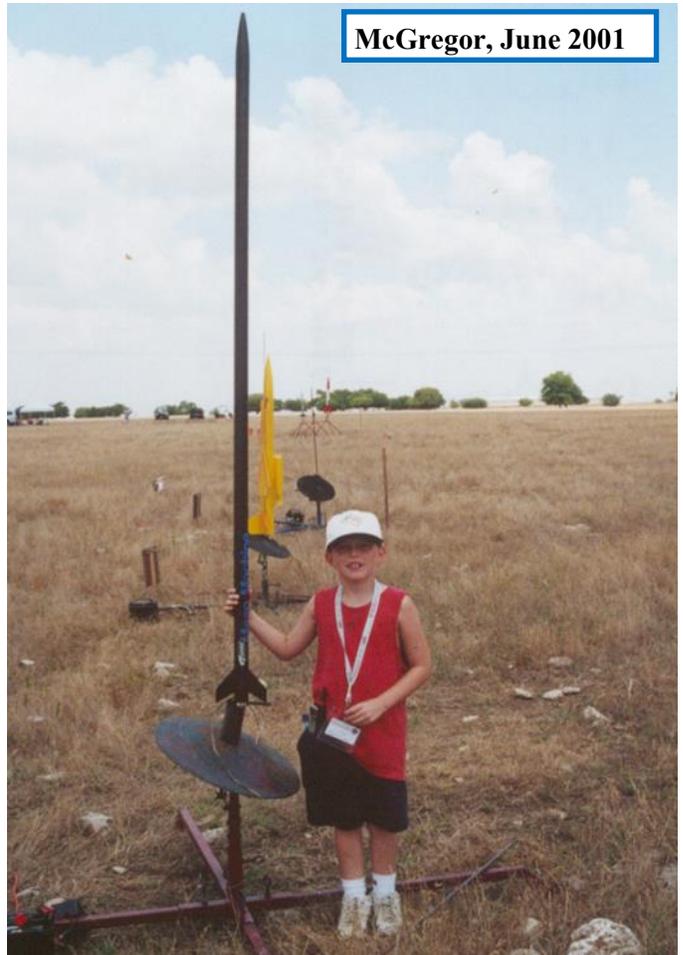
Valley View came together as a field in December 2011. It offered easy access off of I-35 and some nice wide open spaces across a few different land owners. The site was found by club member while installing cable TV. The original owner passed away and the field is currently unusable due to probate and ownership issues.

Rockwall, July 2003



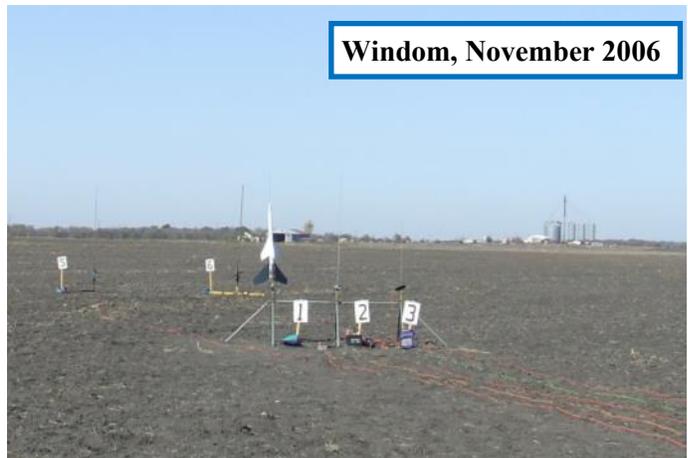
The Rockwall site was a great model and mid power field in McClendon-Chisolm. It was found by members who were also part of what became Armadillo Aerospace. The land was owned by John Carmack's wife's family. DARS used it for monthly launches for about two years. We lost use of the field due to members and others using the field without notifying the owners or the club officers, and generating serious complaints from the neighbors.

McGregor, June 2001

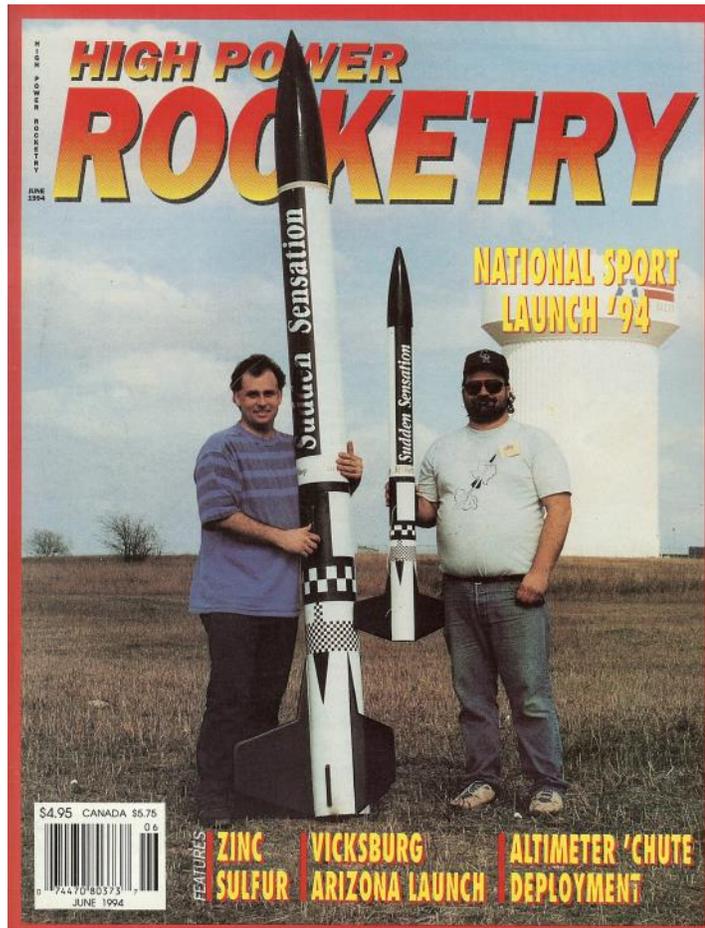


McGregor was found by their City Manager contacting the club to be part of their 'Pioneer Days' celebration in order to give Dads and kids something to do while Moms shopped. The city VFD and the county emergency manager helped us schedule and support activities. DARS even interfaced with the Secret Service to comply with flight restrictions due to Bush's ranch, during NARAM and NSL. The land was eventually leased to a manufacturer of wind turbines, and the adjacent usable sites are being used by SpaceX.

Windom, November 2006



Windom was negotiated by Tony Reynolds as his family had land adjacent to the primary land owner. We used the land in a deal where we donated 50% of any income from fees to local charities. We still have a field the size of Gunter available to us up there, but safety rules restrict us to about 5,000 ft AGL altitudes.



Allen was found by Scott Hunsicker by looking up land owned by our previous host. We used the site royalty free for about ten years. It was the first HP site in DFW area. It was used until development encroached. The site now has a hospital, shopping center and hotels on it. The site had national attention, at one point, as it was featured on Good Morning America for a segment on model rocketry. The picture shows coverage of NSL hosted on the field back in 1994 (note the water tower in the background)

Justin was found by a member who's family lived adjacent. It was the smallest site we've ever gotten an HP waiver on, but only to 3,000 ft. We were asked not to use the site after the member's family moved, the member changed jobs and moved, and the airpark next door started to expand.

Certainly with a history as long as DARS there are many other fields that have supported the club. Sites have come and gone, and it is a perfectly normal part of a rocketry club due to all the reasons you have seen above. What is always required, is for everyone to be looking for that next site and not taking the approach of thinking the current site(s) will always be available to us. Land owners have a habit of filling up their wide open spaces that we need to support our hobby. So next time you see a space that looks promising, see what you can do to help DARS find the next Allen, Windom, or Frisco. We can't fly rockets without a great place to call our home.

Here are a couple of "Blast from the Past" shots that I just couldn't help but share. This is my original Mars Lander coming off my Centuri Servo launcher in my parents back yard circa 1975-6? Probably taken with a Kodak Instamatic so I am shocked that they are as good as they are. I would have to guess that these are 2 separate flights since there is no way that camera could be fired that fast.



Misadventures and Plastic Death in the Name of Star Wars

By Gary Briggs

With the *Force Awakens* playing in theaters and plastic (death) model conversion always on the agenda for the contest season, I thought I might cover a few of the commercial and not so commercial attempts to fly some of the things we see zipping across the screens at the movies.

To start with there have been some great models of all kinds of things from the past 6 movies, from the obvious (tie fighters, X and Y wings, various transports and star destroyers) to the sublime; R2D2 in various forms and the Death Star. Additionally, someone always has to try and fly something that maybe they shouldn't, and will spend some time on how a couple of us tried to do that.

Estes and Star Wars formed an inevitable marriage back in the 70's when the original movie came out, as I noted in the last issues Ignition column. Mike Dorfler and other Estes folks were in on the ground floor of



merchandising the movies, which ended up being where the real money was to be made.

That relationship carried on though episodes 1-3 which were actually the 4-6th movies via the prequel approach. The vast majority of these models are largely made of plastic to provide the lifelike details of the movie props. And they also

suffer many of the challenges of flying plastic which come with its weight and its inability to cope with heat. Here are a few highlights from the model forms on the commercial side.

Model on a stick

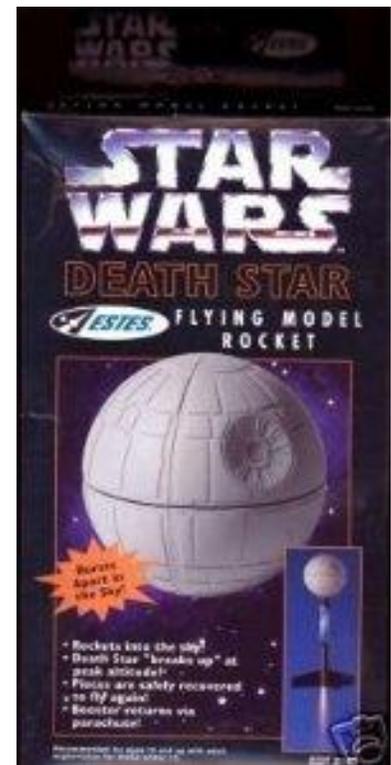
The first approach is the model on a stick approach. Contest flyers will know this as a modified egg on a stick approach used in egg lofting. It starts with a bulbous and heavy object stuck on the front of a conventional rocket. The Death Star was given this treatment to make a flying model out of it. It had the added feature of “exploding” on

ejection, which broke the globe into four pieces which all recovered on their own streamers. It was cute, but more for the younger set rather than the serious fan.

<http://www.rocketreviews.com/estes-star-wars-death-star-donald-besaw-jr.html>

Flight conversion models

This approach was used with the more rocket-like props from the movies including the X and Y wing fighters and the ships from Naboo from the second trilogy, which was actually the first., an lets not forget the flying R2D2. These were made in mini engine plastic versions to the



cardboard and vacuum formed body parts of the Maxi Brute (D engines) and North Coast Rocketry (F and G engines) versions. Others have found the need to go even bigger. Recovery is generally the flight challenge with these as the models end up lower than expected due to drag, and various methods where the chute ejects and shock cord placement have varying results. Many employ clear plastic fins for stability. Check out these reviews and flight reports for the X and Y wing variations as well as R2.

<http://www.rocketreviews.com/estes-star-wars-y-wing-starfighter-rtf-john-lee-4127.html>

<http://www.rocketreviews.com/estes-star-wars-x-wing-fighter-maxi-brute-david-montgomery.html>

<http://www.rocketreviews.com/north-coast-rocketry-ncr-star-wars-x-wing-fighter-thomas-beach.html>

<http://www.rocketreviews.com/estes-star-wars-r2-d2-thomas-beach.html>

Not much plastic here, but a very cool model by DARS own Jason Ware.



Photo by Jason Ware—Galaxy Photo

<http://www.galaxyphoto.com/rockets/x-wing.html>

Model with a probe

This final approach is probably the most maligned. It uses the model as the fins of the rocket and creates stability by sticking a long probe on the front of it. There have been a variety of Tie Fighters done this way, from the standard issue variety to Darth Vaders angled fin version. The hardest one to look at might be the Star Destroyer from the original series and that is probably what spawned the PMC attempts that follow.



<http://www.rocketreviews.com/star-wars-darth-vaders-tie-fighter-1557.html>



<http://www.rocketreviews.com/estes-star-wars-star-destroyer-dan-priven.html>

Going off the commercial conversion path

In the late 80's Stuart Powley took up the challenge of flying an Imperial Star Destroyer in a PMC contest by adding 1 large clear fin and lots of nose weight and removing that pesky probe. He flew it on a cluster of 3 C6 motors to ensure he had enough push. It is roughly rocket shaped,

right, so why couldn't it work? Unfortunately or fortunately, depending on your perspective, the pictures don't show the devastation that followed. It basically cleared the rod and did the pizza slice flip before reconnecting with terra firma violently.



Photos by Stuart Powley

My Star Destroyer

In 2013, I took much the same approach as Stuart for the DARS Fall Classic Sci Fi Spectacular contest. The rules I wrote for the contest that year allowed PMC models to compete, but they needed to have a stable flight and not just look pretty on the table. I really wanted to go down a Star Trek path on this, but kind of ran into the same issue of building a model with a probe and that horrid spear running through it. I spotted the Republic Star Destroyer from the second set of movies and decided that it might be fun and the price was much more reasonable for a model that may end of spread across the field in Frisco. I picked it up and the modding began.

The basic conversion of this was pretty simple. A BT-50 tube and nosecone fit inside the body quite

nicely. The only real challenge was running the ¼ launch lug through the body, but that was accomplished by keeping one of the side panels removable to allow this to exit out the front. The other major modifications were a shallowing of the entry/exit bay, since the BT-50 tube prevented it from being as deep as it was originally. Then there was the addition of the plexi-glass fin, which was anchored through the plastic to the body tube, and ended up fitting pretty nicely.

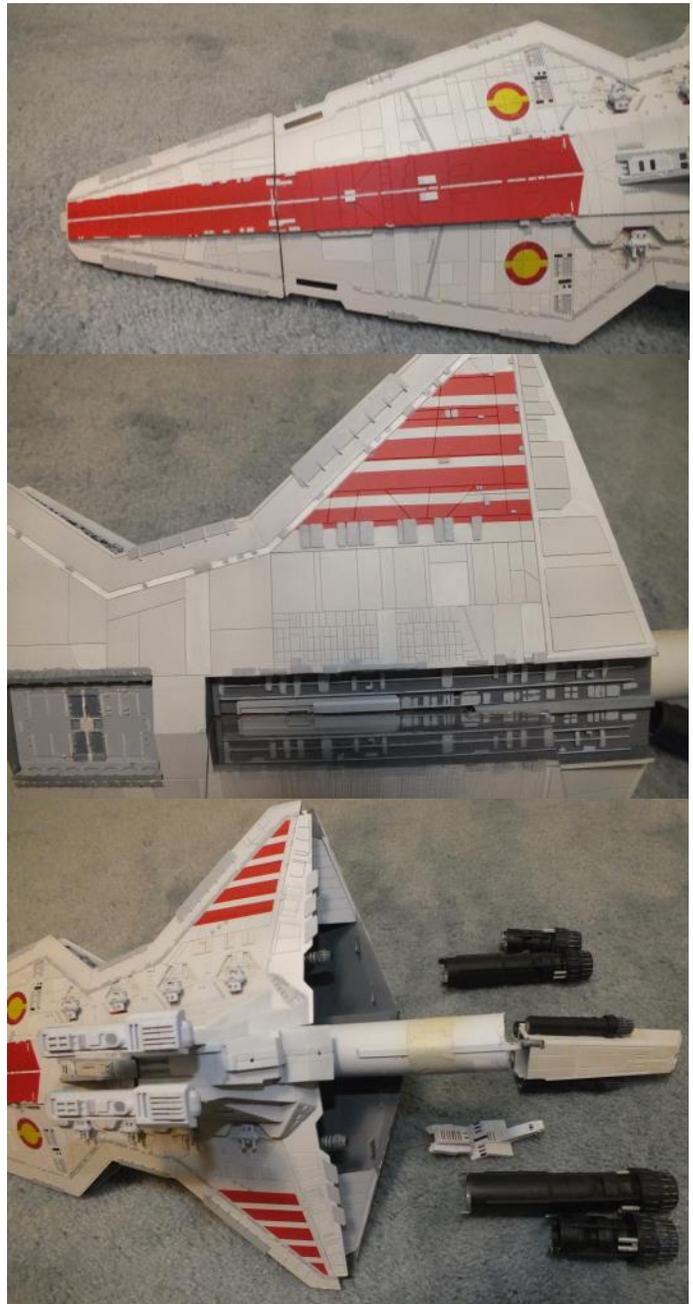


I toyed with the idea of flying this as a cluster, but not for very long as it had enough issues just trying to make it stable as it was. It also had a display version and a flight version since I essentially took as much of weight off the back as I could to fly it. This 2nd...er 1st generation Star Destroyer has long engine tubes that extend the weight of the model further back. I kept these removable along with a back section of the model, so it had a chance of being stable. I created a removable engine mount that hung out the back of the model. I don't remember the design considerations of the time but it did help the theoretical stability. An E30 would do the lifting for this model and proved to me quite adequate.

I mocked up a version of it in RockSim that didn't seem too far off the real thing as far as the shape and weight distribution goes and it deemed it stable. I also hooked up this rather elaborate harness in an attempt to spin test it in flight configuration before committing to paint. In the end this may have provided too much support or it was still just too marginal for the real world.



Painting this one was a challenge and lots of fun. It started with a rattle can of Tamiya Insignia White to put down the base color, and that was followed by another 50 shades of gray from the Testors family. I did an initial tape and spray of the red center line and the stripes on the back, but it wasn't completely successful and required lots of hand touch up. My son dry brushed the side details as I have never quite gotten that technique down pat. I color matched the decals to the paint to finish off the look. Weathering and battle damage would have been the next step, but I was out of time and beyond my skill level at that point.



The flight is pretty well documented in the Fall Classic XI article found [here](#). Suffice it to say that the theory didn't work as well in real world as we might have hoped. In the end, I repaired the flight damage and made a display model out of it and it sat in the display case of HobbyTown USA Plano for a couple of years before I brought it back home.

So there you have it. The Force has been flown in a variety of configurations and there is something for everyone out there, but be careful on the dark side as some of these forces cannot be harnessed as easily as one may think.

Anti-Zipper Device, Frugal Style

By George "The Other" Sprague

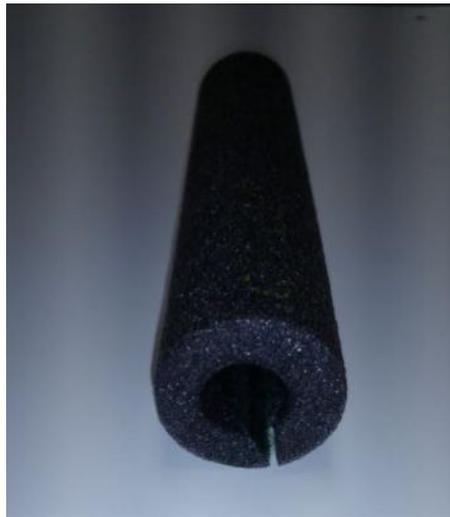
As a direct descendant of the famed and acclaimed Ebenezer Scrooge I proclaim that cheap can be good. With that in mind, here are a few ideas to assist you in making an inexpensive anti-zipper device for your high and mid power rockets.

For those who may not be familiar with the term "zipper" as applied to rocketry, this is the nasty gash that occurs on the body tube when the recovery strap slices through the tube due to the strap being forced against the tube at rapid velocity and mighty force during deployment of the recovery device – the end result looks like a zipper that has been pulled down.

One way to prevent this is by using very stout body tubes (fiberglass, blue tubes) – but wouldn't it be nice if you could add something that would greatly minimize the probability of this happening? Even when using a cardboard body tube?

I have used the method in my birds, including my Level 3 project. And what I use can be obtained in the water heater section of any hardware store – for a few dollars you can purchase a 6 foot length of pipe insulation (picture 1). This stuff can easily be cut to the proper length, which is roughly 6 inches, give or take. The insulation has a slit, so it's easy to slip over a recovery strap. Needs to be

positioned so the middle section of the insulation hits against the lip (opening) of the body tube when deployed, thus providing a cushion between the body tube and the recovery strap.



You may have to fill the inside of the pipe insulation with foam, wads of paper etc to make sure the recovery strap isn't loose. Secure the insulation to the strap with masking tape on both ends. If you are using a hefty amount of Black Powder (BP) in your ejection charges, you may cover the whole thing with masking tape, or do what I did on my Level 3 project (two charges that went off, one 8.0 grams, the other 8.3 grams of BP): I created a "sleeve" from a nomex parachute protector (picture 2) and secured it with masking tape.

Guess what? For model rockets and some mid power rockets, if you use the body from the dart or munition of a nerf gun, you

basically have a smaller version of the pipe insulation. I am certain some child in your area will be happy to donate a few to the great rocketry cause.



There you have it! Easy and inexpensive, can't beat that!

Contest Commercial

Dallas Winter Intergalactic in Frisco—January 23

- A Streamer Duration
- A Parachute Duration
- A Helo Duration
- Spot Landing

Megalaunch 2016 in Frisco—March 12

- B Helo Duration
- B Rocket Glide
- B Parachute Duration
- C Streamer Duration

DARSTAR XI in Frisco—May 28, 29

- Plastic Model Conversion
- 4 A Cluster Altitude (altimeter)
- A Boost GLide
- A Helo Duration

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balsa.

DARS supporters not currently offering a discount



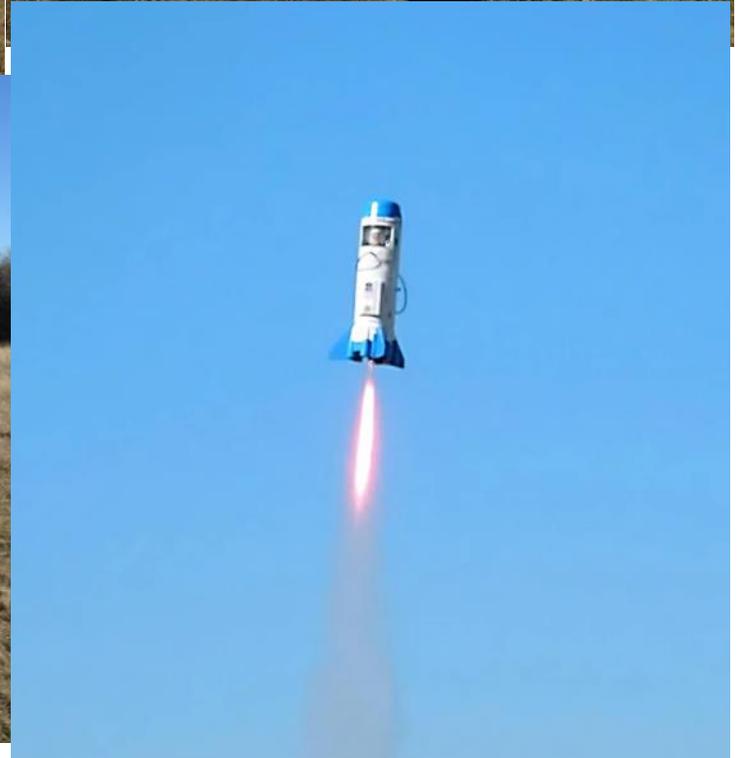
Click on logos to link to websites

Parting Shots

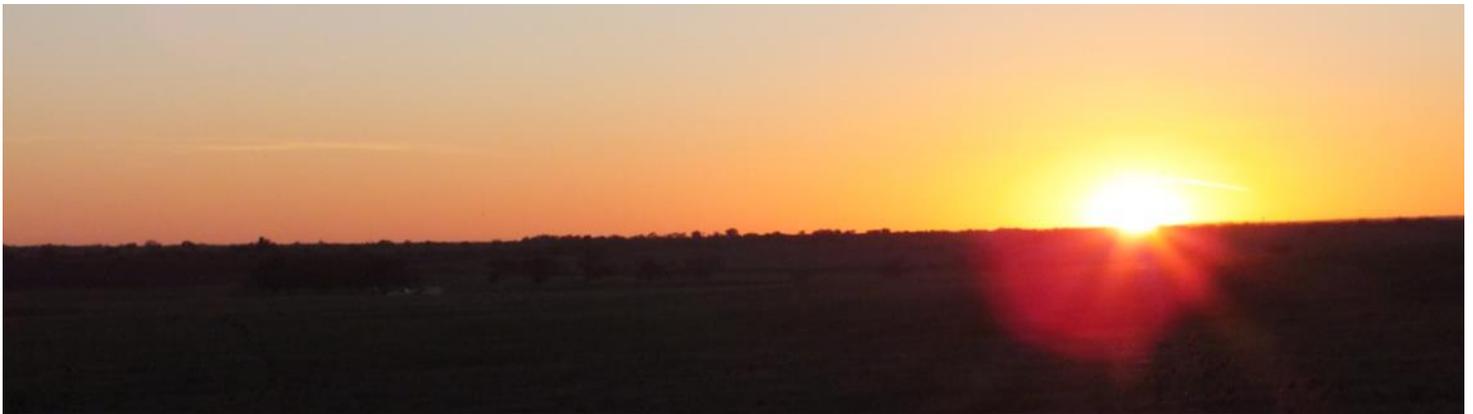
Photos by Various Artists



Top left: George Sprague tries to climb inside his Saturn V to attach the igniter clips at the November Snap Launch. Top right: Same rocket lifts off on a D12. Bottom: In flight on an Aerotech E15.



Top right clockwise: Buzz McDermot's Baber Pole on 3 Ds. Frank DiCosimo's 6 Million Dollar Man in his flying transport. Transport in flight. A very well documented science fair project.



Sunset over Gunter, November 2013

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 or direct to the editor at garyb2643@att.net.

DARS Officers

| | |
|--------------------|---------------|
| President | Jack Sprague |
| Vice President | Dave Shultz |
| Treasurer | Suzie Sprague |
| Secretary | Bill Gee |
| NAR Senior Advisor | Chuck Crabb |

Upcoming Events

| | |
|------|---|
| 1/9 | DARS Business Meeting @ Coppell Annual Election of Officers |
| 1/10 | Equipment Service @ Hickory Creek |
| 1/16 | Monthly Launch @ Frisco |
| 1/23 | Dallas Winter Intergalactic @ Frisco |
| 1/30 | High Power Launch @ Corsicana |

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

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