



Dallas Area Rocket Society ("DARS")

Ignition!

By J. Stuart Powley



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

Special points of interest:

- "Ignition!" We hope you had a holly jolly Christmas!
- Scott Cook shows us his really cool F Super-Roc!
- Gary Briggs, the "King of the Classics," shares his Alien Invader adventure.
- We have lots of pics from 2010!
- New officers!



The DARS Officers for 2011 look a whole lot like the DARS officers for 2010 with one exception. Dave Schultz bravely agreed to run for vice-president after John Dyer stepped down. John has his hands full helping with contests!

Deck the halls with lots of rockets! Fa-la-la-la-la-la-la-la!!!

Ok, I know that due to the publishing cycle of Shroudlines, Christmas has come and gone, but I thought I would put a little plug in here and say that I hope everybody had a wonderful holiday and got lots of cool stuff.

Come to think of it, we have some pretty cool stuff in here! Scott Cook has written a fantastic article on his take on that old contest favorite....Super Roc Altitude! He focuses on the higher end of the power spectrum (what else would we

expect from Scott?) and has some great insights! Build it big and powerful! What's not to love?

Gary Briggs has also added to the "cool factor" of this edition with his Alien Invader article. His tale of building the re-released Estes classic after having built the original in his youth has reminded me that I have a new Photon Disruptor that really needs my attention!

So sit back, sip some not yet out of date eggnog and enjoy! Fly 'em high and safe!

Inside this issue:

Building a "Super-Roc"	2
The Alien Invader-What's New is Old Again	4
DARS End of Year Photo-Rama!!!	8
Contributing Info	11
DARS Officers	11

Building a "Super-Roc"

By Scott Cook

Exactly what is a Super- Roc? A Super Roc is a very long skinny rocket with a minimum diameter to the motor diameter chosen to be used. Micro Max and up motors can be used. When built for 'F' or 'G' power these can be ridiculously long, a.k.a. Stupid Roc. Motor selection can be critical as the power increases so does the stress on the airframe. Will it go up or fold up?

NAR rules state that a super- roc is a single staged model whose body length is no less than the minimum allowed for the class of the event. The purpose is to achieve the greatest altitude possible with the longest rocket without impairing the structural integrity of the rocket. Super-roc 'F' class minimum length is 200cm, maximum is 400cm, 7 1/2ft-13ft. Scoring points is length of rocket times the altitude flown. Therefore the longest rocket can really rack up the points.

I have built two of these, one about 5 years ago. This was a kit from Aerospace Specialty Products called the Tall Boy. Based on the BT60 tubing, it was 10 ft tall with balsa fins and parts and was very light for its size.

This was designed for 24mm D and E power, although D power worked, 150 ft was all a D12 could muster. The E9 is a great park flyer, low and slow, about 300 ft. Flown with Aerotech E28 performance changed dramatically. Now it zipped off the pad to about 1000 ft.

This could be flown with a low

thrust F, but I haven't tried and the manufacturer did not recommend F Power.

This kit was supplied with two 3/16 launch lugs, this proved to be its weak link. The launch rod would bend and sway in a light breeze. Upgrading to 1/4 lugs and adding a third lug higher up on the next body section improves it flights.

The second one I built was for a DARS 'F Super Roc' contest. I loosely based my design on the Tall Boy. I also used BT60 tubing 4 tubes 2 1/2 ft ea, but changed the motor mount to 29mm.

A solid bulkhead was added to the second tube to isolate motor and altimeter ejection events. The first tube also incorporates an ejection baffle in the coupler.

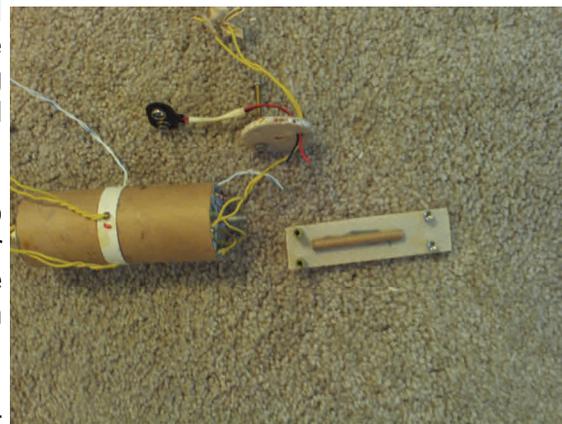
The fins were thin and sleek Formica. Through the wall mounting made them strong and durable. A lump of dense epoxy was added to the lower centering ring during assembly, this was later drilled and tapped for screws to retain the motor.



Thin formica fins, 29mm mount and rail buttons signal a desire for strength and performance.

Nose cone is balsa and was secretly stolen from the Tall Boy. The tube couplers needed to be strengthened. Adding a thin layer of fiberglass to the inside made them much stronger. This was to prevent the fold up version in the up part of its flight.

Rail buttons were to be used to keep the rocket from bending in the wind while on the pad. I glued 3 threaded inserts to body tubes, 2 on the lower and 1 on the second tube.



The specially designed ebay

It was my thinking that an F powered rocket would go quite high and an alternate method of recovery would be needed. I designed an altimeter coupler section for the Perfect Flite altimeter. This was time consuming to build and added more weight too. My deployment strategy was to eject a body section at apogee with the altimeter, and eject another body section with the motor using a long delay. This would tumble to 300 ft and

the altimeter would then deploy a parachute for a safe recovery.

For the flight I chose an Aerotech F40-10. This would give a solid thrust and a long burn for greater altitude. Although it didn't fly at the DARS event, it was flown at Airfest 16 in Kansas. The design was given a few strange looks and safety concerns by range officers, but after a brief description of building methods, it was cleared for flight.

The flight went up nice and straight, separated at apogee and again a few seconds later. As it began to descend it worked as intended, tumbling to 300 feet and ejected the nose cone for the chute. However the chute didn't come all the way out and it hit the ground. The 3 sections slowed it down enough and it recovered fine. Post flight check, the chute was packed a little tight and a ½ gram charge wasn't enough to push it out.

The flight was only 664 ft. Why was it so low when the Tall Boy went much higher on an E motor? Although both rockets looked very similar, most of my parts were heavier. The 29mm tube is thicker than the 24mm. Formica fins, although very thin still more than the balsa ones. Rail buttons instead of tubes. Couplers were fiber-glassed, dense epoxy was used in the motor mount construction and the addition of an ebay with a 9 volt battery alone totaled nearly 6 oz. There was a lot weight penalties making it stronger, but was it so much for an F40?

The next time it will be flown without the ebay. I will also try it with a G motor using the ebay. This was intended to be a high flyer, but along the way it just became an-

other rocket in a collection that hopes to have many worthy flights only for the enjoyment of flying.



Scott's F Super-Roc in all it's glory. It may be a bit heavy, but it really looks great! Notice the "official DARS colors." Hopefully Scott will bring her out to a launch soon!

All photos by Scott Cook

The Alien Invader – What’s New is Old Again

By Gary Briggs

Back in the 70’s we used to order from catalogs. We would write out an order on paper (an order form if you were lucky), slap it in an envelope, put a stamp on it (which cost next to nothing at the time) and send it off to points unknown. Well, actually, you did have to know where it was going or the rest of it probably wasn’t going to work out. Then the waiting and the faith started to kick in. It generally took 6 to 8 weeks for your purchase to return to you, and by the grace of the rocket gods, you may be lucky enough to get everything you ordered (meaning they could actually read your order form and that you did your math correctly and sent enough money to actually get what you requested). Certainly not the instant gratification of placing an online order and having it delivered to your house in 2 to 3 days, but things were much simpler then.

Somewhere in the late 70’s, I performed this amazing task of filling out an order form and sending it off to Estes in Penrose, Colorado. I was ordering my third rocket, an Orbital Transport. I had already built my first rocket, a Javelin in 4th grade science. I could remember my older neighbors bringing home their rockets on the bus from their 4th grade builds and thinking that those things were very cool. I had also been invited to a few launches that my neighbor had, which got the bug cranked up, so I was more than ready for Mrs. Paulus’ class when it finally happened. That

first launch ended in partially ejected lawn dart, but I was hooked. Believing that I had mastered skill level 1 rockets I moved right on to an Apogee II at skill level 3. I didn’t find the 2 stager all that challenging but also didn’t have it all that long. I remember painting it sky blue and blasting it out of sight on the first or second flight. Oh well, onward and upward.

That brought me to ordering the Orbital Transport. I don’t remember exactly what the deal was at the time, but I think it was probably similar to the coupon pictured, where you ordered a certain amount of gear to get another rocket, that Estes had too many of, for free. That rocket was the Alien Invader. (Considering that the Vigilante was a \$6 rocket and the Invader was only a \$4 rocket, I really should have used this coupon...) I remember building my first Alien Invader and thinking it was cool because the paint job was pretty simple, but with the decal the rocket looked very space age and slick. And with my limited skills at the time, that was saying something.

Surprisingly, that rocket lives with its original paint to this day, some 30 or so years later, and has made appearances at most of the Fall Classics. I have thought about re-doing it a couple of times, especially once Excelsior started making decals for it, but something about keeping it original appealed to me. It is a time capsule to a different place and good times. Then Estes came along with the Classic Series, and I had

to have another one.



The coupon and what’s left of my original kit, displayed with the new kit.

The reissue Estes kit is of good quality. I have to give them kudos for the balsa in this one and the Interceptor I built last year. In both cases the wood was of good quality without huge voids in the grain to fill. Laser cut fins are a must on this one as all those rounded edges will make you a bit crazy with your X-acto knife. The tubes were OK although a bit out of round and not all that heavy. There is one part of the new kits that I despise, and that is the blue tube motor mount. I find these far too flimsy for much use and always upgrade these. While I am at it, I attach a Kevlar shock cord and do away with the rubber band and the tri-fold mount. They had their place in the 70's, but some things have gotten better since that time.

On day one I built the updated motor mount from some Semroc parts I had. I hit the balsa sheet with my detail sander and cut the main fins out of the sheet. On the round edges I used my sanding stick, which is a handy little tool I found originally in a guitar tools catalog. I have since seen these available at Hobby Lobby. They are very useful for detail sanding in small areas, which covers a lot of ground with model rockets. I then placed the fin plans under wax paper and glued together the main fins. I have had a piece of glass on my garage workbench for several years now. I use it as a flat surface for sanding fins, and in this case, a surface for gluing these multi-part fins together. It is easy to clean and ensures I don't have foreign substances poking into the fins. I can remove glue, fiberglass resin, solder, and whatever else lands there with a razor blade and the shop vac. After the

fin parts were glued over the plans, I covered tops with wax paper and covered that with a piece of plexi-glass and a paint can to keep it all flat. I have used this technique in the past for multi part fins and when using fiberglass in the smashed-under-glass technique. I found that wax paper is important with wood glue since I once stuck a fin to the glass with such force that it pulled wood out of the fin to get it unstuck. The last part of day one was putting CA into the body tube to give it additional strength, especially along the front edge, and marked the tubes for fin and lug placement.

On day 2, I shaped the fins and started gluing them to tubes. I did the nacelles first and then put the multi-part and larger rounded fins on the main body tube. I canted the main fins so that the tips were lower than the root edge, per the original instructions. I think this was intended to give the rocket more of a Klingon Bird of Prey look, with a much simpler set of components. I taped the rocket to a box to give me a reference point, to keep the wing tips at the same point. Flight dynamics probably become a bit more interesting, but I doubt it really changes that much. The rocket was pretty irregular to start with

After adding fillets to the fins with Elmers Wood Filler, I went back and shaped the leading edge of the multipart fin to match the edges I was putting on the rounded fins. I also started the cleaning and filling process on the nose cone. I was so glad to see them bring back the original cone, as early press release photos of this rocket showed it with a stan-

dard ogive that just didn't give it the right attitude. After cleaning the nose cone with hot soapy water to remove any mold release, I lightly sanded down the high spots and then filled the seam with glazing compound, which I later sanded smooth.

All the fins were given 4 coats of Mid West Sanding sealer, generally applying 2 coats back to back and then sanding, and then repeating. The body was then primed with Rustoleum Automotive Primer and Bondo Glazing Compound was used in between sanding coats to smooth out anything that the primer wasn't going to be able to fill. I debated on a couple of color choices and thought about using some Model Masters Metallic Black, but decided that it would clash with the decal. I couldn't find a yellow that I liked much better than Rustoleum Sunrise Yellow, and stuck with the old standby of Rustoleum Gloss Black. I also decided to skip the step of painting the inside of the nacelles orange, per the original paint scheme, opting instead for the cleaner look of all black according to the modern plans.

In applying the decals, I discovered something that the beta testers must have missed. They changed up the instructions from the original to move the dowels on the nacelles a ¼ inch further up the tube. This may have been done to fight the issue that my old one had to occasionally pop the nacelles off the fins on hard landings. The problem with making this move is that it didn't adjust for this with the original decals, which were designed to fit into that entire space. I discovered this far too

late to change anything structurally, so I was forced to trim the decals to fit into the space. It really isn't all that noticeable, but now that you know this you can either trim the dowels shorter or build them like the original and hope they are adequately attached so that old problem won't be your problem.

At the DARS Fall Classic VI, I displayed both AI's together, but neither garnered many votes, as competition was stiff across a broad field of rockets in the Classic Classic category. I probably would have been smarter to have put it down in Starship, but I wanted the bonus points for my original 1976 catalog. I had planned to fly it during the day, but got way too busy to even try. I did manage to get it into the air at the November launch. It was a little bit windy that day so I wasn't exactly sure how it was going to do. I opted for a B6-4 to see how it would do in the wind. The first flight took off in a decent lull in the wind and had a nice, relatively straight flight. I went back to the range box for another engine and discovered I was down to some B6-4's that I got from my brother that were originally my nephew's. That puts them about in the Regan administration, but I was pretty comfortable that they had been stored well. It seemed appropriate considering the rocket. The second flight came off the pad equally well to the first, but was then hit by a gust of wind that spun the rocket around after burn out. Still the delay was short enough to get the laundry out well before the ground caused any problems. Thanks to Bill Gee for getting the great flight

shots.

Overall, this was a fun build of a rocket that looks reasonably complex, but is really pretty simple. For me it was part of a combined build of the AI, a Centuri Mach 10 and Centurian. This one was a nice stroll down memory lane, and was probably the first rocket I have ever built twice from kits, separated by some 30 years.



Now we know what those aliens look like.

All photos by Gary Briggs, except as noted.



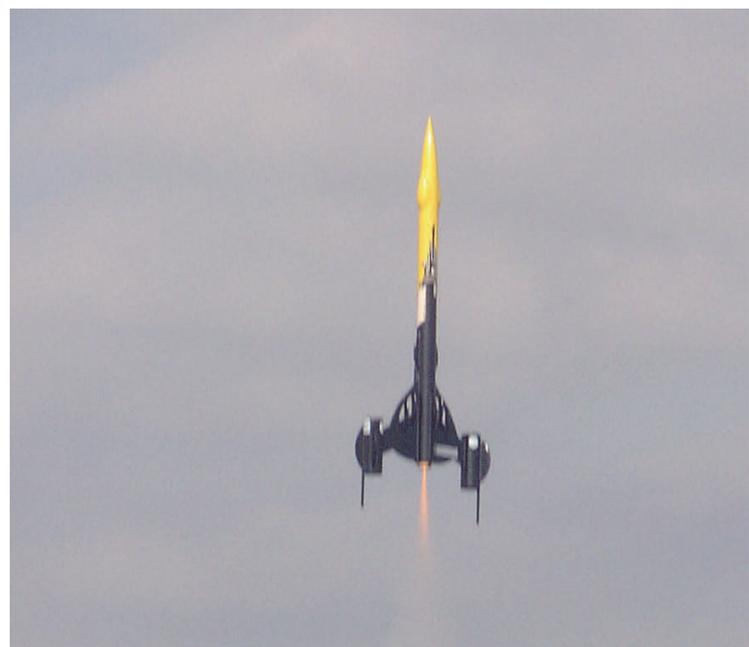
It could be 1976 all over again! The Interceptor, AI's (the new one is on the right) and X-24 Bug are mine. The Sky Dart and the Omega are Sam Barone's.

Right: Aliens in motion!

Bill Gee photo



The 2010 Fall Classic contingent minus the Black Widow.



DARS End of Year Photo-Rama!!!

Or "Stuff We Would Have Run Last Time, But We Ran Out of Space"



These four pictures are a very cool series showing Mike McFadden (in the blue shirt) loading and flying his beautiful Saturn V at the DARS Fall Classic VI.





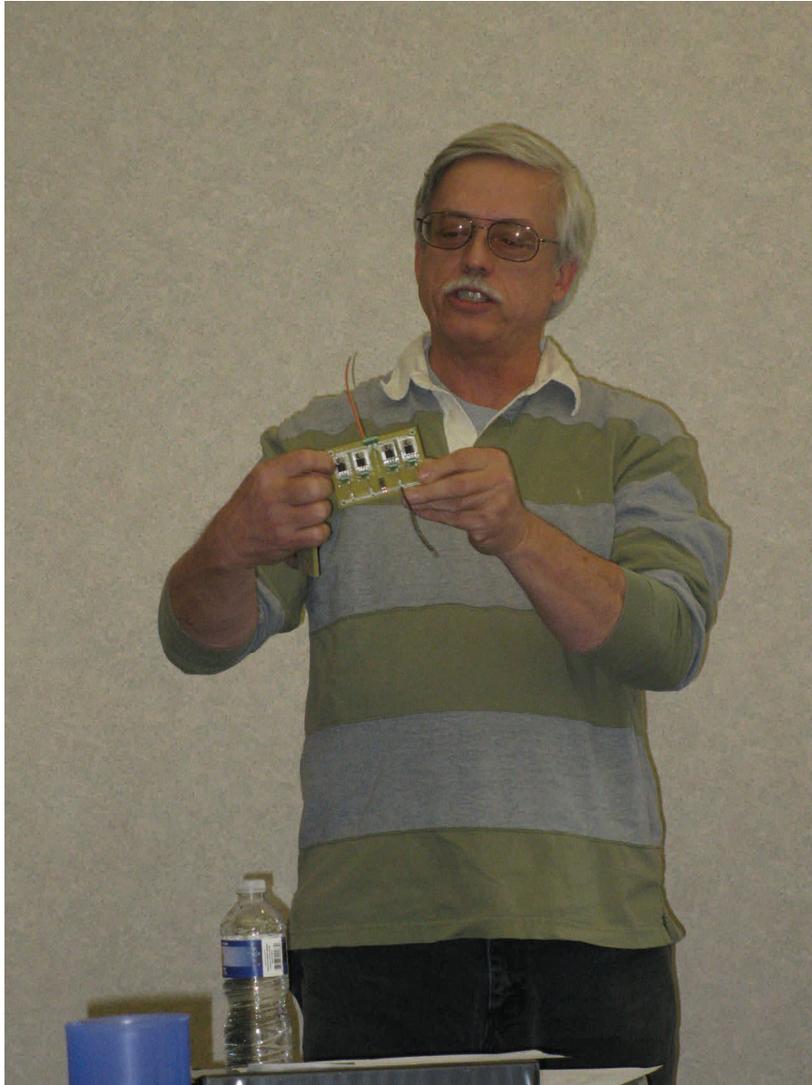
Proof that Gary really was very very busy at the Classic!!!



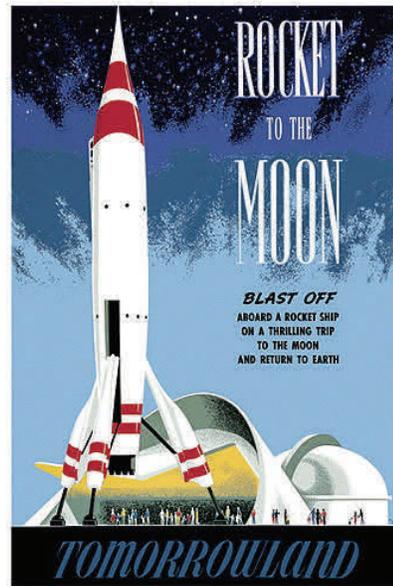
Left: The Estes version of a Super-Roc, the ever popular "Mean Machine"

Right: A mid power bird screams into the sky!!!



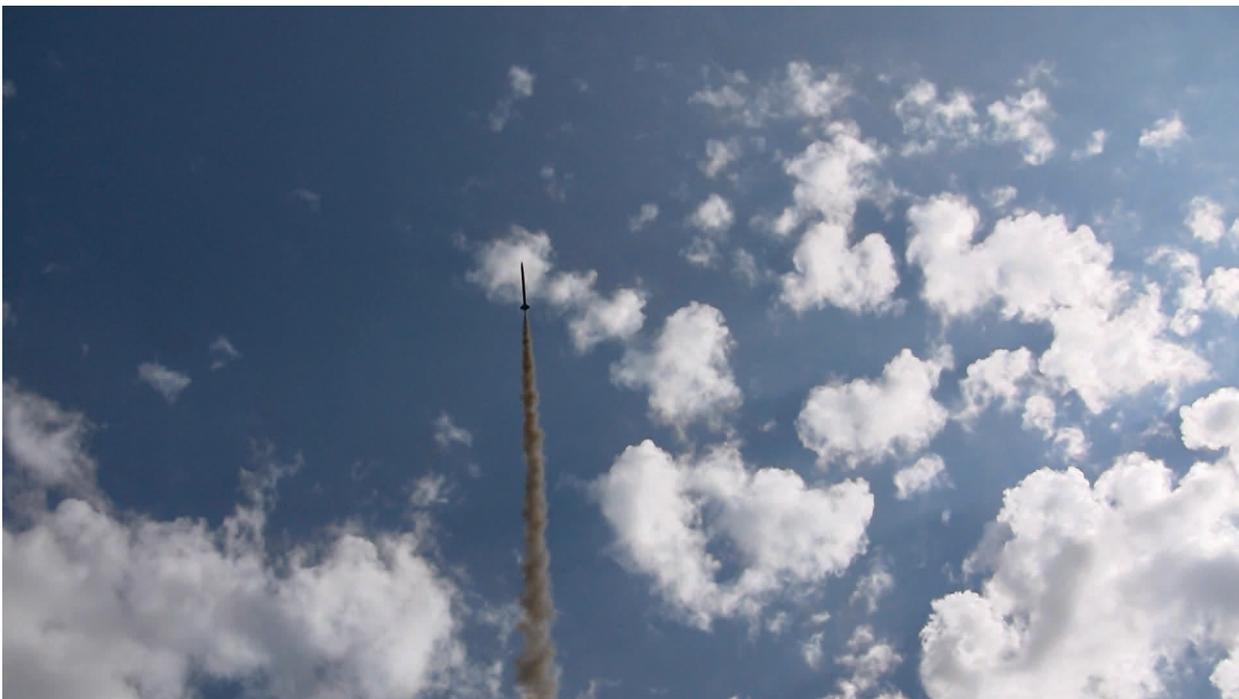


Left: There is a lot of great info at the DARS meetings every month. Here, Jack Sprague explains some finer points of rocket electronics.



In 2011, I resolve to not try to put the Moonliner into every issue....

Below: I thought this was a great parting shot for 2010. Now on to 2011!!!



How to Contribute to Shroudlines

And now for the “last page begging part” of our publication. As I have made clear in the past, without you, we have no newsletter. We all have differing interests and areas of expertise, and that is exactly what this newsletter needs!

Once again, I'd like to thank all of those who have contributed material so far. You are very much appreciated! Still, we need more! Therefore, if you have any kind of article, picture, cartoon, rambling, etc., just send it to stu29573@yahoo.com. I usually work best with Word documents, and JPEG files, but I can make just about anything work if I have to. I can also handle stuff that is written down, but that means I have to type and that can be a bit touch and go... But I'll take it anyway!

You can also give me things at the meetings (which I almost never miss...almost), and I promise to try my best not to lose them. I can return stuff at the next meeting if need be.

As I have said many times in the past, I really want this newsletter to be by the club and for the club. You guys can think up much better stuff than I can (as is evidenced by the articles we've been getting lately). So, stop just thinking about maybe writing something and actually do it! You'll be glad you did! (as will everyone who reads it!)



DARS Officers

President	Jack Sprague
Vice President	David Shultz
Treasurer	Suzie Sprague
Secretary	Bill Gee
NAR Senior Advisor	Sam Barone

DARS

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 and fill out and send an application to join or renew your membership.

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

Visit the DARS website for the meeting location: www.dars.org



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

Vendor Links (* DARS member discount—confirm before ordering)

[Aerospace Specialty Products](#)

[Apogee Components](#)

[BMI Hobbies \(* 10%\)](#)

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[Excelsior Rocketry](#)

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