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## Dallas Area Rocket Society ("DARS")

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# SHROUDLINES

A Dallas Area Rocket Society Production

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A Newsletter of the Dallas Area Rocket Society



DARS  
NAR Section #308  
Jan/Mar  
2005

Volume 14, Issue 1

## Dallas Area Rocket Society ("DARS")

Level Four

By Dennis McClain-Furmanski



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

### Special points of interest:

- Thought about buying a Semroc Laser-X. Check out John Dyer's review of the kit.
- Doug Sams provides an excellent "how-to" for some nice modifications of the old Estes Apogee kit.
- The DARS events calendar for 2005 is provided again. Make plans to be at the next Outreach, Launch or other event. Be sure to mark your calendar for the Jim Turner Memorial Launch in May. Pelham Swift, our launch director for that event, is going all out to try and make it one of the best ever DARS launches. So, dust off those rockets and put one up there for Jim.

### Inside this issue:

- Laser-X: A Kit Review 2
- Apothree and Bettergee—Astron Apogee II Morphs 3
- DARS Events 4
- Membership Application 7

(Editor's Note: I'm always amazed at the talent of our members. Dennis sent this article to me, and I almost fell over. It is super! It certainly is the first poetry I've received for publishing in the newsletter. It definitely is one to remember, and with a theme near and dear to my heart...front page stuff, in my opinion. I hope you enjoy this as much as I did. Thanks, Dennis! He also wanted this dedicated to A. M. Ember.)

While sitting through a meeting boring,  
leaning back and almost snoring,  
waiting til I could hit the door,  
Someone speaking caught my attention  
as I thought I heard them mention  
something awesome,  
quoth the member, "Level Four".

Instantly I was alerted,  
sat straight up and nearly blurted  
"WHAT?", but I listened more.  
"You think you've done it all, you see,  
well you can take it straight from me,  
there's more."  
Quoth the member, "Level Four".

"What is this thing?" I nearly shouted,  
slammed my fist and fairly pouted,  
"I'm signed up for LDRS 24."  
An enigmatic smile arose,  
and that is when he chose to challenge:  
"But can you earn your Level Four?"

"Carbon fiber! Aramid! Fiberglass and rails!"

Upon my sensibilities assails  
a seething and a frothing. "I'm known at  
ever hobby store!"

"I mix my own perchlorate! My very  
hands can judge the weight!"  
"Hybrid N Power! There CAN'T be  
more!"

Quoth the member, "Level Four".

Then at the door there was a grouping,

and in a bunch of kids came trooping  
carrying Estes, Quest, Squirrel Works kits  
and more.

Hobbies knives and yellow glue, but they  
weren't sure just what to do.  
I could help, but I needed to hear more  
of this thing called Level Four.

"How do I do this?" one kid asked me,  
then stretched his arm out past me.  
I grabbed the glue he'd almost knocked to  
the floor.

"Let me show you", I then told him.  
"First you cut and THEN you fold 'em."  
and I clean forgot about Level Four.

Balsa sheets and chutes of plastic,  
our little build time was fantastic.  
"Thanks for the help. We'll come back  
next time,  
and maybe we can build some more!"

And as they left I realized  
that this was the kind of time I prized,  
when I was learning rocketry from the  
ground floor.  
Saving up, ordering, buying  
building them and finally flying.  
What fun I'd had! And just now I'd had  
some more.

While musing on this lesson relearned,  
someone called me, and so I turned,  
to face the member I'd confronted before.  
"There'll be no more BARS you see,  
if we don't make them, you and me.  
You must pass along what you have  
dreamed,  
so others can dream that dream some  
more."  
And with that he shook my hand and  
looked at me and beamed,  
"Congratulations, you just made Level  
Four."

### Laser-X: A Kit Review By John Dyer



the effort of laser cutting the fins.

The instructions are well-written and amply illustrated. A few of the illustrations are reminiscent of those in the original plans. Construction is straight forward in a logical order and the instructions were easy to follow. I tend to jump around a bit while working on a kit – while glued parts are drying I continue on to the activities I like to do (build parachute, assemble motor mount, etc). I found that the instructions were laid out almost the way I build.

The paper shroud is a bit hard for old fat fingers (gee, I must've been a lot thinner and more nimble in my younger years). I went ahead and assembled the paper shroud as the instructions suggested, but if I were to do it again I would use two sided tape and eliminate the fumbling. I definitely prefer the Kevlar shock line attachment method over self-stick shock cord mount. This attachment method produces a more reliable and longer lasting attachment. It's easier to replace the elastic shock cord when it becomes old and brittle.

Rather than use a double-glue joint, I used CA glue to tack the fins in place and then added white glue fillets to reinforce the joint. I also placed one of the small discard discs from the centering ring card on the base of the ST-5. This is just a preference of mine. I applied 3 coats of white primer on the model, sanding between each coat.

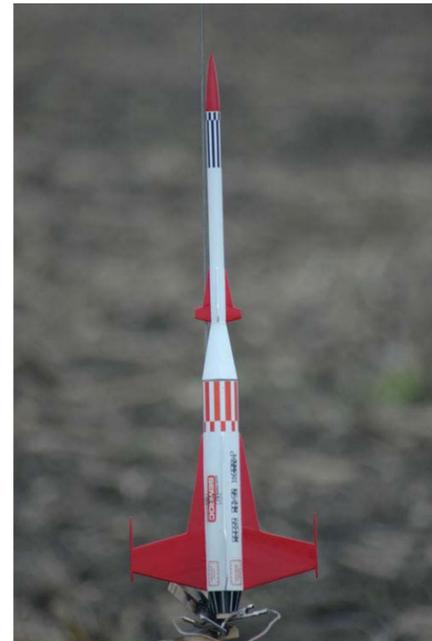
The decals are not as good as I expected – they're very thin, and easily damaged. I put a coat of clear on the model, but the large roll pattern still tore loose on the first flight. I may end up purchasing a set of Laser-X decals from Tango Papa as replacements.

Overall, I really enjoyed building the

kit. The model looks very majestic on the Launch Pad, and flies like a dream. The decal problems are a minor setback – I would highly recommend this kit to anyone.

--John

Below are a couple pictures from the DARS website that Bill Gee took of John's Laser-X at S4S last year. (Editor)



The Laser-X by SEMROCS Astronautics Corporation is an excellent reproduction of the old Centuri Engineering kit. Changes were made to update the kit as needed. The shock cord attachment uses Kevlar line, and the parachute is smaller and sports the SEMROC logo. A few of the decals are also different colors from the original.

Many of the "Born Again Rocketeers" (BAR's), and those of us (like me) who never left the hobby, will "wax nostalgic" just opening the kit. I became a kid of 16 again – remembering the fun I had building and flying my original Laser-X. The quality of the kit equals the old Centuri line as well. The body tubes, nose cone and other parts are of the highest quality and precision with clean crisp cuts and lines. The only issue I had with the kit is that the balsa was of a very light grade, which is a shame, considering they went to

### 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

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

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

(Continued from page 5)

to secure the hooks in place. With the 10.5mm adaptor installed, the need for the bend in the hook becomes obvious. Here's a great shot (Figure 14) showing the hook on the Bettergee booster. A U-bend was put in the piano wire, then curved to contour to the tube. Nylon mesh was glued over it to hold it in place (Figure 15).

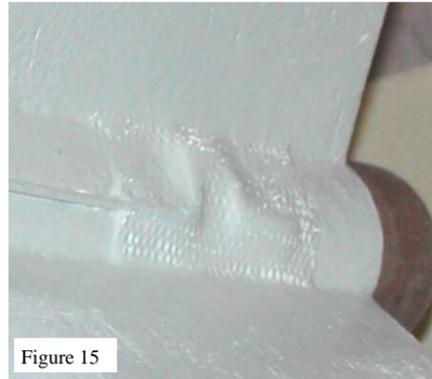


Figure 15

Getting the fins aligned fore and aft on the booster sections required those special tools, again (Figures 7 & 8). There's still some work left to do before the Apothree/Bettergee will fly, but it should prove to be a very flexible design. My stash of Estes A10-0T's, 1/2A3-0T's and A3-0T's will give the Apothree boosters some work. My Apogee B2-0's and MPC A3-0's and B3-0's can be flown using the Bettergee adaptors.

And with a B6-0 staged to a T motor, it can be flown at club launches, too.

Doug

(Editor's note: When Doug submitted this to me, he may have intended for it to be seen as two different articles. I didn't want y'all to be short-changed in this issue, so I included them both together as one article. Hope you don't mind, Doug! ;-) By the way, if you haven't visited Doug's site (it's on the DARS member pages) you really should go by and take a look. He really does have a lot more there than just Midgets! ;-) Besides getting a great sense of how Doug feels about his family (Yes, he's more than just a great guy. He's a big-time family man, too.), he has tons of helpful tools and hints on his site (like cluster patterns for just about every conceivable modroc combination you might want to build, and alternative build designs for the Mars Lander that make it a much more functional design). Thanks, Doug!!! One more thing. Watch for Squirrel-Works release of "Doug Sams' Tuber." This is a really cool 2-stage rocket Doug designed. Don & Terri Magness talked Doug into letting them release it as a "signature" series kit. Be sure to visit [www.squirrel-works.com](http://www.squirrel-works.com) in the near future to order your kit. I think they plan to release the 1st 100 with Doug's signature on the face card. As popular as Doug is around the country (yeah, he really is), they won't last long. So, you'd better contact Don & Terri and get your kit reserved, or you may miss out. Oh, and I almost forgot. I added the pictures below of Doug. He isn't a real modest kind of guy, so I don't think he minds. VBSEG!



Pics at left by James Gartrell

Far left— Doug with a VBSEG at one of the DARS meetings and holding Scott Shaw's V-2. BTW, I have a nice picture of Scott's V-2 taking off at the Rockwall site with the clips falling away about 30 feet in the air. Very cool!!

Immediate left—One of my favorite photos (I put it in an earlier newsletter too, I think). I believe, here, Doug is blessing Scott Hunsicker's old motors. It's sort of an inside joke. ;-)



Figure 14



### Apothree and Bettergee—Astron Apogee II Morphs

By Doug Sams



Figure 1

The Astron Apogee (Figure 1) was Estes' first two-stage rocket and soon gave way to the improved Apogee II. Both are minimum diameter birds powered by 18mm motors. A C6 to C6 combo will not only put one out of sight, but can send it to rocket heaven.

Inspired by this classic kit, but wanting to do something a little different, I came up with the concept of the Apothree - a three stage version disguised to look just like the Apogee II. Having overpowered a Quark on an A motor soon after becoming a BAR, I understand the unpleasantness of overpowering a model rocket, especially a classic clone that stirs strong emotions for today's middle aged children of the space race. Nobody wants to lose a rocket.

Rather than flying on 18mm motors, the Apothree was engineered to use 13mm motors, thus limiting the original's total impulse from C-C down to A-A-A at most, and greatly improving the chances of getting it back. The Apogee II's booster, at 3.5" in length, can accommodate two of the shorter 13mm motors. Stretching it to 3-7/8" allows for an aft engine block for the first stage motor plus the 1/4" overhang of the 3rd stage sustainer motor.

When construction began on this bird, the A10-0T booster motors were still certified by the NAR. Like so many others, this rocket has endured long spells of inattention. During that time, the motors were removed from the certified list. Nevertheless, with a large stash of them, I can still fly the Apothree at non-sanctioned launches.

Figure 2 provides a close-up of the combined 1st and 2nd boosters. Stage 1 is 2-1/8" long and stage 2 is 1-3/4".

Boosters sometimes get fried because the staging event can result in the booster motor ejecting aft while the booster section sticks to the upper, with the upper motor blasting through the booster making it a toasty mess.

The heat of the burn causes the booster motor's friction tape to soften letting the booster motor slide out under the pressure of the burning forward motor. The cellophane joining the motors also gets heated and tends to stick to the booster section keeping it attached and exposing it to the upper's exhaust.

The solution is to add a thrust ring to the aft end of the booster (Figure 3). When the upper lights and its exhaust blasts down on the booster, the booster motor pushes against the aft block and forces positive separation of the stage, avoiding toasted booster.

Figure 4 looks down into the forward end of the 2nd stage showing the motor tube well recessed.

At left (Figure 5), the motor stack will include two tape rings. The top most band is the thrust ring for the sustainer. The band below it prevents the 2nd stage motor from sliding aft ensuring that the 2nd stage separates positively when the 3rd stage motor lights. The recess shown above right accommodates the two rings. At right (Figure 6), the Apothree boosters are shown with the sustainer positioned atop. By carefully sanding the fins, the seam between the 1st and 2nd stages is almost imperceptible thus disguising them to appear as a single stage.

Getting the fins aligned fore and aft on the booster sections required some special tools (Figures 7 and 8 on next page). The long clamp was made by sanding a gap in the jaws of the clothespin, then gluing craft sticks in place. The wide clamp

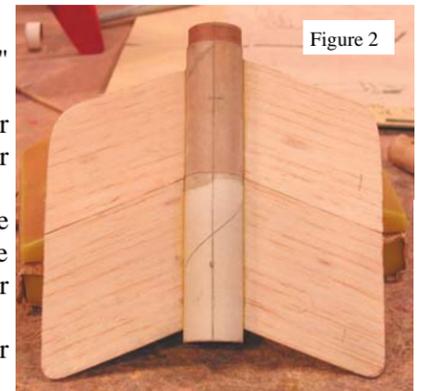


Figure 2

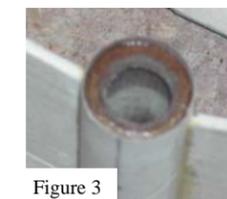


Figure 3



Figure 4

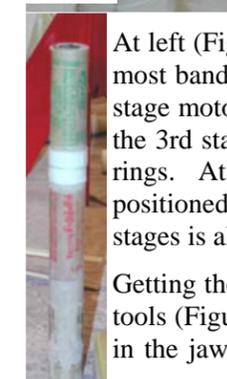


Figure 5

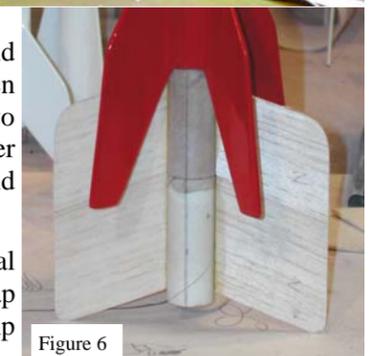


Figure 6

(Continued on page 5)

## 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. As the year goes by, I have more and more room to post that kind of information here. :-)

Besides the many events I noted here in the last newsletter, there were probably just as many events that happened but weren't noted here. At the last DARS meeting, several people filled in club members about outreach events they had attended that weren't scheduled. The Hunsicker's and others were involved in a science teachers meeting (article forthcoming), Annie Scheidemantle was involved in her first outreach event, plus a couple others I can't remember. Geez!! Let me know what's happening.

### DARS OUTREACH SCHEDULE

DATE	EVENT	CONTACT
5/7, 9am-4pm	Scout Show at Market Hall	George Sprague
5/21, 9am-1pm	Rockwall YMCA Launch	George Sprague

### DARS LAUNCH SCHEDULE

DATE	EVENT	CONTACT
4/23-24	Sport Launch—McGregor This launch includes a couple of fun contests (C eggloft duration and Cochran flights)	Annie Scheidemantle
5/28-29	Jim Turner Memorial Sport Launch—McGregor	Pelham Swift
6/18-19	Father's Day Sport Launch—McGregor	Royce Frankum
7/16-17	Hotter-n-Hell Sport Launch—McGregor	Rags Fehrenbach
8/27-28	NTHP 27—Windom	TBD, Contact Rags
9/24-25	Sport Launch—Windom	TBD, Contact Rags
10/15-16	Shoot for the Stars Sport Launch—Windom	Don Magness
11/12-13	Turkey Shoot Sport Launch—Windom	TBD, Contact Rags

### OTHER DARS EVENTS SCHEDULE

DATE	EVENT	CONTACT
1st Sat. of each month, 1pm-?	DARS Club Meetings	Rags Fehrenbach
4/17, 1pm-?	Refurbish equipment	Jack Sprague
5/14, ?	Arlington Hobbytown USA Build & Fly	Dennis McClain-Furmanski
12/10, ?	DARS Potluck Lunch	Rags Fehrenbach

Below are a few pictures taken by me while launching with my grandson, Blake, and Royce Frankum. Pictures are from 2 different days in 2004:

- 1—Royce preps his Cineroc for one of many flights I've had the privilege to watch. Blake watches in the background.
- 2—Blake launches my Cherokee-D as Royce watches. :-)
- 3—Royce sends up his Astrocam 110.



(Continued from page 4)  
was made similarly using popsicle sticks.



Figure 7



Figure 8

At right (Figure 9) is a shot of the Apothree sustainer atop the Bettergee booster. I chose to forego the payload section - these BT-20 based kits never have enough space for the recovery system, so the 2.75" of payload section was converted to additional airframe space. Instead, chrome monokote will be used to simulate the payload space.

The overall paint scheme will be the same as the catalog shot at the top of the article, but with red replacing the blue. Two sustainer and two booster fins will be black; the others white. The red should make the rocket a little easier to see in the sky.

Below (Figure 10) is a view looking into the airframe showing the kevlar thread that the shock cord will attach to just below the opening. The kevlar is anchored to the forward end of the motor tube.

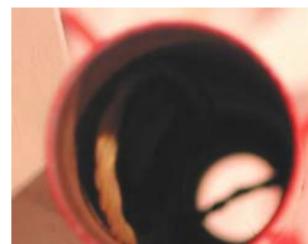


Figure 10

OK, now on to the Bettergee.

As taught by my mother, I wanted to finish what I had started, so I recently pulled the long ignored Apothree sustainer out of the cabinet and began filling, sanding and priming. While working on, I got to thinking about what else I could do with it besides the Apothree. A conventional booster was obvious, then I came up with this (right,

Figure 11).

With it, a standard 18mm booster can be used or adaptors can be inserted for 13mm or 10.5mm booster motors. I just happen to have a couple B2-0's, so they should make for some exciting flights. The coupler functions as the forward block for the 18mm motor and for the adaptors. A gap staging vent was drilled just above that point. The strange looking bend in the motor hook is there to curve around the protruding motors when using adaptors. Piano

wire was used as motor hooks for the adaptors. Squared off S-curves (Figure 12) were bent into the wires, then the S sections were contoured to conform to the tubes. Nylon mesh was glued over the bend areas (Figure 13)



Figure 12

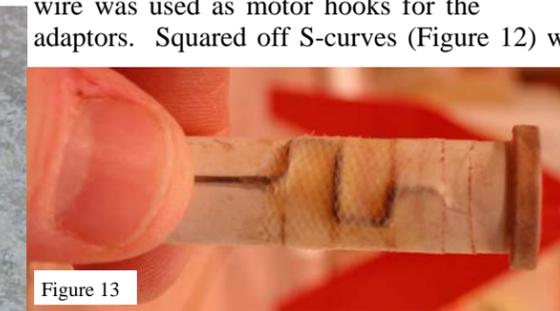


Figure 13



Figure 9

(Continued on page 6)