



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

Special points of interest:

- "Ignition!"
- George Sprague clues us in on the fine art of fibreglassing!
- Stuart Powley takes a look at the Red River Rocketry Diamond Ring Extreme.
- DARSTAR 7- A New Hope has come and gone. Here are Bill Gee's photos!
- We also have the results from that contest!
- Do you want to be in print? Page 13 tells you how!

Ignition!

By J. Stuart Powley



Hannah Kneen (John and Melanie's daughter) holds a model and explains the finer points of rocketry at the 2011 Moon Day exhibit in the Frontiers of Flight Museum. She and her family pitched in with the DARS booth rather than fly that day. What troopers! We will have more pictures of the event in the next issue!

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Well, here we are again. Although the summer has been brutal so far, I think we might be getting a break soon. Of course, DARS has been as busy as always, since we are never ones to let a little thing like heat stroke slow us down!

In this issue we have evidence of how busy DARS has been for the past few months. First, we have a great article by George Sprague on fibreglassing

fins and body tubes. Next we have a review of Red River Rocketry's latest "Extreme" kit. Then we have Bill Gee's photos from DARSTAR 7, complete with the results, in case you missed them.

Actually, we have been SO busy that we couldn't even fit a couple of things in here, so they will appear in the next issue. So, dig in and have fun!

GLASS IT!

By George "The Other" Sprague

There it is, your new model rocket kit. Somewhat bigger than the others, maybe 2 inch diameter body tube, swooping fins....wouldn't it be great to be able to strengthen all these parts, and avoid dings and zippers? Well here is one possibility: fiberglassing!

Fiberglass will strengthen your rocket and hardly add any weight. Let's take a look at the method I learned from David Schaefer at NARCON 2000, with a few tweaks of my own.

Here are the supplies needed, starting with the fiberglass cloth. Major hobby shops carry this cloth. For model rockets I use the light weight cloth, for large model rockets (LMR) and mid power rockets I use the mid weight cloth. What manufacturer? I've used SIG for the longest time; their weave is bidirectional, meaning it has equal strength in all directions. Other brands: Hobbieco, K& B, ACP.

Very sharp scissors are essential, as well very sharp single edge razor blades or X-acto blades. You will also need graduated measuring cups, wood stirring sticks, latex or plastic gloves and close cell foam brushes. The kind you get at hardware stores. Open cell sponge brushes, the cheapie sort, will break of bits as you are applying the epoxy, and you will end up with lots of little bumps to sand.

And on the epoxy, you must use the type designed to work on fiberglass. I use SystemThree (www.systemthree.com) which is

actually available in some local wood working supply stores. Check their store locator. For the fine Texas climate the #2 medium hardener works best. Why this brand? It is super easy to work



The tools of fiberglassing.

with, the ratio is 2 to 1, and the ratio is quite forgiving (meaning you can eyeball the measurements and still get it to work), but most of all, it doesn't give off fumes! There are two other adhesives you will need: gold label odorless cyanoacrylate (CA), and 3M Super 77 multipurpose spray adhesive.

Lastly, a dust mask, wax paper, and sand paper: 120, 220 or 320, and 400 grit. There will be other items I will mention throughout in

the article.

OK then! First thing to do is prepare the surfaces by sanding off that glassine off the tubes, and any rough edges on the fins. Remove all residues. Now its time to cut the fiberglass! It is best to make a template from stiff paper: for the body tube, make sure it over hangs about an inch off the ends, and wraps around so there is about 1/2 to 3/4 inch overlap seam. Not to worry, the seams magically disappear when the process is completed.

For the fins, I make sure the template overhangs all edges by 1/2 inch.

Now that you have your templates drawn and cut out, it's time to draw on the 'glass. Open the cloth on a flat, hard surface, and hold down the corners with weighted objects. The cloth tends to stretch, so make sure you keep it very flat! Place the template on the cloth, and draw the outline with a sharpie. Lightly, so you don't stretch the cloth.

Carefully cut the cloth with your extremely sharp scissors. CAUTION: the glass will shed, so wear gloves and vacuum afterwards! Guess what itching powder is made from? Ground up fiberglass. So don't get any on you!

Place the cloth on the fins and body tubes to make sure you cut enough material. Then, remove the cloth and place on newspapers. Get your spray can of 3M 77 and LIGHTLY dust each cut piece. I find it's easier to bring the fins unto the cloth, pressing them unto the cloth, then remove the fin with cloth attached from the newspaper and flattening the cloth out so there are no creases. Oh yes, do only ONE side at a time on the fins, as in the 3M 77 and

CA step (which we will see later).

The body tube is a different matter.

Draw a thin, straight pencil line down the tube. Then, hang the tube horizontally (broomstick or dowel between two chairs). Now bring the dusted cloth and CAREFULLY place the appropriate edge on the pencil line, starting from the middle and working towards the ends. Make sure the cloth is straight on the line. Then, slowly turn the tube, spread the cloth, and continue until it overlaps on the pencil line. Make sure you spread and tighten the cloth as you go along, otherwise you will have major bumps.

Let the parts sit over night. This will allow the propellant from the 3m 77 to bleed off. If you don't it will affect the CA and epoxy and you will have some interesting bubbles!

If your fins have tabs, as in through the wall tabs, remove enough cloth from the tab with a blade so the glue may adhere to the wood. Do this before sealing the edges.

Now it's time to seal the edges. Gloves are a must. Apply the CA on the tube starting with the seam, center outwards. Cover the entire seam. Next, the ends of the tube. Now to the fins. Depending on how small a tube and fins, and your budget, you may spread the CA with your gloved fingers all over the cloth. If not, just the edges will do. Make sure you soak the over hanging cloth. You will see why momentarily.

OK, CA has dried, now take your very sharp blade and trim the ex-

cess cloth from the edges. It slices like thin plastic. If there are any small ridges, CA those if you haven't covered the whole cloth, and gently and lightly sand those down. The smoother the cloth, the less sanding after the epoxy is applied.

The body tube is finished, now do the other side of the fins. Oh by the way, if you have the typical model rocket "straw" launch lug, I like to attach a narrow bit of cloth to it with the 3MJ 77, then CA it and trim it. This provides a better surface to epoxy the launch lug to the fiberglassed body tube with regular 5 minute epoxy. Score the area of attachment on the body tube for better adhesion.

We are on our way now – time to apply the epoxy. Figuring out how much epoxy to pour and mix is an art. I apply TWO thin coats of epoxy to the glass, waiting a day in between coats. I also like to save some \$\$\$ on sponge brushes, so I epoxy the tube and fins (1 brush), then next day repeat (2nd brush), tube is finished, now two more brushes for the other side of the fins for a total of four brushes used.

Using the graduated measuring cup, I draw two lines with a sharpie: one for the resin and one for the hardener. For instance, if one side of the cup shows six lines, I may count two from the bottom, mark that, then one from that line and mark it. 2 – 1 ratio with SystemThree, remember? You just have to figure out how much to mix in the cup to yield enough epoxy to cover all the surfaces.

IMPORTANT! Once you have begun the mixing process, you have to work with the epoxy as it is starting to cure. No distractions or going to the little rocketeer's room during this phase! And do this in a well lit room!

Lay a sheet of wax paper on a flat surface and place the fins on that.



A glassed body tube. It's still very lightweight and smooth!

You will need to place the body tube on a stick/pole to rotate it. Here is the George el cheapo method: I lay a sheet of plastic on the carpet in front of the couch. I slide the tube on the pole and hold it in place with crumpled newspapers inside. One end of the pole goes on a chair, the other on the couch, along with your favorite snack and beverage, and the TV remote.

Time to mix the epoxy. IMPORTANT! Wear gloves! Do not get epoxy on your skin! Hold the measuring cup at eye level, pour the resin to the first line, then the hardener to the next line. Mix thoroughly with wood stick. Using the stick, drip epoxy on the fin, spread evenly with sponge brush. Check for "dry" spots, pour a little more epoxy to cover these. You are aiming to have a thin, even coat.

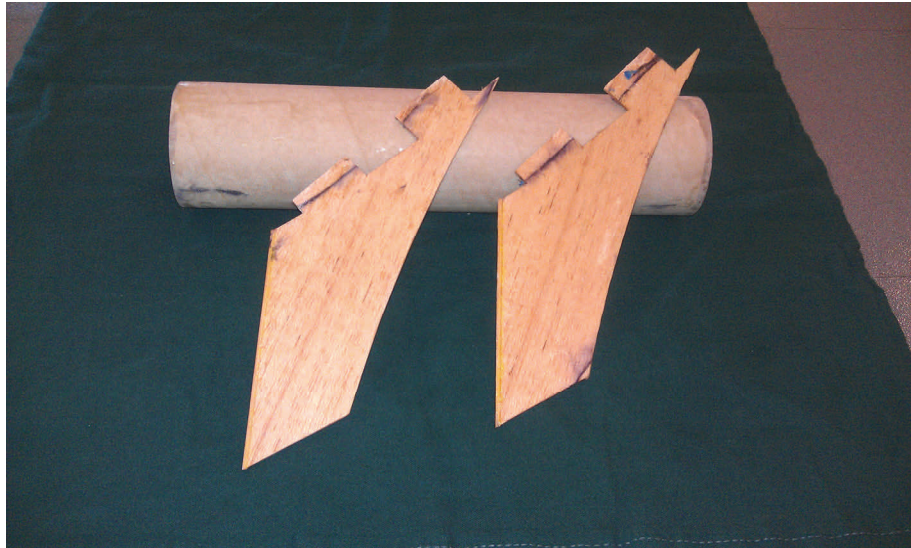
The same goes for the tube. Rotate slightly and spread the epoxy. Once the entire surface is finished, remove gloves, sit on couch with end of pole on your knee or? And slowly rotate the tube until the epoxy hardens. Why? If you don't, gravity will kick in and you will end up with a thick bead of epoxy running lengthwise on the tube. And what fun it is to sand that!

I like to leave the stick in the cup and check it until I see the epoxy has hardened, then I can stop rotating the tube. Meanwhile, I am watching a movie and enjoying refreshments.

Epoxy has now hardened, its time to let it all cure overnight, then repeat the process for the second coat. While you could get away with one coat, two are more forgiving with the sanding process, just in case you get a little aggressive!

When the epoxy is all cured, it will look wet and shiny. Now it's time to dull it by sanding. If you took the time to sand any imperfections before the epoxy was applied, you will have an easier time of this.

Wear gloves and mask. Epoxy dust is not meant for your lungs, and remember what I said about



Glassed fins and body tube. They are smooth, light, and most of all strong!

itching powder! I like to use a sanding block for the initial effort, using the 120 grit. The others I just hold with my hand. Placing the fins on a hard flat surface (I have a piece of board I can lay on my lap) wet the surface and sand away! You want to even the surface out. Remove dust with wet sponge or cloth, then sand with the 220 or 320 grit. Wetting the surface reduces dust and you get a better result. Sponge off and finish with the 400 grit. The end product will look dull, and be very smooth.

The tube I just hold and sand. You may have to sand the inside of the ends of the body tube; ep-

oxy usually winds up in there.

Be sure to shape the edges of the fins as you go along. Sponge off everything, run a paper towel or towel over everything to dry it off, let it sit a day and now you are ready for assembling and painting. If you have never done this before you will be amazed at how little

weight is added to the parts in fact, you will have a hard time telling the difference. And notice the seams have disappeared!

Any little holes or areas that may have lost epoxy can be filled in with putty and sanded. Otherwise, you are good to go!

The process takes some effort, but you will now have a strong model that will withstand the rigors of many flights and oops! moments! Happy glassing!



George Sprague's beautiful Bomarc. The reason I put this photo here is because this model plowed in recently after being caught by a rouge gust of wind. Because it was glassed, it survived to fly another day!
Bill Gee Photo

The Red River Diamond Ring Extreme Hot Rod Done Right!

By J. Stuart Powley NAR 29573

I have known the owner of Red River Rocketry, John Dyer, for quite a few years. Actually, I've known him for quite a few decades, but in order to try to avoid sounding really old, I'll stick with "years." In all the years that I've known him I can say that while he is a great friend and a heck of a rocket builder, I've never really thought of him as a mad scientist. That is, until I recognized the latest trend at his company. You see, for the second time, John has taken a really solid, cool design and beefed it up to the edge of sanity.

First, there was the P-Chuter, which spawned the P-Chuter Extreme. Both are solid flyers, but with its 29mm motor mount, the Extreme is so much fun I've seen grown men burst into uncontrollable bouts of delighted giggles.

Now, we have the second ship in the Extreme line, The Diamond Ring Extreme. Cue the giggles.

The Diamond Ring was born out of the feverish mind of Jack Sprague a couple of years ago. I built and reviewed one and was quite impressed with its performance. I'm usually not a ring fin fan, but this rocket has a great deal of zip that completely erases the images of stubby, fat, ring fins lumbering into the sky.

It must have been this performance that got John to thinking. Either that, or he had an especially

heavy meal and had nightmares. Either way, the Diamond Ring was about to evolve into a different creature. It was going to be truly Extreme!

At 37 inches long, the Diamond Ring Extreme is almost twice the size of its little sister, which makes it impressive but not so huge that performance is hurt. The rocket is, in fact, a hot rod. It is designed to take 29mm motors from F to G and show you what those motors can really do. At 10.1 ounces, the rocket has heft, but again, not enough to affect altitude or speed. One needs a good pair of eyes on this bird!

I began building my DRX (that's Diamond Ring Extreme, if you were wondering) over the summer. The first thing I noticed was that the parts were Red River's usual great quality and the instruc-

tions were clear and easy to follow.

One thing that I would like to point out is that this bird goes together quickly. A few hours of fun with epoxy and she's pretty much done. Therefore rather than go step by step in the building process, I shall hit the highlights.

I really enjoyed the way the fin rings are marked and placed on the body tube. If you follow the instructions, there is no way to screw it up. Everything is self-aligning, which is really nice. When you are done you have a "tubes-a-plenty" look that is really cool.

You should be sure to coat all stress points with epoxy, as per the instructions, including the motor mount. After all, all those tubes that look great on the rocket will look decidedly worse when fluttering to the ground after a shred or a blow through. However, if you read the instructions and follow them (a tall order for some folks) you should be fine.

Also, John uses a great, simple to construct, baffie system. The two off center tubes reroutes the



Typical Red River high quality parts and instructions

ejection gasses just enough to where they cool before getting to the chute. This should greatly reduce "RDBA." (Required Dog Barf Amount) The shock cord attaches at this point as well,

means that there is a sizable payload section up front, which is nice. By the way, speaking of the front, the nose cone is the only balsa

paint scheme from the prototype. It looks very nice and should be fairly easy for even



The pretty close to foolproof ring fin mounting system.

which makes for a sturdy recovery system.

Unlike its little sister, the DRX separates in the middle. This

part in the kit that is exposed, so there is a minimum of sand-



Tubes A-Plenty!

ing and sealing. This is a big reason why this kit goes together so quickly!

I chose to go with the yellow

my eyes to spot. I took a bit of liberty with the decal placement, but for me it wasn't radical at all. No, I can't ever finish a kit exactly the way it is in the catalog. Why? I think it's a rebellion thing. Oh well....

So, the Diamond Ring Extreme is a winner. I haven't actually flown mine yet, but I have seen Jack's fly and it screams! As soon as the temperatures get below the boiling point of lead, I'll have mine on the pad as well. Now I just wonder what John will "Extreme" next.....

**DARSTAR 7– A New Hope Photorama!
Or
Evidence That We Actually Finally Had This #^&\$@# Contest!**



*There were sport flights as well as contest flights.
Here is a very nice shot!*



This is either Gary Briggs' or Sam Barone's PMC entry. I can't tell! Gary got first and Sam got second.



Left: Whoever's model the top was wasn't, this one is. That makes sense, right?



Ted Mahler's very cool Von Braun/ Disney model. Unfortunately, it was none too stable...

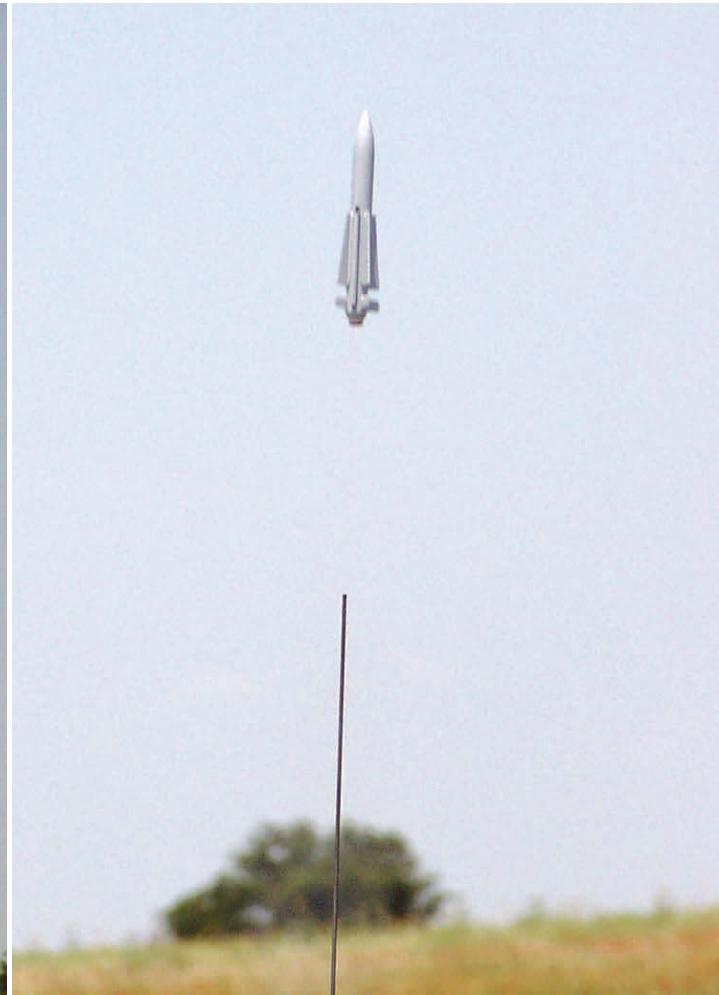


Andrew Condors PMC looked cool, but also had some issues...



Left: The Ace Disaster Company's UFO Mystery Ship under three C's. She was actually stable and flew well enough to capture fourth place!

All photos by Bill Gee



Jack Sprague got the "teeniest PMC" award for his Micro-Max Phoenix! It was stable and took fifth!

Chas Russell's third place Saturn I-B PMC.



Right: A Rocket Glider springs into the air!

Left: Another great looking sport flight.





John Young's Rocket Glider lifts off. John got third in the event.



I'm not sure who owns this Super-Roc, but it's a beauty!



Left: Jack Sprague's Diamond Ring Extreme sport flight!

Turn the page for the full results from DARSTAR 7!

All photos by Bill Gee

DARSTAR 7– A New Hope Results!

C Rocket Glide

- 1st– John Dyer
- 2nd– Chas Russell
- 3rd– John Young
- 4th– Ace Disaster Co.

Plastic Model Conversion

- 1st– Gary Briggs
- 2nd– Sam Barone
- 3rd– Chas Russell
- 4th– Ace Disaster Co.
- 5th Jack Sprague (Jack purposely took last because he was the judge)

1/2 A Helicopter Duration

- 1st- Jack Sprague
- 2nd– Chas Russell
- 3rd– John Dyer
- 4th– Ace Disaster Co.
- 5th– Andrew Condors

1/2 A Super-Roc Duration

- 1st- Andrew Condors
- 2nd– Chas Russell
- 3rd– Ace Disaster Co.
- 4th– John Dyer
- 5th– Bill Gee
- 6th– James Turner



Parting shot! A Cub Scout in full concentration mode launches his model at the June Frisco launch. Outreaches such as this one bring the hobby to a whole new generation of modelers and future scientists!

Bill Gee Photo

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	Dave 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)

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