

SHROUDLINES

A Dallas Area Rocket Society Production

DARS
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Vol. 11 Number 1

New Officers for 2002



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On Dec 1st the Dallas Area Rocket Society, DARS, elected new officers for the 2002 year. There was a good turn out of members at the meeting and a few new faces that joined the club.

| | |
|----------------|-------------------------------------|
| President | Rags Fehrenbach (Seated on Left) |
| Vice President | Buzz McDermott (Seated on Right) |
| Treasurer | Suzy Sprague (Standing Left) |
| Secretary | Bill Gee (Standing Middle) |
| Sr. Advisor | Tim Sapp (Standing Right) |

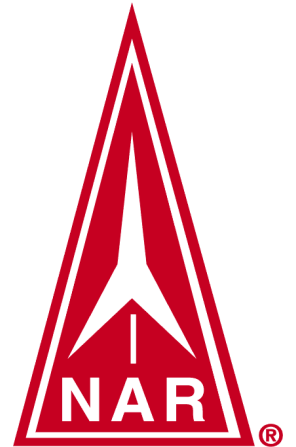
Dallas Area Rocket Society Celebrates it's 30 year anniversary

Year 2002 marks 30 years as being a NAR section.

Get ready to fly some rockets this year... Since we are celebrating 30 years we are going to schedule 30 days of flying rockets in the DFW area.

There has even been some talk of having a nice banquet, if there is enough interest.

If you can think of a way that you want to celebrate 30 years of rocketry in the DFW area then drop a message to INFO@DARS.ORG. Otherwise, keep your eyes on WWW.DARS.ORG for information and a detailed launch schedule.



Reach Out, Rocketeers!

DARS wants you, and I want you, to join in on the outreach run! Buzz McDermott has taken a much needed rest from being the coordinator for the DARS outreach programs in the area. Not many realize that Buzz has been ultra busy not only coordinating these programs but also conducting them himself. Did you know that Buzz conducted more than thirty outreach programs last year alone? A level III round of applause and gratitude goes to Buzz for all his hard work.

I have stepped up not to replace Buzz, but to follow his legacy of hard work. I doubt I'll last as long as he, but at least I have no sanity to begin with, so no losses projected there. This means that you'll be hearing my Transylvanian voice on your phone or my colorful messages on your e-mail asking if you are able to conduct one of these programs. And just what does an outreach entail?

It can be as simple as conducting a half-hour talk to some Scouts regarding model rocketry. It could be a build sessions where you supervise the assembly of simple model rockets. It could be teaching a Space Exploration Merit Badge session, or helping out at a launch conducted for those rockets previously assembled. Some programs are held on week nights, some on the week-ends.

My aim is to get people who live relatively close to the outreach location to help out. I realize you may not always be available, or family and work commitments can keep you out of the loop. But if you are able to assist, you'll have a blast. The non-AP kind. And, if you've never done one of these don't worry, I'll provide you with great information. Hey, you might want to take your own kids along!

So, if you get a voice message from (972) 279-2259 or an e-mail from GeorgeTheMagician@HotMail.Com, it's that Sprague guy, in other words, me, inviting you to don your DARS logo and blast off into fun!

Launch Schedule

This is going to be a busy year for DARS and the Dallas\Ft Worth area flyers. We now have a schedule for launches through the rest of the year.

February

| | | |
|---------------------------------------|--------------|-------------|
| 16 th --- 17 th | NTHP XX | Windom |
| 23 rd | Model Rocket | Camp Wisdom |

March

| | | |
|---------------------------------------|------------------|-------------|
| 16 th --- 17 th | St. Patricks Day | McGregor |
| 23 rd | Model Rocket | Camp Wisdom |

April

| | | |
|---------------------------------------|---------------|-------------|
| 5 th --- 7 th | NARCON | Austin |
| 20 th --- 21 st | April Madness | Rockwall |
| 27 th | Model Rocket | Camp Wisdom |

May

| | | |
|-------------------------------------|--------------|----------|
| 25 th - 26 th | Memorial Day | McGregor |
|-------------------------------------|--------------|----------|

June

| | | |
|------------------|--------------|-------------|
| 22 nd | Model Rocket | Camp Wisdom |
|------------------|--------------|-------------|

July

| | | |
|---------------------------------------|-------------|----------|
| 11 th --- 16 th | LDRS | Amarillo |
|---------------------------------------|-------------|----------|

August

| | | |
|-----------------------------------|--------------|----------|
| 2 nd - 9 th | NARAM | McGregor |
|-----------------------------------|--------------|----------|

September

| | | |
|-----------------------------------|------------|----------|
| 7 th - 8 th | NTHP XXI | Windom |
| 21 st | LMR launch | Rockwall |

October

| | | |
|-------------------------------------|---------------|-------------|
| 19 th - 20 th | Shoot 4 Stars | Windom |
| 26 th | Model Rocket | Camp Wisdom |

November

| | | |
|------------------------------------|--------------|--------|
| 9 th - 10 th | Turkey Shoot | Windom |
|------------------------------------|--------------|--------|

December

| | | |
|------------------|--------------|-------------|
| 14 th | Model Rocket | Camp Wisdom |
|------------------|--------------|-------------|

Launch Notes:

1. Launch names in bold signifies a national launch or conference.
2. All launches are tentative and depend on weather and support personnel.
3. Shoot for the Stars is also a night launch (Rules to be announced at a later time)
4. There is talk of changing dates for April Madness and a Camp Wisdom launch.
5. Talk to George Sprague about out reach issues at launches
6. Contact President to try and add more launches at later days.
7. Can you really read print this small? If so then you need to be spending more time building rockets and not reading this stuff I really like small print! Tim Sapp

Model Rocket Outreach Presentation and Launch

I wanted to let all of you know the results of the model rocket outreach presentation and launch I provided on January 17 for Ms. Lee and Ms. Baker's fifth grade classes at the Garland Christian Academy. There were about 50 children present. I was the substitute for their Science hour.

I showed up about 9:30 in the morning and set up the launch pad. Temperature was a little over 40 degrees with a wind of about 8 to 12 mph. Good day for a launch. On the way to the class, a couple of teenagers passed by and were checking out the rockets. Well, what the heck! I had some time to kill, so I stopped and let them check 'em out. All wanted to know if I was going to "shoot them off." I told them to check out the football field at about 10:30.

The presentation started a little after 10am in the Middle School lunchroom. I was a little nervous since this was my first rocket presentation, especially with the short time frame. Nevertheless, I got through it pretty easily. The boys and girls asked lots of good questions and were very attentive, which made me feel more comfortable. I have to admit that I had to dig really deep to get an answer for one of the questions. By the way, how do they really launch the missiles from a jet fighter? I also passed around the two rockets I planned to launch, and they made it back without damage. Whew! By the way, don't ask a class of fifty children if they're ready to see some rockets launch. The response will be a deafening, "Yeah!!!"

Ms. Lee and Ms. Baker lined the children up and all followed me out towards the football field and the launch pad. After walking them through the steps of prepping my Estes Rascal to launch on an A8-3, I picked up the launch controller. Immediately, they all started the countdown in unison. 5 4 3 2 1 !!!!!!!!!!! Ignition. Yaaayyy!!!! Perfect boost to about 130 feet with parachute deployed at the top, and another roaring cheer from the children. I heard another far away cheer behind me. When I turned around, there was the boy's Bible class, their teacher, and a few other administrators standing outside the Middle school. I would have liked to hear them convincing their teacher to let them come

out and watch. Next, I prepped my Custom Twister to launch on a 1/4A-3-3T. Perfect boost to about 75 feet, but the rocket was already headed down when the ejection charge went off. It shot the rocket toward the ground, so not much time for "twisting." The engine mount probably shot another 50 feet into the air with the streamer unfurling behind it. That got the biggest cheer of all. The boys and girls recovered the rockets. One girl came back with streamer flying high over her head and asked if she could keep the pretty little flag. I couldn't resist. I ripped it from the engine mount and gave it to her. Off she went with about 5 other girls hot on her heels. During all of this, several children came up with hand extended and thanked me for teaching them about rockets. I cannot convey the satisfaction felt as I shook those little hands. If you're lucky enough to present an Outreach program, you will have more fun than the children. I guarantee it!!

James Gartrell
NAR# 79465

The Pro38s are HERE!

Local motor man Jim Turner, JRTurner@AOL.Com, has recently received his shipment to Pro38 motors and hardware from Cesaroni Technology Incorporated (CTI) of Canada. There are currently 6 reloads in the inventory and six cases. No, the hardware is not compatible with AeroTech, Dr. Rocket, or Ellis Mountain, you will have to get new hardware. However, they are cheaper and much faster to build and the adjustable delay just about makes the change worth it...Here is a list of the motors that Cesaroni are making and shipping

The first part is the total Newtons (137)
Second is the Motor Class (G)
Third Average Thrust (60)
Fourth Unadjusted delay time. (12)

| | | |
|-------------|-----|-------------|
| 137G60-12A | and | 265H110-13A |
| 402I170-15A | and | 540I240-15A |
| 670J300-15A | and | 800J360-15A |

*Check WWW.Pro38.Com for details
Call Jim Turner to get them at the next launch!*

The Estes Big Bertha has been a popular rocket for more than 30 years. For many rocketeers, it was their first big rocket, and it holds a special place in the hearts of countless BAR's. With three in my collection plus a BT-5 Baby Bertha and a Quest Big Betty, it is one of my sentimental favorites. I've had the one show here since circa 1970.



A recent article in the NAR's Member Guidebook illustrates bashing the Big Bertha into its nearly identical twin, the Ranger. Key modifications include a 3-motor cluster. Another common mod is to install a 24mm motor mount.

My regular Bertha (not shown) has a 24mm mount and has logged many flights on the Estes D12, but for small field flying, it is easy to use an adaptor and fly it on 18mm motors. Seems for me that that option results in marginal flights. On more than one occasion, the C and B motors have failed to completely eject the laundry resulting in core samples and repairs. On the other hand, D motors will easily over fly small fields such as the one at Bob Woodruff Park in Plano.

What would be ideal is a high thrust, low impulse motor to get the rocket moving quickly for stability while keeping the altitude down to an acceptable level. The forthcoming Estes C11 might be just the ticket, but they're not available yet. A pair of B6 motors might be a good alternative, too, and the double ejection charges should get the chute out with authority.

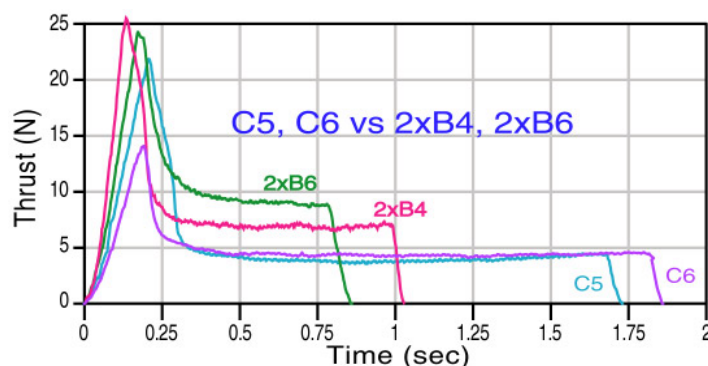
All this got me thinking: Is there a way to build a Bertha with changeable motor mounts? It would be great if a 24mm mount could be installed for club launches on large fields where D, E and F motors can be flown. A twin 18mm mount could be installed for small fields using two A or B motors, and a triple mount for Ranger nostalgia.

So, I began to analyze what would be required. The key would be a bulkhead at the

forward end of the fin can section with a piece of 2-56 all-threads affixed. The engine mounts would all be built to mate to the all-thread so that the mounts could have positive retention. The mounts in turn would contain the necessary retention for the individual motors.



The entire modification kit is shown above. The motor mount length was set to 5 7/16". This will accommodate the 24mm F32 motor as well as 24mm RMS. The other two mounts were then set to the same length.



The thrust curves show the twin B6 motors to be the best combination for replacing either C motor. This should accelerate the rocket quickly and avoid the problem of weathercocking just off the rod which often occurs here in windy North Texas.

Two B motors will cost a little more than a C, but it's cheap insurance against core samples.

Check

[HTTP://WWW.DARS.ORG](http://www.dars.org)

For past issues of Shroudlines

2-56 all-thread.

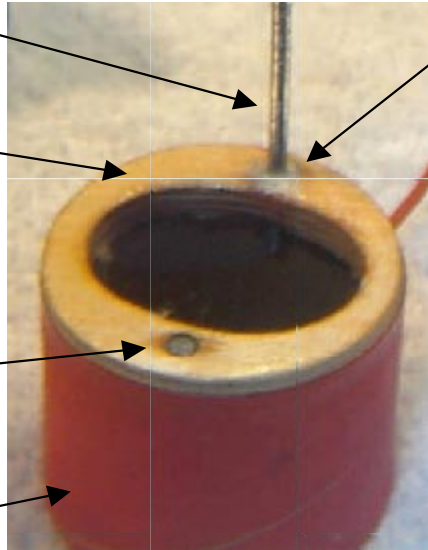
2 pieces of 1/8" birch ply. One is cut to i.d. of coupler. Other to o.d. Hole is enlarged to provide minimum resistance to ejection charges. Epoxy coated to resist corrosion.

Screw-eye (for recovery system) ground flush.

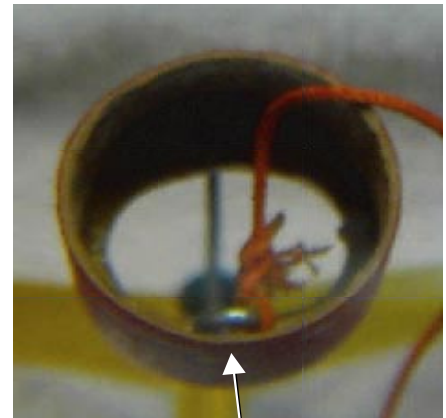
Standard Estes BT-60 coupler.

Screw-eye secured with a few drops of slow CA in hole. Hole drilled at slight angle to make it make it easier to install screw-eye.

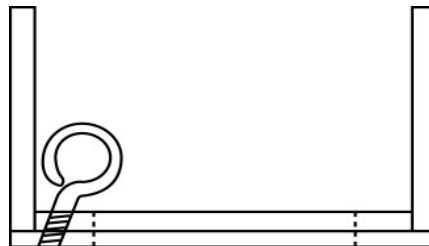
The 24mm motor tube was the easiest to make. It uses the heavy duty 24mm T-50mf from Totally Tubular and has a foil liner. Since this tube has a larger o.d. than standard BT-50, Totally Tubular also offers special fiber centering rings for it: CR-50mf-60.



2-56 nut is countersunk flush with bulkhead. Both nuts are epoxied in place, and to the all-thread. Unit must withstand torque of repeated tightening and untightening without coming loose..



Kevlar recovery harness attached to screw-eye with three half hitches. A few drops of yellow glue will help keep it tied and prevent fraying.



Below: The assembled twin mount with retention nuts in place. Rod still needs to be trimmed to length.



In the event of an extra-powerful ejection charge, the aft ring may receive quite a jolt, so popsicle sticks were used to make these gussets and secured in place with yellow glue.

In the case of this mount, motor retention will be attached to the same 2-56 screw used for mount retention.

The next easiest mount is the triple 18mm unit. One key is getting the first two tubes glued together. It is important to place them on a flat surface to ensure they are parallel. After that, the third tube is glued to the valley between the other two. The nice thing about this mount is that three BT-20 tubes



will fit perfectly inside the Bertha's BT-60. The forward ring is optional. Here, it is another CR-50 mf-60 and was CA'd in place.

The next step was to take a small (0.5"x0.5") piece of paper towel and wet it with yellow glue, then ball it up and insert it into the void between the three tubes. This will act as a dam when epoxy is placed in the void to anchor the motor retention stud, another piece of 2-56 all-thread about 2" long.

The aft ring sections are made using home-made balsa plywood (3 plies of 1/16" balsa). A CR-50-60 centering ring was traced on the plywood, then the three tubes were centered over that circle and traced. The three sections were then cut with an exacto knife.

The inside arcs were then sanded to final shape using a BT-20 with some sandpaper wrapped around it. These three pieces were then glued into place using yellow glue. Then another CR-50-60 ring was temporarily taped to the end of the tubes flush against the three pieces. This ring acted as a guide while sanding the outside arcs. Finally, a popsicle stick was used to make gussets.

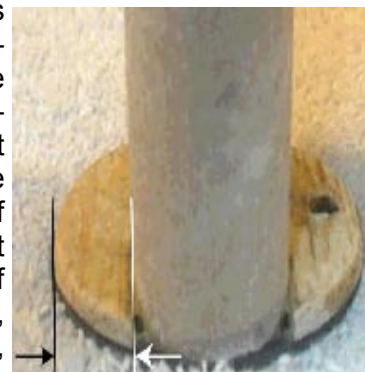
Building the twin mount provides the greatest challenge. Getting the tubes perfectly aligned is very difficult. The first step was to get the spacing between the tubes. I found that two 1/16" square basswood strips were just about perfect. Begin by marking straight lines on both tubes. (I used a door jamb.) The strips were cut to length to allow a gap at the motor end of the tubes. A piece of 2-56 all-thread will be inserted in the gap for motor retention. Glue each strip to a tube. After the glue has set, some light sanding is required to slightly shave down one of the strips. I repeatedly test fit the tubes into a BT-60 until they fit just right. Care must be taken to ensure you sand evenly along the length of the strip. After the sanding is complete, glue the two tubes together at the wooden strips.



The next step is to center the tubes onto a CR-50-60 ring. There is no perfect way to do this, but I found an iterative method which works fairly well. With the ring flat on the table, and the tubes standing vertically, I found a popsicle stick just about right for gauging the distance to each side of

the ring. I cut two pieces of scrap balsa to widths slightly wider than the popsicle stick. The trick is to then sand the strips to the proper width.

Sand the strips while holding them together so that they are the same width. Frequently stop and test fit them until they can be placed on either side of the tubes and be just flush with the outside of the ring. At that time, glue them to the ring, but NOT to the tubes.



Just a little wider than a popsicle stick.

Once the glue is dry, trim the outsides of the balsa pieces and sand them to the contour of the ring.

Next, place the ring on the end of the tube assembly where the gap between the tubes is and tape it in place. Trace around the ring onto another piece of balsa ply. Remove the ring and trace around the tubes in the same spot. Then cut the pieces out leaving some excess on all sides. The inside arcs are then sanded to shape as before using a BT-20 wrapped with sandpaper. Do NOT sand the outside edge yet. Apply glue to the inside arcs of the pieces and glue them in place approximately 1/8" from the end of the tubes (the end with the gap). Once the glue is dry, retape the ring to this end and sand the outside of the pieces to the contour of the ring.

Then glue the ring to the other (forward) end of the tubes. As an added option, you may wish to reinforce the aft end of the assembly by adding some cut Popsicle stick pieces as shown in the picture. Do NOT yet add the gussets.

Next, cut a piece of 2-56 all-thread about 2" long. Add a few wraps of 1/4" masking tape to the end of the all-thread and a few more wraps 3/4" from the same end. The wraps are intended to increase the diameter of the rod so that it fits snugly in the gap between the tubes. After placing it in the gap, soak two pieces of 1/2" square paper towels with yellow glue and place one of them at the end of the wooden strips against the rod. Place the other on the rod at the point it passes through the wooden pieces at the end of the tubes.

Flip the assembly over and add masking tape to the backside covering the all-thread. Be sure to seal it carefully. You may need to add another glue-and-paper towel wad to the rod on this side.

Once the glue has dried, secure the rod in place with epoxy. The tape in the back and the paper towel wads should function as dams to contain the epoxy while it sets.

Lastly, add the gussets to the aft end and drill the holes for the mount retention and you'll be good to go.



Mark Simms — Osamma Bend Over taking to the sky on a K550 out at Windom.

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DARS

The Dallas Area Rocket Society is a non-profit chartered section of the National Association of Rocketry (NAR). It's 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.

The club meets on the first Saturday of each month at 1:00pm. Meetings are held in Plano, TX at

Plano Late Night Bingo
1805 Ave K (18th and K St.)
Plano, TX 75074



For Information send e-mail to:
Info@DARS.Org