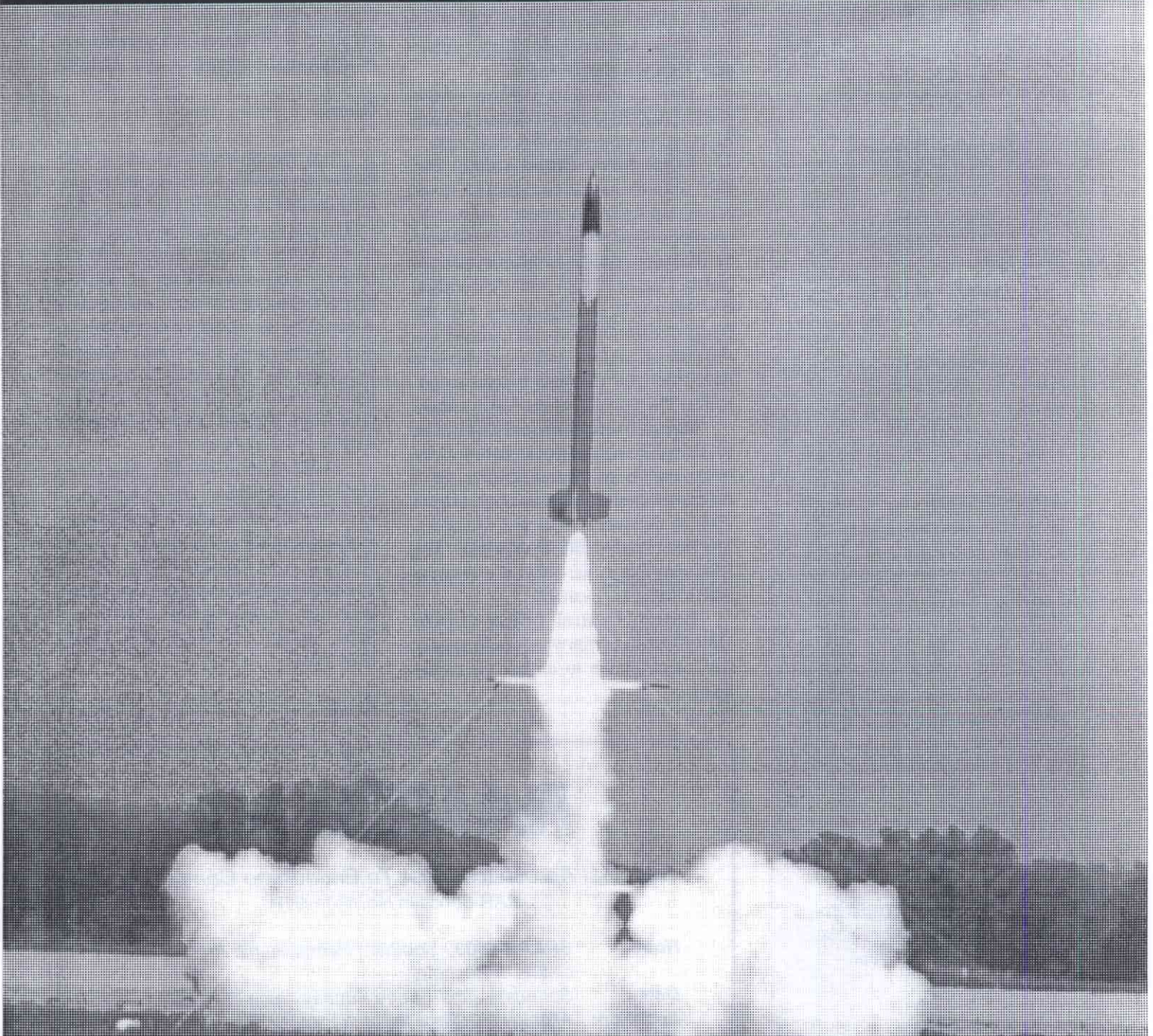


COUNTDOWN

Official Newsletter of SPAAR

THE SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY



Roger Dwyer's Beyond 2000 clears the tower beginning a successful Level 3 Certification flight. (Unknown)

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COUNTDOWN

Volume 10, Issue 3
May/June 1997

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Newsletter

George Beever, Randy Brust

COUNTDOWN is the newsletter of SPAAR, the Southern Pennsylvania Area Association of Rocketry, NAR Section #503, as well as Tripoli Susquehanna #71. **COUNTDOWN** is published 6 times a year for the benefit of SPAAR club members. Any information contained in **COUNTDOWN** may be used as long as proper credit is given. Please address all correspondence to:

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The Editors' Corner

If you want to fly...

The only way that a club like SPAAR can continue to have successful launches is for everyone to pitch in and share the work load. If everyone does their part, we can all have time to enjoy what we do the best, fly rockets and socialize.

There are generally only two or three persons needed at any given time to keep the range running smoothly. They are:

Range Safety Officer (RSO): The RSO must be at least 18 years old. He or she is responsible for general safety and operation of the range. The RSO will have the final say regarding permission to launch and the intended flight path of the rocket. The RSO will, in conjunction with the Range Control Officer or the Launch Control Officer, perform safety and check-in duties for flyers and make the pad assignments. The decision of the RSO is final.

Range Control Officer (RCO): The RCO shall be a responsible member. He or she shall be positioned down range of the launch area to assure an unobstructed view of the launch area and spectators. The RCO is an assistant to the RSO. The RSO may act as the RCO if a separate individual is not available.

Launch Control Officer (LCO): The LCO is the person who actually presses the launch button to initiate the rocket launch.

At every sport launch, a sign-up sheet will be kept at the range table. Range duty is divided up into half-hour increments. Very simply put, everyone is expected to share the range responsibilities. If you do not volunteer you will be volunteered or not allowed to fly. If anyone is not familiar or comfortable with the various duties, no problem! ASK. One of the veterans will be happy to show you the ropes. Thanks!

George

This month, thanks go out to Guy DeStefano and Roger Dwyer for contributing to this issue of Countdown. Guy submitted two articles, *Roar at the Shore 5* and *Droque Chutes*. Roger wrote *My Level 3 Certification Flight*, chronicling his interesting experience. You may have noticed that the pictures with Roger's article, including the cover, have *unknown* for their credits. If anyone can shed some light on who took these pictures, let me (and Roger!) know and I'll give proper credit in a future issue.

I think that articles like these make our newsletter diverse and interesting. If any SPAAR club member has any ideas or experiences they would like to share, by all means write it up and send it to me. If you have some pictures to go along with it, better yet. Anybody going to the National Sport Launch? NARAM-39? LDRS? Hint, Hint.....

Randy

RAMTEC-5

Regional Aerospace Meet To Encourage Competition
NAR Sanction No. 1011-97R

- Host:** SPAAR #503 - Southern Pennsylvania Area Association of Rocketry.
- Dates:** Saturday, June 14 and Sunday, June 15, 1997
- Location:** Allentown College in Center Valley, PA
- Events:** 1/2A Streamer Duration, A Rocket Glider, A Super Roc Duration, A Payload Altitude, D Helicopter Duration
- Awards:** Trophies for 1st place in each event (divisions A, B, C and Team) and certificates for 2nd thru 4th place.

Section News Notes

by George Beever & Randy Brust

Roger Dwyer gets Level 3 Cert:

As you may have noticed from the cover, SPAAR club member Roger Dwyer made a successful level 3 certification flight at RATS 5 in New Jersey in April. See Roger's account of his experience elsewhere in this issue. Congratulations Roger!

SPAAR Members Place at ECRM:

At the East Coast Regional Meet held in Maryland over the weekend of April 12th-13th, SPAAR's Glenn Feveryear took C Division first place in A SuperRoc Altitude and 1/2A Streamer Duration. He also took second place in Sport Scale with his IQSY Tomahawk, with first place going to NOVAAR's Trip Barber and his Little Joe II. The Flirtin' with Disaster Team of John Yost and George Beever took second place in team 1/2A Streamer Duration.

April & May Launches Blown Away:

If you couldn't make the April 13th, May 4th, or May 25th launches, don't worry, excessively high winds and heavy rains turned them into one hour B.S. sessions and that's about all. We didn't even set up the equipment. Somebody please sacrifice something to the appropriate gods so we can get this weather turned around!

Raffle Drawing Postponed:

The SPAAR raffle drawing was supposed to take place at the May 25th launch, but due to the washout, it will be held at the June 29th launch. If you would like to purchase some raffle tickets, they will be available right up to the time of the drawing. Tickets are \$1 a piece. For more information, please contact George Beever.

New HPR Launch System Update:

Glenn Feveryear has reported that the HPR launch system that was ordered from Vaughn Brothers Rocketry arrived on May

21st. A new 12 volt battery to power the relay needs to be purchased, as well as a spool to store the 50 feet of cable. This system is to be used in conjunction with the standard system now in use.

New Launch Day Procedure:

In an effort to alleviate the problem of the same handful of people doing all the work at SPAAR's monthly launches,

National Sport Launch Moved:

The NAR's National Sport Launch (NSL) has been moved from Memorial Day weekend in Dallas to the 4th of July weekend in Geneseo, NY. The original field became unavailable and a waiver could not be obtained for the replacement field. Therefore MARS, NAR section #136, and Tripoli Western NY agreed to combine the NSL with their NYPOWER launch which was already scheduled for the 4th of July holiday. This works out pretty good for SPAAR members since it puts the NSL about 1000 miles closer! The hotel of choice for the event is the Days Inn of Geneseo, NY (716-243-0500). More information is listed under *Other Upcoming Events*. If you have web access, check out <http://members.aol.com/rocketweb/nypower.htm>.

Trains & Lanes Hobbies:

A few weeks ago I stopped by Trains & Lanes Hobbies in the Trexler Mall on Route 222 in Trexlertown. I was surprised to find a large selection of Estes and Aerotech products including both kits and motors. I had a long chat with the store manager, Gary Shriver, about pricing and availability.

Currently, the lower cost rocketry products are at list price. On items priced at or above \$15 per piece, there is a 10% discount. Unfortunately, this means there is no discount on any of the motors. Gary said that he would speak with the owner regarding further discounts on rocketry products.

Since then, I have spoken to Gary on the phone and he said the owner might be willing to give an additional 10% discount to SPAAR club members on all rocketry

items. He is also willing to more heavily stock those Estes and Aerotech motors that we most often use. So, if you need some motors or a kit, give Gary a call at 610-366-9344 to see if our club discount has been put into effect, or just give a call to voice your support of the discount!

Guy DeStefano Offers Parts:

Guy DeStefano has been making shock cords, parachutes and centering rings for rocketeers in the Pottstown area for some time. Now, he would like to offer these items to all club members.

Guy has access to inexpensive 1/8 inch to 1 inch shock cord material that he uses on his own homemade rockets. He also makes his own parachutes from rip-stop nylon in circular, square and X-form styles. His chutes are unique in that he uses eyelets to attach the nylon shroud lines.

Guy also creates his own centering rings from 1/8 inch and 3/32 inch birch plywood. And he does this *without tools!* After manually cutting and sanding the rings, you would never know that he did them by hand.

Guy says that he's offering good quality at relatively cheap prices, so if you're interested, call him at 610-323-1560.

Pick Up on Some Kits:

Jim Lytle, a former member has decided to sell off all of his model rocketry items. He has given a number of kits, built and unbuilt, to be auctioned off. Half of the proceeds going to the club General Fund. The models will be the subject of a *silent auction* at the club launch on July 13th. The kits and models will be on display on that date and you will have the opportunity to submit a written bid for each item. The highest bid for each wins. The built kits include an Estes Saturn V, Phoenix, Mercury Redstone, and Jupiter-C, as well as a North Coast Rocketry Archer.

Upcoming SPAAR Events:

Saturday, June 14th thru Sunday, June 15th, 1997 - RAMTEC-5, Saturday 9AM to 6PM and Sunday 9AM to 2PM, Allen-

town College, Center Valley, PA. Contact Glenn Feveryear at 717-456-5570.

Friday, June 20th, 1997 - SPAAR Monthly Meeting, 7PM to 9PM, APRIA Community Room, Lancaster, PA.

Sunday, June 29th, 1997 - SPAAR Sport Launch, 3PM to 7PM, Cocalico High School, Denver, PA.

Sunday, July 13th, 1997 - SPAAR Sport Launch, 3PM to 7PM, Cocalico High School, Denver, PA.

Friday, July 18th, 1997 - SPAAR Monthly Meeting, 7PM to 9PM, APRIA Community Room, Lancaster, PA.

Sunday, August 3rd, 1997 - SPAAR Sport

Launch, 3PM to 7PM, Cocalico High School, Denver, PA.

Other Upcoming Events:

Saturday, June 14th thru Sunday, June 15th, 1997 - METRA High Power Launch, 10AM to 5PM, Vernon, NJ. Up to K motors. 5000 ft. waiver. Contact Ted Apke at 201-631-1628.

Saturday, June 28th, 1997 - NOVAAR NICE-19 Open Meet, Mannassas, VA. Contact Trip Barber at 703-866-4710.

Friday, July 4th thru Sunday, July 6th, 1997 - National Sport Launch, 10AM to 5PM, Geneseo, NY. A-K motors. 8000 ft. waiver. Contact Ray Halm at 716-634-1396.

Sunday, July 13th, 1997 - METRA High Power Launch, 10AM to 5PM, Vernon, NJ. Up to K motors. 5000 ft. waiver. Contact Ted Apke at 201-631-1628.

Friday, July 25th thru Friday, August 1st, 1997 - NARAM-39, Tucson, AZ. Contact Steve Lubliner at 520-296-1689.

Thursday, August 7th thru Sunday, August 10th, 1997 - LDRS XVI, Hartsel, CO. 14000 ft. AGL waiver with 18000 ft. AGL windows. URL: <http://home.netway.net/ldr/main.html>. **CD**

Section Meeting Minutes

by George Beever

May 16, 1997

Present: G. Beever, R. Dwyer, D. Greene, R. Hackman, M. Kamide, G. Kulp, J. Yost.

Note: The March and April club meetings were not held.

Meeting called to order at 7:20PM.

Committee Reports:

Section Advisor: George Beever for Glenn Feveryear: the National Sport launch has been moved to Geneseo, NY, site of NARAM-37, July 4-6. Flying from 9:00AM to 5:30PM.

Treasurer: George Beever provided the following report. Previous balance: \$751.86. Expenditures: \$5.00 for RAMTEC sanction, \$100.00 to Allentown College for RAMTEC down payment, \$44.00 for postage, \$40.73 for copying, \$17.50 for checks, \$401.14 to Vaughn Bros. Rocketry for HPR launch system. Income: \$153.50 in dues. Current balance, \$296.99.

HPR: Roger Dwyer, for Ed Miller, reported on the recent RATS launch in New Jersey (congrats to Roger on his successful Level 3 Certification!). Roger then advised that the fall SPAAR high power launch will be sometime in the October/November time period. Roger states he feels confident that the problems that led to the cancellation of the spring launch will be solved.

Competition: A reminder from Glenn that the deadline for room reservations for RAMTEC-5 is May 30.

Newsletter: No report.

Old Business: Glenn has not heard anything from VBR regarding our order. We will e-mail them soon to check on the status.

New Business: Glenn will be replacing the microclips on the white set of wires for RAMTEC. The black set will be replaced right after RAMTEC. One stopwatch must be replaced, it will cost about \$15.00.

Mark Kamide suggested reviving some of the *special* launches from years past, such as Scratchbuilt Day, Scale Day, etc. The idea would be to feature these areas, not to limit what people fly. Roger Dwyer added that it might be a nice idea to present certificates to those who have the

nicest paint job, scale model, and the like. It was suggested that Mark and Roger get together and designate some future sport launches this year for these *specials*. They will then be published in the Countdown so that everyone is aware of them.

Mark also suggested some methods by which members could be encouraged to attend meetings. One was to put every person attending a meeting's name in a hat, with a drawing for a kit or a similar item at the end of the year. The more meetings that you attend, the greater your chance of winning.

Gary Kulp asked if any consideration has ever been given to locating a meeting sight closer to the Ephrata area. He added that he has been active with the Ephrata Ambulance Association in the past, and there is a very nice meeting facility in their quarters with a TV, VCR, etc., that we may be able to use. The president, Dale Greene, suggested that since we have an agreement with Apria to use their meeting room for the rest of this year, we should honor that commitment. However, he suggested that Gary bring the idea up towards the end of the year, so that it may be voted on for 1998.

General discussion followed, and the meeting adjourned at 8:50PM. **CD**

My Level 3 Certification Flight

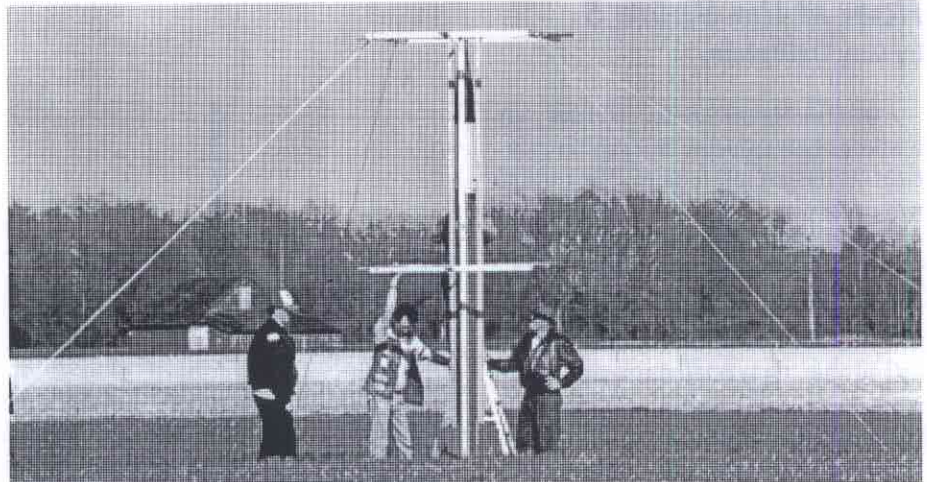
by Roger Dwyer

My level three certification flight has been quite an experience for me. It has taken me sixteen months to build this project for the level three flight attempt. I have worked extremely hard to build this rocket. It took time to figure out how big and heavy it would be.

The various materials that I have used for my project consist of Public Missiles (PML) phenolic tubing wrapped with eight ounce fiberglass cloth. I used a single ninety eight millimeter motor tube. I chose not to use a cluster because all motors have to ignite to be certified. The fins and the centering rings that I used were made of 1/2 inch birch plywood. The nose cone was made of PML fiberglass filled with foam. A 1/4 inch steel cable was used for a shock cord anchor, and was attached to a two inch wide towing strap. Overall the rocket was double walled with sona-tube. This rocket has taken seven sets of thirty-minute epoxy.

The electronics for my project consisted of one Adept Rocketry ALTS2-50K altimeter, which fired at apogee and 750 feet, and an Adept RAS2-50K recording altimeter which fired at apogee and 1500 feet. I also used a Pratt Hobbies ECS-2B R/C unit for a backup in case any other systems had failed.

The booster section shock cord con-



Beyond 2000 undergoes final preparation in the tower. (Unknown)

sisted of forty feet of climbing rope and ten feet of 1/2 inch bungee cord. The payload section had a fifteen foot climbing rope and had five feet of bungee cord. Hardware consisted of 1/2 inch screw-eyes and quick links. I used several unique colors for my paint scheme. The colors were orange, red, yellow, green, and black.

Overall the weight of my project was fifty pounds empty and seventy pounds with the motor. The motor was an Aerotech M1939W reload in an Aerotech RMS-98/10240 casing with no delay.

My project was successfully launched on the date of April 20th, 1997, at 5:15PM. My day began with prepping, which lasted most of the day. After prepping, I headed towards the launch pad, which was 1500 feet away from the LCO table. My project was loaded in a launch tower instead of a

launch pad, used usually for a straighter flight. Due to the size of my rocket, seven men were required to raise the tower.

The excitement began when countdown of T-minus ten seconds arose. Beyond 2000 (my project), was successful. It lifted off extremely fast and reached an altitude of 8347 feet according to my Adept recording altimeter.

I must say I am very happy by the achievement which I undertook. It gave me a great feeling of pride. Even if it had crashed, I would have known that I gave it my very best shot.

If you decide to build a project which takes lots of time and energy, remember to build them strong and of course take advice from experienced flyers.

And to you all, may the Rocket Gods be with you!

CD



Hmmm... I wonder if I'll get stuck if I climb in to work on the ejection charges. (Unknown)

Roar at the Shore 5

by Guy DeStefano

Mother Nature, to say the least, has not been thinking happy thoughts for rocketeers in the last few months. This article will cover some of the events from *Roar at the Shore* (RATS) 5 on April 20, 1997. This was Sunday, the second day of the two day event. Saturday, according to other rocketeers, was cold, windy, and not a good time. Only 60 flights went up with motors up to I impulse, and that was pushing the envelope.

I arrived at the launch site around 7:30AM only to see that I wasn't the only excited one there that early. SPAAR members Brian Royer, Randy Brust, George Fetter, and Roger Dwyer all followed. We all unloaded our vehicles and planned our attack! After a brief group meeting with Damian Russo, the pads were open. Brian Royer was the first SPAAR member to fly. He certified, I think, on an H220 or H238, but either way, his flight was gracious! Congrats Brian! Next, Guy DeStefano put up his quarter



Randy Brust's LOC IV on an H97J testing a new flight configuration, a tenth of a second later the nosecone came off! (Brust)

scale Patriot on an H238. Very quick lift-off and great recovery. Guy may go to Level 2 next spring, however, he must get permission from his wife first (ha ha)! Randy Brust NAR certified Level 1 with

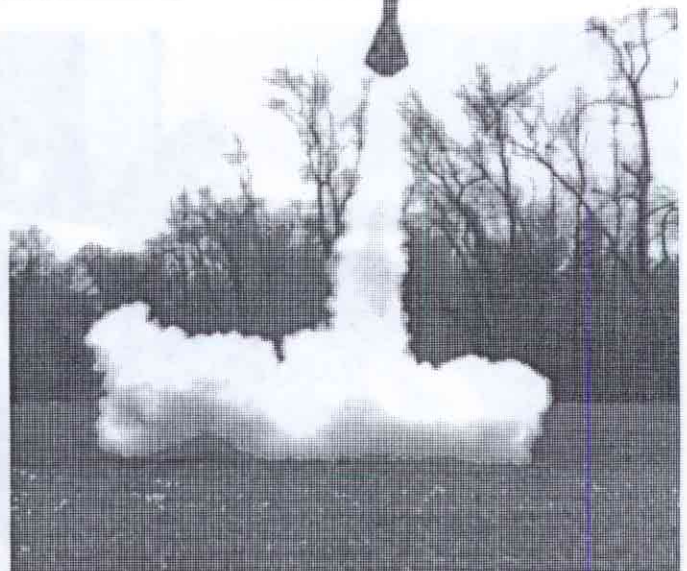
his LOC IV on an H128. His rocket ripped a few clouds in half! It was a great flight and a long walk to retrieve it. Congrats Randy! The only flight that I saw of George Fetter was his Minie-Magg on an I284. A long white/orange flame trailed behind the rocket but it seems the delay and ejection were not in George's favor. The shock cord stripped! As the nosecone and parachute hung in the sky, the rest of it came barreling down to earth! It wasn't a good scene. Bill Rhoat flew a Corporal on an H242. Hey Bill, paint those rockets before you fly them! A real nice flight.

The entire day proved to be loud and smoky, but overall, it was a good turnout with lots of H, I, J, K, and a few M flights including SPAAR Vice President Roger Dwyer's Level 3 certification. Personally, it won't take me that long to go that high. I may have to sell my house but it's worth it.

If you have never attended a RATS launch, you have absolutely no idea what you're missing. Go down and take advantage of all the open area! It's a great place to certify. **CD**



This high power Sidewinder had a great flight. (Brust)



One of the many K motor flights. (Brust)

Drogue Chutes

by Guy DeStefano

What are *drogue chutes*? Whoever thought of that name? Here is another nifty article on recovery systems. For me, it started back probably in the early 80s when I was into skydiving. In general, I was interested in the parachutes, not propelling my body out of a plane. I live near the New Hanover Airport, which is one of the most popular skydiving facilities on the east coast. One of my first amazements about parachutes, back when I was a young lad, was how in God's name do those parachutes come out of the sack that they're packed into? There was no ripcord either! Well, I thought it would take a rocket scientist (no pun intended) to figure this out. After watching the skydivers pack their chutes, I noticed what I guessed to be a really small parachute. It had ripstop nylon and some kind of heavy mesh connected to a bag and a long strap. This *thing* was a drogue chute. This is how it works. You will see later how this idea fits rockets too.

When a skydiver is free falling at 150 m.p.h. towards the earth, he must be careful the way his body is positioned. On the side pocket of their pant leg is where the drogue chute is housed. When the skydiver is ready to open his parachute, he reaches

in the pocket and throws the drogue out into the air. The drogue chute inflates so quickly that it pulls the velcro fastener apart, pulling the parachute out of the bag, also inflating it. There are a few reasons for the use of a drogue. First, it initially slows the skydivers free fall speed a little so the shock on inflation isn't so hard on the groin. Second, it reduces the amount of force on the main chute, and third, it is safer than a ripcord.

Don't start yawning yet, this is where rocket parachutes come into play. I purchased three 18 inch military chutes a few months back. They are small, but good for lightweight rockets, and they are great quality ripstop nylon. Anyway, I sat and thought about how I could make drogue chutes out of these. Easy! I have two rockets with drogues that I bring to club launches. Check them out. After I made a 36 inch homemade parachute for my *Centipede* rocket, I designed a drogue. I took about 3 yards (the longer the better) of 3/16 inch shock cord and looped it through a homemade eyelet on the top of the main chute. Next, I attached the dangling end to the 18 inch drogue. This drogue is actually a parachute, unlike the drogues of skydivers, but works on the same principle. Now, when you pack the chutes, this is the way I suggest that you do it. When I pack my *Centipede*, I put the

rocket's shock cord in first, then the 36 inch main chute. I **do not** fold the drogue chute! I lay the drogue shock cord and chute on top of the main. There's a reason for this. You have to understand, a long delay (6 seconds or more) should be used to get the full effect from your drogue. I use Aerotech G40s and G80s with 7 second delays. When your rocket is screaming down towards earth, one only wonders how fast they're cruisin'. Just imagine the stress the chute is under when it opens. That's why long shock cords are good stress reducers. Anyway, when your rocket is falling and the ejection charge goes, the first thing that should leave the rocket is the drogue.

The first time I flew the *Centipede*, this is what happened. It was a calm, clear, crisp day. Thin air meant high altitude. I used a G40-7. The rocket screamed up, then screamed down and what I saw was neat. The ejection charge went off and the first thing out was my drogue. You should have seen the stretch of the drogue's shock cord and the drogue's quick inflation. The neatest part, however, was the main chute opening. It looked as if something stopped the rocket in mid flight! The main opened like a flower, very slow and majestic! It was neat. The drogue ate up a lot of stress! It looks neat, and it's easy to do, so try it out. I'll be glad to guide you. **CD**

The National Association of Rocketry

For more information on the NAR, write to:

National Association of Rocketry
P.O. Box 177
Altoona, WI 54720

or call: 1-800-262-4872

website: <http://www.nar.org>

Tripoli Rocketry Association (High Power Rocketry)

For more information on the TRA, write to:

Tripoli Rocketry Association
P.O. Box 280
Bessemer, AL 35021-0280

or call: 205-424-8357

website: <http://www.tripoli.org>

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