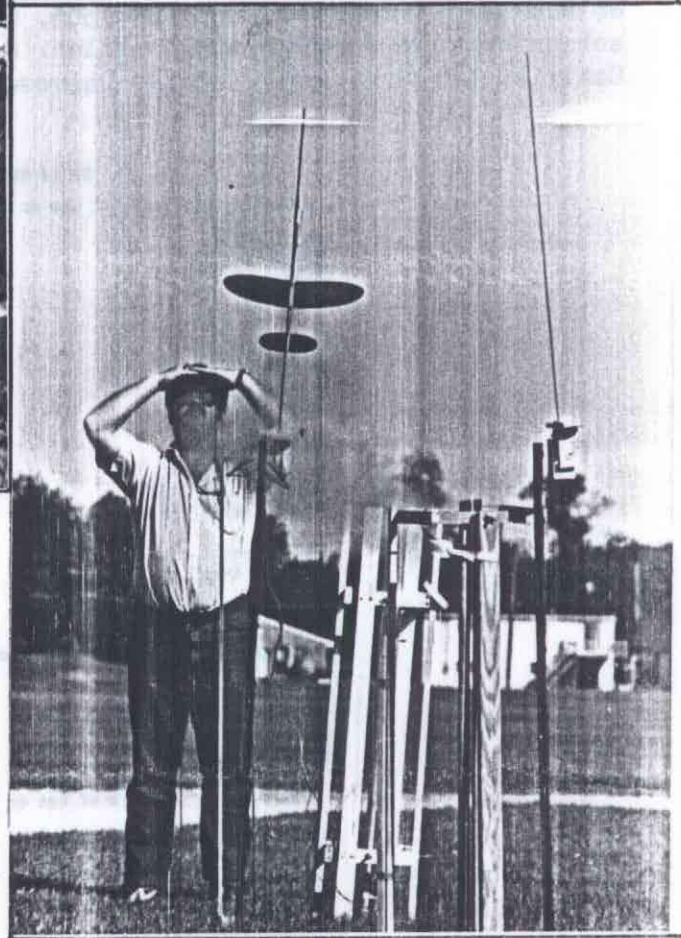
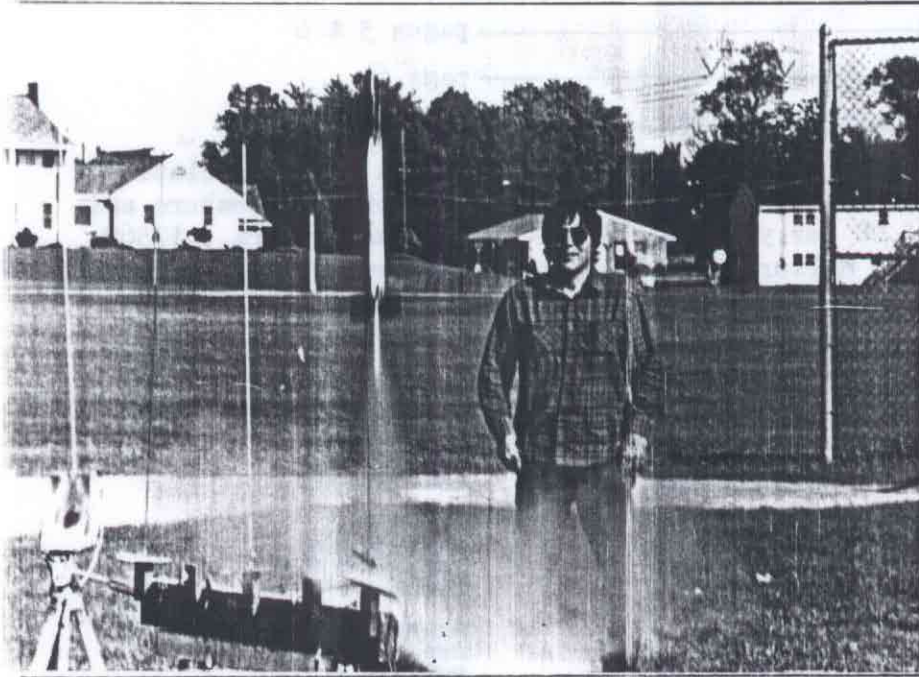


THE SOUTHERN PENNSYLVANIA AREA
ASSOCIATION OF ROCKETRY

COUNTDOWN

VOLUME **2** NO. **3**

SPAAR



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'89

The SPAAR Countdown

Volume 2, Issue 3

August, 1989

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Contributers this month: George Beever, Ed Miller, Rick Hackman, Glenn Feveryear.

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SPAARSEC-1 SECTION MEET

On Sunday, July 23, SPAAR held it's first-ever NAR sanctioned competition, the SPAARSEC-1 Section Meet. The sight of the meet was the usual SPAAR flying feild at Cocalico Sr. High School in Denver, Pa. For the purposes of the meet, C and B Divisions were combined, as only one B Division member, Bill Rhoat, intended to fly any of the events. A total of 8 members flew in the Section Meet itself, and another three members joined them in some sport flying during the contest. In all, there were over 110 flights made during the course of the day.

The morning of July 23 dawned hazy and warm, with the prospect of a hot, muggy day in the offing, and thats exactly what we got! The early morning preparations were not without thier own excitement, if you want to call setting up the range once, and then having to tear it all down again to move "exciting". Unfortunately, a scheduling conflict with two area base-ball teams required a last minute shift a few hundred feet to the east of where we usually launch from. This may have been the differance in wether or not a model was recovered, as the dreaded corn feild across the street from the school once again claimed a number of rockets.

After one false start, the flying got underway around 9:30, with Predicted Duration being the required first event. Flying an MRC Hotshot with a 30 second predicted time, George Beever took first in this event, with a time of 31.25 seconds, or a margin of error of 4.2%. After that, the contestants appeared to go with $\frac{1}{2}$ A PD and B Streamer Duration. Glenn Feveryear and Mark Snyder led the way in $\frac{1}{2}$ A PD, with totals of 189.77 and 143.54, respectively. Glenn also took first easily in B Streamer, with 246.19 seconds total. Glenn was flying the same design that took him to first place in B Streamer at WUBBA-12 in June. George Beever was a distant second with 152.23 seconds, losing his second model into the corn after a 109+ second flight. As in $\frac{1}{2}$ A PD, Dick Rhoat claimed a solid third place, continuing his impressive development in rocketry. This is Dick's first full year in the hobby, following in son Bill's footsteps.

As the day wore on, the temperature rose into the 90's, however a nice breeze came up to keep things from becoming too uncomfortable. This same breeze started to affect the duration events, as models were constantly going into the corn or the housing tract to it's north. Ed Miller lost a $\frac{1}{2}$ A PD model on it's first flight, and he didn't have a back-up to make a second.

Only four flyers entered $\frac{1}{2}$ A B/G, and once again Glenn Feveryear showed his experience by claiming first place with two flights totaling 126.35 seconds. George Beever needed two flights of 55.74 seconds total to beat out Ed Miller's single 43.6 second flight. Damage to Ed's one and only boost-glider prevented a second flight. Mark Snyder claimed a fourth place finish with 12.6 seconds.

During the competition flights, the sport flyers were having some fun, too. A new SPAAR member, Roger Clark from Carlisle, flew a D powered sport model, while at the same time helping out with timing and other range duties. Eric Marcella from Parkesburg also attended his first SPAAR event, in the company of his dad. Eric joined SPAAR back in May, and we were glad to finally meet him. He flew an Estes Stinger a few times, and then he too, helped out with timing. Hope to see you again soon, Eric!

Fred Hoke came with a bit of a surprise. He converted his Estes Super Big Bertha into a two stage model, flying it with a D12-0 first stage, and a D12-5 in the "upper" stage. Very impressive! As advertised, George Beever flew a Saturn V to commemorate the flight of Apollo 11 20 years prior, in July, 1969. After one misfire, the Saturn took off on a perfect flight. Ed Miller brought a flew a beautiful Estes Titan IIIIE, as well as his and Kevin Reichert's North Coast Spoilsport. Again, all 4 D12's ignited for a perfect flight. Rick Hackman brought out some oldies, including a WAC Corporal, a Cherokee-D, and a Scissor Wing Transport.

$\frac{1}{2}$ A Streamer, Multi-round, was a close race for second place between George Beever and Dale Greene. George's three flights totaled 129.42, just barely ahead of Dales's 126.62, which included a 60-second max on his first flight. Glenn Feveryear, once again, took first, with 147.91 seconds for three flights. Dick Rhoat edged son Bill, 66.09 to 63.87, to take the fourth place ribbon.

C Eggloft, as usual, provided it's share of excitement, as well as some surprises. The first egglofter up was George Beever's model, based on a Trip Barber design, which turned in a 78.2 second flight. The model boosted well, but the 'chute didn't catch air until the model fell quite some time... right over the parking lot! When it did land, it snagged a telephone line in front of, you guessed it, the corn feild. The model eventually worked itself free for a returned flight. Rick Hackman flew the old dependable "Here's Hopin" twice,

with the second flight being the best, at 57.5 seconds, for 5th place. Glenn Feveryear got a 85.52-second first flight, beating out George's flight and raising the ante. Mark Snyder respnded with a 129.35-second flight, which those at the range head saw drifting into no-man's land between the @#\$\$ corn and the homes; everyone commented that it was too bad that such a nice flight was all for nothing, as it was sure to be a "no return". Ten minutes later, here comes Mark with the model... no problem, it just missed a dog house and it's occupant upon landing! This flight, which bested Glenn's by a wide margin, spurred him into making a second flight. This second flight, with a larger chute, was timed at an incredible 223 seconds (3 minutes, 43 seconds); unfortunately the model drifted out of Glenn's vision as he was being polite and avoiding running thru backyards. The rocket most likely is still residing in a soy bean feild, just beyond the...corn. Mark tried to better his time, but a second flight yeilded "only" 109.66 seconds. This left things up to the Rhoats, Dick and Bill, and to Ed Miller, to try to catch Mark. Ed had a no deploy on an Estes Eggspress, and Bill had his share of problems, too. He and his father were flying what appeared to be identical models off of the same "pop-lug", but the rsults were very differant! Bill got two prangs, with the attendant mess times two. Father Dick, however, caught a "killer thermal" and came up with a second place, 95.65-second score.

The closest contest of the day was in B Superroc. Only 22 points separated the top three places, and only 5 between first and second. George Beever barely edged out Glenn, 936.07 to 931.50, with Mark Snyder third at 914.94, and Dick Rhoat placing fourth at 859.10. Superroc again showed why it is among the least predictable events; there seemed to be no consistant winning strategy. Models made from "hi-tech" Apogee parts were being beaten by tried and proven Estes types, and vice-versa; large chutes, medium chutes, small chutes, it didn't matter, as the superrocs remained at the mercy of the breeze and the fickle thermals. And, as a perfect postscript to a very enjoyable meet, George Beever's last superroc flight landed, and was lost in.....THE CORN!!!!

By the time the range closed at 5PM, everyone appeared to have had their fill of rocket flying, at least for the time being. However, it appears as though the objects of having the meet had been met; everyone had a good time, as well as gained some competition experience.

THE BEST AND WORST OF SPAARSEC-1:

Best Quote: Dale Greene, after his B Superroc telescopically pranged into the ground:

" I NEED SUPERGLUE!!!!", in much the same way as a soldier yells "Medic!"

Worst part of the day: Setting up the range, tearing down the range, setting up the range, all because the previous night's thunderstorms flooded a local ball team's normal home feild, forcing them to play at Cocalico.

Worst feature of the contest: THE CORN (you really didn't expect anything else, did you?)

Best Surprise: Fred Hoke's Super Big Bertha Plus. Some people didn't notice the two stage modification, and when the model did stage, many were heard to ask, "What in the heck was that?"

Second Best Surprise: Finally meeting Eric Marcella and his father.

Worst disappointment: Not having Section Advisor John Yost there; he would have had a blast. On the other hand, he was in California on vacation, so I guess he didn't suffer that much.

Second Worst Disappointment: Glenn Feveryear losing his egglofter after such a good flight.

Most Pleasant Feature of the day: Seeing Dan Weinhold, Rita Feveryear, Roger Clark, Mr. and Mrs. Robert Balogh, and all the others who attended the Meet, helped out, and otherwise made for a very nice day.

| ENTRANT | 1/2A PD | POINT TOTALS: SPAARSEC-1 | | | C ELD | 1/2A SDM | PR.D. | T |
|--------------|---------|--------------------------|-------|----------|-------|----------|-------|-----|
| | | B SD | B SRD | 1/2A B/G | | | | |
| G. Feveryear | 30 | 40 | 36 | 70 | 28 | 50 | 4 | 258 |
| G. Beever | 3 | 24 | 60 | 42 | 14 | 30 | 40 | 213 |
| M. Snyder | 18 | 4 | 24 | 14 | 70 | xx | 4 | 134 |
| D. Rhoat | 12 | 16 | 12 | xx | 42 | 10 | 16 | 108 |
| D. Greene | 3 | 4 | xx | xx | xx | 20 | 24 | 51 |
| B. Rhoat * | 6 | 8 | 6 | xx | 7 | 5 | 4 | 36 |
| E. Miller | xx | xx | xx | 28 | xx | xx | 8 | 36 |
| R. Hackman | xx | xx | xx | xx | 7 | xx | 4 | 11 |

*- B Division

SPAARSEC-1 RESULTS

EVENT: B Streamer Duration

| Entrant | Flight #1 | Flight #2 | Total | Place |
|-----------------|-----------|-----------|--------|-------|
| Glenn Feveryear | 114.47 | 131.72 | 246.19 | 1 |
| George Beever | 42.37 | 109.86 NR | 152.23 | 2 |
| Dick Rhoat | 28.84 | 54.16 | 83.00 | 3 |
| Bill Rhoat | 50.92 | DQ-SEP | 50.92 | 4 |
| Mark Snyder | 39.95 | XXXXXX | 39.95 | 5 |
| Dale Greene | DQ-SEP | 34.2 | 34.2 | 6 |

EVENT: 1/2A Parachute Duration

| Entrant | Flight #1 | Flight #2 | Total | Place |
|-----------------|-----------|-----------|--------|-------|
| Glenn Feveryear | 71.46 | 118.31 | 189.77 | 1 |
| Mark Snyder | 102.6 | 40.94 | 143.54 | 2 |
| Dick Rhoat | 23.13 | 49.96 | 66.09 | 3 |
| Bill Rhoat | 36.5 | 17.5 | 54.0 | 4 |
| George Beever | DQ-NDP | 49.8 | 49.8 | 5 |
| Dale Greene | 28.25 | DQ | 28.25 | 6 |
| Ed Miller | DQ | | | |

EVENT: 1/2A Boost/Glide

| Entrant | Flight #1 | Flight #2 | Total | Place |
|-----------------|-----------|-----------|--------|-------|
| Glenn Feveryear | 54.85 | 71.5 | 126.35 | 1 |
| George Beever | 16.27 | 39.47 | 55.74 | 2 |
| Ed Miller | 24.0 | 19.6 | 43.6 | 3 |
| Mark Snyder | 12.06 | XXXX | 12.06 | 4 |

EVENT: C Eggloft Duration

| Entrant | Flight #1 | Flight #2 | Total | Place |
|-----------------|-----------|-----------|--------|-------|
| Mark Snyder | 129.35 | 109.66 | 129.35 | 1 |
| Dick Rhoat | 95.65 | XXXXXX | 95.65 | 2 |
| Glenn Feveryear | 86.52 | 223/DQ-NR | 86.52 | 3 |
| George Beever | 78.2 | XXXXXX | 78.2 | 4 |
| Rick Hackman | 38.81 | 57.5 | 57.5 | 5 |
| Bill Rhoat | PRG | PRG | | |
| Ed Miller | DQ-NDP | | | |
| Dale Greene | DQ-SEP | | | |

EVENT: 1/2A Streamer Duration, Multi-Round

| Entrant | #1 | #2 | #3 | Total | Place |
|-----------------|----------|-------|-------|--------|-------|
| Glenn Feveryear | 51.0 | 55.75 | 41.16 | 147.91 | 1 |
| George Beever | 48.8 | 57.9 | 22.72 | 129.42 | 2 |
| Dale Greene | 60.0 max | 35.5 | 31.12 | 126.62 | 3 |
| Dick Rhoat | 37.28 | 28.81 | DQ | 66.09 | 4 |
| Bill Rhoat | 38.9 | 24.97 | XXXXX | 63.87 | 5 |
| Mark Snyder | DQ | DQ | DQ | | |

EVENT: Predicted Duration

| Entrant | Predicted time | Actual | %error | place |
|-----------------|----------------|--------|--------|-------|
| George Beever | 30s | 31.25 | 4.2 | 1 |
| Dale Greene | 55 | 49.25 | 10.5 | 2 |
| Dick Rhoat | 32 | 36.99 | 15.6 | 3 |
| Ed Miller | 47 | 55.83 | 18.8 | 4 |
| Glenn Feveryear | 34 | 41.47 | 22.0 | 5 |
| Bill Rhoat | 30 | 23.07 | 23.3 | 6 |
| Mark Snyder | 37 | 26.5 | 28.4 | 7 |
| Rick Hackman | 50 | 28.5 | 43.0 | 8 |

EVENT: B Superroc Duration

| Entrant | Flight #1 | Flight #2 | Static Points | Total | Place |
|-----------------|-----------|-----------|---------------|--------|-------|
| George Beever | 50.54 | 85.53 | 200/400 X 2 | 936.07 | 1 |
| Glenn Feveryear | 45.56 | 86.00 | 200/400 X 2 | 931.5 | 2 |
| Mark Snyder | 63.54 | 61.4 | 197.5/395 X 2 | 914.94 | 3 |
| Dick Rhoat | 21.22 | 38.50 | 200/400 X 2 | 859.10 | 4 |
| Bill Rhoat | 12.23 | 20.31 | 200/400 X 2 | 832.5 | 5 |
| Dale Greene | DQ-SEP | DQ-SEP | | | |

SECTION NEWS NOTES

Please make note of the following schedule changes: The SPAAR Sport Launch scheduled for Oct. 15 has been moved up to Sunday, Oct. 8, to allow for our participation at VACUUM-15, an Open Meet hosted by NOVAAR at Mannassas, Va.

We exchange newsletters with a number of other NAR Sections, and these newsletters are made available to SPAAR members at our monthly business meetings. As of this date, they include: the NOVAAR Free Press (NOVAAR); Team Pittsburgh (Pittsburgh Space Command); The Launch Rack (GSSS); Ascent from Midgard (Vikings Rocket Society); Star-Date (ASTRE); WARP-9 (DART); and MAX-Q (Huntsville Area Rocketry Assoc., HARA).

Please check them out. They are all very good.

Congratulations to the following SPAAR members who attended and flew at NARAM-31, August 7-13: John Yost, Daniel Yost, and Dale Greene. Daniel won fourth place in 1/2A PD, A Division. In addition, Ed Miller and his wife attended as observers. Ed even had his picture taken with none other than Vern Estes and G. Harry Stine, NAR #2. Will Ed ever be the same?

From the NARAM rumor mill comes the word that NARAM-32 will be held in Dallas, Tx., in 1990, and that a bid was put in to hold NARAM-33 in Allentown in 1991. Shouldn't we be getting our bid together to host NARAM-50?

SUGGESTION FOR SPAARSEC-2

by Ed Miller

I've just gotten home from SPAARSEC-1, and I'm sitting here in front of the typewriter. SPAARSEC-1 competition was rough, even though I didn't compete in every class. Most of the members really looked like pros out on the field!

But as I'm sitting here thinking, I begin to wonder if maybe we shouldn't "spice up" the types of competition events that we fly... just a few ideas to make SPAARSEC-2 just a little more exciting:

- M Dual Watermelon Loft Duration - Loft two full size watermelons under rocket power into the air, and return them undamaged. Longest flight time wins. Must use an M class motor, or cluster equivalent.
- J Core Sample - Using a rocket with a J class motor, the object is to prang as deeply into the ground as possible, capturing as many cubic inches of sod as practicle.
- N Spot Landing - Land as close to the launcher as possible. 30 minute minimum time.
- K Helicopter - A helic opter duration event, designed to challenge even the likes of Art Rose, Charlie Sykos, and Ken Brown.
- I Parachute Duration - Multi-round, 1/2 hour max.
- M Predicted Duration - Predict flight time, 30 minute minimum, must come within + or - 2 days.
- N Altitude - Highest altitude, as tracked by North American Air Defense Command radar, wins.
- M Plane Conversion - Must use commercially available aircraft (Boeing, Lockheed, etc.)
- L Superroc - 7 meter maximum length.
- K Near Prang Experience - Recovery system deployment closest to ground wins.
- N Scale Altitude - Must use full scale, 1:1 mock-ups of existing rockets, missles, etc.
- K Photo Recon - Using a camera carrying, K powered rocket, the object is to photograph the launch area, and locate a SPAAR member's lost rocket, and return it to him in the shortest time possible.

No, this is not for real; I'm just dreaming again!

NEW SPAAR MEMBERS

The past month has seen the addition of the following new members to SPAAR:

John Musser, 12, Lancaster; Roger Clark, 31, Carlisle; Robert Balogh Jr., 32, Lebanon, and Mark Beever, Ephrata. Welcome you all, we're glad you joined us!

COMPETITION NOTE

Members are reminded that the practice event for the September 3 Sport Launch is B Eggloft Duration. Remember to bring your own fresh egg. In addition, the practice event for the August 13 Sport Launch was C Superroc Duration, but no one flew; therefor, C SRD will also be flown September 3. Good Luck!!

Long ago, and far away, in another galaxy, when John Yost and myself first got together and laid the groundwork for what would become SPAAR, he started telling me about this thing called a wubba. He kept saying, "ya gotta go to wubba, ya gotta go to wubba", as if it were some sort of annual pilgrimage that all model rocketry types must follow at least once a year. And then Glenn Feveryear came onto the scene, and he too, hinted that he wubbaed in his spare time. And by the way he talked, you could only wubba in a corn field. Sort of a private thing, I suppose. And then both of them let it slip that someone named Art Rose occupied a lofty portion of the hierarchy of wubbdom, along with his wife, Janet Rose, the #1 follower of wubbaism. So, as June, 1989 approached, I was asked many times if I was going to wubba in June. Is this the only month when one may wubba? Why can't a person wubba in say, April, or August?

It wasn't until the evening of June 16, that I found out what it meant to wubba. That's when it dawned on me that what I was at was WUBBA-12, which stands for something on the order of Wierd Unusual Ballistic Blast Attack, or something like that.

All feeble attempts at humor aside, attending my first Regional Meet was really something. WUBBA-12 was hosted by PULSAR (read that Art & Janet Rose, with son Harry Rosr and Charlie Sykos thrown in for good measure), and is held on the campus of Allentown College, in Quakertown, Pa. Even though it is dotted with the usual classroom and dormitory buildings, there is still plenty of room to fly even the most competitive models.

Friday evening was spent checking in with Janet Rose at the meet office, getting something to eat in town, and coming back to the dorm rooms to await the arrival of friends, both old and new. Towards the latter part of the evening, Bruce Canino from GSSS moved into the room next to Glenn and myself, and he settled down to some last minute building. (I had heard that people really do that, Bruce)

Saturday morning dawn bright and already a bit muggy, and by 8:45 the range was being set up for the day's flying. The NOVAAR contingent began to filter in, although they did not send as many people as they had originally planned. Ken Brown moved into his room, hung out his shingle, and got down to the important business... selling kits & tubes. I should know; I think that I was his best customer! Anyway, back to the flying. Most folks started out flying B Streamer, Multi first; SPAAR's Glenn Feveryear took first in this event with 3 flights totaling 386 seconds. Daniel Yost took the first in A Division, with 257 seconds. Not too shabby, all things considered. On to B Flex-wing B/G, and Art Rose outdistanced the Launch Lizards team of Jeff Vincent and Jim Nolan of ASTRE, 616 to 421.

During the afternoon, a thunderstorm threatened, but never materialized, allowing the flights to continue. B Eggloft was it's usual interesting self, with the Launch Lizards' 74 second flight claiming first, with Jankov-Pavlov (Charlie Sykos minus Daryl Bachman on this particular weekend) placing second with a 54 second effort. I managed 48 seconds for a third place. John Yost got a 30 second flight, just barely missing fourth place behind Art Rose's 34 seconds. Towards the end of Saturday's flying, some C B/Gs and $\frac{1}{2}$ A PD models were flown, as well as the first of the E Helicopters, the real show stoppers. There was no question as to who was the class of this event, with Art Rose, Ken Brown, and Charlie Sykos on hand.

Saturday evening was a story in itself. Myself, Glenn, John and Daniel Yost, and NOVAAR's Ken Brown, went to the local Elby's for dinner. We should have stuck with McDonalds and just put up with the heartburn. I believe the waitress that we had was related somehow to Attila the Hun, but you really don't want to hear about that. Back to the dorms, for some E Helicopter repair, watching Warren Sisco's high-power videos, and some midnight C B/G trimming.

Sunday's weather was pretty much the same as Saturday's, including the steady breeze which kept things comfortable. $\frac{1}{2}$ A PD was finished up, with the Launch Lizards again taking first, with 390seconds and GSSS's Bob Zabriskie taking second at 287 seconds. Glenn Feveryear took third with 173 seconds. In E Helo, Jankov-Pavlov, Art Rose and Ken Brown finished 1-2-3, and I brought up the rear in fourth, with a less than earth shattering 29 second barely qualified flight. (Whose complainng?!) The contestants then finished the C Boost/Glide flights, which were every bit as exciting as E Helo. Art Rose took this one, too, with Glenn taking fourth. Glenn, as well as most other flyers, used a dethermalyzer, or DT; this is a fancy term for what most people would call a little weight-on-a-string-which-swings-down-to-pull-the-glider-out-of-the-sky. That's too long, hence "DT". The last event was C Superroc Duration, which I somehow managed to take first place in, with 1184 points, followed by Bruce Canino at 1122.

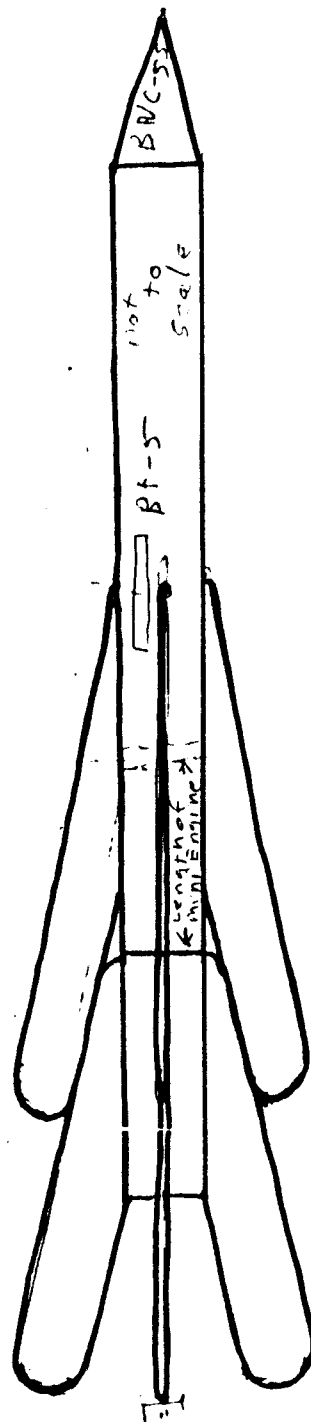
It must be said that SPAAR was well represented, both with flyers and supporters. Flying were John and Daniel Yost, Glenn Feveryear and myself; attending to lend support, observe or take photos were Dick and Bill Rhoat, Rick Hackman, and Jim Lytle and family. Jim esecially impressed everyone with his Saturn V, which turned in an excellant flight.

After the ranged closed at 2 PM Sunday, the results were totaled up, and a brief awards ceremony was held. Trophies were awarded to the first place finishers in all events, with ribbons going to the second thru fourth place winners. We were on the road home by 4:00.

As I said, WUBBA-12 was my first Regional; I had so much fun, I think that I'll wubba again next year. I strongly suggest to all SPAAR members that you consider wubbaing next year, too!

FLIGHT LOG (Sport Flights)

| Date: 23 July 1989 | Flight # | Name | Model | Motor | Event | Dur. | Misc. |
|--------------------|-------------|-----------------------|-------------|------------|-------|-------------|-------|
| 1 | R. Hackman | Apogee 2 | B6-0/A8-5 | Sport | 23.00 | GF | |
| 2 | G. Beaver | Saturn V | D12-3 | " | XXXX | GF | |
| 3 | R. Clark | unknown | D12-5 | " | 50.9 | GF | |
| 4 | R. Clark | unknown | D12-5 | " | 44.6 | GF | |
| 5 | R. Hackman | Cherokee-D | D12-5 | " | 84.28 | GF | |
| 6 | R. Hackman | Interceptor | B4-4 | " | 15.35 | GF | |
| 7 | R. Hackman | WAC Corporal | A8-3 | " | 37.00 | GF | |
| 8 | R. Hackman | Scissor Wing T | C6-3 | " | 17.00 | unk. | |
| 9 | R. Hackman | XR-38 | A3-2 | " | 10.54 | unk. | |
| 10 | R. Hackman | XR-39A | A6-2 | " | 7.47 | " | |
| 11 | R. Hackman | XR-41A | A6-2 | " | 2.82 | UNS | |
| 12 | R. Hackman | XR-45 | A6-2 | " | 7.10 | EJ | |
| 13 | E. Miller | VaporRoc | D12-7 | " | 53.62 | GF | |
| 14 | E. Miller | Cone | D12-7 | " | 41.06 | D SD attemp | |
| 15 | E. Miller | Stealth | C6-5 | " | XXXX | CHU | |
| 16 | F. Hoke | Crusader S/W | B6-2 | " | 13.75 | GF | |
| 17 | E. Marcella | Stinger | A8-3 | " | 18.06 | GF | |
| 18 | E. Marcella | Stinger | B6-4 | " | 27.15 | GF | |
| 19 | E. Marcella | Stinger | A8-5 | " | 17.16 | GF | |
| 20 | D. Greene | Gemini-Titan 3 | B8-5 | " | 15.78 | GF | |
| 21 | F. Hoke | Super Big Bertha Plus | D12-0/D12-5 | " | 90.08 | GF | |
| 22 | F. Hoke | Der V-3 | D12-7 | " | 51.88 | GF | |
| 23 | E. Miller | Titan IIIE | D12-3 | " | 22.38 | GF | |
| 24 | F. Hoke | Defender | D12-7 | " | 95.46 | GF | |
| 25 | E. Miller | Spillsport (4) | D12-5 | " | 32.03 | GF | |
| 26 | F. Hoke | Super Big Bertha Plus | D12-0/D12-7 | " | 44.15 | GF | |
| 27 | R. Hackman | XR-37 | B6-6 | " | 47.5 | GF | |
| 28 | R. Hackman | XR-37 | B6-6 | " | 43.66 | GF | |
| 29 | R. Hackman | Allen Invader | B6-4 | " | 21.78 | CHU | |
| 30 | R. Hackman | " | B4-4 | " | 23.9 | GF | |
| 31 | G. Beaver | Transition | A3-4 | Sport/A SD | 45.10 | GF | |

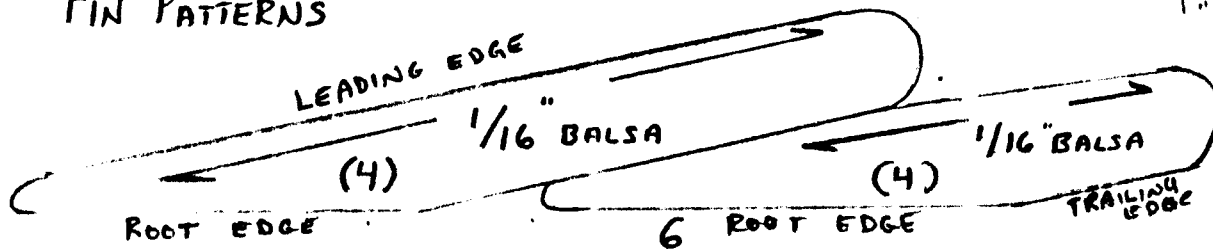


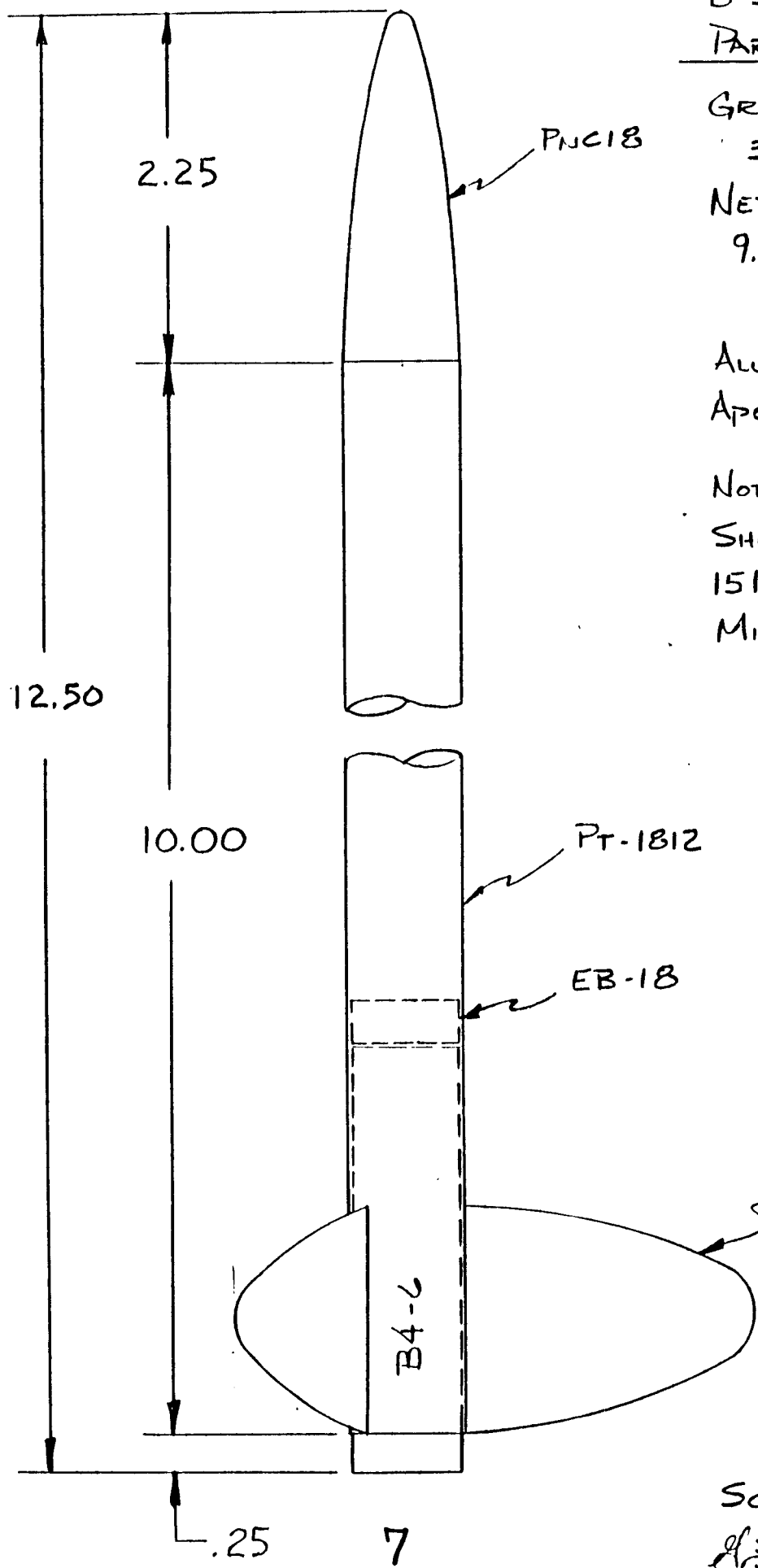
XR-35 TWO STAGE MINI-ENGINE
SPORT ROCKET
by RICK HACKMAN NAR 47559

PARTS LIST (ESTES)

- 1 BNC-5S
- 1 10 1/2" SECTION OF BT-5
- 1 2 1/4" SECTION OF BT-5
- 1 1/8" LAUNCH LUG
- 1 SMALL SCREW EYE
- 1 JT-5C FOR ENGINE BLOCK
- 1 SMALL STREAMER

FIN PATTERNS





B STREAMER / PARACHUTE DURATION

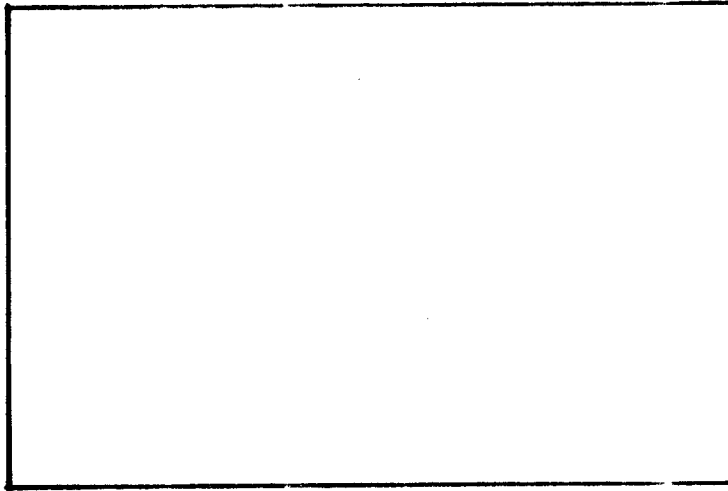
GROSS WEIGHT:
31.3
NET WEIGHT:
9.2g

ALL PARTS FROM APOGEE COMPONENTS

NOTE: USE EXTERNAL SHOCK CORD OF 15LB TEST FLY LINE MINIMUM.

SCALE: 1/1
A. J. Sweeney 89-5-10

NAR
503
SECTION



TO:

S.P.A.A.R.
P. O. Box 127
Reamstown, PA 17567

THE SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY
NAR SECTION #503, PO Box 127, Reamstown, Pa 17567
SCHEDULE OF EVENTS, FALL, 1989;

SECTION SPORT LAUNCH, SUNDAY, SEPTEMBER 3, COCALICO HS, DENVER, PA;
1 PM to 5 PM; Practice Events: B Eggloft
Duration and C Superroc Duration.

SECTION MEETING, MONDAY, SEPTEMBER 18,
7 PM to 9 PM, Lancaster Library;
New members welcome.

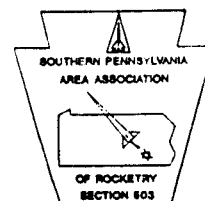
SECTION SPORT LAUNCH, SUNDAY, SEPTEMBER 24, COCALICO HS, DENVER, PA;
1 PM to 5 PM; Practice Event to be announced.

SECTION SPORT LAUNCH, SUNDAY, OCTOBER 8, COCALICO HS, DENVER, PA;
1 PM to 5 PM; Practice for VACUUM-15.

SUNDAY, OCTOBER 15: VACUUM-15 OPEN MEET, MANNASSAS, VA;
 $\frac{1}{2}$ A SD multi; A PD multi; B Helicopter; A Superroc
altitude; B Payload Altitude, D Dual Eggloft Altitude.

SECTION MEETING, MONDAY, OCTOBER 16,
7 PM to 9 PM, Lancaster Library;
New members welcome.

SUNDAY, NOVEMBER 5, COCALICO HS, DENVER, PA;
SPAARSPAM-1, LAST SPORT LAUNCH OF THE SEASON
AND SECTION TAIL-GATE PARTY, 1 PM to 5 PM.



SOUTHERN PENNSYLVANIA
AREA ASSOCIATION
OF ROCKETRY
PROMOTING SAFE MODEL ROCKETRY
IN SOUTHERN PENNSYLVANIA
AND NORTHERN MARYLAND

SPAAR, NAR SECTION 503
PO BOX 127 REAMSTOWN, PENNSYLVANIA 17567