COUNTDOWN

OFFICIAL NEWSLETTER OF
THE SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY

Vol. 3, Issue 3, May/June, 1990

Q: WHAT'S THE "IN" THING TO WEAR THIS SEASON??

A: WHY, A NEW SPAAR PATCH, OF COURSE!!
(see page 9 for details)

("Wreak" Havoc, male model, compensated for his services)

INSIDE THIS ISSUE:

The COUNTDOWN
Volume 3, No. 3
May/June 1990

The COUNTDOWN is the newsletter of SPAAR, the Southern Pennsylvania Area Association of Rocketry, NAR Section 503, and is intended for the enjoyment of it's members and subscribers. Material may be used with proper credit. Non-member subscriptions are available at $5 per year, six issues, at SPAAR, PO Box 127, Reamstown, PA 17567
Editor: George Beever Cover Art: Bob Stott Jacket Design: Bruce Canino
Thanks this time to: Aaron Newman, Glenn Feveryear, Ken Brown, Mark Snyder, John Yost, Ed Miller, Bruce Canino, Rita Feveryear, & Manuel Mejia, Jr.

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CALENDAR

Sunday, June 10: SPAAR Sport Launch, Cocalico Sr. High, Denver, PA. 3PM to 7PM *NOTE TIME CHANGE* Practice Event: B Streamer.

Monday, June 18: Section Meeting, Lancaster Library, 7PM to 9PM.

Saturday, June 30: LMR Last Minute Regional, Manassas, VA., Host Section: NOVAAR. 9AM to 6PM. Events: D B/G, B FW/BG Multi, C HD, C ELD, B RG, B SD.

Sunday, July 1: SPAAR Sport Launch, Cocalico Sr. High, Denver, PA. 3PM to 7PM. Practice Event: ½A Parachute Duration.

Monday, July 16: Section Meeting, Lancaster Library, 7PM to 9PM.

Sunday, July 22: SPAART-1 Record Trials, Cocalico Sr. High, Denver, PA. 9AM to 5PM; Duration Events only.

Sat./Sun., July 28&29 WUBBA-13 Regional Meet, Centre Valley, PA. Host Section: PULSAR Events: F SuperRoc Duration, ½A SuperRoc Duration, E Helicopter Duration, B Flexwing B/G Multi, ½A Rocket/Glide Multi, B Streamer Duration Multi.

Sunday, August 12: SPAAR Sport Launch, Cocalico Sr. High, Denver, PA. 3PM to 7PM. Practice Event: TBA

Monday August 20: Section Meeting, Lancaster Library, 7PM to 9PM.

Sunday, Sept. 2: SPAAR Sport Launch, Cocalico Sr. High, Denver, PA 3PM to 7PM. Practice Event: F Streamer.

Minutes of Section Meeting
April 16, 1990

Present: G. & R. Feveryear, J. Yost, G. Beever, D. Greene, R. Rhoat, E. Miller.

Old Business:
I. Treasurer's Report: Ed Miller reported that there are 31 paid members; the balance at the end of the last meeting was $256.40. Since then, there has been an income of $20 in new memberships, and the following outlays: $10 for NAR charter renewal; $123 for patches; $31.20 for postage. Current Balance: $112.20.

II. Newsletter: G. Beever reported that 25 copies of the March/April Countdown went to members, 12 to other Sections on an exchange basis, and 7 went to subscribers.

III. Competition: G. Feveryear reported that no one flew the A SRD practice event on April 1, so both A SRD and C HD will be flown on April 22.
* WUBBA-13 was discussed; SPAAR will attend.
* The SPARROW-1 Open Meet was discussed; the meet is in doubt, due to the lack of a suitable field; options discussed:
1. Change it to a Section Meet;
2. Cancel altogether;
3. Postpone until Spring '91;
4. Attend NOVAAR's Open Meet (3rd week in Sept)
A final decision was put off until no later than the June meeting.
* The fees for the Section Meet were discussed; they will be the same as at SPAARSEC-1, being $2 for C Division, and $1 for A & B.

IV. Education: G. Beever reported that SPAAR had been contacted by a local 4-H group, asking for help in setting up their model rocketry program. After discussion, it was decided to help out on a club basis in 1991.

V. Section Advisor: John Yost reported that the Section Charter was renewed with the NAR, and he explained the discount coupons received.

He then read a letter was NAR president J. Pat Miller concerning the "Needs Fixin'" report.
* Advised that AmSpam is looking for an Advertising Manager.
* Reported that out of 34 NAR Sections which actively participate in NAR competition, as of this date SPAAR ranks 8th in the country, with G. Feveryear ranked 3rd in C Division.

New Business:
Dale Greene brought the new club patches. We had ordered 60, however 69 were received, to make up for any defects. Those present were pleased with the quality.
The patches are available to SPAAR members for $3 each, and to non-members for $5 each.

Dick Rhoat showed an example of an aluminum launch rod holder that he has been working on. These are planned to replace the wooden ones currently in use.

General discussion followed; the meeting adjourned at 9PM.
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Minutes of Section Meeting
May 21, 1990

Present: G. & R. Feveryear, J. Yost, D. Greene, W. Rhoat, D. Rhoat, R. Hackman, G. Beever, E. Miller, A. Babiarz.

Old Business:
I. Treasurer's Report: E. Miller reported that there were 30 paid members; the balance at the end of the last meeting was $112.20. Income: $51 for patches; $10 in dues; $1.50 donation. Outlays: $19 launch system components. Current balance, $155.70.

II. Newsletter: G. Beever reported that the May/June issue of the Countdown will be mailed late in the week of May 28- June 1.

III. Competition: After discussion, it was decided that the SPAAROW-1 Open Meet, scheduled for Sept. 15, would be changed to a Section Meet, due to the lack of a field suitable for an Open. The date for the meet will be Sept. 16, and the name will be SPAARSEC-3. The events will be the same as what were planned originally, except that B R/G will be dropped.
* WUBBA-13 has been rescheduled again, and will be held July 28-29. The SPART-1 Record Trials, therefor, will be moved back to it's original date of July 22.
* Attendance at JOISEE-VI was discussed, and a decision will be made within the next few months.
* A new records keeping procedure was discussed and adopted by voice vote. Under this procedure, club performance records will be kept by age division.

IV. Education: No Report.

V. Section Advisor: John Yost reported that he had written a letter to Estes with the observations and the members opinions on the sample of the new recovery wadding.
General discussion followed; meeting adjourned at 9PM.

SECTION NEWS NOTES

NICE GOING GLENN!!: On April 14, 1990, SPAAR President Glenn Feveryear was honored for his efforts as a member of the Delta-Cardiff Fire Co. and Ambulance Service, at a banquet held at the American Legion Hall in Whiteford, MD.

Glenn received a plaque, which read: "The Emergency Medical Services Association of York Co. recognizes C. Glenn Feveryear, Delta-Cardiff Ambulance Service, as a Volunteer For Life."

Being a "Volunteer for Life" indicates that Glenn has excelled in his work in saving life as an ambulance crewman. This is the first time that this honor has been awarded, and Glenn was one of only three persons in York County who received the award.

In addition, Glenn received a second plaque, indicating that he ran 166 calls during 1989, the third highest total in the county.
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LAST MINUTE REGIONAL: NOVAAR will host the Last Minute Regional on June 30 at Manassas, VA. This will be a one day Regional.

The events will be:
D Boost/Glide, C Helicopter,
B FlexWing Multi, E Eggloft,
B Streamer, and B Rocket/Glide.
SPAAR will attend, please consider going along.
****

SCHEDULE CHANGE: (or, "just when you thought it was safe to plan ahead") Here we go again guys. Please make note of the following schudule changes: WUBBA-13 will be held during the weekend of July 28-29 (not July 21-22) in Allentown, PA. The events are: F SuperRoc, E Helicopter, ½A SuperRoc, ½A Rocket/Glide Multi, B Streamer Multi, and B Flexwing Multi.

This means that the SPAART-1 Record Trials will be held July 22, from 9AM to 5PM as originally scheduled. Sport flying is welcome.
****

NEW RECORDS KEEPING PROCEDURE: Good news for our A and B Divsioners! Up 'til now, SPAAR kept it's performance records in one age group, for all members.

At the May 21st meeting, those present voted to change this to allow SPAAR club records to be kept by age division.
These are the records as of 5/1/90:

A DIVISION:

Parachute Duration			
½A	D. Bender	10/9/88	32.2s
A	E. Marcella	7/23/89	18.0s
B	D. Bender	10/8/89	37.5s
C	E. Marcella	9/3/89	66.4s
D	Dan Yost	7/3/88	65.2s
Streamer Duration			
½A	Derek Yost	7/3/88	14.1s
A	D. Bender	10/9/88	42.6
Eggloft			
C	Dan Yost	10/9/88	34.1s

B DIVISION

Parachute Duration			
½A	W. Rhoat	7/23/89	36.5s
A	W. Rhoat	8/14/88	27.6s
B	W. Rhoat	4/16/89	79.0s
C	Open		
D	W. Rhoat	4/16/89	31.1s
E	W. Rhoat	11/5/89	22.1s
Streamer Duaration			
½A	W. Rhoat	7/23/89	38.9s
A	W. Rhoat	10/9/88	29.0s
B	W. Rhoat	7/23/89	50.9s
Eggloft			
C	W. Rhoat	7/2/89	67.2
SuperRoc			
B	W. Rhoat	7/23/89	832.5pts

Congratulations, guys, and your certificates are forthcoming.
All other events not listed above are open.

FLIGHT LOG

Date: April 1, 1990
Weather: Cloudy, damp, cold

Location: Cocalico HS

Flight#	Name	Model	Motor	Event	Time	Misc
1	R. Hackman	Alpha III	A8-3	Sport	26.01	GF
2	A. Newman	Star Speeder	B6-4	Sport		SEP
3	R. Hackman	XR-46	A8-3	Sport	20.08	GF
4	G. Feveryear	MiniMean Machine	A3-4	Sport	29.47	GF
5	R. Hackman	XR-55	C6-5	Sport	10.29	GF
6	G. Feveryear	C SD	C6-7	C SD	172.75*	GF
7	J. Yost	Delta Star	B8-5	B PD/Sport	80.5	GF
8	R. Hackman	XR-61	C6-3	Sport	7.6	CHU
9	D. Greene	Honest John	B6-4	Sport	33.68	GF
10	G. Beever	DART	B6-4	Sport	17.16	CHU
11	A. Newman	Fork Tailed Devil	C6-5	Sport	32.89	GF
12	D. Greene	Minuteman	C6-7	Sport	42.0	GF
13	A. Newman	Titan Pirate	C6-5	Sport	10.6	GF
14	D. Greene	MPC Pioneer	B8-5	Sport	28.12	GF
15	G. Beever	OSO	B8-5	Sport	11.10	CHU
16	G. Feveryear	Grumpy Dog	D12-0/D12-3	Sport	59.4	GF
17	D. Greene	GT-3	B4-4	Sport	20.95	GF
18	D. Greene	GT-3	C6-5	Sport	60.25	GF
19	A. Newman	Nebulon Warrior	B6-4	Sport	13.0	CHU
20	G. Beever	Loadlifter 1A	A8-3	Sport	24.34	GF
21	G. Beever	Viking 1	B6-4	Sport	17.52	GF
22	A. Newman	Komet	½A3-2	Sport	3.12	UNS
23	R. Hackman	XR-61	D12-5	Sport	43.30	GF
24	A. Newman	Mach Rider	C6-5	Sport	15.83	GF
25	A. Newman	Mach Rider	C6-5	Sport	14.87	GF
26	J. Yost	Rose-A-Roc	A3-2	A HD	9.01	UNS
27	R. Hackman	XR-61	E5-6	Sport	18.3	SHRED
28	G. Beever	High Rotor I	½A3-2	½A HD	7.6	NO DEP
29	G. Beever	High Rotor I	½A3-2	½A HD	7.3	EJ
30	G. Beever	High Rotor I	½A3-2	½A HD	27.33	GF
31	A. Newman	SNARK	A8-3	Sport	9.66	CHU
32	A. Newman	SNARK	B6-4	Sport	15.73	CHU
33	A. Newman	SNARK	B6-4	Sport	19.04	CHU
34	A. Newman	Galactic Taxi	B6-4	Sport	28.40	GF
35	A. Newman	Galactic Taxi	B6-4	Sport	16.12	GF
36	A. Newman	Sky Hook	½A6-2	Sport	6.5	GF
37	A. Newman	Sky Hook	C6-7	Sport	????	LOST
38	R. Hackman	XR-64	½A6-2	Sport	3.18	UNS
39	R. Hackman	XR-64	A8-3	Sport	3.83	UNS

Hey, so whats a little rain (or the threat thereof), a little chill in the air, an occasional breeze? Hmmm... sounds like SPAAR weather to me! You really didn't think that we'd cancel the first SPAAR Sport Launch of the year did you?

At first, the weather did not appear to be in a cooperative mood; steady rain fell Saturday night and into Sunday morning. But, as AccuWeather said it would, the rain stopped around noon. Unfortunately, the rain continued in many places, and the turnout was low. Only six members showed up, but a total of 39 flights were made.

The most impressive acheivement of the day were the three flights that Rick Hackman made with his big XR-61 ("It's big, it's green..") Rick built this model to fly with 24mm Estes D motors. He now holds a unique SPAAR record: he flew the same rocket 3 times on three different sizes of motors!

The first flight was on an Estes 18mm C6-3. The heavy model all but staggerd into the air, nosed over, and... well, let's just say it was a nice core sampling mission. The rain-soaked ground was so soft, however, that there was little or no damage done to the model. Rick just had to pull the mud out of the body tube, and she's as good as new!

The second flight was on an Estes D12, and the model turned in a very nice flight, just as it did at SPAARSPAM -1 in November. The last flight was a real treat. Rick pulled out an FSI E5-6, a long burning, low-range E motor. The E5 turned in a surprisingly nice flight, but parachute problems led to some damage.

Glenn Feveryear proved that he does, in fact, own a sport model other than the Grumpy Dog. Glenn brought out an estes Mini Mean Machine, as well as the 'Dog.

John Yost not only flew a rocket, but it was a sport model to boot! Powered by a B8-5, the Delta Star turned in a very nice 80 second flight.

Aaron Newman flew a large number of models, most with good results. One of the models was a sport-scale version of the SNARK surface-to-surface missle of the 50's. In fact, Aaron's was the last flight of the day; he launched his Estes Sky Hook on a C6-7, complete with it's white paint job. It punched thru the clouds, and... oh, well.....

FLIGHT LOG

Date: April 22, 1990
Weather: Sunny, mild

Location: Cocalico HS

Flight#	Name	Model	Motor	Event	Time	Misc
1	J. Yost	Fly Baby	B4-2	B B/G	41.88	GF
2	D. Bender	Golf Rocket	A3-4	Sport	21.5	GF
3	D. Bender	Astro	½A6-2	Sport	5.7	Sep
4	D. Bender	Yellow Jacket	B4-4	Sport	37.0	GF
5	K. Pattison	Sizzler #2	B8-5	Sport	43.3	Gf
6	K. Pattison	V-2	D12-5	Sport	51.8	GF
7	K. Pattison	Ranger	D12-5	Sport	69.0	GF
8	Renee Feveryear	Starhawk	½A6-2	Sport	7.7	GF
9	Rita Feveryear	Blue Star	B4-6	Sport	38.5	GF
10	G. Beever	Easy Slide II	B4-2	B R/G	13.00	GF
11	G. Feveryear	B/G	B4-2	B B/G	74.6*	GF
12	D. Greene	Big Brute	F50-6	Sport/F PD	53.5	GF
13	D. Rhoat	C SD	C6-7	C SD	104.0	GF
14	G. Feveryear	½A HD	½A3-2	½A HD	35.8	GF
15	A. Newman	TC (?)	A8-3	Sport	5.10	-
16	A. Newman	3 stage Soviet Shuttle	B6-0X2,A8-5	Sport	14.2	-
17	A. Newman	DragonFly	½A3-2	½A BG	NT	-
18	A. Newman	Explorer Aquarius	D12-5	Sport	32.4	GF
19	A. Newman	Explorer Aquarius	D12-5	Sport	39.02	GF
20	A. Newman	Zaxon Fighter	B6-0/A8-5	Sport	27.4	GF
21	A. Newman	Nike-Hercules	A10-3	Sport	4.0	-
22	A. Newman	Veritech	B6-4	Sport	6.09	-
23	A. Newman	Komet	½A3-2	Sport/½A RG	2.56	UNS
24	A. Newman	Desert Hawk	½A3-2	½A BG	5.88	SEP
25	D. Greene	Ranger	E60-6	Sport	240+	LOST
26	D. Greene	Rascal	D12-5	Sport/D PD	99.2	GF
27	F. Hoke	HXP1+1	B4-2	Sport	23.2	-
28	F. Hoke	HXP1	B6-4	Sport	48.4	-
29	F. Hoke	Super Bertha+	D12-0/D12-5	Sport	24.0	GF
30	G. Feveryear	C Alt test	C6-7	C Alt	NT	GF
31	G. Feveryear	B R/G	B4-2	B R/G	8.1	No Glide
32	E. Miller	Cone	D12-3	Sport	8.9	GF
33	E. Miller	Super Bertha +	F100-6	Sport	41.7	GF
34	E. Miller	Gyroc	B6-4	Sport	21.1	GF
35	E. Miller	Magnum Wizard	(3)D12-5	Sport	53.2	GF
36	E. Miller	Micro SpoilSport	(4)A3-4	Sport	NT	GF
37	E. Miller	Magnum	D12-0/B8-5	Sport	41.0	GF
38	E. Miller	Black Shaft	E60-8	Sport	20.0	SEP
39	E. Marcella	Alien Space Probe	C5-3	Sport	24.8	GF
40	E. Marcella	Black Brant II	D12-3	Sport	97.0	GF
41	E. Marcella	Stinger	B6-4	Sport	30.5	GF
42	J. Lytle	GEO SAT LV	B4-4	Sport	8.1	GF
43	J. Lytle	Tornado	B4-4	Sport	46.9	GF
44	J. Lytle	Mercury Redstone	C503	Sport	27.2	GF
45	J. Lytle	HelioCopter	B4-4	Sport	15.05	GF
46	G. Feveryear	RotaRoc-C	C6-3	C HD	138.0*	GF
47	G. Beever	RoraRoc-C	C6-3	C HD	43.5	GF
48	G. Beever	RotaRoc-C	C5-3	C HD	72.9	GF

It would be safe to say that the weather on April 22 was as nice as the weather on April 1 was bad. Everyone appeared to take advantage of this, and 48 flights were made by the end of the day.

Ed "Let's mix up some epoxy" Miller flew a sampling of what he built this past winter. These included the "Cone", which is just that; a finless rocket, shaped like a cone. It has a rear-ejection chute system, and flew well. The Micro-Spoilsport is a scaled-down version of the North Coast Spoilsport, using 13mm BT-5 tubes for the motors. The show stopper, however, was Ed's "Magnum Wizard", a scaled-up version of the Estes kit. You can't fly this baby on a ½A6-2. Try three D12's. Ed even duplicated the white, metallic purple, and black paint sceme of the original, including the kit logo. All three D12's ignited for a perfect flight.

Dale Greene also brought out a new model, a North Coast Big Brute, which he flew on an Aerotech F50. The Brute also turned in a perfect flight. Sorry that the same can't be said for an earlier flight, however. Dale put an FSI E60 in an Estes Ranger. It, too, flew well, but was not recovered.

Two new SPAAR members, Kenn Pattison and Fred Hanawalt, came to their first club launch. Kenn got in some flying with some nice sport models.

Dick Rhoat arrived late but got in one flight, a C Streamer flight of 104 seconds. It was an extremely good flight, but it did not top Glenn Feveryear's club C SD record of 172.75, set on April 1.

Fred Hoke flew some very interesting parasite boost/glider designs. These were yet another winter project unveiled for the first time.

The mother and daughter team of Rita and Renee Feveryear made their first flights; Rita flew an Estes Blue Star that she built herself.

Rocket Golf made it's Pennsylvania debut (we think), when Dave Bender Tee'd off on a par-5, 500 yard Hole 2. Replace your divits, Dave.

Maybe April 22 should have been called the "Aaron Newman Show", as he made 10 flights altogether. Thats what we're here for!

The Practice Event was C Helicopter, won by Glenn with a club record 138 second flight on a RotaRoc.

S P A A R S E C - 2: A G R E A T S U C C E S S ! ! !

Going into the Memorial Day weekend, things did not look good. The forecast was for rain, rain, and more rain. Not very good rocket flying weather. Some what incredibly, however, the rains stopped early Sunday morning. May 27 turned out to be a near-perfect day for SPAARSEC-2.

The range opened at 9:30,and most contestants flew Streamer Spot Landing first. Ed Miller had an interesting strategy: he flew an Estes Flying Saucer on his attempt, and was looking good at 6.3m. John Yost caught him though, at 4.47m for first place.

B Eggloft was decided by a total of 2 seconds, which was the difference between Mark Snyder's first place time of 42 seconds and Glenn Feveryear's 40 seconds. This is the same design that Mark used to set the SPAAR C Division B Eggloft record with last September. Look for this plan in an upcoming issue of the Countdown. Flying one of the new Apogee Components kits, Ed Miller took third with 36 seconds.

B Rocket/Glide could have been called the match-up between The Seattle Special vs. The Gull. Almost sounds like something out of pro wrestling. Anyway, The Gull won very easily. Glenn flew The Gull, a C R/G design that goes back to the '70s, with two great flights which totaled 206 seconds. Ed (I thought he only flew big honkin' rockets!) Miller took second place at 61 seconds with a (you guessed it) Seattle Special.

C Helicopter was closer than B R/G, with a total of 10 seconds separating the 1st and 3rd place finishers. Using a Ken Brown RotaRoc, George Beever took first with 120 seconds; Mark Snyder took second at 115 seconds flying a model of the original RotaRoc; and Dale Greene took third at 110 seconds with another Ken Brown job. Ed Miller had the best single flight, at 92 seconds, with his model that was a combination of the RotaRoc and the Helix. For some unknown reason, a number of the RotaRocs failed to flip over and decsended upside-down. John Yost flew a Rose-a-Roc, but couldn't stabilize the model.

A SuperRoc Duration was pretty close at the end, too, with George's 793 total points finishing just ahead of Glenn's 730 points. Dick Rhoat put in a very good showing with 655 points for third place, and Ed took fourth at 375 points with another Apogee model. Dale Greene and Mark Snyder each DQ'd one flight, and if they hadn't, surely would have placed.

Because of the great weather, most if not all of the contest flying was finished by about 2PM. Sport flying had been going on during the morning, and now had the range to itself. Again, everyone wanted to take advantage of the warm sunshine, and over 60 sport flights were made.

All sorts of club records were set during the course of the day, most under the guise of "sport flights".

The high power boys were out, witnessed by the fact that new E and F parachute duration records were set, and an attempt was made at a new G PD record. Bob Balogh set a new E PD mark with his Aerotech E6-4 powered Estes V-2, which turned in a beautiful 170.16 second flight. Ed Miller used a North Coast Rocketry Phanthom 2600 and an F41-9WL to set a new F PD mark at 77.3 seconds.

Fred Hoke used his unique HXP-1 parasite boost/glider design to set a new C Divsion C B/G mark, with 83.7 seconds.

Aaron Newman set a new A Division B PD record with a flight of 157.6 seconds. Did he use one of those fancy, high-tech, state-of-the art parachute duration models? Nah... just a "stock" Estes Sizzler, a B6-4, and one heck of a thermal. On top of that, Aaron must have set some sort of record for number of flights flown by one person in a single day, with 29!

Dale Greene, as mentioned before, flew his NCR Big Brute first on a G40, and then on "only" an F50, turning in great flights both times. Bob Balogh flew his beautiful Aerobee-Hi on a G25-5 which was also very impressive, as was Ed Miller's two-stage E60 powered "Shock Wave".

FLIGHT LOG

Date: May 27, 1990
Weather: Sunny, warm

Location: Cocalico HS

flight #	NAME	MODEL	MOTOR	EVENT	TIME	MISC
1	B. Rhoat	Phoenix	D12-3	Sport	40.2	GF
2	A. Newman	Fork Tail Devil	(2) C6-5	"	35.5	GF
3	" "	Veritech	B4-2	"	6.7	--
4	" "	3 Stage Sov. LV	B6-0X2,A8-5	"	9.8	--
5	" "	Commanche-3	D12-0/B6-0/A8-5	"	66.0	GF
6	" "	Komet-C	½A3-2	"	2.56	UNS
7	" "	SWAT	C6-5	"	21.89	GF
8	" "	SWAT	C6-5	"	10.5	GF
9	" "	SWAT	C5-3	"	?	GF
10	" "	HASTE	B6-4	"	35.4	GF
11	" "	Mach Rider	C6-5	"	15.5	GF
12	" "	Mach Rider	B6-4	"	9.54	GF
13	" "	Desert Hawk	A3-2	Sport/A BG	--	SEP
14	" "	Desert Hawk	A3-2	"	--	SEP
15	" "	Desert Hawk	A3-2	"	--	SEP
16	" "	SNARK	A8-3	Sport	13.2	GF
17	" "	Snark	B4-4	"	32.5	GF
18	" "	SNARK	B6-4	"	26.3	GF
19	" "	Titan Pirate	C5-3	"	15.2	"
20	" "	Titan Pirate	C5-3	"	27.9	"
21	" "	Stealth	B6-4	"	15.1	"
22	" "	Stealth	B4-4	"	14.7	"
23	" "	Sizzler	B6-4	"	28.1	"
24	" "	Sizzler	C6-5	"	44.2	"
25	" "	Sizzler	B6-4	"	?	?
26	" "	Sizzler	B6-4	"	33.5	GF
27	" "	Sizzler	B4-4	"	24.0	"
28	" "	Sizzler	B6-4	"	157.6	GF
29	" "	ACLM	B6-4	"	--	GF
30	" "	ACLM	B6-4	"	--	GF
31	G. Feveryear	RotaRoc	C6-3	C HD	47.0	GF
32	G. Geveryear	RotaRoc	B6-2	B HD	35.5	GF
33	G. Beever	RotaRoc	A8-3	A HD	19.4	GF
34	R. Hackman	A PD	A10-3	A PD	28.8	GF
35	" "	A SD	A10-3	A SD	17.24	GF
36	" "	Starblazer	A3-4	Sport	45.7	GF
37	" "	XR-68	B4-2	"	2.1	UNS
38	" "	XR-69	A8-5	"	4.8	UNS
39	" "	XR-67	(4)A3-4	"	23.3	GF
40	" "	XR-55	C6-5	"	16.5	"
41	" "	Blackie	A3-4	"	86.0	GF
42	" "	XR-70	B4-2	"	--	GF
43	" "	XR-71	C6-5	"	42.6	GF
44	" "	XR-71	C6-5	"	--	GF
45	D. Greene	Big Brute	G40-7	" & G PD	80.0	GF
46	D. Greene	Big Brute	F50-6	" & F PD	46.6	GF
47	E. Miller	Shock Wave	E60-0/E60-8	Sport	--	GF
48	" "	Cone	D12-3	"	--	GF
49	" "	Valkyrie-17B	B4-2	B BG	7.8	RB
50	" "	Phanthom 1600	F41-9	Sport	77.3	GF
51	" "	Hercules	F100-6	"	42.7	"
52	" "	Phoenix	D12-3	"	25.7	"
53	M. Snyder	EOS	D12-3	"	58.0	"
54	R. Balogh	Space Shuttle	C6-3	"	15.5	GF
55	R. Balogh	V-2	E6-4	Sport	170.16	GF
56	" "	Aerobee-Hi	G25-5	"	74.5	GF
57	F. Hoke	HXP-1	C6-5	"& C BG	13.0	--
58	" "	HXP-1	C6-3	"& C BG	83.7	GF
59	D. Weinhold	?	A10-3	Sport	?	?
60	" "	2X2	C6-3	"	--	CATO
61	" "	Yellow Problem	A10-3	"	23.2	GF
62	" "	Saturn V	E30-4	"	--	UNS
63	D. Bender	Golf Rocket	A3-4	"	--	GF
64	" "	Longshot	C6-5	"& C PD	56.6	GF
65	" "	Big Bertha	C6-5	Sport	49.8	GF
66	" "	Flying Saucer	C6-0	"	--	"
67	" "	Wizard	A8-3	"	20.6	"
68	" "	Constellation	B6-4	"	36.8	"

SPAARSEC-2 RESULTS

Name	SSL/pts/pl	B RG/pts/pl	A SRD/pts/pl	C HD/pts/pl	B EL/pts/pl	total
G. Beever	13.9/2/5th	41s/40/3rd(t)	793/50/1st	120s/110/1st	35s/16/4th	218
G. Feveryear	24.3/2/7th	206s/100/1st	730/30/2nd	38s/11/6th	40s/40/2nd	191
M. Snyder	11.3/4/4th	xxxxxxxxxx	334/5/5th	115s/66/2nd	42/80/1st	155
E. Miller	6.3/12/2nd	61s/60/2nd	375/10/4th	92s/22/4th	36s/32/3rd	136
D. Greene	DQ	13s/20/4th	311/5/6th	110s/44/3rd	23s/8/6th	77
J. Yost	4.47/20/1st	41s/40/3rd (t)	xxxxxxxxx	DQ	26s/8/5th	68
B. Rhoat	7.26/8/3rd	xxxxxxxxxx	xxxxxxxxx	73/11/5th	10.7s/8/7th	27
R. Rhoat	22.2/2/6th	xxxxxxxxxx	655/20/3rd	xxxxxxxxxxx	DQ	22

T H E P A T C H E S A R E H E R E ! ! !

Yes, gang, we're proud to say that the SPAAR patches that you've waited so long for are here at last. These beautiful seven color patches are available now!! Price: $3.00 for members, $5.00 for non-members (Hey, we gotta make a buck or two somewhere!!) Contact Dale Greene at the next SPAAR meeting or launch. By mail, send the dough (US funds or Romulan Bilniks only) plus a large SASE to SPAAR, PO Box 127, Reamstown, PA 17567.

And, from the Home Office in Lebanon, PA., come the Top 10 Reasons Why You Should Buy A Patch:

10. You have a couple of bucks just burning a hole in your pocket.
9. You have one of those jackets full of goofy patches and it has an empty space that needs to be filled.
8. Dan Quayle wants one.
7. Arsenio Hall wants one.
6. Larry "Bud" Melman wants one.
5. Michael Jackson doesn't want one.
4. They look cool.
3. Deep down inside, you know that you've always wanted one.
2. You love them, you can't live without them, you gotta have one... what are they again?

AND, THE NUMBER ONE REASON WHY YOU SHOULD BUY A SPAAR PATCH.....

1. Your parents wouldn't let you have one as a kid.

ON THE COVER: Mark Snyder models the new SPAAR patch at NICE-10.

BI & TRI-WING GLIDERS

by Kenneth "Who Needs Work" Brown

(Editor's Note- Ken Brown wears many hats. He is Section Advisor for NOVAAR, and recently went into business as Qualified Competition Rockets. This article appeared in the March/April edition of the NOVAAR Free Press, and is used with permission. Thanks, Ken.)

About six months ago, I became a World War I (glider) nut. I decided to build Bi and Tri-Wing gliders, both BG and RG. They would be sport scale models of World War I airplanes.

I have based my designs on Fokker DR I (triplane), Fokker DR-7, RAF SE 5a, SPAD XIII, and Sopwith Camels.

In experimenting with these designs, I have observed the following:

1) Box type construction of the wing significantly reduces the possibility of shredding the wings.

2) I have used 1/32" balsa in models up to B engine size with no problems, and 1/16" for C engines and 3/32" for D engines. I did not use Jap tissue on any of the models.

3) The altitude these designs reach is reduced, but the lift is 1½ to 2 times as great.

4) I have used wings that have flat plane airfoils, airfoils with undercamber, and flat plane airfoils with undercamber.

5) I have varied the dihedral from 0" to 5/8".

6) The boom is two to three inches longer than normal, and the tail is 20% larger.

7) Do not build a turn into the glider, as only a small amount of clay is required to get the turn you need.

8) Wing cord for your glider should be 2 to 2½" for engines up to A, 3" for B engines, and 4" cords for C engine size or larger.

9) Standard lengths for wings are 12" for the top one, 11" for the center wing, and 10" for the bottom wing.

10) Stagering of the wings is up for grabs. I have used 1/8" thru 5/8".

11) If you use contest grade quality balsa for a B B/G with 1/16" wings that are 15 and 14 inches long, an 18 inch long boom, and toothpicks for struts, the weight of the glider will be about 16 gr.

The most important aspect is strut design. Different types and placement of the struts will drastically affect the boost and glide phases. I have used eight different strut designs, and this area is open to more experimentation.

I have flown ½A through D B/G and R/G at past Open, Records Trials, and Sport events. At our last sport fly, I launched a "Red Baron" D B/G (Tri-wing). It was a brick that weighed 60 grams. The temperature was 40 degrees, with snow on the ground, but the flight resulted in a returned model that was climbing during the glider phase. It had a time of over four minutes. The R&D aspects of multi-wing gliders are endless.

In October 1989, I filed the first official Provisional Event request since the 1978 Pink Book was published. The new rules would make B/G and R/G (multi-wing) separate events. The Weighting Factors would be an increase of one for bi-wings, and two for tri-wings.

A plan for a bi-wing is included in this issue. I hope to see SPADs, Fokkers, SE 5s', and Camels flying in future NAR contests as a provisional event.

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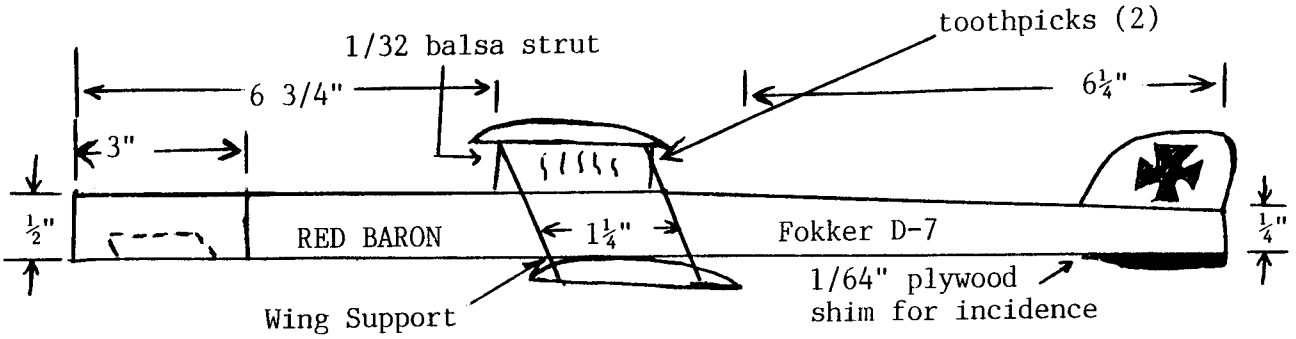
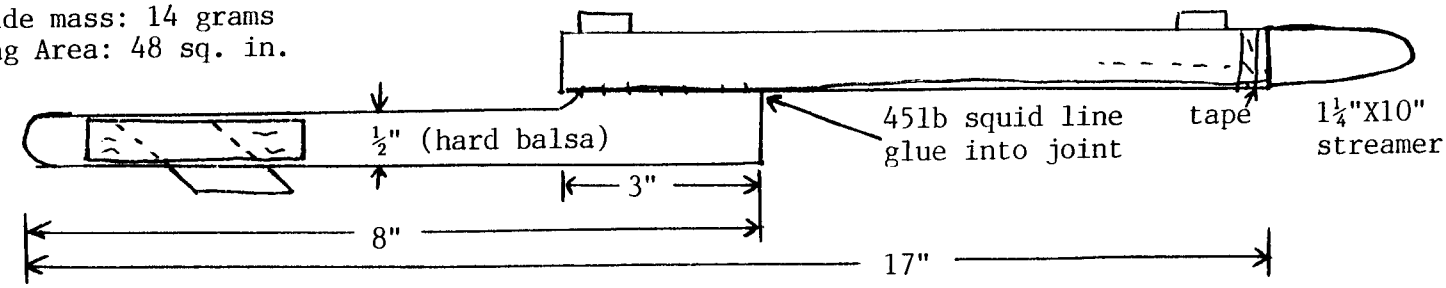
Another note from da edita: If anyone wants a copy of the proposed rules for Bi-and Tri-wing glider events, send a SASE to SPAAR, PO Box 127, Reamstown, PA 17567.

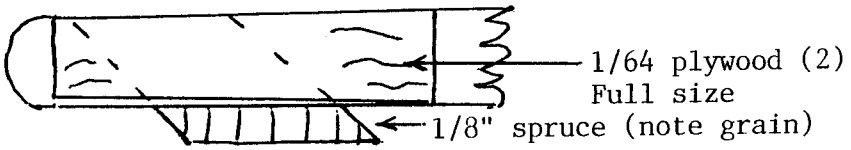
BI - WING "B" B/G

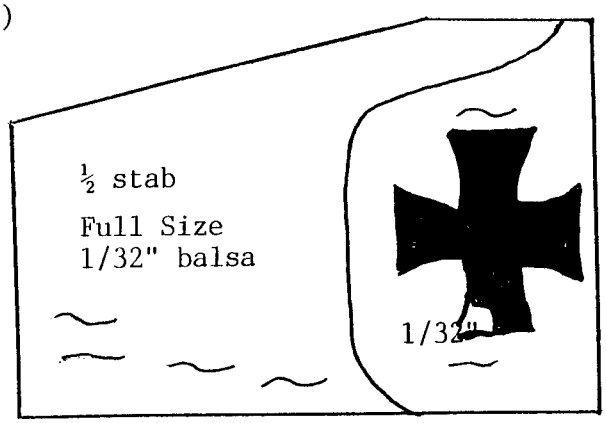
Fokker D-7



Glide mass: 14 grams
Wing Area: 48 sq. in.





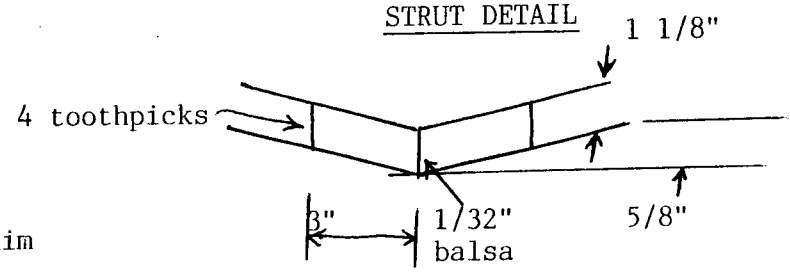


PARTS

(2) Wings, 1/32"X12"X2"
(1) Boom, ½"X15"X1/8" hard balsa
(1) Stab, 1/32"
(1) Fin, 1/32"
(1) Wing center strut, 1/32"X5/8"X2"
(4) Wing Struts, toothpicks
(2) Pod guards, 1/64"X½"X3" plywood
(1) Pod, Estes BT-20 or other 18mm tube
(1) Support Wing, 1"X2"X 1/64" plywood
(2) launch lugs

NOTES:
* Pod is on bottom of glider to prevent clips from catching on wings at lift-off.
* Airfoil wings
* Use 1/64" X 1/8" X ½" plywood for incidence shim
* Toothpicks are pushed thru balsa & glued
* Wings are offset (staggered) ¼".

STRUT DETAIL

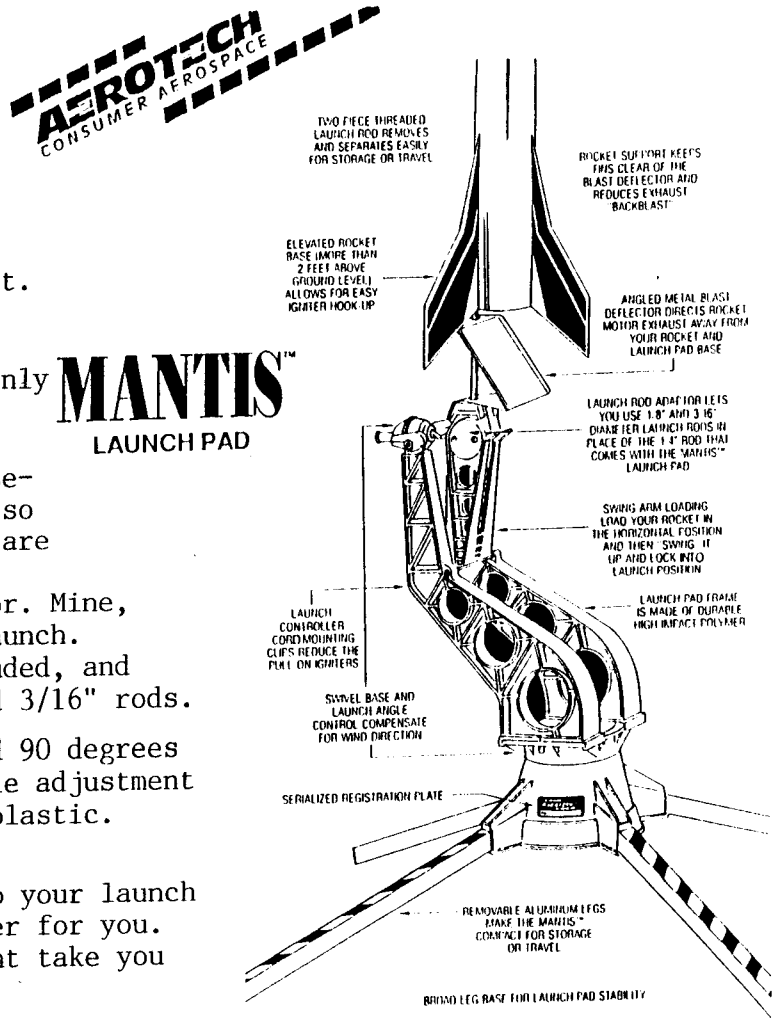


by KEN BROWN
NAR 29354

PRODUCT REVIEW

The Aerotech Mantis
Launch Pad
by Ed Miller

I recently ordered an Aerotech Mantis Launch Pad from Rocket Research, located in Richmond, VA., who distributes Aerotech Products on the East Coast. The list price is $89.95, but Rocket Research sells them for $67.46, a very sizeable discount. If you pay by money order, delivery will take about one week.



For the high price, you may expect a lot; don't. The launcher is mostly plastic as advertised, but has steel hardware and aluminum legs.
The plastic seems to be polystyrene; it is certainly not an "Aerospace Polymere" as advertised. Polystyrene has been around for over 50 years.
The legs are not painted as shown in the advertisements. They are clear anadized aluminum. It says so on the box, in small print. The bolts and screws are zinc plated steel.
Also included is a stainless steel blast deflector. Mine, however, warped after only one composite motor launch.
A two-piece, ¼" diameter X 5' launch rod is included, and with some simple adjustments will handle 1/8" and 3/16" rods.

The launch angle can be adjusted between 75 and 90 degrees by turning a small wheel. In my opinion, the angle adjustment mechanism should have been made from metal, not plastic.
The Mantis can be rotated 360 degrees.

If you are the type of person who likes to keep your launch equipment spotless, this might not be the launcher for you. There are so many nooks and crannies that it might take you an entire evening to clean it.

However, after using the Mantis for over 25 launches, I must say that I do like it. It is very stable and easy to set up.
I have used it for rockets using mini-motors on up through G80 motors. I've even used it to launch a seven engine cluster design. The only problem I've run into was with the model powered by the G80. I set the Mantis for a 5 degree angle (from vertical) and it rocked severely at take-off, making the model veer off like a cruise missle. If I had launched the model vertically, the rocking probably would not have occured.

All in all, the Mantis is a very good launch pad. It is certainly safer than anything that Estes or MRC has on the market, and the only ones better might be the heavier LOC or North Coast set ups.

For mor information, contact: Aerotech Consumer Aerospace, 1955 S. Palm St., Suite 15, Las Vegas, NV 89104

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The letter which appears on the following pages was originally printed in a recent issue of "The Launch Rack", the newsletter of the Garden State Spacemodeling Society, GSSS. It does not necessarily represent the views and opinions of SPAAR, it's members, or the Countdown. It is meant as food for thought, and is reprinted here with the permission of GSSS.

To all individuals pondering the formation of a high power (H and above) component of the National Asociation of Rocketry

During NARAM-31, Harry Stine publicly noted the "slowness" of NAR's Board of Trustees in embracing those rocket technologies whose specs exceed those layed out in the NAR Safety Code. Though there may be some merit to the incorporation of such technologies into the organization, there are a number of disquieting problems that have to be settled before any action on the matter can be taken. The problems are listed as follows:

A. Unreliable motors
B. Small Fields
C. novice fliers

Problem A. is due to 2 factors. Factor 1 is the difficulty of making a very limited batch of newly developed HP motors work properly. New motors have design "bugs" that can only be worked out after the manufacture of a large number of motors. Since the technology is new and the number of flights still somewhat limited, this will take time. Factor 2 is the number of "fly by night" manufacturers that produce HP motors of dubious quality. Such motors make an HP rocket launch somewhat unpredictable. If the proper precautions are not taken, such unpredictable launches can become dangerous.

Problem B is one that has been with the hobby since the very beginning. The use of HP motors and rockets have multiplied the extent of the problem. East of the Mississippi River, fields that are large enough to contain rockets that reach apogees of one mile are not common. Rockets this powerful are not very practical in the East. When the Blue Ribbon Commission on High Power studied the issue during the early 1980s, very little flight testing was done outside the launches done by Harry Stine in November of 1984. His launches were of limited quantitative value because, among other things, he was operating out in the Arizona desert. There are no Arizona deserts in the eastern U.S.

Once a HP rocket drifts off a field, it lands in either an inaccessible area or in a populated one. If the rocket lands in the latter location, it lands on some homeowner,s land. In some cases, that homeowner gets upset when he/she sees this large rocket and calls the police.

These police will, in turn, find the launch site and put it and the flying group out of business. These homeowners will also contact the local politician/bureaucrat and notify that person of the rocket launches. They in turn hinder future launches by making it difficult to secure large flying fields. NAR cannot afford such incidents.

Problem C is the most disquieting of the lot. Stated simply, there are a growing number of inexperienced rocketeers using HP rocket technology. Many of the HP flight accidents that are seen are caused by such individuals. Some HP rocketeers are so inexperienced that they have not even launched A, B, or C powered rockets! Such rocketeers pose a great hazard to the hobby. The only reason why the problem is not worse is because very few hobby shops carry HP products. As more shops carry these products, the danger increases. The novice rocketeer issue is another factor not seen in the test flights of November of 1984.

The organization that is presently representing HP rocketry, Tripoli Inc., is plagued by these 3 problems. Since 1987, 2 state-wide Tripoli-chartered clubs have been effectively liquidated by a combination of police, politician/ bureaucrats, and homeowners. These clubs were eliminated when they were denied use of their flying field because of a combination of the problems. These clubs were located in PA and in NY state. Attempts to revive the PA Tripoli group have failed. Elements of both groups are at the present time probably operating in secret. Other states where Tripoli groups have faced operational difficulties include Virginia and Florida. Both groups are having difficulties in securing fields. NAR sections do not have such ailments.

All of the aforementioned problems have made Tripoli type HP groups inherently unstable in populated areas. Left on their own, the groups could eventually vanish within a few years from much of the American landscape. If NAR adopts such groups as they are, NAR shall vanish with these groups.

In spite of the enormity of the difficulties, there are some solutions to the listed problems. Some of the solutions are simple while others are more complex. Problem A can be solved by installing a standards and testing procedure on HP motors.

This would settle the "fly by night" manufacturers issue. It would also improve the overall reliability of HP motors. By making this statement, I do not want to leave the impression that all HP composite motors are unsafe. The leading manufacturer in the business, Aerotech, has done a splendid job in designing, testing, troubleshooting, and mass producing their E, F, and G motors. Most of the observed problems that have been seen with HP motors were traced to very new motors and fly by night products.

Problem B is a little more difficult to solve. Since fields cannot be made larger, it will be necessary for HP rocketeers to use less powerful motors. The total impulse that can be used on any sport rocket is going to have to be capped once and for all. Some HP rocketeers argue that the motor technology should be allowed to grow. A similar argument was used to justify the building of larger atomic bombs! The present A-bombs can devastate 100 square mile regions with ease. Just because HP motor technology can allow us to launch satellites in a few years does not mean we should develop such technology. What exists now is more than sufficent--and troublesome !

Various HP rocket groups have already been moving towards coping with the field problem. The various FL Tripoli groups have put a 640 NT/Sec. cap on FL Tripoli rockets. Even the national LDRS launch has witnessed its share of "throwaway" launches. According to one report, there are now proposals to move the LDRS launch to the deserts of Nevada or California. Such places are the only sites where HP rockets of enormous size and power can be launched without overflying the field and causing dismay among the nearby residents. In areas such as these, the local residents consist of rattlesnakes, jackrabbits, and cacti. All motors used by sport rocketeers should be rated at 200 NT/Sec or less. Capping the impulse at this level allows for fairly massive rockets to be launched while keeping the apogees down, (4000 feet or so). It should be noted that not all fields can support such high flying rockets. If this is the case, then the rocketeer will have to refrain from using such rockets. There is little gained from flying H powered rockets off football.fields (as one group did) except legal trouble! It should also be noted that the -200 Nt/Sec cap was selected after the observation of numerous HP launches in various places and the discussion of various HP launches with other observers.

One other step that has to be taken upon the installation of an impulse cap is the prohibition of the sale and/or use of motors more powerful than 200 NT/Sec by private individuals. This should be done by either an FAA statue or federal legislation (the latter is prefered). Such a ruling would prevent rebellious sport rocketeers from flying such rockets. It will also prevent fly by night companies from entering the business of manufacturing such dangerous motors. Those rocketeers who like to fly such rockets should join NASA, the Air Force, or some launch services company such as E-Prime. The 200+ NT/Sec motors are just too powerful.

Of the 3 problems, the novice HP rocketeers issue is the most vexing of the lot. Being inexperienced, they may lack the prudence needed to safely fly the rockets. They may

also lack the knowledge needed to properly construct the rockets. The Tripoli organization has fortunately adopted a system of confirmation flights that keep novices from purchasing HP motors until they have successfully launched one HP rocket. This system is the one procedure that has kept the Tripolians from meeting oblivion. There are some limitations to the confirmation system. By using cluster rockets, one can achieve the desired high impulse without the need of confirmation. Another limitation is the complexity factor. To be confirmed, one only needs to use the lowest powered HP motor (the H) for the qualifying flight. The rocket itself is usually a vehicle that is structurally simpler than an Estes Alpha! No experience in low powered rocketry is needed for confirmation. Once confirmation is granted, the novice can then purchase (under the present system) motors far beyond the power of the H. He/she can fly more complex rockets such as HP cluster rockets and scratchbuilt designs. Since some of these novices are unfamiliar with the rules of stability, such scratchbuilding is almost suicidal!

In order to settle the novice problem, measures have to be taken to ensure the HP rocketeer has the proper knowledge needed to fly HP rockets. I propose a NARTREK-style system of certification for HP rocketeers be adopted. Like NARTREK, a series of skill levels are established to build up the flying proficiency of the HP rocketeer. The skill levels for such a program could set as follows:

Skill Level I--one needs to know how to build and fly rockets (kit and scratchbuilt) in the A-D range.

Skill Level II-one needs to know how to build and fly rockets in the E-H range.

Each level would require photographic documentation to certify proficiency in each level. To qualify for the scratchbuilt portion of skill level I, a blueprint of a working rocket has to be submitted with the photograph of the same rocket. For the kit portion of skill level I, more than one kit rocket should be built. For skill level II, a rocketeer could bring documentation proving certification in skill level I to a skill level II launch. The same certification process used by the Tripolians can be used to certify skill level II flyers. Processing the paperwork in both skill level I and II should be done by some form of regional inspector. Inspection regions can be set up the way the regional section chairpersonships were set up. E-H motors should not be made available to anyone who has not met the skill level I qualifications.

This proposal, though somewhat cumbersome, settles a number of problems. It solves the problem of inexperienced rocketeers gaining instant access to HP motors that they are not ready to use. It also makes the rocketeer learn the techniques of scratchbuilding, material technology, and stability. The proposal also uses the concepts of two existing skill building processes that most people are familiar with. Overall, this system or one like it would improve the safety factor of HP rocketry.

In this document, I have proposed a comprehensive approach to integrating the HP rocketeer into NAR. Since they are here, accommodations have to be made for them. At the present, these HP rocketeers operate on their own. Their operations have not been entirely successful. In the past few , years, a number of HP groups have been having operating difficulties. These difficulties are brought on by a coalition of politician/bureaucrats, police, and concerned homeowners. The harassment (in the view of the HP rocketeer) has gotten so uncomfortable that some of the newer Tripoli members have proposed operating in secret.

Such secrecy would include flying at a location only known by a few individuals and not submitting the proper paperwork in order to legally operate an HP launch. If they are caught doing such an act, the penalties are not pleasant. Such individuals give the hobby a bad image. As for the coalition, they are only trying to protect themselves and the public welfare--a ,very noble and true cause. If anyone tries to "play games" with these people, he/she faces obliteration.

In describing the excesses of some HP rocketeers, I do not want to "indict" the entire HP community. There are a large number of responsible and knowledgeable HP rocketeers in the hobby. These individuals know the risks and fly their rockets with enough precaution that the safety factor is very good. Some HP rocketeers (such as Chuck Mund) have done wonderful advances in payload technology using HP motors as powerplants. It should be noted that the best HP rocketeers had flown low powered rockets for a very long period of time .years) before they enter the HP field.

In the past few years, there has been those who have been critical with NAR's Board of Trustees for their caution in approaching the HP issue. Harry Stine stated in his letter that NAR has become fixated with the "toy rocket segment" of rocketry (I didn't realize that G motors were toys). Based on the observations and questions.by myself and other rocketeers, the slowness in adopting the HP regime of rocketry is justified. When the Blue Ribbon Commission on HP submitted its report in the mid-1980s, most of the "ground level Joe Astron"rocketeers did not know what the increase in rocket size and power meant. Some old timers said the change was wonderful while other old timers were cautious. In any case, few people had any hard experience in fly such rockets regularly. In 1990, the situation is different. HP has been around in sufficient quantity to learn the various advantages and disadvantages. HP's track record is pretty much worse than the optimistic appraisal and better than the pessimistic view. Although HP groups operate well in some places, some groups have been liquidated. Based on the present legal and political climate, such liquidations are not desirable. Pat Miller and the Board of Trustees deserve credit for remaining patient in spite of the pressures put on them by some HP enthusiasts.

When the AHPR commission and the Board of Trustees consider the HP issue, it should keep one fact in mind. To the best of my knowledge, the FAA still has not approved the new Safety Code. A better part of a decade has already been spent trying to persuade them to do so. It has become obvious that the FAA does not believe in letting rockets that exceed the 16/4/80 limits go unregulated. Some of the members of the FAA have shown this resolve by interfering with the operation of NARAM-29 and 30. Although the basis that was used to carry out such tasks may have been unstable at best, the FAA did show their concern about the hobby's growth. The implementation of any AHPR proposals is only going to make the FAA more suspicious.

In an unlikely way, NAR is grappling with a 21st century issue. It is the ultimate issue--balancing technological growth with the legal and political climate that exists. NAR may need to add the goal of conserving the hobby to its list of future needs. Many things have changed since the days of Sputnik and the Red Scare. A biblical quote by Solomon seems to fit this issue nicely. "He who troubleth his house shall inherit the wind and the fools shall be servant to the wise of heart". Wise decision making and compromising will keep NAR from becoming an example of this quote in real life. I thank you for your indulgence and my complements to both the Board of Trustees and to the AHPR commission.

Sincerely yours,

Manuel Mejia, Jr.
NAR 34611

DELTA V

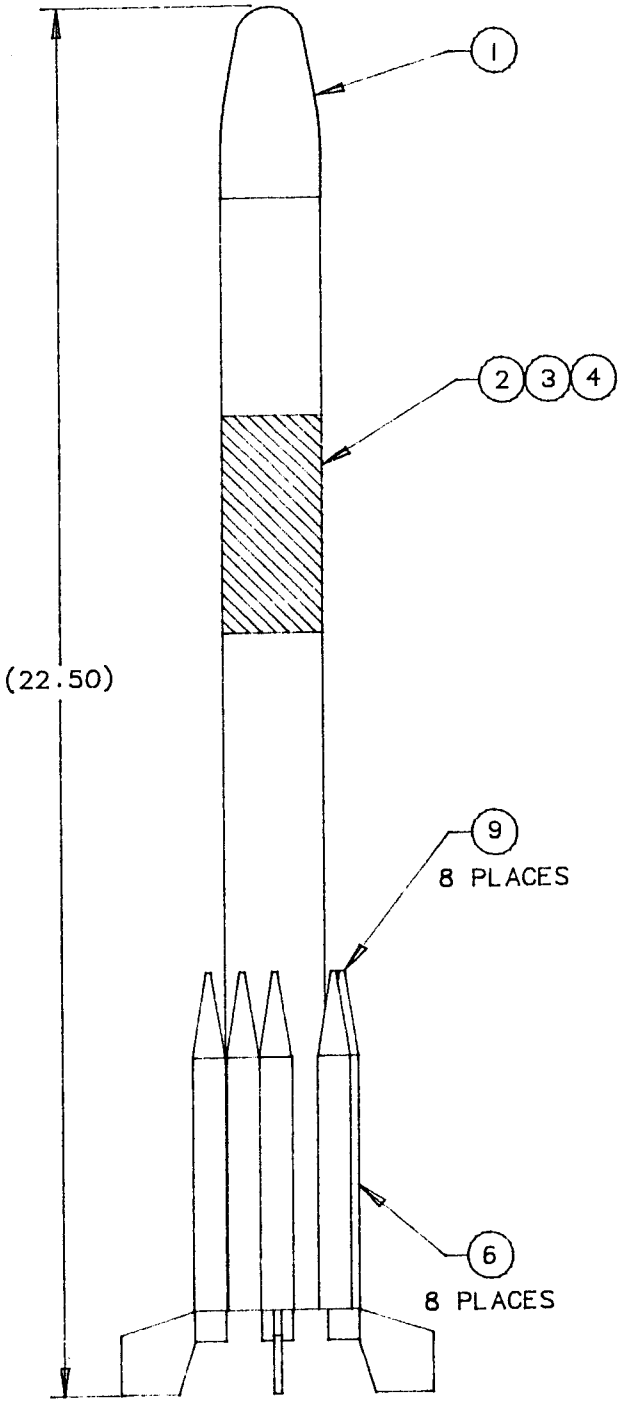
PARTS LIST

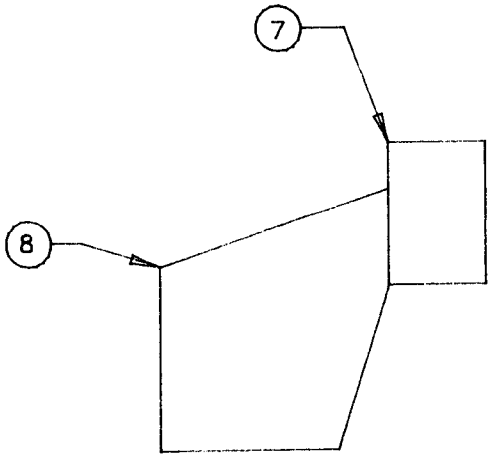
ITEM NO	QTY	DESCRIPTION
1	1	PNC-60MS
2	1	BT-60, 18.00 LONG
3	1	18.00 DIA PARACHUTE
4	1	SHOCK CORD
5	1	EH-2060 ENGINE MOUNT
6	8	BT-5, 4.12 LONG
7	4	JT-5C STAGE COUPLER
8	AR	.125 THK BALSA STOCK
9	8	BNC-5S NOSE CONE

NOTES:

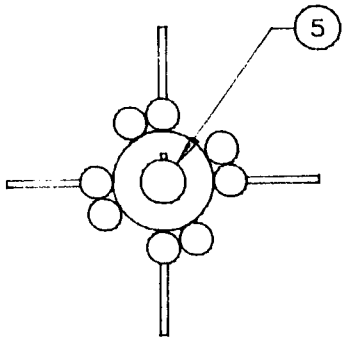
1. ADD CLAY TO NOSE AS REQUIRED FOR STABILITY.

2. SAND THE 8 BNC-5S NOSE CONES SO THAT THE TOP IS SLIGHTLY FLATTENED.





FIN DETAIL
SCALE: 1\1
4 PLACES



BOTTOM VIEW

AARON NEWMAN
SCALE: NONE

NAR CONTEST AND RECORDS COMMITTEE
Current Top Competitors List

	LASTNAME	FIRSTNAME	NARNUM	D	SEC	TOTAL	WF
A DIVISION							
1.	WHYMARK	MATTHEW	46575	A	439	1582	5
2.	MOSER	SAMANTHA	40761	A	459	1064	4
3.	WHYMARK	ERIN	50494	A	439	995	5
4.	MOSER	AARON	42461	A	486	988	4
5.	MOSER	WILLIAM	38831	A	459	944	4
6.	KMETZ	JOHN	44762	A	511	792	3
7.	WHYMARK	JASON	44382	A	439	772	5
8.	MOSER	THOMAS	44739	A	486	712	4
9.	LYON	JENNIFER	39258	A	139	666	3
10.	MC BROOM	BOB	47110	A	117	650	2
B DIVISION							
1.	SIAS	MATTHEW	43745	B	511	1410	3
2.	GOURLEY	JASON	43312	B		378	3
3.	WOLMAN	DAN	40055	B	464	302	1
4.	ATKINSON	DAVID	45966	B	511	264	3
5.	GLEMBOCKI	EDDIE	39223	B	439	216	3
6.	ADAM	RYAN	49217	B	508	140	1
7.	EATON	GENE	45594	B	488	132	2
8.	HARDOBEY	MIKE	43720	B	473	106	1
C DIVISION							
1.	SANTELLI	RICHARD	19605	C	377	1774	7
2.	MOSER	DAVID	28979	C	459	1524	4
3.	FEVERYEAR	GLEN	24931	C	503	1396	6
4.	RUNYEN	SCOTT	31559	C	377	1327	7
5.	ROUSH	WARDRICK	47771	C	317	1196	5
6.	BOYETTE	RICHARD	31375	C	481	1068	3
7.	BARBER	TRIP	4322	C	205	998	5
8.	BERCINI	LAWRENCE	18121	C	117	818	2
9.	KENNEDY	GREG	12874	C	488	750	5
10.	KREUTZ	BOB	35100	C	439	734	5

	LASTNAME	FIRSTNAME	NARNUM	D	SEC	TOTAL	WF
TEAMS							
1.	SOUTHERN COMFORT		553	T	511	1422	3
2.	RINGER-RIVIECCIO		41	T		1089	5
3.	MOM AND ME		18	T	486	1028	4
4.	TEAM NEUTRON		121	T	477	660	2
5.	BARBER GIRLS		32	T	205	648	2
6.	SINGLE AGAIN		17	T	439	624	3
7.	EAST MEETS WEST		100	T	205	560	4
8.	JANKOV-PAVLOV+1		489	T	205	482	2
9.	THRUST YOU CAN TRUST		34	T	463	252	1
10.	MOSTLY HARMLESS		44	T		180	3
SECTIONS							
1.	ROCKET CITY ACES			S	511	6528	3
2.	GARDEN STATE			S	439	6451	5
3.	SMOKEY MOUNTAIN			S	486	5424	4
4.	DART			S	317	3741	5
5.	MAGIC II			S	377	3635	7
6.	NOVAAR			S	205	3415	4
7.	CENTRAL MINNESOTA			S	477	2826	4
8.	SOUTHERN PENNSYLVANIA			S	503	2756	6
9.	SPACEPORT			S	488	2605	7
10.	FSA			S	481	2058	3

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NEW CLUB C DIVISION RECORDS: We already have three new C Division club performance records for this year, all by none other than the "Air Boss" himself, Glenn Feveryear. They are:

C Streamer Duration 4/1/90 172.7s
Old Record Dick Rhoat, 7/2/89, 145.3s

C Helicopter Duration 4/22/90 138.0s
Old Record G. Feveryear 10/4/89 91.0s

B Boost/Glide 4/22/90 74.6
Old Record Fred Hoke, 7/23/89, 13.7s

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QUOTE OF THE MONTH DEPT: "Oh well, it's better to have launched and lost, than to have not launched at all" - Aaron Newman, as he watches his C6 powered Estes Sky Hook disappear into the murk, April 1.

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IT'S A BOY!!: Welcome to the newest member of the SPAAR "family"! Little Christopher Balogh was born to Mr. & Mrs. Robert Balogh on March 6. Congratulations from all of us!!

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NEW SUMMER STARTING TIME: Don't forget, starting with the Sport Launch on June 10, our launches will start at 3PM and go to 7PM. The exception is the SPAART-1 Record Trial, July 22.

TO:

SPAAR
P.O. Box 127
Reamstown, PA. 17567

SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY SECTION 503

SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY

PROMOTING SAFE MODEL ROCKETRY
IN SOUTHERN PENNSYLVANIA
AND NORTHERN MARYLAND

N A R

The Southern Pennsylvania Area Association of Rocketry

COUNTDOWN

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