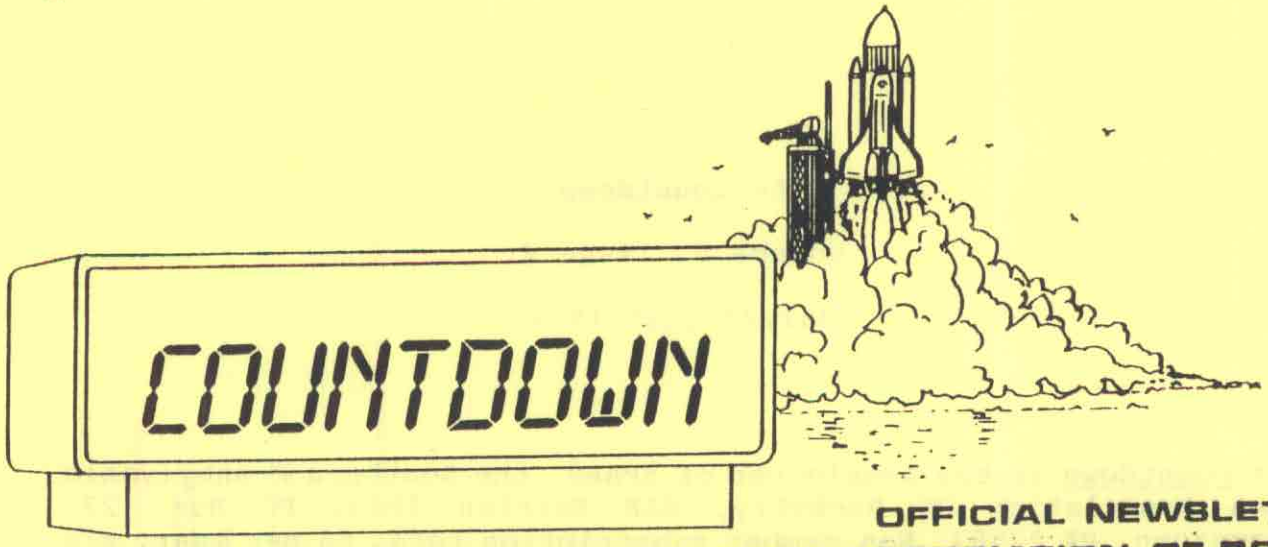
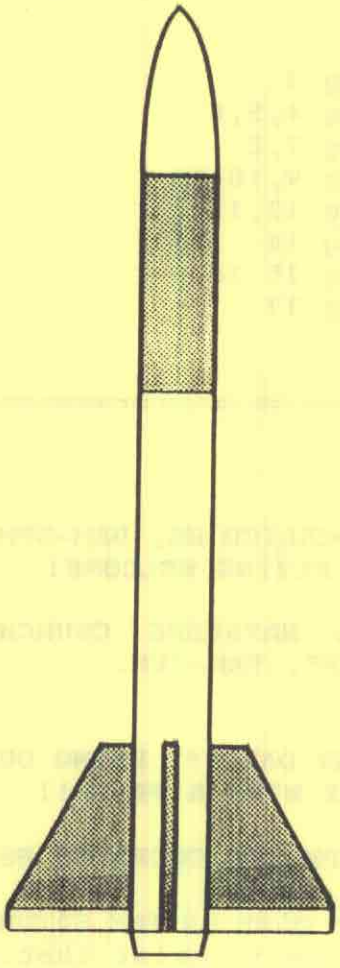


OFFICIAL NEWSLETTER OF
THE SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY

VOLUME 6, ISSUE 4 JULY/AUGUST 1993



IN THIS ISSUE:

SPAAR, Home Of 1992-93 C Divsion Champion Glenn Feveryear
[Great job!]

The **Countdown**

Volume 6, Issue 4

July/August 1993

The **Countdown** is the newsletter of SPAAR, the Southern Pennsylvania Area Association Of Rocketry, NAR Section #503, PO Box 127, Reamstown, PA 17567. Non-member subscription rate, $6 per year, six issues. Please make all submissions to address above. Material may be used with proper credit.

Cover Logo: **Bob Stott** Jacket Design: **Bruce Canino** Editor: **George Beever**

Thanks this time to: Kevin Funk, Ed Miller & Glenn Feveryear

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CONTENTS

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SCHEDULE

SUNDAY SEPTEMBER 5: SPAARSEC-9 SECTION MEET, COCALICO HS, 9AM-5PM. EVENTS: 1/2A HD[M], A HD[M], B HD[M] SPORT FLYING WELCOME!

SATURDAY, SEPTEMBER 18: MEETING AT EPHRATA NAZARENE CHURCH, FOLLOWED BY A SPORT LAUNCH AT COCALICO HS, 9AM-2PM. ** MULTI-STAGE DAY **

SATURDAY OCTOBER 9: SAME AS ABOVE, ** OLD ROCKET DAY ** BRING OUT YOUR OLDIES BUT GOODIES; OLDEST MODEL TO FLY WINS A PRIZE!!

SATURDAY OCTOBER 23: HALLOWEEN SPORT LAUNCH, 1PM-5PM COCALICO HS

IN THE NEXT ISSUE: ED MILLER'S BODY TUBE CUTTER; MORE ON THE SATURN 1B; & NARAM-35: A SPAARSPECTIVE. [Sorry, I couldn't resist that.]

A SPECIAL THANKS TO JIM BRECKENRIDGE, FOR USE OF HIS BABY VIPER III PLANS.

SECTION MEETINGS AND NEWS

June 20, 1993

Present: E. Miller, D. Bender, R. Hackman, W. Rhoat, R. Rhoat, Glenn & Gary Feveryear, G. Beever.

Treasurer: Ed reported: 34 members; balance at end of last meeting, $168.33. Disbursements of $68.58; income of $130.38; new balance, $230.13.

Competition: Glenn provided the results of both SPAARSEC-VIII and RAMTEC-1. Discussion on two main topics: do we want to hold another meet at Allentown College next year [RAMTEC-2], and do we want to continue holding a Section Meet in the fall? Yes to both questions, after discussion. G. Beever volunteered to be Contest Director for RAMTEC-2.

Section Advisor: G. Beever asked those present to give some thought to next year's schedule, insofar as special events are concerned.

High Power: Ed stated that he will be working on obtaining an FAA waiver for the sport launch portion of SPAARSEC-IX.

Newsletter: No report.

Old Business: None.

New Business: Glenn will continue to look into the possibility of holding a launch on a large field he has found in northern Maryland.

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SECTION NEWS NOTES

WHATS AHEAD: Don't forget, we have some special launches coming up. **Scale/Sounding Rocket Day** will be on Sunday, August 15, from 3-7PM at Cocalico. This will follow the meeting at Dick Rhoat's house, which will be from 1-3PM...**SPAARSEC-IX** is scheduled for September 5, 9AM-5PM. The events: 1/2A HD[M], A HD[M], & B HD[M].. **Multi-stage Day** is slated for Saturday, September 18, after the meeting.

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1994: All members encouraged to submit ideas for special events for 1994. The schedule for next year will start to take shape within the next few months, so get those thought processes moving!

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Newsletter Submissions: You didn't think I'd miss the chance to bring this up, did you? Let's hear from those of you that haven't submitted yet. Stories, plans, editorials, and photos are just a few of the things needed. And to those who regularly submit any or all of the above, thanks!

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RAMTEC -1: THE TRADITION CONTINUES

For about 20 years now, little Allentown College in Center Valley, PA. has been the scene of model rocket competition. First, there was AARDVARK, a series of meets sponsored by the old SPEAR Section. Then came WUBBA, "The BIG Regional" as it was called, which called Center Valley home for 14 years, ending in 1992. There were even two NARAMs, the most recent being NARAM-26 in 1984. Of all these, it was probably WUBBA that was probably the most widely known. Allegedly standing for Weird Unusual Big Blast Attack, it was hosted by Janet & Art Rose and the rest of the PULSAR Section. This popular two day event became a Father's Day weekend tradition, attracting the best competition flyers in the region, for many reasons among which were the on-site housing and friendly atmosphere.

Last year, the Roses decided to call it quits after WUBBA-15. In order to continue with the tradition of a big Regional Meet at Allentown College in June, the SPAAR Section decided to host RAMTEC, the Regional Aerospace Meet To Encourage Competition. RAMTEC-1 was held over the weekend of June 12-13, and 22 flyers and numerous spectators attended, representing five NAR Sections, in all three age divisions. NOVAAR's contingent was the largest, with such well-known names as Ken Brown, Ken Mizoi, and Bobby Gormley; the Jankov-Pavlov Team of Charley Sykos and Darryl Bachman; the Smith family of father Ron, son Shaun, and daughter Kristi, as well as Jonathan Rains,"The Voice of WUBBA". NARHAMS was represented by the Sempronio family [Vince, Antonio, Vincencio], as well as by the Millers, Andrew and Paul. The Garden State Spacemodeling Society and the Philadelphia Area Rocketry Association had two flyers each, Bob Zabriskie and Jules Distel for GSSS and Bill Nolthenius and Warren Sisco from PARA. The host Section, SPAAR, was represented by Dale Greene, Gary Feveryear, and the Flirtin' With Disaster Team of John Yost and George Beever. SPAAR's Glenn Feveryear, who was occupying the #1 position in the C Division point standings going into the meet, was Contest Director. There was one independent flyer, airline pilot Kevin Creamer from North Carolina.

THE FLYING

1/2A PD Multi: The weather for the weekend was perfect for flying, and the range opened sharply at 9AM. Many flyers started off by flying 1/2A PD on Saturday morning. Most were flying 13mm models, and as the morning wore on, the thermals came up. Shaun Smith eventually took A Division honors with 3 flights totaling 168s; Bobby Gormley edged out Andrew

Miller, 223s to 208s in B Division; and the Jankov-Pavlov Team flew to 3 "maxes" for 360s and first place in C Division.

1/2A SD Multi: Again, with lots of good thermals to get into, this event was quite competitive, with only 4 seconds separating Flirtin' With Disaster's 166s to Jankov-Pavlov's 162s in C Division. Bobby Gormley again beat out Andrew Miller in B, 101s to 60s; and Shaun Smith "maxed" 2 out of 3 flights to take first in A Division.

D Dual Eggloft Duration: This is a provisional event, and provided the usual yokes associated with egglofting. There appeared to be almost an equal number of flyers using blackpowder D12s or composite D21s. Either way, the idea was to get a good altitude and use a big reinforced 'chute. In A Division, Shaun Smith continued his winning streak, posting an 80s time over Antonio Sempronio's 34s. In C Division, Jankov-Pavlov barely beat out Vince Sempronio, 136s to 132s. Andrew Miller won the event in B Division with a flight of 166s, the best D DELD flight of the meet for all age divisions combined.

B Rocket Glide: In C Division, Ken Mizoi blew everyone away with a first flight of 372s, then qualified it with a second flight of 53s that threatened to also thermal away. This gave Ken a first place total of 425s! This made things all the harder on NARHAMS' Paul Miller, who had flights of 180s and 101s, for a total of 281s. In most contests this would have been good enough for first place. Even more impressive was A Division's Shaun Smith, whose two flights totaled 298s and gave him first place. Andrew Miller took first in B Division with one 60s flight over Bobby Gormley's 2 for 49s. A wide variety of designs were flown, from "homebrews" to QCR [Ken Brown] kits.

A Boost/Glide: Ken Mizoi repeated his RG victory in A B/G, with two flights for 210s, followed closely by J+P at 195s; Kristi Smith tool A Division with one flight of 62s, the only qualified A B/G flight in that age division; the same with Bobby Gormley's 15s B Division winner.

B Helicopter Multi: Along with D DELD and B RG, this was one of the more interesting events of the meet. There were Rot-A-Rocs, Rose-A-Rocs, Tasmanian Devils, and even a couple of Mini Rot-A-Rocs powered by Apogee B7 motors. In C Division, Ken Mizoi took his third event by "only" making 2 flights. They were both for 172s, giving him 344s overall. Relative newcomer Jules Distel of GSSS took second, with three solid flights totaling 245s. Ken Brown took third with 193s, using an FAI S6A fiberglass model converted for helicopter with internal rotors. Andrew Miller's 3 B Division flights totaled 294s, second best overall for the entire meet. Shaun [You've read this name before] Smith took A Division at 180s.

The range was open all weekend

for sport flying, too. Jon Rains took advantage of this to fly "The Spirit of NOVAAR" again [and again, and again...] mostly on F25 motors. This bright orange model apparently has flown in a number of locations across the country representing NOVAAR. Charley Sykos and Darryl Bachman flew, among other things, an AeroTech Mustang ["... see? I told you those fins were on crooked! It's spinning!"] Warren Sisco and Bill Middleton, two WUBBA regulars who love to fly BIG rockets, did the same at RAMTEC. [Great show guys!]

After the range closed at 2PM Sunday, a break was taken to pack up the range equipment and total up the results. A brief awards ceremony was held in the lobby of the dorm, with trophies going to all of the first place winners in each age division in each event. By 4:30, almost everyone was on the road home. "See you at NARAM" was heard quite a bit.

A large meet like this does not become a success without the work, help, and support of many people. The lion's share of the credit goes to Glenn and Rita Feveryear, who put in countless hours of work since last fall getting RAMTEC organized. There were few problems, and those that did surface were handled quickly. Thanks also to all of those who performed range duty, like Bill Middleton, Warren Sisco, Bob Zabriskie, Jon Rains, Dale Greene, Kevin Creamer, Bob Stott, Bill Shaeffer, Bill and Dick Rhoat, Ken Mizoi, and many others too numerous to mention. If we left you out, it was not intentional. **Thanks to all!**

RAMTEC-2 is in the planning stages for next June. Hope to see you there.

==========

SPAARSEC-VIII
SECTION MEET

The SPAARSEC-VIII Section Meet was flown on Sunday May 30 at Cocalico. The weather was perfect for this four event meet.

A Helicopter Multi: Glenn Feveryear flew a mini Rose-A-Roc to first place with 317s total, including one 123s "max".

1/2A RG Multi: Glenn took this event too, with 3 flights totaling 103s.

B Eggloft Altitude: The Flirtin' With Disaster Team used a B6-4 powered 18mm model to achieve 68m for first place.

1/2A SuperRoc Altitude: Glenn took first place for the third time with 456 points, ahead of FWD's 428 points and Dale Greene's 396.

There were a total of 771 points added to the club's overall total, with Glenn Feveryear taking 324, FWD 252, Dale Greene at 126, Ed Miller with 58, and Bill Rhoat with 11 points. This was a fun, relaxed Section Meet. SPAARSEC-IX is scheduled for Sept. 5. All of SPAAR's NAR members are encouraged to come out and fly. The events will be announced soon.

RESULTS

RAMTEC-1 JUNE 12 & 13, 1993

CONTESTANT		SEC	B HD (m)				1/2A PD (m)				1/2A SD (m)				D DELD			B R/G			A B/G			PTS
			1	2	3	SUM	1	2	3	SUM	1	2	3	SUM	1	2	BEST	1	2	SUM	1	2	SUM	
A DIVISION																								
ANTONIO SEMPRONIO	57702	139	-	-	-	-	55	-	-	55	35	31	42	108	CT	34	34	-	-	-	-	-	-	414
VINCENCIO SEMPRONIO	57703	139	-	-	-	-	38	-	-	38	28	31	27	86	EGG	-	-	-	-	-	-	-	-	120
KRISTI SMITH	54234	205	8	7	ROT	15	5	-	-	5	9	-	-	9	EGG	-	-	44	-	44	62	-	62	696
SHAUN SMITH	46440	205	56	56	68	180	67	79	22	168	MAX	NDP	MAX	120	80	EGG	80	120	178	298	SHRED	RB	-	1350
B DIVISION																								
BOBBY GORMLEY	40847	205	48	-	-	48	MAX	103	-	223	SEP	54	47	101	61	EGG	61	15	34	49	SHRED	15	15	1170
ANDREW MILLER	51617	139	68	126	100	294	MAX	64	24	208	MAX	SEP	SEP	60	166	-	166	60	-	60	SHRED	SHRED	-	1230
C DIVISION																								
KEN BROWN	29354	205	68	55	70	193	63	17	-	80	51	EJ	-	51	46	SEP	46	SHRED	61	61	SHRED	83	83	291
KEVIN CREAMER	57571	IND	ROT	ROT	-	-	8	16	4	28	23	23	21	67	-	-	-	UNS	SHRED	-	RB	RB	-	30
JULES DISTEL	52977	439	79	108	58	245	68	66	-	134	49	52	EJ	101	-	-	-	34	60	94	SHRED	SHRED	-	276
GARY FEVERYEAR	53641	503	-	-	-	-	95	51	CATO	146	EJ	MAX	MAX	120	-	-	-	-	-	-	RB	11	11	99
FLIRTIN' WITH DISASTER TM	503	503	UNS	UNS	54	54	SEP	36	65	101	MAX	46	MAX	166	EGG	77	77	UNS	73	73	19	134	153	405
DALE GREENE	12464	503	30	24	25	79	93	EJ	MAX	213	MAX	MAX	SEP	120	NR	-	-	-	-	-	24	17	41	150
PAUL MILLER	51615	139	39	54	47	140	70	52	79	201	5	32	54	91	NR	EGG	-	180	101	281	SEP	26	26	270
JANKOV/PAVLOV TM	251	205	72	58	40	170	MAX	MAX	MAX	360	MAX	52	50	162	EGG	136	136	84	74	158	59	136	195	966
KEN MIZOI	30017	205	172	172	-	344	66	MAX	MAX	306	MAX	MAX	SEP	120	EGG	-	-	372	53	425	101	109	210	1050
BILL NOLTHENIUS	53555	520	41	33	54	128	15	55	97	167	30	59	18	107	65	43	65	22	-	22	-	-	-	150
VINCE SEMPRONIO	53137	139	ROT	39	25	64	MAX	56	MAX	296	32	47	SEP	79	132	SEP	132	-	-	-	SHRED	-	-	345
WARREN SISCO	12282	520	55	27	85	167	-	-	-	-	-	-	-	-	32	33	33	12	38	50	50	NG	50	129
RON SMITH	54233	205	57	49	40	146	80	95	27	202	48	SEP	37	85	85	-	85	121	SHRED	121	RB	RB	-	282
BOB ZABRISKIE	36036	439	34	42	50	126	46	75	45	167	MAX	SEP	SEP	60	EGG	-	-	29	33	62	57	24	81	120

SECTION POINTS:

NOVAAR	5805
NARHAMS	2379
SPAAR	654
GSSS	396
PARA	279

LEGEND:

ROT - NO ROTATION
CT - CAUGHT BY MODELER
EGG - BROKEN EGG
SEP - SEPARATION
EJ - EJECTED ENGINE
UNS - UNSTABLE
RB - RED BARON
NR - NO RETURN

SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY
SECTION 503
SPAARSEC-8 RESULTS

A HD Multi (sec)	FLHT1	FLHT2	FLHT3	FINAL	PLACE	POINTS
Glenn Feveryear	123(MAX)	81	116	317	1	110
Flirtn w/Disaster	27	107	75	208	2	66
Dale Greene	28	17	35	94	3	44
Ed Miller	30	15	25	70	4	22
Bill Rhoat	18	17	26	61	5	11

1/2A RG Multi (sec)	FLHT1	FLHT2	FLHT3	FINAL	PLACE	POINTS
Glenn Feveryear	33	55	18	103	1	100
Flirtn w/Disaster	45	3(SHRED)	29	74	2	60
Dale Greene	16	6	22	44	3	40

B ELA (meters)	FLHT1	FLHT2	BEST	PLACE	POINTS
Flirtn w/Disaster	45	68	68	1	90
Glenn Feveryear	56	49(EGG)	56	2	54
Ed Miller	52	-	52	3	36
Dale Greene	46	49(EGG)	46	4	18
Bill Rhoat	33(EGG)	38(EGG)	-	-	-

1/2A SRA (points)	FLHT1	FLHT2	TOTAL	PLACE	POINTS
Glenn Feveryear	426	456	456	1	60
Flirtn w/Disaster	428	418	428	2	36
Dale Greene	390	396	396	3	24
Bill Rhoat	386(EJ)	-	-	-	-

FINAL POINTS

Glenn Feveryear	324
Flirtin' With Disaster	252
Dale Greene	126
Ed Miller	58
Bill Rhoat	11
Total:	771

SPAAR SPORT LAUNCHES

May 30, 1993

Our SPAARSEC-VIII Section Meet was held on May 30, but there was also some sport flying going on.

Ed Miller woke up some of the nearby softball players with his new, improved Maxi Wizard flown on an AeroTech F40 reload. Two other attention getters were his NCR Eliminator with a G42, and his Quest Nike-Smoke with a D13RMS.

Bill Rhoat got an early start on the 4th of July fireworks when an FSI E60 CATO'd in his LOC Onyx. Rick Hackman flew his usual collection of interesting homebrews.

==========

June 20, 1993

Glenn Feveryear and John Yost took advantage of the warm [read that H-O-T] weather to get some flights in with models built for NARAM-35. Rick Hackman again flew some homebrews, including a couple of old models with a new wrinkle. This involved his XR-50 being flown as the second stage, with his UFO Flying Saucer, built from the Ed Miller kit as the first stage. A rather unique combination, to say the least, and it flew well.

Glenn's brother Gary flew his NCR Big Brute with an AeroTech G80-10 Blue Thunder motor. It was a beautiful flight and recovery.

Dave Bender flew the "Air Mail" rocket, which he inherited from Ed Miller some time ago. This model has numerous flights on it, and is still none the worse for wear. Speaking of Ed, he had an interesting experience with his Estes Super Nova 2-stager. The first stage C6-0 motor did just that [went super nova], and when the first stage CATO'd the second stage did not ignite. It was recovered undamaged, so Ed simply put an ignitor in the B4-6 and flew it as a single stager for a perfect flight.

Your editor flew a "new" Estes Maxi-Honest John for a good flight, as well as a Trip Barber designed "D-Light" D Boost/Glider on a C6 motor.

==========

July 18, 1993

This launch was originally scheduled for Schuykill Valley High School, buy new restrictions there prevented that. So, Art Babiarz directed us to an R/C airplane field, where 18 flights were made by Art, Ed, and George. Art had many of his Estes oldies out, such as the Mercury-Redstone, Soaring Eagle, Bandit, and Honest John [the original version] as well as his Centuri Excalibur and SR-71/YF-12. Ed got the neighbor's attention with his Azinon on an F40RMS, as well as his NCR Phantom 2600 on an F25. Both flights were really great. [We liked 'em!]

FLIGHT LOG

May 20, 1993

FL#	NAME	MODEL	MANUF.	MOTOR(S)	RESULTS
1	Bill R	Onyx	LOC	FSI E60-6	CATO
2	Rick H	XR-55	SB	E C5-3	Good Flight
3	Rick H	XR-63	SB	E A10-3	Good Flight
4	Rick H	UFO-24	EM	E D12-0	Good Flight
5	Rick H	Ramjet Int.	SB	E D12-3	Good Flight
6	Rick H	XR-61	SB	E D12-3	Good Flight
7	Rick H	UFO-24	EM	E D12-0	Good Flight
8	Ed M	UFO-24-10	EM	AT E15-4WL	Good Flight
9	Ed M	Nike Smoke	Quest	E C6-5	Good Flight
10	Ed M	Nike Smoke	Quest	AT D13-7RMS	Good Flight
11	Ed M	Warp II	Estes	E C6-0/C6-7	Good Flight
12	Ed M	Eliminator	NCR	AT G42-4WL	Good Flight
13	Ed M	Maxi Wizard	SB	AT F40-4RMS	Good Flight
14	George B	1/2A X 3 CL	SB	E 1/2A3-4 X 3	GF - NR

June 20, 1993

1	Dan'l F	Bandit	Estes	E B6-4	Good Flight
2	Dave B	UFO	EM	E D12-0	Good Flight
3	Dave B	Air Mail	SB	E D12-3	Good Flight
4	Dave B	Mega Sizz	Estes	E D12-5	Good Flight
5	Dave B	Sky Demon	Estes	E C6-0/C6-5	Good Flight
6	Glenn F	Rose-A-Roc	SB	E A8-3	GF - 49sec
7	Glenn F	Nomad	SB	E A8-3	A RG - 39s
8	Glenn F	Nomad	SB	E A8-3	A RG - 50s
9	Glenn F	Nomad	SB	E A8-3	A RG - 41s
10	Glenn F	1/2A X 3 CL	SB	E 1/2A3-4 X 3	Good Flight
11	Rick H	XR-22	SB	E 1/2A3-2	Good Flight
12	Rick H	XR-16	SB	E A8-3	Good Flight
13	Rick H	XR-49	SB	E B8-5	Good Flight
14	Rick H	XR-55	SB	E C5-3	Good Flight
15	Rick H	XR-55/UFO	SB/EM	E D12-0/A8-3	**Good Flight**
16	Gary F	IRIS	Estes	E A8-3	Good Flight
17	Gary F	Big Brute	NCR	AT G80-10T	**Good Flight**
18	Gary F	Bullpup 12D	Estes	E B6-4	Good Flight
19	Ed M	UFO 24-10	EM	AT E18-4RMS	Good Flight
20	Ed M	Super Nova	Estes	E C6-0/B4-6	1st St CATO
21	Ed M	Super Nova	Estes	E B4-6	Good Flight
22	Ed M	Super Big Bertha +	Estes	AT E16-4RMS	Good Flight
23	Ed M	Explorer Aquarius	Estes	AT D13-4RMS	Good Flight
24	Ed M	Patriot	Estes	E C6-5	Good Flight
25	Ed M	Azinon	SB	AT F40-4RMS	33 sec - GF
26	Ed M	Nike Smoke	Quest	E C6-5	Good Flight
27	Alan R	SST	Centuri	E C6-3	Separation
28	John Y	Yost-A-Roc	SB	E B4-2	15 sec
29	John Y	Nomad	SB	E B4-2	Hung on rod

30	John Y	Nomad	SB	E B4-2	32 sec - GF
31	George B	Whatzit?	SB	FSI E60-4	Weird
32	George B	D-Light	SB	E C6-3	C B/G 89 sec/NR
33	George B	'Lil Nuke	LOC	E D12-3	No Chute
34	George B	Mxi Honest John	Estes	E D12-3	Good Flight
35	George B	ARCAS	AT	AT F40-4RMS	Good Flight
36	George B	Mustang	AT	AT E18-4RMS	Good Flight

July 18, 1993

1	Ed M	Phantom 2600	NCR	AT F25-9W	Good Flight
2	Ed M	Azinon	SB	AT F40-4RMS	Good Flight
3	Ed M	Trailblazer	MRC	AT D13-4RMS	Good Flight
4	Ed M	UFO 18-8	SB	AT D13-4RMS	Good Flight
5	Ed M	Heliocopter	Estes	E C6-5	Good Flight
6	Ed M	Warp II	Estes	E C6-0/B4-6	Good Flight
7	Ed M	Javelin	Estes	E C6-7	GF - NR
8	Art B	Saturn 1B	SB	E D12-3	Good Flight
9	Art B	Honest John	Estes	E A8-3	Good Flight
10	Art B	SR-71/YF-12A	Centuri	E D12-3	Good Flight
11	Art B	Excalibur	Centuri	E A8-3	Good Flight
12	Art B	Soaring Eagle	Estes	E B6-2	Good Flight
13	Art B	Mercury-Redstone	Estes	E C6-3	Good Flight
14	Art B	Bandit	Estes	E B6-4	Good Flight
15	George B	Big Bertha	Estes	E B6-4	Good Flight
16	George B	Big Bertha	Estes	E C6-7	GF - NR
17	George B	Phoenix	Estes	E D12-5	No chute
18	George B	Phoenix	Estes	AT E15-7W	1/2 NR

Flight Statistics

	5/30	6/20	7/18	Total
KITS FLOWN:				
Estes	1	10	9	20
AeroTech	0	2	0	2
MRC	0	0	1	1
LOC/Precision	1	1	0	2
Quest	1	1	0	2
NCR	1	1	0	2
Ed Miller	3	2	0	5
Centuri	0	1	2	3
Scratchbuilt	6	14	3	23
MOTOR USAGE:				
Black Powder	13	34	14	61
Composite	4	6	5	15
Estes	12	32	14	58
AT Single Use	2	1	2	5
AT RMS	2	5	3	10
FSI [BP]	1	1	0	2
Failures:	1[FSI]	1[Estes]	0	2

High Power News:

The TRIPOLI EAST COAST REGIONAL MEET
Culpeper, VA
May 22-23, 1993

by Ed Miller

A Tripoli launch is an experience that every rocket enthusiast should see at least once. This launch was no exception. Over 250 flights were made during the weekend. The weather was good most of the time, with light winds both days and a ten minute shower on Saturday. The temperature was 65-70 on Saturday and 70-75 on Sunday.

Many dealers showed up to supply the flyers. Blue Ridge Rocketry, Magnum, LOC/Precision, Golden Propellant, Synerjet, Rocket R&D, Doug Pratt, Microbrick, and Design-X were present. Magnum did a thriving business with Class B motors, and Microbrick brought a large volume of RocketFlight Silver Streak motors, which were sold out by Sunday.

Many spectators from the area showed up to witness this rocket launch. Three SPAAR members were present: Roger Dwyer, Sr. & Jr., and the author, Ed Miller. The following is a brief rundown of many of the best flights of the launch.

Hank Holzgreffe launched his PML Triton Concept with a K900 and 4 air-started H100s. The H100s failed to ignite and the rocket slid down backwards. Fortunately the Adept altitude deployment device worked and the rocket was recovered undamaged. He then flew the same rocket with a J800 and a cluster of 8 air-started H motors for a good flight. Jack Thompson flew a LOC Mother Lode with 3 J415s for a good flight. He also flew an Ultimate Max with 3 I160s for a good flight. Lovett Reddick flew his Electronic Bruiser with an L750 for a perfect flight. As always, the Electronic Bruiser was a real crowd pleaser when it landed nearby. Ed Holland launched a scratchbuilt two stager with an I284 and a G160 for a very impressive flight. A flyer whose name I don't have in my notes flew an 8" diameter "Super Big Bertha" with a K1100 for a perfect flight. It landed about 400' from the launch pad. [Editor's Note: an 8" Dia. Big Bertha must have warmed Ed's heart!]

Roger Dwyer Sr. flew his Falcon with a Rocketflite H220 Silver Streak for a very impressive flight. He also flew his full scale Super Loki Dart with an I132 for a good flight. Roger also launched his Viper IV with a cluster of four E15s for a good flight. Roger Dwyer Jr. did not wait for dad; he had his own rockets to fly. He flew a THOY Sparrow Hawk with an F50, a LOC Legacy with an F44, and

the Sparrow Hawk a second time with an F44. All were good flights. Roger Jr. also flew an Estes Helio Copter with a D21, which was lost. The author of this article, Ed Miller, flew his "Flaming ASAT" with a Synerjet H159 for a good flight. He then flew his Super ASAT with an H180 and four air-started G42s. The drogue 'chute tangled in the shock cord, and it came down like a rock. The rocket was out of range of the R/C main 'chute deployment, and was severely damaged upon landing. I can see the trash barrel smoking as I type this article. The author also launched his new Silver Streak with an H220 Sliver Streak motor for a good flight. He also launched his UFO with a G64 for a real crowd pleaser. Doug Pratt demo'd his new R/C 'chute deployment device which he intends to market. It worked perfectly. He then flew an Estes Astro Blaster with an E6 for a very good flight. Jim Scarpino launched his scratchbuilt Star Rider with an L750 for a good flight. Ross Dunton, of Magnum Hobbies, launched a LOC Caliber ISP with a custom built Vulcan J925 for a "hard" out-of-sight flight through the sound barrier.

Mike Hannigin launched a LOC Bruiser with a K1100 for a good flight. Sonny Thompson launched his "Lunatic Fringe" with an L750. Brian Berkowitz launched a Laser LOC 3.1 with an I284 for an incredible flight. Chuck Mund flew a 4.0" diameter Super Big Bertha with three G45s for a good flight.

Bill Newton launched a LOC Caliber ISP with a J100 to punch a hole in the sky. Ken Goldstein launched his "Smoke A J" with a Synerjet J314 for a good flight. Larry Z launched a "Stealth" with a K550 for a good flight. Mike Showalter, Central Virginia/Tripoli #25 prefect, launched his 1/2-scale Patriot with a K550 for a good flight.

That's about it, and I'm getting ready for the Tripoli meet this summer.

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SPEAKING OF WHICH: Central Virginia/Tripoli #25 invites you to it's Summer High POwer Rocket Launch!

Date: August 21 & 22, 1993

Time: 10AM - 6PM

Location: Battle Park Launch Site, Culpeper, VA

FAA Waiver: 15,000FT

Launch Fee: $5.00

For directions or additional information, call:

Mike Showalter
703-547-2539

-or-

Sonny Thompson
804-733-8500

Note: Launch is in alternate field on left side of RT 522 heading south.

THIS 'N THAT

YOUNG LAWYERS IN LOVE DEPT: [With apologies to Jackson Brown] If you haven't heard by now, this past May in United States District Court, Southern District of New York, AeroTech filed suit against Estes/High Flyer for alleged violation of the Sherman Anti-Trust Act, seeking damages of $20 million. In essence, AeroTech alleges that Estes conspired to force AeroTech out of business by doctoring a videotape of a "test" of a reloadable motor. A motion to dismiss was filed by Estes, but has apparently yet to be ruled on. [Note: member's editions include a complete copy of the complaint as filed.]

In other news concerning AeroTech, most of the 18, 24, & 29mm reloads are now available and shipping. However, even though the NAR Standards & Testing Committee has tested a number of the reloads and given them NAR Certification, a number of the RMS kits have failed to pass. This has caused AeroTech to claim that the NAR's equipment is faulty, and is adopting an "all or nothing" attitude. Can you say, "shoot yourself in the foot"?

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ESTES is calling 1994 the "year of the wing" and one new addition to their line is the Stratto Blaster R/C RG. The new 2 channel glider will feature a blow molded fuselage, twin boom design and will accept mini or micro servos. Length: 32"; Wing Span: 34.5"; Wing Area: 219 sq. inches; The price will be less than the Astro Blaster and be easier to build and fly. No introduction date has been announced. [WARP-9, Vol. 6/No.4]

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APOGEE COMPONENTS will be submitting 2 new Medalist motors to NAR Standards & Testing soon. The Medalist C5 motor measures 18X51mm, the new D4 measures 18X70mm. Both motors will offer 3,5 and 7 second delays. Price will be comparable to other Medalist motors ($7.95). [WARP-9, Vol. 6/No.4]

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YA PAYS YER MONEY, YA TAKES YER CHANCES!: SPAAR will be selling chances for our kit raffle at all club functions. The prizes are: 1. an Estes **Mars Snooper Collector's Series** kit; 2. an Estes **Astrocam 110**; 3. an Estes **Solar Sailor II** kit; 4. an Estes **Super Nova** kit; and 5. a Quest **Navaho** kit. All proceeds benefit the club. **TICKETS ARE ONLY $1.00 EACH!!!** You need not be present to win. The drawing will be held in January, 1994, at the club Family Dinner. All kits were donated by club members.

SEE RITA FEVERYEAR FOR TICKETS!!!!

Baby Viper III
By Jim Breckenridge, NAR 45999/Tripoli 965

The idea for the Baby Viper III came to me at the DARE II high power launch in Danville, Illinois. I've seen many high power rocket lovers flying enlarged Estes kits, so I figured, "Why not down-scale an LOC/Precision kit?", and the Baby Viper III was born.

The hardest part of this project was finding the right nose cone. The one I needed was the same one which used to come in the D-Region Tomahawk kit. But, because this classic kit is hard to find, and because I wouldn't want to bash it just for the nose cone, I decided to use the nose from a TranStar Carrier kit. This kit is also discontinued now, but it is easier to find than a Tomahawk kit and it has the same nose.

Assembly Instructions

1. Take two 7 1/2" BT-20 engine mount tubes and place them side by side on a flat surface with the ends even. Place a bead of glue in the valley between the tubes, and allow to dry. Next, glue a third tube on top of the other two as shown (see drawings and parts list on next page). When the assembly is dry, make sure the void between the tubes is filled to prevent the escape of ejection gases.

2. Mark the engine tube assembly 1 1/2" from one end on all three tubes. Take the BT-60 body tube, and place three lines of glue inside one end, 120 degrees apart. Line the engine tubes up away from the glue, and push them inside the BT-60 until the marks are just inside the body tube. Turn the engine mount assembly into the glue, and allow to dry.

3. Fill the spaces between the engine tubes and the BT-60 body tube with a combination of tissue and glue. Stuff this mixture down into each space so that it completely fills the void to within 1/8-inch of the body tube edge. When this is dry, fill on top of the tissue with glue until even with the body tube edge.

4. Make three fins from 3/32" balsa, or basswood if you want more strength (see template on next page). Sand and seal the fins either on or off of the model, whichever you prefer, but be sure to bevel the root edges to give more surface area for the glue to stick to.

5. Glue the fins in the valleys between the motor tubes, even with the bottom of the tubes. When all the fins have dried, apply fillets around the base of each. If you'd like extra strength, place a small bead of glue in each valley, from the leading edge of each fin to the bottom of the body tube, and smooth with your finger.

6. Sight on the high point of the body tube between any two fins, and draw a straight line, 4 1/4" long, up from the bottom edge of the body tube. Glue a two-inch length of 1/8" launch lug on this line so that the bottom edge of the lug is 1 7/8" up from the bottom of the body tube. When dry, apply fillets to the launch lug.

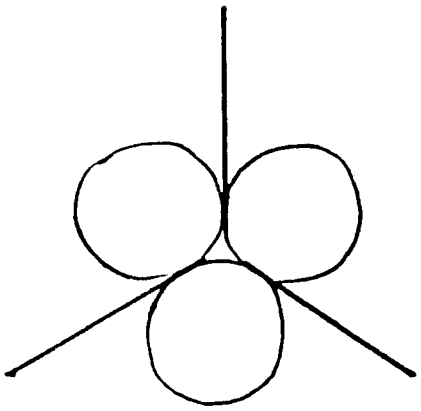
7. Assemble the nose cone, shock cord, and shock cord mount according to the TranStar instructions, but attach the shock cord to the nose, and NOT to the transition section which isn't used anyway. The TranStar comes with a 12" parachute, but I'd suggest that you use an 18" chute instead, because this rocket is a little heavy for the smaller chute.

Baby Viper III

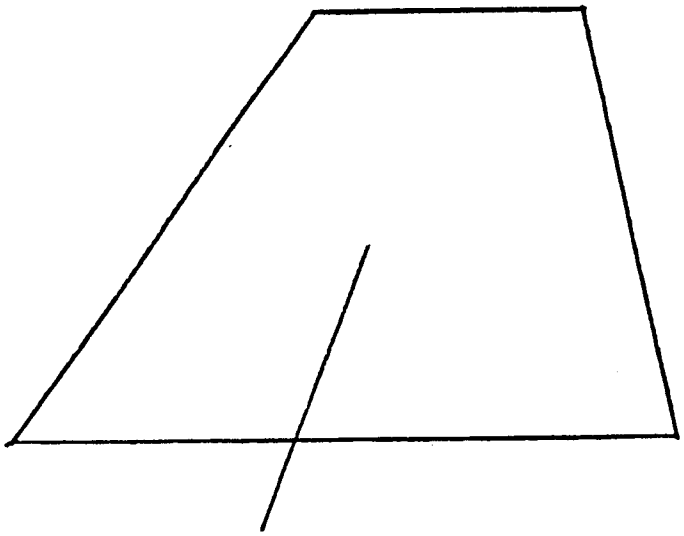
By Jim Breckenridge

1 BT-60, 18-inch
3 BT-20, 7.5-inch
3/32-inch fin stock
1/2-inch, 1/8-inch launch lug
1 Transtar nose cone
1 Transtar shock cord
1 Transtar shock cord mount
1 18-inch parachute

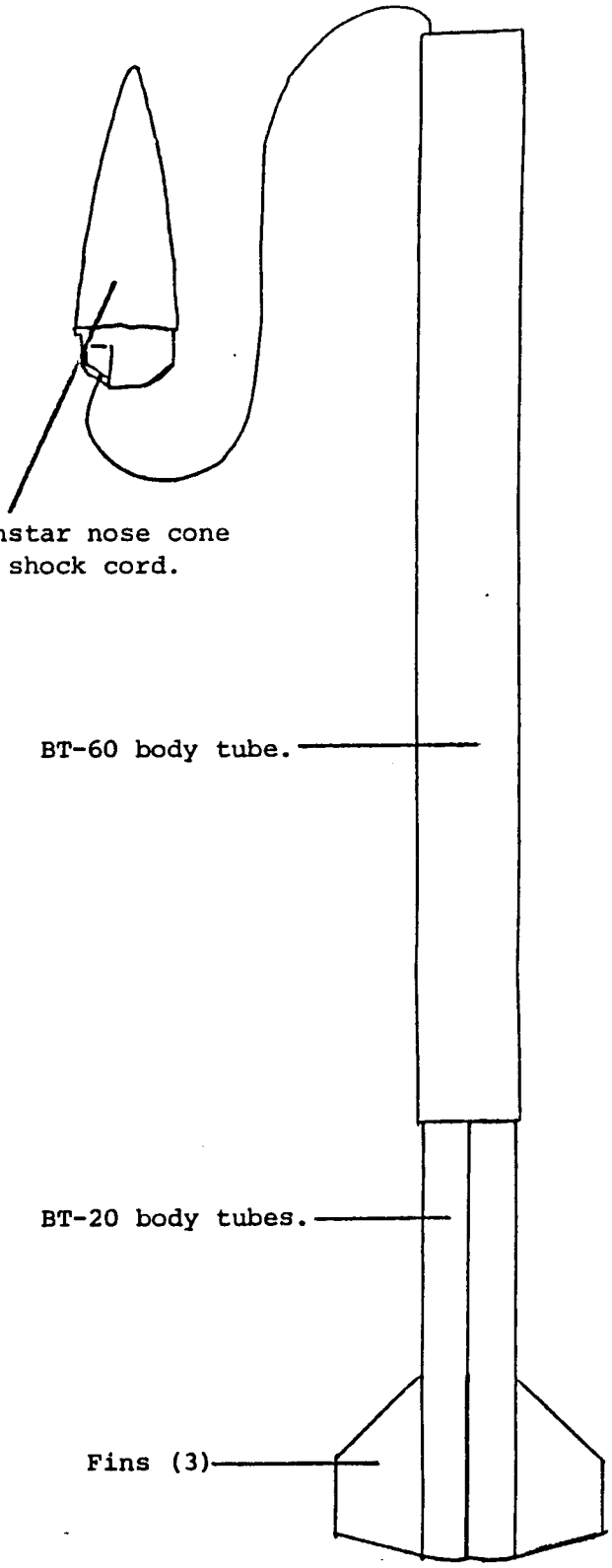
The engine tubes can be obtained from two full-length BT-20 body tubes.



Engine tube/Fin detail



Full-scale fin template



AeroTech v Estes - Round 1

The Complaint

Editor's Note: The following is a verbatim copy of the complaint AeroTech has filed against Estes et al. All punctuation and highlighting is as it appears in the complaint. Misspellings (Mike Hellmund's name, for example) are as they originally appeared. This is a document of public record.
As of 6/14/93 a motion to dismiss, filed by Estes, had not yet been ruled on.

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

AEROTECH, INC. AND
INDUSTRIAL SOLID PROPUSION, INC.,
Plaintiffs,

-against-

TCW CAPITAL, TRUST COMPANY OF THE WEST, ESTES INDUSTRIES/HIGH FLIER MANUFACTURING CO., CENTURI CORP., AND HOBBY PRODUCTS, INC.
Defendants.

(JURY TRIAL DEMANDED)

Plaintiffs AeroTech, Inc. and Industrial Solid Propulsion, Inc., by their attorneys, complain and allege as follows:

JURISDICTION AND VENUE

1. This action for damages and injunctive relief arises under the antitrust laws from defendants' violations of Section 1 and 2 of the Sherman Act, 15 U.S.C. §§ 1 and 2, and under the common law doctrine prohibiting tortious interference with existing or prospective economic relationships. This Court has jurisdiction of the Sherman Act claims pursuant to §§ 4 and 16 of the Clayton Act, 15 U.S.C. §§ 15 and 26. This Court has jurisdiction of the tort claims pursuant to 28 U.S.C. § 1337, since both plaintiffs are Nevada corporations with their principal places of business in Las Vegas, no defendant is a citizen of the State of Nevada, and the matter in controversy exceeds $50,000 exclusive of interest and costs, and pursuant to principles of supplemental jurisdiction since the claim is so related to the Sherman Act claims as to be part of the same case or controversy under Article III of the United States Constitution.

2. Each defendant maintains an office, transacts business, or may be found within this district, and certain of the acts hereinafter alleged were performed within this district.

PARTIES

3. AeroTech, Inc. ("AeroTech") is a Nevada Corporation, with its principal place of business in Las Vegas, Nevada. It was founded in 1982, and since that time has developed, manufactured and marketed composite propellant rocket motors and related products, and sold those products to hobbyists nationwide in interstate commerce.

4. Industrial Solid Propulsion, Inc. ("ISP") is a Nevada Corporation, with its principal place of business in Las Vegas, Nevada. It was founded in 1984, and since that time has developed, manufactured and marketed composite propellant rocket motors and related products for aerospace, military and industrial applications. Since 1989, it has owned all the shares of AeroTech.

5. Defendant Trust Company of the West is a large, privately-owned trust company, which occupies a good portion of the 22nd floor at 200 Park Avenue, New York, New York (the former "Pan Am Building"). Defendant TCW Capital is a partnership which is an "affiliate" of Trust Company of the West and conducts all of its activities from Trust Company of the West's Park Avenue office. They are the owners of, among other things, defendant Hobby Products, Inc. ("HPI"). HPI is a Delaware corporation that was formed by the TCW defendants to acquire defendants Estes Industries/High Flier Manufacturing Co. ("Estes") and Centuri Corporation ("Centuri") pursuant to a leveraged buy out from Damon Corp. HPI and the TCW Defendants did so in 1990 and totally control the operations of Estes and Centuri. Charles Sukenik is TCW Capital's senior partner, one of HPI's two directors, and one of Centuri's three directors. The two TCW entities and HPI will be collectively referred to as "TCW."

6. Defendant Estes is an entity based in Penrose, Colorado. For many years, Estes has been the dominant manufacturer of rocket motors and related products for the hobby market, and has sold those products in interstate commerce.

7. Defendant Centuri is an Arizona corporation that owns, among other things, all of the assets and trade names of Estes.

CO-CONSPIRATORS

8. Various other persons, firms, and corporations not presently made defendants herein have combined and conspired with defendants in the violations alleged and have performed acts and made statements in furtherance thereof. Those persons include, but are not limited to, officers, partners, employees and agents of defendants who participated in and had knowledge of the acts complained of herein. Plaintiffs reserve the right to seek leave to add these, or other persons, as defendants as the litigation proceeds.

RELEVANT ORGANIZATIONS

The National Association of Rocketry ("NAR")

9. The NAR is a non-profit scientific educational organization founded in 1957 which is devoted to fostering hobby rocketry. It has over 4300 individual members and 60 model rocket club members. It is the leading organization of consumers of hobby rocket motors and related products. The NAR is also a standard-setting organization, testing and certifying model rocket motors. Forty nine states have adopted NFPA Code 1122 which requires NAR or similar organization certification as a prerequisite for unrestricted sales of hobby rocket motors to consumers. An NAR representative serves on the Pyrotechnics Committee of the National Fire Protection Association ("NFPA") and participates in the writing of its national codes and regulations for hobby rocket motors.

Model Rocket Manufacturers Association ("MRMA")

10. The MRMA is an independent voluntary membership organization which represents the interests of the model rocket industry. One of its members serves on the NFPA's Pyrotechnics Committee and participates in the writing of its national codes and regulations for rocket motors; the member is to serve as a representative of all model rocket manufacturers. Between 1989 and May 1992, the MRMA was chaired by Mary Roberts, Estes' Director of Marketing. In April 1992 she was forced to resign that position as a result of the wrongdoing alleged in this complaint.

National Fire Protection Association ("NFPA")

11. The NFPA is an independent, voluntary membership, non-profit organization with a staff of over 150 professional people and an additional 150 support personnel. It is involved in the development of standards intended to minimize the risks of fire. Its codes and standards are developed by more than 235 committees, each of which is supposed to represent a balance of affected interests. For the hobby rocket industry, such standards are developed by its Pyrotechnics Committee, which includes representatives of both the NAR and MRMA. At all relevant

(continued next page)

times, Mary Roberts purported to represent the MRMA in connection with those activities.

12. NFPA standards and codes have influence because they are widely used as the basis of legislation and regulation at all levels of government, from local to national. Many are referenced by agencies of the federal government and they are also used by insurance authorities for risk evaluation and premium rating. In view of the significance of its activities, the NFPA recognizes the need for amendments and interpretations from time to time and procedures exist for issuance of Tentative Interim Amendments and Formal Interpretations.

FACTS

A. Line of Commerce

13. Russia launched Sputnik in 1957 and interest in rocketry and building hobby rockets ("hobby rocketry") soared with it. Hobby rockets are generally characterized by the grade rating of the rocket motor. For example, a "C" motor is twice as powerful as a "B" motor, which is twice as powerful as an "A" motor, etc. Hobby rockets using "A" to "G" motors are sometimes known as "model rockets," while hobby rockets employing "H" motors and above are sometimes known as "high power rockets."

14. For many years, "black powder" was the propellant source for all hobby rocket motors.

15. As part of the work undertaken in ICBM and other government missile programs, "composite propellants" for a variety of uses were developed. Pound for pound, a composite propellant delivers about 2-1/2 to three times the power of black powder. It also enables the user to obtain performance characteristics and sound and visual effects that are not available from black powder propellant. Once composite propellants became available at attractive prices in the early 1980s, they quickly became the propellant of choice for high power rockets. AeroTech was the first company to use them successfully.

16. Until 1990, virtually all hobby rocket motors were "single use," or "disposable," motors, that is, hobby rocketeers had to purchase a new motor each time they wished to launch a rocket. Such motors would typically cost between $1.50 to $17.00 for model rocket motors and $20.00 to $500.00 for high power rocket motors. In 1990, plaintiffs introduced the "reloadable" or "reusable" rocket motor (with integral delay and ejection charge). Each anodized aluminum motor could be flown again and again with easy to use reload kits. These offered significant cost savings to hobby rocketeers and were more reliable. Introduced initially in the "H" and above high power range, reloadables quickly became the motor of choice for "H" and above motors.

B. Relevant Markets.

17. Motors for hobby rockets and related products constitute a relevant "product market" under the antitrust laws; one submarket is motors for hobby rockets. The entire United States constitutes a relevant "geographic market."

C. Estes' Hobby Rocket Business and TCW's Assumption of Control

18. For many years, defendant Estes has been the dominant manufacturer of rocket motors and related products for the hobby market. At all relevant times, Estes has only manufactured single-use or disposable motors (as opposed to re-usable motors), which employed black powder propellants (as opposed to composite propellants). It has limited its efforts to the "A" to "D" segment of the hobby rocket motor market, which accounts for the overwhelming percentage of sales of hobby rocket motors.

19. In January 1990, Estes was sold by its owner, Damon Corporation, for $43.7 million. This was pursuant to a highly leveraged buy out led by Drexel Burnham Lambert, Inc. As part of the transaction, defendant Centuri, which held Estes' assets, was saddled with enormous debt which it lacked the capacity to service. TCW, which provided the debt portion of the leveraged buy out, took over Centuri and Estes and has controlled all of its operations and activities since that time.

20. Since their acquisition of Estes and Centuri, the TCW defendants have sought to sell them, and have caused Estes and Centuri to do whatever necessary to enhance its marketability despite its enormous debt.

D. AeroTech's Hobby Rocket Business

21. Since 1982 AeroTech has developed, manufactured and marketed motors employing "composite" propellants. Initially, AeroTech was not perceived to constitute a threat to Estes's monopoly, since it only sought to serve the "E" and above portion of the motor market (and did not produce related products). In October 1989, AeroTech announced plans to expand into the "D" portion of the market (which Estes had dominated for many years) and to offer a full product line, including motors, rocket kits and ground support equipment, igniters, gliders, and parts. Unlike AeroTech's "H" and above activities, which are subject to strict federal regulation, these activities would face no more federal or state regulation than Estes had historically faced in the "A" to "D" portion of the market.

22. Articles in the trade press discussed AeroTech's product line in highly complimentary terms and Estes began to take note. During the February 1990 New York Toy Fair, representatives of AeroTech were approached by an Estes officer with a proposal that they split the high and low ends of the hobby rocket market between them and work together to drive another company, Model Rectifier Corporation, out of the hobby rocket business by alleging safety hazards of some of its products. AeroTech refused to participate in this arrangement.

23. In July 1990, AeroTech announced that it would bring out a line of reloadable (reusable) high power rocket motors for "H" range and above. For the first time, consumers would have an alternative to the single-use motor. While single-use motors of "H" power typically cost $20-$40 at the retail level, the AeroTech reloadable alternative would be available at less than $10. Savings for other high power motors were of similar magnitude. To distinguish this product from single use motors, it was initially marketed under the "ISP" name.

24. AeroTech's introduction of the reloadable motor caused a number of other companies, including Estes, to issue announcements that they would do the same. All would ultimately fail. At the same time, AeroTech's reusable motor proved enormously successful. Before AeroTech's introduction of the reloadable motor, AeroTech and a competitor, Vulcan Systems, Inc. ("Vulcan") each sold about 40-45% of "H" and above hobby rocket motors. With its reloadable motor, AeroTech captured close to 100% of that portion of the market. During this period, no serious question was raised as to the safety of reloadable motors, and representatives of both Estes and Vulcan recognized that they were safe.

25. In August 1990, AeroTech made a presentation to the NAR's Board of Trustees with respect to reloadable rocket motor technology and reloadable rocket motor and reload kit testing. Reaction to AeroTech's ISP reloadable rocket motors was very positive.

26. At the Radio Control Hobby Trade Association (R/CHTA) show in Chicago in October 1990, a representative of Estes approached AeroTech and expressed interest in acquiring the company. AeroTech indicated it did not wish to be acquired at that time.

27. In March 1991, David Hicks (Hicks), editor of a widely-read hobby club newsletter, wrote an editorial about the poor quality, design and technology of Estes products. Hicks recommended that Estes should "look at the great stuff being turned out by AeroTech, combining product and packaging, both in a superior manner". Hicks went on to say, "As for Estes, not only do they stand to

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lose repeat business, but .... send many of us into the waiting arms of companies like .... AeroTech".

28. In March 1991, AeroTech announced that it would be offering reloadable rocket motors into the "D" through "G" range of the market. This was done following requests from many hobby rocketeers. By this time, AeroTech's plans to compete in the "A" to "C" portions of the market were becoming known in the industry as well. For the first time, Estes was faced with a competitor that would be offering products that were both more economical and of a higher quality than its own in the market it had long dominated.

E. TCW's Initial Reaction to AeroTech

29. News of AeroTech's plans and the positive reaction from rocket hobbyists could not have come at a worse time for TCW, since Centuri and Estes remained crippled with debt and TCW's ability to sell it was further threatened by AeroTech's direct competition. TCW concluded that aggressive action was required to enhance Estes' marketability.

30. To begin, TCW caused Estes to revamp its entire operations, replacing Estes' General Manager (President) Robert Buroker with Barry Tunick, a person from outside the industry with a reputation which may euphemistically be described as "street fighter." His mission as he stated on a number of occasions was simple: "[T]o make sure there is no competition to Estes." (Or as he was to say in May, 1992 "AeroTech must be stopped..." and "I will do whatever it takes to promote Estes. That includes being nasty.")

31. In April 1991, almost immediately after joining Estes, Tunick and Buroker visited the AeroTech facilities in Las Vegas to discuss "ways to work together". Tunick stated he was very interested in AeroTech technology, patents and the market position it was developing. Tunick and Buroker were informed at that time that a patent for AeroTech's reloadable motor technology was pending. (This patent has since been granted.) In describing a Canadian manufacturer which was a potential competitor, Tunick's attitude was clearly stated: "we can't let small companies like that get a foothold in the market. We have to stamp out the f-----s as soon as possible". AeroTech refused to join this effort.

32. Given AeroTech's refusal to work with Estes, Estes initially sought to compete directly with AeroTech in the marketplace. It accelerated its efforts to develop single use and reloadable motors using composite propellants. It also announced plans to serve the "E" to "G" portion of the hobby rocket motor and related products market, an area it had ignored for over 30 years until AeroTech announced its plans to manufacture "D" to "G" reloadable motors. While making these efforts to compete, Estes also sought to throttle AeroTech's momentum.

F. Estes' Initial Effort to Influence the NAR and the Market

33. In April 1991, Mary Roberts, Estes' Marketing Manager and the Model Rocket Manufacturers Association's sole representative to the National Fire Protection Association's Pyrotechnics Committee, complained that things were moving too fast concerning reloadable rocket motors. She asked that the NAR not support a Tentative Interim Amendment ("TIA") to the NFPA code proposed by AeroTech which would have expressly allowed metallic reloadable rocket motors of "G" size and below to be classified as "model rocket motors". This TIA would have enabled AeroTech to market its reloadable motors in the less expensive and less restrictive manner available to single use motors. In addition, NAR model rocket motor certification of the AeroTech product could be secured.

34. To confirm testing and analysis of metal reloadable motor casings performed by AeroTech, and to support the TIA, with the full support and cooperation of AeroTech, the Aquarius Commission of the NAR, MRMA and the Tripoli Rocketry Association conducted tests of their own in June, 1991. The tests showed that AeroTech's reloadable motors presented no greater safety hazards than traditional non-metallic single use motors. Although Estes officials were invited to participate in and witness these tests, they declined to do so.

35. During the period that the proposed TIA was being considered, Estes representatives threatened on numerous occasions to cut off Estes' vital financial support for the NAR, unless the NAR could "rejustify" itself.

36. During this time period, Tunick circulated false rumors that AeroTech had been purchased by Great Planes, the largest hobby products distributor in the country. Since Great Planes' parent, Hobbico, Inc., also owned a company that sells directly to consumers by mail order at significant discounts, many hobby dealers do not wish to deal with any company with which Great Planes is affiliated.

G. TCW's Dilemma and the Fabricated Tests of AeroTech Products

37. In late October, 1991, Charles Sukenik, TCW Capital's senior partner, accompanied Tunick to the industry's most important trade show, the R/CHTA show in Chicago, for the purpose of seeing the full AeroTech line. Both were aware of AeroTech's success in the "H" and above portion of the market. When they saw the expanding AeroTech line, they recognized the magnitude of the competitive threat posed by AeroTech in the "A" to "G" portion of the market, and the impact it would have on TCW's efforts to sell Estes. Unable to respond with competitive products, TCW and Estes, in conjunction with Vulcan, which had recently joined efforts with Estes to develop composite motors, sought a final solution to the AeroTech problem.

38. In particular, Estes and Vulcan caused a series of "tests" to be taped which purported to show extreme fire and explosive hazards of reload kits used in reloadable motors. Among the participants in this activity were Mike Helmund, an Estes official, and Bill Dennett, a Vulcan employee who was subsequently hired by Estes. The tape and accompanying anonymous report, while purporting to be objective, were structured to present the reload kits used in reloadable motors as a safety hazard that must be banned because reloads are "an accident waiting to happen". The tape made no mention of who was conducting the tests or that the "reload product" was not a product on the market, but one created for the "test". Nevertheless, the report and tape purported to depict "the hazards of reload kits currently on the market". AeroTech was not advised of the tests either before they had been undertaken or promptly after they occurred. TCW, which was in control of Estes operations, was aware of this activity and agreed to Estes' participation in it, in an effort to destroy AeroTech and enhance its ability to sell Estes.

39. On January 31, 1992, Tunick and Roberts of Estes telephoned Pat Miller of the NAR and again expressed concern about the NAR's support of reloadable rocket motors. They also advised Miller of the "tests" that had been conducted and invited him to come to Colorado and view the tape for himself. During the same conversation, Tunick and Roberts threatened once again to withhold Estes' critical financial support from the NAR.

40. On February 3, 1992, Miller traveled to Estes headquarters in Penrose, Colorado and met with Barry Tunick, Mary Roberts of Estes, Vernon Estes, former owner of Estes and an NAR director, and others to see the tape and "report". Miller was required to promise that he would not tell AeroTech about the tests, and he did not do so. He proceeded to report what he believed he had seen to Harry Stine, Chairman of the NFPA's Pyrotechnics Committee, which was scheduled to consider the pending reloadable motors TIA.

41. On February 5, 1992, Mr. Stine informed AeroTech about the "tests", tape and "report", advising that they were likely to affect the

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upcoming TIA vote. This was the first time that AeroTech learned of the "tests", tape and "report." Representatives of AeroTech immediately called Miller of the NAR. It was apparent based on further discussions with Miller that the tests' results were fictitious, since they were at odds with all known reload propellant burn rates and fire propagation data. Miller was urged to accept the tests cautiously, since they had been prepared by competitors of AeroTech, without any input from, or notice to, AeroTech.

42. Immediately after this conversation, AeroTech conducted a reload kit test in the manner it understood had been used in the tape. The results were vastly different from those shown on the tape. This information was immediately conveyed to the NAR.

NAR Testing of AeroTech Products and Defendants' Continued Wrongful Conduct

43. As word of the tests became known, members of the industry (including AeroTech) called on the NAR to do its own testing. Estes immediately set out to discredit the NAR tests by raising numerous specious objections, and false claims about the ethics and biases of those conducting the tests. Although Estes was invited to witness them, it once again refused to do so. On March 20, the NAR nevertheless conducted its tests in Phoenix. On April 3, 1992, the NAR released the results of these tests. It concluded that: "The secondary fire tests showed no increased fire hazard attributable to existing model rocket motor reloading kits in comparison to those expendable model rocket motors. The propellant burning activity of the model rocket motor reloading kits was delayed by approximately the same length of time as expendable motors, was not propulsive, and exhibited less delay time between unit ignitions than expendable model rocket motors of approximately the same propellant mass. Static tests of representative samples of product selected at random showed that all product tested was live. These secondary burn tests are considered to be valid by the U.S. Department of Transportation's Office of Hazard Materials Transportation. Follow-on accidental ignition tests resulted in failure of burning cigarettes to ignite the propellant grains of model rocket motor reloading kits. In aggregate these tests showed no increased level of hazard in shipping, storage, or consumer use exists for current model rocket motor reloading kits in comparison to expendable model rocket motors that have been shipped, stored, and used for at least 25 years." (Emphasis supplied)

44. During the December-March period, and possibly thereafter, Estes caused copies of the false tape and report to be sent anonymously to various governmental bodies. While the full extent of the dissemination is not presently known, it included at least the Department of Transportation and the Consumer Product Safety Commission. As a result of confusion caused by the tape and despite the NAR's April 3 report showing that the Estes "report" was intentionally misleading at best, AeroTech was informed that its reloadable products would be examined by these agencies and that while it was free to ship its products, it was subject to the risk that it might be found to be in violation of one or more regulations. As a result, it was compelled to cease shipping its reloadable motors until final clearances were obtained.

45. On April 7, because of all the confusion with respect to the Estes test, and despite the NAR Report, the NFPA Pyrotechnics Committee elected to take no further action on the proposed TIA.

H. Defendants' Efforts to Disavow Involvement in This Wrongful Activity

46. Having succeeded in dealing a near fatal blow to AeroTech, Estes and TCW set off to distance themselves from the tape and "report", and the damage they had intentionally inflicted. Despite Helmund's presence on the tape, and Vulcan's direct involvement in Estes' composite motor development program, Estes described the tape solely as a Vulcan effort, with the Helmund portion being characterized as but a supplement.

47. On April 1, 1992, Tunick sent a memorandum to Mary Roberts, instructing her to act independently of Estes when she served as the representative of the Model Rocket Manufacturers Association to the NFPA Pyrotechnics Committee. Roberts had served as the MRMA representative since 1989 and at no time previously had she recognized the inherent conflict she had when advancing proposals which were in Estes' interest rather than those of the entire industry. In addition, Roberts had not consulted with the MRMA membership before casting her votes on the reload issues. Despite Tunick's belated effort to distance TCW and Estes from the fictitious tape and to present Roberts as an NFPA Pyrotechnics Committee member independent of Estes, at the meeting of the NFPA Pyrotechnic Committee a few days later, Roberts' resignation as president (and representative) of the MRMA was demanded. It was provided the next day.

I. Other Efforts by Estes to Eliminate Competition

48. Throughout this-period, Estes took other steps to drive AeroTech out of business.

49. In February, 1992, an Estes representative called the president of the Sport Flyers Association ("SFA") to advise them about the "potential dangers" of reloadable rocket motors. The SFA is an organization that provides insurance for aviator/rocketry hobbyists. If Estes could successfully persuade the organization not to insure reloadable rocket motors, it would likely have precluded AeroTech from continuing in business.

50. In January 1992 and on other occasions, Tunick disparaged AeroTech, its capabilities and its business practices to potential AeroTech product distributors.

51. In April, 1992, an Estes representative used a large international computer conference network to spread concerns about the safety of reloadable rocket motors "regardless of the validity of the tape."

52. In April, 1992, an Estes representative called an AeroTech product dealer and said, "I recommend that you only sell disposable motors." At the same time, Tunick of Estes told a writer for a rocket club newsletter that he (Tunick) "likes" reloadable motors and "will wait for all the regulatory dust to settle and then Estes will bring out its own reloadable motors." Within two months, Estes again publicly reversed its position on reloadable motors to create additional market and regulatory confusion.

53. In May, 1992, Estes representatives told the president of the Sport Flyers Association that "Estes has been trying to notify everybody about the potential hazards of this stuff [reloadable motors]."

54. In May, 1992, Tunick tried to recruit another hobby rocket products manufacturer as an ally to disrupt AeroTech's marketing efforts.

55. In May, 1992, an Estes representative called an AeroTech product dealer and told him that AeroTech is the "slime of the earth" and that Estes can put reloadable motors of its own on the market "in a heartbeat."

56. Estes has taken and continues to take other actions to maintain its monopoly improperly. These have included (a) announcing anticipated introduction of new products competitive with AeroTech products when it lacked the ability or intention to bring them to market, causing potential customers to refrain from purchasing from AeroTech and others; (b) threatening to terminate distributors, terminating distributors, and threatening to deny distribution status if distributors undertook to carry products of potential competitors; (c) threatening trademark litigation against AeroTech for using the generic phrase Phoenix when it lacked a proper basis for doing so and failing to assert similar threats against other less dynamic competitors, which were also using the term Phoenix; (d) making false allegations about

(continued next page)

AeroTech and persons claimed to be associated with it to consumers, dealers, and distributors, trade publications and federal and state regulatory bodies; (e) seeking to create baseless concerns about the safety of AeroTech's products when it was unaware of a single accident or claim involving an AeroTech product and its own products had caused many injuries, particularly to children, and have given rise to numerous claims; and, (f) working with the Academy of Model Aeronautics ("AMA") to create and adopt model rocket safety codes that would exclude AeroTech products.

57. Estes has recently commenced distribution of marketing materials that described its motors in a manner intended to create unfounded safety concerns about reloadable motors in the minds of rocketeers. Its materials fail to warn of the hazards presented by its own products or of the steps reasonably required if children are to use them safely.

58. Estes' wrongful activities continue today. As recently as February 19, 1993, Estes representatives were circulating rumors to AeroTech's customers that AeroTech had gone out of business. Estes knew them to be false when it disseminated them.

FIRST CLAIM FOR RELIEF

VIOLATIONS OF SECTIONS 1 AND 2 OF THE SHERMAN ACT

59. Plaintiffs repeat and reallege the allegations in paragraphs 1-58 as if fully set forth herein.

60. Defendants and their co-conspirators have been engaged in an unlawful combination and conspiracy to restrain trade unreasonably and to monopolize, and have attempted to monopolize with a dangerous probability of success and have monopolized interstate trade and commerce in the manufacture, distribution and sale of hobby rocket motors and related products. The policies, practices and several acts described in this complaint have been adopted and committed by the defendants and each of them consciously, with the intent and the inevitable effect of creating and maintaining the anti-competitive, trade restraining and monopolistic conditions and consequences alleged herein.

61. As a result of the conduct alleged herein, Estes has maintained its monopoly in the manufacture, distribution and sale of hobby rocket motors and related products, caused substantial injury to such competition as does exist, and prevented meaningful competition from emerging.

62. Plaintiffs do not now know the full extent of their damages but believe that their total damages, including but not limited to lost profits, and diminution of the value of their business, presently exceed $20 million. At such time as plaintiffs have ascertained more clearly the full extent of their damages, they will seek leave to amend to allege them. One simple measure of a portion of plaintiffs' damages is to compare AeroTech's penetration of the "H" and above market after it entered and encountered only lawful competition, with its penetration of the "A" to "D" portion of the market. But for defendants' wrongful conduct, plaintiffs would have been equally successful in the "A" to "D" portion of the market as it was in the "H" and above market.

SECOND CLAIM FOR RELIEF

CLAIM FOR RELIEF WITH RESPECT TO INTENTIONAL INTERFERENCE WITH PLAINTIFFS' EXISTING AND PROSPECTIVE ECONOMIC ADVANTAGE

63. Plaintiffs repeat and reallege the allegations in paragraphs 1 through 58 and 60 through 62 as if fully set forth herein. By virtue of their business activities, plaintiffs enjoyed existing and prospective economic and contractual relationships with customers and the financial community.

64. The economic and contractual relationships involving plaintiffs and their customers and the financial community bore the probability of future economic benefit to them, including the opportunity to make profitable sales and build a business which would be valued at a multiple of its rapidly ascending earnings.

65. Defendants knew of plaintiffs' relationship and the future economic benefits plaintiffs stood to enjoy and intentionally committed wrongful acts as set forth above, designed and intended to interfere with and disrupt plaintiffs' relationships and to deprive plaintiffs of those future economic benefits. Defendants knew that their conduct was likely to disrupt plaintiffs' existing and prospective economic and contractual relationships and undertook their activities for the purpose of subverting them.

66. Defendants' wrongful acts actually did interfere with and disrupt plaintiffs' existing and prospective economic and contractual relationships.

67. As a direct and proximate result of defendants' wrongful conduct, plaintiffs have suffered economic harm and damage to their business and property.

68. Defendants' conduct, as alleged herein, was malicious, outrageous and oppressive in that defendants possessed and exercised superior economic power with the intent of harming or destroying plaintiffs, or in willful, wanton, reckless and conscious disregard of the rights and interests of plaintiffs. The malicious, outrageous and oppressive nature of defendants' acts renders those acts despicable and entitled plaintiffs to punitive and exemplary damages.

PRAYER FOR RELIEF

WHEREFORE, plaintiffs request the following relief:

With respect to the antitrust claims:

(1) that defendants be adjudged to have violated sections 1 and 2 of the Sherman Act;

(2) that the actual damages to plaintiffs' business and property resulting from defendants' violations of the Sherman Act be determined;

(3) that plaintiffs have judgments on their antitrust claims for three times the amount of their actual damages, together with costs of this suit, including their reasonable attorney's fees, as required by law;

(4) that plaintiffs have such other and further relief, including equitable and injunctive reliefs, both preliminary and permanent, as the Court may deem just and proper.

With respect to the claim for intentional interference with plaintiffs' existing and prospective economic advantage:

(1) Awarding plaintiffs compensatory damages sustained as a result of defendants' wrongful conduct, in an amount to be determined at trial, as provided by law;

(2) Awarding plaintiffs punitive and exemplary damages;

(3) Awarding plaintiffs full costs and expenses of this action, including reasonable attorney's fees;

(4) Awarding plaintiffs interest on all compensatory damages at the legal rate; and

(5) Granting such other and further relief as the Court may deem just and proper.

Dated: New York, New York
March 26, 1993

LeBOEUF, LAMB, LEIBY & MacRAE

Grant S. Lewis (GL-6420)

By: John M. Aerni (JA-3394)

125 West 55th Street New York, New York
10019-5389 (212) 424-8000
Attorneys for Plaintiffs AeroTech, Inc. and Industrial Solid Propulsion, Inc.

JURY DEMAND

PLEASE TAKE NOTICE that plaintiffs demand a trial by jury on all issues triable as of right by a jury.

AREA CONTEST CALENDAR

SPAARSEC - 9

Section Meet [SPAAR]

Sunday, Sept. 5, 1993
9AM - 5PM
Cocalico HS, Denver

Events:

1/2A HD [M], A HD [M], B HD [M]

Sport Flying Welcome

Contact:

Glenn Feveryear
717-456-5570

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PARASHOOT - 2

REGIONAL MEET

October 9 & 10, 1993

Events:

A BG, 1/2A RG, D HD, 1/2A SRD
C ELD, A PD, 1/4A SD

Host Section : PARA

Contact:

Bob Stott
PO Box 206
Richboro, PA 18954-0206

CHOP'EM OPEN 3

OPEN MEET

Sunday, Oct. 10, 1993
Dorbrook Park, NJ

Events:

1/4A HD, 1/2A HD, A HD,
D HD, RANDOM DURATION

Host Section: GSSS

Contact:

Tom Whymark
908-475-8293

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VACUUM - 19

OPEN MEET

Saturday, Oct. 16, 1993

Events:

30s Set Duration, 1/2A PD[M]
A RG [M], D HD, A ALT, A PAYLOAD

Host Section: NOVAAR

Contact:

Ken Brown
703-451-2808

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

TO:

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