

OFFICIAL NEWSLETTER OF
THE SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY

VOLUME 7, ISSUE 6

NOVEMBER/DECEMBER 1994

SEASON'S GREETINGS !!

Inside:

SPAAR MEMBERSHIP SURVEY

PRODUCT REVIEWS

SPORT LAUNCH COVERAGE

SECTION NEWS NOTES

1995 SCHEDULE ENCLOSED

The Countdown

Volume 7, Issue 6

November/December 1994

The **Countdown** is the newsletter of SPAAR, the Southern Pennsylvania Area Association Of Rocketry, NAR Section #503, PO Box 127, Reamstown, PA 17567, as well as of Tripoli Susquehanna/#71. Non-member subscription rate, \$6 per year, six issues. Please make all submissions to address above. Material may be used with proper credit. [as if anyone wants to]

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

Thanks This Time To:

Ed Miller & Dale Greene

CONTENTS

| | |
|--|--------------------|
| Section Meeting Minutes | pg 3 |
| Section News Notes | pg 4 |
| Club Launches | pg 5,6 |
| Flight Logs | pg 7,8,9 |
| HPR News | pg 9 |
| Product Reviews | pg 10,11,12 |
| Final 93-94 Competition Standings | pg 13,14 |
| 1995 SPAAR Schedule | pg 15 |
| SPAAR Membership Survey | pg 17 |

SCHEDULE

SATURDAY, JANUARY 21, 6:00 PM, SPAAR FAMILY DINNER, BONANZA RESTAURANT, HEMPLAND RD., LANCASTER.

SUNDAY, JANUARY 22, 1:00 - 5:00 PM: SPAAR SPORT LAUNCH, COCALICO HIGH SCHOOL, DENVER, PA. BRING YOUR OWN LAUNCH SYSTEM.

SATURDAY, JANUARY 28, 9:00 AM - 1:00 PM: SPAAR WINTER WORKSHOP, WORK ON WATCHA BRUNG.

FRIDAY, FEBRUARY 17, 7:00 PM - 9:00 PM: SPAAR SECTION BUSINESS MEETING, HOMEDCO COMMUNITY ROOM, HARRISBURG AVE., LANCASTER. CALL GEORGE BEEVER AT 717-733-4170 FOR DIRECTIONS.

SECTION MEETING

November 18, 1994

Present: Glenn, Rita, Renee & Daniel Feveryear; D. Greene; D. Weinhold; B. Rhoat; R. Hackman; G. Beever

Treasurer: [from Ed Miller]: 32 current members; balance at the end of last meeting, \$407.73. Income: \$2.22 in interest. Outlays: none. Current balance, \$404.95,

Section Advisor: G. Beever reported on the latest FAA news; read a letter from Ed Guigliano, indicating that the CARS Section in Cumberland, MD, has gone defunct.

Thanked Dan Weinhold for arranging for the use of the room.

Competition: Glenn Feveryear passed out copies of his proposed rules change that he is submitting to the NAR Competition Committee.

Newsletter: G. Beever stated that he had enough articles to get out one more newsletter, which will probably be small.

High Power: [from Ed Miller]: Spoke with Bruce Kelly, Tripoli president and editor of HPR magazine, who stated that in future issues, he will correct the club's name [Tripoli Susquehanna]. He also stated that he expects the magazine to go from 6 issues per year to 9.

Old Business: None

New Business: The new FAA 101.25 requirements were discussed. It was decided that we should notify our local ATC before all club launches.

The SPAAR Family Dinner will be held on **Saturday, January 21, at 6PM, at the Bonanza Restaurant, Hempland Rd., Lancaster.**

The 1995 schedule will be completed soon. Any ideas are welcome.

Ideas for Winter Workshops are needed!

Nominations for 1995 club officers:

President: Glenn Feveryear.

Vice President: Dale Greene, John Yost.

Sec/Treasurer: Ed Miller, Gary Feveryear.

Member-at-Large: Bill Rhoat, Dan Weinhold, Rick Hackman.

Section Advisor: George Beever.

The election will be at the Dec. 10 meeting at the Feveryear's house.

The meeting adjourned at 8:45PM.

SECTION NEWS NOTES

New Meeting Place!!! Thanks to the efforts of SPAAR's Dan Weinhold, we finally have a location to hold our monthly meetings.

Beginning Friday, February 17, 1995, all SPAAR Meetings will be held at the HOMEDCO Co. Community Room, located at 250/252 Harrisburg Ave. in Lancaster.

Our November meeting was held at that location, and the facilities are excellent.

At this meeting, it was decided that all future meetings will be held on the third Friday of each month, at 7PM. Some may remember that our monthly meetings had previously been held on the third Monday, however the Community Room is not available at that time.

There is ample parking in the area, as well as a Domino's Pizza next door, which may come in handy!

The December meeting is still scheduled for the Feveryear's house on December 10. The January meeting will be held in conjunction with the Family Dinner on the 21st of that month.

Having a regular place to meet, on a set schedule, was one of the things that help SPAAR get off the ground. Make plans to attend, bring your latest

projects, and become part of your club!

We all owe Dan a great big **THANKS!!!!**

Membership Survey: It was pointed out that in the membership roster that appears in the January/February issue, phone numbers were omitted. In order to correct this, we have included a membership survey on the last page of this issue.

Also included in member's editions is a self addressed stamped envelope to return the form. Sort of takes away any excuses ya' might dream up for not returning it! Please take the time to fill out the form, and return it by January 31, 1995. Thanks.

The name sounds familiar: In the most recent issue of Sport Rocketry, SPAAR member Doug Gardei was featured twice: one was a recipe for a wood sealer that Doug devised, and the second was a photo of an Estes Bullpup 12D at lift-off. Congratulations Doug!

Not to be outdone, the October issue of High Power Rocketry featured a story and photos of the Battlepark '94 HPR launch. A photo of Ed Miller appeared with one of his creations. "The legend on Ed continues".....

SPAAR SPORT LAUNCHES

SPAARSPAM-6

November 13, 1994

For the first time in a couple of years, the weather cut us a break for SPAARSPAM, our annual food-fest and rocket launch. The weather was mild, with little or no breeze, reminiscent of the SPAARSPAM-1 back in 1989.

There was chicken, chips n' dips, cookies, salads, chili... enough to make anyone wish for Alka-Seltzer. There were also 13 flyers who made a total of 52 flights, including some special guests.

Joe Pinto, his son Mike, and Mike's friend Brent Fredrick came down from Shillington to fly some of their own designs. Between the three of them they made nine flights, all successful. Their models showed a great deal of ingenuity. Another new face was that of Mark Kamide, of Mountainside Hobbies in Ephrata. Mark came out to fly some rockets, as well as to check the R/C aircraft that use the other side of the school grounds for their flights. We are happy that all of these new folks came out to fly, and we hope they decide to join up with us!

The "event" at this year's SPAARSPAM was something called "B ChiliLoft Streamer Duration/Spot Landing". I won't

hazard a guess at trying to remember the rules, but it had something to do with using a B motor, a streamer, a 35mm film container full of chili and... well anyway, Renee Feveryear had the best [?] score, and she walked off with the prize. A QCR Egglofter kit, of course.

Back to more normal flying, Glenn Feveryear showed why his first initial, "C", stands for consistency, when he flew his internal rotor D Helicopter design twice to almost identical times of 54.9 and 54.4 seconds.

Smilin' Roger Dwyer got everyone's attention when he flew his LOC Legacy on an Aerotech G64-10WL reload. The ripping noise made by the G64 made people wonder if the chili was already acting up. Nice flight! And consider poor Rick Hackman, who had the next flight off the pads: an Estes Tornado powered by a 1/2A6-2. Kind of a hard act to follow. Roger followed that up with a THOY Wren on an Aerotech F25, that just about went out of sight. Yes, Virginia's loss is Pennsylvania's gain.

One of the first flights of the day was John Yost's beautiful Estes Mars Lander classic. John rebuilt this model after a friend was ready to throw it away. [!?] It made a great flight on a C6-3. I wonder if Estes would consider releasing

that one as part of their classics series?

John also had a great flight with his LOC Onyx with an F25-6 White Lightning. The flight was made late in the afternoon, which really showed the exhaust flame well. It was the second flight of the day for the Onyx, having flown earlier on an Estes D12-3.

Dale Greene flew an ex-Jim Lytle MRC Ironman with a C6-3. Why a C6-3? "Because that's what Jim had in it when I bought it from him." OK, sounds good to me. He also flew Name Pending 1 and Name Pending 2, a couple of models he'd built for F Streamer at this year's NARAM. I don't know if he got either one back, but the one with the F14 was some ride!

Speaking of which, Gary Feveryear flew his Estes IRIS with a C6-5. Don't know if that one ever came back, either.

George Beever flew an Aerotech Strong ARM for a nice flight with an F25, as well as an FSI Javelin on an E30. Again, this was a late afternoon flight, and the blue flame from the E30 showed up well.

November 25, 1994

The Turkey Day +1 Sport launch is becoming an annual tradition. Eight flyers showed

up at 9AM to do some flying and work off yesterday's turkey dinner.

Bill Rhoat suffered a rather strange CATO of a Quest B6-0 in the first stage of his Navajo AGM. The model looked repairable, however.

Ed Miller flew his scratchbuilt Maxi-Alpha on an Aerotech F39 reload, the Tarsis on a Vulcan G200 [!], the Tekyon on an ISP H128 reload [!!], and his good old North Coast Eliminator on an F25, all for great flights. He also brought out his "cute little" Estes R2D2, which he flew with a D13 reload.

Dale Greene flew the Das Blue Max on a G64-7 RMS, which appears to be the perfect motor for this model. Yes, it has replaced the gone-but-not-forgotten Big Brute in our heart of hearts, Dale. he also flew another ex-Jim Lytle model, an Estes Stealth on an A8-3. Because, yes, that's what was in it when he bought it.

George Beever tempted the CATO gods by flying an FSI Megatron with an 11 year old D20-0 in the booster. Yikes.

John Yost flew his Mustang on a D21 for a good flight, and Glenn Feveryear flew his Nomad Rocket Glider three times for three beautiful flights. Glenn isn't satisfied with the boost, but the glide is great!

FLIGHT LOG

November 13, 1994

| # | FLYER | MODEL | MANUF | MOTOR[S] | RESULT |
|----|----------------|------------------|-------|--------------|--------------------|
| 1 | Renee F. | Chili-loft | SB | E B6-4 | GF -25.09 |
| 2 | Mike Pinto | EEP | SB | E C5-3 | Good Flight |
| 3 | Mike Pinto | EEP | SB | E C5-3 | Good Flight |
| 4 | Brent Fredrick | SQNEEP II | SB | Q C6-7 | Good Flight |
| 5 | Bill Rhoat | Mini Mars Lander | Estes | E 1/2A3-2 | Good Flight |
| 6 | Joe Pinto | Ten Ton Tony | SB | E D12-3 | Good Flight |
| 7 | Joe Pinto | Ten Ton Tony | SB | E E15-4 | Good Flight |
| 8 | Joe Pinto | Ten Ton Tony | SB | E D12-3 | Good Flight |
| 9 | Joe Pinto | Fire Cracker | SB | E D12-3 | Good Flight |
| 10 | Joe Pinto | Fire Cracker | SB | E E15-6 | Good Flight |
| 11 | Joe Pinto | SAHEEP | SB | E E15-4 | Good Flight |
| 12 | Glenn F. | D Helicopter | SB | E D12-3 | GF 54.9s |
| 13 | Glenn F. | D Helicopter | SB | E D12-3 | GF 54.4s |
| 14 | Glenn F. | Serval | CRC | E C6-5 | Good Flight |
| 15 | Glenn F. | Chili-loft | SB | E B4-4 | GF -41.55 |
| 16 | Glenn F. | Onyx | LOC | E D12-3 | Good Flight |
| 17 | Glenn F. | Nomad B RG | SB | E B4-2 | Good Flight |
| 18 | Glenn F. | 1/2A Cl. Alt. | SB | E A10-3[3] | SEP |
| 19 | Rick Hackman | UFO-24 | EM | E D12-3 | Good Flight |
| 20 | Rick Hackman | XR-55 | SB | E C6-3 | Good Flight |
| 21 | Rick Hackman | Birdie | EM | E A3-4 | Good Flight |
| 22 | Rick Hackman | XR-49 | SB | E C6-3 | Good Flight |
| 23 | Rick Hackman | Saucer | Estes | E C6-0 | Good Flight |
| 24 | Rick Hackman | Tornado | Estes | E 1/2A6-2 | Good Flight |
| 25 | Rick Hackman | Birdie | EM | E 1/2A3-2 | Good Flight |
| 26 | Rick Hackman | Chili-loft | SB | E B6-4 | DQ |
| 27 | Rick Hackman | Thor | SB | E A8-3 | CHU |
| 28 | Rick Hackman | Stalk | SB | E A8-3 | Good Flight |
| 29 | Rick Hackman | Nitro-Roc | SB | E B6-4 | Good Flight |
| 30 | Rick Hackman | ? | SB | E B6-0/A8-5 | Good Flight |
| 31 | Roger Dwyer | B Helicopter | QCR | E B4-2 | Good Flight |
| 32 | Roger Dwyer | Legacy | LOC | AT G64-10RMS | Good Flight |
| 33 | Roger Dwyer | Wren | THOY | AT F25-4WL | Good Flight |
| 34 | Roger Dwyer | A Rocket Glide | QCR | E A8-3 | Good Flight |
| 35 | Gary Feveryear | IRIS | Estes | E C6-5 | Good Flight |
| 36 | Gary Feveryear | Mega Sizz | Estes | E D12-5 | Good Flight |
| 37 | Mark Kamide | Patriot | Estes | E A8-3 | Good Flight |
| 38 | Mark Kamide | Patriot | Estes | E A8-3 | Good Flight |
| 39 | Mark Kamide | Patriot | Estes | E B6-4 | Good Flight |
| 40 | Dale Greene | Das Blue Max | ORI | AT G64-7RMS | Good Flight |
| 41 | Dale Greene | Ironman | MRC | E C6-3 | Good Flight |
| 42 | Dale Greene | Name Pending | SB | E D12-5 | Good Flight |
| 43 | Dale Greene | Name Pending#2 | SB | AT F14-9J | Lost |

| | | | | | |
|----|---------------|--------------------|----------|------------|--------------------|
| 44 | Dale Greene | 2 Minute Egg+chili | SB | E B4-4 | GF -96.21 |
| 45 | John Yost | Mars Lander | Estes | E C6-3 | Good Flight |
| 46 | John Yost | Chili-loft | SB | E B4-2 | GF -49.09 |
| 47 | John Yost | Onyx | LOC | E D12-3 | Good Flight |
| 48 | John Yost | Onyx | LOC | AT F25-9WL | Good Flight |
| 49 | George Beever | Omloid/Chili-loft | Estes | E B8-5 | splat! |
| 50 | George Beever | Maxi-Force | Estes | E D12-7[3] | Good Flight |
| 51 | George Beever | Strong ARM | Aerotech | AT F25-6WL | Good Flight |
| 52 | George Beever | Javelin | FSI | AT E30-4T | Good Flight |

Flight Statistics

Models flown:

Motor usage:

| | |
|------------------|----|
| Scratchbuilt: | 21 |
| Estes: | 9 |
| LOC: | 3 |
| MRC: | 1 |
| ORI: | 1 |
| Aerotech: | 1 |
| Flight Systems: | 1 |
| Qualified Comp.: | 2 |
| THOY: | 1 |

| | |
|----------------------|----|
| Estes: | 49 |
| Aerotech Single Use: | 5 |
| Aerotech Reloadable: | 2 |
| Quest: | 1 |

November 25, 1994

| | | | | | |
|----|-----------------|---------------|----------|---------------|-------------|
| 1 | Renee F. | Rainmaker | Estes | E A8-3 | CATO |
| 2 | Renee F. | UFO | EM | E D12-0 | Good Flight |
| 3 | Renee F. | UFO | EM | AT D21-4T | Good Flight |
| 4 | Renee F. | UFO | EM | AT E25-4T | Good Flight |
| 5 | Renee F. | Rampage | Estes | E A8-3 | Good Flight |
| 6 | Rick Hackman | XR-54 | SB | E B4-4 | Good Flight |
| 7 | Rick Hackman | XR-49 | SB | E C6-3 | Good Flight |
| 8 | Rick Hackman | XR-72 | SB | E 1/2A6-2 | Good Flight |
| 9 | Rick Hackman | XR-46 | SB | E A8-3 | Good Flight |
| 10 | Rick Hackman | XR-41 | SB | E 1/2A6-2 | Hmmmm... |
| 11 | Rick Hackman | XR-45 | SB | E B4-4 | Good Flight |
| 12 | Rick Hackman | Flying Saucer | Estes | E C6-0 | Good Flight |
| 13 | Rick Hackman | UFO-24 | EM | E D12-3 | Good Flight |
| 14 | Bill Rhoat | Navajo AGM | Quest | Q B6-0/E B4-6 | CATO |
| 15 | Bill Rhoat | Der V-3 | Estes | E D12-5 | Good Flight |
| 16 | Glenn Feveryear | Nomad B RG | SB | E B4-4 | Good Flight |
| 17 | Glenn Feveryear | Nomad B RG | SB | E B4-2 | Good Flight |
| 18 | Glenn Feveryear | Serval | CRC | E C6-5 | Good Flight |
| 19 | Glenn Feveryear | Nomad B RG | SB | E B4-4 | Good Flight |
| 20 | John Yost | Neon | Estes | E B6-4 | Good Flight |
| 21 | John Yost | Mustang | Aerotech | AT D21-4T | Good Flight |

| | | | | | |
|----|---------------|-------------------|-------|-----------------|-------------|
| 22 | Ed Miller | Maxi-Alpha | SB | AT F39-5RMS | Good Flight |
| 23 | Ed Miller | Tarsis | SB | Vulcan G200-5 | Good Flight |
| 24 | Ed Miller | Tekyon | SB | ISP H128-6RMS | Good Flight |
| 25 | Ed Miller | R2D2 | Estes | AT D13-4RMS | Good Flight |
| 26 | Ed Miller | Eliminator | NCR | AT F25-4WL | Good Flight |
| 27 | Ed Miller | UFO-24-10 | EM | AT E15-7W | Good Flight |
| 28 | Dale Greene | Das Blue Max | ORI | AT G64-7RMS | Good Flight |
| 29 | Dale Greene | Skinny Pink Thing | SB | E D12-0/D12-5 | Good Flight |
| 30 | Dale Greene | E/C Canard | QCR | E C5-3 | CATO |
| 31 | Dale Greene | Stealth | Estes | E A8-3 | Good Flight |
| 32 | George Beever | Delta Clipper | Estes | E D12-0/C6-7 | Good Flight |
| 33 | George Beever | Patriot | Estes | E D12-7 [4] | Good Flight |
| 34 | George Beever | GEO SAT LV | Estes | E C6-5 | Good Flight |
| 35 | George Beever | Megatron | FSI | FSI D20-0/D20-7 | Good Flight |
| 36 | George Beever | Landviper | CRC | E B6-6 [3] | Good Flight |

Flight Statistics

Models flown:

Scratchbuilt: 11
 Estes: 10
 ORI: 1
 Flight Systems: 1
 Qualified Comp: 1
 North Coast: 1
 Quest: 1
 Custom Rocket Co: 2

Motor usage:

Estes 32
 Flight Systems: 2
 Quest: 1
 Aerotech Single Use: 5
 Aerotech Reloadable: 3
 Vulcan Systems: 1
 ISP Reloadable: 1

Motor Failures: 1 Quest, 1 Estes

HIGH POWER NEWS

by Ed Miller

Aerotech is about to release a hybrid rocket motor, for sale in the early part of 1995. It will reportedly use an inert [safe] solid fuel and nitrous oxide as an oxidizer. It will be able to cover the H through J range, and will be 54mm in diameter. Price is unknown. At least one other company is working on a similar project. See upcoming issues of High Power Rocketry magazine for details... **Tripoli** has applied to the BATF for an exemption to allow high power consumers to store up to 25lb of Class B propellant in a residence without a magazine... **FAA** regulations have changed. No waiver is needed for rockets up to 1500g and 4oz of propellant. However, you must inform [not ask] the nearest ATC 24 to 72 hours prior to the launch... a High Power Launch is planned for sometime in December in Rocky Mount, North Carolina. I'll forward the details as I get them.

PRODUCT REVIEWSPRODUCT REVIEWSPRODUCT REVIEWS

by Ed Miller

ESTESTERRIER SANDHAWK

The Terrier Sandhawk is one of Estes' newest kits. It is a scale model of one of NASA's sounding rockets. It would make a great Sport Scale model. The upper stage is identical to the Sandhawk kit marketed by Estes in the 70's. This kit is also not a beginner's kit. It should be rated as Skill Level 5 on the old Estes scale.

The parts of the kit are of the normal Estes quality. The booster fins are injection molded plastic. Each fin is made of two pieces that must be glued together. The joint is on a very noticeable area and requires a considerable amount of putty and primer work. The remainder of the kit is relatively easy to assemble. For those of you who like to paint, this is going to be one of your favorite kits. The paint scheme on the package is incorrect. Peter Alway's book shows the correct paint scheme. You will need black, white, copper, grey, red and also brown if you intend to paint the stripe on the booster. The decal for the black lettering on the booster must also be replaced. The lettering should be red.

LIKES: price[@ \$30], quality, instructions, more challenging than the average kit.

DISLIKES: joints on booster fins.

RATING: I would give this kit a rating on 9 out of 10.

ESTESR2 D2

The R2 D2 is one of the most unusual kits that Estes has ever made. It does not look like a rocket, but I hope it flies like one. It is a re-release of an old kit.

The assembly of the kit is relatively simple. The only difficult part is the self-adhesive decal that wraps around the body tube. The hand painting of the nose dome and legs my challenge some modelers.

LIKES: It is so cute that I couldn't resist.

DISLIKES: None.

RATING: This kit deserves a 10.

LOC/PRECISIONI-ROC

The I-ROC is a relatively large kit. It is 5 1/2 inches in diameter and 55 inches long. The I-ROC would be ideal for

your NAR or Tripoli high power certification.

The I-ROC kit comes with a heavy wall airframe tube, a very strong plastic nose cone, through-the-wall plywood fins, two centering rings, 38mm motor tube, one inch wide elastic shock cord and a 44 inch diameter parachute.

The assembly of this kit is very simple. You would think that Estes designed it. The builder must cut his own slots in the airframe. Earlier, I said that I-ROC has through-the-wall fins. Technically, this is true. The fin tabs come through the airframe about 1/4", and the builder is supposed to epoxy a 1/8" diameter dowel rod [supplied with the kit] on each side of the fin inside the airframe. I discarded the dowel rods and used some 1/4" X 1/2" spruce. I also used some of the construction methods covered during the Falcon workshop.

How does the I-ROC fly? Great!! At Culpeper I loaded it with an I-357 RMS. It flew arrow straight to an estimated altitude of 1,500 feet with a perfect recovery. As I said before, the I-ROC would make a perfect kit for your certification.

LIKES: Size, price [\$90+], ease of assembly, heavy duty parts.

DISLIKES: No pre-cut fin slots, through-the-wall fins do not go all the way to the motor tube.

On a scale of 1 to 10, I'd give the I-ROC a 9.

PRATT HOBBIES

ECS-2

The ECS-2 is a radio control device that is used to control the parachute deployment or stage ignition of rockets during flight. It is manufactured by ACE Electronics, and marketed by Pratt Hobbies. The range is claimed to be 5,000 feet on the ground and more in the air. The ECS-2 has two separate channels. The first channel can be used to deploy a small drogue chute at apogee, and the second channel can be used to deploy the main chute at low altitude to avoid wind drift. The ECS-2 can also be used as a back-up in case of ejection charge failure or motor CATO.

I have personally seen Doug Pratt use this system many times at Culpeper without failure. On one flight, Doug flew a large rocket with a J class motor. At an altitude of about 100', the motor nozzle blew out. Normally when this happens, the rocket will arc over and prang, destroying the rocket. Not this time. Doug let the rocket coast up to a very low apogee and then deployed the main chute. the rocket was saved.

The price of the ECS-2 is \$149.95. Not too bad, since it can easily save you that much

in lost or damaged rockets. The unit is also designed to be interchanged between rockets. The unit is also designed to be interchanged between rockets. The only drawback of this system is the fact that there are only six different frequencies. You must make sure that you are the only person using an ECS-2 at the time of your flight.

I tested my ECS-2 using my Flaming ASAT 21-X. This model was almost completely destroyed at a PARA launch because of a failure of the delay and the ejection charge. The ECS-2 worked perfectly for my test. The chutes ejected instantly when I pressed the control button.

LIKES: The ECS-2 works as advertised. It is easy to transfer between rockets. A product like this was much needed in the rocket hobby.

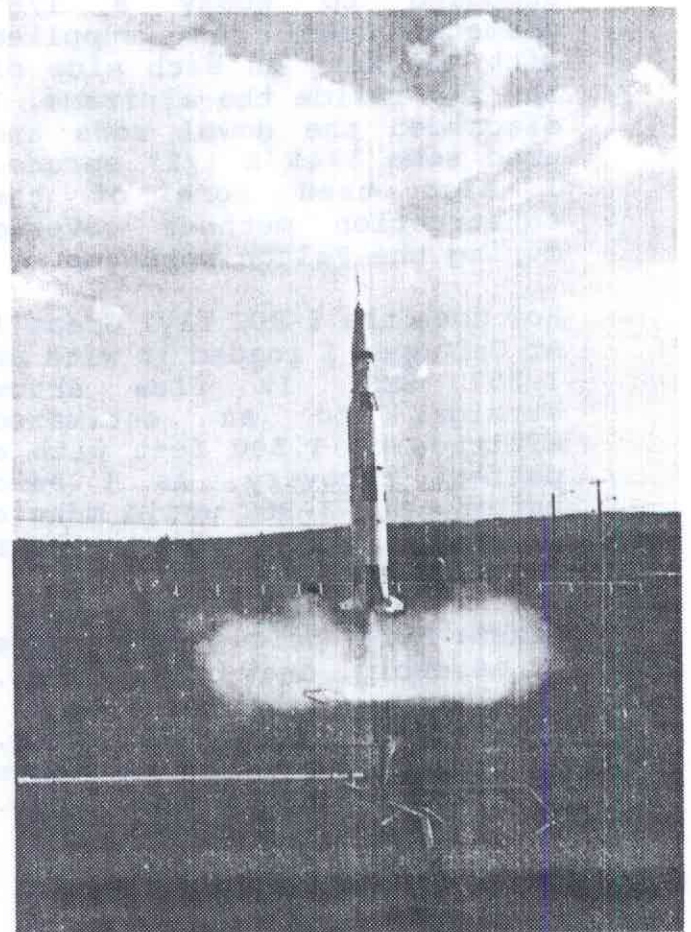
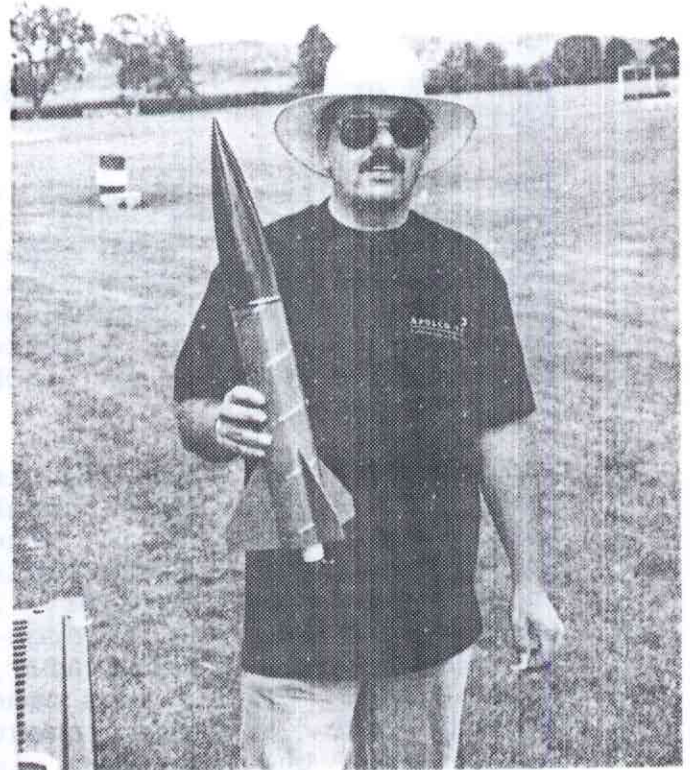
DISLIKES: Only six available frequencies.

RATING: I rate this product as a 10 plus.

SPAARPHOTOS

TOP: John Yost and his LOC Onyx.

BELOW: Liftoff of Patrick Shinoda's Saturn V on an Estes E15-4.



FINAL COMPETITION STANDINGS

The following is a final list of competitors for the 1993-1994 Contest Year:

A DIVISION

| | NAME | NAR# | SEC# | POINTS | WE |
|----|---------------------|-------|------|--------|----|
| 1 | TRACY WOEBKENBERG | 59263 | 519 | 10,164 | 19 |
| 2 | TOM SPALDING | 55031 | 519 | 9,919 | 19 |
| 3 | TROY LEVERON | 56973 | 519 | 8,271 | 19 |
| 4 | JOEY MCREYNOLDS | 61015 | 430 | 4,879 | 10 |
| 5 | JOSH HAYS | 59279 | 515 | 4,050 | 5 |
| 6 | MIKE FILLER | 57690 | 139 | 3,854 | 7 |
| 7 | KATHLEEN MCCOY | 53731 | 139 | 3,174 | 5 |
| 8 | VICKI BERNATCHEZ | 44543 | 308 | 3,024 | 7 |
| 9 | ALEX WAHL | 59130 | IND | 2,784 | 12 |
| 10 | BRANDON GRAYSON | 56518 | IND | 2,610 | 8 |
| 11 | ERIC SKAINS | 56703 | IND | 2,534 | 7 |
| 12 | DAVID LANTERMAN | 42254 | 427 | 2,064 | 3 |
| 13 | RYAN COLEMAN | 59361 | 113 | 2,040 | 7 |
| 14 | ANDREW REDD | PEND | 523 | 1,980 | 5 |
| 15 | JAMES JOHNSON | 59266 | 427 | 1,575 | 12 |
| 16 | RENEE FEVEYER | 60263 | 503 | 1,230 | 3 |
| 17 | LAUREN SKOKAN | 61161 | IND | 1,140 | 3 |
| 18 | DAN YOST | 45997 | 503 | 1,046 | 2 |
| 19 | CHELSEY ATKINSON | 59262 | 427 | 1,038 | 3 |
| 20 | MATT KROFCHECK | PEND | 205 | 742 | 3 |
| 21 | ALLISON MATHIS | 57230 | 139 | 692 | 3 |
| 22 | JONATHAN COX | PEND | 505 | 652 | 2 |
| 23 | ANTONIO SEMPRONIO | 57702 | 139 | 636 | 9 |
| 24 | VINCENCIO SEMPRONIO | 57703 | 139 | 579 | 9 |
| 25 | JOHN KESTNER | 56441 | 506 | 560 | 2 |
| 26 | JEREMIAH BAILEY | 52495 | 282 | 531 | 3 |
| 27 | ANTHONY CONSTANT | PEND | 308 | 478 | 1 |
| 28 | ANTHONY CONSTANT | 60330 | IND | 450 | 3 |
| 29 | DAN KROFCHECK | 59064 | 205 | 402 | 3 |
| 30 | MELINDA MATHIS | 57231 | 139 | 384 | 2 |
| 31 | MONIQUE BERNATCHEZ | 51459 | 308 | 360 | 3 |
| 32 | SEAN CASSIDY | PEND | 317 | 356 | 2 |
| 33 | RACHEL CLEEK | 54913 | 308 | 332 | 4 |
| 34 | MICHAEL BERNATCHEZ | PEND | 308 | 330 | 3 |
| 35 | RYAN COLEMAN | 45169 | 113 | 306 | 1 |
| 36 | OWEN RYAN | 59321 | 205 | 282 | 3 |
| 37 | PATRICK MCDERMOTT | 54511 | 308 | 244 | 2 |
| 38 | MELISSA MCDERMOTT | PEND | 308 | 230 | 2 |
| 39 | JOSH SHAPIRO | 55157 | 473 | 164 | 1 |
| 40 | JOHN MCGINNESS | PEND | IND | 84 | 2 |
| 41 | LISA DEMAR | 52095 | IND | 84 | 3 |
| 42 | GREG BURZYNSKI | PEND | 139 | 72 | 2 |
| 43 | DAWN WILFONG | 55103 | 463 | 36 | 1 |
| 44 | STEPHANIE HUNSICKER | PEND | 308 | 34 | 1 |
| 45 | HEATHER GUMIENNY | 59404 | 430 | 16 | 2 |
| 46 | ANDREW DODDS | 53413 | 205 | 8 | 1 |

B DIVISION

| | | | | | |
|----|------------------|-------|-----|--------|----|
| 1 | BOBBY GORMLEY | 40847 | 205 | 19,604 | 19 |
| 2 | CHAD RING | 50652 | 519 | 14,546 | 19 |
| 3 | KEVIN J. GORMLEY | 54797 | 205 | 12,824 | 19 |
| 4 | RYAN WOEBKENBERG | 49363 | 519 | 10,820 | 19 |
| 5 | SHAUN SMITH | 46440 | 205 | 1,804 | 5 |
| 6 | JENNIFER LYON | 39258 | 139 | 1,768 | 6 |
| 7 | BRIAN RACHIELLES | 58114 | 430 | 974 | 5 |
| 8 | TOMMY LYON | 39257 | 139 | 958 | 6 |
| 9 | JUSTIN GLEITER | 41025 | 520 | 675 | 5 |
| 10 | TODD SCHNEIDER | 42644 | 515 | 612 | 4 |
| 11 | NEAL HOWARD | PEND | 308 | 450 | 6 |
| 12 | MATT MUSSELMAN | 60667 | 503 | 298 | 1 |
| 13 | PATRICK BOYLE | 55973 | 503 | 294 | 1 |
| 14 | LISA MICHELSON | 58313 | 430 | 48 | 1 |

C DIVISION

| | | | | | |
|----|-------------------|-------|-----|--------|----|
| 1 | KEVIN KUCZEK | 31593 | 482 | 14,119 | 19 |
| 2 | DAVID WOEBKENBERG | 52423 | 519 | 10,025 | 19 |
| 3 | MIKE BORMAN | 33032 | 519 | 7,092 | 12 |
| 4 | GLENN FEVEYER | 24931 | 503 | 6,709 | 11 |
| 5 | LARRY RICE | 33323 | 113 | 6,186 | 15 |
| 6 | KEVIN E. GORMLEY | 55663 | 205 | 5,612 | 19 |
| 7 | DAN WININGS | 20815 | 205 | 5,265 | 19 |
| 8 | KEN BROWN | 29354 | 205 | 4,970 | 12 |
| 9 | ED O'NEILL | 57122 | 482 | 4,634 | 9 |
| 10 | PETER ALWAY | 26985 | 463 | 4,301 | 16 |
| 11 | BOB KREUTZ | 35100 | 439 | 4,111 | 10 |
| 12 | BOB BERNATCHEZ | 29996 | 308 | 4,070 | 7 |
| 13 | TRIP BARBER | 4322 | 205 | 4,052 | 10 |
| 14 | FRED WILLIAMS | 14198 | 523 | 4,045 | 10 |
| 15 | ROGER PORTER | 27601 | 113 | 3,408 | 8 |
| 16 | MARK JOHNSON | 14025 | 427 | 3,157 | 12 |
| 17 | JOHN DEMAR | 52094 | 136 | 3,056 | 8 |

| | | | | | |
|-----|--------------------|-------|-----|-------|----|
| 18 | GARY MOORE | 22690 | 308 | 2,949 | 7 |
| 19 | BRUCE MARKIELEWSKI | 38377 | 482 | 2,774 | 9 |
| 20 | DAN WOLF | 24516 | 136 | 2,772 | 6 |
| 21 | WILLIAM NOLTHENIUS | 53555 | 520 | 2,699 | 8 |
| 22 | DAVID NAUER | 48644 | 515 | 2,583 | 9 |
| 23 | JOHN VIGGIANO | 25615 | 136 | 2,497 | 8 |
| 24 | ANDREW JACKSON | 14575 | 481 | 2,326 | 13 |
| 25 | JOHN WRIGHT | 42323 | 317 | 2,164 | 5 |
| 26 | BRUCE KILBY | 56865 | 481 | 2,146 | 7 |
| 27 | BUZZ MCDERMOTT | 13559 | 308 | 2,120 | 13 |
| 28 | MARK BUNDICK | 19250 | 117 | 2,099 | 5 |
| 29 | JAMES FILLER | 27862 | 139 | 2,072 | 7 |
| 30 | DALE GREENE | 12464 | 503 | 2,059 | 15 |
| 31 | JULES DISTEL | 52977 | 439 | 2,042 | 6 |
| 32 | JOHN E. THOMPSON | 54313 | 317 | 1,818 | 5 |
| 33 | FERENC ROKA | 11077 | 136 | 1,794 | 8 |
| 34 | TOM LANIER | 55640 | 365 | 1,784 | 11 |
| 35 | ANDY TOMASCH | 39741 | 463 | 1,723 | 5 |
| 36 | NED BLUMENSCHNEIN | 52501 | 282 | 1,686 | 3 |
| 37 | WILLIAM DAUPHIN | 51259 | 481 | 1,656 | 7 |
| 38 | TED MAHLER | 18184 | IND | 1,617 | 7 |
| 39 | JEFF RYAN | 46148 | 136 | 1,515 | 3 |
| 40 | BOB WINGATE | 35396 | 505 | 1,472 | 5 |
| 41 | DUANE LANTERMAN | 6620 | 427 | 1,452 | 3 |
| 42 | TOM SECRIST | 12463 | 113 | 1,409 | 13 |
| 43 | ROBERT EDMONDS | 37700 | 205 | 1,396 | 9 |
| 44 | ROBERT ZABRISKIE | 36036 | 439 | 1,379 | 6 |
| 45 | SCOTT TYRELL | 53529 | 520 | 1,370 | 6 |
| 46 | MARK CHRUMKA | 58182 | 463 | 1,299 | 6 |
| 47 | MARC MCCAULEY | 56351 | 308 | 1,281 | 3 |
| 48 | ROBERT PRINZIVALLI | 48159 | 317 | 1,236 | 3 |
| 49 | MARC MCREYNOLDS | 11769 | 430 | 1,150 | 13 |
| 50 | ROGER WILFONG | 36404 | 463 | 1,111 | 6 |
| 51 | CHARLES ARKENS | 51262 | 520 | 1,105 | 4 |
| 52 | JOHN PURSLEY | 27845 | 365 | 1,100 | 2 |
| 53 | ALAN BERMAN | 52607 | 430 | 1,068 | 5 |
| 54 | TERRY WHITE | 33994 | 365 | 1,058 | 11 |
| 55 | RANDY GUESSETTO | 48170 | 481 | 1,036 | 7 |
| 56 | ARNOLD KLEIN | 39095 | 439 | 1,034 | 10 |
| 57 | RANDALL REDD | 6333 | 523 | 1,006 | 9 |
| 58 | KIM NELSON | 60034 | 523 | 996 | 3 |
| 59 | BONNIE JOHNSON | 31404 | 427 | 995 | 12 |
| 60 | WILLIAM DILLON | 19186 | 365 | 994 | 9 |
| 61 | MARTIN BOWITZ | 28196 | 430 | 972 | 6 |
| 62 | BILLY THOMPSON | 50098 | IND | 858 | 2 |
| 63 | JAY KING | 19799 | 136 | 852 | 2 |
| 64 | JOE WARNOCK | 30813 | 427 | 852 | 3 |
| 65 | JIM FACKERT | 53871 | 463 | 847 | 6 |
| 66 | JOHN MCCOY | 15731 | 139 | 823 | 5 |
| 67 | MIKE SYKOS | 28058 | IND | 819 | 7 |
| 68 | RICK BOYETTE | 31375 | 481 | 796 | 7 |
| 69 | RUSTY WHITMAN | 48599 | 139 | 786 | 4 |
| 70 | RON SHIPLEY | 43595 | 427 | 780 | 3 |
| 71 | RICHARD FREED | 24586 | 473 | 750 | 3 |
| 72 | WILLIAM ETZEL | 50638 | 506 | 748 | 2 |
| 73 | GREG ELDER | 56644 | 515 | 714 | 5 |
| 74 | JAMES QUIN | 54787 | IND | 693 | 3 |
| 75 | WARREN SISCO | 12282 | IND | 669 | 3 |
| 76 | STEVEN COX | 5340 | 505 | 636 | 2 |
| 77 | CHRIS KIDWELL | 45225 | 139 | 620 | 4 |
| 78 | DON FENT | 53455 | 515 | 619 | 5 |
| 79 | DON WINANS | 57582 | IND | 610 | 1 |
| 80 | DAVID KLOUSER | 16235 | 520 | 589 | 10 |
| 81 | STEVEN KLOUSER | 17653 | 520 | 589 | 2 |
| 82 | PAUL HEMMINGER | 53111 | IND | 588 | 2 |
| 83 | RONALD WILSON | 55579 | 482 | 584 | 4 |
| 84 | STEVE COLBERG | 59050 | 317 | 546 | 3 |
| 85 | MARK SKOKAN | 61160 | IND | 543 | 6 |
| 86 | WILLIAM OWENS | 61063 | 136 | 537 | 3 |
| 87 | BRUCE CANNINO | 39989 | 439 | 518 | 9 |
| 88 | KEN EVA | 39676 | 523 | 508 | 2 |
| 89 | GUY GARNETT | 59065 | 139 | 503 | 5 |
| 90 | ROBERT ALWAY | 45556 | 500 | 459 | 10 |
| 91 | JON RAINS | 13911 | 205 | 456 | 3 |
| 92 | STEVE LUBLINER | 22152 | 430 | 452 | 2 |
| 93 | JACK HAGERTY | 55105 | 534 | 448 | 7 |
| 94 | ART NINO | 33269 | IND | 428 | 4 |
| 95 | LAMONT MCCANDLESS | 47389 | 463 | 423 | 4 |
| 96 | STEVEN NELSON | 60925 | 523 | 420 | 3 |
| 97 | MIKE BURZYNSKI | 17871 | 139 | 408 | 4 |
| 98 | BUD PISCINI | 54692 | 136 | 397 | 5 |
| 99 | DEANE LEBET | 56853 | 482 | 388 | 6 |
| 100 | SCOTT HUNSICKER | 28336 | IND | 380 | 1 |
| 101 | ROBERT HAFNER | 32480 | 317 | 374 | 2 |
| 102 | JOHN WARREN | 57084 | 205 | 372 | 5 |
| 103 | CARL LINDY | 49499 | 473 | 362 | 2 |

| | | | | | | | | | | | |
|-----|-------------------|-------|-----|-----|---|------------------|------------------------------|------|-----|--------|----|
| 104 | CASEY WHITTAKER | PEND | 523 | 360 | 3 | TEAM DIVISION | | | | | |
| 105 | JOHN PACE | 49785 | 473 | 342 | 1 | 1 | LOS COHETEDORES TM | T255 | 139 | 12,470 | 19 |
| 106 | DREW GRAY | 38856 | 473 | 334 | 1 | 2 | JANKOV-PAVLOV- KOVALEV TM | T200 | 205 | 11,810 | 15 |
| 107 | DAN HOBBS | 47142 | IND | 330 | 3 | 3 | GUNS 'N ROCKETS | T100 | 519 | 9,446 | 19 |
| 108 | MORT BINSTOCK | 27182 | 473 | 326 | 1 | 4 | TEAM NCR | T424 | 523 | 7,943 | 17 |
| 109 | ROBERT STOTT | 36510 | 520 | 316 | 3 | 5 | WHY US? TM | T109 | 519 | 7,489 | 19 |
| 110 | MARC SANDERS | 57446 | 505 | 316 | 2 | 6 | SOUTHERN NEUTRON TM | T553 | 506 | 6,888 | 9 |
| 111 | TODD MULLIN | PEND | IND | 312 | 3 | 7 | REN & STIMPY TM | T034 | 463 | 6,675 | 9 |
| 112 | WILLIAM SULLIVAN | 49642 | 520 | 298 | 1 | 8 | FLIRTIN' W/DISASTER TEAM | T503 | 503 | 4,430 | 10 |
| 113 | MARK MATHIS | 58752 | 139 | 293 | 3 | 9 | THE GOOD, THE BAD, & UGLY TM | T111 | 464 | 4,250 | 10 |
| 114 | LESLIE HOUK | 58525 | IND | 286 | 2 | 10 | THE USUAL SUSPECTS TM | T002 | 117 | 3,661 | 7 |
| 115 | JESS FEEBACK | 16859 | 205 | 282 | 2 | 11 | CAN YOUR BEER DO THIS? TM | T117 | 117 | 2,086 | 7 |
| 116 | ERIC KLEINSCHMIDT | 46580 | 534 | 260 | 1 | 12 | 8-BALL RACING TM | T053 | 139 | 1,856 | 8 |
| 117 | TOM PASTRICK | 2276 | IND | 259 | 7 | 13 | FRUIT 'N NUTS TM | T105 | 430 | 1,645 | 7 |
| 118 | NATE GOEBEL | 55342 | 515 | 242 | 2 | 14 | ACE DISASTER TEAM | T026 | IND | 1,561 | 9 |
| 119 | G. HARRY STINE | 0002 | 506 | 240 | 2 | 15 | SUDDEN IMPULSE TM | T042 | 517 | 1,099 | 9 |
| 120 | JEFF STEBELTON | 57019 | 113 | 232 | 1 | 16 | 2 LAUNCH CRUE TM | T519 | IND | 1,089 | 3 |
| 121 | BEN HAYS | 59066 | 515 | 224 | 2 | 17 | JANKOV/PAVLOV TM | T251 | 205 | 1,084 | 2 |
| 122 | BILL LAWS | 55767 | 139 | 214 | 1 | 18 | MILLER TIME TEAM | T106 | IND | 806 | 2 |
| 123 | GARY PRICE | 13566 | IND | 200 | 1 | 19 | MEN OF MYLAR TM | T638 | 282 | 744 | 3 |
| 124 | DOUG FLEMING | 60147 | 308 | 200 | 1 | 20 | LEE-PURCELL TEAM | T241 | 203 | 720 | 1 |
| 125 | ROD SCHAFER | 36564 | 473 | 199 | 1 | 21 | HOT & COLD TM | T051 | 506 | 640 | 2 |
| 126 | JONATHAN DUNBAR | 34583 | 463 | 195 | 3 | 22 | SPACE NUTS TM | NR | 282 | 582 | 3 |
| 127 | LOU DICK | 32016 | 359 | 194 | 1 | 23 | KUSTER-WEAVER TM | T102 | 203 | 432 | 1 |
| 128 | ALEX BOYCE | 56656 | 317 | 180 | 2 | 24 | SNOWBALL'S CHANCE TM | T700 | 205 | 386 | 2 |
| 129 | STEPHEN DECKER | 9695 | 520 | 177 | 3 | 25 | CARDIAC ATTACK TM | T444 | 282 | 343 | 10 |
| 130 | JOHN O'DONNELL | 60742 | 113 | 172 | 5 | | | | | | |
| 131 | KENT SMITH | 58208 | IND | 170 | 2 | SECTION DIVISION | | | | | |
| 132 | DON ASMUS | 58607 | 482 | 164 | 7 | 1 | LAUNCH CRUE | | 519 | 74,272 | 19 |
| 133 | RICHARD LEBOW | 60923 | IND | 160 | 2 | 2 | NOVAAR | | 205 | 70,508 | 19 |
| 134 | MICHAEL HILLEY | 58927 | IND | 156 | 2 | 3 | NARHAMS | | 139 | 32,431 | 19 |
| 135 | AARON DANIELS | PEND | IND | 147 | 3 | 4 | CRASH | | 482 | 22,767 | 12 |
| 136 | MIKE BINKLEY | 56289 | 113 | 146 | 3 | 5 | DARS | | 308 | 19,752 | 17 |
| 137 | TIM BARR | 51403 | 506 | 132 | 2 | 6 | UROC | | 523 | 17,750 | 17 |
| 138 | JOHN ARNOTT | 59490 | 308 | 120 | 1 | 7 | HUVARS | | 463 | 16,294 | 16 |
| 139 | GARY FEVEYEAR | 53641 | 503 | 114 | 1 | 8 | SPAAR | | 503 | 14,718 | 19 |
| 140 | GEORGE RYAN | 58835 | 205 | 106 | 3 | 9 | CSAR | | 113 | 13,346 | 16 |
| 141 | NEAL BADE | 40075 | IND | 102 | 2 | 10 | MARS (NY) | | 136 | 12,621 | 7 |
| 142 | DAN SAGSTETTER | 36746 | 113 | 100 | 1 | 11 | LARS | | 430 | 11,902 | 13 |
| 143 | ROB CLARK | PEND | 139 | 100 | 1 | 12 | KOSMO | | 427 | 11,019 | 12 |
| 144 | RON SMITH | 54233 | 205 | 93 | 3 | 13 | CSROCS | | 515 | 9,130 | 9 |
| 145 | MIKE HOWIE | 53983 | 139 | 93 | 1 | 14 | GARDEN STATE | | 439 | 8,692 | 6 |
| 146 | GREG BOCK | 44161 | 205 | 86 | 3 | 15 | PARA | | 520 | 8,135 | 18 |
| 147 | MARK JILSON | 54156 | 515 | 86 | 4 | 16 | NIRA | | 117 | 7,870 | 12 |
| 148 | DOT HUNT | 39735 | 523 | 84 | 3 | 17 | DART | | 317 | 6,786 | 5 |
| 149 | CURTIS KLINGER | 48920 | 482 | 80 | 2 | 18 | FL SPACEMODELERS | | 481 | 5,642 | 14 |
| 150 | MONTAG PLANCK | 59667 | 317 | 80 | 2 | 19 | NASA/HOUSTON | | 365 | 5,020 | 11 |
| 151 | GREG GLENN | 60859 | 506 | 80 | 2 | 20 | SSS | | 506 | 4,664 | 2 |
| 152 | STEW MCNABB | 14002 | IND | 77 | 7 | 21 | SCAM | | 282 | 3,928 | 10 |
| 153 | DEAN WAKAMOTO | 60773 | IND | 77 | 7 | 22 | MARS (MO) | | 505 | 3,076 | 5 |
| 154 | DAN GARRETT | 57029 | IND | 75 | 3 | 23 | PITTSBURGH SPACE CMD | | 473 | 1,579 | 1 |
| 155 | FRED SHECTER | 20117 | 430 | 74 | 1 | 24 | VIKINGS | | 203 | 1,152 | 1 |
| 156 | STEVE SCHWARTZ | 57785 | 205 | 72 | 1 | 25 | ZIA SPACEMODELERS | | 517 | 1,099 | 9 |
| 157 | CLYDE NIMAL | 59353 | 113 | 68 | 1 | 26 | LUNAR | | 534 | 951 | 1 |
| 158 | ROGER DWYER | 54772 | 205 | 64 | 1 | 27 | SMASH | | 500 | 582 | 10 |
| 159 | FRANK FORTINO | 59683 | 523 | 61 | 4 | 28 | MIVARS | | 487 | 34 | 2 |
| 160 | PAUL HORNING | 7571 | 139 | 60 | 3 | | | | | | |
| 161 | CHRIS BRICKLEY | 55504 | 482 | 52 | 2 | | | | | | |
| 162 | ED REILLY | 41085 | IND | 51 | 3 | | | | | | |
| 163 | ANDY SCHECTER | 6679 | 136 | 51 | 3 | | | | | | |
| 164 | BRETT TEMPLAR | 26340 | IND | 48 | 3 | | | | | | |
| 165 | JOHN SAROSI | 30396 | 473 | 48 | 1 | | | | | | |
| 166 | GARY BAUGHMAN | PEND | IND | 46 | 2 | | | | | | |
| 167 | DAVID LEWICKI | 26576 | 506 | 44 | 2 | | | | | | |
| 168 | TOM HOELLE | 19103 | 282 | 42 | 3 | | | | | | |
| 169 | LYNN KISSEL | 57530 | 534 | 36 | 1 | | | | | | |
| 170 | PAUL LUTZ | 30947 | 487 | 34 | 1 | | | | | | |
| 171 | RICK HACKMAN | 47559 | 503 | 34 | 1 | | | | | | |
| 172 | PAUL BUECHLER | 49875 | 473 | 28 | 1 | | | | | | |
| 173 | KEVIN FUNK | 40770 | 317 | 24 | 3 | | | | | | |
| 174 | RAY LEWIS | 59002 | IND | 24 | 3 | | | | | | |
| 175 | EDWIN NORRIS | 33196 | IND | 24 | 3 | | | | | | |
| 176 | RIC GAFF | 22906 | 117 | 24 | 3 | | | | | | |
| 177 | FRANK HUNT | 36424 | 523 | 21 | 3 | | | | | | |
| 178 | LARRY DAVIS | 40150 | IND | 20 | 2 | | | | | | |
| 179 | MICHAEL MUNN | 54767 | 139 | 16 | 1 | | | | | | |
| 180 | ROGER HILLSON | 59376 | 205 | 16 | 1 | | | | | | |
| 181 | MARK GUMIENNY | 59403 | 430 | 14 | 2 | | | | | | |
| 182 | CHET GEYER | 56992 | 534 | 13 | 1 | | | | | | |
| 183 | ROB KUHN | 59955 | IND | 12 | 3 | | | | | | |
| 184 | WILLIAM CURTAIN | 45352 | IND | 10 | 1 | | | | | | |
| 185 | RANDAL DUGAL | 57432 | IND | 8 | 1 | | | | | | |
| 186 | JEFF BUTCHER | 60882 | 523 | 8 | 5 | | | | | | |
| 187 | CURTIS CRIE | 58839 | 317 | 8 | 2 | | | | | | |

SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY

NATIONAL ASSOCIATION OF ROCKETRY SECTION 503

JANUARY

Saturday 21 Spaar Family Dinner - 6 pm
Sunday 22 Sport Launch - 1 pm - 5 pm
Saturday 28 Workshop - Delta-Cardiff Vol Fire Co., Delta, PA. - 9 am - 1 pm

FEBRUARY

Friday 17 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Sunday 19 Sport Launch - Ground Hog Day - 1 pm - 5 pm
Saturday 25 Workshop - Delta-Cardiff Vol Fire Co., Delta - 9am - 1 pm

MARCH

Friday 17 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Sunday 19 Sport Launch - Lucky Rocket Day - 1 pm - 5 pm
Saturday 25 Workshop - Delta-Cardiff Vol Fire Co., Delta - 9am - 1 pm

APRIL

Sunday 9 Sport Launch - Multi-stage Day - 1 pm - 5 pm
Friday 21 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Saturday 29 - Sunday 30
East Coast Regional Meet (ECRM), Hosted by NARHAMS - Middletown, MD.

MAY

Sunday 14 Sport Launch - Sounding Rocket Day - 1 pm - 5 pm
Friday 19 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Saturday 20 - Sunday 21
NYSPACE, Hosted by MARS - Geneseo, NY (site of NARAM)
Sunday 28 SPAARSEC-12 - 9 am - 5 pm

JUNE

Saturday 10 - Sunday 11
RAMTEC - 3, Hosted by SPAAR - Center Valley, PA.
Friday 16 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Sunday 25 Sport Launch - Club Duration Record Day - 3 pm - 7 pm

JULY

Sunday 9 Sport Launch - Old Rocket Day - 3 pm - 7 pm
Friday 21 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Saturday 22 - Friday 28
NARAM, Hosted by MARS - Geneseo, NY.

AUGUST

Sunday 6 Sport Launch - Club Altitude Record Day - 3 pm - 7 pm
Friday 18 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm

SEPTEMBER

Sunday 3 SPAARSEC-13 - 9 am - 5 pm
Friday 15 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm

OCTOBER

Sunday 1 Sport Launch - Scratch Built Day - 1 pm - 5 pm
Friday 20 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Sunday 29 Sport Launch - 1 pm - 5 pm

NOVEMBER

Sunday 12 SPAARSPAM - 1 pm - 5 pm
Friday 17 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Friday 24 Sport Launch - Thanksgiving Day - 1 pm - 5 pm

DECEMBER

Friday 15 Business Meeting - Homedco, Lancaster - 7 pm - 9 pm
Sunday 17 Sport Launch - Christmas - 1 pm - 5 pm

All sport launches will be held at East Cocalico High School, Denver, PA.

P.O. Box 127, Reamstown, PA 17567

THE SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY

Membership Application

Name _____ Address _____

Phone _____ Age _____ Date of Birth _____

NAR # _____ Tripoli # _____

I have been flying rockets for _____ years. I have not yet flown a model rocket _____.

DUES: 18 years of age or older: \$10 per year.

15,16,17 years of age: \$7 per year.

16 and under: \$5 per year

Family Plan: Oldest member joins at full price, all other family members 1/2 price; one issue of the Countdown per family.

Return this form to: SPAAR, PO Box 127, Reamstown, PA 17567.

THE NATIONAL ASSOCIATION

OF ROCKETRY

For more information on the NAR, write:

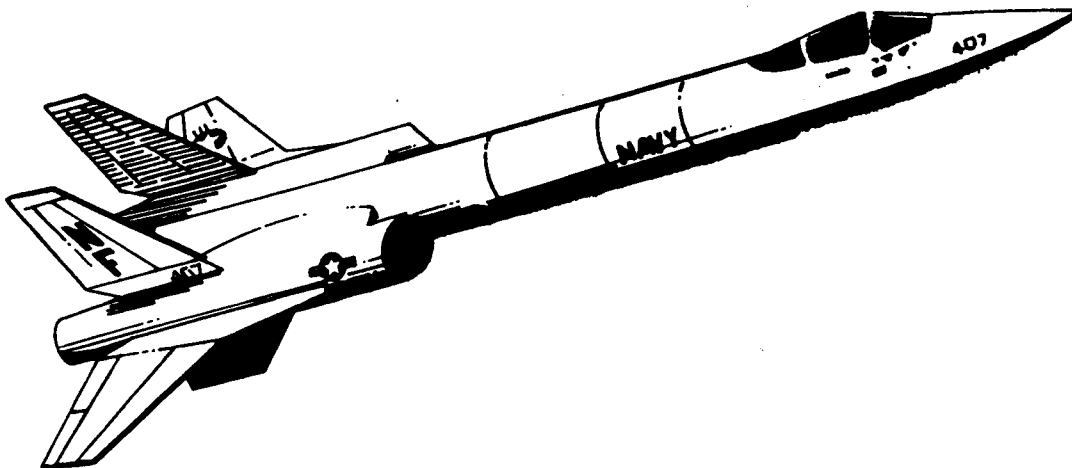
NAR Headquarters
PO Box 177
Altoona, WI 54720
1-800-262-4872

TRIPOLI ROCKETRY ASSOCIATION

[HIGH POWER ROCKETRY]

For more information on the TRA, write:

Tripoli Rocketry Assn.
PO Box 339
Kenner, LA 70063-0339



SPAAR MEMBERSHIP SURVEY

Please fill out this survey, and return it by January 31, 1995.

Name: _____

Address: _____

Home phone # _____ Work phone # _____

Do you have a FAX # available to you? If so, please list: _____

How long have you been a member of SPAAR? _____

Fill in as applicable: NAR Member? _____ NAR # _____

Tripoli Member? _____ TRA # _____

Most powerful motor flown _____

I am interested in: [1 not very, 10 very, on a scale of 1 to 10]

General sport flying _____ Competition flying _____

High Power _____ Building _____ Flying _____

Designing my own models _____ Building Kits _____

Gliders _____ Helicopters _____ Scale/Sport Scale _____

Clusters _____ Multi-Stage _____ Other _____

What do you enjoy the most about being a club member? _____

What special interest do you have that might most help the club as a whole? _____

use another sheet of paper if needed

