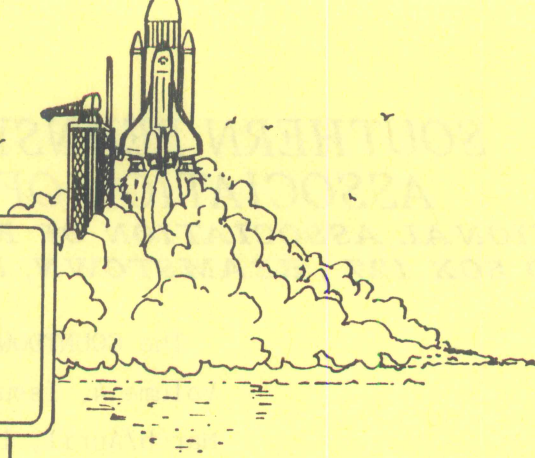
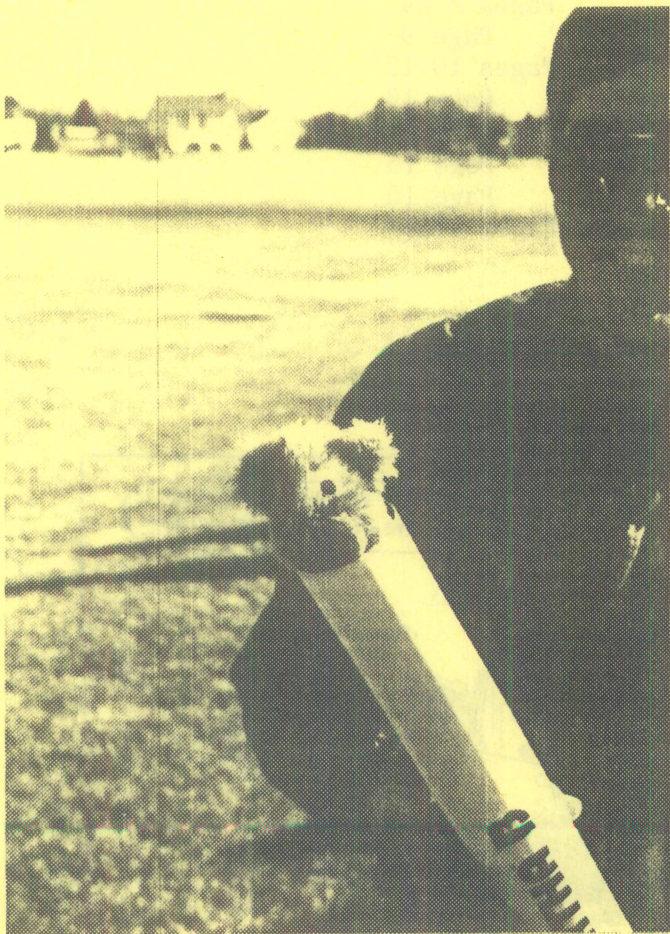


COUNTDOWN



OFFICIAL NEWSLETTER OF
THE SOUTHERN PENNSYLVANIA AREA ASSOCIATION OF ROCKETRY

COSMOHOG MAKES HISTORY!



Punxsutawney Phil

THE INCREDIBLE FLIGHT

OF

PUNXSUTAWNEY PHIL

--- PLUS ---

KITBASHING A SCUD

ODDROC EGGLOFTER:

HERES' HOPIN'

NEW PRODUCT NOTES

Vol. 4 No. 2 Mar/Apr 1991

**SOUTHERN PENNSYLVANIA AREA
ASSOCIATION OF ROCKETRY
NATIONAL ASSOCIATION OF ROCKETRY, SECTION 503
PO BOX 127 , REAMSTOWN, PENNSYLVANIA 17567**

The COUNTDOWN
Volume 4, Issue 2
March/April, 1991

The COUNTDOWN is the newsletter of SPAAR, NAR Section #503, PO Box 127, Reamstown, PA 17567. Non-member subscription rate, \$5.00 per year, six issues. Please send any and all submissions to the above address, and we really do not care what format they are in, because: 1.) We're not picky, and 2.) the editor doesn't have a PC so it really doesn't matter.

Cover Logo: Robert Stott Wrapper: Bruce Canino Editor: George Beever
Thanks this time to: John Yost, Rick Hackman, Tom Whymark and GSSS, Glenn Fever-year, Matt Steele and Rocket City Aces' "Aces High", Tom Bodette and Motel Six.

PRODUCTION ASSISTANCE: A real big thanks to Dale Greene and John Yost.

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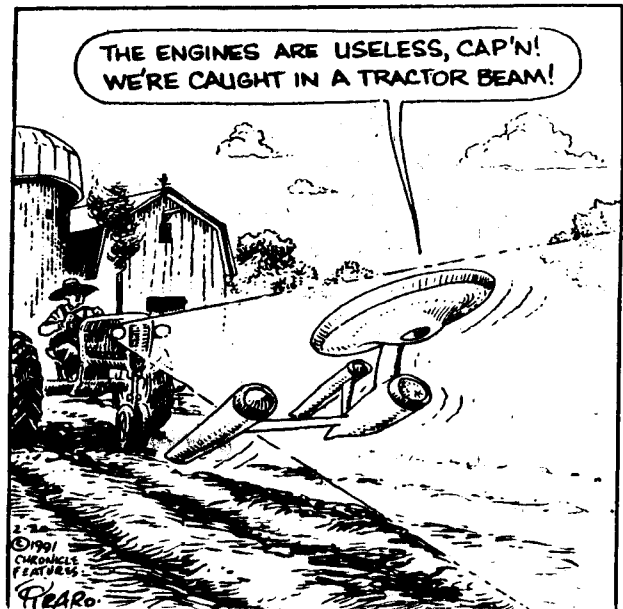
APRIL:

SUN 14 SECTION LAUNCH: "FUTURISTIC DAY" 1:00PM - 5:00PM
 MON 15 SECTION MEETING 7:00PM - 9:00PM
 SUN 28 ** SPAMBAM-1 OPEN MEET (SPAAR)**
 9:00AM - 5:00PM; 1/2A R/G, B ELD, BSRD, 1/2A SD MULTI
 C HD, A B/G

MAY:

SUN 5 SECTION LAUNCH 1:00PM - 5:00PM
 MON 20 SECTION MEETING 7:00PM - 9:00PM
 SUN 26 **SPAARSEC-4 SECTION MEET, DENVER, PA.**
 9:00AM - 5:00PM; 1/2A R/G B ELD, B HD, Sps

BIZARRO



S E C T I O N M E E T I N G

February 18, 1991

Present: Glenn and Rita Feveryear, Gary Feveryear, Dale Greene, John Yost, Ed Miller, Art Babiarz, George Beever.

Treasurer's Report: Ed Miller stated that there are currently 35 members; the balance at the end of the last meeting was \$641.36. During the past month, there were incomes of \$10 in newsletter subscriptions; \$45 in dues; \$14 in banquet fees; \$1.50 for photos; and \$4.43 in interest. Expenditures were: \$37.10 in meet fees; \$19.30 in postage; and \$339.37 to reimburse Ed's use of his VISA card for the January banquet; this leaves a current balance of \$320.52.

Newsletter: Several members stated that they would be able to help out with copying the newsletter.

Competition: Glenn Feveryear reported that he has made up a flyer concerning our Open Meet, to be sent to near-by NAR Sections. The meet, "SPAMBAM-1", will be held at Coccalico High School on April 28, from 9 to 5.

Reported that the Estes A3-2 and A3-6 motors have lost their contest approval. These motors have been out of production for some time. They may still be used for sport flying, but not in NAR contests.

Reminded the C Division members that the entry fee for NOAHS-1 (NARAM On A Half Shell) is a rocketry related item or product, the value of which is at least \$5; there is no entry fee for A and B Division members.

Reminded everyone that the next Sport Launch is Sunday, April 14, from 1 to 5.

Section Advisor: John Yost discussed the NAR Membership Station program.

Old Business

The March 9 Winter Workshop will be held at Art Babiarz's house in Mohnsville. Art drew a map to his house, and copies were passed out to those present.

The tripods obtained from Dick Rhoat are being modified into trackers by Glenn Feveryear. Glenn requested a cash advance from the General Fund to pay for the items needed. George Beever made a motion, seconded by John Yost, to allocate \$25 for this. The motion passed by voice vote.

George Beever passed out information on planned NAR provisional events, plans from exchange newsletters, etc.

John Yost then gave a presentation on the construction and flying of Flex-wing Boost/Gliders.

The meeting adjourned at 9PM.

SECTION NEWS NOTES

RANGE HELP: A big thanks to all those who helped out running the range at the February 3 Sport Launch. Don't be afraid to volunteer!

DEPT. OF USELESS STATS: In 1990, we had 12 launch dates, and made 876 flights, with an average of 15 flyers at any one launch date. Of the 876 flights made, 134 were contest or record attempt flights, and 742 were sport flights. The busiest day was Sept. 16, when the SPAARSEC-3 Section Meet was combined with a Sport Launch, to total 119 flights. On that day, 54 contest flights compared to 65 sport flights. The fewest flights on any given day was 23, on Sept. 23, just one week later. Surprisingly, the greatest number of flyers was at SPAARSPAM-2, with 19 people logging flights

ODDROC EGGLOFTER :

HERE ' S HOPIN '

DESIGN: Rick Hackman

TEXT & DRAWING: John Yost

[Editor's Note: SPAAR's Rick Hackman has been known over the years to come up with some rather "original" concepts in model rocket design. In Oct. 1988, at UNCLE-1, he unveiled what can be considered the ultimate in CHAD (CHeap And Dirty) Egglofters: Here's Hopin'. To the surprise of some, and the amazement of others (including the designer!), Here's Hopin turned in some respectable times in both B and C Eggloft. But, as John mentions, flying this model without an egg is not advisable; it has been known to chase an RSO or two around!]

PARTS LIST

- Nose Cone - trace onto heavy paper or card stock.
Capsule - 1½" length of Estes BT-80KD, and two 5oz DIXIE kitchen cups (in your choice of designer colors).
Body - 6 1/4" of Estes BT-60.
Engine Mount - Estes EH2060 or construct according to plans.
Launch Lug Stand-Off - 3/16" balsa.
Couplers and Capsule Supports - 3/16" balsa.
Fins - 1/8" balsa.
Parachute - your choice.

GENERAL NOTES

Rick attended the Art Rose school of plan submission; he sent the actual model instead of the drawings. He recommends not attempting to launch the model without an egg unless you extend the length of the BT-60 4 to 5 inches, or an unstable flight will result. The model shown is flight proven; NO APRIL FOOL HERE!

CONSTRUCTION

I wouldn't exactly call the construction of this model "straightforward"; I usually don't use kitchen items, and the nose cone is.....well, a cone!!

The capsule is made from two Dixie cups and the BT-80, with the coupler supports glued to the bottom cup. Though not incorporated in the original model, the supports could be modified to extend under the BT-80 to help center it on the cup. If this is done, you may not need to install the balsa shims between the cup and the body tube (as shown as the dotted rectangles on the BT-80 in the drawing).

The cups are placed open ends together, with the lip of the uppermost one just inside the BT-80 tube. Only the lower cup is glued to the BT-80 tube. The supports are also glued to this cup, and not the Bt-60 tube. The nose cone is glued to the upper cup.

Mark the BT-60 on one end for the fin placement in the usual fashion. Construct the engine mount. When dry, insert as shown and leave about ¼" protruding beyond the BT-60 main body.

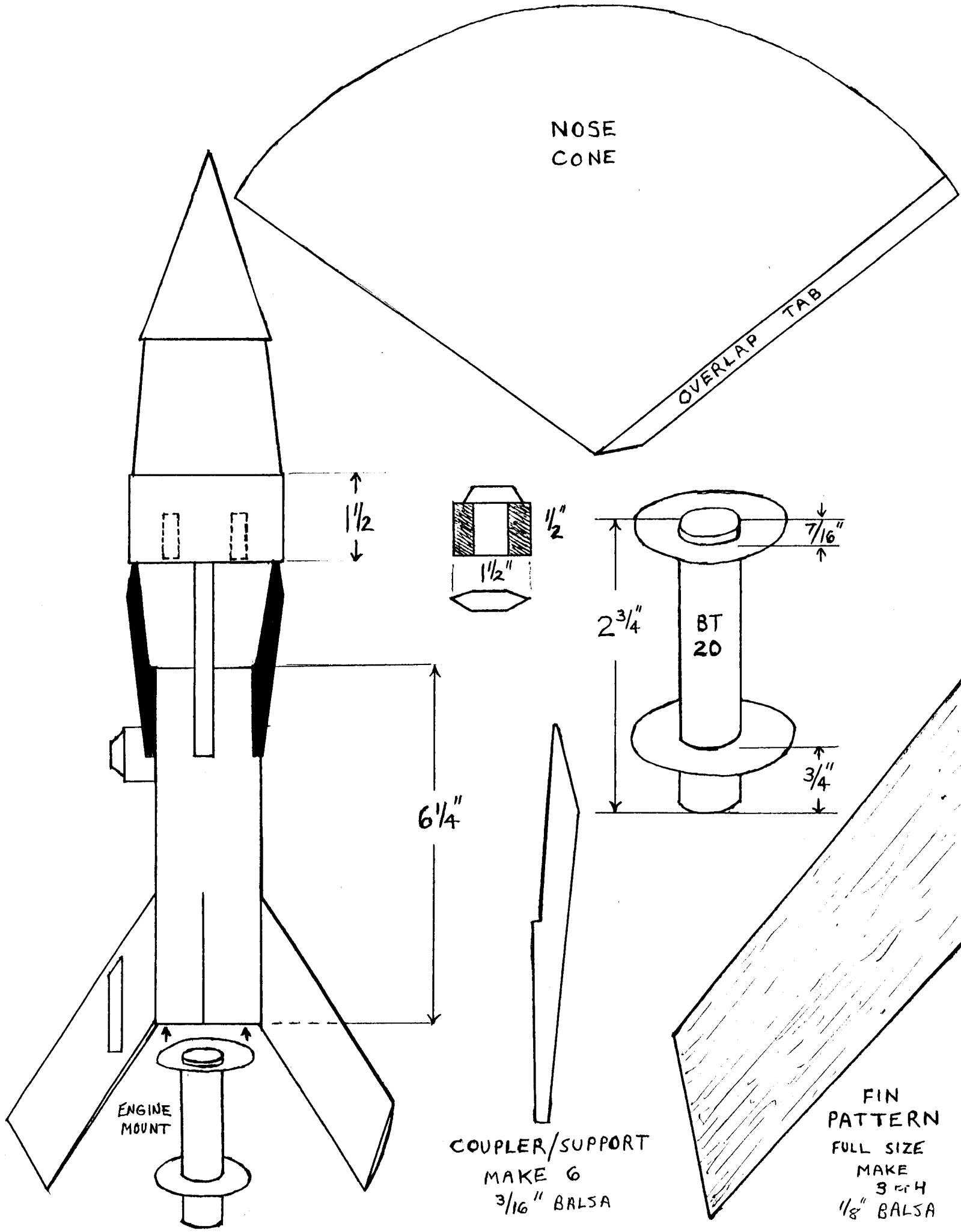
The original model used standard Estes ¼" rubber shock cord, and was attached with a standard mount inside the body tube. The other end was attached to the bottom of the lower cup in the same way. You may wish to substitute ¼" elastic and secure it inside the cup.

After the fins are attached and dry, install a launch lug to one standoff ½" away from the tube side. Then, install the launch lug with standoff aligning it with the first.

PREPPING

Rick stuffed the cups with foam peanuts to cushion the egg. Install wadding, and the 'chute. Rick used an Estes 24" chute. Tape the upper cup to the BT-80. Install a B6-2 or C6-3, install the ignitor, place rocket on the pad, connect the clips, and holler "HEADS UP!!!".

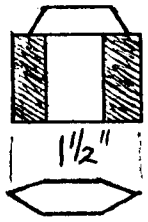
HAVE FUN !!!!



NOSE
CONE

OVERLAP
TAB

↑
1 1/2"
↓



1/2"

1 1/2"

2 3/4"

BT
20

7/16"
↑

3/4"
↓

6 1/4"

ENGINE
MOUNT

COUPLER/SUPPORT
MAKE 6
3/16" Balsa

FIN
PATTERN
FULL SIZE
MAKE
3 or 4
1/8" Balsa

GROUNDHOG DAY + 1 SPORT LAUNCH

It started out as a gag; gee, let's do something goofy like hold a Sport Launch in the middle of the winter, just to show those other guys that do it that we're really not wimps. ("Real men fly all winter") Hey, why not the closest weekend to Ground Hog Day? Garaunteed to be frigid, with snow on the ground! Go ahead, stick your tongue on that launch rod, just to see if it really will freeze to it! Hmmm... should we stay out there for 4 whole hours? Nah; better cut it down to just 2. Wouldn't be able to take 4 hours out in that kind of weather!

The joke was on us, so to speak. The Ground Hog Day + 1 Sport Launch, held on Feb.3, the earliest in the calender year that SPAAR has ever held a Sport launch. It was also the warmest Feb. 3 on record in these parts, with the high temperature reaching 63°! There was a slight breeze, but all things considered, no one complained about the weather.

The highlight of the day, to be sure, was the historic flight of SPAAR's first rodentnaut, Punxsutawney Phil. The "Ground Hog in Space" program was the brainchild of Ed and Bonnie Miller. Bonnie "trained" Phil for his mission, while Ed created and built the booster and related hardware. The mission profile called for a sub-orbital flight of medium duration, which means it would last as long as the E15 boosted Super Big Bertha plus passenger would stay in the air.

On the morning of the flight, Phil was already awake when ground personnel came to summon him for his appointment with destiny. [Of course he was awake; rodents sleep during the day!] He had a traditional pre-flight breakfast of steak, eggs, grubs, roots, grain, and berries (Yum-Yum). He was then helped into his recovery harness, and began that long trip to the launch site. It takes Ed about 40 minutes

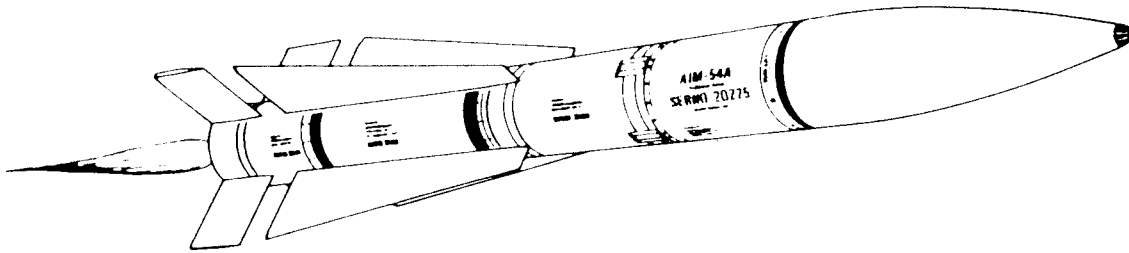
to get to Cocalico from Lebanon, if he does the speed limit.

At about 2:30PM, local time, Phil was helped into the spacecraft, or as we call it, the front end of the rocket. The Bertha was placed on the pad, all connections were made, and the count-down begun. At zero, the firing button was pressed, and the E15-4WL roared to life, and shot the Bertha and it's passenger skyward. The first breathtaking words heard from Phil were "YYYYEEEEEEEEOOOOOOWWWWWW!!!!!!!" At ejection, Phil was ejected free from his booster, and after a few heart-stopping seconds, his parachute opened. High above the earth, one could hear Phil communicate with ground control. His report was "HHHHEELP MEEEEEE....." Upon landing, Phil was seen to hop, skip, and run across the open field. Or was that just the wind dragging him by his parachute?

Witness and spectators interviewed later were heard to comment, "Hey Ed, he's trying to climb out over the side!" [Smart guy!], or "I really can't believe you did that! On second thought, who else would?".

Post-flight data reduction indicates that all aspects of Punxsutawney Phil's first flight were nominal. But one large, unanswered question remains: just what the heck does "nominal" mean? Why can't those space guys just talk normal? What's this nominal stuff? Geeez, I tell ya...*

Phil's history making flight wasn't the only thing going on of interest. Jim Lytle had a very nice flight on an Estes Black Brant II, powered by a D12-5. However, the Brant ended up in a tree on the far side of the football stadium. Corn, yes. House roofs, yes. But trees? We never have rockets land in trees. This one did, and was still there when Jim and his son Shannon had to leave for the day. But some great work by Jason Wingenroth and others resulted in the model being recovered intact from the



"rocketeatumpus" tree. The model was returned to Jim the next week.

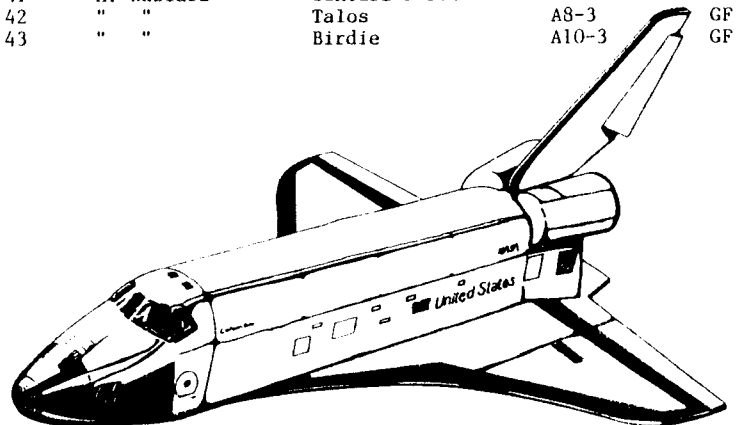
Here's an oddity: John Yost and Glenn Feveryear both flew rockets on the same day, and they were all sport models! John brought out his "Bicentennial Bertha", and red, white, and blue Estes Big Bertha that he built in 1976. It turned in a perfect flight on a C6-5. Glenn flew his Grumpy Dog, but then again, it wouldn't have been a SPAAR Sport Launch without that. Rick Hackman flew an old Estes two-stage Avenger, with a C6-0/A8-5 combination. The slight delay between first stage burnout and second stage ignition showed that Ed clued Rick in to the old Thermalite up the nozzle trick. Very impressive. So were Ed's FSI Echo II, powered by D20's in both stages. The model is painted in a beautiful candy-apple red and silver scheme, [and with the D20's did not hang around very long], and his NCR Spoilsport flying with four E15-10WL's.

Also fun to watch were Dale Greene's Big Brute with a G42WL; Karl Fehrenbach's LOC Starburst and Viper III; Art Babiarz's Centuri F-104, painted in a red and white Canadian Forces pattern; Jason Wingenroth's Athena, Viking, and Vagabond (or does that Vagabond really belong to father Al?). The first flight of the new year was made by Rita and Rene Feveryear with an Estes sport model. Dave Bender flew both versions of the Estes Interceptor; the original from the early 70's, and the Interceptor II from just a few years back.

*Now, if anyone was worried that Ed was "in" to abusing little furry animals, we should explain that Punxsutawney Phil is a little stuffed ground hog made by Ed's wife, Bonnie. [Hey, Ed, that sounds believable, doesn't it? I mean about you and the furry little animals, right?. Your secret's safe with me.....]

FLIGHT LOG
February 3, 1991

#	Name	Model	Motor(s)	Misc
1	D. Bender	Flying Saucer	C6-0	GF
2	" "	Golf Rocket	A3-4	GF
3	" "	Mega Sizz	C5-3	GF
4	" "	Interceptor II	C5-3	GF
5	" "	Interceptor I	C5-3	GF
6	J. Wingenroth	Athena	B4-4	GF
7	" "	Vagabond	B6-4	GF
8	" "	Viking	A8-3	GF
9	Shannon Lytle	Viking	C6-3	GF
10	" "	Wizard	C5-3	GF
11	J. Yost	Bicentennial Bertha	C6-5	GF
12	R. Feveryear	Unknown	B4-6	GF
13	Gary Feveryear	X-16	A8-3	GF
14	" "	Scrambler	D12-7	GF
15	J. Lytle	Black Brant II	D12-5	GF
16	R. Hackman	XR-22	½A3-2	GF
17	" "	XR-35	½A3-0/½A3-4	?
18	" "	Avenger	C6-0/A8-5	GF
19	" "	XR-61	E5-4	CHU
20	D. Greene	E Bird	E60-6	SEP
21	" "	Flare Patriot	D12-3	GF
22	" "	Big Brute	G42-8	GF
23	E. Miller	Big Bertha Plus	E15-4	GF
24	" "	Little Joe II	A10-3	GF
25	" "	1 Liter	C5-3	GF
26	" "	3 Liter	D12-3	GF
27	" "	Echo	D20-0/D20-7	GF
28	" "	Hornet	B6-4	GF
29	" "	Spoilsport	(4)E15-10WL	GF
30	K. Fehrenbach	LOC Starburst	(2)D12-3	GF
31	" "	Viper III	(3)D12-5	GF
32	" "	Pathfinder	D12-5	GF
33	" "	Tank Buster I	E30-4	GF
34	" "	Lasersonic 1350	D12-5	GF
35	" "	Lasersonic 1350	E30-7	GF
36	G. Beever	Mercury Redstone	C5-3	GF
37	" "	Skylance	B6-4	CHU
38	Glenn Feveryear	Starhawk	B4-2	GF
39	" "	Ranger	(3) C6-5	GF
40	" "	Grumpy Dog	D12-0/D12-3	GF
41	A. Babiarz	Centuri F-104	B6-4	GF
42	" "	Talos	A8-3	GF
43	" "	Birdie	A10-3	GF



I LOVE TO FLY E'S

[Editor's Note: At a SPAAR Winter Workshop recently, Dale Greene lamented the passing of what was known then as "The Underground Songs Of The NAR", in which popular songs of the day were given new, rocketry-related lyrics. (Us older guys do remember that, but we don't want to admit it!). About two weeks later, we received our exchange copy of the GSSS Launch Rack, which included this little ditty. We thank editor Tom Whymark for permission to print it here.]

By Tom Whymark

Sung to the tune of "I Go To Extremes", by Billy Joel

Call me a Joker, call me a fool
but at this moment I'm starting to drool
Countdown's beginning, wind at my back
I'm going through an anxiety attack
sometimes I think it will go too fast
I don't know how long the fillets will last
Maybe only one flight

Darling I don't know why I love to fly E's
White Lightning flashing, streaking skyward with ease
And does it land or free fall?
Recovery most important of all
Darling I don't know why TOYS 'R US can't sell E's!

My pockets are empty, my checkbook is shot
My VISA is maxed out, that's all that I've got,
Another E model has drifted over the hill,
Is there anything left to my grandmother's will?
Tell how long you think it will take
For the sheriff to seize my estate
If I can't pay the tax bill.

Darling I don't know why I love to fly E's
E Six Fours, E Fifteens, I want only E's
You can be sure from this song
I'm broke and can't buy anymore
Darling I don't know why I love to fly E's

Out of the basement, into the light
Leaving the epoxy behind
Sanding the rod for a perfect flight, every time
Sometimes I stay awake night after night
Reinforcing my fins for E's
Eager to launch, ready for flight
Why do I love to fly E's?

And does it land or free fall?
Recovery most important of all
Darling I don't know why I love to fly E's

(Continued on next page)

No, I don't know why I love to fly E's
E Six Fours, E Fifteens, I want only E's
You can be sure from this song
I'm broke and can't buy any more
Darling I don't know why I love to fly E's

I don't know why, I don't know why
I don't know why, I don't know why
I don't know why, I don't know why

NEW PRODUCT NOTES

QUALIFIED COMPETITION ROCKETS: New for 1991, Ken Brown of QCR has introduced NARTREK achievement level packages for that program's Bronze and Silver Achievement Levels. For the Bronze Level, Ken has offered a package which contains one "Straight Up I" (Kit# 5), for the parachute and streamer duration requirement; one "Straight Up III" (Kit #10), for the D-engine model requirement; and one multi-stage model, Kit #250, for the multi-stage requirement. For the next step up, the Silver Level, the QCR package includes one #105 "No Break II" B & C class eggloft kit, a #280 A or B class three-engine cluster kit, and a #40 "Never Loop I" 1/2A or A Boost/Glider kit.

The Bronze Level Package sells for \$16, and the Silver for \$14. Shipping is \$5 per order. On a personal note, your editor mailed an order for the Bronze Level Package on a Monday, and the shipment arrived on Friday of the same week. That is fast by anyone's standards. Now, we'll see if the models do their stuff meeting the Bronze Level requirements. Your editor started the Bronze NARTREK Level 3 years ago, but that 60-second parachute duration with a kit model and no more than a B motor was a real bugger. Stay tuned.....

Write: Qualified Competition Rockets, 7021 Forest View Dr., Springfield, VA 22150.

NORTH COAST ROCKETRY: NCR has announced the introduction of a 1/4-scale Patriot missile. Built around a 4" diameter tube, the model stands 54.5" tall, and weighs 2 lbs. It flies on F,G, or H motors, and sells for \$35.95, and is reportedly in stock now. (Kit-85) NCR has also introduced a few more electronic gizmos, including a barometric parachute release mechanism. (Rocket City Aces/Aces High) For more info, write: North Coast Rocketry, PO Box 24468, Mayfield Hts., OH 44124.

AEROTECH: Aerotech has announced that a reloadable motor system for model rockets will be available in May. The system features an 18mm D13, a 24mm E20, and a 29mm E18, F36, and G54 motors. The motors range in price from \$49.95 to \$69.95, with the reload kits being offered at \$6.95 for 3 of the 18mm, \$3.95ea for the E20 and E18's, \$5.95 for the F36, and \$7.95 for the G54. It should be noted that these motor systems are not yet NAR approved, and their use should be governed accordingly. One has to believe that NAR approval and certification is just a matter of time. For more information, write: Aerotech, 1955 S. Palm St., Suite 15, Las Vegas, NV 89104.

ESTES: The 1991 Estes catalog lists 20 new kits, and one more that is so new that it actually missed the catalog. There are 8 new Skill Level 1 kits, the nicest of which appears to be the Dark Star, 27" long and 1.637" in diameter. The seven new Skill Level 2 kits include the 23" long Photon Probe (\$10.99) and the Beta Launch Vehicle (\$14.19). The Skill Level 3 Little Joe II (\$11.99) and the Level 4 Saturn 1B (\$39.89) are both in 1/100 scale, and complement the existing Saturn V kit. The newest kit, however, is the 1/10 semi-scale Patriot, released on Feb. 22. At \$9.99, the kit is 21.25" long and is built around the Estes 1.637" dia BT-60 body tube. Discontinued kits, however, unfortunately include the Mercury-Redstone and the GeoSat LV. Write: Estes Industries, PO Box 227, 1295 H St., Penrose, CO 81240.

K I T B A S H I N G A S C U D

Even with the recent infamy that it gained in the recently concluded Gulf War, the Soviet-designed SS-1C Scud missile is an interesting subject to model. Many may recall that Estes sold a 1/18-scale SS-1C back in 1980-81. The distinctive nose cone was used for the D.A.R.T kit, available from 1987 through 1989. The D.A.R.T was a typical Estes three-fins-and-a-nose-cone offering, which is probably the reason it was discontinued: poor sales. Because of this, kitbashing a Scud puts one in mind of an old Steve Martin routine: "I can show you how to have a million bucks, and not pay taxes on it. Yes, that's right; I can show you how to have a million dollars and not pay one cent in taxes on it.....First, gooutandgetamillion bucks....then....." To kitbash a Scud, you have to go out and find a D.A.R.T kit in a local hobby shop. But therein is the positive aspect of that kit's poor sales: they are all over the place! I found one in the second of my local hobby shops that I tried. The point is, these D.A.R.Ts are out there, and part of the fun is hunting one down.

Besides the D.A.R.T kit, you will need:

1. One 14 $\frac{1}{4}$ " section of Estes BT-60.
2. One 6 $\frac{1}{2}$ " section of BT-20.
3. 1/8" balsa.
4. One 1/8" X 1/8" X 12 bass or balsa strip.
5. One $\frac{1}{2}$ " X $\frac{1}{4}$ " X 1 $\frac{1}{4}$ " balsa strip.
6. One shock cord, preferably elastic.

CONSTRUCTION

1. Using the two 2060 centering rings from the D.A.R.T, as well as the EH-2 engine hook, assemble a motor mount using the 6 $\frac{1}{4}$ " section of BT-20. Make sure that the rear-most ring is 1 $\frac{1}{4}$ " from the nozzle end of the tube.
2. Using the body tube marking guide, trace the cut-outs and fin positions on the aft (motor) end of the 14 $\frac{1}{4}$ " BT-60. Using a sharp modeling knife and/or scissors, remove the marked areas

between the fin locations.

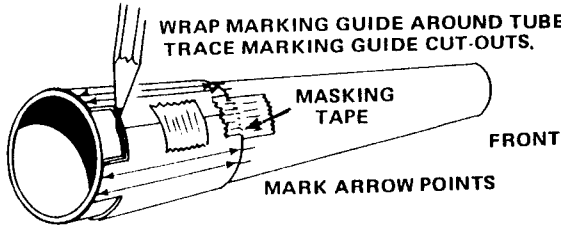
3. Install the motor mount into the aft end of the rocket body, with the end of the hook even with the end of the BT-60. Fillet the body tube/ring joints, on both the aft and forward ends.
4. Cut a 9 11/16" piece from the $\frac{1}{2}$ "X1/8"X12" wood strip. Taper both ends at approx. 45°. This is the "raceway" referred to on the body tube marking guide. Glue to rocket body.
4. Make the "Detail Ring" from heavy card stock, and cut out. The "flat" sided portions will line up with the tube extensions on the aft end. Glue in place. (See detail).
5. Divide the $\frac{1}{2}$ "X $\frac{1}{4}$ "X1 $\frac{1}{2}$ " strip into four 3/8" sections. Sand to the contour of the inside of the BT-60 body tube. Glue to the inside of the 4 tube extensions on the aft end of the body.
6. Trace and cut out 4 fins from the 1/8" stock. Sand a sharp leading edge. Bass wood may be used. Square the root and trailing edges, round the edge farthest from the body. Glue fins to body.
7. Using "Template A", trace rectangular pattern onto both sides of each fin. Glue like-sized pieces of 1/16" balsa on these locations. OK, I forgot to list the 1/16" balsa in the previous column, but everyone has it laying around, right?
8. Don't forget the whole reason the D.A.R.T kit was needed to begin with: the nose cone. Trim off any flash, and sand the seam smooth.
9. Fill the wood parts in your preferred method. Spray at least one coat of primer, and sand. Scuds in Soviet service were generally either an olive drab or light earth color. Check in your spare decal box for some red Russian star insignia, and apply using the drawing on the next page.
10. Install the shock cord, and parachute. The 12" job of the D.A.R.T kit may be too small, so try an 18" one.

RUSSIAN SS-1C

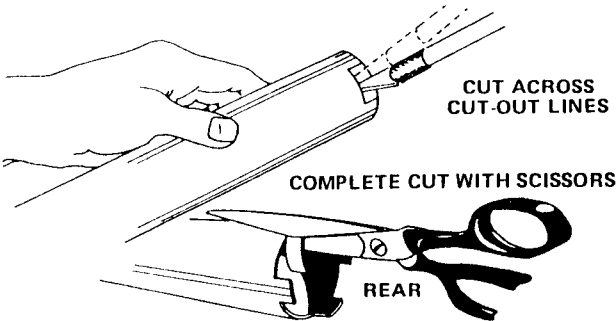
//

2

WRAP MARKING GUIDE AROUND TUBE.
TRACE MARKING GUIDE CUT-OUTS.



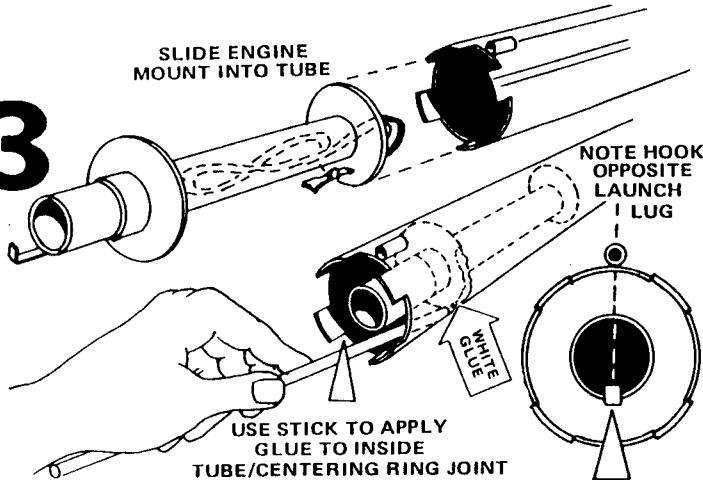
REAR



Use a sharp model knife or single-edge razor blade to cut across body tube along the tube cut-out lines. Make repeated light cuts along the lines until tube is cut completely through. Now use scissors to complete the cut-outs as shown.

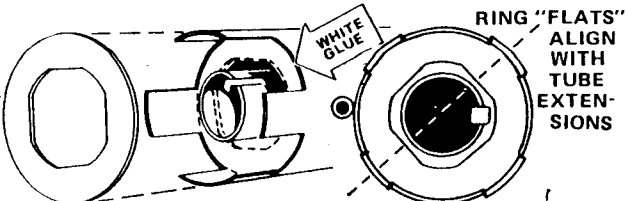
3

SLIDE ENGINE MOUNT INTO TUBE



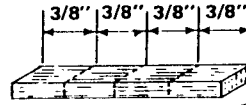
4

GLUE
DETAIL
RING
EVEN
WITH
NOTCH
EDGE



SCUD-B

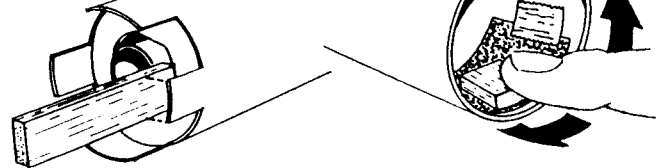
5



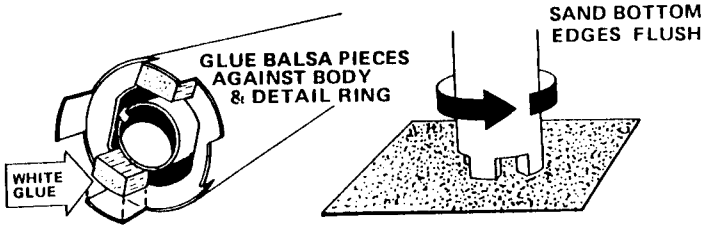
CUT STRIP
INTO QUARTERS

CHECK WIDTH OF BALSA
WITH TUBE
EXTENSIONS

SAND PIECES ROUND
INSIDE FRONT
OF TUBE



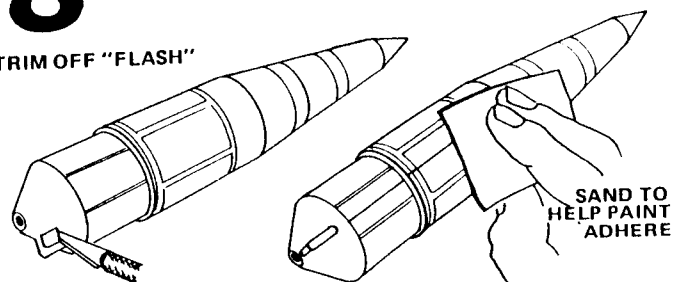
Sand smooth all sides of the balsa detail strip (part J). Use extra-fine sandpaper. Sand 1/2" wide side of strip, if necessary, until it matches width of the overhanging rocket body ends. Cut four 3/8" long pieces from the balsa strip. Slide a small sheet of extra-fine sandpaper into front end of rocket body as shown. Tape ends in place. Sand one side of each balsa piece until it matches the inside curve of the body. Take your time to complete this step. Sand, then check size and fit of pieces frequently at rear of rocket.



Glue balsa detail pieces to detail ring and body at rear of rocket as shown. When glue has dried, stand rocket body upright on sheet of extra-fine sandpaper. Rotate body until ends of detail pieces are sanded square and are even with end of body.

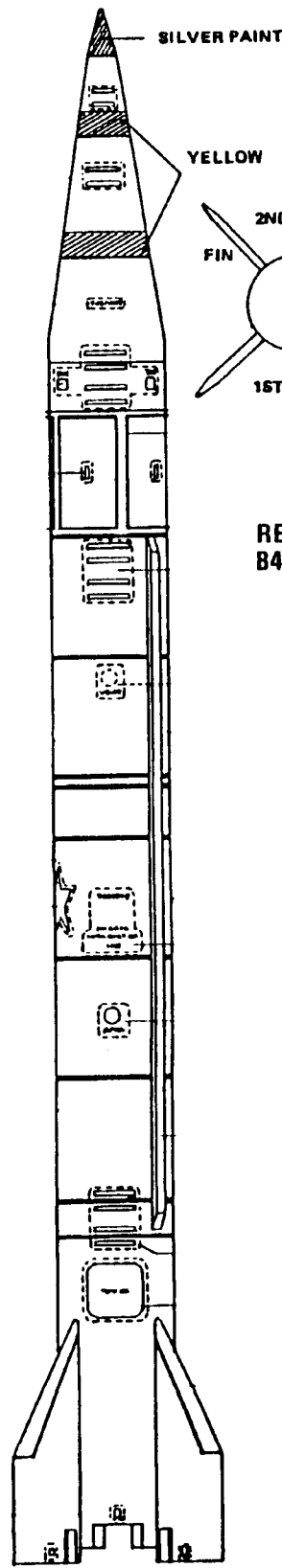
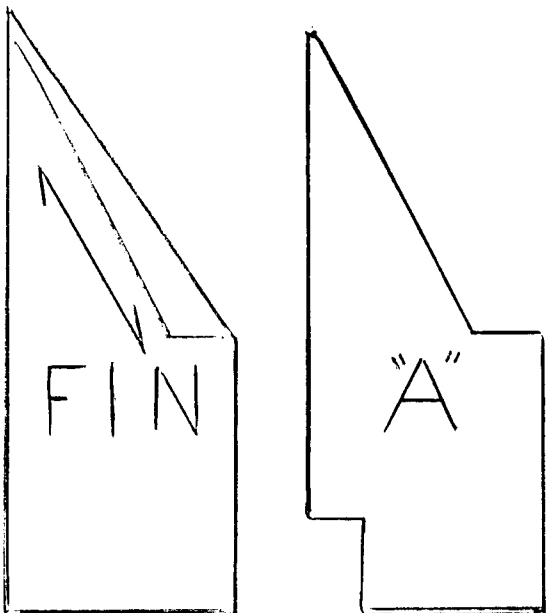
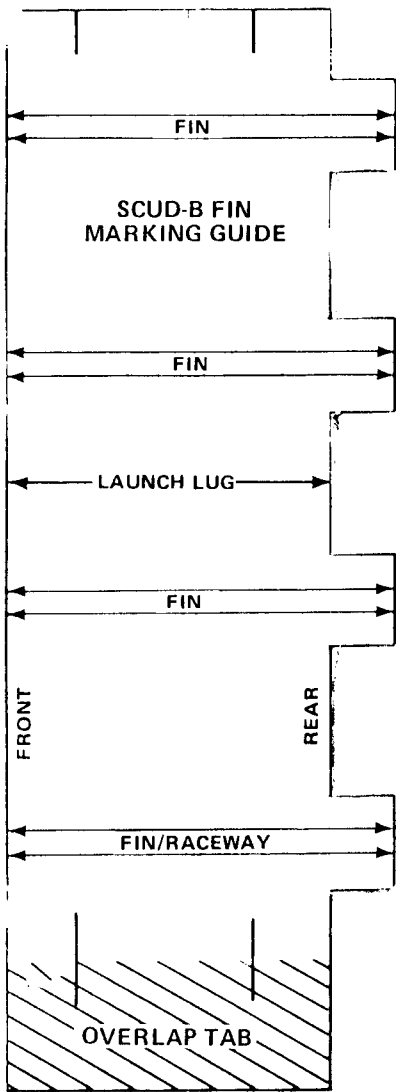
8

TRIM OFF "FLASH"

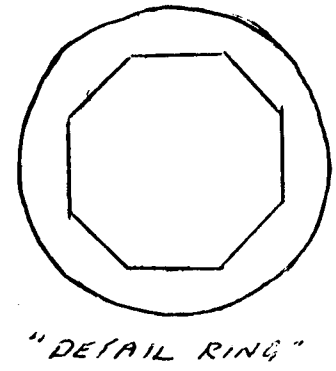


Trim and sand smooth all excess molding plastic (called "flash") from around the nose cone (part L). Carefully remove any "flash" from inside the nose cone eyelet. Wash nose cone in lukewarm soapy water. Rinse well and dry with cloth.

NOTE: Fingerprint oils and molding release residue could prevent paint from sticking to plastic surface. For best paint adhesion, lightly sand nose cone with super fine 400 grit sandpaper before painting.



RECOMMENDED ENGINES:
 B4-2 B4-4 B6-4 B8-5 C6-5 C6-7



**SOUTHERN PENNSYLVANIA AREA
ASSOCIATION OF ROCKETRY**
*NATIONAL ASSOCIATION OF ROCKETRY, SECTION 503
PO BOX 127 , REAMSTOWN, PENNSYLVANIA 17567*

Coming to Pennsylvania this spring-
SPAMBAM-1 (Space Modeling Blowout After March)
*an open contest for any sections, teams or individuals
who wish to attend.*

*Sunday April 28, 1991 9:00am - 5:00pm
at the Cocalico High School Complex
in Denver, Pa*

*Events: 1/2A Rocket Glider Duration
1/2A Streamer Duration - Multi
A Boost Glider Duration
B Egglofting Duration
B Superroc Duration
C Helicopter Duration*

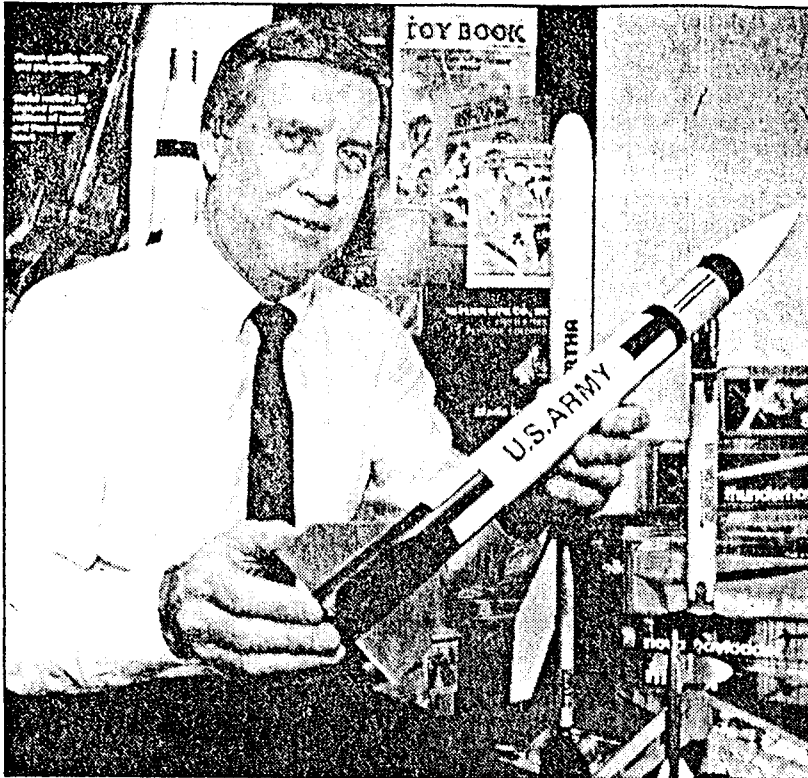
*entry fee: \$4.00 for C Division
\$2.00 for A & B Division*

*Pre-registration is not required however we would like to
hear from those who might be interested in attending.*

*Contest Director: Glenn Feveryear
Rd#1 Box 1-C
Delta, Pennsylvania 17314
phone: 717-456-5570*

*Rain date: May 5, 1991
Hotel accomodations are available nearby.*

[Editor's Note: While we are certain that Estes Industries in particular, and model rocketry in general enjoy publicity of the kind reprinted below, you have to wonder how the word "toy" (cringe) made it's way into this article so often without someone at Estes catching it. Oh Well.]



AP Wirephoto

Robert Buroker, president of Estes Industries, holds a scale model of the Patriot anti-missile missile, for which his company has received thousands of requests.

Patriot missile becomes big seller for toy firm

PENROSE, Colo. (AP) — While the dust of war settles in the Middle East, one company is still turning out Patriot missiles at full tilt. But at \$23.99 and less than two feet long, these little Scudbusters won't break the defense budget — or anything else threatening the peace.

Estes Industries, a model rocket manufacturer, is selling a toy version of the Patriot. Like the real Patriot's success in the Gulf War, sales of the miniature version are soaring, the company says.

At 21½ inches, the Estes Patriot is about one-tenth the size of the 17-foot defense missile and otherwise differs only in "missing the computer in the cone and the warhead," said Estes marketing manager Mary Roberts.

"Ours is the Scudbuster without the buster," she said.

The toy missile is red, black and yellow with a white nose cone containing a 12-inch parachute to float it back to Earth once the rocket reaches 600 feet.

The Estes 1450 Patriot Rocketry starter outfit, complete with launcher, remote ignition system and three solid-propellant engines with electronic igniters has a suggested retail price of \$23.99. The basic Patriot kit goes for \$9.99.

The 32-year-old company founded in a garage and now employing 200 people here sells the rockets in stores and mail order.

It was the company's regular customers who first suggested a Patriot model, Roberts said.

"People just love the idea. I mean everybody," said Roberts. "When they place the order they're excited about it and then after thinking about it they call back in a couple weeks and order more."

Company officials keep precise sales and production figures top secret, but do report they received "thousands and thousands" of orders for the miniature Patriot.

Robert Buroker, president and general manager of Estes, regards real Patriot missiles as real American "war heroes."

"If anyone deserves a purple heart, it's the Patriot missile," he said.

Estes, which also makes kites and 80 other model rockets, used to make Scud missiles too, but discontinued that toy about 10 years ago because it didn't sell well.

Some customers suggested selling a Scud missile with the Patriot, Buroker said, but the company quickly quashed the idea.

"It just didn't seem like the thing to do," he said.

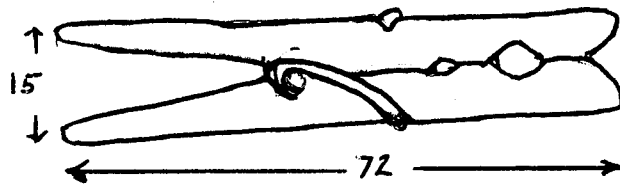
Though the Gulf War appears to be over, Buroker said, his Patriots will keep rolling out.

"I'm sure this rocket will (remain popular). I think the Patriot rocket as one of our war heroes will be around for a long time," he said.

COMMERCIAL ADVERTISEMENT

Friends, are you tired of chasing your model rockets for miles and miles? Fed up with spending a zillion hours on that favorite scale model, getting the detail correct right down to the smallest nut, bolt, and scratch, only to have the parachute fail to deploy properly and ding a fin upon landing? Do you yearn to get the full "fire and smoke" effect, but are not quite sold on FX motors? And you video and camera buffs, are you searching for a way to obtain that magazine quality action shot, but don't wanna spend megabucks for all of that fancy equipment? If a nerve has been struck by these questions, we urge you to consider.....

ROCKETLOK™



THATS RIGHT!!! ROCKETLOK™! The ROCKETLOK™ (patent pending) is your answer!!!!

The ROCKETLOK™ was developed by Bendertech, Inc., as a way to address the problems listed above, and much more! To use, simply place the unique ROCKETLOK™ on the launch rod above the model! Thats it!! Then, sit back and enjoy a close-up view of the various operations of a model rocket.... all without the model ever leaving the pad!! Just think of it; no more tramping through swamps, corn fields, back yards, Civil War battlefields, or whatever to track down your rockets! No more prangs, red barons, or shouts of "AAAAAARRRRRRRGGGGHHHH!!!!" as your 'chute fails to deploy! Just think of the applications for Drag Race and Spot Landing! Whats more, you can use them over and over again. Made from a new space-age material, WOOD™, (patent pending), ROCKETLOK™ is already being hailed as the being on the cutting edge of technology.

ROCKETLOKs™ come in the standard size for 13mm and 18mm black powder motors, and the "Sure-Grip" size for composites. Experience White Lightnings and Blue Thunders as never before! Try a ROCKETLOK™ today!!!

Top Ten Competitors As of 2/1/91

SECTION NEWS NOTES

"THEME" SPORT LAUNCHES: At our Sport Launches this year, there will be a number of "theme" days. For example, the April 14 will be "Futuristic Day". All members are urged to bring their futuristic looking models to display, fly, photograph, and show off. Ed Miller came up with the idea for these theme launches, and during the course of the season others will include Manned Launch Vehicles, Sounding Rockets, and Military Rockets. Check your schedule for more details.

WINTER WORKSHOPS: If you did not attend any of this year's Winter Workshops, it was your loss! In January, Ed Miller told us how he gets those museum-quality paint jobs; in February, we had a chance to show off some of our older rocketry stuff and swap stories; and in March, Art Babiarz gave a splendid presentation on modeling in general, and scale modeling techniques specifically.

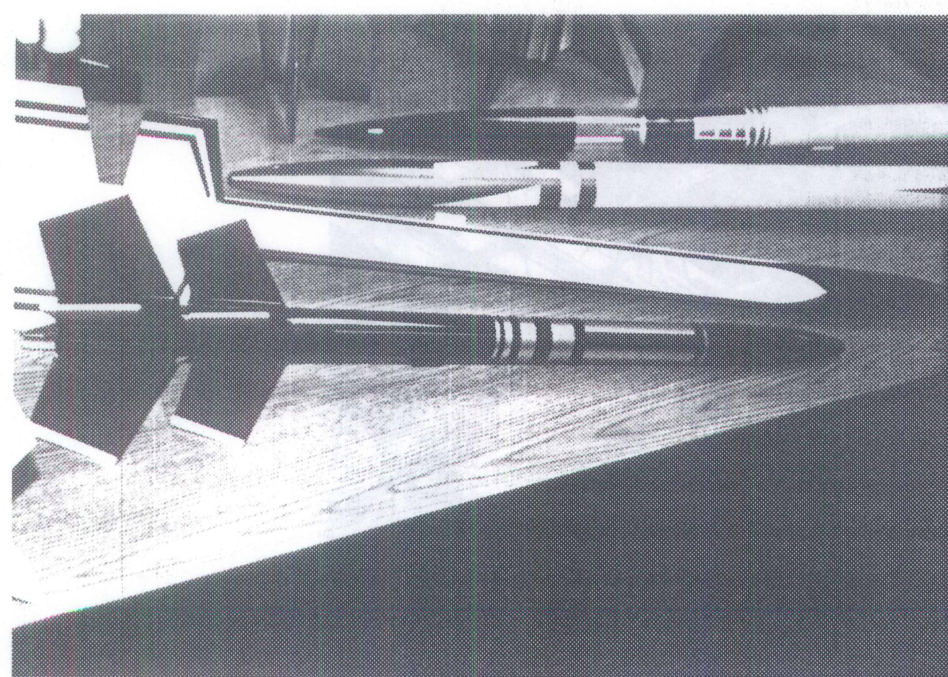
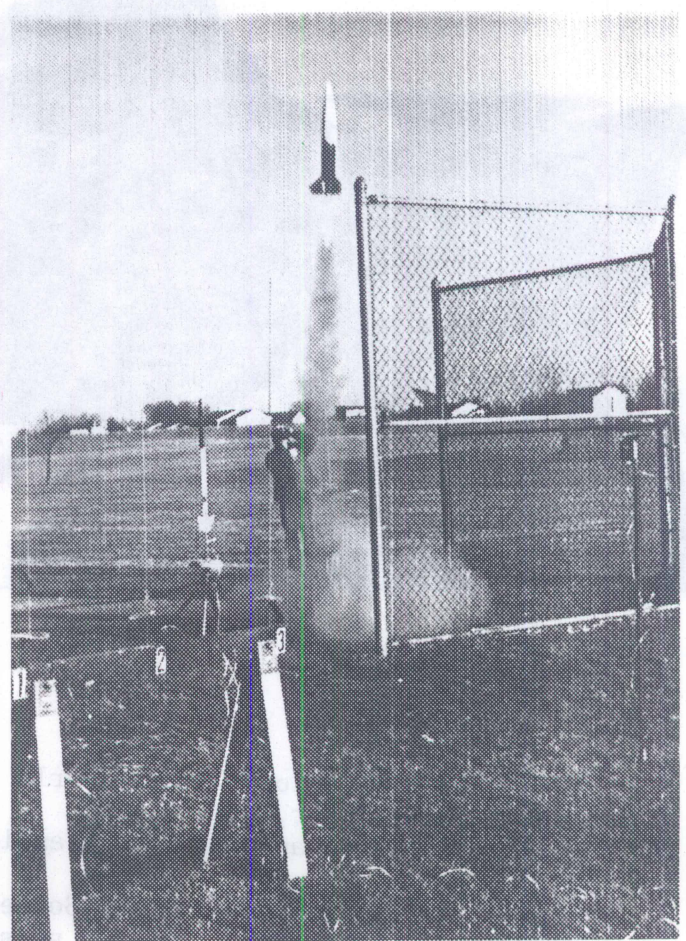
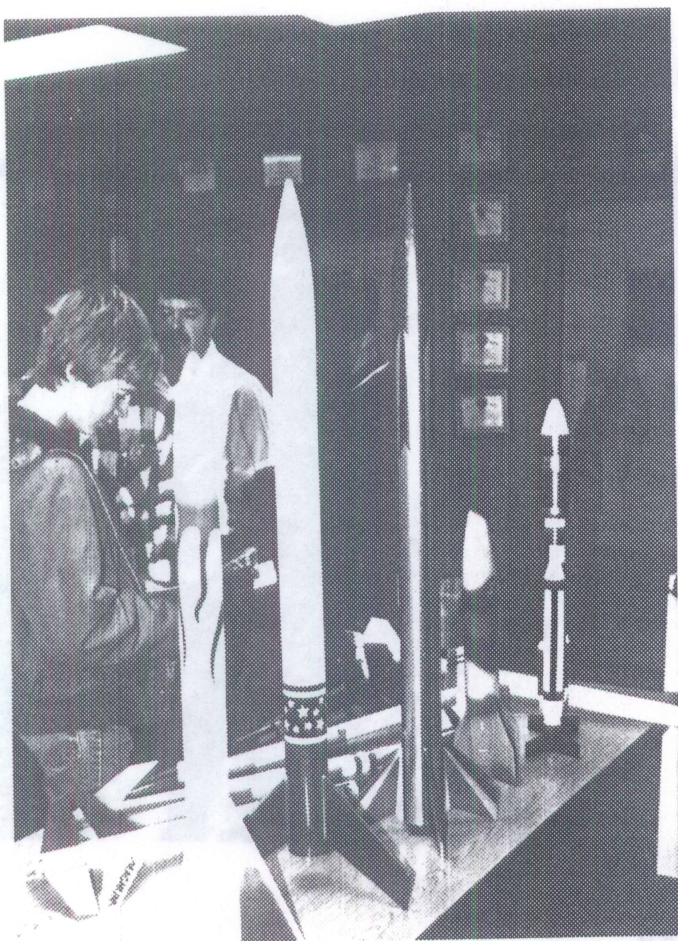
A lot of thought and work went in to these presentations, and we thank all who participated, as well as those who attended.

As an added bonus, there were two smaller but no less informative presentations given during the second half of both the January and February club meetings. In January, Dale Greene helped to explain the mysteries of altitude tracking, and in February John Yost spoke about Flex-Wing Boost/Gliders. Our thanks to Dale and John, also.

COMPETITION UPDATE: The standings and points listed on the next column are reprinted from VOL 2, #3, March 1991 issue of "Aces High", the newsletter of the Rocket City Aces. Our thanks to them.

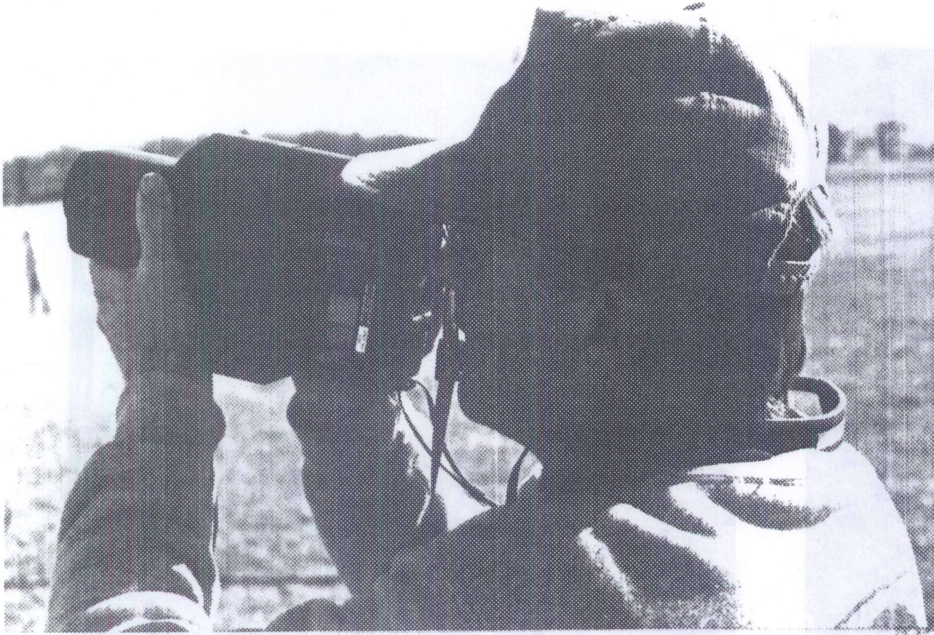
Name	Section	Pts	WE
A Division			
1) Whymark Matthew	439	2061	6
2) Whymark Jason	439	1890	6
3) Musarra Maureen	439	1347	6
4) Long Cole	511	954	3
5) Whymark Erin	439	870	6
6) Barber Elizabeth	205	840	4
7) Miller Andrew	139	660	4
8) Musarra John		582	6
9) Koenn Matthew	324	546	3
10) Kabinier Brian	205	376	2
B Division			
1) Kmetz John Jr.	511	1641	6
2) Lyon Jennifer	139	380	2
3) Kramer Michael		204	2
4) Culpepper Paul	342	136	2
5) Eakin Andrew	494	102	1
6) Sanchez Mauricio	430	30	1
C Division			
1) Wolf Dan	136	1477	8
2) Feveryear Glen	503	1473	11
3) Kruetz Bob	439	1122	3
4) Brown Ken	205	1107	5
5) Rose Art		807	3
6) Whymark Tom	439	717	6
7) Canino Bruce	439	672	6
8) Demar John		664	5
9) Green Roy	494	567	3
10) Beever George	503	512	6
Teams			
1) Jankov/Pavlov/Kovalev	205	3618	12
2) Southern Comfort	511	2457	6
3) Shake & Bake	511	1770	6
4) Imploding White Mice		1398	3
5) Beach Bums	317	910	3
6) Kmetz D&D	511	903	6
7) Mystical Ship		864	3
8) Team Neutron	477	848	2
9) Panic 7300	494	780	3
10) Star Girls		520	2
Sections			
1) Garden State	439	9138	
2) Rocket City Aces	511	8718	
3) NOVAAR	205	4544	
4) SPAAR	503	2100	
5) GAMMA	494	1863	
6) CMAR	477	1818	
7) MARS	136	1802	
8) NARHAMS	139	1754	
9) DART	317	1664	
10) Space Coast	324	1393	

This listing was provided by Terry White, NAR Contest Board Chairman.

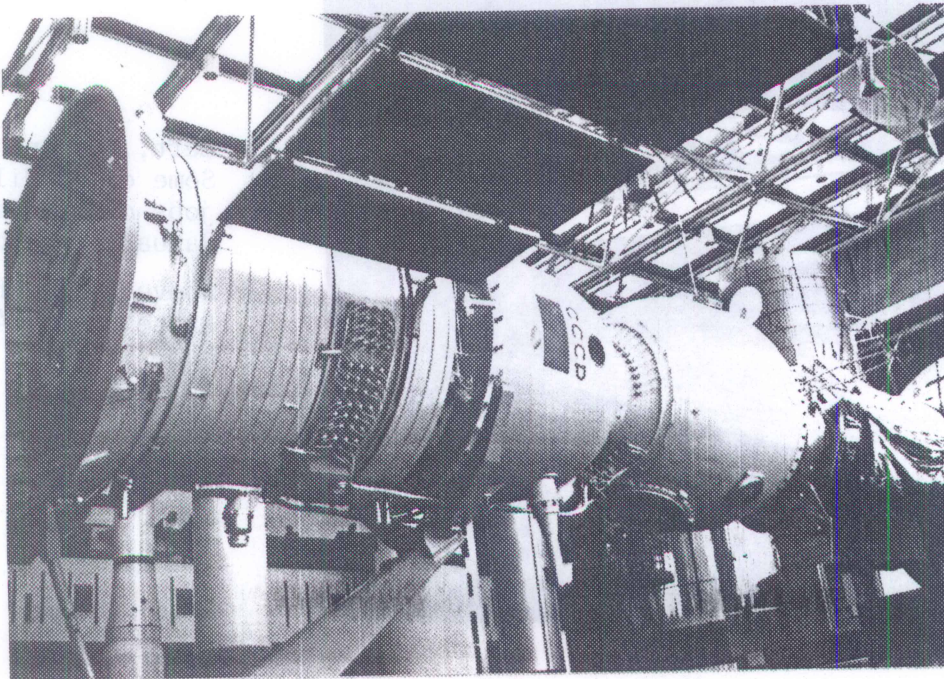


Left, top and bottom:
Some of Ed Miller's paint
jobs on display at the
January Workshop.

Above: Dale Greene's Big
Brute under G42 power,
Feb. 3.



Above: Jim Lytle looks at the world
 thru a view-finder, Feb. 3
 Right: John Yost and the "Bicentennial
 Bertha";
 Below: Art Babiarez' full-scale Soviet
 Soyuz resin cast model. (OK, so we slipped
 in one April Fool's joke. It's really
 vacu-formed.)



**SOUTHERN PENNSYLVANIA AREA
ASSOCIATION OF ROCKETRY
NATIONAL ASSOCIATION OF ROCKETRY, SECTION 503
PO BOX 127, REAMSTOWN, PENNSYLVANIA 17567**

_____ YES, I WANT TO JOIN SPAAR! HERE ARE MY DUES

_____ PLEASE CONTACT ME WITH MORE INFORMATION

NAME _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE: AREA CODE () _____ AGE _____

DATE OF BIRTH _____

_____ I HAVE NEVER FLOWN ROCKETS. _____ I HAVE BEEN FLYING
MODEL ROCKETS FOR _____ MONTHS/YEARS.

_____ I AM A MEMBER OF THE NAR. MY NAR NUMBER IS _____
_____ I AM NOT YET AN NAR MEMBER.

DUES: _____ 14 YEARS OF AGE OR YOUNGER, \$5.00
 _____ 15, 16 OR 17 YEARS OF AGE, \$7.00
 _____ 18 YEARS OF AGE OR OLDER, \$10.00
 _____ FAMILY PLAN: OLDER MEMBER JOINS AT THE FULL RATE
 THEN ALL YOUNGER MEMBERS JOIN AT HALF PRICE.
 (FAMILY PLAN PROVIDES ONLY ONE COPY OF THE
 NEWSLETTER PER FAMILY.)

DUES ARE PAYABLE FOR 12 MONTHS. RETURN THIS FORM TO:
 SPAAR, PO BOX 127, REAMSTOWN, PENNSYLVANIA 17567

Membership Application

NATIONAL ASSOCIATION OF ROCKETRY
 1311 EDGEWOOD DRIVE, DEPT M
 ALTOONA, WI 54720

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

DATE OF BIRTH: Month _____ Day _____ Year _____

I pledge to conduct all my model rocket activities in compliance with the NAR/HIA Safety Code. I will never fly model rockets at the same time or in the same vicinity as other types of rockets.

SIGNATURE: _____

DATE: _____

MEMBERSHIP CATEGORY (Check one only):

- JUNIOR MEMBERSHIP (Under 18 as of January 1)..... \$15.00
- LEADER MEMBERSHIP (Under 21 as of January 1)..... \$15.00
- SENIOR MEMBERSHIP (21 or over as of January 1)..... \$25.00

FOR OVERSEAS MEMBERS ONLY

- SURFACE POSTAGE (Required)..... \$ 6.75
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OPTIONAL MEMBERSHIP SERVICES

- FAI STAMP for US Team eligibility and world records \$10.00
- FIRST-CLASS POSTAGE (U.S. & Canada only)..... \$10.50

DISCOUNTS (Select only one)

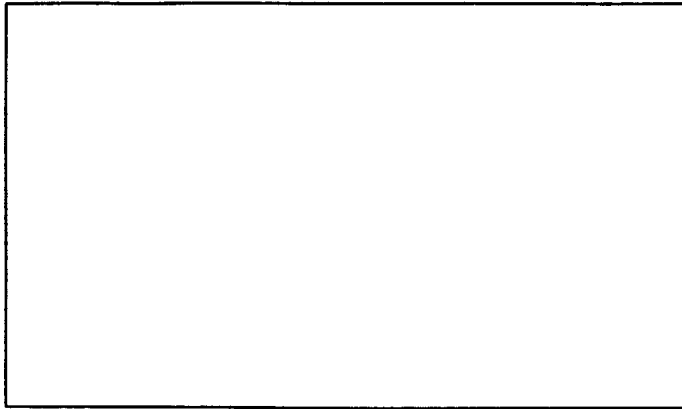
- RENEWAL (NAR # _____ Section # _____); Deduct \$1. _____
- FAMILY PLAN (Details below); Deduct \$8. _____

Amount Enclosed..... \$ _____

Family Plan: Full rate for one family member, others at \$8 discount — one *American Spacemodeling* per family.

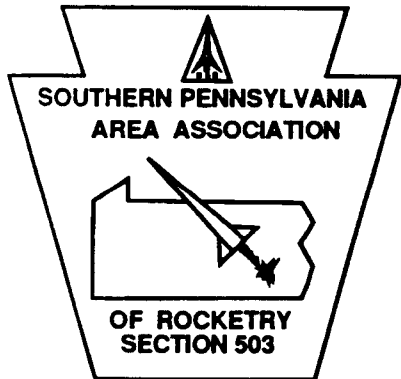
NAR Membership dues include \$8.88 for a subscription to *American Spacemodeling*.

Canadian Modelers: Write to the Canadian Association of Rocketry, P.O. Box 1031, Postal Station B, Mississauga, Ontario, Canada L4Y 3W3. Rights, privileges, and responsibilities of membership begin upon acceptance of this application by the NAR. All memberships are for twelve months from the date of acceptance. Rates and services subject to change without notice. Please allow 6-8 weeks for delivery of *American Spacemodeling*.



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



*The Southern Pennsylvania Area
Association of Rocketry*

COUNTDOWN

Volume 4 No. 2

MARCH/APRIL 1991