



**Memories of Moscow**  
Space Exhibits  
in the  
Soviet Union

By Adrian Liggins



“So, what chance is there of seeing anything from the Soviet space program?” I innocently asked the tour guide as we left Moscow railroad station on the bus. This was 1989, in the dying days of the USSR, and we did not yet know what hotel we had been allocated by the authorities. As it was, the name alone would have been a bit of a give-away: the Hotel Cosmos, built for the 1980 Olympics.



Taking pride of place, just across the road was the space monument featured on many of the space-themed coins. Standing 300ft high, the stylized flame is topped by a 15ft titanium rocket (in the typical Soviet romanticized style). The flame is clad in plates of titanium and the whole thing is quite striking when it shimmers in the sun.

Below the monument was

“Cosmonaut Alley”: a stretch of sidewalk along which was placed plinths housing busts of various cosmonauts, living and dead. These included Yuri Gagarin (shown here), Valentina Tereshkova (the first woman in space) and Alexi Leonov (the first space-walker).

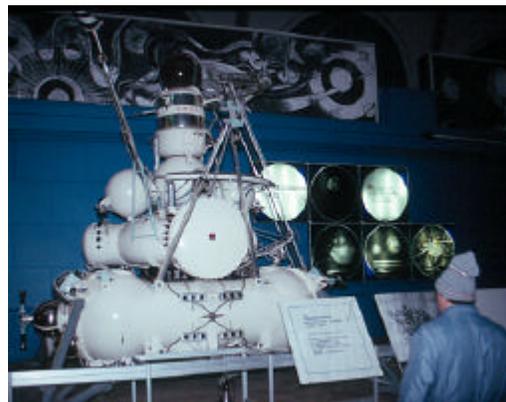


Further back from the hotel (behind the monument) was the “Exhibition of Economic Achievements”. This 700 acre site featured many pavilions, each dedicated to a different area of Soviet industry (such as mining, technology, etc.). As we approached the wall surrounding one such pavilion, we got quite a

surprise, as the unmistakable shape of a Vostok launch vehicle on its cradle came into view.

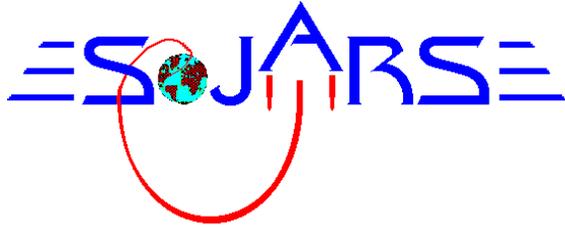


The pavilion itself housed all manner of space-related items, such as the communications satellite, lander and Soyuz capsule (with Progress supply-ship capsule to its right) shown here. If you look carefully behind the Soyuz, you’ll see a drape, behind which a mock-up of Mir was being constructed.



All Soviet museum halls would have a guard sitting up against a wall. The sight of a flash-gun would result in a stern “Nyet” (no!), as this could damage sensitive exhibits. Luckily, pointing to my flash-gun was met with a friendly nod, allowing the above shots to be captured.

For the record, the tour guide’s answer to my enquiry was “you won’t see much”. Oh, and yes we went in winter – and it was ccold (-25°C).



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**Altitude!** is the Award Winning\* Official Newsletter of **SoJARS**, the **South Jersey Area Rocketry Society**, NAR Section #593. **Altitude!** is published bimonthly for the benefit of **SoJARS** members. Information contained in **Altitude!** may be used by anyone as long as proper credit is given. Please visit the frequently updated **SoJARS** website at <http://www.sojars.org> or call the **SoJARS Hotline: 856-424-5905**

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\* NAR's Best New Newsletter '99-'00; Honorable Mention '00-'01.

## Calendar of Events

### **SoJARS Meetings**

Unless otherwise specified, all meetings take place at the Cherry Hill Public Library, 1100 North Kings Highway, Cherry Hill, NJ. (856) 667-0300. Directions are available on our web site. For 2002, all meetings will be held on the 4th Tuesday of the month, 7:00pm - 9:00pm, in Room A.

Tuesday, March 26, 2002.

Tuesday, April 23, 2002.

Tuesday, May 28, 2002.

Tuesday, June 25, 2002.

### **SoJARS Launch Dates**

Unless otherwise specified, our launch area is at the Gloucester County College. Directions are available on our web site.

Sunday, March 10, 12:00pm to 4pm.

Raindate: March 17.

Theme, Funtest, Vendor: TBA

Saturday, April 13, 12:00pm to 4pm.

Raindate: None.

Theme, Funtest, Vendor: TBA

### **GSSS, NAR #439**

Launches are usually held on Saturdays each month, 10am - 3pm: Mar 30, Apr 27, May 18, Jun 22.

Location: North Branch Park, near Somerville, NJ

GSSS Hotline: (908)-658-9417

Website: <http://www.robnee.com/gsss/>

### **MARS, TRA #105**

Next Launch: TBA.

Location: Sod Farm, Allentown, NJ.

Website: <http://www.njtripoli.org/>

### **METRA, TRA #94**

Next Launches: Apr 6 & 7, May 4 & 5, Jun 1 & 2.

Location: Barron Farm, Wawayanda, NY.

Web: <http://www.metrocketclub.org/>

### **Garden State Tripoli, TRA #74**

Next Launch: TBA.

Location: Cederville, NJ.

Website: <http://www.njtripoli.com/>

## Calendar of Events

Continued

### **PARA, NAR #520**

Next Launch: Sunday, Apr 7, 11:00a - 4:00p.  
Location: a farm 9 miles north of Doylestown, PA  
Phone: You may call Chuck Arkens (215) 855-5599  
or David Stoetzer (215) 412-4348 the night before or  
the morning of the launch for verification.  
Website: <http://users.erols.com/dstoetz/para/>

### **SPAAR, NAR # 503**

Next Launch: TBA.  
Location: Cocalico High School in Denver, PA  
Website: <http://www.spaar.org>

### **Deleware Tripoli, TRA #106**

Next Launch: TBA.  
Location: Harper Farm, Rhodesdale, DE  
Website: <http://www.detripoli.org/>

### **Maryland Tripoli, TRA #68**

Next Launch: TBA.  
Location: Higgs Dairy Farm, Price, MD  
Website: <http://www.mdtripoli.org/>

### **Team America Challenge**

Around April 2003.  
Specific dates and locations will vary by state, but we  
are hopeful that SoJARS will be called upon to host  
South Jersey's Fly-Offs.

### **East Coast Hobby Show**

March 23 & 24  
Fort Washington Expo Center  
SoJARS will again have a booth and this year will  
assist PARA and Quest with the Make-It / Take-it.

## Altitude! Deadlines

Submissions for publication are accepted  
continuously by the editor. The Deadline for the  
May / June issue will be May 4.

## President's Report

By Art Treiman

Just to update the group on all the "Sojars  
Happenings"... Spring and Summer flying season is  
coming upon us. I'd like to publicly thank the folks  
at GCC for accommodating us during the busy spring  
sports season. The GCC fields are heavily used

during this time and the people we deal with at the  
college have done lots of work for our benefit. As a  
result we have/had March and April dates, and  
hopefully we'll have the same luck in May and June.

July will be our upcoming summer competition  
event. The Open Skies meet in the fall was a big  
success, and the competition program in our group is  
growing nicely. The presence of regular sanctioned  
NAR contests is something that I've felt is an  
important service for the club to offer and we seem to  
be coming through on it! All it will now take to be  
successful is the continued enthusiastic participation  
by our membership.

The only significant rocketry activity our section  
is lacking is the ability to fly Mid and High Power  
rockets. This of course is only possible if you have a  
very large field such as a farm...and large farms are  
in pretty short supply in our immediate area. We  
have one very good lead, though, on a very large  
farm that is not too far away, possibly to be used in  
the fall or next winter. In the interest of not counting  
unhatched chickens, I won't offer any more details  
until things firm up as we still have many hurdles to  
clear before this lead becomes a flying field. Of  
course I'll keep everyone posted.

The other important news is the Team America  
Rocketry Challenge (TARC). This is a nationwide  
high school level competition with a \$9000 prize for  
the winning team. Sponsored by the NAR and an  
aviation industry group, its goal is to raise  
engineering interest among high school students.  
This is particularly exciting as this is an age that has  
been traditionally hard to keep interested in rocketry.  
Our group may be called on to serve as "mentors" to  
local high school teams or to hold a local flyoff next  
spring.

That's about all that is new and noteworthy from  
my end. As always, thanks to everyone who helps  
out at meetings, launches, and club activities. Also,  
always remember, especially this time of year, to  
welcome any unfamiliar faces at launches.

I'll see everybody at the field!

Art

## Editorial

By Joe Libby

Ever heard the expression "If you play around  
with something long enough you'll either really  
figure out how it works or you'll break it"? Seems I  
proved it a few weeks ago. My computer is a  
generally reliable HP that I purchased almost 4 years  
ago. I've upgraded a number of components in that  
time, including extra memory, a Zip drive, and a CD

Writer. Shortly after installing the CD Writer, my CPU cooling fan burned out (how'd I know? well, it TOLD me with it's sad, pained death rattle). No sweat, I thought, and \$15 and about an hour later my CPU was happy & cool again, until...

A couple months later my system is crashing repeatedly, even after a complete hard drive reformat and system reinstall. Worked fine for about 10 minutes after a cold boot, but then I'd get a series of invalid page faults and conflicts emanating from programs I never had problems with ever before. Then it hit me... the computer was TOO quiet. Could the darn NEW fan be dead already? I opened up the case and (ahem, trained professional on a closed test track – do not attempt yourself) after moving things out of the way to get a good look rebooted and viola, no fan action.

Well, I wasn't too happy with this, so went back to CompUSA and, after explaining the situation to the manager, was given a replacement fan, thank you.

Back home, put the computer back together and... hmmm, still too quiet in there! Again, I opened the case "live" and, rumaging around a bit, only shocking myself once, I realized the CD Writer casing was impinging on the fan housing, explaining the second burned out cooling fan. Needless to say I repositioned some things and it's amazing how much happier a cool CPU can be.

Oh, I relate this story just to let you know why this issue is a little late and why it may seem like I was ignoring email for a week or so there. Plus it was cathartic for me.

So, back to business. The Front Page honors this issue goes to Adrian Liggins. Ever the world traveler, this time Adrian brings us back in time and halfway around the world to Moscow, when the wall was still standing (but not for long!).

Also in this issue please take note that many of us have had a change of email address due to the transition of Comcast's Exite @Home service to Comcast's own .net service. We also have a "new" set of officers, well we gained a Co-Prez & lost a Secretary (sort of) - the Masthead's been updated accordingly.

On the Calendar please note that our April launch will be on a Saturday, rather than our usual Sunday afternoon outing. By the time you get this you may be at or have just missed the Hobby Show. The Team America Challenge isn't for a whole year yet, but I want it on the Calendar as a reminder & maybe even a motivator for our Leader Members. Also, SPAAR has a new website, but for some reason I couldn't access it (nor MARS' site for that matter) to get the latest launch dates. The other TBAs really are TBA.

In our Members' Forum we have another excellent tip from Bob Ross (what will he think of next?!), another feel good story from Dr. Berman, and little comic relief again from Jack K. Further back is a cartoon courtesy of David Farley.

Additionally, Adrian updates us with an addendum to his Russian Space Coins article, and Ed Romani treats us to the first of a three-part product(s) review.

Finally, on the last page we have the revised, now official results from the December Contest. Points were recalculated for several of us. SoJARS still won, but with a little larger margin. Thanks again to Steve Flynn of GSSS for tallying and submitting all our results.

## **Launch Reports**

**January 27, 2002**

By Art Treiman

"Wow!" Is the thought of the day for this January launch. Unseasonably warm, sunny, and light winds made for a great day at the SoJARS field. Because it seems people looked more at the calendar (which said "winter") than at the spring-like conditions outside, turnout was light. That didn't stop those who came from flying 107 launches.



Paul Hoffmaster got into the act with two flights, highlighted by his Mk109. Adrian Liggins turned in 5 flights, highlighted by his beautiful Mercury Redstone and the two-stage Navahoe drag race with Art.

The Thomas clan turned in a 5 flight show, with Ethan's "Dive Bomber" on a D turning heads. Bob Ross's birds were as plentiful as they were beautiful. He made 7 flights, including a pair of beautiful V-2's

(in different paint schemes, yet!) and an E powered Terrier Sandhawk.

Russ Mozier took a break from kite flying and parachute building to fly a few (4), including his big red Super Bertha on a D. Another lucky 7 flights launcher was Phillip Blair, with his reliable Code Red turning in five of the flights!

John "Lavoiseir" Coles burned 10 motors this day, with all sorts of old 70's clones, orgininals (I think), Mars Landers, and the like. Not one to be left behind the times, his big six-foot Dude did its best impression of the Hindenberg, albeit without blowing up in the end. The Romano clan made an appearance as well as half a dozen flights, highlighted by dad Tony's Graduator on an E, Nicholas's Mini Marz Lander, and Robert's Astrocram (after 3 years we still are working on getting a picture!)



Steve Bastow was in for 9 flights, including a D powered Estes Ranger and SM3 Seahawk. Joe Libby continues to increase his AP to BP ratio, and today he demonstrated his Graduator on an E28, but didn't leave his old faithful Big Bertha out of the action, either. He totaled 6 flights.

Yours truly (Art Treiman) also got in 6 flights, including my rebuilt Venus Probe (for its first completely successful flight ever after about 3 crashes!) and the Navahoe drag race with Adrian. Randy DePasquale also flew six, including his impressive and now very stable X-51 scratch built very cool rocket! Danielle made an appearance with her Pipsqueak.

John Gramick flew five, including an Estes Executioner on the new E9-4 BP engine. Jack Komorowski also flew an Eliminator, but his most memorable flight of the day was his Mongoose on a D3-5 motor with a 7 second burn... it just kept going!!! Last I heard NORAD was tracking it.

Henry and Michael Rosenblatt flew a pair, highlighted by Michael's Alpha. The Energizer Bunny Award (for just keeping going) went to the

Abdur-Rasheed family. Insaf flew his Genesis 2000 8 times and Inqiyad flew his Recon 7 times! They just kept flying and flying and flying them!

Finally, Ed Romani made 9 flights, including a successful launch and recovery of his QCR competition helicopter bird.

## February 24, 2002

By Steve Bastow

Ok folks, here goes nothing! Since I held the launch cards captive so long in the equipment bag, I figured I should make a stab at a launch report as my penance. All compliments gratefully accepted because this is not a fun job! I now know just how much work Barry, Art, Jack, & sometimes Joe do to put this "simple" little report together. Before I start with the events of February 24<sup>th</sup> I am going to scold a good many of you on your launch card habits. A certain few of you may try to use your doctor titles as an excuse for your penmanship. Not gonna fly docs! The rest of you don't even have this excuse, so shame on you! I had an extremely hard time deciphering many of these launch cards with first names only, no motor description, no manufacturer, no rod size (very important detail for the RSO), or as simple a detail as your SoJARS number. Please don't take offense, but **this information has got to be filled in!** Period, end of discussion.

Now on to the fantastic flying day we had. For those of you who weren't there or couldn't spend all day, all I have to say is... Na Na Na Na Na! What a day! Clear blue skies & relatively no wind. Even the temperature was extraordinary for the end of February. By my count we had 19 paid flyers/families. The key word here was families. I mean the Barkoffs, Blairs, Bermans, Commanders, Kellers, Paullins, & last but not least the Triemans. My hat is off to all of these families who are encouraging their kids, cousins, and siblings to come out and fly with us. Keep it up folks!

After many final counts, I'm relatively sure of these numbers. We had 109 total flights, and a total of 115 motors were burned. I do not have the fingers to type out each person's flight results for the day, but I would like to hit on a few that stood out in my mind. I think one of the bigger deals of the day was Pete Commander Sr.'s Big Bertha Plus streaking off the pad with all three (3) C6-5's lit and burning brightly. I don't make all the launches, but I still don't think we've had a successful cluster of 3 motors go until now. Kudos to you Pete. Another of the day's spectacular flights was Barry Berman's (no longer a hanger queen) Farside Z. It Red, White, and "Blue" us all away. Oh and who can forget Jack

Komoroski's Modified mongoose. It lit the motor and burned, and burned, and burned, and when does this thing stop burning Jack? 6.8 seconds seems like an eternity compared to the Estes motors. A final note on these 3 aforementioned flights was that they were all recovered to fly another day.

As usual we had our showing of "master modelers" on this day. John Grammick, Tom Mitchell, Russ Mozier, Henry Rosenblatt, and Bob Ross. We also had a few new/old faces in this category too. Dan McGinnis' Bandit, Orbital Transport, and Interceptor clones were exceptionally finished. Sorry that only 2 of the 3 survived the day Dan. Ron Will flew some beauties like his Explorer Aquarius, Broadsword, and Jayhawk. It is a pleasure for me to do the RSO table when some of these classic birds of yesteryear are brought up to fly. I only wish I had the patience and time that you guys put into these great looking birds.



Speaking of the RSO table. We had 2 new participants on the table today. Both of whom were mentioned in the last paragraph. Russ Mozier got his first taste of the SoJARS hot seat. And not only did Bob Ross get his first chance as RSO, but he had time to win the LaVossier award for the month of February. Bob had 8 successful launches and still had time to do a stint at the RSO table! Beating Nick Mustaro and myself, who each had one less flight. What an accomplishment! Just goes to show it can be done guys and gals! Hint hint. We appreciate all of the new blood at the RSO table. This gives Art, Jack, and a select few of others who always end up there a break. Please give it a try. No one can do it any worse than I do! Trust me! Ok, multi-launch Jack and I that is. Sorry Jack! Thanks to all who participated in any fashion. Even if it was only to watch. This sport is so much more enjoyable when you can show off your successes, and yes failures, with friends!

## Members' Forum

### **Bob's Modeling Tips – 2002**

By Bob Ross

NAR 75320

Tripoli 7904

### **Smaller Internal Parachute Cavities**

Many of you have seen my Estes Atlas 109D rocket fly at our GCCC meets. This is the model of the Mercury-Atlas rocket that put John Glenn into NASA's first orbital flight 40 years ago on February 20, 1962. The Mercury capsule, Friendship 7, circled the earth three times and splashed down in the Atlantic a little less than five hours after liftoff.

During the January launch, I flew my Atlas on one of the new Estes E engines with very good results. What you have not witnessed is the numerous times in the past the rocket has free fallen to the ground. Due to the large body and low altitude D engine flights it hasn't received much damage, but it's still not something you like to have occur.

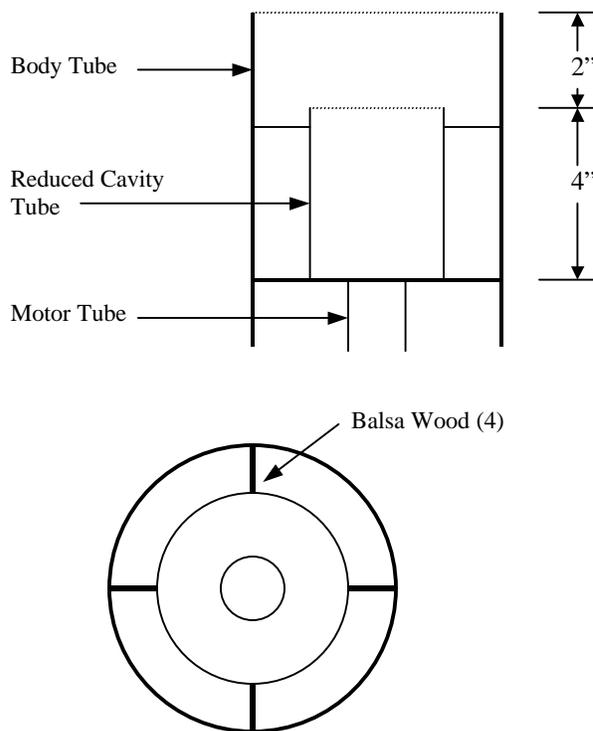
The reason for the free fall is due to three things: the separate chutes for the nosecone/capsule and the rocket body; the large 3.4" diameter of the rocket body; and the depth of the parachute cavity.

The separate chutes contribute to the problem by not having the nosecone pull the main chute out of the rocket. As we all know, on single chute rockets when the nosecone is ejected it pulls the chute out of the main body tube. On separate chute rockets, the nosecone pulls its own chute out and the ejection charge is left to force out the main body chute - sometimes.

Due to the Atlas model's large 3.4" diameter body and the 9.5" depth of the parachute cavity, the ejection charge occasionally goes around and bypasses the main parachute leaving it inside the body tube. I believe this is called parachute blow-by. Estes recommends putting balls of wadding in the motor tube to act as projectiles to help knock the chute out. Unfortunately, depending on the location of the chute in the tube, the wadding balls can easily miss. My recommendation for resolving this is to reduce the volume of the parachute cavity by making the parachute cavity not as deep and not as large in diameter. The combination of the two concentrates the ejection charge giving a much better chance of ejecting the parachute.

Although the following is for the Atlas model, the design is applicable to any large diameter rocket, i.e., the Estes Saturn V. Specifically, raise the upper centering ring so that it is 6" below the top of the

body tube. Note you will have to either get a longer motor tube or lengthen the one that comes with the kit. Then cut a 4" length of 2.5" diameter body tube and glue it to the upper centering ring centered within the main body. This inner tube must be at least 2" below the top of the body tube to allow room for the base of the nosecone/capsule. For extra strength, glue four pieces of 1/8" thick balsa wood rectangles between the inner tube and the main body tube. These should be equal distance around the circumference of the tubes.



Having "retrofitted" the above modifications to my Atlas, the rocket has not experienced a parachute blow-by in over a dozen flights. I still pack the three balls of wadding in the motor tube for the ballistic effect. This, coupled with the parachute closer to the top of the rocket and centered over the motor tube with less space around it, insures that when the ejection charge goes off, the parachute has no place to go but out the top.

That's it for this issue. As always, if you have any comments, questions, or suggestions, don't hesitate to contact me via e-mail, at the meetings, or at the launches.

## Penns Grove Young Astronauts Outreach Committee Report By Barry Berman

Just before the holidays, Beth Rastelli, a teacher at Carleton Elementary School in Penns Grove, contacted me for a SoJARS Outreach Committee visit to their Young Astronauts group. The Young Astronauts, consisting of 4th and 5th graders, had been experimenting with basic principles of rocketry, making soda-bottle water rockets and similar projects. One of Beth's students told her about SoJARS, so she contacted me to see what we could show the kids.

As we were making our plans, I suggested that Beth visit one of our SoJARS launches which she did along with a few members of her group. She reported later via e-mail how impressed she and the kids were.

On 30 January, the SoJARS Outreach Committee consisting of Jack Kamarowski, Steve Bastow and myself, made the first of what would be three visits to Penns Grove. In front of an enthusiastic audience of 25 or so students plus their parents, we discussed what rockets are, and how SoJARS flies them. We showed some of our rockets and motors to the group, and answered their questions. The kids were impressed by Jack's mid-power model, Steve's Super Vega, and my Barbie Flyer. At one point during the evening, I took the Barbie rocket into the audience and sat down with the kids, allowing them to get a closer look at it, and answered more of their questions about rockets.

The following Tuesday, 5 February, Steve Bastow and I returned to Penns Grove with 36 Estes Generic E2X rockets from M and G hobbies. With Steve directing the group from the stage, and me walking around the room making sure everyone got any assistance they needed, we helped 34 kids build their Generics.

As we wound up the evening, Steve and I were pleased to watch the kids customize their rockets using markers, poster paints, and stickers - both those brought from home and those supplied in the kit. This is why whenever I do a build session, I try to use The Estes Generic E2X. They are easy to build, and when we were done we had 34 unique rockets, which were no longer all the same. This may be a pediatrician thing, but I love to see the kids' individuality come through when they finish these things.

Saturday 9 February, Art Treiman, Mark Duerr, and I returned to Penns Grove to fly the Generics with the kids on the middle school field. Since the field was not very large - basically a football field

surrounded by a cinder running track - we opted for bulk packs of A8-3's as the safest alternative.

We set up our rack, and taped-off the launch area with caution tape. As Beth Rastelli signed the kids up at the prep table, Art helped them to load the motors, and pack the 'chutes. Then they walked over to me at the launch table, where I recorded their names, rockets and motors, assigned them a pad, and sent them one-by-one to Mark who installed the rockets on the launch rack.

After each rack was loaded, I had the kids announce their names over the microphone, and do the five-second count down. We used the "two-button" method, whereby each kid got to hold the remote launch button, however in order to launch the rocket, my button also needed to be pressed.

Despite a few shaky moments when dirty contacts slowed us down, or when yours truly forgot to disarm a pad and launched two at once, or one Young Astronaut who needed seemingly every part glued back onto her Estes Bandit before she could fly it (glad I brought my CA!), the afternoon went remarkably well. We launched 44 rockets in 2 hours. The kids and parents had fun, and so did we.

If you know of any school group, scout troop, or similar group that would like a visit from the SoJARS Outreach Committee, please contact me at doc4kidz@aol.com.

### **Russian Space Program Coins: Addendum, and a Warning**

By Adrian Liggins

Just when you think the collection is complete...

As an addendum to my article in the September/October 2001 Altitude!, here's one more (and as far as my research shows, the last) Russian circulating coin with reference to their space program.



Issued in 1977 to commemorate the 60<sup>th</sup> anniversary of the revolution, the obverse of this one rouble coin has Lenin (on a flag back-drop) presiding over an atom symbol, what looks like an ocean-going

liner and the space monument that appears on other Soviet coins. A half-wreath, the Soviet hammer and sickle and the years 1917 & 1977 complete the scene. The reverse shows the denomination of one rouble. About the size of an American half dollar, this coin is a striking silver-champagne color.

In response to the Soviet elite wishing to complete their coin collections, the national mint produced some "Novodels" – very collectable reissues. This particular coin can be found (in limited numbers) in proof condition: the rim of the coin reads "1988 H", for a 1988 Novodel ("H" is "N" in cyrillic). Market price, about \$5.

And so, to the warning...

Back in 1991, Baikonur Cosmodrome (the Russian launch site) released a commemorative medal for Yuri Gagarin's flight, thirty years earlier. What makes these items remarkable is that they are actually made of flown metal.



The obverse features a rather stern looking Gagarin in space helmet, while the reverse shows the Vostok 1 craft orbiting the Earth. The medal is the size of a US silver dollar and is an aluminum-silver in finish.

However, a large number of these were bought up by a dealer (or group of dealers) and new certificates of authenticity (COA) made up, claiming that the medal was made of metal from Vostok 1 (Gagarin's craft). While many of the medals with the correct COA (which makes no reference as to which craft the metal came from) appear for sale on the internet, the odd one with the fake COA also pops up from time to time (at a higher price, of course). The genuine article should cost less than \$10.

With thanks to Robert Pearlman, editor of "collectSPACE", a great source for information on space collectibles (<http://www.collectspace.com/>).

## Product Review

### **Making Your Own Decals: A Review of 3 Decal Paper Products Chapter 1 - Beldecal**

By Ed Romani

#### **Introduction to Graphics**

When making decals, a few things must be considered before printing them. First, is the image. Is it a scanned picture, a picture off the web, or an image that you made in a software program? Several types of images can be in a BMP, JPG, GIF, TIF, WMF, AI format. There are basically two types of graphics for printing; vector graphics and bitmap images. Understanding the difference between the two helps as you create, edit, and import artwork.

#### **Vector Graphics**

Drawing programs, such as Adobe Illustrator, create vector graphics, made of lines and curves defined by mathematical objects called vectors. Vectors describe graphics according to their geometric characteristics. For example, a bicycle tire in a vector graphic is made up of a mathematical definition of a circle drawn with a certain radius, set at a specific location, and filled with a specific color. You can move, resize, or change the color of the tire without losing the quality of the graphic. A vector graphic is resolution-independent - that is, it can be scaled to any size and printed on any output device at any resolution without losing its detail or clarity. As a result, vector graphics are the best choice for type (especially small type) and bold graphics that must retain crisp lines when scaled to various sizes - for example, logos.

#### **Bitmap Image**

Paint and image-editing software, such as Adobe Photoshop, generate bitmap images, also called raster images. The images use a grid (also known as a bitmap or raster) of small squares, known as pixels, to represent graphics. Each pixel in a bitmap image has a specific location and color value assigned to it. For example, a bicycle tire in a bitmap image is made up of a collection of pixels in that location, with each pixel part of a mosaic that gives the appearance of a tire. When working with bitmap images, you edit pixels rather than objects or shapes. Bitmap images are resolution dependent - that is, they represent a fixed number of pixels. As a result, they can appear jagged and lose detail if they are scaled on-screen or if they are printed at a higher resolution than they were created for.

I currently use both Photoshop and Illustrator. I convert image formats to TIF and use Illustrator as the final output program for printing a decal.

#### **Printers**

Next, of course is the printer. A good choice is a color laser printer, but they are still out of my price range. Another choice is an Epson inkjet. I own a HP 895 inkjet, which I don't recommend. The best choice is an ALPS thermal inkjet, currently made in England and very expensive - \$700+. The ALPS prints white. Very helpful in printing transparent decals. However, there are some decal papers that will give white on the decal, which I will explain later.

There are three decal paper products that I will review: Beldecal, Papilio, and JetCal.

#### **Beldecal Bel Inc., Miami FL.**

[www.beldecal.com](http://www.beldecal.com)

Ordering from Beldecal was quick and hassle-free. Currently the price for a "Try It Pack" which contains (5) White Inkjet Water-slide decal paper sheets of 8-1/2" x 11", (5) Clear Inkjet Water-slide decal paper sheets of 8-1/2" x 11", and (1) 6oz Krylon Spray Can for \$22.95+\$5 S&H. The sheets came in sealed Ziploc baggies and were not curled. Having flat sheets makes it easy to get them through the printer. The package came with easy instructions. There are a lot of helpful tips on the website, too.

I used the "Normal" print setting on my printer for the Water-Slide decal paper. The black print came out a little blotchy and colors like yellow, light green showed "barring", red was ok. It could be the HP printer. I sprayed 3 light coats of clear acrylic over the sheet after waiting about 15 minutes for the ink to dry. Then waited 1 hour for the acrylic to dry. Cut the decals with scissors and dipped in warm water. First thing I noticed were that some of colors were running after being wet. The ink was not properly dried. Humidity is a factor with paint and inks. Second and subsequent attempts, I let the printed decal paper dry for a day. And waited another day after spraying 3 light coats of clear acrylic. Dust can be another problem, making little bumps on your decal. This time the colors did not run when dipped. The slipped decals are fairly rugged. Not very brittle. On another attempt, I tried 2 coats of acrylic instead of 3, and achieved a more desirable, thinner decal. On one sheet of decals, I used an Xacto knife to cut, and it gave a ragged edge. Seems like the blade was actually ripping the decal. I recommend using scissors or a single edge blade to cut Beldecal paper. The paper is about 50-60 lb

weight. I printed a yellow decal and used it on a red rocket. Well, the decal turned orange because of its transparent color against a dark background.

The Clear Water-slide decals, with light colors, are best for a light colored background, like a white painted rocket. The White Water-slide decals are best for a dark colored background, but also have a cloudy transparency to them where any clear shows. It is not exactly a true white. The decal slid on easily and after a pat dry adhered very well. Pop any bubbles on the decal. After about 2 coats of clear-coat spray to the rocket, I lightly sanded the edges of the decal using 600 grit and then sprayed another coat.

### Some Thoughts

Not as good as commercial decals, getting "white" is a problem. White decal paper shows up on dark background as cloudy and outline of decal shows. Easy to use, but need a place to spray coat. Does not break easy. Try to print a full sheet, and remember to leave some space around decals to cut.

### ED'S SCORE: (5 being the best)

Website - 5

Ordering and Shipping - 5

Price - 4

Ease of Use - 4

Clear Water-Slide Decals - 4

White Water-Slide Decals - 3

*In the next issue of "Altitude" - Papilio decal paper.*

### A Little Tid-Bit Tip

By Steve Bastow

For those of you who use the simple Estes ignitors, I have a little trick for you to get good continuity connections at the pad. After you insert your ignitor and plug, take the free end of the wire and simply bend it back towards the paper again. I usually bend the right side back again to the right and vice versa. This will make your wire look like a "V" coming out of, and going back to the paper. Now when you attach the ignitor clip at the pad, let the clip grab both pieces of the wire. This gives you a stronger feeling connection, and you now have a better than average chance of keeping continuity. I have a few other failures with my rockets, but I almost never fail to light 'em up. If this description isn't good enough for you to get a mental picture, feel free to see me at the launches or meetings about it.

### Table Of Equivalents

Submitted by Jack Komoroski

1 millionth of a fish = 1 microfiche

Ratio of an igloo's circumference to its diameter = Eskimo Pi

2000 pounds of Chinese soup = Won Ton

Half of large intestine = 1 semicolon

1000 aches = 1 kilo hertz

1 million bicycles = 2 megacycles

2000 mockingbirds = two kilo mockingbirds

10 cards = 1 decacards

1 million microphones = 1 megaphone

### FYI

*Here's a nice little email I recently received...*

**From:** [QuickBurst](#)

**To:** [Joe Libby](#)

**Sent:** Sunday, March 03, 2002 1:48 PM

**Subject:** You Are The Winner!

Joe,

You were the winner in our website visitor contest. The Prize is one 18" Rocket Rack and a free pack of igniters (your choice). Please let me know which type of igniters you want and I'll get your winnings out in the mail.

Thank You.

David Bachelder

QuickBurst

Directed Energy Ignition Systems

[www.quickburst.net](http://www.quickburst.net)

*And for those of you who may not have received this email from Jack Komorowski, a reminder that our own Mike Rossbach does monthly launches with the Egg Harbor Township Police Athletic League. Email Jack for future dates...*

Hi All:

If you are interested, come on down to Egg Harbor High School this Sunday, weather permitting, for our launch. Mike Rossbach and the rest extend

the invitation, and I'll pass it on. We can fly up to "F" class here. Mike manages to get them to back too! Time is at 11:00am. The school is located off the Black Horse Pike on English Creek Road. At this light controlled intersection, take a right, and just follow the road until you see the school entrance on your left. Follow the road all the way back to the field. You'll see us there. We have a four pad controller, so if you'd like to bring your own pad for a mis-fire alley system set up, feel free to bring it. We'd like you to join us.  
Jack

## Meeting Minutes

**January 22, 2002**

By Art Treiman

### Present

A. Treiman, J. Libby, E. Romani, J. Powell, T. Mitchell, B. Jonas, S. Bsastow, R. Mozier, B. Berman, P. Menard, C. Taylor, P. Hoffmaster, D. Wright.

### Orders of Business

Meeting opened at 7:10 pm.  
Previous minutes were reviewed and approved.

### Treasury Report

John Coles was absent. Art reported on current bank balance of \$495. Reminder was made to all to pay renewal dues.

### Upcoming Launches

GCC was contacted to see if we can fly 1/27/02 and a reply is pending. Feb dates are the 17<sup>th</sup> with a tentative rain date the 24<sup>th</sup>.

### Range Ops Report & Launch Debriefing

None for this month yet.

### Newsletter

Joe Libby presented the printed version of the new newsletter. It is now all in full color and glossy! It looks great! Darren's cover article is a huge hit. Joe reminded us all what a service Drake, our printer, is doing for us... and free of charge! To thank him a gift was purchased for him and we all agreed to give him free membership to the club. Other discussion was entered about giving people the option to have the newsletter mailed to them at additional cost. Joe will examine the feasibility of this and present ideas at next meeting.

### Website Update

Paul Decrane continues to do a fine job. We will be taking Darren Wright up on his offer to host the site without banners.

### Model of the Month

Winner was Jesse Powell's semi-scale SR-71... a beautiful and large bird with a lathe-turned nose cone. Can't wait to see it fly and congratulations! Runner up was Barry Berman, who split his votes between his Barbie carrier and his two-stage, rear-vented scratch build.

### Rocket News

Aerotech has found a new site and is anticipating production soon.

### Field Search

Barry is pursuing two leads at present. As always, keep eyes and ears open for field possibilities.

### Outreach

Barry Berman is working on a project with "Young Astronauts" at a school nearby. Anticipated is an evening build/talk on 1/31 and a launch sometime shortly afterward. Details to follow.

### AIM reminder

Discussion of AOL Instant messenger. This is a free messaging software that we can all use to communicate in real time over the net. If you have a handle, get it to Art, if not... then get the software and get Art your handle.

### Competition

Continued enthusiasm for competition in the group led to a discussion to consider having two sanctioned events per year in the summer and the fall. We need theolodites and other equipment. To that end a Contest Committee was formally formed. Tom Mitchell will be it's head. Russ Mozier, Ed Romani, Chris Taylor, and Art Treiman all volunteered. We will also be trying to "volunteer" Bruce Canino. Goals of this committee will be to organize the two competitions and lead the program to build tracking theolodites so we can do altitude events.

### Hobby Show

The East Coast Hobby show in Ft. Washington is fast approaching. It will be late in March (the 23<sup>rd</sup> weekend?) and we will be having a booth. Hopefully it will be next to the MD/Del group. This was a tremendous success last year. A committee to coordinate our effort was formed with Barry Berman,

Art Treiman, Chris Taylor, Joe Libby, and Darren Wright. If anyone else wishes to be on this committee please contact Art.

### Elections

Votes were cast and tallied by votemaster Bob Jonas and ... no surprises here... winners were:

Art Treiman and Randy DePasquale - Co-Presidents

Barry Berman - Vice President

John Coles - Treasurer

Jack Komorowski - Director of Range Safety and Operations

As no one stepped forward to do the job of Secretary, it will be handled by the Presidents. This was decided because: a.) nobody volunteered, b.) nobody volunteered, and c.) the president is already running the meetings and managing the club database. Still, if anyone wants to volunteer to do this enjoyable and rewarding job, you would be welcome.

Congratulations to all our old and new club officers!

### Lecture

Business was ended and Darren Wright entertained and informed with the tale of his recent "O" motor project - Ranc"O"r. Darren designed and built the motor for this project. Ranc"O"r team flew a 145 lb rocket to 8500 feet. If this wasn't enough, the rocket's electronics provided real time downlink telemetry. The video of this was, needless to say, impressive. In case you missed it at the meeting, no need to worry... the Discovery Channel had a crew there and the flight will air sometime soon (we hope!) on either Discovery or TLC. To put a cap on the day, Darren also flew his Monster Maniac on a custom made M2600 motor (y'know, just a little something to take up free time). Of course, you can read all about it in the current issue of Altitude! And check out Darren's website at [www.dgmicro.com/opl](http://www.dgmicro.com/opl)

## **SoJARS Meeting Minutes - 2/24/02**

**Present: A. Treiman, J. Coles, R. DePasquale, P. DeCraene, J. Powell, R. Mozier, J. Libby, A. Liggins, S. Bastow, E. Romani, P. Hoffmaster, C. Taylor**

1. Open - A. Treiman at 7:10 pm.
2. Review and approve previous minutes.
3. Treasurers Report - J. Coles Total funds are \$602.
4. Future Launch Dates – Pending.
5. Launch and Failure debriefing - Another REALLY nice launch. Thanks to all who helped out at RSO Table. We need to continue to get full participation at this. Also plan to bring water to future launches due to drought conditions. Grass was really dry. Lengthy discussion was entertained regarding a procedure to ensure safety at the range and the need to "tighten" things up a bit. All agreed this was a good idea. Final consensus was that all rockets need to be presented to the RSO for approval, and RSO will inspect and question all who fly larger rockets, unproven designs, and unfamiliar people flying bigger rockets.
6. Newsletter - Joe Libby - Deadline in around one to 2 weeks for next issue.
7. Web update - Paul DeCrane... fine job on it by Paul. We are still waiting to see if we can get free server space courtesy of one of our members before we pay a full year contract with Prohosting to remove the banner ads. Paul's fix for the .pdf problem with the newsletters seems to be working.
8. Design of the Month Contest - Jesse Powell had the only entry (a fine rocket!) but will hold on to it till next month for some competition!
9. Rocket News: Aerotech explosion - production restarted, see the newsletter.
10. Update on field search - nothing new (we are in early contacts with a possible farm field for the fall/winter).
11. Outreach:
  - a. Young Astronauts debriefing - great time had by all, thanks Barry, Steve, Mark, Jack and Art.
  - b. Cub scout troop wants help April and May - a Deptford based troop of about 18 6 - 12 year olds needs help for a build session some Wednesday in April, to fly at our May launch.
12. Hobby Show 3/23 - 24. Coupons were passed out. Need @ 4 - 5 per day. Sign up in advance. Anyone w/ skills at Science Fair type display... nobody came forward so Art will give it a try.
13. Theodolites - Thanks Russ Mozier! We now have one completed and three on the assembly line courtesy of Russ Mozier. It looks great. We're in the big time now!
14. Contest Committee report - Sojars now has national level club points courtesy of member Ed Romani... and we are not even in last place! We should get a whole bunch more when the Open Skies points get tallied by NAR. We are planning an event in July. Anyone with requests for specific meet events contact Tom Mitchell.

Also, for interested flyers RAMTEC is a big competition event to be held in Allentown in June.

15. AIM reminder - last call to get your name to Art if you have an AIM handle. Everyone in the country can use AIM except Joe Libby due to a secret conspiracy at AOL. [*Ha, Ha, Ha – I really can't log on – JL*]
16. Joe Libby will be doing a shirt run, details to follow.
17. Mention was made of the Team America Rocketry Challenge. This is a high school level competition sponsored by NAR and a national aerospace business group with @ \$9000 in prize money. For details see NAR website. We will be available as “mentors” to high school groups if needed and my host a regional fly - off in the spring of 2003.
18. Mention was made to remind the group of the extensive support we've received and continue to receive from M & G Hobbies. They are good people, club members, and can get you anything in the model and mid - power range at excellent prices and have delivered it to our field in the past. The events of 9/11 and the poor economy have hit small time hobby stores hard and any support we can give them will definitely be appreciated.

Russ Mozier gave an excellent (but way too brief) presentation on parachutes. Russ is a kite flyer and rocketeer... the kite hobby has many applications to rocketry. At a future meeting we will give Russ the time he needs to do a parachute - building workshop. The 'chute kits Russ made for us all were much appreciated by all. Thanks Russ!

Adjourned at 9 pm.  
Minutes presented by Art Treiman.



Of course, we had a Silver Comet Drag Race...

## Photo Finish

Photos of the January 27, 2002, launch courtesy of Mr. Abdur-Rasheed, who traveled all the way from the far reaches of North Jersey with his family to fly with us...



Field repair of shock cord shred.



Teamwork helps in recovery.

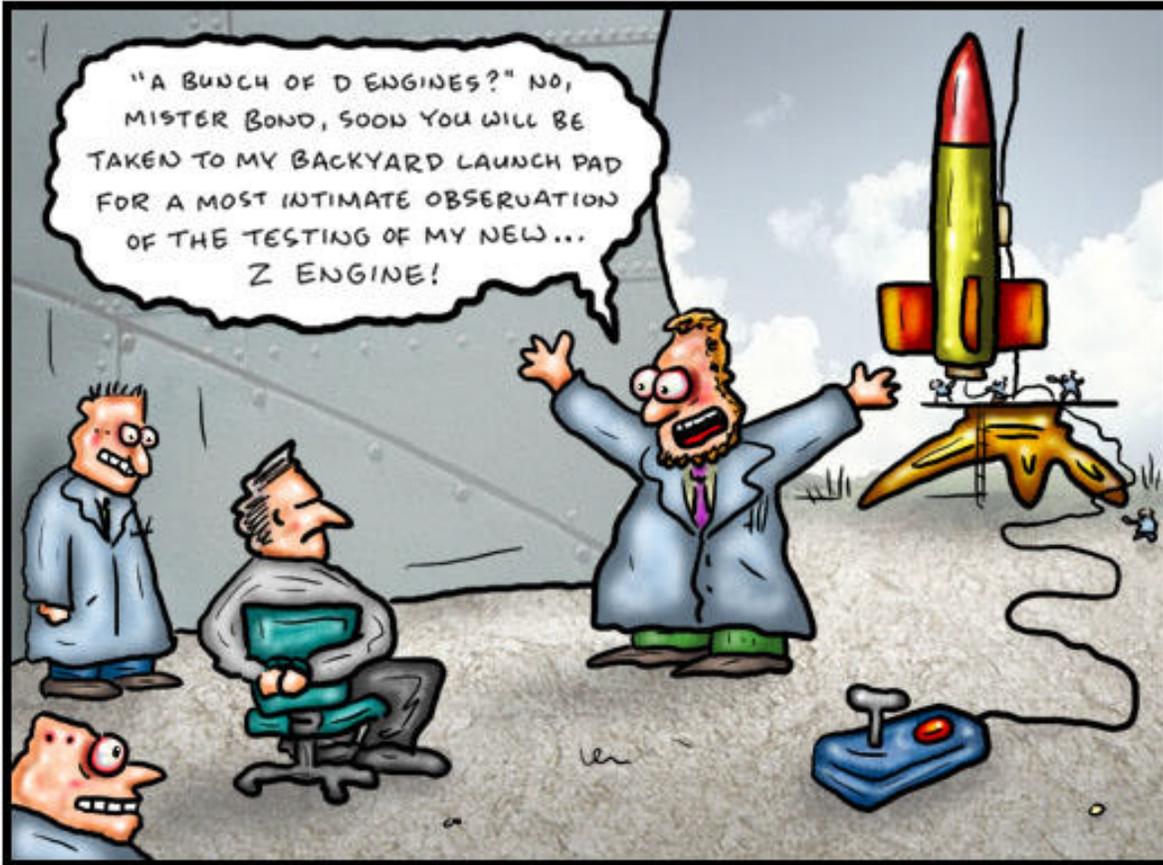


Reload removed intact from its casing, demonstrating the “anatomy” of an RMS motor.

*Cartoon reprinted with the kind permission of David Farley.*

## DOCTOR FUN

5 Mar 2002



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<http://ibiblio.org/Dave/drfun.html>

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Vern Estes returns to the big screen as James Bond's latest nemesis in the eponymous "Balsafinger".

SoJARS / GSSS Open Skies 2001 Meet  
 2 December 2001  
 \* Official Results \*

Places determined by NAR points. Divisions were combined where necessary. The letter before the name stands for the club affiliation:

G = GSSS S = SoJARS

Overall Place	Contestant	Events								NAR Pts					
		Str.Spot Meters	Place	1/2A Sec.	B/G Place	A Sec.	Str.Dur. Place	B Sec.	Str.Dur. Place		B HD Sec. Place				
A Division															
1st	G Daniel Flynn			DQ	A 23	1st	AB			DQ	AB	340			
2nd	G David Whitman	28.50		1st	A							80			
	S Billy Commander			DQ	A							0			
B Division															
1st	G Alex Bruccoleri	47.90	2nd	B 16	2nd	AB	NR	FP	All 237	1st	AB 12	2nd	All 700		
2nd	S Peter CommanderJr	13.99	1st	B									80		
C + Team Division															
1st	S Ed Romani				34	2nd	CT		DQ	All 47	2nd	CT 31	1st	All 732	
2nd	S Art Treiman	17.37	1st	CT 39	1st	CT			DQ	All 47	2nd	CT		DQ	All 528
3rd	S Joe Libby	30.34	3rd	CT			70	1st	All 124	1st	CT				364
4th	G Hyperspace Team	25.30	2nd	CT			42	2nd	All		DQ	CT		DQ	All 144
5th	S Barry Berman			DQ	CT		21	4th	All 34	3rd	CT				104
6th	S Tom Mitchell	50+		FP	CT		27	3rd	All						72
7th	G Theresa Flynn	34.04	4th	CT											16
	S Peter Commander			DQ	CT										0

Section Standings

SoJARS: 1st 1888 Points  
 GSSS: 2nd 1280 Points

Some Events were flown in combined divisions: CT = C division + T division  
 AB = A division + B division  
 All = All divisions combined