The COS-Rocketeer

The Official Journal of the Colorado Springs Rocket Society (COSROCS)

NAR Section #515

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Jeff Coons' X-G1 lifts-off during the Sky View October launch.
(Photo by Greg Elder)

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Space News: On October 23, 2001, NASA's Mars Odyssey space probe successfully entered an orbit around Mars. Odyssey's mission is to comprehensively map the red planet. It will also look for signs of water, ice, and hot lava under the surface of Mars. In addition, Odyssey will determine how deadly the radiation is on Mars. Two 1999 NASA Mars probes, the Climate Orbiter and the Polar Lander, failed in their missions to reach the red planet.

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The COS-Rocketeer is the official journal of the Colorado Springs Rocket Society (COSROCS), NAR section #515. This journal, published bi-monthly by members of COSROCS, serves to provide information on all aspects of rocketry. Articles, rocket plans, and photos are always welcome. Items for publication should be submitted to the editor:

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Material appearing in ***The COS-Rocketeer*** may be reprinted by *Sport Rocketry* magazine or other NAR section newsletters, as long as proper credit is given.

COSROCS' membership dues are $20.00 per year per family. Junior memberships (under age 18) cost $5.00 per year. Checks should be made payable to COSROCS. Applications and payment should be mailed to the following address:

COSROCS
P.O. Box 15896
Colorado Springs, CO 80935-5896

The COSROCS phone number is (719)575-0060

If you have access to the Internet, COSROCS has a web site and a listserv. The COSROCS web site is:
http://www.cosrocs.org.

The e-mail address for the listserv is cosrocs@yahoogroups.com. To subscribe to the listserv, go to http://www.yahoogroups.com to register and select COSROCS.

COSROCS is a family-oriented club. Everyone is always welcome at our launches and meetings. Please join us. You'll have a blast!

COSROCS received the NAR's LAC Award (Rockwell Trophy) in 2000 for having produced the best newsletter.

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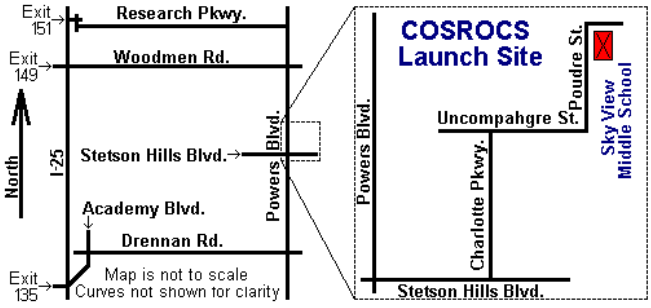
Launches and Meetings

COSROCS holds a business meeting on the second Wednesday of every month from 7:00PM until 9:00PM. The meeting location is the Gold Hills Police Station at 705 South Nevada Ave., Colorado Springs.

COSROCS holds a sport launch on the first Saturday of each month, weather permitting. The launch is held at the Sky View Middle School, located at 6350 Window Peak Blvd. in Colorado Springs. The launches begin at 9:00AM and last until approximately 12:00 noon. Our launches are free and open to the public. A one pound weight limit is imposed for rockets launched at Sky View.



COSROCS holds a sport launch on the third Saturday of each month at Cape Preble in Peyton, Colorado. The launches begin at 9:00AM. This launch site has a 3.3 pound weight limit for rockets. To get to this launch site, head east on Hwy 24 towards Peyton. Turn left right after the grocery store. After the curve, bear right onto Peyton Hwy. Drive to Sweet Road, 4th turn on the right. Go approx 1.5 miles on Sweet road. On the left, near the bottom of the hill, is a gate to the launch site (21410 Sweet Road). Look for the green ranch gate (Star Gate).

The Nagging Editor

By Greg Elder

A lot can happen between issues of this newsletter. Since the last issue, we've had the tragic events of 9-11. For a brief while, high power launches, FAA waivers and notifications were not allowed. Recently, these restrictions have been lifted. Our hobby suffered another serious incident, however, with the fire at Aerotech in Las Vegas. Aerotech manufactures most of the mid and high power rocket motors used in our hobby. Aerotech will rebuild but it may be some time before they are in full production again.

With these recent events in mind, it is more important than ever that we present our hobby in a favorable light to the public. Please always follow the safety code. When given the opportunity, educate the public concerning the safety record of model rocketry and the educational aspects of the hobby. This is one way in which we can pay forward so that future generations of people can enjoy the hobby of rocketry.

The President Speaks!

By Neil Kinney

All,

Well, this will be my first-ever published letter "from the President" to be included in the newsletter. This also marks the last letter "from the President" that I will write for the newsletter.

I am sad to say that I will not be running for the position of President, for the coming year. After much thought, I have come to the conclusion that it is probably best if somebody else takes over the direction of the club. It seems of late, I haven't had much opportunity to attend club launches, or give the management of the club, the proper amount of time it deserves. Additionally, I feel that by stepping down as President, it will give another club member the chance to enjoy the experience of running the club. I feel my time as President has enriched my life and my experience of the hobby.

I have enjoyed being the president for the past 3 years, and would highly recommend the position to anyone that wishes to seek the office. I feel that any member of our club would make an excellent President and this is a rarity in most large clubs. I am just stepping down as President, NOT stepping out of the club or the hobby. I will still attend as many launches as I can, and every meeting that I can. Over the past years that I have been involved in the club I have made many friends and I have enjoyed the company of all of the members. It is my plan to run for vice-president next year, as I feel this is a position that I am well suited for and I can still help out with the direction of the club when needed. I will continue in my efforts to promote rocketry in general, and high-powered rocketry, specifically to this club.

So, this isn't a sad thing or a mad thing..... it's just that, ...a thing. I will still see you all at the field and at the meetings and other rocket events.

It's been fun. Take care.

Neil Kinney

President, COSROCS

PS. This letter, "from the President" thing is pretty easy Greg!! I should have done it earlier and more often than just once!! I look forward to seeing you all and flying rockets for MANY, MANY years to come!!! Who knows, maybe I will throw my hat into the ring again and run for President some time in the future....???

Section News

Christmas Party/Elections. The annual COSROCS Christmas party is tentatively scheduled for 12 December at a yet to be determined location. Our Christmas parties have always been lots of fun. Elections for COSROCS officers for 2002 will be held at the party. Inform Neil or another current club officer if you are interested in running for a position. Complete details about the party will be posted to the COSROCS listserv and discussed at the November meeting.

Bomarc Raffle. Bruce Faling has generously donated an NCR Bomarc kit to the club. These kits are now out-of-production and are considered collector's items by many. To raise additional funds for the club, we will hold a raffle for this kit. Raffle tickets will cost $5 each. Tickets can be purchased at club launches and meetings. The drawing will be held during the Christmas party. You need not be present to win. Thanks Bruce!

Discount at Hobby Town. Did you know that as a COSROCS member you can get a 10% discount on rocketry purchases at the Hobby Town located at The Citadel Crossing? This has been one of our benefits. You need to show you club card or another form of ID so the store can compare your name to the membership list. New membership cards will be out soon, as well as a new membership list to be sent to Hobby Town. Stay tuned to the listserv for more information.

Sky Sox Demonstration Launch—8/24/2001

By Mark James

Once again, COSROCS was invited to do a demonstration launch during Sci-Fi Alien Night at the Sky Sox Stadium, home to the farm team for the Denver Rockies. This year's launch was a complete turnaround from last year's rainout. Even the wind cooperated, with hardly a breeze at launch time. There was a huge turnout for the game, which the Sky Sox lost 20 to 8. The crowd slowly dwindled as it became apparent there was no hope for a victory. This was disappointing to our club, because not everyone stayed for the launch. The up side to the slow trickle of departing fans was that many had time for a leisurely stop at the COSROCS booth on the way out.

As soon as the game ended, club members scrambled out onto the field and set up the launch system near 3rd base. This was an evening game, so the skies were dark, but the field was brightly lit by the stadium lights. The calm winds meant most flights were recovered on the field. 10 flights were made.

Lamp Shade on D12-0 by Dave Virga
Estes SideWinder on C6-3 by Brian Thayer
Estes Fire Flash on B4-4 by Dawn Holland
Quest Nike-K on B4-4 by Dawn Holland
Estes Exo-Skel on C5-3 by Alex Virga
Estes Snitch on B6-0 by Alex Virga
Lamp Shade on F24-7 by Dave Virga
Aerotech Barracuda on E30-4 by Mark James
Night Flyer w/Strobe on E15-4 by James Hitchens
Estes The Dude on D12-3 by Dave Virga

The Lamp Shade was built from plans in a recent Sport Rocketry. It is a flying saucer style model similar to the Estes Snitch. The sparks thrown out the front end of the D12-0 at motor burnout were bright against the night sky. The second flight was more dramatic as it sat on the pad chuffing for what seemed like an

eternity, before finally lifting off for a good flight. The chute on the main body of the Sidewinder tangled and it came down in a backward glide toward the sparsely occupied stands behind 3rd base. A spectator stood up and deftly caught it as it passed overhead. Not exactly what we would have preferred, but what else do you expect in a baseball stadium? He got a cheer from the rest of the crowd for his effort. With everyone's eyes on "the catch", no one saw exactly where the nose section came down and it was lost in the bushes beside left field. The Barracuda left the pad in a big hurry and touched down under chute near home plate to the delight of the crowd. James's scratch-built Night Flyer was designed for this type of launch and has a strobe light inside the nose cone, making it easily visible against the night sky as it's returning under chute. The final flight of the day was a new rocket from Estes called "The Dude". It's a 4-inch diameter, 7-foot tall rocket that has a silver balloon for the main body. This is an excellent rocket for this type of event because of its huge size, light weight and low altitude. The crowd loved it of course.

There were other club members present that didn't fly rockets, but helped with the booth and launch equipment setup/teardown. Thanks to all for your help in making this event a success.

Winterfest XI Events Announced!

By David J. Nauer

Contest Director Greg Elder has announced the planned upcoming events for COSROCS' next contest—Winterfest XI. This year Winterfest will be an Open contest with five NAR sanctioned events. Note that Apogee 10.5mm motors lost their contest certification as of January 1st, 2002, so all of the 1/4A events must fly Estes 13mm 1/4A motors only. The contest is scheduled for January 5th, 2002, the first Saturday of the month. We plan to fly at Sky View Middle School and will limit all flights to one pound or less. Backup dates are January 19th at Preble's, and February 2nd at Sky View.

These events offer the beginner a chance to compete with the big guys, and should present interesting options now that the 10.5mm motors cannot be used. Greg Elder published some links on the COSROCS e-mail list that I will restate below. You can go to the NAR web site, to access the Pink Book to read about the rules for these events. Here is a link to the Pink Book: http://www.nar.org/pinkbook/ where all of the sanctioned rules are listed.

Some links to companies that sell competition kits are listed below. However, you can easily scratch build rockets for these events, or use some of the products from Estes, Quest, or Custom. Apogee Components is located in our city and is run by Tim Van Milligan, a club member. The Apogee Component's web site can be found at http://www.apogeerockets.com. Other company web sites include:

http://www.asp-rocketry.com/compkits.html
http://www.cybertravelog.com/qcr/
http://www.pratthobbies.com/pnc.html

Of the five events scheduled for this contest, two have relatively high difficulty factors, which should be focused on – undoubtedly the contest champions will be successful with a placement in one or both of these events. SuperROC duration is a mid-difficulty event, and with 13mm motor, there should be a lot of competition in this event. Spot landing, as always, should be fun and interesting.

Open Spot Landing (WF 4)

This event is limited to single stage rockets that remain in a single attached rocket throughout flight. Any form of recovery can be used (provided it is safe), and any motor(s) can be used (provided they are certified). The goal is to land your rocket as close as possible to a designated point, closest qualifying flight winning the event! There are a variety of strategies for this event, but you must come prepared for potentially close or far designated landing zones, so it may not be as easy as you think! Only a single attempt can be made in this event, and this must be the first flight of the rocket and engine combination for the day.

1/4A Boost Glider Duration (WF 18)

This event represents the most difficult in this contest – but there are some very easy to build rockets that can fly competitively in this event. The most obvious choice is the "Deltie", which is available from Apogee Components locally. Others from QCR and various other manufacturers have varying degrees of difficulty. The only motor choice for this event is the Estes 1/4A3-3T, although theoretically a micro-max or micro-max cluster could qualify! The rocket is allowed to separate into multiple pieces, but all must be recovered safely (and per Pink Book rules, an ejected motor casing is never safe in and of itself!). Only the gliding portion of the entry is timed, and the glider must perform a glide at some point in its recovery phase. Although staging is allowed in boost glider duration events, it is difficult to see how that would be possible with a ¼ impulse. Also note that "flexi" gliders are not allowed in this event—those are gliders with flexible materials such as plastic or cloth—but rocket gliders (gliding rockets which stay together in a single piece throughout flight) will qualify.

Two flights are allowed, and the glider must be returned on at least one of the two flights to place. Note that flights that do not glide due to red barons or other failures will be disqualified, although a red baron (the pod remains attached to the boost glider) where, in the opinion of the Contest Director, the glider actually glides will be qualified and receive a full score. The highest TOTAL of the two flights added together will determine the winner.

B Eggloft Duration (WF 17)

This event is actually considered more difficult than "C" Eggloft Duration due to the low impulse and weight of the rocket. The competitor must obtain an egg from the contest director and fly it without breaking or cracking it. A qualified flight must be returned unopened and then be opened in the presence of the contest director to demonstrate the egg remained intact. The longest duration of a single flight with a successfully recovered egg will be the winner. Note that each competitor can attempt two flights, but only the single best flight will count.

Some side notes include that all flights which qualify must be returned for removal of the egg, the rocket must remain in a single piece throughout flight, and that the entry cannot be caught and must be allowed to land on the ground under the designed recovery method.

1/4A SuperROC Duration (WF 13)

Because of the low impulse of this event, these rockets are anything but "super rockets" – they are actually quite short. The rocket must be between 25cm and 50cm in length, although you can enter a longer rocket, you just won't get any credit for the extra length and weight. The rocket is flown and must remain in a single piece (no ejected motors or separation of pieces is allowed). The duration of the flight in seconds is multiplied by the length of the rocket in centimeters to obtain a score for the single flight. Two flights are allowed, and the results are added together to determine a

winner. At least one of the two flights must be returned to qualify. Entries with bodies or significant structural parts made from hard or potentially unsafe material (e.g., hardwood doweling or fiberglass shaft) shall not be allowed. An entry that comes apart, bends so as to crimp the body, or has a similar structural failure prior to ejection shall be disqualified.

1/4A Streamer Duration (WF 8)

Other than Spot Landing, Streamer Duration is considered the easiest of the contest events flown at Winterfest XI. This is strange, because it is very common for this event to even exceed egg lofting for the total number of disqualifications. The rules appear easy – fly a single stage model rocket with streamer recovery for the longest duration possible, and recover that rocket in a single piece with the recovery system and motor intact. Put simply, reliability and high performance are the goal, and reliability often takes a back seat to getting that one highflying, long duration streamer flight.

Note that the rules for the streamer itself are extensive, but essentially an appropriately sized flexible material attached at the end will suffice. Per the Pink Book, "a streamer is defined for this event as a piece of cloth, plastic film, or paper, whose shape is approximately rectangular. The streamer must have a length- to-width ratio of five to one (5:1) or greater and have a minimum area of 100 square centimeters. The streamer and model must be connected by only a single line or cord, attached at the narrow end of the streamer. The cord may not be connected to either the streamer or the model at more than one point (e.g., no yokes are permitted). The streamer may not be cut, slit, or otherwise altered in such a manner as to affect its nature as a simple connected plane" (Whew!).

Each contestant gets two flights, and the results of all qualified flights are added together for the winning duration. One of the two flights must be returned.

Other Considerations

Since we are flying in the middle of the winter at 6,700 feet you must come prepared to survive the elements. In particular, layered clothing, plenty of water, sunscreen (!!!), and protection from the elements are a must. Your contest strategy must also consider the possibility of cold weather, windy conditions, snow on the ground, and other wintry concerns. I hope you consider coming out and giving it a try. It can be a challenge to build the best you can, and compete with the best in the country!

September Sky View Launch

By Greg Elder

Our September launch at Sky View Middle School turned out to be a "potluck" affair—but with launch equipment rather than food. Due to logistical problems, the club's launch system never arrived. However, various COSROCS members had enough items with them to carry out a launch. I had an Aerotech launch controller in the trunk of my car. Jeff Proffitt had a 12-volt power supply (one of those portable units used to jump-start cars). Dave Nauer had an Estes port-a-pad but no launch rods. Fortunately, Jeff lives near Sky View. He went home and returned with 1/8" and 3/16" launch rods. Once we had the single launch pad set-up, we launched quite a few rockets. (In one sense, the launches seemed to go smoother than when we use the club's 12-pad launch rack. As soon as one rocket launched, another was ready to go on the pad. No waiting until we had a full rack to launch rockets.)

Several visitors attended this launch. Most of the new people had seen our rocket display and demonstration launch at the Sky Sox baseball game in August. They came to see more of what our club is about and to launch rockets themselves.

We had some interesting flights. Dave Nauer was first off the pad with his classic Transtar Carrier. I flew the Fat Cat Rocket's Galactic Marauder for a great flight this time. (As you may recall from the previous COS-Rocketeer, this rocket flew very unstable. After contacting the company, I have added weight to the nose to move the CG forward. The Marauder now flies great.) Joe Miller flew an Estes Phoenix on an Apogee E6 motor. Not a good motor selection—the rocket went horizontal after leaving the launch rod and appeared to impact the ground before ejection. Due to the low-thrust nature of the E6 motor, a much longer launch rod is needed. Dave Sannerud launched another cloned Estes classic, an Eagle boost glider—very nice launch and glide. Here is a complete list of flights from the day:

Name	Rocket	Motor
David Nauer	Transtar Carrier	B6-4
Jeff Proffitt	BNC Viper	A3-4T
Greg Elder	Styro-F.O. 3D	3XD12-3
David Nauer	Transtar Carrier	C6-5
Jimmy Miller	Big Dawg	B6-4
Jeff Proffitt	SR-71	C6-5
Jenny Miller	Rocket	C6-5
Jeff Proffitt	Alpha III	A8-3
David Nauer	Scorpion	A8-3
Greg Elder	Galactic Marauder	D12-3
Joseph Miller	Phoenix	D12-3
Jeff Proffitt	Photon Disrupter II	C6-5
Greg Elder	Mini Marz Lander	A10-3T
David Nauer	Scorpion	B6-0/A8-5
Jimmy Miller	Prowler	C6-5
Tom Dembowski	Quicksilver	C6-5
Jeff Proffitt	Meanie	1/2A3-2T
Jenny Miller	Star Wars	B6-4
Grant Johnson	Wizard	A8-3
Jeff Proffitt	Meanie	1/2A3-4T
Dave Sannerud	Serval	B6-4
David Nauer	Area 51 UFO	B6-0
Tom Dembowski	SPEV	A8-3
Dave Sannerud	Gemini DC	B4-4
Jeff Proffitt	BNC Viper	1/2A3-2T
Grant Johnson	Viper	A8-3
Joe Miller	Phoenix	E6-4
Tom Dembowski	Iris	B6-4
Dave Sannerud	Fat Boy	C6-5
Grant Johnson	AMRAAM	B6-2
Dave Sannerud	Eagle	1/2A6-2
Grant Johnson	Viper	A8-3
Joe Miller	Prowler	D10-7

This Old Rocket, Part 1

By Tom Dembowski

This is the first of a series (hopefully) of articles reviewing some of the old classic Estes kits many of us grew up with (well, us old baby boomers anyway) and may still have on that basement shelf. As much as our illustrious editor would like me to prolong this series so he can fill the newsletter every issue, I'm not going to go over every kit because a) you'd just get bored by kit #10 and b) I don't have em all. The good news is thanks to at least one manufacturer; you can actually build some of these kits today (the balsa nose cones usually being the hardest pieces to come by). Others have upscaled their favorite kits to take mid or high power motors (the upscale Sprite is an excellent example). Well, enough of the prelim stuff, let's get to it.

One of my favorite boost glide kits is the Astron Space Plane. It is unique in that unlike most of the traditional boost gliders of the day; the Space Plane placed the engine in the rear of the rocket much like most other kits. The Space Plane used a unique system whereby the engine ejected and free fell to earth (a common practice at the time) and this activated elevators on the rear of the wing. So how did it fly straight up you may ask. The small balsa tabs on the edge of the vertical stabilizers actually spun it on the way up. Of course, you needed to set one elevator much higher than the other to compensate for this in the glide phase after ejection. The body tube was a BT-30, unavailable today. It was a parallel wound thick tube, which had an inside diameter about the size of a BT-20 but much thicker wall. (Estes also had a BT-40 tube at one time very similar to the BT-30. I was actually able to buy some of these in the early 70s, along with some nose cones and parts). But, back to our story. The glider even had a small payload section, which could make trimming the glider a challenge if anything heavy was inserted. After all this, the system actually worked. I had some fine flights with it over the years. The trick is finding a low impulse engine (the A5s used to work great). I find the mini A3s are good (and will allow you to put some sort of recovery system on the engine pod), the smaller the delay the better (A3-2Ts). This is a kit you can approximate today, using a BT-20 (though not as sturdy) and tracking down the appropriate balsa cone.

Two favorite kits of the day were cluster models (remember, there were no high power motors back then but more engines the better). The Ranger and Cobra were typical of the time—very sturdy kits that could withstand a lot of punishment and be ready to launch over and over. They featured thick balsa fins and both had payload sections. As it was a freebie kit with my Estes mail order, I modified my Cobra to use the new (at the time) 'D' engines. Over the years this rocket has flown dozens of times at our launches. The Ranger was another crowd pleaser—it could fly very high on a cluster of 3 Cs. So high in fact, I almost lost it at NARAM last year. It landed miles away. If you want reasonable sized cluster kits that can take a lot of abuse, you can't go wrong with either of these. I do suggest buying balsa nose cones if you build them to add that touch of authenticity.

If multi-staging is your thing, the Astron Farside is a classic. Built around the BT-50 tube, there were actually two models for sale in the 60s. The regular Farside had a payload section the same diameter as the booster. The Farside-X model had an expanded BT-60 payload section. I even launched my Camroc (see below) on this vehicle to get some real high altitude shots. My favorite engine (at least in the first stage) was the old B14-0. It would get the vehicle off the pad in a hurry so then the second and third stages could take over and propel it to unbelievable heights. Definitely for very calm days only!

The CAMROC was Estes' first camera made to ride on a model rocket. It was a rather simple system. You took one black and white picture on a round disk piece of film per launch. One section of the CAMROC held the film disk, to prep for launch you needed to remove the metal slide from the forward end of the canister. To reload, you needed either a quick trip back to the darkroom to swap out film disks in the canister or come with extras. The two stage Delta launch vehicle (which looked a lot like the top two stages of the Farside) was the recommended launch vehicle although there were plans in the Model Rocket News for a "CAMROC Carrier" single stage vehicle which worked quite well. Even thought the system was quite primitive by today's standards, I actually had more luck with that system than the current Astrocam (just can't handle modern technology I guess).

Scale models were very big back then. We were in the middle of the "space race" with the Ruskies, so every new system was rushed out there to eager masses of rocketeers. Two kits, which no longer exist (although they were reissued in very different form than these originals), were the Little Joe II and the Gemini-Titan II. Both used the BT-70 tube and were very unique kits. The Little Joe II wasn't a large rocket but it was a challenge to build. The fins had to be pieced together from very small wedges of balsa covered with a folded paper fin template. The tube had corrugated wraps to simulate the skin on the real vehicle. The real challenge though, was the Apollo nose cone, which was a separate kit also, used in the Saturn 1B model. Nowadays, you merely glue together the molded plastic escape tower on kits like the current Mercury Redstone. Not so easy here, you actually had to build the tower piece by piece using very small wood dowels in a jig (and align it just right). It really was tough to build and murder on your eyesight. Once it was done, you still had the challenge of finishing it just right to cover up the fact you have several different materials (paper, body tubes, balsa and wraps) to paint. This kit in its original form went out of production in 1971. There was a reissue in the 80s based on a BT-55 using mini engines which is actually a nice kit but nowhere near as challenging as the original.

Another classic scale model, which was also downsized from a BT-70 to a BT-55 in the 80s, is the Gemini Titan II. The original 60s model had a very difficult engine mounting which reflected the actual vehicle's twin motors. Both engine tubes were slightly angled outward (the mounting rings did this for you). Those small diameter dowels made another appearance in this kit, simulating the fuel and oxidizer lines of the vehicle. The nose cone was unique too, modeled after the real Gemini capsule (a shroud took the tube size down from a BT-70 to a BT-60, which the cone fit). The model used something, which was common in those days, clear plastic fins. They weren't molded for you though. You had to wrap one sheet around the body tube and glue it together with plastic cement (but not to the body tube so you could remove it for display). Then glue the four clear plastic fins (which you cut out just like balsa ones from a sheet) to the wrap. This was not an easy thing to do. It usually took a lot of patience and care not to smear the glue all over the fins to get it right. I have launched this model at our COSROCS launches in the past. It makes for quite the spectacular liftoff with the two engines. It too was deleted in the early 70s.

Well, that's going to do it for this time on "This Old Rocket". Next time, I'll review some more old classics like the Thor Agena B and the Nighthawk. Until then, get out those old 1969 catalogs and think of all the rockets we could have had then with just the change we carry around in our pockets these days.

Styro-F.O. 3D

By Greg Elder

What could be better than launching a flying saucer? How about launching a flying saucer that uses a cluster of three D motors? The latest kit from Joseph Peklicz, the Styro-F.O. 3D, is just such a model rocket. You'll see plenty of smoke when one of these saucers takes to the skies.

This simple kit comes with one page of illustrated instructions. Though the instructions are fairly minimal, the diagrams are easy to follow as far as construction is concerned. If you have built a model rocket before, you shouldn't have any trouble with the Styro-F.O 3D.

As with Joseph's other flying saucers, the body consists of styrofoam plates and bowls. Most of the construction of the kit has already been done for you—appropriate holes have been precisely cut in the plates, and the plates and bowls have been glued together. (I don't think I could do as precise a job myself.) The only assembly required is for the motor mount.

The main part of the motor mount consists of three BT-50 motor tubes glued together in a triangular manner (two tubes glued side-by-side and the third tube glued to the top of these two). Balsa fin struts are glued in between where the tubes are glued together. For better alignment, the root edge of each strut should be beveled. Motor blocks are glued into the top of each motor tube. At the top of the motor mount, where the three tubes are glued together, is a small gap. A short wooden dowel is glued into the gap, such that the dowel extends 3/4" past the top of the motor tubes. (The Styro-F.O. 3D returns from flight with the top pointing down. The dowel should take the brunt of the impact upon recovery, preventing the top of the saucer from being crushed.) The last piece to add to the motor mount is a 3/16" diameter launch lug. It is glued between a fin strut and motor tube.

Once the motor mount assembly has dried, it can be glued into the body of the saucer. I used 5-minute epoxy for this. I left my Styro-F.O. 3D unpainted. If you do paint yours, be careful with the paint you use as some products will melt styrofoam. Joseph recommends using Testors spray paint. In any case, it is a good idea to test the paint on a small piece of styrofoam first.

I launched my Styro-F.O. 3D with three D12-5 motors. The instructions state that you should stand off the model half way up the launch rod. I forgot to do this and had my model only about an inch from the blast deflector. The result is that the hot gases from the motors reflect up from the blast deflector and will warp the bottom of the saucer. (That's what happened to my Styro-F.O. 3D.) Except for that, the actual launch was great. The cluster of three motors provides for a spectacular sight—lots of smoke circling from the back of the flying saucer as it ascends. My rocket landed in a parking lot and the dowel at the top broke off. That is easily fixed.

I have a couple of ideas that I will try on the next Styro-F.O. 3D I build. First, I will coat the bottom of the saucer with epoxy to protect it from heat. (In case I again forget to place the model half way up the launch rod.) Secondly, I may build the motor mount with BT-55 tubes. Then, I can make motor units from BT-50 tubes and centering rings that will allow the motor units to slide into the BT-55 tubes. I could then attach streamers to the motor units and have those ejected after flight. In this manner, the styrofoam saucer will recover more gently without the additional weight of three motor casings.

If you enjoy unusual rockets, you should love the Styro-F.O. 3D. The kit sells for $15.00, plus $4.50 postage. The price is on the high side; however, the kits are produced by a one-man operation, single handedly making each kit. Joseph can mail three kits in one box for the same shipping price. The Styro-F.O. 3D may be ordered from:

Joseph Peklicz
635 S. Zane Highway
Martins Ferry, OH 43935-1236

High Flight—Joint COSROCS/CSAS Event

By Greg Elder and Warren Layfield

On 6 October, COSROCS and the Colorado Springs Astronomical Society (CSAS) held their first ever joint activity. Organized by Frank Bittinger (COSROCS and CSAS member) and Mike Frazier (CSAS member), the event, called High Flight, consisted of flying rockets, a barbecue cookout, and viewing of the stars through some very large telescopes.

The day started for COSROCS members at 9:00AM at Sky View Middle School. The 6th was a regular launch day at Sky View. We did not want to cancel this launch since we have had many new visitors attending our launches lately, and they would be unaware of the special activity later in the day. We did have some visitors at this launch and we flew about 30 rockets.

The High Flight event started around 3 PM at Cape Preble in Peyton, Colorado. Members of COSROCS and CSAS were present to fly rockets. A wide range of rockets and motors were flown—from 1/2A's to G40's. Nathan Coit brought a huge box of rockets and motors with him that he gave away at the launch. Nathan had bought these from Dave Thompson, a former COSROCS member, who has left the hobby of rocketry. Thanks to Nathan's generosity, many CSAS members and other people without their own rockets had an opportunity to launch something. Thanks Nathan!

Around 5:30 PM we closed the launch range and headed over to the Preble's home for a cookout. There were plenty of hamburgers, hot dogs, and side dishes to munch on, not to mention cookies and pies for dessert. CSAS and COSROCS members mingled with one another and learned about each other's clubs.

Once we had filled our bellies and the skies began to get dark, we headed back to the launch range for a few night launches. Chris Earley (CSAS President) and his son launched a Phoenix missile on a dual cluster of D12 motors. This was really a spectacular sight at night. Unfortunately, we lost the rocket during recovery. (I believe Chris found it the next day, during daylight hours.) Dave Virga launched his Flying Lampshade. Another great launch, with successful recovery. Greg Elder flew his Tri-F-O on a C6-0 motor. Even though this rocket does not go very high, it also was lost. (It was found the next day too, however.) The best night launch was Nathan Coit's scratch-built rocket that used a flashing beacon for a nose cone. After parachute deployment, we could easily see the rocket return—it looked like a blinking star slowing falling to earth.

At the conclusion of the night launches, we headed back near the Preble's home where CSAS members had set-up their telescopes. We had a great evening viewing the stars through some fabulous telescopes—the sizes ranged from 16" and 12.5" reflectors, to an 11" Celestron Schmidt-Cassegrain, to a 4.5" reflector, and other size telescopes in-between. We viewed such celestial objects as the Andromeda galaxy, the great globular cluster in Hercules, the Ring nebula in Lyra, the Swan nebula, and various other star clusters and nebula. Some of us even saw a brilliant, green falling star. (No, it was not a rocket. The launch range had been closed.)

All-in-all, those that attended High Flight had a wonderful time. I heard some children of CSAS members expressing a desire to launch rockets again some time. (Hey, if you are reading this, be the first person to contact me, The Nagging Editor, and I will give you a free rocket.) And, some COSROCS members have mentioned joining CSAS. This was a great event. The weather cooperated for everyone—for flying rockets and observing the heavens.

A tip of the hat and many thank you's to Frank Bittinger and Mike Frazier for organizing this event. Also, many thank you's once again to the Preble family for allowing us the use of their property. Hopefully, we can hold a High Flight 2 next year.

Sky View Middle School Oct. 6th Launches

Name	Rocket	Motor
Dawn Holland	Nike – K	B6-4
Greg Elder	Tri-F-O	B6-0
Tom Dembowski	Heatseeker	B6-4
Dave Virga	Snitch	B6-4
Dave Virga	Astro Cam	C6-7
Evan Friesen	Space Rocket	C6-3
Tom Dembowski	Spev	C6-3
Chris P.	Alpha	B6-4
Grant Johnson	Wizard	A8-3
Tim Murphy	Alpha	B4-4
Grant Johnson	Viper	A8-3
Jeff Coons	X-G1	D12-3
Dawn Holland	Razor	C6-5
Ryan Sobin	Bandit	C6-7
Chris P.	Alpha	C6-7
Chris P.	Big Daddy	D12-7
Dave Virga	Solar Venture	D15-7T
Dave Murphy	Alpha	B4-4
Tom Dembowski	Sandhawk/Terriar	D12-5
Dave Virga	Snitch	C6-3
Evan Friesen	Space Rocket	C5-3
Jeff Coons	R2D2	D12-3
Les Mann	Air Walker	B6-4
Dawn Holland	Quasar	C6-5
Alex Fahrenbruch	Payloader	B6-4
Dave Virga	Initiator	F40-4
Bill Stevens	Falcon	C6-7
Bill Stevens	Super Big Bertha	D12-3

High Flight Oct. 6th Launches

(Note: There were many more launches flown than those shown below. However, not all flights were logged.)

Eric Meing	Dude	D12-3
Eric Meing	Fire Flash	B6-4
Eric Meing	Moongoose	C6-0/B6-4
Nathan Coit	Tangent	A8-3
Greg Elder	Styro-F.O.	D12-3
D. Holland	Recon-1	B6-4
Nathan Coit	Torpedo	D12-3
Tim Heitman	Honest John	C6-3
Greg Elder	Patriot	G40-4
Greg Elder	AMRAAM	F20-4
Greg Elder	Galactic Maruder	D12-3
Christopher	Code Red	B6-4

AeroTech Public Statement

Las Vegas, NV (ROL Newswire)—Early afternoon on October 15th, we at AeroTech experienced a fire at our main facility. At this time the cause is not known and remains under investigation.

AeroTech Inc. is cooperating fully with all state, federal and local agencies in their investigation into the causes of this tragic event. As you know, our operations have set an example for safety in the past and we hope that, through this unfortunate incident, we can learn how to make our operations even safer in the future.

This incident has resulted in injuries to several employees, three of whom remain in the care of hospital staff here in Las Vegas.

Our thoughts and prayers are focused on the welfare of these men, and their loved ones, who are an integral part of the entire AeroTech family. We would ask that you would also place them in your thoughts and prayers.

In response to the questions about AeroTech's future, we can note that our kit facility was not involved in the incident and we anticipate that we will be able to resume shipment of kits and kit parts in the very near future.

We would like to assure our customers that we have recovered the information needed to restore motor and hardware production and are working now on the best way to achieve this goal.

As the first step towards accomplishing these goals we are in the process of reestablishing our administrative offices at our kit facility. Arrangements have been made to have any correspondence forwarded to us there. As communication channels are established we will post the information on our web site and we will be contacting our customers individually as the week progresses.

Although we are not yet able to specify a schedule for our recovery we will, however, remain in close contact with our customers and the rocketry community at large as planning proceeds.

AeroTech sincerely thanks the many people who have offered their assistance and, in particular, acknowledge and appreciate the intent to establish a fund to assist the AeroTech employees who have been impacted by Monday's fire. This generous gesture was communicated to us yesterday by Brent McNeely, publisher of Extreme Rocketry magazine, who has volunteered to coordinate this effort.

Thank you so very much for your concerns and expression of commitment to AeroTech. We will be here to celebrate our 20th anniversary next year and we invite you to share it with us.

Sincerely,

The Staff and Employees of AeroTech, Inc.

AeroTech to Resume Motor Production

Las Vegas, NV (ROL Newswire)—AeroTech is pleased to announce that they are committed to resumption of motor production as soon as possible. As of today, Friday October 19, AeroTech has identified several options that will allow the company to resume motor production; these plans have the full support of the company's

financial investors. AeroTech will communicate this schedule as it develops. They would also like to thank those who have expressed concern for the injured employees.

Note: A benefit fund was established Wednesday October 17th to help out the AeroTech employees impacted by the fire on Monday. Those wishing to send donations may make checks payable to:

AeroTech Inc., Benefit Fund
Wells Fargo Acct# 2002696177

Checks may be mailed to:
AeroTech Inc., Benefit Fund
c/o Extreme Rocketry Magazine
109 E. Charleston Blvd., Ste. 101
Las Vegas, NV 89101

All money received will go to those impacted by the fire. Brent McNeely (RocketeerMedia) will manage the account after consultation with AeroTech.

Fat Cat Rockets Galactic Marauder

By Greg Elder

If you like unique and unusual rockets, you should take a look at the line of model rockets from Fat Cat Rockets. I purchased their Galactic Marauder kit over a year ago (when the company was named Starship Enterprises) and finally had time to build the rocket recently. Its interesting design reminds me of a futuristic space fighter. The front of the rocket is based around a BT-80 sized body tube that transitions to a BT-50 sized tube at the rear. Three pods are attached around the central BT-50 tube and large swept-back fins complete the design.

The kit comes with quality parts. In addition to the already mentioned body tubes, the kit includes: pre-cut balsa fins, plastic nose cone and transition, balsa con tower, 1/4" launch lug, plywood centering rings, dowels, 24" nylon parachute, heavy-duty shock cord mount, and stick-on decals. The instructions consist of 4 pages of step-by-step written procedures and 6 pages of black and white illustrations. The instructions are easy to read and follow.

The Galactic Marauder assembles like most typical model rockets. I used epoxy for attaching the centering rings and gluing the motor assembly into the BT-80 body tube. I used wood glue for everything else—pods and fins. The shock cord is very much like the old NCR Gorilla shock cord mount. A wire is looped through holes in the top centering ring, with a sleeve connector crimped around the wire to hold the loop in place. A similar loop is constructed at the free-end of the wire. Finally, a 1/4"-wide elastic shock cord is tied to the loop at the free-end of the wire.

The nose cone has optional assembly instructions. A section is cut out of the nose cone and then plastic plates are glued inside the cone, covering portions of the cut out area. Finally, round plastic tubes (gun implements) are glued to the top of the plastic plate at the front of the nose cone. This alteration of the nose cone adds to the rocket's unique appearance. (This seemed to be the one difficult part of assembling this kit. I chose not to build my Galactic Marauder with the optional nose cone.)

I painted my Galactic Marauder with a camouflage scheme, using orange and blue paint. Stick-on decals are provided to finish the rocket. Overall, it has a sharp design that should turn heads at launches.

For the initial flight of my Galactic Marauder, I chose a D12 motor. Shortly after clearing the launch rod, the rocket went unstable and impacted the ground while still under power. The front of the body tube was crumpled slightly but was repairable. I was surprised by the unstable flight since the Galactic Marauder has large fins and I did not deviate from the instructions. (As already mentioned, I left the nose cone unchanged and did not use the alternate design.) After reviewing the instructions again to make sure I did not overlook any details, I sent an e-mail to Fat Cat Rockets explaining about the unstable launch.

Talk about great customer service—the very next day, Sunday, I received a phone call from Chuck Sackett, the owner of Fat Cat Rockets. He had not heard about anyone else having an unstable flight with a Galactic Marauder. We talked for about 30 minutes, discussing the rocket's construction, weather conditions at the launch, etc. Chuck mentioned that since I bought my kit, he had revised the instructions to include indicating the correct Center of Gravity (CG) for the finished rocket. In addition, the kit now comes with the nose cone already modified, i.e., the proper shape cut out of the front. Chuck said he would send me a copy of the new instructions and asked that I fly the rocket again after ensuring the CG was at the proper location.

A week later I had the new instructions in-hand. The instructions have been expanded to 19 pages, to include additional color drawings of the Galactic Marauder and more detailed procedures for some of the steps, such as the nose cone assembly. These instructions are much more thorough than the ones issued with the original kit.

I added clay to the nose of my Galactic Marauder in order to move the CG to the location shown in the new instructions. I flew the rocket again on a D12 motor. This time I had a straight, stable launch. The only problem was that the rocket landed on asphalt and broke part of a fin.

The Galactic Marauder is a great looking rocket—something much beyond the three fins and a nose cone appearance of most model rockets. Now that Fat Cat provides the nose cone with the proper section already cut out, assembly is much easier. You'll enjoy building and flying this rocket.

Galactic Marauder

Length: 24"
Diameter; 2.5"
Weight: 9 oz
Motors: D12-5, E15-7, E30-7
Price: $42.00

Fat Cat Rockets, Inc.
1465 Magellan Cir.
Orlando, FL 32818

http://www.fatcatrockets.com

Announcement on Rocketry Activities Requiring FAA Waivers or Notifications

By Mark Bundick
President, National Association of Rocketry

I have received additional information from FAA HQ in Washington, DC regarding current operational procedures for rocket flights conducted under FAR Part 101. Specifically, I have confirmed that:

1. Model rocket flying (rockets using less than 4 oz. propellant and weighing less than 1 lb.) remain unaffected by the current national airspace emergency.

2. Operations under the "large model rocket" notification provisions of FAR Part 101 (rockets using 4.4 ounces of propellant and weighing between 1 lb. and 3.3 lbs.) have been restored. NAR members and sections wishing to launch rockets under those provisions should use the same process they did prior to the events of September 11, 2001. Please work closely with your local FAA officials in restoring your large model rocket notifications.

3. Rocket operations requiring a waiver application (rockets containing more than 4.4 ounces of propellant and/or weighing more than 3.3 lbs) will be reviewed and approved on a selective basis by FAA offices. No waiver applications are likely to be approved in airspace affected by temporary FAA flight restrictions, particularly for launches in the Washington, DC and New York City airspace. NAR members should be reminded that, historically, any application for waivered launches under Part 101 was subject to denial by the FAA. Again, please be patient in working with your local FAA contacts.

Our country has experienced a tremendous tragedy. Historically, the NAR has had a productive relationship with the FAA. We need to remember that our FAA partners are struggling to meet multiple new demands placed on them by these events. I have pledged the NAR's cooperation and support to the FAA during this difficult period. I ask NAR members to please be patient, polite and professional in their dealings with the FAA as we work to restore our waivered flight environment to the conditions that existed prior to September 11, 2001.

As always, I welcome any and all of your comments, questions and suggestions.

Apogee's Building Skill Level 1 Rocket Kits Digital Book

By Greg Elder

Educators know that students retain more information through observing a demonstration of a particular action, as opposed to just reading or listening to someone describe it. Such is the benefit of Apogee's new digital book, Building Skill Level 1 Rocket Kits. By using digital video clips, this book shows the reader various procedures and techniques needed in constructing skill level 1 model rockets.

The book itself comes on a CD-ROM. The CD-ROM works for both Macintosh and Microsoft Windows-based computer systems. One requirement is that you must have Adobe's Acrobat Reader and Apple's QuickTime video player installed on your computer in order to view the book. (Both of these software products are available for free, if you do not already have them.) The book exists as an Adobe Portable Document File (PDF), with QuickTime videos embedded throughout the various chapters of the book.

In the first chapter of the book, author Tim Van Milligan discusses the book's purpose. With the prevalence of skill level 0 (Ready-To-Fly) rockets, children are not learning the basic skills needed to build the simple rockets that many of us grew up with in the 60's, 70's and 80's. In many children's minds, rocketry is associated with toys and games, rather than a hobby and science. This book will help teachers, scout leaders, and parents teach basic model rocket building skills to children. The second purpose of the book is to inspire modelers of all ages. The book also makes a nice digital reference.

The second chapter of the book describes in detail the characteristics of a skill level 1 rocket kit. Many times when looking at different skill level kits from various model rocket companies, I get the impression that "skill level" is just someone's subjective feel for degree of difficulty. Tim does a nice job of listing the skills needed for constructing a skill level 1 rocket. Furthermore, he does this for all skill levels, up to skill level 5.

Chapter 3 is the meat of the book. This chapter covers all the skills needed for building a skill level 1 rocket. Each skill has a brief textual description and illustration, with an accompanying video so that you may see and hear a demonstration of that skill. Approximately 23 different skills are discussed, to include the following: marking of body tubes, cutting fins, sealing balsa, applying fin fillets, assembling motor mounts, attaching streamers and parachutes, painting rockets, preparing rockets for launch, and launching rockets. Also included is a section describing model rocket motors and the different types of available motors. All the videos seem to be the right length for holding an individual's attention.

Some extra bonus videos come with the book. One is a small collection of video out-takes. Most of these deal with Tim's dog Lacey (the rocket retriever) stealing the spotlight, i.e., walking in front of the camera at the wrong time. The other bonus videos demonstrate how to cut large body tubes and provide a tour of the Apogee Components Manufacturing Facility.

Overall, the Building Skill Level 1 Rocket Kits digital book is an outstanding resource for someone new to rockets and for people involved with teaching kids how to build rockets. I wish I had this book when I was a youngster. It's so much easier to learn a skill by observing someone else perform it first. The main drawback to this book, (something with any CD-ROM product), is that you really cannot take it anywhere to "read." You are tied to a computer. Secondly, since saw dust and computers don't mix, most people have their computers in an area separate from their rocket workshop. It would be nice to view some of the videos, as you were trying the skills yourself. (I suppose if you are careful, you could combine computers and rocket construction.) With those facts in mind, the book is worth the price and would be a nice addition to anyone's rocket library. I'm looking forward to future digital books from Apogee Components.

This video book costs $12.95 and may be ordered from:

Apogee Components, Inc.
630 Elkton Dr.
Colorado Springs, CO 80907-3514
http://www.apogeerockets.com

COSROCS Calendar

Unless otherwise noted, all business meetings are at the Gold Hill Police Station.

3 Nov:	Sport Launch, 9AM, Sky View
14 Nov:	Business Meeting, 7PM
17 Nov:	Sport Launch, 9AM, Peyton
1 Dec:	Sport Launch, 9AM, Sky View
12 Dec:	Christmas Party, tentative
15 Dec:	Sport Launch, 9AM, Peyton
5 Jan:	Winterfest XI, Sky View
9 Jan:	Business Meeting, 7PM
19 Jan:	Sport Launch, 9AM, Peyton

RCHTA-2001 Hobby Show Report

Copyright Bob Kaplow NAR #18L

Editor's Note: This article was originally posted on the Usenet's rec.models.rockets newsgroup and printed in NIRA's *The Leading Edge* newsletter.

This year's Hobby show was more than 2 months earlier than previous shows. Seems the manufacturers need more than 45 days lead time to deliver goods in time for holiday sales. But the down side of this is that show participation was down. There were less exhibitors, less trade people, and over the weekend less public. The dropoff in public attendance was most noticable, and probably caused by other summer activities still running, plus the start of school hasn't got youth groups fired up for their fall activities yet.

This year there were only two rocket companies present, Aerotech and Quest. Apogee, Custom, Estes, Extreme Rocketry, Holverson, PML were all absent. The rumor I heard from several folks at the show was that after last years incident, Estes was told they were not welcome back. Also absent were Glencoe, Bob Smith, Foredom, and others that were regulars in the past. But wandering the show were Bill Saindon of BMS, Andy Jackson of ASP, and the return of Bill Stine with a new non-rocket company.

Make-it Take-it:

With the absense of Estes, Quest filled in and donated 2000 Viper kits for the Make-it Take-it. Due to the lower attendance, we built less kits than in the past few years. Still, under the master organization of Bob Wiersbe and Mike Jungclas, with the assistance of many NIRA volunteers, and a few friends from SCAM and WOOSH, we helped over a thousand kids build a rocket at the show.

Aerotech:

Gary Rosenfield and Aerotech had their full line of kits, motors, RMS, and hybrid products on display. Products new to the show were the F21 24x95mm motors at 55 NS, plug compatable with the new Estes E9. The total impulse is limited to 55 NS not by the casing size, but by the 30g postal shipping limit exemption obtained by Aerotech, making the motor shippable to dealers and distributors without the UPS HAZMAT fee. And they are at least looking into an upgraded 24mm RMS casing.

Also new was the Sumo rocket, a shorter than the G-force 4" kit with a motor mount that will take H reloads, making the kit suitable for Level 1 certification. Finally, Redline propellant and Kosdon by Aerotech were present but lower key. Aerotech was showing a slick video that will be available to about 1600 hobby dealers around the country, featuring some cool HPR flights, and the fastest assembly of an Initiator and a G64 on record.

Mike Martens was doing a smaller scale Make-it Take-it with the Aerospike educator pack, giving away a dozen Mustang like models over the weekend. Aerotech is looking into several other product improvements in response to user suggestions.

Quest:

Dane Boles is still at the helm of Quest, and business is better than ever. The Micro Maxx motors have been upgraded from 0.2 NS to 0.3 NS in the same size casing. The Saturn-V fin area has been increased for stability. And the packaging of the whole line has been upgraded. The Micro Maxx starter sets are in a more attractive blue box. The quick build kits (plastic fin units) will be going from bags to a hard shell clear plastic box, and the fin units will be getting a major overhaul.

The construction kits (balsa fins) are getting more flashy graphic covers. Dane said the line will grow, both in RTF, quick build, and construction kits. In the next year he expects to have more models than "that other company". And there will be some really exciting announcements among those new products, including Micro Maxx kits and more.

The rest of the show:

The Tripoli booth was back this year. Bruce Kelly was present for part of the show and again used the space to sell his personal magazine from space donated to the not for profit organization.

Bill Stine is with a new company, X-planes, making small 1/144 static models of the old X planes. The line includes the X-1, X-3, X-4, X-5, X-15A-2, and X24A. An X-15 was on display with the Quest Micro Maxx stuff, making us all wonder...

Polar Lights had a Forbidden Planet spaceship that is begging to be turned into the worlds largest flying Happy Meal! It must be over 24" in diameter! Also coming are Land of the Giants Spindrift, and Voyage to the Bottom of the Sea submarine. Maybe not PMC legal, but probably flight convertible for fun. The Dick Tracy Space coupe from last year is still available and should be PMC legal. And while not rockets, you Speed Racer fans can get the Mach-5 kit in either glue or snap-kit.

Revell had a new 1/72 Space Shuttle orbiter with spacelab. Airfix brings back the Saturn-V, Space Shuttle stack, and Orion, all in 1/1444, plus the 1/72 Lunar Module. Heller had a Space Shuttle stack, Ariane 5, and MIR. ZAP had Fiber-Poxy, designed for polyester and epoxy fiberglass bonding. The aluminum and plastic Unimat-1 was again on display, but from a marketing firm that does direct show sales only. Besides, I've seen the 4in1 and 6in1 sets on sale at American Science and Surplus for less than their "show special" prices.

FMA direct was showing a product so new, they didn't even have literature; Co-Pilot Dave. It's a small 4 way sensor that goes on top of your RC airplane. If you get in trouble, you just take your hands off the stick and it levels the airplane. Certainly useful for RCBG trainers as long as you disable it for boost! Makes me wonder of this might work as a guidance system for our models to insure vertical flight.

Wiha showed a new ballpoint hex key with a small clip at the tip that makes it virtually impossible for your cap screw or set screw to fall off while starting the screw.

Members of COSROCS pose with some special Sci-Fi friends at Sky Sox stadium before a demonstration launch. Pictured standing from left to right are Nadine Kinney, Darth Maul, Brian Thayer, Neil Kinney, Tom Dembowski, Warren Layfield, and Alien. Kneeling from left to right are Dave Virga, Dawn Holland, and Mark James.

(Photo by Nadine Kinney)

COSROCS
P.O. Box 15896
Colorado Springs, CO 80935-5896