THE LEADING EDGE

Newsletter of the Northern Illinois Rocketry Association,
NAR Section #117, Proud Winner of the 1996 and 1997 Rockwell Newsletter Trophy!

Volume 21, Number 7
November /December 1998

John Glenn returns to Space!

Above: Discovery lifts off with Astronaut John Glenn aboard. Right: John Glenn in his flight suit.

NASA accidentally released this classified photo showing proof that extra-terrestrial life does exist. As can be seen from this photo, the shuttle is trying to defend itself from a cube shaped spacecraft using the robot arm. In the spacecraft are beings who call themselves as "the Borg". No other information has been released, but there are rumors that crew member John Glenn mysteriously disappeared then reappeared several hours later. He is claimed to have reported that soon after a needle was inserted into his arm that the Borg suddenly aged and many experienced what appeared to be heart attacks. He found himself back in the shuttle at that point, and the mysterious cube disappeared. NASA officials have been quoted as saying that Astronaut Glenn forgot to take a dose of Geritol and was feeling "strange".

T MINUS 1 - NIRA'S CALENDAR OF UPCOMING EVENTS

1998 CLUB LAUNCH DATES

Launches are BYOL (bring your own launcher). The location for our 1998 launches is the Greene Valley Forest Preserve. If you have questions prior to any launch, call Ric Gaff at (630) 483-2468.

November 15 - Regular club launch

December 13 - Holiday Party at Mark Bundick's, 2-6pm. Call Mark (630-293-9343) to find out what kind of munchies you can bring and let him know how many are in your party. See map below for directions.

January 17 - Building Session. Site to be determined. Call Infoline.

February 21 - Building Session. Site to be determined.

March 21 - Building Session. Site to be determined.

April 18 - 1st launch of 1999! Greene Valley FP.

MONTHLY MEETINGS

All meetings start at 7:30 PM, and include entertainment and a brief business meeting. Don't forget a model for "Model of the Month" voting. We need volunteer speakers to entertain the troops after the business meeting, so call Ric Gaff at (630) 483-2468 if you can help with ideas or can speak yourself. The location is the Glen Ellyn Civic Center, 535 Duane Street (usually on the 3rd floor, but check the board in the lobby).

Currently scheduled meeting dates are: December 4, January 8, February 5, March 5, April 2, May 7, June 4, July 2, August 6, September 3, October 8 (tentative), November 5, December 3.

THE LEADING EDGE, published bimonthly by and for members of the Northern Illinois Rocketry Association, NIRA, NAR Section #117, is dedicated to the idea that Sport Rocketry is FUN! Articles, plans, photos, other newsletters, and news items of interest should be sent to Jeffery A. Pleimling, 245 Superior Circle, Bartlett, IL 60103 (or electronically to jap@interaccess.com). Photos will be returned, other material returned if requested. Send membership applications (dues: $3/year, including a six issue subscription to the Leading Edge) and nonmember subscriptions ($5 per six issues) to Ken Hutchinson, 84 Jefferson Lane, Cary, IL 60013. Any item appearing in the Leading Edge may be reprinted by Sport Rocketry with proper credit given; all other uses require written permission of the Northern Illinois Rocketry Association. Producing an award winning newsletter is fun, and after 35 newsletters I think I've had all the fun I can stand.

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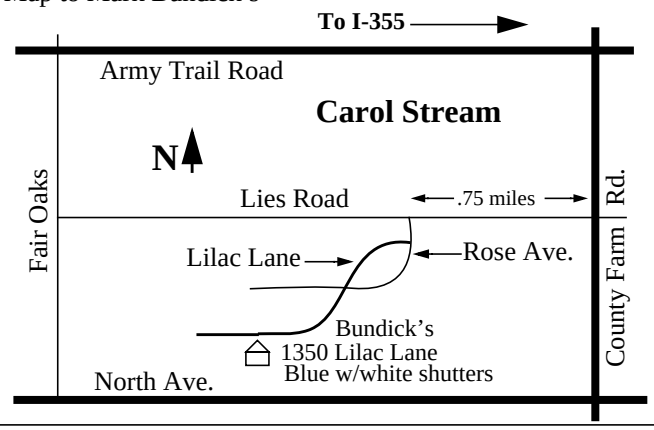
Map to Mark Bundick's



Model of the Month Winners!)

October - Ric Gaff won in Adult with his NCR Interceptor G, and John McCallum took Youth with his Jupiter C (or Juno, I can never remember)

November - Dan McCallum won in Youth with his Estes Dart, and Norm Dziedzic won in Adult with his Scale John Hancock Center (hey, who said it had to look like a rocket to win?)

RCHTA Make It/Take It Report
by John Guzik

RCHTA 1998, or for you new comers the National Model And Hobby Show, was a booming success. NIRA helped over 1200 people build their first rocket on the weekend of Oct 31 and Nov 1.

Many NIRA member's were worried that with the new kit that Estes had supplied that NIRA would not be able to help as many people build rockets as in years past. Boy were they wrong!!! For those who showed up Saturday it looked like the predictions would be even worst. Being Halloween, not many people were showing up to build rockets. In the afternoon and early evening only 4 tables were needed to keep up with the demand, and some of those didn't have the usual 7 builders per table, with some tables having only with 2 or 3 builders. With under 300 rockets built on Saturday it looked like it was going to be a dismal year at the Make It and Take It booth.

Everyone knew that the builders would be out in full force on Sunday, but no one expected the full onslaught of over 1000 builders in one 8 hour period. Cheri Chaney had done a fabulous job in getting volunteers to man the tables. Every one of the sixteen tables was full, with 6 to 8 builders per table. Mike Jungclas had the tables stocked and production running at full tilt. The volunteers were getting turn around times of around 35 minutes. Some were even beating that. It was heard by this web master that Michael Guzik (age 13 and son of said web master) turned around 10 tables in under four and half hours!!! Now only to see how well those rockets fly Michael.

It was nice to see so many NIRA members, and non-NIRA members helping out at the show. Bob and Kathy Hart showed up from the SCAM section in Forte Wayne, and to many to count WOOSH members came from behind the Cheddar Curtain to help out. I hope to soon post a full list of people who helped out at the show as soon as the list becomes available, but for sure a great thanks go to the 1998 NIRA RCHTA Make It And Take It organizers Cheri Chaney and Mike Jungclas.

NIRA/WOOSH member Al "Mad Dog" Rognlie.

Ken Goodwin explains about Motor Tubes.

SMURFF IV Launch Notes
by Norman Heyen

Well, the weather was pretty close to perfect, a bit breezy for us lazy old guys, maybe 8-10mph on the ground, seemed to be about the same at altitude. Hot to very hot, but dry, humidity was 35% or so. Lots of sunburns by Monday AM.

We stayed until noon on Sunday, it is a 7 hour drive back home. I didn't get to fly my K550 in the Thunder, that will have to wait. The biggest thing I flew was my new 3" Cherokee-D on an H73 (38/240), but it spit the casing and came in hard. Lost the rocket mostly and spent several hours combing the area for the casing, but no luck. So, that was an expensive flight.

Flew the Warp II a couple of times, the little Marvin in the payload section was a big hit with the crowd. And a D21-7 as a single stage was very quick off the pad... The B6/B6 combo is a good one for demoing how a rocket breaks up, err, I mean, stages. Even the LCO was caught off-guard once and the kids thought it was pretty spiffy. The Marvin pencil topper must be getting the weight near the max weight. It does a pretty good impression of a real liftoff, and stages at about 150' or less. Oh for B14's again.

Nancy flew the Cheetah on an F50-9, great flight, but almost more than I can track. Landed in the C/L pads east of the rangehead. Along with several others. You could tell these guys were none too happy with our exploits. The thought having something like these come down during their flights didn't seem to be a popular choice.

I flew the Initiator on F40's twice, would have done it more often, but I hit the above mentioned pads and popped a fin out. I think I can reglue it easily, looks like it came out cleanly. There might be an advantage to using thick CA on plastic after all. :-)

The Broadsword took to the air a few times, as did the Big Bertha. Nothing spectacular though.

The field was very hard, they needed rain the weekend before we got there. Throughput was pretty good. By 10:30AM Sat, they had all the Sat range slots filled and most of Sunday's as well. With all 30+ pads running, there was seldom a wait of more than 10 minutes to get a pad assigned and ready. Often there was only a minute or two between the time you turned in the clipboard until your flight was announced. Hence, very flew pictures for me. The lines were much better, and they did a better job with crowd control than at NSL. They kept everyone back behind tape lines that were at the registration and check in tent spacing.

NIRA had a decent contingent, Gaff, Steve Smith, Kaplow, Guzik's, Kramer, Dr. Barrett, Van Camps and a couple of others. Carl Van Camp had one of the most popular spots, an RMS cleaning station. Plain white vinegar in a deep plastic trough. Works great!

Steve Smith flew his EZI and Ariel on H242's a couple of times. We gave him lots of helpful advice about childcare and child rearing. Hopefully, he went home and didn't abandon the whole concept... :-) We tried to share the experience of 3AM feedings and having a 2-year old in the house, they tend to gloss over these finer details during classes.

Gaff flew a G motor! And many others, he seems to have racked up a lot of flights had quite a collection of rockets packed up. I think he and Steve shared a room Saturday night. He said he left about 4AM Sat and drove down that morning. I think he posted a quick note on the NIRA list with his flights.

Nancy and I chose a quiet Chinese dinner and didn't join the NIRA gang at the Outback. They said it was almost a 90 minute wait for a table. It sounded like everyone was fast asleep, with visions of rockets launching in their heads, by 10PM. Or earlier. The hot sun took it's toll.

Hard to gauge the numbers, but I'd say it was well attended. The parking lot was mostly filled, and all the grasslands along the perimeter were covered with tents and shelters. Plenty of vendors, but I didn't get much of a chance to browse. Even the food vendor had their act together and much better throughput. Only a few minutes to get a couple of burgers near noon on Sat. Best guess is about 125 fliers and maybe 400 flights on Sat. Maybe more. Bob and Kathy were pretty busy, never did see Ned, but he was around. They got things under way pretty much on schedule both days.

Sunday had an M flight before 10AM! There was a Wac Corporal that staged nicely. The I284 in the lower was pushing it, should have been an I435, but worked OK. Nothing like the Nike-Herc at NSL though. I didn't hear of any serious incidents, no ejection charges going off, only a couple of rockets that came into the parking area. They did a good job of making sure the rods were pointed away from the parking and spectators. There were a number of pretty big flights, but I felt a little disconnected the whole weekend. (I think it was the pills; had dental surgery earlier in the week and have been sort of out of it. And the antibiotics really made me sunburn. That and being a little bummed out about destroying the rocket and loosing the casing.) Someone had a really big Saturn I, but never saw it fly. There were lots of stories to be told, but I don't have them. All in all, it was fun and pretty laid back for me. I resisted the chants for the Thunder on K550 power.

I hope we aren't wearing out our welcome there. The guys on the C/L pads were mostly out of business with all the rockets drifting in on the area Saturday. You should have been there, good times were had by all. I need to send Bob a note about the casing and thank him and the others for the launch.

Seattle Rocket Works SLAT/s
by Donald Qualls

I'm partway through construction of the SLAT/s from Seattle Rocket Works, and thought I'd post a quickie report.

First, the kit is exceptionally well put together and packaged; all the parts are in a zipper bag, wrapped with a paper band, and then packed in a sturdy box suitable for handling by USPS without damage to the kit. While there is some cellulose wadding included in the box, there isn't enough for even a single flight of this (for SRW) larger model; the kit pretty well fills the box on its own.

SLAT/s is loosely based on a supersonic target design submitted in the 70's by Teledyne Ryan, but never constructed in quantity because another company got the contract. The original had an integral booster rocket and ramjet sustainer, traveled about Mach 2.5, and depended mainly on body lift; it has generous fins, but no wings as such (not even long strakes as are seen on some modern missiles).

The model is relatively complex compared to most I've built -- I'm not much into scale, so the only complex models I usually build are gliders of one sort or another. The ramjet is fabricated from a BT-20 size tube, a hardwood half-dowel molding, and five balsa strakes, and the fins mount into pods laminated from multiple layers of balsa. Based on the Estes Skill Level system, I'd have to put this one at Skill Level 3, because of the need to cut the ramjet tube lengthwise and trim it to an exact fit on the core assembly.

That said, this is well within the abilities of anyone who's ever built an R/C model airplane from plans or a wood kit, and shouldn't stymie anyone who's done scale models before. Despite the seeming complexity of the operations, the model goes together quickly; by taking some steps out of order, I have the motor mount assembled and installed, ramjet assembled and mounted, and fin pods assembled, with total working time now around two hours (including time to read completely through the instructions before opening the bag). I have yet to sand the fin pods and fins, fill the surface on those parts, fill the tube spirals on the airframe and ramjet, fill and sand the nose cone, and do the final assembly on the fins before mounting the recovery system and starting to finish. I estimate total working time (not counting drying time for white glue and filler) at around four hours -- and I build slow. Had I used CA glue throughout, instead of only where I couldn't see a practical way to make white glue do the job, I'd probably be done by now.

While this is the largest and heaviest kit from SRW to date, and I can't yet report on my own model's flight characteristics, I have seen Michael Park, the designer and manufacturer of the SLAT/s, fly one of his prototypes, and can attest that it has performance similar to a Big Bertha, but in a much smaller model; this rocket is BT-50 sized, and only about 300 mm long, but there's a lot of nose weight included to make it stable with the short moment arm, slightly forward fin placement, and off-center drag of the ramjet. Recommended motors are the usual A8-3, B6-4, and C6-5 common to this class of relatively heavy, small model.

One nice touch is that the construction of the ramjet eliminates the need for a separate, unsightly launch lug; a 3 mm launch rod fits nicely through the space between any two of the strakes inside the ramjet. A simple paint scheme and water-slide decals round out the project -- once painting weather returns, I should be able to have this model flying pretty quickly.

Overall, the SLAT/s is very well done, especially for the price, and the attention to detail in the instructions and kit packing are impressive. I give it high marks for design, as well, and the complexity isn't necessarily a detraction in the intended audience. SRW has a winner here.

ATF seeks expansion to regulate Easy Access

Columbus, Ohio, USA (ROL Newswire) - In a communication posted on the Compuserve Sport Rocketry Forum, Bruce Kelly, President of the Tripoli Rocketry Association (TRA), addressed a regarding existing regulation that could have far-reaching effects on the rocketry hobby.

At the recent NFPA meeting in Albuquerque, New Mexico, the Rocketry Task Force of the NFPA's Committee on Pyrotechnics met with representatives of the Bureau of Alcohol, Tobacco and Firearms to proposals that had been published in the Federal Register on August 24, 1998. The proposals, if adopted, would regulate all motors larger than "F" impulse as well as all motors in the "Easy Access" category. According to Kelly, this action is being driven by a directive for all federal agencies to agree with each other from a regulatory perspective. The CPSC has defined "model rocketry" end with "F" impulse and defined "high power rocketry" to begin with "G" impulse. Therefore, it is the intention of the ATF to take this same position.

While this will have an impact on high power rocketry, it will have a much larger impact on model rocketry. It also means that all the rules for licensing and storage will now apply to all larger than "F" as well as all reloadable motors classified as "Easy Access." The reason that "Easy Access" motors are falling into this category is for two reasons: 1) by impulse (like the "G") and 2) by intended" use. If the intention is to ship six (6) propellant grains which will "stack" to make an assembled "J" motor, each grain will be regulated as if it were a "J" motor. The key word here is "intent."

A meeting has been tentatively scheduled in Washington, DC to see if this situation can be changed in any degree. Representatives from the National Association of Rocketry, the Tripoli Rocketry Association and the industry trade association, High Power Rocketry Manufacturers and Dealers Association, will meet with representatives from the CPSC, DOT, and ATF in November.

CHAD Fiberglassing
by Kevin McKiou

Here's what I do to fiberglass body tubes or other components. I can't claim to have inventing the method since I stole it from Jedi George Riebesehl.

Lay your cloth on waxed paper. Lightly mist it with 3M77 spray adhesive. This will cause it to stick to the waxed paper and give it a sticky surface. You can use scissors to trim it to what ever shape you wish.

Now, lay it on a table and just roll your body tube onto the cloth. It should smoothly wrap around the tube. After the spray adhesive cures, peel off the waxed paper and coat the tube with epoxy finishing resin.

1998 National Model and Hobby Show
by Robert G. Kaplow

The "big" news from both Estes and Quest could be summed up by "It's A Small World". Perhaps this is the BATF vision of our hobby for the next century. Both had new lines of tiny rockets on display.

Estes had the already rumored molded plastic Mighty Mites RTF rockets designed around the return of the 1/4A3-3 motors. Most of these are in the $10 range for a 2-pack; they include the Fury and Torque or Blitz and Sizzler. The Outlaw starter set includes a rail-like launch pad. The Moondog is bigger than the rest, and styled like a 40s Buck Rogers ship. Everything is molded in bright colored plastic. Also back is the Mini Mars Lander.

The first I saw from Quest was a tiny flying saucer I thought was a toy give-away until I got to their booth and saw a whole line of really tiny rockets and equally tiny motors. Their RTF Micro Max line includes a Saturn V, Shuttle, Tomahawk missile, SR-71, UFO saucer, Space fighter, and 4 generic rockets. All come with a silo launcher, controller, stand and motors, most in 2-packs. The launch rod appears to be less than 1/16" diameter, and perhaps 8" long. The motors are even smaller than the Apogee motors, or old MRC FX motors, about 1/4"x1". They come 8 to a pack. I was told they are about 1/5A; the literature shows 200' as maximum altitude. The molded QMX ignitor plug includes the ignitor and also acts as the blast deflector. You just insert the plug into the silo base, then set the rocket over the ignitor/plug combo. I hear they will be NAR certified and shipping by February of 1999. My mind immediately thought of strange things like a 5 motor cluster in a Boyce Saturn-V for A Scale Altitude.

Once I managed to get that annoying song out of my mind, I quickly visited the rest of the show.

Estes displayed the long awaited Saturn-V ($70) re-release that has been mentioned many times on RMR. The Venus Probe has been reworked into the ExoSkel ($25), a rumor I heard about several months ago. The old UFO returns as the slime green Snitch ($10). I heard the new Star Wars models were under lock and key until after the release of the movie, but all the Estes folks were wearing "Episode 1" name tags. In addition to the old kits was a new Y-wing for $37.

A new talking launch system gives an audible "Caution Launch Ready, and following a press of the button a safety code violating "3 2 1 launch" countdown. I expect RSOs everywhere to be clipping the speaker leads on this noise-maker.

The only new product from NCR was the long awaited G70, which may yet be scrapped by the jack booted government thugs, I mean BATF [Editors note: This is the opinion of the author, and not necessarily that of the publication. We need to clarify stuff like that to cover our butts]. There are $15 rebates on the NCR starter set and $10 rebates on the rocket kits through 12/99.

Quest adds RTF motor packs to their RTF line, with wadding included, just as Estes has for the Wal-Marts of the world.

AeroTech had the new 75mm reloads along with the existing hobby and HPR lines. Also shown was a prototype of a 6 grain 29mm reload. Once again we were left waiting for "Monster 4" kits coming in 1998!"

Public Missiles showed both the 4" and 6" Lunar Express ($110 and $280 respectively) flown at NARAM, and two other new kits, the AMRAAM-2 ($50) and Phantom ($50) and added decals to the BullDog and BullPuppy (available as upgrades to existing kits). Also new is a retainer system ($16-18) that uses threaded brass inserts, cap screws, and a metal plate to retain the motor. It doesn't work for minimum diameter rockets or boattails. While looking similar in mounting to the Kaplow Klip, I'm glad to see a kit manufacturer paying attention to Positive Motor Retention. Also shown was the P5 altimeter ($150) from Transolve.

Custom seems to have moved south to Arizona. They are finally ready to release several new kits, including the Ion Pulsar futuristic rocket, Aztec 2 stager, Elite competition egglofter (they have the old Apogee egg capsule), TriStar sport design, SAM-X Soviet missile, and Fiesta starter model. BMS was seen this year hanging out in the Custom booth.

Mach One has sold their rocket line but retains the balsa ply product. The wood averages 12#/ft^3 and comes in 1/8, 5/32, 3/16, and 1/4" thicknesses.

Aeromax added to their cloth parachute that has netting rather than shroud lines. New is a plastic parachute that appeared more suitable for action figures than rocket recovery. The shroud lines on these would surely tear if used on model rockets.

And for the Nth year in a row, a certain private publishing magnate used the booth space that was donated by the show to a not for profit organization to promote his for profit rocketry publication. The good news is that those of us who were present were able to get both 1988 issues for free.

Plastic:

Revell has added the Babylon 5 (in 1/00 scale! $20.50 including paint and glue) station to the Star Fury (1/72) of last year. Expect the Mimbari and Vorlon ships to come next. I still want a White Star for PMC! Revell also brings back the Lunar Landing (1/48) LM, lunar surface, and astronauts. The SnapTite series includes a new MIR ($14), Shuttle (1/200), and an F117A (1/72).

AMT had a set of space vehicles that reminded me a bit of the old history makers set, but didn't have any more information. Still there were all the Star Trek and Star Wars kits.

InterMountain Railway had an International Space Station on display. This appears to be targeted to museums ($1500 assembled) but is available in kit form, painted and ready for assembly for a mere $160.

I saw an Ariane from Dragon imports, and the huge IMEX V2.

Glencoe was exhibiting all their old kits, but I didn't see any new rocket or space stuff. Still, they've got a nice collection of SciFi rockets from the 50s in production.

Palmer has a line of rocket paint in bright colors.

Tools:

GYROS showed a line of tools and cutters including several nice saw blades for rotary tools. They don't sell direct, but I was told their whole line is available from Great Plains, but you may have to ask for stuff not shown in the catalog.

ZONA, noted for razor saws, had a neat model clamping system using a carbon fiber rod and polycarbonate jaws.

Enkay had a nice line of small tools and accessories.

Wiha added to its line of tools with 2 series of interchangeable blade screwdriver sets.

Impak had a line of promotional materials for companies to use as trade show give-aways, but one in particular caught my eye. They have a line of molded Pixie Pouches, kind of a cross between a hard plastic box and a zip lock bag. These could be printed up with a club or event logo, and would be great pocket containers for spare ignitors and the like. Cost is $0.75 to $1.00 in quantities of 250 or more. They come in assorted colors and clear.

RC stuff:

RC was a main focus of the show, but I skipped through most of it. One neat item I did notice was a new micro servo from RCD/HiTech, the Feather weighing in at a mere 5.8g (.2oz) that looks like the thing for the RCBG crowd.

Press Release from Apogee Components

Apogee Components, Inc. is now the exclusive distributor of a new line of high power rocket kits and components from Retro Rocket Works. The unique feature of this new product line is that the tubes are made entirely from a revolutionary plywood called: "RocketWood." This material is strong like fiberglass, durable like kevlar, lighter in weight than paper tubes, but it is NOT brittle like phenolic. And the fine-grain wooden surface is a work of art. You probably would never paint them, because they are so incredibly beautiful.

What will impress modelers most about these tubes is their incredible strength. It is possible to sit on the tube which is suspended between two chairs without barely deflecting the tube! (see the photo below) And being of wood, the RocketWood is as easy to work with as conventional model rockets.

Don't try this at home, kids! This man is a professional. Wow! This stuff may be a bit expensive, but it looks like it will stand up to lots of abuse.

Initially, Apogee Components and Retro Rocket Works are offering three ultra-durable kits: the "Spitfire," the "Jules Verne 29," and the "GIRD X." All three kits are 2.75 inches in diameter, and come complete with preslotted "RocketWood" airframe and motor mount tubes, multicolored (segmented glue-up) wood nose cones, plywood centering rings, and nylon cloth parachutes. They are designed to fly on 29mm diameter G and H motors.

From left to right: the Spitfire ($125), Jules Verne 29 ($115), and GIRD X ($175).

Also available is a complete line of "RocketWood" building components. Standard airframe tube sizes are 2.75 inches and 4.00 inches in diameter. Multicolored (segmented glue-up) wooden nose cones are also available for these size tubes. For more information, send $4 for a Apogee Components catalog, or visit their web site listed below.

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New Quest Line
by John Guzik

Quest scooped the market again with the new Micro Maxx line of products. The heart of the new line is the Micro Maxx motor, appearing to be about 1/4" diameter and 1" long. These little motors supply 0.02 Newton Seconds of impulse. (NOTE: There has been some discussion on RMR about this figure, I will make an effort to confirm this number).

Shown at the right is some of the new rockets in Micro Maxx Line. The SR-71, the Saturn V, and a fantasy scale model. In front are the amazing tiny motors, along side of a quarter. Quest is targeting kids with these new rockets, but the cute-ness factor and scale aspect are sure to please all.

This web master is hoping for contest certification of these little motors, just image a 20 engine cluster Peanut scale Vostok!!!!

Another interesting aspect of the Micro Maxx line is the launch system. To the left is shown the Micro Maxx Space Shuttle on the launch rod (the rod is about 6 inches long). The Shuttle is setting a top the disposable igniter/"blast deflector" (The little green disk at the base of the shuttle).

At the base of the launch complex is a place to store the rockets, a few motors and the launch controller. To the right is the launch complex in it's folded state. It stands about a foot tall. Shown in front of the launch complex are two other rockets in the Micro Maxx line.

To give a sense of scale to it all, some of the pictures on this page are setting on the table behind Quest representative Dane Boles.

MINI VIPER *III*

Redesigned by Mark Kotolski
NAR #35707, TRA #3609

Glue one launch lug flush with end of BT-55 tube, 2nd lug is glued 6" from end of tube.

Motor tube stringers are 2" long. Sand lightly so the assembled motor tubes and stringers have a smooth fit into the BT-55 tube. The stringers are used to position the motor tubes correctly in the BT-55.

Be sure to fill the center gap between the motor tubes to prevent ejection gas leakage.

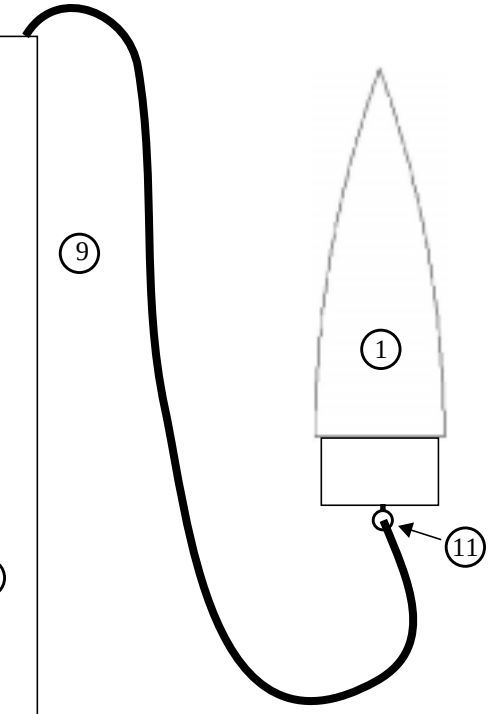
Position the BT-5 Engine blocks so motors extend 1/4" from end of tube.

A neat way to retain the motors is to epoxy a 1"x2-56 bolt (with the head cut off) into the gap between the motor tubes. Let about 3/8" stick out the back to put on a nut and a small washer to hold the motors in place.

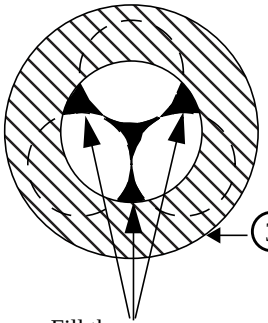
To position the RA2055 centering ring, apply glue inside the BT-55 1.75" from the end. Position the ring into the tube with your fingers about 1". Apply lines of glue where the motor stringers will go. Apply glue to the ends of the motor tubes, then push the ring into place with the motor tube assembly. Insert the motor tube assembly until 4 1/2" remain outside of the BT-55.

Recommended Motors (3 required)

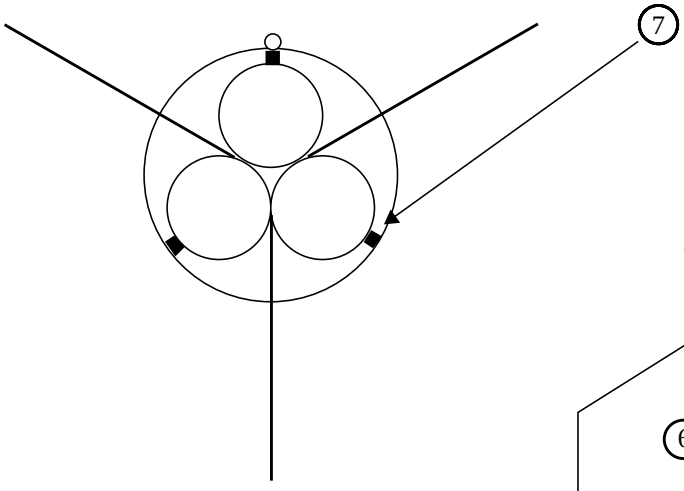
1/2A3-2T, A3-4T, A10-3T



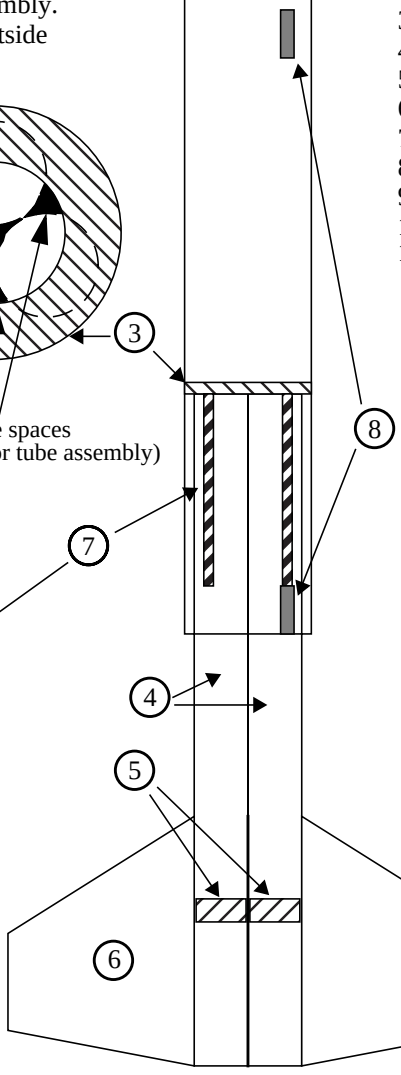
Parts List
1) BNC-55F (available from BMS - see page 11)
2) BT-55, 15 3/8" long
3) RA2055 Centering ring
4) BT-5, 7" long (3 required)
5) BT-5 Engine blocks (3 required)
6) 1/32" Basswood fins
7) 1/16" Balsa motor tube stringers
8) 1/8"id x 1/2" long Launch lugs (2 required)
9) 1/8" x 36" Shock cord
10) 12" Parachute
11) Screw Eye

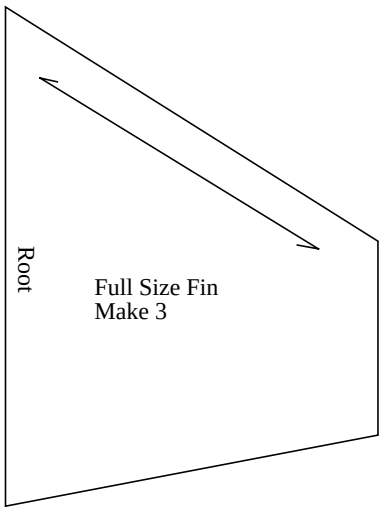


Fill these spaces
(top view of motor tube assembly)



Rear View





Tripod Mount Launch Pads
by Bruce S. Levison NAR# 69055

This article describes an easy to build, adaptable design for converting a standard camera tripod into a model rocket launch pad. The pivoting, swiveling, and height adjustment capabilities of a camera tripod also make it ideal for use as a model rocket launch pad. Camera tripods typically cost $20 to $30 dollars and are capable of supporting heavy photography equipment, such as a full sized VCR cameras weighing up to a few pounds! This article describes how to build a model rocket launch pad that adapts to the standard camera mount on most tripods. The camera tripod is the most expensive part of this launch platform, with all of the other components of this simple design available from a local hardware supplier for a few dollars each. This launch pad design exploits the flexibility of the camera tripod by mounting the launch rod on the tripod's central axis. The launch platform accepts all launch rod diameters of up to 0.25 inch and can be equipped with a launch angle gauge and an ablative blast shield.

The construction of an inexpensive energy absorbing blast shield that can be used on any launch platform will be described in a future newsletter.

The author wishes to acknowledge, his wife Debbie, both of his sons, Ian and Ben Levison, for their encouragement, support and help with this article, and Jerry Chang for his generous help making the photographs. A thank you to the members of WOOSH for hosting the Eat Cheese or Fly (ECOF) on July 17th, 1998, and allowing me to field test my blast shields.

Figure 1. Tripod Mount Launch Pad

Fully assembled launch pad on a Quantaray QT-100 Titan Series Traveler Tripod with launch angle indicator. Note the tripod legs were retracted, and the parabolic ablative blast deflector is shown raised above the base plate for clarity.

1) The Tripod - Select a sturdy camera tripod capable of supporting the weight you intend to place on top of it. Besides price, some other things to consider when purchasing a tripod are its own weight and storability. I use a super lightweight and collapsible Quantaray QT-100 Titan Series Traveler Tripod (Cat. No. 29-166-0231) from Ray Enterprises, Inc., Beltsville, MD 20705 for my standard model rocket launch pad (see figure 1). This tripod even folds up small enough to fit in a range box!

I also have used an older and heavier VCR tripod; it also worked well and is probably more suitable for use with heavier models that require a 0.25 inch diameter launch rods. My light weight tripod also has a quick release platform making for easy dismounting and service of the launch pad mechanism. Most tripods have collapsible legs and a crank type mechanism for adjusting the height of the mounting platform. To vary the tripod's height, the tripod's legs can be partially collapsed to shorter lengths, or the central mast can be cranked up higher.

A tripod suitable for use as a launch pad support should have legs that can be collapsed and locked to any length. For windy days, or with heavier high power models, some tripods have feet with retractable points that may be pushed into the ground for additional stability. Any tripod could also be held into the ground with tent stakes, but I have not seen the utility for doing this with these highly sturdy photographic platforms.

A sand bag may even be attached to a hook below the central mast in between the legs of the tripod for some added stability. For standard model rockets, the tripods I used did not require any added weight or anchoring even when used for heavier models in 20 mile per hour winds.

Some more costly camera tripods have built in indicators for the camera's tilt angle; this tilt angle would then be an indication of the launch rod's angle to the vertical if the launch rod was mounted on the tripods central axis.

The tripods I used were all purchased for less than $20.00; a used or second-hand camera tripod might provide a more inexpensive alternative. Even if you have to purchase a new tripod, this launch platform design can be easily detached so the tripod can be used for other purposes such as holding photographic equipment!

2) The Launch Adapter - A standard camera mount is composed of a 0.25 inch diameter, 20 threads per inch stud, one half inch center to center from a one eighth inch diameter spring loaded pin. To mount a launch rod on the tripods central axis, which passes through the threaded anchor stud, you will need a 0.25 inch diameter by 20 thread pitch coupling nut and about a 2 inch length of "quarter by 20" all thread or the threaded portion from a 2 inch long 0.25" x 20 bolt (cut the bolt head off with a hacksaw). The coupling nut is screwed on to the tripods 0.25" x 20 stud and the two inch length of threaded rod is then screwed into the remaining open end of the coupling nut.

Central to this launch platform design is the use of a quarter inch keyless drill chuck that mounts on a 0.25" x 20 threaded shaft such as the one placed in the coupling nut (see figure 2). The original drill chuck I used was from my Fiskars Hand Drill Model #8511 (Fiskars Inc. 780 Carolina Street Sauk City, WI 53583); cost about $10.00. I also obtained 0.25" inch keyless chuck adapters from MIT No.2937 (Michigan Industrial Tools, Kentwood, MI 49518) and Arco No. 2292 (Arco Products Corp. Englewood, NJ 07631) for under $5.00. These drill chuck adapters fit into the cordless hex bit power screwdrivers allowing them to use regular round shank drill bits in a keyless drill chuck. The chucks are conveniently supplied mounted on 0.25" x 20 threaded shafts.

The drill chuck was unscrewed from the hand drill or hex bit adapter and fitted to the 0.25" x 20 threaded shaft extension mounted on the center of the tripod. With only these three parts you now can use any standard tripod for a model rocket launch platform. Secure any launch rod up to a 0.25 inch in diameter into the keyless chuck as you would any round shank drill bit and place a blast deflector over the rod and you're ready to launch! The design will also work with launch rods that have hexagonal or triangular cross sections.

3) Launch Rods - I prefer to use one piece launch rods since they offer less friction than one composed of several pieces. With a one piece launch rod there is little chance of a

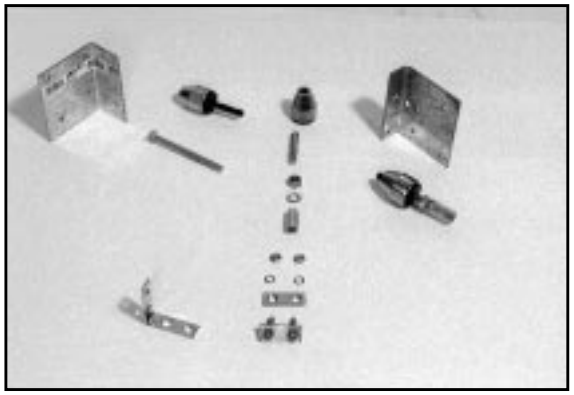


Figure 2. Hardware for Mounting a Launch Pad on a Camera Tripod

Left side of photograph shows original parts as purchased. Middle of photo shows exploded view of central assembly. Right side of photo shows finished parts and a partial assembly.

launch lug getting stuck or stripped from the model as it moves past the uneven junctions between launch rod sections. I find 36 inch long pieces of music (or piano) wire are best suited for this purpose. Straight length steel wires or rods are alternatives to this which are available in longer lengths (up to 72 inches) at your local hardware supplier. You might also try one of the more expensive 72 inch long sections of 0.25 inch diameter fiberglass rod, the kind used for staking up plants and garden fences.

Steel wires bend easily and care must be exercised when handling and storing them; the music wire is more resistant to bending. These steel and iron wires corrode from moisture and the residues in the rocket engine exhaust. The corrosion is easily removed with steel wool or a synthetic scouring pad. A light coating of penetrating oil or silicone wax prevents the rust from reforming on the rods upon storage. Of course you could always purchase a two piece rod and use it in this pad design.

4) Launch Base - To make the launch rod mount more stable a 0.25" x 20 hexagonal nut and split ring lock washer were tightened down onto the top of the threaded coupler (figure 2 middle and bottom right).

To stabilize the launch rod adapter onto the top of the tripod an oversized 0.25" flat washer can be placed under the threaded adapter before it is screwed onto the 0.25" x 20 stud that protrudes from the top of the camera tripod. Instead of the flat washer, I used an inexpensive angle clip, a galvanized sheet metal nailing bracket with a 90 degree bend in it. I drilled a 0.25" hole on the clips centerline as close to the bend as possible, and drilled another 0.14" hole one half inch from the center of the first hole along the same centerline (figure 2, top). The threaded stud on the camera tripod fits through the 0.25" hole and the 0.14" hole accepts the spring loaded pin from the tripod. This arrangement provided a more inflexible base that locked onto the top of the tripod.

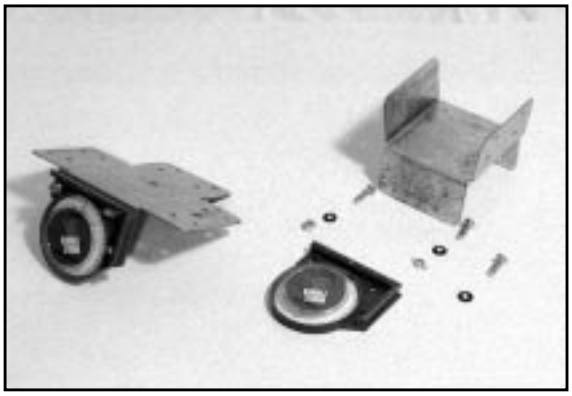


Figure 3. Blast Shield and Angle Indicator Support.

Left of photograph shows the completed sub-assembly. Right side of picture shows original parts as purchased.

However, I was not satisfied with the way that the hexagonal threaded connector nut could swivel on top of the angle clip. I firmly anchored the connector nut to the side of the angle clip with two 0.5" long bolts and nuts by sandwiching the threaded connector between two 1" strips of metal (complete with two pre-drilled holes) cut from the arms of an 1.5 inch angle brace (figure 2 bottom middle). The connector nut could also be anchored in place with epoxy glue or welded down if desired.

I also equipped the launch base with another bracket to support a blast shield and an angle indicator (figure 3). To make this part, I used a post connector clip, another kind of galvanized sheet metal nailing bracket. Three of the four ears on the post connector were bent back and hammered out level to the connectors central square section. A 0.25" hole was drilled on the brackets centerline half of the distance along its shortest width (the one through the remaining bent down ear).

For a launch rod angle indicator a plastic protractor can be anchored or fastened, straight side facing up, to the vertical tab at the bracket's centerline. The Fiskars clear plastic protractor which is equipped with a hinged angle indicator is best suited for this purpose. A regular protractor with a plumb line mounted through its center also works. Use a smooth plastic protractor (one without the raised numbers and graduations) and a short length of shroud line or colored thread tied to a small fishing sinker or other weight for this purpose. A more expensive alternative (cost about $7.00) is to similarly mount a mechanical angle finder to indicate the launch rods angle of inclination (as shown in figures 1 and 3). The mechanical angle indicator shows the actual tilt of the launch rod in degrees, while the value read from the protractor will have to be subtracted from 90 degrees.

The short vertical side of the angle clip placed on the tripod base was cut down to 0.5" height using aviation sheers to accommodate the additional bracket above it. This metal plate for supporting additional items on top of the launch pad was secured underneath the lock washer on the central 0.25" threaded rod (see figure 4).

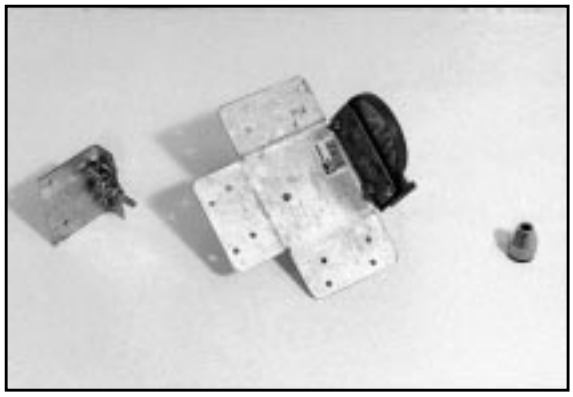


Figure 4. Completed Sub-assemblies.

This photograph shows the completed base plate with 0.25" x 20 threaded shaft extension in place. The bracket for the blast deflector and angle indicator (center of the view) is placed under the hex nut and lock washer shown on the top of threaded stud on the left. The 0.25" keyless drill chuck is threaded onto the remaining portion of the stud that protrudes through this support.

NASA and Navajos

About 1966 or so, a NASA team doing work for the Apollo moon mission took the astronauts near Tuba City where the terrain of the Navajo Reservation looks very much like the Lunar surface. With all the trucks and large vehicles were two large figures that were dressed in full Lunar spacesuits. Nearby a Navajo sheep herder and his son where watching the strange creatures walk about, occasionally being tended by personnel. The two Navajo people were noticed and approached by the NASA personnel. Since the man did not know English, his son asked for him what the strange creatures were and the NASA people told them that they are just men that are getting ready to go to the moon. The man became very excited and asked if he could send a message to the moon with the astronauts.

The NASA personnel thought this was a great idea so they rustled up a tape recorder. After the man gave them his message they asked his son to translate. His son would not. Later, they tried a few more people on the reservation to translate and every person they asked would chuckle and then refuse to translate. Finally, with cash in hand someone translated the message, "Watch out for these guys, they come to take your land."

--Charles Phillip Whitedog, Ojibway and Network Manager Multimission Ground Systems Office (Mission Control), Jet Propulsion Laboratory, NASA

(forwarded by Rick Kramer)

The Final Word
by Bob Wiersbe
Editor May 1993 - December 1998

What started out as a temporary job as Newsletter Editor has turned in to a six year adventure. Along the way I've had the pleasure of getting to know many people inside the club better, won two awards, and had a lot of fun.

But, as I'm told, all good things must come to an end. For many reasons I've made the difficult decision to step down as Editor, and let Jeff Pleimling take over. I want to commend Jeff for volunteering to take on this job, and I really believe that he will continue the tradition of fine newsletter editing that NIRA has enjoyed for many, many years.

I want to thank all of you who have sent me articles, pictures, plans, comics, and helpful suggestions over the years. In all honesty, the newsletter is what it is because of what you contribute. I hope that you will continue to support Jeff the same way that you supported me.

I want to share with you the letter that went into the "Annex" this year at NARAM 40. Most of you did not get to see it, because I didn't get around to writing it until just before I left for NARAM. It was rather ironic that I finally made it to a NARAM banquet, only to have the trophy awarded to some else. We did get Second Place (even though I don't think they really do that with the LAC Trophy), and I got a handshake from Tom Beach, which helped soften the blow (Tom is the editor of Sport Rocketry and hands out the LAC Trophy each year).

I should also tell you that it was at this point that Bob Kaplow turned to me and said "You're Fired!". We'd made a deal out on the range that if we won the Trophy again I'd stay on as Editor.

Again, thank you for all your support these last six years, it's been fun being the "ringleader of this circus" (as someone once described the job of newsletter editor). I would like to offer my sincere thanks to all of you who allowed me to make fun of you in one way or another (it was all in good fun), and apologize to all I may have offended at one time or another. And to Pierre, I'm still sorry that I cut your article up, but I had to do it [man, you've got a lot to say for a Youth!]

Jeff, the newsletter is all yours! (and thanks!)

July 30,1998

To The Future Winners of the LAC Trophy:

Congratulations! As the 1996 and 1997 winner of this award, I want to recognize your efforts that earned you this honor. It is no small feat to be declared the Best Newsletter in the NAR! From experience, I know what you have had to do to create a newsletter worthy of reading and that others can appreciate. The people that are the judges for this award aren't slouches either, they are usually former newsletter editors and have a critical eye. To have won this award means that you have impressed them as well.

I also want to recognize and thank all of the NIRA members who have contributed material to the newsletter. Without their input there simply wouldn't be a newsletter. Each of them helped to win this trophy and my sincere thanks go to them all!

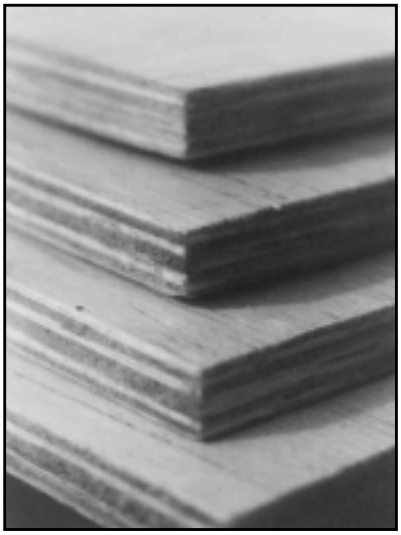
Winning the Trophy in 1996 was one of the highlights of my career as newsletter editor. When we won the Trophy again in 1997, I was even more surprised. Very few newsletters have ever won the award back-to-back. Given the quantity and quality of the newsletters that are produced in the NAR, it felt extremely satisfying to have defended the title of "Best Newsletter".

Last year I left my NIRA membership card and a special button in "The Annex" (that wooden box that goes with the trophy). This year NIRA has decided to leave the "I flew the 1000th flight at MRFF 98" button. We have been trying to fly over 1000 rockets at MRFF (a two day sport launch) for the last few years, and we've only broken the 900 flight mark once. We thought it would be nice if one of these buttons made it someplace, and the Annex seemed as good as place as any.

I guess you could say that it also symbolizes NIRA's commitment to keep on trying to improve, but I don't want to get philosophical.

Again, my sincere congratulations to you on winning this trophy!

Bob Wiersbe
Editor, The Leading Edge
Northern Illinois Rocketry Association



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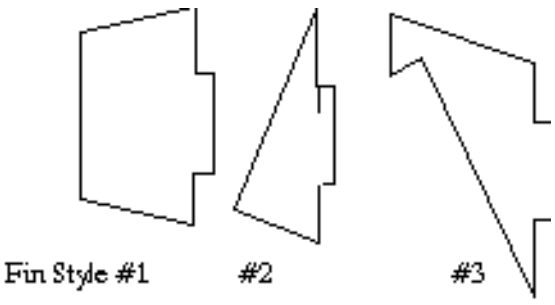

Heard on the Street (with apologies to the Wall Street Journal)

Welcome to the Club! - Adrian Butler, Jeff Cook, David Dzialakiewicz, Alex Gray, Dillon Gray, Jay Jehangin, Veatrice Jehangin, Rusty Jehangin, J.J. Jehangin, Alex Krause, Harry Lewinski, Bob Mengarelli, Steve Nelson, Michael Nelson, Michael Romano, Todd Schoffeitt, Zaki Shaikh, Matthew Terebessy, Curt Willeford, Jeff Willeford and James Wilson have joined NIRA recently. Welcome!

Final Flight - NIRA condolences go to "Jedi" George Riebesehl and family on the passing away of his mother after a brief struggle against cancer.

Final Flight - Belker, NIRA's resident rocket dog, died peacefully October 31. Belker was a fixture on NIRA and NAR ranges for many years. Condolences to Bob, Judy and Rachel Kaplow. Belker's bark at the sound of a countdown will be missed.

NAR S&T News

R54: NEW MOTOR CERTIFICATION

The following motor has been certified by NAR Standards & Testing as of October 1, 1998 for general use as a model rocket motor. It is certified for contest use effective November 30, 1998.

Estes:
13mm x 45mm:
1/4A3-3T (0.625 Newton-seconds total impulse, 0.83 grams propellant mass)

Jim Cook, Secretary for
NAR Standards & Testing
<JimCook@AOL.COM>

Jack Kane, Chairman

Unsolicited Ads

(no money was exchanged in return for these ads. really)

Need a new nose cone? Check out BMS! Excellent prices, service and quality. BMS also offers semi-custom parts in addition to the line of Estes replacements.

The nose cone for the Mini Viper III on page 7 is the BNC55F, available from BMS for $2.80. Call, write, email, or visit their web site today!

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Looking for HPR goodies in the Chicagoland area? Check out Al's Hobby Shop in Elmhurst! Al's carries Aerotech, LOC, PML, and Rocket R&D just to name a few. Be sure to ask for J.R.

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630-832-4908

Looking for a decal of an old model? There are decal files (and other goodies) in PDF format available for downloading by Kurt Schachner from:

http://www.geocities.com/CapeCanaveral/Hangar/9936/

The current list includes the following items:

1/70 scale Apollo capsule wrap, 1/70 scale Little Joe II, 1/70 scale Saturn 1B Body Wraps -- 8 1/2 x 14 page, 1/70 scale Saturn 1B Centering Rings -- 2 pages, 1/70 scale Saturn 1B decal, ARCAS, Aerobee-Hi, Bat fin template, Beta decal, Camroc Carrier Decal (print on white paper), Centuri Laser X, Centuri Point (three-page file), Centuri Sky Lab, Centuri Space Shuttle Decals, Centuri Starfire, Centuri USS America, Cherokee D, D-Region Tomahawk decal, Der Big Red Max, Estes D-13 decal sheet, Estes T-Shirt Iron-On (2 per page), Estes T-Shirt Iron-On, Gemini Titan decals, Gemini Titan patterns, Goblin, Honest John decal, Interceptor page 1, Interceptor page 2, LTV Scout decal, Maniac Decal (slightly reduced), Maniac Decal changed to say Miniac (fits BT-50), Mars Snooper, Mercury Redstone decal, Omega decal page 1, Omega decal page 2, Omega decal page 3, Omega fin patterns 1, Orbital Transport, Polaris Decal, Rogue decal, SPEV decal, SPEV templates, Scissor Wing Transport, Scrambler, Shrike decal, Shrike patterns, Sky Dart, Space Plane templates, Sprint decal, Sprint templates, Thor-Agena B, Trident, Upscale Cherokee D decals to fit a 4" airframe -- 2 pages, Upscale Goblin decals to fit a 4" airframe, and X-Ray decal.

Please read the Read Me file, and as always, it is best to print these files to a PostScript printer. Other printers give variable (and often poor) results.

Want to pre-order the new Estes Saturn V kit? Timeless Hobbies in Wheaton is taking orders for the coveted Saturn V via phone or Internet. Their price is only $49.99, and you will not be billed until delivery. You can even pick up your kit at the store! To order via the web go to:

http://www.a2zhobbies.com

and follow the links to the 30th Anniversary Saturn V. Or, call Timeless Hobbies at (630) 690-5542 and place your order (be sure to mention the Internet price!! Oh yeah, and dial those last 4 digits right, otherwise you'll end up talking to me. My number is 690-5442).

The Real Bean

Some minor highlights from a recent talk from former Apollo Astronaut Alan Bean:

- Bean said that he loved to fly and when he first got on an aircraft carrier he looked around at all the other types of aircraft and wanted to know how he could fly them, not just the jets he was flying at the time. He realized that the best way to do that was to become a test pilot.

- He said that he had a flight in an airplane during John Glenn's flight. He took off about the same time Glenn did, flew about 750 miles, and landed back at his base. Some of his squadron mates were watching the Glenn flight on television and he realized that Glenn had traveled 24,000 miles in the time he had traveled 750. He started to think that the space program would offer an opportunity to fly some neat new machines.

- He described the Saturn V on the launch pad as "a giant half-machine half-dinosaur" which was breathing vapors and creaking and groaning. He said that when he was going out to the command module, he looked down and he could see the ice building up on the vehicle. He said he watched it for awhile and it got bigger and bigger and then fell off, falling 200-300 feet to smash on the pad below.

- He said that during the launch the vehicle felt like it was coming apart. He said that if they had given him a button to end the launch, he might have pressed it. "That's why they don't give the new guy a button," he said.

- He said that the crew had been well-trained prior to launch, but that the lightning strike lit up 14 warning lights. He said that his entire electrical system board lit up, which had NEVER happened before in training. But his test pilot training told him never to react too fast to something as long as you are going in the right direction or you could make it worse. The ground controllers told him to turn on all the fuel cells (which had gone off-line). He decided instead to turn on just one. When that came on, he turned on the second one. When that stayed on, he turned on the third.

- He said that they were initially worried about the parachute pyros having detonated during the lightning strike, but they forgot about that until just before reentry.

- The engineers later determined that they were hit by an average size lightning bolt, but that if it had been much bigger it would have destroyed the rocket.

- He says he still stays in close touch with both his Apollo 12 and Skylab 3 crewmates.

Another inside look at a Tripoli Board Meeting.