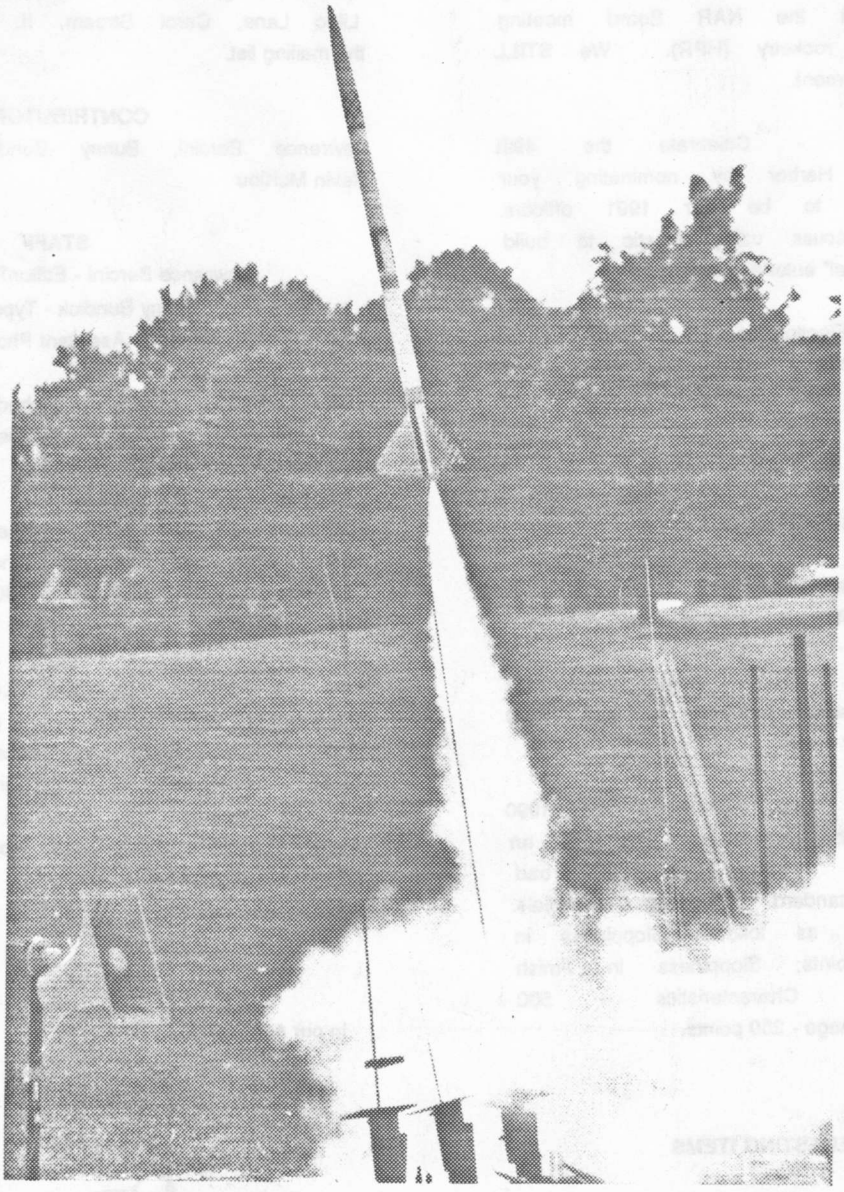
THE LEADING EDGE



Newsletter of the Northern Illinois Rocketry Association
Volume 13, No. 6
November/December 1990

T MINUS ONE - NIRA EVENTS

MONTHLY MEETINGS

All meetings start at 7:30 PM, and include refreshments, 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 708-483-2986 if you can help with ideas or can speak yourself.

November 2, 1990 - Regular Monthly meeting. Bunny will report on the NAR Board meeting discussing high power rocketry (HPR). We **STILL** need a speaker for entertainment.

December 7, 1990 - Celebrate the 49th anniversary of Pearl Harbor by nominating your fellow NIRA members to be our 1991 officers. Bunny promises to discuss using plastic to build and detail models for the "real" entertainment.

January 4, 1991 - Election time. You'll get a mail ballot before the meeting. Nominations will still be open at the meeting, so make sure you're there.

1990 LAUNCH DATES

All launches or other activities start at 2:00 PM. Our launch site is located at Ackerman Park, intersection of St. Charles and Swift Roads in Glen Ellyn. BYOL (bring your own launcher). NAR Insurance required or else RSO must inspect and launch your model.

November 18, 1990 - Last launch of the 1990 flying season. Event: Uglyroc - This is an anti-craftsmanship event. Simply put, use bad craftsmanship using standard modeling materials. Models will be judged as follows: Sloppiness in Construction - 500 points; Sloppiness in Finish - 250 points; Flight Characteristics - 500 points; Recovery/Lack of Damage - 250 points.

OTHER INTERESTING ITEMS

May 18-19, 1991 - Midwest Regional Fun Fly (MRFF); A regional sport launch held over a two day weekend to give us and other Midwesterners a chance to showcase their creations in a friendly environment. Launch to be held in Pratt Wayne Woods, (not a bad flying field!) 3.3 lb FAA waiver, silly competitions, People's Choice Awards, Chicago style pizza party, swap meet, making new friends and lots and lots of launches! Contact Mark Bundick, 1350 Lilac Lane, Carol Stream, IL 60188 to get on the mailing list.

August 3-10, 1991 - National Sport Launch/NARAM-33/FAI Flyoffs, Pratt Wayne Woods. Proposed events (currently under review by the NAR Contest Board): 1/2A PD, A SD, A RG, C HD, A Payload, B ELA, B BG, 120 Second Precision Duration, 120 Second RC RB, Peanut Scale, Open Spot Landing, R&D. Contact Mark Bundick, 1350 Lilac Lane, Carol Stream, IL 60188 to get on the mailing list.

CONTRIBUTORS

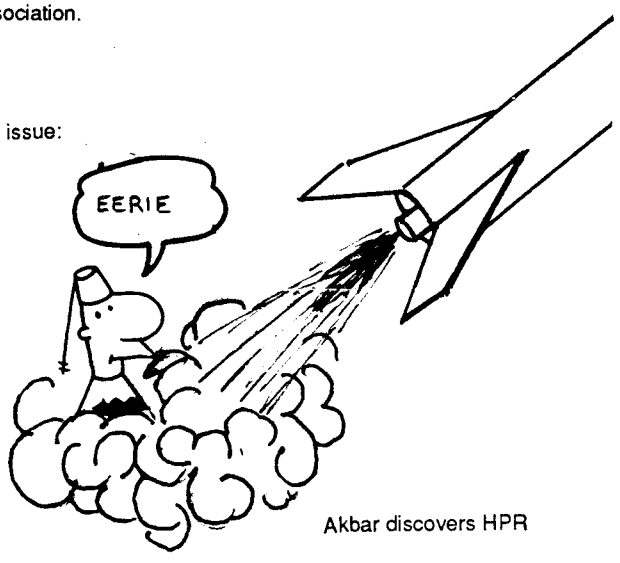
Lawrence Bercini, Bunny Bundick, Mike Jungclas, Kevin McKiou

STAFF

Lawrence Bercini - Editor/Photographer
Bunny Bundick - Typesetting
Ric Gaff - Assistant Photographer

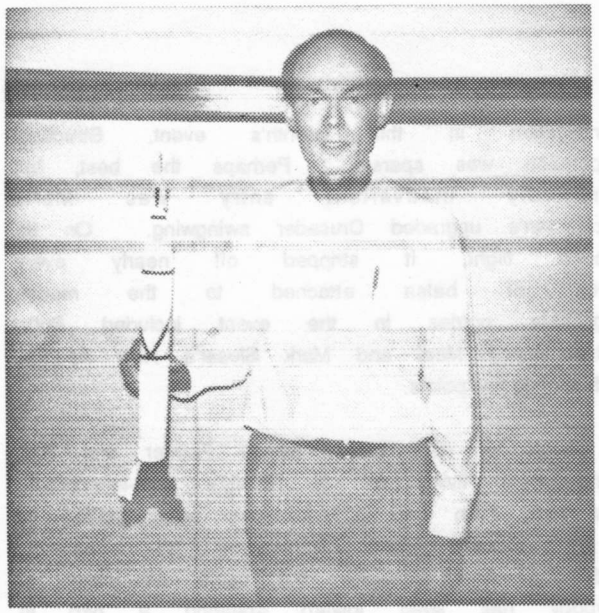
THE LEADING EDGE, published bi-monthly by and for members of the Northern Illinois Rocketry Association, NIRA, NAR Section #117, is dedicated to the idea that Sport Rocketry is FUN! Articles, plans, other newsletters, and news items of interest should be sent to Lawrence Bercini, Editor, 6033 Sheridan Rd. #33J, Chicago, IL 60660. Send membership applications (dues: $3/year, including a six issue subscription to the Leading Edge) and non-member subscriptions ($5 per six issues) to Mark Bundick, 1350 Lilac Lane, Carol Stream, IL 60188.

In our next issue:



Akbar discovers HPR

MODEL OF THE MONTH WINNERS



Cheers go to Kevin McKiou whose Jupiter C model won for best model at the September meetings. Jeers go to your editor and secretary who didn't record the youth winner's name! Tell us who you are, and we'll guarentee you a photo!

Congratulations go to Kevin McKiou and Andy Linder who were our October MOM winners, shown here presenting their Pathfinder and Gemini Titan models.

GENTLE REMINDERS

The following members are responsible for refreshments at the upcoming meetings:

November - Kleve Slouber
December - Bob Kaplow
January - Bundick's

LAUNCH RSO/LOG KEEPER

These people have signed up to be the RSO at club launches. Don't forget; this means being responsible for doing the safety checks, keeping the flight logs for our "Box Score" project, and then compiling the launch coverage for the "Leading Edge".

November - Lawrence Bercini

BOX SCORE UPDATE

WE MADE IT!!! The Labor Day Launch Demo, and our August and September club launches brought our total 1990 launches to 609 flights. Congratulations to all NIRA members who helped acheive this goal! With a few more activities left this year, how much higher can we go?????

CLUB RECORDS

Youth Division: 1/2A SD - Andy Linder, 69 seconds. Adult Division: 1/2A HD - Lawrence Bercini, 47 seconds; 1/2 A Flexwing Duration- Lawrence Bercini, 62 seconds; 1/2A SD - Don Linder, 77 seconds; B RG - Dave Price, 67 seconds.

If you want to see your name in this space, see Ric Gaff or Lawrence Bercini at the next launch and get your flight "officially" timed.

ON THE COVER - Kleve Slouber's original design, Knight, exhibited superb flight characteristics.

August NIRA Launch

by Lawrence Bercini

Typical hot, humid weather greeted the August launch. A good variety of old and new faces showed up to fly their latest creations and to hobnob with friends.

One old face that was good to see back again was Andy Recknagel. He made an inauspicious comeback by pranging the first flight of the day, and completely trashing his ancient Alpha. He did get in a good flight on his Comet before dad Larry hauled him off to the airport.

Kevin McKiou posted flights with his Sizzler, X-15, Nike Apache and his famous Jupiter-C. Inspired by the recent section meet, he decided to try out a new streamer material for future SD contests. The streamer performed so well, even die-hard competitors were chasing after Kevin asking "What was that?"

Yours truly flew a Thunderhawk, and old Estes Omega, SAM-4 and the original Sentinal kit. In an effort to lead the field in club records, I made an attempt in 1/2A Flexwing Duration. It was difficult chasing the glider and fending off derisive comments from club members (What? NIRA members heckling another's models? Shame, shame! - Bunny, a confirmed flexwing hater), but in the final result, I did manage a record of 62 seconds. Perhaps my most notable flight comes in the guise of the day's most notable failure. After many failed trim attempts on a Strike Vehicle glider part of a newly completed Canaroc Warlock, I tried a test flight anyway. The resulting power prang was most inspiring.

"Jedi" George Riebesehl was on hand, and as usual, was practicing with his Radio Controlled Rocket Glider. He put up seven flights during the day. Most were with D12's, but one went off with an E6. It was gorgeous! He drilled that puppy straight up, much to the delight of all in attendance.

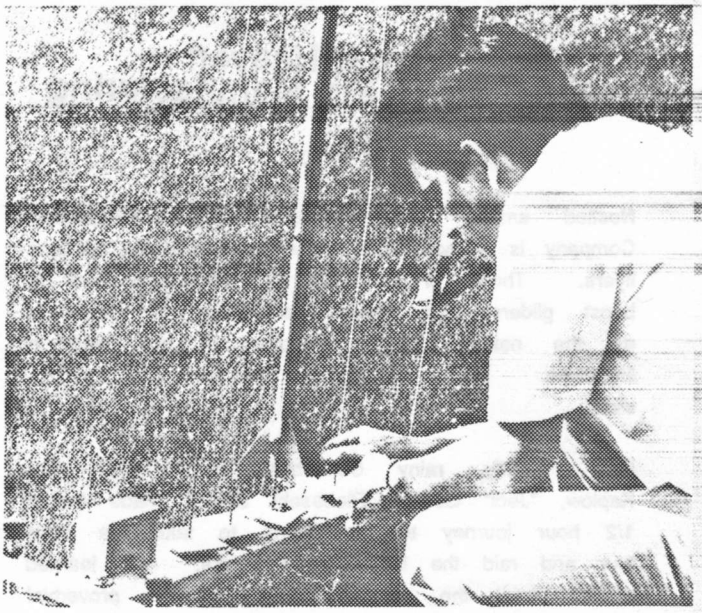
The Slouber clan was on hand. Kleve was doing test flights of the MRC Flare Patriot and MRC Launch System. (see review elsewhere). Using a C6-5 and FX motors, Kleve very nearly rekitted the bird. Says Kleve, "I think I'll stick with three second delays on that model!" He did however have flawless flights with his Astro 6, as did son Lionel with his Yankee.

Participation in this month's event, Structural Separation was sparse. Perhaps the best, but admittedly inadvertent entry was Marty Fackleman's upgraded Crusader swingwing. On its second flight, it stripped off nearly every piece of balsa attached to the model. Legitimate entries in the event included Bullet Bob's Happy Meal and Mark Slusar's Nike Apache, both scoring two points.

A couple of new faces, Randy Farmer and Rich Gund were flying off of Randy's mini-launchrack. The rack even had a cute little radar station on it! Randy's first flight of the day, a Pathfinder, flew perfectly, but came as close as anybody has seen toward spearing a bird in flight. He also posted fine flight with his old Centuri longshot, a Phaser, and a Blue Star. Rich, on the other hand, was having a rougher time of it. His two staged Scorpion model flew fine the first time. His second attempt, using a C6-0/C6-7 combination, clipped a fin on the lug standoff, causing the lug to detach. The model thrashed around on the ground, burning worms, and caused yours truly, who was acting as firing officer, to perform a "scatological" dance. Rich was more successful flying his Argosy model. Another new face, Ken Hutchenson, showed up late in the day in time to fly his nicely done Zinger and Ranger models.

By far, the most amazing flight ever seen in Ackerman Park was by Rich McBroom's H-Squared. He prepped the bird with an F30 booster and an F10 upper stage. Ignition of both motors went perfectly, and the long orange rocket thrusted and thrusted until it was completely beyond the limits of vision. After a moment, Jedi George got a track on it; the upper stage chute was fully deployed and it was drifting back to earth. The same thought hit everybody, "It's coming back to the pads!" Rich trotted about 50 yards downrange, and caught the upper stage before it landed! A moment later, Bunny showed up with the booster. Rich performed the amazing task of flying twin F motors in Ackerman Park and recovering all of the model intact. Believe it or not.

Why is this man smiling? You would too if you flew a twin F bird from a ball diamond and caught it as it landed!



Randy Farmer concentrates on this Longshot model.

Lawrence's Warlock just moments before it transformed itself into a Best Midwest Qualified Flight trophy.

Bob inspects the soggy remains of his Random Duration bird lost last month. The T-shirt says it all.

Rich Gund's worm-burning Scorpion taught a couple of NIRA-ites to dance.

Almost Heaven
NIRA Visits Sig Manufacturing

by Bunny

Nestled among Iowa cornfields, Sig Manufacturing Company is a household name among model airplane flyers. Those of us who love to build and fly boost gliders also know this family run business as the nation's largest supplier of our staff of life, balsa wood.

On a chilly, rainy Columbus Day, "Bullet" Bob Kaplow, "Jedi" George Riebesehl and I made the 4 1/2 hour journey to Montezuma to take the plant tour and raid the balsa wood stacks. We learned a lot about the company, and like the proverbial kids in the candy store, came away poorer but much happier.

Sig is scattered among several buildings in Montezuma, but the main offices house the order processing and packaging, kit production and some component manufacturing. Imagine rows and rows of shelves containing all those screws, wheels, pushrods and the hardware essential to the RC flyer, and you'll get and idea of what shipping is like. We saw some large vacuforming machines make canopies for RC ships, and a neat wire bending tool churn out landing gear. Off to the side is a storage room full of model airplanes used in catalog photos. There was one lonely NCR Star Spangled G Bird off in a corner. (When asked later, Matt Steele explained that Bruce Tharpe, a Sig kit designer, also liked to fly rockets.)

Many airplane kits use die cut parts. After years of wondering, I finally saw how it's done. An old hand feed printing press is used to stamp out the parts. Instead of paper and an inked pad, the operator uses sheets of balsa and a metal cutting die , custom made in Sig's own machine shop. Thunk, thunk, thunk, and a couple of hours later you've got 500 airplane kits.

Sig also sells numerous paints, thinners and most importantly to us BG types, dope. We watched people silk screen labels on cans and jars, then fill them from 55 gallon drums of adhesive or paint.

The final item of note is the staff at the plant. Every employee we met was helpful and seemed genuinely interested in our efforts. Jedi's team jacket attracted attention, and we got wished well on our trip to Moscow next fall. It's nice to know that a company like Sig that services modelers isn't a cold heartless business. The people really do care about the modeling hobby.

After touring the decal production department and getting some free samples, our guide said "Well, I can't take you into the sawmill, but if you'd like to see the balsa warehouse, I can show you that." It's a miracle the poor woman didn't get trampled by three eager NIRA members.

The sawmill itself was quiet, but the windows were filled with balsa dust! Operators there wear battery powered respirators and the building has a massive exhaust system to keep the inhalation low.

We saw a green corrugated metal building, about 40 x 100 feet directly behind the mill. We walked in through the open door and stopped. Stacked in bundles about 4' square was balsa wood. Hundreds of bundles crowded the warehouse reaching 15' high to rafters. We later figured there was almost 100,000 cubic feet of wood in raw form there, and Sig maintains standing orders at two of the four mills in Ecuador for more.

Stamped "Producto del Equador", the raw logs were of various sizes and bound with metal straps. After logging in the rainforest, the 10% of trees suitable for model use are rough sawn, then kiln dried. Shipped through the Panama Canal to Florida, trains carry the wood north through Chicago to Newton, Iowa. Trucks complete the journey to the plant.

When kit production or sheet stockers need more wood, they write up an order and send it to the sawmill. The mill cuts the wood and sends the completed items back to the ordering department. There's a separate room for sticks and another for blocks. Immediately behind the balsa are shelves housing the spruce stock and plywood.

For us BG flyers, the room to visit is the sheet storage area. While we were there, some 1/16" arrived fresh from the mill, but only about a thousand sheets worth. The room's only about 12 x 20, but there are dozens of cardboard bins with the entire Sig sheet balsa lineup. Jedi, Bullet and I spent 2 1/2 hours here, raiding the wood, weighing each sheet on my beam balance.

It was neat to sort through the stacks. Since the wood came directly from the mill, you could see the grain change slightly from sheet to sheet as the saw cut through the log. Once you got to an excellent sheet, you'd immediately find 3 or 4 others immediately behind it of like quality.

I'm sorry to say that we had to leave behind the bad stuff. Jedi rejected some outstanding 7 lb C-grain for RC RG stabs as "too heavy". I confess I did likewise with some 3/16" B BG wing stock. Every sheet for wing stock I brought back had beautiful C-grain and weighed under 6.5 lbs/cu ft. Jedi left over $50 poorer, and all of his purchases were balsa. Sadly, Bullet and I left even poorer.

The trip by car isn't really that far, and unless you've got a big group, a "reservation" isn't necessary. Montezuma is only 8 miles or so off of I-80, so if you're headed out that way, a side trip on your family vacation is a nice 2 hour interlude on the way to Yosemete.

Hats off to the folks at Sig for a great tour, a great time, great wood and a great company!

NIRA's 27th Annual Labor Day Demonstration Launch

by Kevin McKiou

One of the longest running traditions in model rocketry was held September 3rd in Glen Ellyn, NIRA's 27th Annual Labor Day Demonstration Launch. NIRA members hold this model rocket launch each year to introduce the public to the fun and excitement of model rocketry and to invite interested persons to join the club and activities. Mike Jungclas is commended for pulling this event together.

The launch was kicked off at 2:00 p.m. in Newton Park with the launch of Kleve Slouber's Bull Pup. In the next 2 and 1/2 hours, approximately 150 rockets were launched. This_

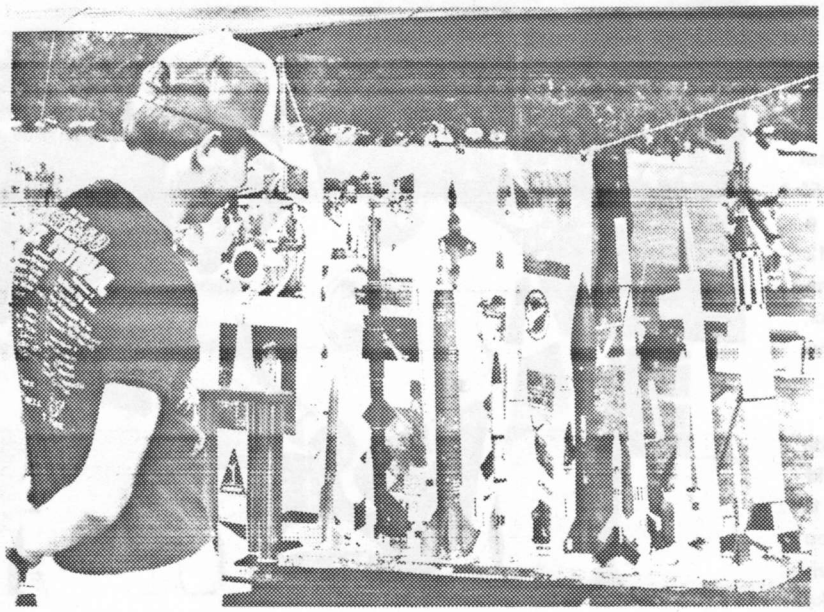
Glen upstages Ric and Rack.

many launches would not have been possible without the new double-rack launch system built/rebuilt by Rick Gaff and Lawrence Bercini and the teamwork of the launch and recovery crews. Thanks to Boy Scout Troop 865 for assuming recovery duties and to Rick Gaff for being chief rocket racker.

The duties of commentator and official button pusher were split among "Bullet" Bob Kaplow, Mark "Bunny" Bundick and Mike Jungclas. Bunny demonstrated how to handle Chuck Frank's Sentinel when it doesn't go where it's pointed. He bare-handedly wrestled the misguided missile to the ground after it left the launcher headed for the spectators. Nice catch Bunny! (Does the delay train significantly reduce base drag, those MIT boys wondered? With a 5" long flame coming out of the end of a rocket during the delay, I'd have to say "YES!" - Bunny)

Approximately every half hour a break was taken and a drawing was held to give away model rocket kits. Twelve lucky winners took home model rocket kits donated by Estes Industries and Arlington Hobbies (thanks Mike Jungclas and Glen Thiel).

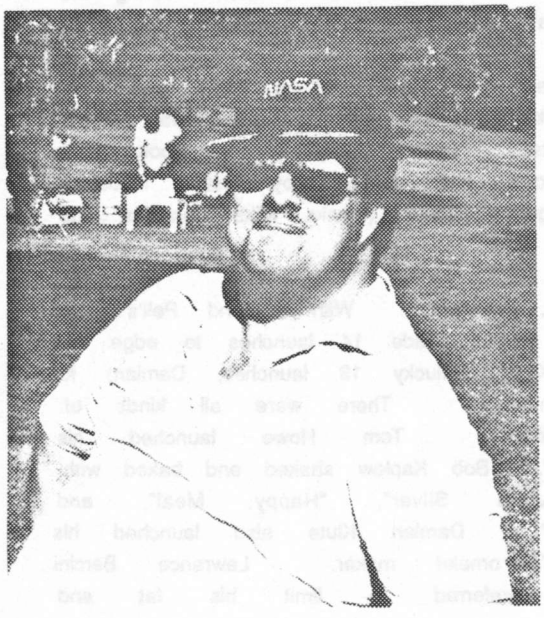
And now, highlights. With Harland Pell's help, Lawrence Bercini made 14 launches to edge out Damian Klute (unlucky 13 launches, Damian) for most-launch-honors. There were all kinds of "flying food". Tom Howe launched his "Fast-Food". Bob Kaplow shaked and baked with "Long John Silver", "Happy Meal", and "Eggspress". Damian Klute also launched his "Eggspress" omelet maker. Lawrence Bercini obviously preferred to limit his fat and



The NIRA display always generates lots of interest.

The ad hoc recovery crew performs another mid-air snag.

It's waaaay up there!



Event organizer, Mike Jungclas, was pleased with the day's activities.

cholesterol by launching "Pumpkin Man" and "Flying Carrot". The skywriting award goes to Lawrence for that Fabulous-Flying-Faber, "Flying Pencil". Lawrence Bercini and Bob Kaplow's helicopters, "RotoRoc" and "RotaCrock" were fun to watch even if everything didn't go "just right". Jasper Hausner had a most impressive prang with his E15-powered "Mean Machine".

Glen Thiel's "Chicago Water Tower" is the only flying skyscraper in town. Scout Troop 865 had the most-launched rocket with 12 "Clipper" launches. The Prices brought out the bathroom scale pink "Hair Curlers" and "Hair Conditioner". Kevin McKiou had the flashiest rocket with his "Fire Fly" 2-stage strobe-o-roc. There were five "Super Big Bertha" launches that were so impressive Bunny was overhead saying "I'm going to have to buy one of those". NAR President, Pat Miller, made a cameo appearance. Or, at least his head did. Jim Christensen's E15 "Initiator" and dual-D12-cluster "Starburst" were real crowd pleasers. George Riebesehl and John Boren thrilled everyone with their RCRGs. But, would someone please tell John to keep that stick forward on launch. Looping on takeoff is TOO thrilling. Finally, the last launch of the day belonged to Bullet-Bob's E30 "Graduator".

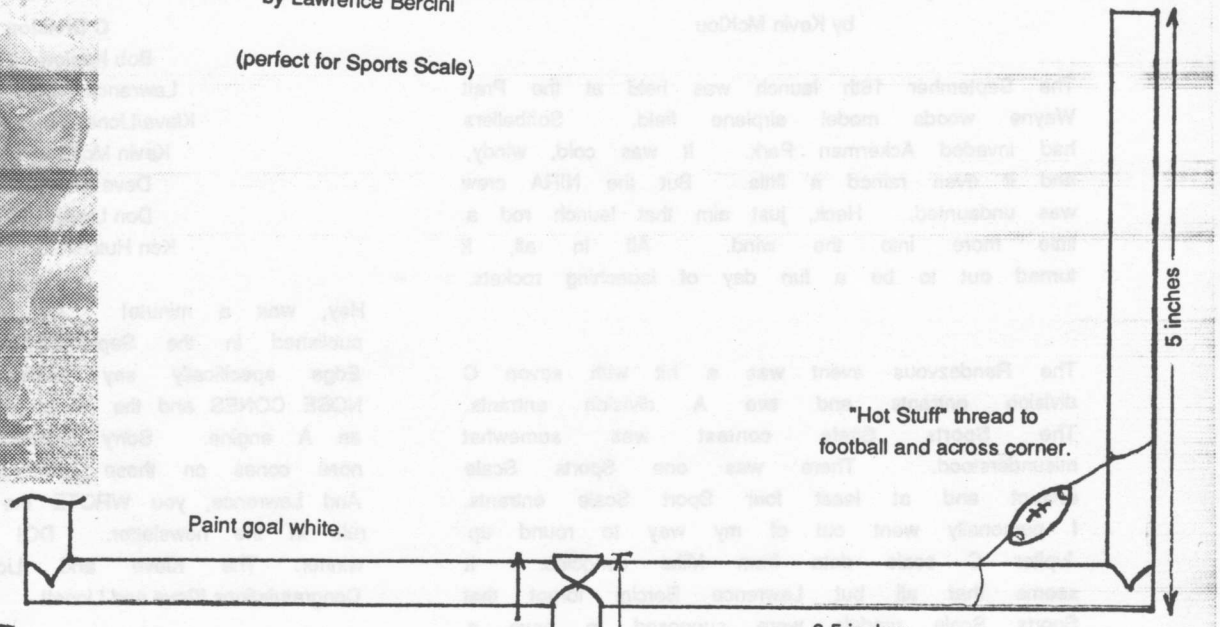
Thanks to Kleve Slouber and Kevin McKiou who guarded the gate (and checked in the rockets), Lawrence Bercini and Judy Kaplow for staffing the display and sales tent (the club cleared $70.00 and netted seven new/renewed members), all the people who turned out and brought their rockets, and all those NIRA members who helped in big and small ways. (I'm sorry if I left out your name...) The event was great fun and I'm looking forward to number 28. See you there! Oh, maybe Mike Jungclas will have his rockets out of the closet by then. Eh, Mike?

The Flying Field Goal

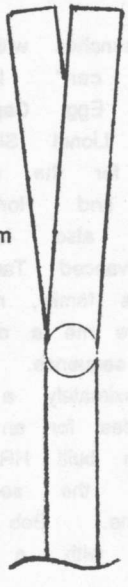
by Lawrence Bercini

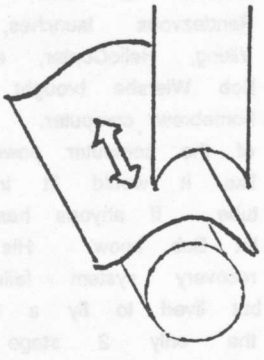
(perfect for Sports Scale)

Lawrence and his Flying Field Goal.



Tilt uprights approximately 3 deg. from vertical.



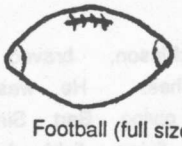


Wrap sandpaper around tube and sand ends of crossbars and uprights until they match tube contour.

Parts List

two BT-5
one BNC-5E
one JT-5C
one shock cord
one streamer
one launch lug
thread
clay
epoxy
white and brown paint
streamer material

13 inches



Football (full size)
Carve from balsa or shape from sculpty.
Paint brown and white.

2.5 inches

NOTE: Streamer MUST be decorated with the phrase "GO BEARS" or rocket will not fly properly! Fans of other, lesser teams, change this at your own risk!

And it really, really works!

September NIRA Launch

The Larry Club tradition continues...

by Kevin McKiou

The September 16th launch was held at the Pratt Wayne woods model airplane field. Softballers had invaded Ackerman Park. It was cold, windy, and it even rained a little. But the NIRA crew was undaunted. Heck, just aim that launch rod a little more into the wind. All in all, it turned out to be a fun day of launching rockets.

The Rendezvous event was a hit with seven C division entrants and two A division entrants. The Sports Scale contest was somewhat misunderstood. There was one Sports Scale entrant and at least four Sport Scale entrants. I personally went out of my way to round up Jupiter C scale data from Mike Jungclas. It seems that all but Lawrence Bercini forgot that Sports Scale models were supposed to have a sports theme. You know, like a flying jock-strap. I tried to get the event changed, but to no avail.

Lawrence won with his flying goal-post complete with a tiny football suspended between the uprights. Congratulations L.B.! (Don't worry. He gets his later.)

The idea of the Rendezvous event is to launch one rocket with at least an A engine. When it lands, the tip of it's nose cone "marks the spot". A second rocket is then launched with the objective of landing as close as possible to the first rocket. This event was dominated by flying fast-food refuse and Unidentifiable Flying Objects. It looked like a close encounter with high cholesterol. I think some additional rules about recovery systems and minimum ejection delays would make this event a bit more sporting. Those of us that flew REAL rockets still have our pride. Ok, enough grousing. Here's the results in feet:

A Division

Andy Linder - 23.5

Matt Price - 24.8

Congratulations to both Andy and Matt! You bested all but one of the C Divisioners.

C Division

Bob Kaplow - 17.5

Lawrence Bercini - 45.8

Kleve/Lionel Slouber - 60.8

Kevin McKiou - 63.25

Dave Price - 77.25

Don Linder - 99.6

Ken Hutchinson - 184.0

Hey, wait a minute! The rules of this contest published in the September/October 1990 Leading Edge specifically say shortest distance between NOSE CONES and the model must fly with AT LEAST an A engine. Sorry Bullet-Bob. There are no nose cones on those junk-food containers. DQ! And Lawrence, you WROTE the minimum engine size rule in the newsletter. DQ! We have a new winner: The Kleve and Lionel Slouber Team. Congratulations Kleve and Lionel!

Dave Price logged seven launches with his Mini Mars Lander, "garbage can" Leprechaun, Marshmallow Lofter, X-Wing, Egg Capsule, and Super Roc. Kleve and Lionel Slouber also racked up seven launches for the day. In addition to their Astro and Honest John Rendezvous launches, they also launched a Viking, HelioCopter, and Advanced Target Drone. Bob Wiersbe brought out his family, rockets and homebrew computer. He gave me a demonstration of the computer power up sequence. It looked like it would fit in approximately a 2" body tube. If anyone has an idea for an application let Bob know. His scratch built HR-1 had a recovery system failure on the second flight but lived to fly a third time. Bob also had the only 2 stage flight with a B6-0/A8-5 combination in his Apache II.

Jim Christensen and son launched their Sentinel which is featured on the September/October 1990 Leading Edge. However, the winds were just too high for Jim and he called it a day without launching his Aerotech Initiator or his Starburst.

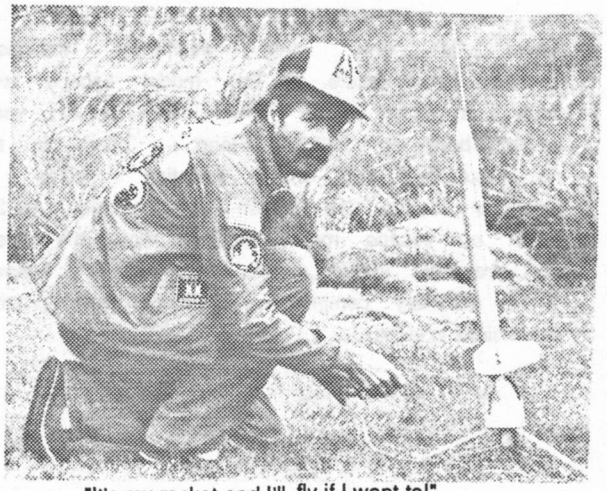
A new member, Ken Hutchinson, braved the weather and made four launches. He was the only payloader for the day, giving Bart Simpson a birds eye view of the flying field in his Warp II.

Your's truly was all over the field. After dropping two B8-5 powered Rangers, a C6-7 powered Sizzler and a C6-7 powered X-15 into a weed patch 50 yards up wind I straightened up the launch rod a bit for a D12-5 powered Ranger. It landed about a 1/4 mile downwind.

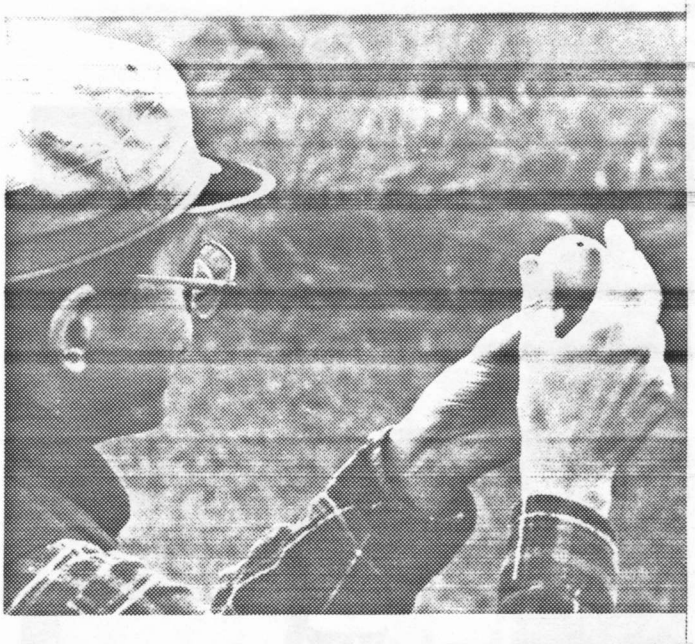
Lawrence Bercini kept the club entertained, as usual, with a variety of launch vehicles. He showed us how to be diplomatic as he demonstrated back-to-back Russian and USA missions with Little Ivan and the Mini Shuttle. His Little Joe had an impressive flight with the Apollo Capsule landing under it's own chute. Unfortunately the main body had a rough landing and broke a fin.

Finally, Lawrence had the last flight of the day. It seems that Lawrence is destined to remain in the "Larry Club". Larry Mika, Larry London and Lawrence have a reputation for getting rockets hung on high power lines. How appropriate that Lawrence carry on the tradition with the last flight at this new NIRA launch site. He outfitted his orange Thunderbolt with an F25 and a streamer. Given the size of the flying field and the fact that the winds were getting much lighter, it looked like he stood a pretty good chance of recovering it. It roared off the pad and shrank to a tiny dot. It was drifting back toward the parking lot and looked like an easy recovery. But alas, fate stepped and it wrapped its streamer around a high power line just before hitting the ground. Lawrence collapsed on the ground, laughing. Or was it crying? Anyway, this has a happy ending. Two days later Bob Wiersbe returned to the launch site on his lunch hour. He found the Thunderbolt on the ground unharmed.

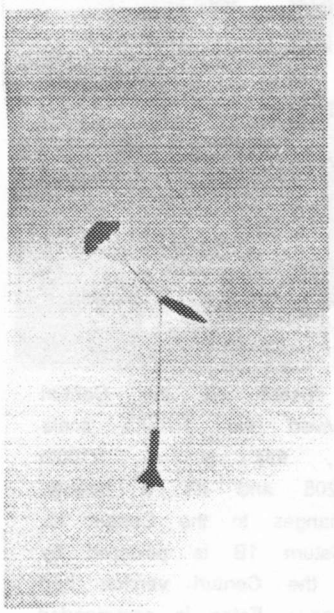
At 5:00 p.m. everyone packed up and headed home just as the clouds parted, the sun came out, and the model airplaners returned to their turf. I heard one of them saying "It rained here? The weather looks great for flying, to me."



"It's my rocket and I'll fly if I want to!"



Dave sets up his egg half rocket for Rendezvous.

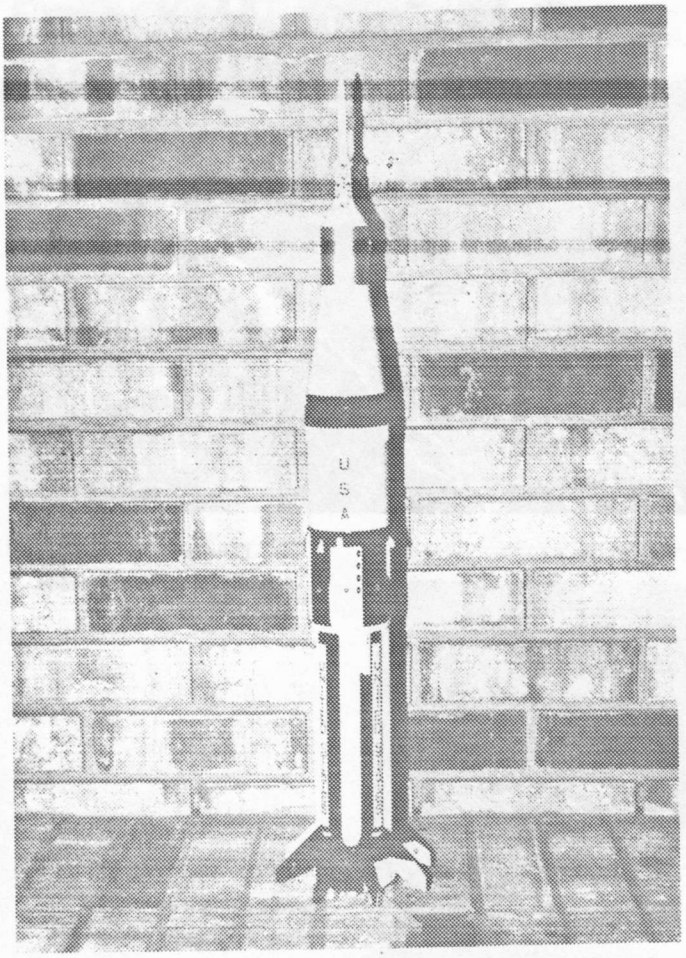


Kleve's Honest John drifts across the stormy sky.

Ken Hutchenson and VIP payload.

Saturn 1B Kit Review

by Kevin McKiou



Estes appears to have dusted off the Centuri Saturn 1B dies and revived the 1/100th scale Saturn 1B. Specifically, this is a 1/100th scale of Saturn 1B SA-205 and it's a beauty. Estes has made a few changes to the Centuri kit. Most notable, the Estes Saturn 1B is powered by a single D12 engine and the Centuri version had a cluster of 2 18mm engines. Estes is commended for that improvement. I'm sure nobody likes to see this much work prang when only one engine ignites.

Estes also simplified assembly of the escape tower rocket and substituted flat washers for the clay nose weight. One thing missing from the Estes kit is the Lunar Excursion Module (L.E.M.)/Service Module (S.M.) silver body wraps. Estes has you paint the entire L.E.M/S.M. silver. The Centuri L.E.M./S.M. is painted black and then wrapped with a silver "stick-on" sheet which gives it a more scale appearance. I am very pleased with this kit. It is well illustrated, all the parts fit well, and the assembly proceeded smoothly. Total assembly and finishing time was 42 hours. Actually, it should have taken 39 hours, but a minor setback (my mistake, not Estes) added 3 hours. The end result is a very attractive scale model that I feel is well worth the $39.89 price tag.

General Description:

The model's overall length is 26.75" which is pretty close to 1/100th of the full scale length of 2681.09". Estes indicates the empty weight should be 5.34 oz.. I tend to finish my models a little heavy. Mine weighed-in at 6.25 oz.. The recommended D12-5 engine should push the model to a little over 400 feet in altitude. I was concerned that the altitude predicted by Estes, 425 feet, was low. Centuri predicted an altitude of 700 - 900 feet with two C6-5s. However, a quick check with RASP confirmed the Estes altitude prediction.

The recovery system is in two parts. The Apollo capsule and upper stage are attached to a 12" parachute with a harness that keeps the escape tower tilted up. This is supposed to help prevent damage on landing. The main body has a conventional shock cord arrangement with an 18" parachute.

Scale Comparison:

After I completed the model, I made a number of measurements and comparisons with actual Saturn 1B dimensions. I'd like thank Mike Jungclas for the scale data and loan of a micrometer. In general, the model compares quite favorably with 1/100th of the full scale dimensions. The most significant sacrifice in scale is the fin dimensions.

Estes enlarged the fins to aid stability. On an x-y coordinate system, the full scale fins are 110" from root to tip in the x dimension. The model's fins are 1.325". In addition to enlarging the fins, they are also canted approximately 5 degrees from vertical. This is supposed to add an additional safety margin since it causes the model to rotate. I have some doubts about the effectiveness of this deviation from scale.

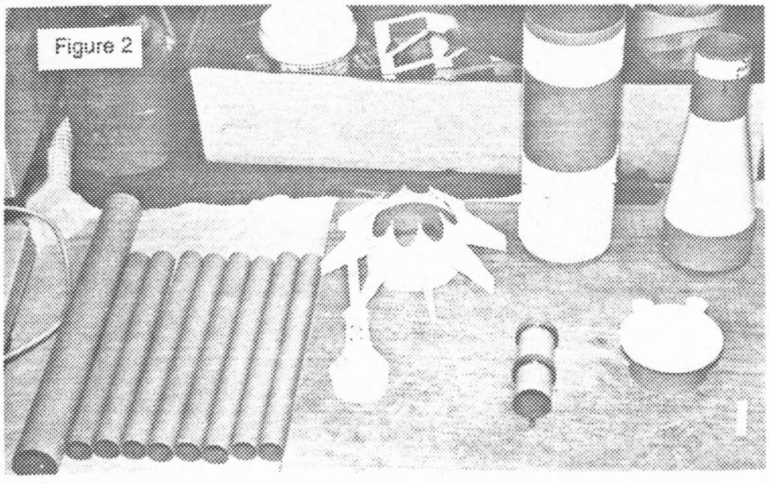
There is one other seemingly inexplicable deviation from scale. The model escape rocket body is 2.48" long while the actual escape rocket body is 262.757" long. There is really no excuse for this deviation unless the particular Saturn 1B which is modeled, SA-205, had an escape rocket different from the one on my drawings (dated June 23, 1967). Following is a summary comparison of model and prototype dimensions in inches.

Overall Length	26.750	2681.090
2nd Stage Dia.	2.618	260.000
L.E.M./S.M. Dia.	1.535	154.000
Fin Span Tip-to-Tip	5.375	488.500
Fin Span Root-to-Tip	1.325	110.000
Escape Rocket Length	2.480	262.757
1st Stage Diameter	2.565	244.000
Apollo Capsule Length	1.155	121.199

Figure 1

Assembly Highlights:

The kit arrived in a very attractive box. Not only is the box pretty, it is also functional. Everything arrived in excellent shape. (see Figure 1) The fin-halves, nozzles, antenna boards, and body-wraps are vacuum formed. The Apollo capsule, escape tower and rocket, R.C.S. nozzles, and tank shroud are molded plastic. All the parts were well formed except for a few of the nozzles. Construction and painting is divided into 6 major sub- assemblies: (1) Aft body/Fin unit; (2) Second stage body: (3) Lunar excursion module/Service module: (4) Apollo capsule and tower; (5) Display Nozzles and (6) Fuel tube unit. (see Figure 2)



The first major task is to assemble the aft body/fin unit. Each fin is made from two vacuum-formed halves and two internal strengthening tabs. The trick here is not to use too much glue. In some cases I did use too much and ended up with puckered fins which I later had to fill and sand smooth. An alternative is to use instant CA which won't melt the plastic. After the fins halves are mated, the edges are trimmed and sanded. These are glued to the aft body assembly after the body wrap is applied with spray-on adhesive and the shroud is glued in place. The final step is to add the lower launch lug. In all this sub-assembly took me about 9 hours. The fins are a major pain in the ***. But, they are light, strong, and good looking when completed.

The second sub-assembly is the second stage body. Upper and lower vacuum formed body wraps are applied with spray-on adhesive. In general, I had problems with the spray-on stuff. I finally got tired of waiting for it to set up and got out the CA to tack it in place. Two external systems tunnels are fabricated from hardwood sticks and glued in place. Finally, the upper launch lug is glued to a piece of wood and set aside to be attached after painting. This step took 1.5 hours.

The third sub-assembly is the L.E.M./S.M. unit. The bottom of the unit is made from a tube coupler, a piece of BT-58, two centering rings, and a paper "cone" shroud. A distinguishing feature of this assembly is the two attachment points for the shock cord and a static line. The shock cord is attached to a string loop in the bottom of the unit and the static cord is attached to a wire loop protruding from the L.E.M./S.M.. I replaced the parachute shroud static line with 50 lb. test braided fishing line and the rubber band shock cord with 1/4" elastic. This assembly took 2.25 hours

The fourth sub-assembly is the Apollo capsule and escape tower. This is a simple assembly job with the exception of the escape tower. It comes in 5 pieces; 4 sides and a center ring. Fortunately, the fit is very good on these parts. Assembly went very smooth.

The fifth sub-assembly is the display nozzle unit. It is an easy job except for trimming the nozzles. They are vacuum formed and must be cut from a sheet of plastic. You must leave a small lip at the opening of the bell which is then sanded off. The sanding is very time consuming when you are prepping 8 nozzles.

The sixth and final sub-assembly is the fuel tube unit. Each of the 8 fuel tubes must be painted before assembly; 4 white and 4 black. These are then glued around a center tube which holds the motor mount. The center tube also vents the ejection gasses to the parachute compartment in the 2 stage body.

All of the sub-assemblies are masked and painted before final assembly. The R.C.S. nozzles are attached to the L.E.M./S.M. and antenna boards are glued below the bottom edge of the 2nd stage unit. The final airframe assembly is gluing the Apollo capsule in the top of the L.E.M./S.M.. I chose to use Super Jet CA instead of the recommended plastic glue. It was a big mistake. The capsule froze when I had inserted it only half way. This mistake cost me 3 hours of repair work. Needless to say, the plastic cement worked just fine the second time around.

The final step is to assemble the parachutes and attach the shock cord mount inside the 2nd stage body. I replaced the little sticky circles which come with the parachutes with squares of white duct tape. Duct tape will tear the plastic before it comes off and won't dry out. I also replaced the rubber band shock cord that comes with the kit with a much stronger 1/4" x 24" elastic band.
(see Figure 3)

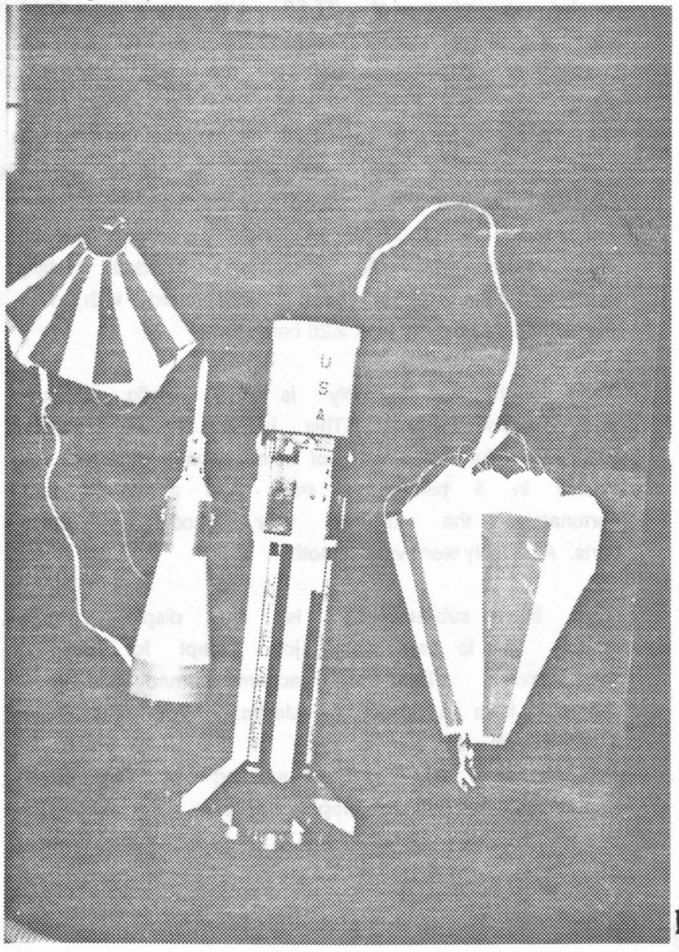


Figure 3

The maiden flight occurred October 20 at the Estes demonstration launch. Conditions were very windy (19.99 m.p.h.). Astronaut Scott Carpenter and Mary Roberts of Estes attended the launch and I had Scott sign one of the white fuel tubes of the Saturn 1B. I hoped that if I kept prepping other models, that Lawrence Bercini would forget about the launching Saturn 1B. No such luck. After a few other brave soles launched D-powered rockets, Lawrence announced that he was WAITING to see the Saturn 1B fly. It was time.

I loaded a D12-3 in it and put it on pad 1. After a delay because of wind gusts, Lawrence pushed the button and the Saturn 1B was airborne. It was a very pretty flight. The canted fins caused a slow rotation as the model boosted. Even though there were strong winds, it did not weathercock. The chutes deployed right at apogee (at LEAST 400 feet). At this point I had a bit of good luck. The 12" chute on the capsule tangled around the shock cord of the 18" chute and the model returned to earth under only the 18" chute. The wind still carried the model across the street bordering the downwind side of the field and into the backyard of a house. After Matt Price obtained the appropriate permissions, we retrieve the model. It was undamaged and I heaved a sigh of relief.

Conclusion

In summary, I am very pleased with this model both in terms of quality and value. I made a few minor changes to the recovery system to make it more durable. The kit could be made truer to scale by altering the fins and escape rocket and by painting the L.E.M./S.M. black and covering it with a scale silver body wrap. This should be a very popular kit and I hope it is a permanent addition to the Estes line. Well done!

Little Joe II Kit Review

by Mike Jungclas

As part of their Fall 1990 releases, Estes has introduced a 1/100 scale Little Joe II kit. The model is based on the NASA #BP-12 vehicle that was flown at the White Sands Missile Range on May 13, 1964. The Little Joe II launch vehicles were used to test the Launch Escape Rocket. The Launch Escape Rocket was to be used on the Apollo spacecraft to abort the mission during early stages of flight.

This kit is essentially a re-release of the old Centuri 1/100 scale Little Joe II kit. There are essentially three differences. First,the Estes version is mini-engine powered (A3-4T, A10-3T) whereas the Centuri version was powered by A & B standard engines. This seems like a timely update although the kit may be bit underpowered with an A engine. Second the Estes version uses a cardstock embossed body wrap where the Centuri version used a "silver foil" corrugated body wrapper. As a result, painting is required on the Estes kit. Finally, the Apollo capsule used in the Estes kit has more detailing than Centuri capsule but this must be removed to accurately model the prototype.

Assembly of the Estes Little Joe II kit proceeded smoothly. The "Spray Adhesive" method of attaching the corrugated body wrap was used and worked well. The most difficult part of assembly was attaching the trim bands, tunnels and covers. These are small cardstock pieces that must be attached with white/wood glue, toothpicks and tweezers. Obtaining a nice "square" cut on the tapered balsa fin stock was also a bit difficult, but the problem was quickly solved by wedging a cut "leftover" of the tapered fin stock under the main piece to "level" the stock.

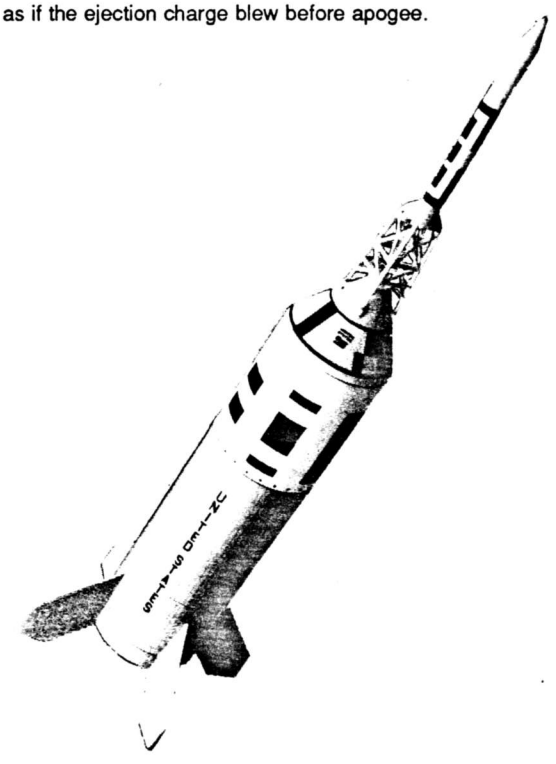
In pre-reading the instructions, trouble was anticipated in sanding off the detailing on the capsule. This trouble did not materialize, but much of the detailing was scraped away first with an X-acto knife. The procedure used to attach the fins was also modified. Due to the small fin attachment area, the "pin-hole" method was used. Finally, use a good modeling paint such as Testor's. Otherwise you might find that body wrap corrugations are quickly "filled in".

One thing to avoid is spraying the final model with Dullcote - doing will badly "bleed" the pre-painted body wrap. The kit instructions don't call for it nor do they warn against it. Many a modeler use this to protect the decals. (No problems were experienced with water transfer decals.)

Now comes the bad news. At $15.49 this model is overpriced. By comparison the 1990 equivalent price (ie. last retail price adjusted for annual inflation) of the Centuri kit is $10.05 (and you get less that you got with Centuri kit)! By a more recent comparison, you could "special order" the complete set of plastic parts from the Saturn V kit and body tube for the Apollo Capsule for about $8.

At the Chicago Hobby Show it was learned that the $15.49 price is wrong. The correct price is either $10.99 or $11.99. Estes is now in the process of contacting the distributors to correct the mistake. If you have purchased one of these at $15.49 take the receipt back to point of purchase and ask them to refund the difference.

The maiden flight was made with an A3-4T. It flew extemely straight and easily flew to 400 feet. Much better than I expected. It appeared as if the ejection charge blew before apogee.



The "Rest" of the Estes Fall Releases

by Lawrence Bercini

The simplest release is the America. This "instant" model comes with a blue plastic fin section and a nifty metallic gold plastic nose cone. There is nothing exciting about the design, in fact, it is deja vu from the Photon Torpedo, a.k.a. Dune Missile. The kit comes with a pressure sensitive wraparound. Its adhesive is pretty aggressive, so it is recommend a guideline be drawn on the tube to help with initial alignment. In addition, even though the tube is white, appearance can be improved if the tube is given a coat of gloss white before attaching the fin unit or nose cone.

Jammin' is a BT-5 based sport model. If I can overlook my prejudice against the name (I disdain words that sound like dialogue written for pre-pubescent sitcom characters), it seem to be a typical Skill Level 1 entry. One feature I dislike is the use of an external engine hook and retaining ring. The retainer ring requires the fins be notched so they seat correctly. This is a pain, and no matter how careful one is, some extra filling is required to fill in gaps between the fins and the retainer ring.

Four overly large fiberboard fins stabilize the model. Since fiberboard is glossy on one side and flat on the other, I suggest filler coat be applied to the flat sides of the fins. Otherwise, they will not accept paint like the glossy side. Be careful of the location of the yellow paint on the nose of the model. Be sure you allow enough white area to have room for the decals. Jammin' uses tumble recovery. Unless you have a consistently grassy flying field, I would suggest the addition of a small streamer so that those fiber fins don't get too beaten up.

Moving on to Skill Level 2, we have the Beta Launch Vehicle. If you have build any of the Titan, Gemini Titan or MX Missile kits, you'll have this one made. The intent of this kit is to simulate the look of a commercial launch vehicle. This simulation is done with decals and paint scheme. Other than that, there is little noteworthy about this kit.

Be wary in the kit instructions of where it tells how to mask the model for the application of the silver paint. The diagram is small, and the dimensions are confusing, so study the diagram carefully.

The Surveyor is a more interesting Skill Level 2 kit. This one features auxiliary pods which give it a futuristic appearance. Unfortunately, this kit also uses the ugly external engine hook arrangement. (What's wrong with the old fashioned engine block?) Fortunately, the fins sit below the retainer ring, so there is not special trimming required.

The fins have a relatively high aspect ratio, and therefore are prone to being knocked off. Double glue joints are mandatory here. I suggest all nose cones be left off the model until after painting. That way, they can be painted blue separately, and then glued to the grey painted tubes. Recovery for this bird is by streamer. There's a lot of mass in the form of four tubes, five nose cones and a transition section, so I suggest a small parachute be substituted. Expect to see this kit at future kitbashing sessions.

In Skill Level 3, we have the reintroduction of the Solar Sailer, or Solar Sailer II. Like its predecessor, this kit has nice long lines. This incarnation, however, is about two thirds as long, and not quite as intricate. I didn't mind the simplicity, since the original required lots of dowels to be shaped and glued end to end. The end result, albeit impressive, was not very sturdy, and the dowels broke off. (The fact that I dunked the model into a pond has nothing to do with it.....)

I had poor results following the instructions where the two fin parts and the dowel were to be propped up on the kit instructions to aid alignment. The instructions billowed too much, so I suggest using something like index cards instead. If you do not own a razor saw, this kit may inspire you to buy one. Trimming the fin dowels with mine was a snap, and I can't imagine doing it with an Xacto knife. The kit comes with a large silver mylar parachute. Although not as impressive as its predecessor, it is sturdier and will do the job just fine.

HPR Commission Results and Decisions

by J. Patrick Miller, President, National Association of Rocketry

The Board of Trustees of the National Association of Rocketry completed a special session in St. Louis this weekend where it carefully studied the NAR's role in non-professional consumer rocketry including, of course, advanced high power rocketry (AHPR).

The Board has been studying this and related issues since August 1989. At that time NAR members at the NARAM-31 Association Meeting asked the Board to re-examine and assess the NAR's role in AHPR. Many members were interested in being able to fly high power rockets within the scope of the NAR.

In response the Board formed the AHPR Commission (Jim Barrowman, Chairman) to analyze service programs which the NAR might offer. The Commission wrestled with this task from October 1989 through September 1990. Its final report was presented to the Board late last month.

After reviewing the report and meeting for the weekend in the St. Louis the following resolution was adopted:

"The Board of Trustees affirms that the Association was founded as, and is, an educational not-for-profit organization servicing all forms of non-professional consumer rocket activities."

In support of this resolution the Board took specific actions in the following areas:

(1) A "tiger" team of experts is to be appointed to establish an NAR science education program utilizing non-professional consumer rocketry. A proposal will be in Board's hands by 02/91 at the earliest and 08/91 at the latest.

(2) The NAR will assume a proactive role in the writing of AHPR codes and regulations. A second "tiger" team will be established. It will have a proposed new safety code in the Board's hands by 02/91. Additional codes and regulations including the possible incorporation of the reloadable motor technology will be presented to the Board by 08/91.

(3) The NAR will expand its motor certification program to include high power motors. The expansion is to be completed by 08/91.

(4) The NAR will permit all types of non-professional consumer rocketry to take place on a single range provided the applicable safety codes are followed.

Let me comment briefly on #4. Essentially this means no more 3/48 Rule. NAR members wanting to fly model rockets at an AHPR event may now do so. Once a safety code is established AHPR flights will be permitted at an NAR event (e.g. sanctioned contest).

The Board does want to remind everyone that the NAR does not presently offer insurance for AHPR activities. Also, there are local, state, and federal regulations which must be followed prior to the purchase and use of AHPR products.

It will take some time for the "tiger" teams to do their jobs and for a new NAR safety code to be established. The Board asks that you please be patient just awhile longer. The NAR volunteers are peddling just as fast as they can!

Heard on the Street

(Rumors and such, with apologies to the Wall Street Journal)

Bring Me Your Hungry, Your Poor, Your Large Boosters - For years, the Houston based Space Commerce Corporation has been trying to gain use of the Soviet Union's Proton booster rocket. Florida Spaceport Authority officials are finally considering launching Protons from Cape Canaveral. The Proton is considered an ideal launcher for massive communications satellites built by US aerospace companies. Considering recent problems with Atlas and Delta rockets, it might be a timely consideration.

This New House - Congratulations to Ric Gaff who recently moved into home sweet home in Streamwood. Ric is now the proud owner of a townhouse there. Thanks to the dedicated crew of NIRA members who overcame a lot of problems to get Uncle Ric and his merry band of rockets and sci-fi books moved on a rainy September Saturday.

5-4-3-2-1-Pop! - New York artists Dave Sugar and Carol Iselin have a real passion for America's space program. These talented engravers have spent up to 100 hours engraving commerative champagne bottles for Space Shuttle crews. NASA has yet to commit to regulation ice buckets, however.

Monster Mark Returns - NIRA old-timers were pleased to see long time member Mark Schmidt make an appearance at our Labor Day Launch. "Monster" is now a graduate architecture student at UI-Champaign. While not currently flying, Jedi George graciously gave Mark a chance to fly his RC RG. The two time national champ flew like he'd been doing it for years and promptly found a thermal!

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