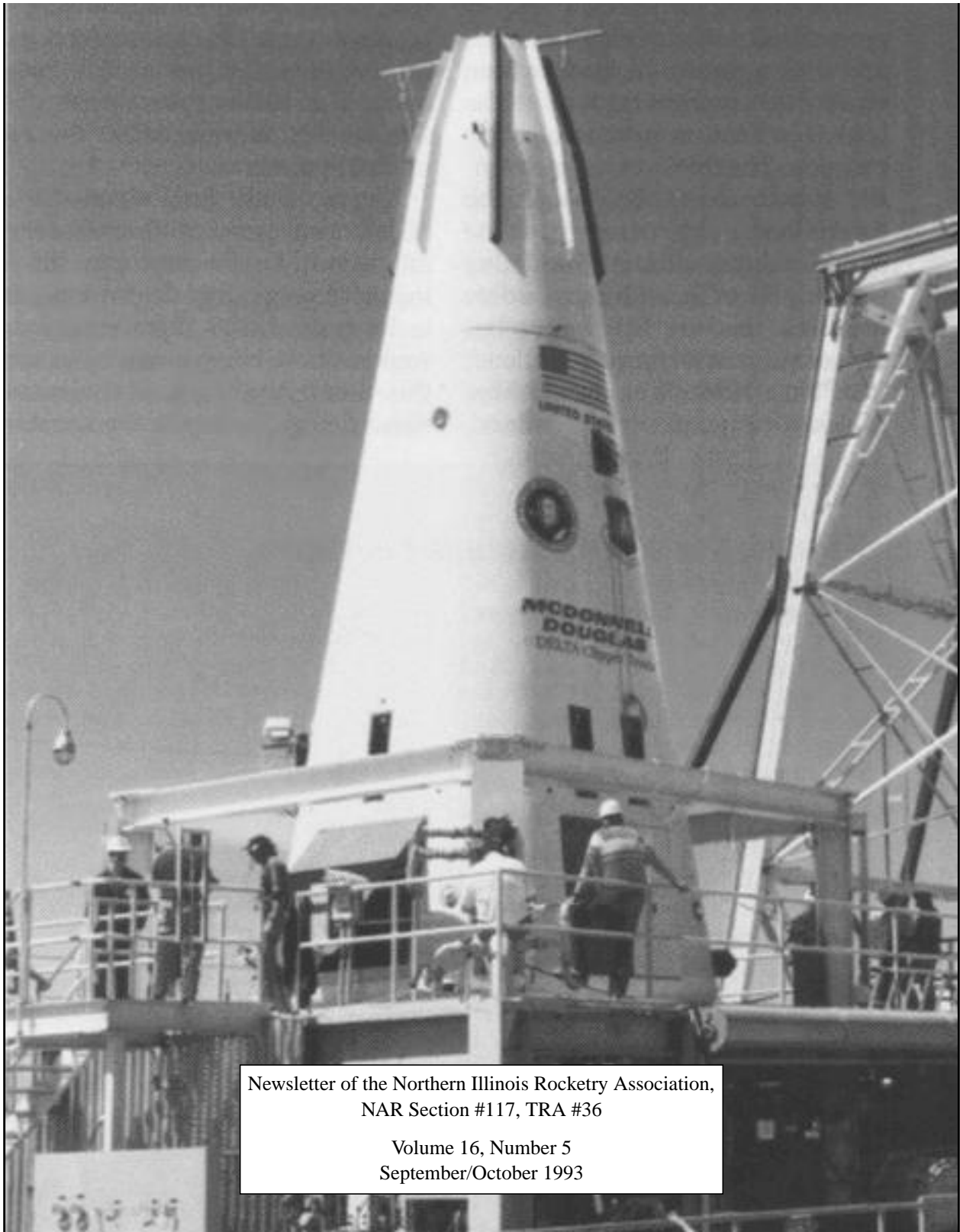


THE LEADING EDGE



Newsletter of the Northern Illinois Rocketry Association,
NAR Section #117, TRA #36

Volume 16, Number 5
September/October 1993

T MINUS 1 - NIRA'S CALENDAR OF UPCOMING 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 Mark Bundick at 708-293-9343 if you can help with ideas or can speak yourself.

October 1, 1993 - Regular Monthly Meeting: Planning session for the RCHTA show.

November 5, 1993 - Regular Monthly Meeting. Pre-RCHTA Party!

1993 REGULAR CLUB LAUNCH DATES

All launches or other activities start at 2:00 PM. BYOL (bring your own launcher). Casualty insurance required or else RSO must inspect and launch your model. Location for our 1993 launches is Community Park in Lisle. Get off Route 53 at Short and head west. If you have questions prior to any launch, call either Mark Bundick at 708-293-9343, or Mike Jungclas at 708-910-1267.

October 17: Test your sense of timing with "Chicken Eggloft", a minimum duration event.

November 14: Please note the new date for the November launch! This years final event is "B Return to Pad", fly a model with a B motor (not Class B!) and try to land it back on the pad.

OTHER ITEMS OF INTEREST

Falling Leaf Finale hosted by HUVARS

Sept. 25-26 (Rain date Oct. 2-3) -To be held at the Jackson Community College. Range open from 9:30-5:30. Co-CD's Buzz Nau, Al de la Iglesia. Call 517-548-4254 for information. Events: 1/4A PD, 1/2A RG, B BG, D SD, Sport Scale, Precision Duration, Open Spot Landing, Drag Race. Optional Fun event: RC Glider

September 25, 1993 and October 23, 1993 - Central Illinois Aerospace (CIA) high power launches (rockets of all types welcome). Chanute Air Force Base, Rantoul, IL. Contact Jonathan Sivier, 217-359-8225.

October 29,30,31, 1993 - Danville HPR Launch (dates are subject to change). Danville, IL. Contact Bob Wiersbe, 708-690-5442 for the latest information in mid-October.

November 6-7, 1993 - RCHTA show.

On The Cover - The DC-X on the test stand.

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Lawrence Bercini - Editor On Hold
Bob Wiersbe - Editor Holding On
Mark Bundick -Holding Down the Fort
Emmitt Smith - Hold Out

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 Bob Wiersbe, 1835 Shetland Drive, Wheaton, IL 60187 or electronically via Internet at hrbob@ihlpb.att.com. Send membership applications (dues: \$3/year, including a six issue subscription to the Leading Edge) and non-member 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 American Spacemodeling with proper credit given; all other uses require written permission of the Northern Illinois Rocketry Association. Do any of you actually read this???

GENTLE REMINDERS

October Refreshments:

October RSO:

If you'll notice, there aren't any names listed above, because there haven't been any volunteers. How about it, folks?

MODEL OF THE MONTH

Well, I don't have the winners from the September launch, so I'll put them in the next issue. I don't have a picture either, so here's a shot of the Hound Dog and Bomarc missiles on display at Chanute Air Force Base.





U.S. Team Flyoffs for the '94 World Spacemodeling Championships

by Kevin McKiou, George Riebesehl, Ben Roberto

August 28 and 29 the U.S. Team Flyoffs for the '94 World Spacemodeling Championships were held at the AMA headquarters in Muncie Indiana. Wow! What a flying site! It is over half a mile to the nearest tree and surrounded mostly by farmland.

The AMA was a most gracious host for this event. Chip Smith of the AMA deserves much credit for coordinating the facilities and providing what ever we needed. AMA employees were even brought in to help as timers when the local Civil Air Patrol had to cancel. We were made to feel very welcome.

Howard Kuhn, Chairman of the Spacemodeling Selection Committee, did a great job in organizing and running the event. There were no major problems and everyone maintained a positive and friendly attitude. Aside from a few competitors which did not fair too well in the competition, everyone seemed to have a great time.

Dr. Jerry Gregorek, the 1987 US Team Manager, did his usual diplomatic best to make sure all of the flying went smoothly. He is well respected in the spacemodeling community and will make a great team manager in 1994.

On Saturday the weather was TERRIBLE - sunny, warm, very little wind and LOTS of lift. Why "terrible"? Because we three had the highest boosting and lowest drag models in S8E (Radio Controlled Rocket Glide). If the weather had been windy with no lift, the contest for S8e would have been over in 3 rounds and we would have easily won. As it turned out, we did take the top three spots, but we had to work for it.

Seven contestants went into the first round of S8e and 6 maxed the round with a time of 5 minutes or more. Only Nick Riveccio was unable to max that round. George R. suffered a CATO in the first round which blew apart his motor tube and ejected the motor. Fortunately he was allowed to count the flight and did not have to re-fly the round. However, he did have to fly the rest of the contest with his backup ship.

Everyone maxed the second round of 6 minutes and third round of 7 minutes. However, there was still some excitement. Kevin and Dave O'Brien had a frequency conflict so Dave offered to let Kevin fly first (which he eagerly did!). Fortunately, Jerry Gregorek assured us that he would extend the round if more time was needed due to the frequency conflict. As it turned out, no extension was needed because of the abundant lift.

Somehow, in the third round George R. managed to hit a patch of bad air and had to scratch to make the 7 minute max. All the D-impulse low-level early morning practice paid off for George in that round. Kevin had a CATO on the pad in round 2, but it didn't cause any damage and he was able to immediately replace the motor and fly the round. Then in the third round Kevin forgot to reset the trims to neutral on his transmitter prior to launching. The model came off the pad and arched back over his head. Again, all the practice paid off. He smoothly pushed the nose of the model down and got it heading straight up for an easy max.

Ben seemed to sail through the first three rounds without incident. He was heard chatting with spectators while he was flying the rounds. So, day 1 of S8e ended with 6 competitors going into the flyoff rounds: George Riebesehl, Ben Roberto, Kevin McKiou, Phil Barnes, Dave O'Brien and George Gassaway. By the way, Dave O'Brien only had about 35 RC flights of any kind prior to this contest. What a terrific job he did! That night Kevin and Dave got together and did some radio swapping to avoid a conflict during the flyoff rounds.

The weather on Day 2 of S8e was much better - cooler, windy and little lift at 9:10 am when round 4 began. Round 4 had an 8 minute max. Phil and Dave went first. We watch them and it was obvious that they were coming down. So, we waited. George Riebesehl and Kevin caught good lift and maxed easily. Ben struggled but made it. George Gassaway also maxed. Phil and Dave were short of the 8 minute mark. So, it was Ben, Ken, George Riebesehl, and George Gassaway going into an unlimited flyoff round - the first one in U.S. flyoff history!

George Gassaway launched first and then Ben, George Riebesehl and Kevin followed in quick succession. Ben, George R. and Kevin all got really high boosts and the only way George G. would be able to pull out a win or place would be to

catch some lift that they could not reach. George G. tried to do just that. He went down wind, but the lift just wasn't there. He was on the ground in 5 minutes. Here is what Ross Hironaka said about the round from that point on:

"By far the most exciting flyoff moment was the unlimited S8E final round. The "Chicago Mafia" of Roberto, Riebesehl, and McKiou all riding the same thermal, knowing they'll finish 1-2-3 but fighting for the specific places. They hopscotch, trade places, jostle, and simultaneously trade advice and insults. They squeeze for every second (Riebesehl flew into a depression in the field just to extend his flight by a few seconds!) and Roberto wins by 1 (yes, *1*) measly second! The celebration that followed was the most spirited I've ever seen. These guys fly and practice together all the time and I'm really looking forward to seeing them kick booty in Poland."

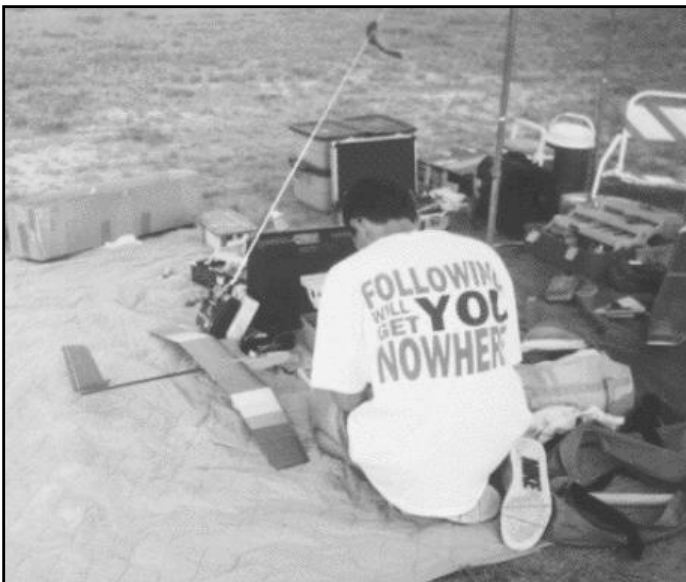
I [Kevin] think the most memorable moment for me was after Gassaway was on the ground, we lined up one above the other and flew in formation in front of the spectators. It was a beautiful sight knowing that all three of us were bound for Poland.

The final round results for S8e were (times are approximate)

Ben Roberto	10:32
George Riebesehl	10:31
Kevin McKiou	10:01

In the other events, no big technological secrets were revealed. To win you needed a reliable model that was flown at the right time. Many people DQ'd themselves out of the running.

One of the most interesting models was Phil Barnes' S4B (B-BG) model. It had "shotgun" A-motors - one above the other. The second motor was ignited about 1 second after the first via a piece of thermalite. It was *excellent*. Phil far outboosted everyone else and was the only one to max all three rounds in S4B.



Jedi George prepares to psyche out the competition.



Ben, George, and Ken keeping an eye on the glider, and each other.

Probably the most remarkable flight was George Gassaway's 2nd round PD flight that came within about 3 feet of the ground before it started undulating and slowly rising back into the sky. It then proceeded to rotate counter-clockwise around a thermal as it wandered about the field for a max and then back to the launch area for a landing.

Although thermals were abundant, thermal picking was relatively poor. It seemed a lot of competitors decided to "piggy back" off others. We all saw huge thermals roll right over the launch site with everyone just standing and looking at each other. A prime example was the 3rd round of S4B. Everyone was sitting on the pad waiting. The wind died and a huge cloud of dragonflies and bugs gently floated over the launch area. Both the streamer poles pointed into the launch area. No one launched! George and Kevin looked at each other in astonishment and said, "what is everyone waiting for?". It was the best marked thermal I [Kevin] have ever seen. Kevin launched, followed immediately by the rest of the hesitant pack. Everyone who went up in that thermal maxed the 5 minute round. It seemed like it would have taken a few lawn chairs or automobiles to be sucked into the air to convince some people!

The following unofficial results are thanks to Ducky Klouser:

S3A (PD):
 1 Phil Barnes
 2 Dave O'Bryan
 3 George Gassaway
 Alternate 4 Ducky

These final four maxed four rounds (4, 5, 6, and 7 minutes) and ended in the unlimited final round.

S4B (BG):
 1 Phil Barnes (maxed all 3 rounds (3, 4, and 5 minutes)
 2 Ken Mizoi (2:30 in first round, max 2nd and 3rd)
 3 Dave O'Bryan (2:13 in first round, max 2nd and 3rd)
 Alternate 4 Ducky (2:10 in first round, max 2nd and 3rd)

S6A (SD):
 1 Ross Hironaka
 2 Ducky Klouser
 3 Dave O'Bryan
 Alternate 4 Phil Barnes

S8E (RC RG):

- 1 Ben Roberto
- 2 George Riebesehl
- 3 Kevin McKiou
- Alternate 4 George Gassaway

S1A (altitude):

Unknown order Phil Barnes, Dave O'Bryan, not sure of third.

Scale Altitude:

Dr. Bob Kruetz, Dr. Bob Biedron, Tim Van Milligan

Scale:

George Gassaway and Jay Marsh

Please note that the D.C. Demons (Barnes and O'Brien) placed in so many events that they make up 1/3 of the team! Which, by the way was nice for the 3rd place finishers. The AMA is funding (transportation and lodging) a 12 man team for the trip to Poland. As it turns out, there were exactly 12 people placing 1st, 2nd or 3rd in all the events. Bob Biedron and Jeff Vincent are being funded separately since they are returning world champions in Scale and Altitude, respectively. So, everyone on the team will get AMA sponsorship. Hurrah!

Once again, thanks to Mary Roberts at Estes for continued support of team members and the flyoffs. Certainly, the level of competition in S8E would not be where it is without it.

1993 Labor Day Demonstration Launch by Ken Hutchinson

It was with great trepidation that I accepted the Labor Day launch information package Mark Bundick handed me at the July NIRA meeting. I don't really like to be in charge of things like this; if there had been a few more people at the meeting perhaps my hiding place in the back row would have been more effective! The information package proved to be quite helpful and the details it lacked were quickly filled in by E-mail and phone conversations with other club members so that by the morning of the launch I felt that things would go pretty well. After all the weather is the one thing that no one can control and by noon it was obvious that flying conditions were going to be nothing short of stunning. Pleasantly cool temperatures, a nearly cloudless sky, and light winds, does it get any better than this?

True to form I arrive at the field about half an hour later than planned to find that preparations are well under way. As we continue our chores I notice that the crowd is already starting to gather. Families are setting up tables of food and laying down picnic blankets in a scene that reminds me somewhat of the crowd at Ravinia. I have to admit that several times during the last two months I had wondered if all this effort was worthwhile. This audience seems to think so, clearly they are settling in for an afternoon's entertainment. It is a little humbling to think that our demonstration launch might be an important part of some family's Labor Day tradition. The next

hour passes quickly and soon rockets of all descriptions are filling the skies of Glen Ellen.

All together there were about 170 flights this year, the top five fliers were Bill Thiel with 23, Ed Thiel 17, Jonathan Charbonneau 11, Jasper Hausner 10, and Bob Kaplow with 9. The most popular motor was the Estes B at 67 followed by 39 C's, 24 D's, 21 A's, 12 E's, 8 1/2A's, and one F, roughly 1800n-s total impulse.

Thanks to the efforts of Mike Jungclas we gave away 12 kits to lucky raffle winners. There was an Omloid, a Solar Sailer, a few Aerofin's and Alpha's, and, of course, some Gnomes. Our oldest raffle winner at 75, Bill Field, took home one of the Aerofin's. As far as I know, our oldest flier was Grandma Field, presumably related to Bill, who flew a Leprechaun. Perhaps she gave some tips to Jennifer Chaney, age 5, who flew a Viking and a Bandit.

Bob Kaplow flew a series of flight converted plastic writing instruments with 13, 18, 24, and 29mm motor mounts. The last on flew on the lone successful F motor to appear at the launch. It was an F14 and given the fat, heavy nature of a giant plastic crayon, it did a rather severe gravity turn under thrust producing recovery deployment at a low altitude. Ed Thiel and Steve Koszuta also contributed to the skywriting effort with their own converted crayon banks, Steve's even included a coin in the coin slot! Bob also contributed an Alien Space Probe done up as a Three-Peat Special featuring 'Bull's Chute' recovery. True to its name it required three attempts to launch it.

Steve Koszuta flew his Saturn V/Skylab model. Unfortunately some of the chutes stripped on the way down and the recovery mode of the Skylab section was enough to give the boys down under nightmares. My own Saturn V has survived similar recoveries relatively intact, I hope Steve's fares as well. Bill Thiel ran an Estes Mosquito through a Xerox machine on the enlarge cycle and came up with a five times larger version.

Two other NIRA families joined the flying Thiel's and made the event a family affair. The Slouber's joined in. Kleve's Quest Falcon took it on the chin when an Aerotech E25 catoed at ignition. Steven's Bandit, Rosella's Antari, and Lionel's Apollo made fine flights. Kyle and Kory McKiou each made four flights, while Kerri made one with a Jupiter C model. Father Kevin flew an Estes F14 Tomcat on a path typical of the beast, short vertical boost arcing over to horizontal followed by a fast horizontal glide arcing back to a nearly vertical landing.

Kevin McKiou, George Riebesehl, and Ben Roberto put on a fine exhibition of RCRG flying. I don't know if we were able to impress upon the crowd what an accomplishment it is for these three to make the U.S. Internats team, but the crowd is always impressed by these birds. Of course the pack of boys who broke free of the barriers and tried to 'help' recover the first flight were quite tired before they realized that they were following radio controlled models that were leading them on a wild goose chase.

Todd Peterman flew his SR-71 Blackbird on a secret mission. Ric Gaff made a couple of flights including a Marauder piloted by a (rubber) mouse. Dave Price's lone flight was with the Pink Hair Curler rocket. Greg Roman's Red Max made a nice flight. Ron Husak flew one of several Honest John's seen at the field while old timer Tim Marcy tested the air with a Mini-Dactyl. And in addition to the meager fraction of the club members flights I have mentioned there were seventy some flights by people I don't immediately recognize as active members.

Thanks to the efforts of Bob Kaplow we had a waiver for this year's demo launch. It covered 1500 gram rockets to an altitude of 1000 feet, which except for the altitude restriction is similar to the NAR's petition for a rules change now under review by the FAA. Bob was the only one who came prepared to use the waiver although there were some larger models flown from the 'high power' pad. Bill Thiel flew an Arreux, son Ed flew a Cheetah. Ed also flew the large Estes Patriot, which probably does require the waiver. Jim Christensen contributed a Mustang and an Initiator. Bob and I were saving the flight of his North Coast SA 14 Archer for the grand finale. The volume of rockets waiting to be flown made the launch stretch past the 5pm expiration time of the waiver so we had to change this plan. The first attempt on the Archer's launch just burned the ignitor. Bob scrambled to re-prepare the engine to beat the waiver clock only to be rewarded with an engine cato that broke the F50 into two pieces and did some damage to the engine mount on the second attempt.

Several more racks of rockets had to be launched before the queue was exhausted. Deprived by time and fate of our grand finale, we did try to save two interesting flights for the end. Jonathan Charbonneau's Mega Sizz/Superman combination was the next to last flight of the day. Two previous flights had been crowd pleasers, if somewhat tame, this time a D13RMS



Mark Bundick provides color commentary and launches a 3 stage Commanche 3.

power plant produced a boost more fitting of the man of steel. In an attempt to go out with a bang, the honors for the last flight of the day went to Mary Foster's Estes Cato which rose to the occasion and self destructed flawlessly.

Besides myself several other non-flyers helped run the show. Mike Jungclas helped with the NIRA booth as well as the raffle. Mark Bundick did a turn as announcer followed by some fleet footwork on the recovery crew. Barb Bundick and Judy Kaplow spent the afternoon in the NIRA booth as well as helping with the setup and tear down of the operation. I want to thank all of you who helped with the launch this year for a fine job. As the ring leader I tend to receive the praise but it really all belongs to you. The organizer makes sure all the ingredients arrive at the right time and place, the club does the real work!

The Estes E15 - A Mixed Review from rec.models.rockets participants Buzz McDermott, Lawrence Curcio, C. D. Tavares, Bob Wiersbe, Mark Bundick, Lee Reep and Mark Johnson

Boy, am I UNDERWHELMED!!

My kids have a couple of smaller LOC rockets that list D12-3's as their smallest recommended motor. I also have the trusty old 'hardened Optima' I've flown with D12's to G42's. I tried a couple of the motors. The rockets barely got off the pad! After the disappointing flights I found out some info from other rocketeers present. Here is my summary of the E15's, with the additional info included and noted:

- (1) I was informed by two other flyers present that Estes had mailed out some literature warning that their E15's had very little initial thrust 'spike'. The motors have a very flat thrust curve. The max liftoff weight for an Estes E15 is no more than for a D12, and maybe less.
- (2) These motors burn HOT. Much hotter than D12's. I'm talking about temperature here, not power. My Optima main body tube was almost too hot to pick up bare handed when I recovered it.
- (3) Beware the 'ejection charge from He!!'. E15 ejections EXPLODE! The Optima looked like I had stuck a hot Robby's ejection charge in it.

All in all, I won't use them much. The E15-8 looks to be a good 2nd stage motor for BP staging. Estes apparently recommends using D12's to get rockets off the ground and using the E15 as an upper stage motor. Maybe that's why there's only an E15-4 and E15-8, no E15-0.

Upper-stage only, big time. I saw a few of the E15's this weekend, flown in Estes D kits. They more or less OOZED off the pad.

NAR Certification and Testing lists the average impulse of the Estes E15 at 29.5 ns (sd = .75 ns) with a maximum thrust of 20.05 n (sd = .62 n). The burning time is listed as 2.63 seconds (sd = .11 seconds). That's about an E11 in reality.



Ed Thiel's Cheetah leaps off into the clear blue sky.



Ben Roberto (right) displays the latest fashion in parachute headwear.



Ed Thiel and Jim Christensen load up another rack.



And the spectators are dazzled by another brilliant flight!



Judy Kaplow and Mike Jungclas holding down the NIRA booth.

All photos by Ken Hutchinson

One guy flew a cluster of 3 E15-8's. The first time it was perfect, straight boost, nice long burn, and a clean ejection. The second time he flew the model it boosted fine, but at least one of the motors ejected early. There was still a lot of smoke coming out the bottom when the chute opened, but I couldn't tell if it was from one or two motors. All in all, they worked great! I don't think I'd be impressed by a Saturn V on one (a REAL E15 works much better), but for clusters and minimum diameter models, it looks good. A D12-0/E15-8 combo looks like it'd be nice.

I bought some of the new Estes E motors, but I got some with rather long delays -- 8 secs. I new that in a "regular" rocket, this delay would be too long, and impact would occur before chute deploy. I decided to put it in a small rocket that could coast a long time. Unfortunately, these motors are longer than the Estes Ds, so it was hanging out the back end. Also, these motors are heavy, so I should have added weight to the nose. This flight was fine to about 75 feet, then the rocket did a flip (yes, a flip - radius was too small to call it a loop). Pulling out of the flip, it appeared that enough propellant had burned, and lightened the rocket at the back, that it decided it was stable. Unfortunately, it was no longer pointing up, rather about 20 degrees elevation (generous measure).

Next Estes E flight was in 40" tall rocket (scratch-built Estes "60" components). Delay was 4 seconds rather than 8 secs. Flight was fine -- no problems. Appeared to go well over 1000 feet, certainly hundreds of feet higher than this rocket has reached on Estes D12s. Ejection charges on these motors is very strong, so use beefed up recovery systems if you fly them. I have routinely flown this rocket on AeroTech 24mm reloads, which have a fairly potent ejection as well.

Flyers at DARS launches in Dallas, Tx, have had a very high failure rate with the new Estes E15 motors. About one in five, perhaps more, of the E15-8 motors flown this past weekend have suffered a casing side burn-through. Several models have been lost or damaged as a result. One of the models caught fire. Examination of the failed motors has shown 1/4" to 3/8" diameter holes burned through the casing sides about 1/2" from the base of the motor. Examination of motors that did not fail showed them to be extremely hot to the touch with definite signs of 'scorching' at one or both ends of the case. All of these motors came from the one hobby store in Dallas that has received E15's. The date code on all of the motors is:

10X5

DARS members have returned all of their E15 motors with that date code to the hobby shop (including the casings of the failed motors) and the dealer will be returning them to Estes. If you purchase E15 motors and they have the date code 10X5 I would recommend you wait to see if Estes recalls them before attempting to use them.

Interesting. We flew a bunch of them at our Labor Day Demo here in Chicago yesterday, and all of them seemed to work pretty well. In fact, I think for the standard kind of kit we see coming out of Estes, they're a perfectly fine motor. Those modelers expecting a "great leap forward" into something more

HPR are going to be disappointed, but it's not a bad motor at all, IMHO.

We had the identical experience in Kansas...no failures of Estes E15's at all. A nice, smooth motor. Granted, it doesn't have the spectacular attributes of the AT E15 motor, but consider this: after the Aerotech price increase, I think E15's are going to list at either \$7.95 or \$8.95 each. The Estes motors are \$8.19 for two, and have about 75% of the TI.

My simulations seem to indicate that you can probably get away with flying single eggloft with an E15 - Dual is starting to get fairly questionable due to low velocity off the launcher. There is, of course, a performance penalty. The motors also seem to work fairly well in the AstroBlaster.

Remembering MRFF

by Ken Hutchinson

If I could have changed one thing about MRFF '93 I would have turned off the wind. Dave Miller from Wisconsin might make the same comment. He flew his North Coast Archer with a G motor on Saturday to get his NAR H level high power certification. The wind took it north, well across the tracks. Several of us gave him our best estimates of its track and he and his wife, Robin, looked for a long time. They returned empty handed. On Sunday my Phantom 1800 ended up across the tracks, although well to the east of Dave's bird. I looked for 45 minutes without success and was about to cross the tracks on my way back to the launch site when a muted hiss and a thick column of smoke marked the takeoff of someone's larger than average rocket. The other thing this did was to tell me that the launch area was a bit farther to the right than I had thought. You can easily lose your landmarks scrambling up and down that rail embankment. Armed with this new bearing to the launch site I walked right out to my rocket.

Now on my way back I'm thinking I'll attempt to find Dave's Archer. When I get to the tracks, I meet Jim Christensen, compass in hand, coming to help me find my rocket. When I tell him my intentions, he says he had the same idea. When we reach the spot where we think the Archer crossed the tracks Jim went up on the railroad to set me up on the right bearing. I started walking. I was well past where we thought the rocket would have come down and was about to turn back when I saw the white body tube gleaming in the weeds about fifty feet ahead of me.

Dave and Robin were pretty happy to see that Archer coming back across the prairie. As for me, I think Jim has an excellent idea, I'm buying a compass!

The wind also played a part in my Saturday morning game of how many nose cones can you lose in an hour. I had just lost the nose of my scratch built, six engine, 'Black Adder' because it didn't fit tightly into the payload section. I tried to fly my Quest Space Clipper with a D13 reload. The half ounce of extra nose weight I had added was not quite enough to compensate for the

extra weight of the reloadable motor, at least not in a stiff breeze. The model did a tight power loop 30 feet above the pad and then headed south cruise missile fashion. The chutes came out before impact but at a speed which caused the heavy nose cone to strip from its chute. Without the chute attached there was no hope of finding that little nose cone. Next, I made a test flight of my Aerotech HV ARCAS. I still can't believe it, but I didn't check the fit of that nose cone either and it also came free at ejection. Another flier tracked it for me as I followed the ARCAS. As he was bringing me the ARCAS nosecone he also found and retrieved my Black Adder nose!

On Sunday morning Kevin McKiou was sitting on my recovery wadding bucket, talking to me as I prepped an ISP H123 motor. He ventured the opinion that a rocket should be able to fly with only two fins, thinking of ways to reduce the drag of competition models. We discussed this for a while and I realized that the perfect proof of concept model was lying in my rocket box, a modified Bandit that had lost one of its three fins at the April launch. We popped a B6-4 into the Bandit and walked towards the range head with evil grins on our faces. Mark Bundick noticed that something was up, so we had to let him in on our ad hoc research project. After some discussion with the RSO and LCO we put the Bandit on a far pad, launch rod angled well away from the crowd, ignoring the wind. It worked pretty well except for a rather pronounced roll. At first we thought that with further work this roll could be eliminated. I now think that the roll is produced by the restoring force the fins generate whenever the rocket is displaced around the yaw or pitch axes. With only two fins, the fin that is generating the torque in the yaw or pitch axis must also generate a torque in the roll axis which cannot be balanced by an equal and opposite torque from the fin(s) on the other side of the body tube, since there aren't any fins on the opposite side.

I had a lot of fun clustering during MRFF. I made one flight with the Black Adder and would have made a second one on Sunday if I hadn't spent so much time looking for my Phantom. I did make two flights with my North Coast Viking II. I had flown this previously with a single motor and with a Rocketflite F50 igniting two D21's with thermalite. I didn't want to use thermalite with a composite central motor since I was afraid that a chuff of the main motor could light the strapon motors. Only the main motor can eject the parachute in this design so you want the rocket to stay on the pad unless the main motor starts. I built an electronic circuit that includes a 2-3g acceleration switch. If the switch stays closed for half a second or more the circuit will fire the strapon motors after a selectable time delay. Adept rocketry sells a similar device but I didn't know this when I made mine! It got its first test on Saturday with an F50, two D13's and a half second delay. Unlike many of my inventions this one worked beautifully, first time. The F50 was almost burned out when the D13's kicked in. The attempted encore late Sunday with the same motors and a longer delay worked fine too. The longer delay made the ignition of the strapons more dramatic.

Fox Valley Aero Club Airshow by Bob Wiersbe

It was a dark and stormy morning. No, wait, that's been used. It was pouring as I was driving to St. Charles to put on a rocketry demo at the Fox Valley Aero Club RC airshow. As I glanced out the side window, I saw a lightning bolt come down from the clouds. Suddenly, it turned straight for us and hit a telephone pole not 20 feet away! It sounded like someone had fired a 12 gauge shotgun inside the van, and blue-white sparks showered down to the ground. As my heart settled back to normal, I thought to myself that this was not going to be a good day.

The Fox Valley Aero Club puts on an airshow every August, and this year they extended an invitation to NIRA to come out and demo rocketry. Since the date of the airshow coincided with the monthly NIRA launch, and there was only about a week to get ready, I decided to do the demo with the help of Bill Larry and most of his family.

The airshow was supposed to start at 1pm, but a heavy rain delayed things for about 45 minutes. It began with an RC airplane pulling a "Fox Valley Aero Club" banner, while the National Anthem played over the PA system. As the plane touched down, I simultaneously launched a Patriot and a Sprint. The Patriot worked just fine, but the Sprint suffered an engine failure at burnout and ejected early. Shades of things to come....

The Aero Club put on a pretty good show, and I got to see some things I had only heard about. Their first event was called Limbo, they stretched a streamer across the runway on two poles, and the planes were supposed to fly under it. After a few successful passes they would lower the streamer a few feet and the pilots would try again. As the streamer got lower, more and more planes "bit the runway". One pilot attempted it upside down, and promptly did a 2 point landing - on the cockpit and the tail!

They also flew RC helicopters, ducted fan jets, some scale models, and finished with Combat. The ducted fan models were really impressive, and looked like they were a little tricky to fly. My favorite scale model was a large P51 Mustang, it flew great, but had a rough landing. Several models had trouble getting off of the ground, so a couple of scheduled events were cancelled. Combat is fascinating: each model trails a streamer, and the idea is to cut the other guys streamer. In the words of the director: "..and if you end up crashing into the guy, that's okay too."

Between RC events we would launch rockets. Our first few flights were on 1/2A to D motors, just to give people an idea of the size and power of different motors. The first D flight was my Cygnet, a scratch built rocket with thru-the-wall (TTW) plywood fins. The motor catoed when the rocket was 10 feet in the air, sending a fireball another 30 feet. It blew out the body and motor tube in two places between the fins, but didn't damage the fins. It now has STTW (see-thru-the-wall) fin mounting.

Then we moved up to a couple of clustered models, Bill's Land Viper with 3 B6-4s and my Black Rocket with a D12 and 3 B6's. Bill flew a Custom Rockets Lightnin' with a D12-0/D12-7 combination. It made an out of sight flight, and the crowd really like it. He got the booster back, but lost the upper stage. I flew my Mustang with an E30-7, it seemed more like an E30-10, but that only added some suspense to the flight.

Our last rack had my Saturn V with an Aerotech E15, Bill's Tomahawk on an F50, and his Cheetah on an F14. I lost the capsule to my Saturn V at a launch last month, and had hastily built a new one the night before the airshow. In my haste, I forgot to add the necessary nose weight (necessary because of all the repairs I've made to the model). The Saturn V lifted off beautifully, but when the E15 stopped thrusting it went unstable and did cartwheels in the sky. It fell with a sickening thud (to me anyway) near the runway, then the ejection charge went off. It needs extensive repairs, but will fly again.

Bill's Tomahawk and Cheetah were probably the highlights of all the flights we made. The Cheetah seemed to thrust forever, and the crowd oohed and ahed as it went almost to the clouds. He got them both back too.

We had several more rockets prepped and ready to go, but Mother Nature had different plans and it started to rain again. There was a mad dash as everyone got their models under cover, and the airshow director officially closed the show. A lot of people (including some of the RC pilots) came up to me and said that the rockets had been a great addition to the show, and NIRA has been invited to come back next year to put on another demo.

DC-X Makes Successful First Flight

by Henry Vanderbilt

Executive Director, Space Access Society

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On Wednesday, August 18th, 1993, at 4:43:53 pm local time, DC-X's engines lit, and the cloud of white vapor silhouetting the ship's mottled gray shape turned into a brief billow of orange flame around the vehicle. A second later, the flame cloud had turned to gray smoke as the vented engine precool hydrogen finished burning off and the rocket exhaust started the concrete under the launch stand smoking. Two seconds more for the engines to settle down to a steady burn, and the DC-X reusable rocket testbed lifted off on its first flight.

DC-X, flying with a partial fuel load, jumped off the pad quickly before easing back on the acceleration and drifting to a stop 150 feet up. As the ship climbed away from the ground, the rocket exhaust cleared up, and by the time she was hovering the exhaust flames were, typically for a hydrogen rocket, almost invisible, showing only an occasional streak of orange as engine throttling produced transient changes in the fuel mix.

Thirteen seconds after liftoff, DC-X tilted over a few degrees

and began "translating", sliding sideways at a brisk walking pace while holding altitude, occasional puffs of vapor from a cryo tank vent on her side punctuating her stately progress toward the landing site, 350 feet off.

Once over the touchdown point, DC-X drifted to a halt and hovered briefly, then began her careful tail-first descent. At a hundred feet, the landing legs popped out. At about thirty feet, the rocket plumes began kicking up dust from the landing pad, and the clear exhaust flames quickly turned to incandescent pillars of fire, as concrete smoke glowed in burning hydrogen.

By ten feet, DC-X was almost hidden by the smoke and dust boiling up, inching down into a swirling white-hot cushion of flame. When the landing legs finally touched ground and triggered engine cutoff, one last billow of vapor rolled out from underneath, then silence fell. DC-X stood there, at first only the nose showing through the smoke, the rest of the ship gradually coming into view as the breeze cleared it away.

The first words out of the control trailer after "touchdown, touchdown... engine shutdown" were a heartfelt "All-Riiiiight!".

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RCTHA CONSUMER SEMINAR.

from Mike Jungclas

Estes has again asked NIRA to staff the consumer seminar during the RCTHA Hobby Show on Saturday, November 6th and Sunday, November 7th at the Exposition Center near O'Hara Airport. NIRA will need to staff the consumer seminar for 8 hours on Saturday and 7 hours on Sunday. We will help the public build Pegasus kits. In addition, Estes will be providing engines (A8-3/A8-5) for the public to launch their Pegasus kits at the NIRA launch following the show on Sunday, November 14th, from 2-5 PM.

At the October business meeting, we will discuss plans and presentation for the consumer seminar and the launch. We will be asking NIRA members to sign up to work at least one half day consumer seminar session - Sat. morning, Sat. afternoon, Sun. morning or Sun. afternoon. If you are unable to attend the monthly business meeting and would like to work the show, please contact Mike Jungclas at (708) 910-1267 evenings/weekends or at (708) 979-4571 days.

Flying With The CIA

by Bob Wiersbe

Hot, humid, clouds everywhere but between us and the sun, and no wind. A great day for getting heatstroke and flying rockets! The site was Chanute Air Force Base, the date was August 28th, and the hosts were the CIA (Central Illinois Aerospace). These folks have a waived launch once a month on the base, and

anything from a 1/2A to a K motor is welcome.

The incredible thing about this day (besides the heat) was that there was NO wind! People were putting F, G, and H powered rockets thousands of feet in the blue sky, and having them land less than 200 feet from the pad! Bob Kaplow's Happy Meal went straight up on a D11, and came straight back down to land within a few feet of the pad.

Jonathan Charbonneau flew an Estes Farside (a classic rocket) with a C6-0, C6-0, C6-7 combination. Each stage worked perfectly, and the rocket traveled an arrow straight path until it was a tiny dot in the sky. He got all three stages back (another fantastic feat), and was the winner in an impromptu "X marks the spot" landing event held on the runway.

Bill Larry and company brought out their entire arsenal, and were popping up flights all day. Bill used some of the new Estes E15 motors in a cluster model, and they were quite impressive! An E15 in a small model makes for an out of sight flight!

Astrocams and SR-71 Blackbirds were the most flown models



Jonathan Charbonneau and his X-cellent Farside!

of the day, and also suffered the most failures. Almost every SR-71 flight I saw had the shock cord snap. One adventuresome person flew an Astrocams on a custom booster with an F100 for power. This rocket cruised straight up, arced over at an awesome altitude, and the shock cord broke. The Astrocams was left hanging from a 24" chute, while the rocket crash landed on a runway. The Astrocams just floated, and floated, and after a several minutes landed about 200 feet away. On a normal day, it would have drifted to Champaign!

Heard on the Street

Rumors and Such, with Apologies to the Wall Street Journal

Final Flight - NIRA condolences to Barb Bundick on the death of her mother, Lenore. An avid golfer and gardner, she lost a battle to cancer September 9.

Not True - A rumor began circulating at a California launch that Aerotech has filed a court petition for Chapter 13 bankruptcy. THIS IS NOT TRUE. Please pass this word along to any and all who inquire.

Church Chatter - Hearty NIRA congratulations to Claude Greenlee, a former NAR Trustee, friend to long time NIRA members and all around nice guy rocketeer on his wedding in August.

Street Legal - Rocketflite has temporarily shut down production of their motors while they do whatever is necessary to get themselves certified as a legal manufacturer. The company expects to be back in full production and distribution in 3 to 4 months. Rocketflite's motors have become popular replacements for FSI F100's in recent years, even though FSI is still in the business.

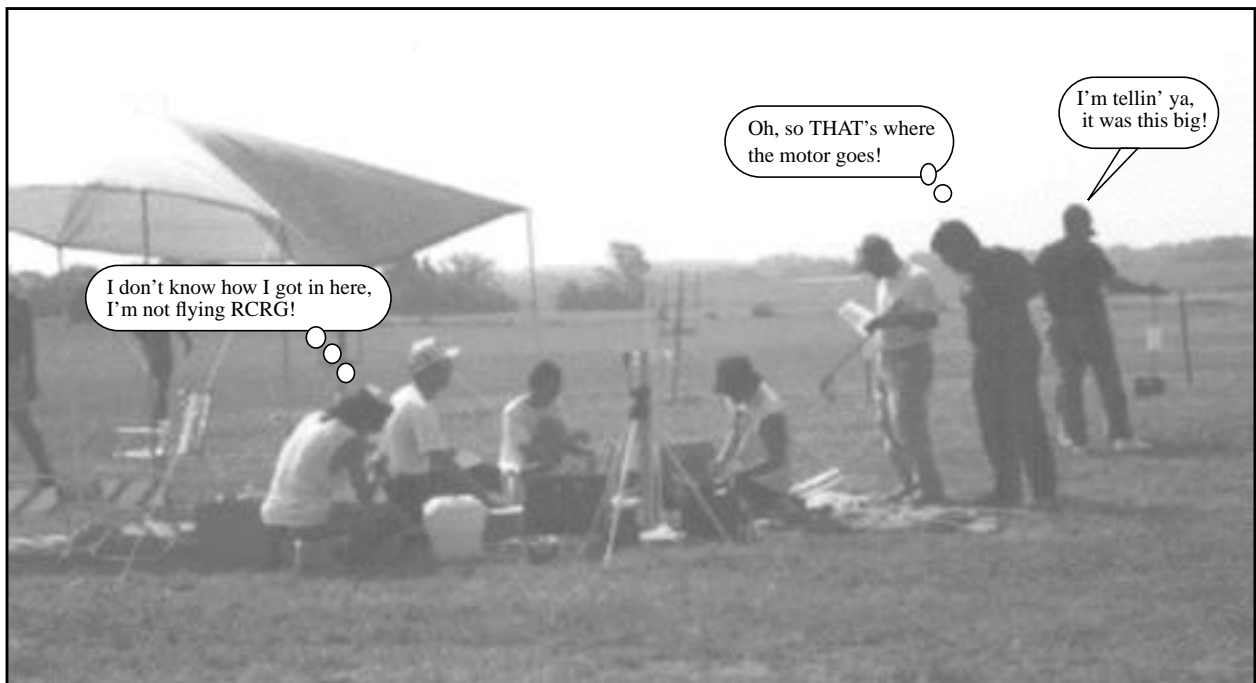
No Rocking Chair Yet - Hearty NIRA congratulations to Estes' Mary Roberts, who recently learned she will become a grandmother next spring. NIRA will sponsor the "Name That Baby" contest for all you creative rocket people out there. Send all entries (keep 'em clean, folks) to Editor Bob Wiersbe. We'll announce the "winners" in our March/April 1994 issue.

Top Ten Reasons Why the AMA Fly-Offs Were Way Cool

by Ben Roberto

10. Having Phil Barnes accurately predict the outcome S8E.
9. Watching George Gassaway's PD model do it's jellyfish impersonation, hover 2 feet above the ground, and then climb back up over 100 feet for a max.
8. Having Dave O'Bryan and Phil Barnes cross qualify in so many other events, that these two make up 1/3 of the US team.
7. Listening to the adventures of a certain scale champ's adventures at a local bar and finding out when and where you tuck a buck.
6. Trying to convince Ross Hironaka that he placed first in SD.
5. Watching Tim Van Milligan's scale altitude model stage 20 feet off the ground, horizontally.
4. Watching Dave O'Bryan give up good air to let Kevin McKiou fly first, and still manage to max the first 3 rounds during S8E.
3. Watch Ross Hironaka and Ben Roberto set a record for the most pizza eaten in 3 days.
2. Walking through the AMA Museum and thinking, "Wow... Air Conditioning."
1. The trip to Poland is paid for! (well...mostly anyway).

THE LEADING EDGE
C/O Bob Wiersbe
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A scene from the 1994 U. S. Team Flyoffs