NOVAAR FREE PRESS

NORTHERN VIRGINIA ASSOCIATION OF ROCKETRY

July 1986

ATTENTION BEGINNING ROCKETEERS!!!

There is now a subgroup of NOVAAR being set up to help the new folks learn the tricks of the trade. The group is aimed mainly towards A divisioners (14 and under) but other beginners of other ages are welcome to attend as well. No business will be discussed, just learning to build rockets for the fun of rocketry. This "club within a club" will have it's first meeting at Bob Kassel's house from 6:30-8:00 on July 22. At the first of the monthly meetings, attendants will set the course for future meetings and create a name for the group. Old master, Ken Brown, will be there to leand his expertise. For directions, call Bob Kassel at ext. 451-0340 after 6 p.m.

ABOUT THAT DEMONSTRATION LAUNCH...

As of this writing, we are no longer certain that we will in fact have the demo, originally set for July 26. American Hobbies, our sponsor, was bought by the Doug's Hobby chain, and things have become confused. But, there is a lot of time to figure things out. If you are able to come, call Ken Brown at ext. (451-2808) a few days before to see if we will be flying.

THE SHIRTS ARE COMING
THE SHIRTS ARE COMING

The latest in the NOVAAR fashion line of fine clothing is... club shirts! The shirts are orange with the "NOVAAR Buzzard" on the right side and a pocket probably on the left. We say "probably" because the final details have not been worked out yet, but will be done so at the July 15th meeting. Call Dan Mulholland for price and pickup info. Let them know where you're from.

WE GET BY WITH A LITTLE HELP FROM OUR FRIENDS...

This month the Freep is being brought to you via Sam Powell's Commodore 128! Sam has also been crowned head of the proof reading department, so all complaints should be sent to him. Also a big thanks to Sam for doing over half the typing in this issue (aren't the rest of you ashamed!). Again, thanks to Sam for his time, efforts, and equipment. But if any of you know where we can get that jacuzzi...

NARAM OR BUST!!

A group of 6 club members is heading to the Nationals in Champain, Illinois. Ken Brown and Dan Winings will be representing NOVAAR in C division. Dan Mulholland and Adam Nowotarski will do the fighting in B division. And Wes Gimbert will try to hold the fort in A division. The 6th member, Stan Gimbers, is coming along as our cheerleader. Victory article next month. Wish us luck!!

CINEROC FILMS ON TAPE!

Yes, Mr. Cineroc has finally gone video! Her Desind has taken some of his best flights from around the world and has put them onto VHS cassettes. For $5.00 plus a tape, this collection can be yours too!! Ask for details when you see Herb at a meet. Requested flights not on the collection will run at $15.00 plus a tape.

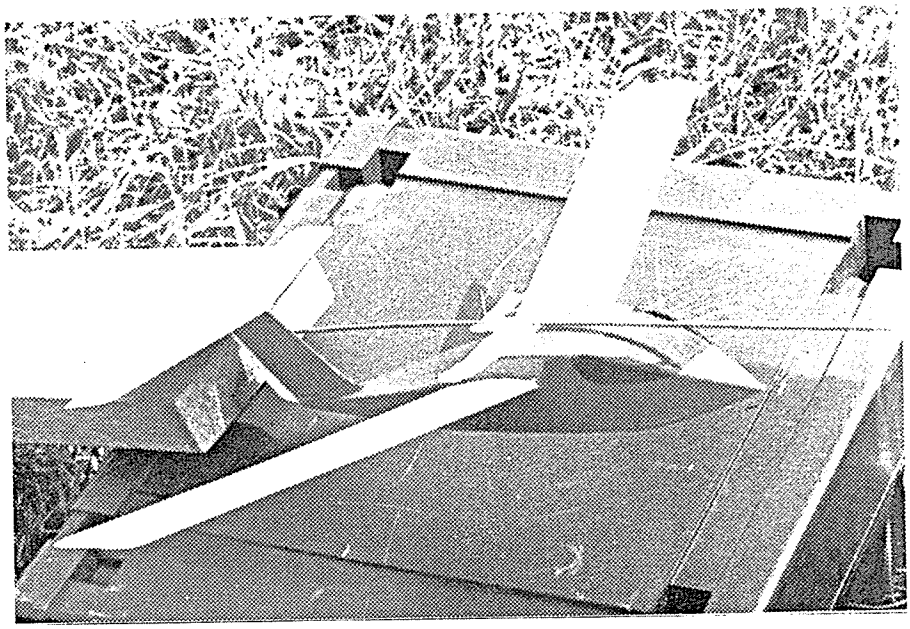
AND FOR THIS MONTH...

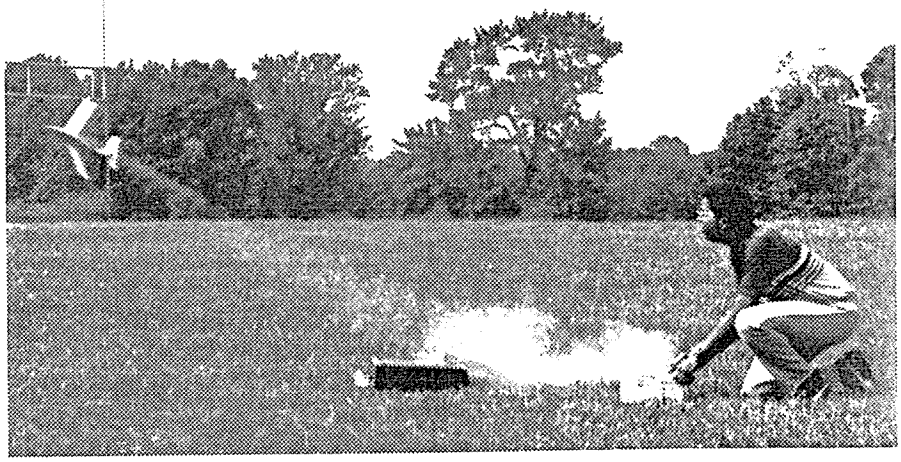
NOVAAR grew by four new members in June. They are Bobby Gormley of Springfield, who joins us in A division, the starry eyed half of the Cosgrove family, Greg in C division, and sons Daniel and Jeffery who join Bobby in A division. As always, welcome to the club guys!!!

MORE HIGH THRUST POWER FOR AIRPLANES

by Robert Edmonds

The model rocket engine remains the simplest to use, most readily accessible form of reaction power available to the hobbyist, and, as such, should be evaluated for applications beyond those ballistic vehicles it normally powers. Toward this end, the author continues to perform tests with a series of high-performance aircraft using model rocket power. Readers may recall the publication of a condensed, rewritten version of an article by the author in this journal several months ago. This described the use of an Inverted Vee stabilizer unit to control some of the difficulties encountered by a rocket plane at high speeds. Since then, two important new prototypes have begun test flights to investigate different methods of solving these same problems.





X-383, a small, T-tailed craft, is being used to test the "asymmetrical thrust concept". This simple technique involves mounting the engine toward one side of the fuselage so that it will induce the aircraft to turn. When the aircraft is climbing at high speed, a spiral climb helps to control the excess lift produced by the wings and prevents looping. To keep the spiral climb from deteriorating into a spiral dive, the plane's control surfaces have been adjusted to cause a turn tendency in the opposite direction. Thus, we have a craft which will turn in one direction while the power is on, then recover and turn in the opposite direction during the glide. When the X-383 was tested, it showed that asymmetrical thrust has a very powerful turning effect, and that only a very small amount should be used to achieve our desired spiral climb effect. The extreme steep bank angles shown in the photographs resulted when the engine was mounted approximately 3/4" from the fuselage center line. Since then, it has been moved closer in, and tests are proving more satisfactory. The most important aspect of the testing has been the demonstration that the two opposing turning tendencies are successful at preventing any spiral dive mishaps, and the craft is thus far crash-free. After some experience was gained with the asymmetrical thrust idea, an older aircraft, X-373B was modified to use the technique and proved successful.

Type 2000 was designed for use with a two channel radio control system, controlling elevator and aileron. Since the radio is heavy and bulky, this suggested a large airframe. A 32" span craft weighing around 10 ounces empty (including radio) was the constructed, and it became immediately evident that the main problem would be locating an engine powerful enough to manage this ambitious job. Model rocket engines produce enough thrust for a craft this size, but most do so for a terribly short time. For initial testing, Flight Systems' E-5 engine was selected, and delivers spectacular per- formance during its 5-second burn. The airplane handles very responsively and has already demonstrated some of its aerobatic capabilities. It also may be operated from a conventional runway by attaching a wheel unit. To increase altitude and flight duration capabilities, the craft will be fitted with two series-staged E-5s, and may be modified for F-7 power when budgeting permits this type of $5.00 per flight extravagance.

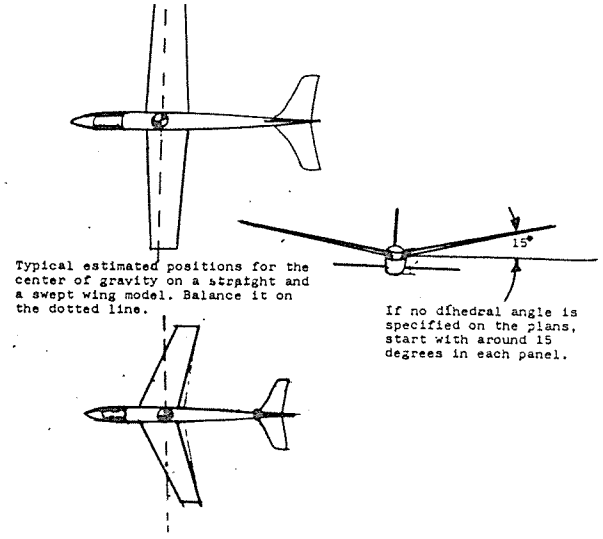
Work will continue along these lines in the future in the continuing pursuit of higher performance in flight. Look for such things as an inverted vee or asymmetrical thrust equipped camera carrying aircraft, a light, single channel radio equipped delta winged plane or even an F-7 powered two or three channel radio carrying canard. The future flies now.

GLIDER TRIMMING PART II
by Robert Edmonds

Do you have your glider? If not, go build one. We'll wait...

Back so soon? Now, the reason you'll need your glider is that this is the month when we'll try to take advantage of the stability systems we described last time with an actual model in flight. You will recall that our aircraft's flying characteristics depended on the location of the center of gravity. As we mentioned, this position is calculable, but instead of going through that numerical difficulty, we will find its best location by trial and error. Before flying, merely try to add enough weight to the nose (in whatever form you wish, usually clay) so that the model balances at a point about one-third the way back from the leading edge of the wings of a straight-winged model, slightly farther back on a swept-winged craft. Check to make sure there is the proper amount of dihedral angle in the wings, as difficulties can arise from too much as well as too little, but when in doubt, it is usually better to have too much. Now make sure there is as little wind as possible, grab a large chunk of clay, and step outside. Make sure you can locate a reasonably large area to test-glide in; there is no way to slow a glider down or "not throw so hard" to keep a glider in a small space. Hold all necessary first flight ceremonies.

Now, if you are familiar with the technique for tossing a model on a test glide, skip to the next paragraph, but if you are not, you aren't even close to being alone. What you are trying to do with this toss is to "place" the model in flight as though it had already been gliding before you release it. You want it to leave your hand at its normal glide angle and speed. Since nothing can glide up, this means that you absolutely MUST toss it downward. A normal glider will travel at around 10 mph, so give the model the appropriate shove to achieve this. In addition, and perhaps most important, the model must be kept appropriately aligned with the direction of the shove so that it enters flight at a reasonable angle of attack. Ideally, the model should be effectively flying before it leaves your hand and it should continue to do so after it leaves.



Typical estimated positions for the center of gravity on a straight and a swept wing model. Balance it on the dotted line.

If no dihedral angle is specified on the plans, start with around 15 degrees in each panel.

At last, it's time for the trial-and-error. Go ahead and toss it, into the wind if there is some and watch what happens. We'll go over a list that will hopefully cover everything that could possibly occur on a test glide and the necessary corrections. If you over- or under-correct, it will cause one of the other phenomena on the list to occur and you can then check that listing for further appropriate corrective measures.

1. The model might simply show no desire to fly whatsoever. It may travel forward a short distance and drop flat, as a leaf would, to the grass, or it may enter a very tight, small loop, or it might climb steeply for a moment and then slide back tail-first into the ground. For any of these conditions, a large amount of nose-weight must be added.

2. The model may start to fly forward and start rocking violently from side to side, perhaps even rolling through 360 degrees. This often represents insufficient yaw stability, which means that a larger vertical fin (rudder) must be placed on the aircraft. The craft may also, but not necessarily, require additional nose-weight.

3. The model takes off at a very high speed and plummets nose-first into the ground, without a sign of pulling out. The first thing to check here is the stabilizer to incidence angle. If the model is not equipped with decalage, make sure the stabilizer is not positioned at even a slight positive angle of incidence relative to the wing. The model simply cannot work with the stabilizer at a positive angle of incidence, and would, in fact, be better off flying upside down this way. If the model is decalage-free, now might be the time to opt for a less risky set-up by bending the trailing edge of the stabilizer upward a tiny bit, giving it an effective negative angle of incidence. If the incidences are reasonable, remove lots of nose weight and tr again.

4. The model may fly rather fast bank more and more steeply to one side and finally dive into the grass. Firs look at the model from the front to see i one wing panel is warped. Both panel must be parallel, both wings must have th same angle of incidence relative to th fuselage, so that the both fly at the sam angle of attack and generate the sam amount of life. Once you are satisfie that both wings are at the same angle o incidence, see if the steep banking prob lem persists. If it does, bend the rudde in the opposite direction from the bank In addition, some nose-weight may need t be removed.

5. If the model flies forward, en ters a slight climb, slows, noses dow somewhat steeply, and slides into th ground, this is a mild stall and the mode is pretty close to doing what we want i to do. Simply add nose weight a bit at time over successive test glides until yo achieve what is described in number 6

6. If everything is close to per fect, the model will follow a gentl sloped path to the ground at moderat speed with little tendency to turn. I should land with a satisfying smoothness

The model is now adjusted well enough so that if it were flown under rocke power, it would return smoothly and safe ly. But does it have the performance t win? Will it stick inside that thermal We cannot really tell very much from simple test glide. All we know is that th model is safe in the air. For high per performance trimming we'll have to use bit more finesse, and some more sophisti cated techniques. Next month we'll adjus our model to make the absolute best possi ble use of the altitude that we give it

WUBBA 9: Nothin' Weird or Unusual About this Blast–Attack.

by Quang Pho

There are few prominent East coast regional meets in the history of model rocketry. Those that immediately stand out are the MARS and ECRM regionals, both nearing their 20th year. Another very worthy contender is the younger, but just as successful, WUBBA series of regional meets. The acronym WUBBA (Weird Unusual Baffling Blast Attack) suggests that the meet was conceived by several inebriated participants of a Thursday night NARAM bull session. The next morning, in their hung over state, they found that the only semblance of a two syllable word that they could utter was "wubba, wubba ...", hence the birth of the first WUBBA regional. It should be stated here that the Free Press will accept anyone else's version of the origin of WUBBA.

So it was without exception that the meet was held annually for eight times, sometimes in conjunction with an open meet called Genius. This meet, incidentally, was probably named after the individual who managed to form an acronym out of WUBBA. As some will recall, Genius provided an opportunity to earn almost half a year's worth of contest points in one weekend.

The ninth WUBBA was held on June 28–29, the twilight of the 1986 contest season. As usual, its site was Allentown College in Center Valley, Pennsylvania. This regional was hosted by Arthur and Janet Rose, as were all the previous WUBBA's for as far back as anyone cares to remember.

The Friday night ritual included a long drive to Center Valley leading up to a hasty check–in and immediately followed by a session of hectic model building. After all, "real rocketeers go to meets with a box of parts". For some contestants, this resulted in a memorable session of eyelid aerobics and Hot–stuffed fingers. It was in this context that Saturday turned out to be a mixed blessing. The lingering rain clouds bought the procrastinators a little bit more building time.

The impatience of the rocketeers were answered by noon time when the clouds moved off. Unfortunately, the winds that carried the clouds away refused to stop blowing. It was a tricky prospect to achieve the required max for the international events without losing the model. Dan Winings and Jeff Vincent demonstrated the nature of the winds as well as of the competition in C division International Parachute Duration. They found themselves tied at three maxes (360 seconds) and no models remaining for a fly–off, consequently, first place was awarded to both. First place was only an indication of the excellent performance that characterized the event. All places in C division had at least two maxes. The East Meets West team missed a three–way tie for first place by only 21 seconds. Trip Barber was only a few seconds behind with a total of 326 seconds, fourth with their 313 seconds performance. First and second place were awarded to Wes Gimbert and Eric Gann, respectively, in A division. As for B division, Adam Nowostarski showed his readiness for C division by coming only 2 seconds short of three maxes. It was more than enough for a first place win over Dan Mulholland's 215 seconds.

As the parachute competition confirmed. WUBBA 9 was not a meet for the faint hearted. Competition in C division was especially intense. In fact, with about 20 contestants in the division, it was almost reminiscent of more recent NARAMs. There was also an abundance of thermal activity to add to the challenge.

Compared to International PD, International Streamer Duration was slightly disappointing. It was a common feeling among contestants that the 180 second max imposed on the event was too ambitious. Nevertheless, some maxes were achieved and many came close. Even though many suffered streamer separation, most of the winning times were very respectable. Eric Gann easily captured first in A division with only two flight attempts. Wes Gimbert was not far behind for second, he was victim to a DQ. Dan Mulholland more than doubled the time of his closest competition with a 300 seconds victory. Adam Nowostarski and Harry Rose were awarded second and third places. Despite his insistence that he doesn't know how to fly B SD, Trip Barber took a definitive first place in C division with a 430 seconds total. The Jankov/Pavlov team scored 303 seconds for a second place award. Ken Mizoi of the East Meets West team turned in a 192 seconds performance. In fourth place, with the only max in the event was Quang Pho's single unreturned entry. B ISD is a deceptively difficult event, it would be nice to see this event appear more often in local contests.

The contest directors had the merciless wisdom to allow the contestant to choose between windy Saturday or windy Sunday for the majority of their flying. Those who chose to trust the local weather forecaster and wait until Sunday in favor of better conditions were slapped by an even stronger wind across the launch range.

As flying progressed on Saturday, the Jankov/Pavlov team produced a single impressive flight of a dethermalized flexwing (254 seconds) to steal C division B Boost Glide. Ken Brown, with his more conventional (spray painted) flexwings, came in a close second place with 214 seconds He was followed by Dan Winings' single 108 seconds flight. A division also boasted fine performances from Eric Gann and Wes Gimbert. Although Eric turned in a superior first flight, he was not able to return a qualified flight. Wes took first place with a very good flight of 126 seconds. B division honors went to Dan Mulholland (104 seconds) and Adam Nowostarski (73 seconds), both fine performances. This event was dominated by flexwing gliders. Most of those gliders can now be found at various non– traversable distances down wind.

Helicopter Duration saw its usual share of Rotaroc and Don Quixote mutants. Art Rose, who took first in C division probably doesn't know how it feels like to lose in helicopter competition. Art produced two beautiful flights with his Rose–a–roc for a total of 166 seconds. Another nice single flight of 82 seconds was produced by yours truly, who is just learning how it feels like to lose in helicopter competition, now that he has joined Art in C division. Jeff Vincent was only 3 seconds behind with his two flight total of 79 seconds, and a close fourth place went to the 61 seconds flight of the East Meets West team. Wes Gimbert showed A divisioners how 1/2A helicopter should be flown with his two flight total of 58 seconds, leaving second place to Eric Gann's 10 seconds flight. Adam Nowostarski was the sole qualifier in B division with a 28 seconds flight. 1/2A Helicopter was a fun event, made just right for the windy weather.

No meet is complete without splattered eggs, and that all too familiar smell around the returns table. This meet was no exception. When high winds and large parachutes combine, as any paratrooper will tell you, "it's a drag". If the contestant is not immediately in position to arrest his egg–lofter from its down wind trajectory when it hits the ground, some how it doesn't know that it should stop. Eggs usually don't survive after taking a ground passage of the launch range. Nonetheless Adam Nowostarski took first place in B div. with a duration of 15 seconds, A division fared slightly better with Wes Gimbert's 28 seconds first place and Eric Gann's 15 seconds duration for second place. Competition was tight in C division, Quang Pho took first with his 57 seconds entry, followed by the East Meets West team's 48 seconds. The Omega Alpha team took third honors followed by Jeff Vincent's single 27 seconds attempt.

The most challenging event of the meet was B Rocket Glide. Spectators unquestionably witnessed some interesting failures. Consequently, Wes Gimbert and Adam Nowostarski were the only qualifiers in A and B divisions. Even with the windy weather, Jeff Vincent scored a clean 259 seconds victory, in a distant second was Quang Pho with 143 seconds The Jankov Pavlov, and the Omega Alpha teams settled for third and fourth places. Due to the magnitude of the competition in C division, many admirable flights earned only flight points in this event.

Perhaps it's an unwritten rule, or it may be just an idiosyncracy of rocketeers, that the events more prone to failure are always saved for last. Maybe they view it as a sort of grand finale, but anyone who has been to many regionals will agree that all events such as Plastic Model conversion or, in this case, B Super Roc duration always take place as the last event of the meet. Well, "grand finale" it was. Those who were fortunate enough not to be struggling with their own "antenna mast" were treated to various aerial acrobatics. The news here, though, is that no matter how successful the stunt, it must last for more than 20 seconds. As the results show, the winning strategy was to push the outside of the 100 gram weight limit and

calculations will show that the addition of one 12 inch body tube length beats a whole minute of duration performance. The goal here is to not sacrifice structural integrity to shave off weight, which incidentally is the intent of the Pink Book authors, even though it has taken over five years to get the rules written correctly. As the story usually goes, no modeler ever accounts for 20 mph cross winds in his calculations and construction. Needless to say, about half the entries were disqualified. In C division, Chuck Weiss managed two very successful flights with his 300 cm. model to take an overwhelming first place. The East Meets West team took a more conservative approach with a 140 cm. model and had to settle for second honors. On the other hand, the Omega Alpha team managed a third place, despite qualifying only one flight of their 250 cm. model. Oddly enough, in A and B divisions, most of the contestants rose to the challenge of this intimidating event only to settle for one successful flight instead of attempting it a second time. Top honors went to Dan Mulholland using his 234 cm. model to achieve a tight 21 seconds. Adam Nowotarski settled for a distant second place with his 148 cm. entry. There was only one qualified flight in A division, Wes Gimbert took this with his 123.5 cm. rocket flying for a 51 second duration For WUBBA 9, B Super Roc makes for some super memory.

Even if the biggest news about WUBBA 9 is that is was too windy, or that it almost turned into a NOVAAR section meet, we shouldn't forget the late flying on Saturday evening. Because the morning started out slow, it was decided that flying would continue until dusk. Well there are few things in rocketry that top high-powered birds showing their flames against the dark evening sky. Warren Sisco and friends didn't disappoint the late flyers. In his good old "tumbling battlestar" tradition, Warren proved how fun marginally powered, marginally legal, and marginally stable rockets can be. Then there's Phil Barnes, usually flat on his back, straining to see that E R/C glider that he'd over- skillfully sent out of sight.

In a less pompous manner, on Sunday, the ranged closed considerably earlier at about 2:00 pm (to the dismay of the procrastinator species).

After the dust settled, NOVAAR's Wes Gimbert came out on top with 1872 points despite father Stan's guidance. NOVAAR's other A and B divisioners also scored high, thus catapulting their section into a strong opportunity for the national title this August. Jeff Vincent Won C division with a modest 819 points. The meet points overwhelmingly favored NOVAAR with various other sections and independents looking on.

All was fun, wind-burned, and memorable, thanks to the Roses. Well, "wubba, wubba ..." Art and Janet, we can only hope that you'll continue this regional's fine tradition and we certainly look forward to that magic 10th anniversary WUBBA regional.

NATIONAL 42-383

WUBBA 9

28-29 JUN 1986

FLIGHT DATA

		½A IPD	½A HD	B B/G	B EL D	B ISD	B R/G	B SR D (CM)	B SR D (SEC)
A	GANN, E	41 70 —	10 —	138 NR DQ	15 11	42 121 —	DQ —	100.2 121.5	DQ DQ
A	GIMBERT, W	18 51 DQ	25 33	DQ 126	28 DQ	62 DQ 69	DQ 48	123.5 —	51 —
B	MULHOLLAND, D	120 DQ 95	DQ —	DQ 104	DQ —	80 92 128	DQ DQ	234 —	21 —
B	NOWOTARSKI, A	120 118 120	DQ 28	73 —	15 —	DQ 131 —	17 —	148 —	33 —
B	ROSE, H	—	—	—	DQ —	46 — —	—	— —	— —
C	BARBER, A	86 120 120	12 —	65 DQ	24 —	174 134 112	76 DQ	144.5 220	29 DQ
C	BROWN + BROWN TM	DQ —	32 DQ	112 102	15 DQ	DQ 80 60	DQ 47	244 —	32 —
C	CUFONE, C	—	—	15 51	14 DQ	40 42 41	—	— —	— —
C	EAST MEETS WEST TM	99 120 120	27 34	—	48 —	95 DQ 97	70 —	141 141	29 39
C	FLIS, J	84 120 180	—	—	—	DQ — —	—	— —	— —
C	GLASS, K	26 120 DQ	—	—	DQ —	104 DQ 39	—	— —	— —
C	GODDARD SOC. TM	DQ — —	—	—	DQ —	53 DQ —	—	— —	— —
C	JANKOU/PAVLOV TM	80 95 DQ	6 16	254 —	DQ 11	138 79 86	29 79	277 —	DQ —
C	OMEGA ALPHA TM	120 73 120	18 19	DQ 47	35 7	76 56 46	51 45	250 227	30 DQ
C	PHO, H-Q	DQ DQ 120	82 DQ	—	42 57	DQ 180 —	97 46	395.5 395.5	DQ DQ
C	SHEEHY, M	—	—	—	—	—	—	198.5 200	22 —
C	SISCO, W	—	15 —	DQ —	DQ —	—	—	— —	— —
C	ROSE, A	—	95 73	—	DQ 19	—	72 —	— —	— —
C	VINCENT, J	120 120 120	32 47	—	27 —	DQ 68 60	138 121	276 275.5	DQ DQ
C	WEISS, C	—	96 NR —	—	—	—	—	312 313	94 26
C	WININGS, D	120 120 120	—	DQ 108	8 —	60 DQ 64	36 —	— —	— —
C	YOST, J	19 DQ —	—	—	—	86 42 DQ	—	196.5 196.5	DQ DQ
C	ZABRISKIE, R	—	—	—	DQ 21	35 47 82	—	— —	— —

— NO ENTRY
NR NO RETURN
DQ DISQUAL.

A FEW CORRECTIONS...

First of all, the Goddard Spaceweek contest is not on September 20th. The competition is on July 20th. Please keep in mind that you cannot use models that are the same diameter as the mini sized engines. The contest is free to enter and there will be trophies awarded. You may also fly noncompetition models, and there is always press and television coverage of the launch.

Secondly, the last line of paragraph four, column two, of page should have read "Robert Edmonds g third with 138s.". Why this dis ppeared we don't know. Must ha been a scrap of paper on the copie Anyway, I apologize for the erro but hey, I was just meeting t quotas.

NICE 6

by Dan Mulholland

Back on the 7th of June, NOVAAR held open meet NICE 6 (don't ask what it stands for, none seems to know!), that was just as large as our regional the month before!

Not surprisingly the meet was held at Manassas Battlefield, what was a surprise was the strange weather; it was good! The superroc crimping winds of ECRM were replaced by plenty of thermal activity, that really kept our birds up!

Just as we were about to downgrade to a section meet, we were sneak attacked by Terry Lee (with 2 nephews & a niece) and our friends south of the border--the Carolina Skywriters.

Well, about the flying, where should we start... how about.. A international streamer duration? Yea, ok... why not, what the heck? In a division Joel Burgess was the only person to beat a minute with an astounding 65s total for first place! Sister Mary brought home 2nd place with a 45s total time. In 3rd place and still well in the race was Wes Gimbert with 32s of flight.

Now B division was a short story, but a good one. Adam Nowotarski, with a definite improvement since ECRM was able to nang two maxes and just missed another for first place. Robert Edmonds, the other half of B, took 4th (just kidding!), 2nd with flights all in the 40s range.

In the big leagues Dan Domina and the Brown and Brown team went into flyoffs after they both flew maxes? One extra flight was all that was needed though, Dan Domina edged ahead by 14s. The Honey Mooners team from Carolina came in 3rd with 277s.

Nothing too interesting came out of 1/2A international parachute duration, just the standard old show. Terry Lee, flying for the Omega Alpha team, got his only first place of the meet with a 247s time. James Sexton and Dan Domina took 2nd and 3rd by floating in times of 240 and 205s respectively.

Adam Nowotarski managed first with one max and a DQ in his set of flights to take first over Robert Edmonds. Their times: 236s and 192s.

A divisioner Wes Gimbert more than doubled his nearest competitors time with a total of 95s grabbing 1st spot. Brothers Tommy and Joel, were next in line with times of 43 and 35s.

B I/BG, the only glider event of the meet saw Adam Nowotarski easily loose 2 flexies for 2 maxes. With a home brew delta winged (balsa...yuck!) model to soar into 2nd place with 135s.

With the new Estes Hitch-Hiker Glider, Andy Kassel and Kevin Murphy took first and 2nd places in A division with impressive times of 146s and 112s. In the 3rd and 4th places, came Wes Gimbert with 92s (which beat his parachute time by a second) and Glen Fetterolt who managed 43s. Both used balsa models.

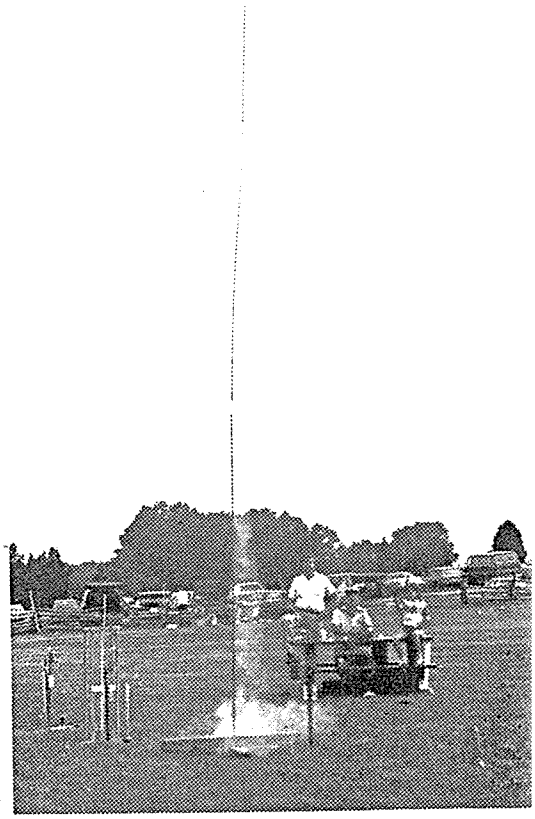
Dan Domina flexed his muscles in C for an easy first using a balsa model that had an absolutely beautiful first flight, then fell short of maxing on the next two shots. The Omega Alpha Team qualified 2 flights for two maxes and a comfortable 2nd place. Harland Pell was 3rd with 318s and the Honeymooners took fourth using the Estes Dragon Fly launhced two stages. 180s for one max and a Red Barron on the next flight. Also tied in for fourth was Tim Eaton who used a "Sure Fire" kit that maxed once then shredded!

Lawrence Bercini whose general bad luck got worse then suddenly better when his flex wing model become tangled in the booster's shock cord and broke up. But, a single broken spar with a big strip of plastic managed to glide for 154s!!

Some very strange things happened in a Helo duration. Adam Nowotarski had a nicely spinning Rose-A-Roc that suddenly stalled, and started rotating the other way! Even odder was Ken Brown's Rotaroc which deployed it's blades in the air. Well, for Ken that's strange. He far out paced everyone with 144s. I think the next 3 placers also used Rotarocs for times of 85s, 64s, and 61s. The modelers were Lawrence Bercini, the Honeymooners, and the Omega Alpha Team.

Andy Kassel in A division was able to keep his C eggloft model aloft for 44s for first, beating out Wes and Glen who kept theirs aloft for 37s and 20s for 2nd and 3rd, respectively.

The winners in C division were Dan Domina with 115s with a piston boost. James Sexton took 2nd with an even 100.



Three seconds behind came Terry Lee for the Omega Alpha Team. I've never seen it before and don't expect to see it again, but somehow at ejection, Terry's model swung up on top of the chutes as the egg floated below. This was still able to edge out Harland Pell taking 4th with 94s.

Superroc's lived up to their name at NICE as everyone used the "the bigger the better" philosophy. Andy Kassel, in A div used a 3 foot model that stayed up nearly a minute. This was enough to beat Wes Gimbert's 5'5" bird that land in just under 20s. Glendon Fetterbolt's 4'2" got a 12s time to take 3rd place.

The boys from Carolina completely dominated NOVAAR. James Sexton, who arrived at the meet climbing down a beanstalk, launhced an 11'2" monster (and this is using A engines remember!) for an easy first on a 18s flight. After one cato, Dan Domina was still able to manage a comfortable second place with his 10'6" rockets' 23s flight. ECRM champs, the Brown and Brown Team, feeling a little short took 3rd spot with a measly 10' model. Lawrence Bercini came in 4th with a 9'9" job.

Predicted duration was predictably unpredictable (I just couldn't resist!). The only time that really stood out, or came close for that matter, was the Honeymooners' 4% error, giving them their only first place at the meet.

Open Spot Landing was a bit more exciting as competitors kept getting closer and closer...build up the tension. In the end, Tommy Burgess had won with a remarkable 10.25 ft distance from the pole.

The awards ceremonies and banquet were held at the NOVAAR club house (Godfathers Pizza) where NOVAAR was treated to dinner by the Skywriters!! We should invite them up here more often!

While waiting for our dinner pizza, a VW Bug burst into flames in the parking lot. We made sure that we left a nice tip!

As we dined and told tall tales, Terry "The Calculator Kid" Lee tallied up all the points right on the spot!

Everyone was able to go home knowing where they stand. Thanks Terry! And thanks to everyone else too who helped make this a most enjoyable and smoothly run meet. They know who they are.

1/2A International Parachute Duration

A Division

1. Wes Gimbert	91s
2. Tommy Burgess	43s
3. Joel Burgess	35s
4. Mary Burgess	29s

B Division

1. Adam Nowotarski	236s
2. Robert Edmonds	192s

C Division

1. Omega Alpha Tm	247s
2. James Sexton	240s
3. Dan Domina	209s
4. Brown & Brown Tm	183s

A International Streamer Duration

1. Joel Burgess	65s
2. Mary Burgess	45s
3. Wes Gimbert	32s
4. Tommy Burgess	30s
1. Adam Nowotarski	344s
2. Robert Edmonds	135s
1. Dan Domina	475s
2. Brown & Brown Tm	461s
3. Honeymooners Tm	277s
4. James Sexton	230s

B International Boost Glide

1. Andy Kassel	146s
2. Kevin Murphy	112s
3. Wes Gimbert	92s
4. Glendon Fetterolt	43s
1. Adam Nowotarski	360s
2. Robert Edmonds	135s
1. Dan Domina	412s
2. Omega Alpha Tm	360s
3. Harlan Pell	318s
4. Honeymooners Tm	180s

C Eggloft Duration

1. Andy Kassel	44s
2. Wes Gimbert	37s
3. Glendon Fetterolt	20s
1. Dan Domina	115s
2. James Sexton	100s
3. Omega Alpha Tm	97s
4. Harland Pell	93s

A Helicopter Duration

1. Brown & Brown Tm	144s
2. Lawrence Bercini	85s
3. Omega Alpha Tm	64s
4. Honeymonners Tm	61s

A Superroc Duration

1. Andy Kassel	458pts
2. Wes Gimbert	350pts
3. Glendon Fetterolt	268pts
1. James Sexton	1498pts
2. Dan Domina	1339pts
3. Brown & Brown	1273pts
4. Lawrence Bercini	1158pts

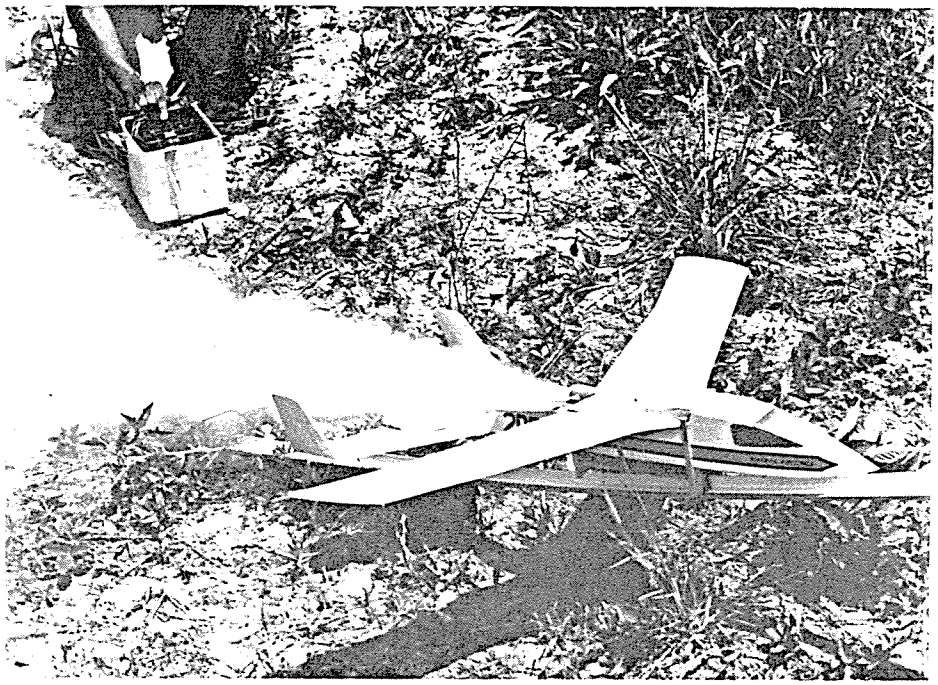
Predicted Duration

1. Joel Burgess	12%
2. Wes Gimbert	31%
3. Kevin Murphy	43%
4. Mary Burgess	49%
1. Honeymooners Tm	4%
2. Dan Domina	11%
3. James Sexton	14%
4. Lawrence Bercini	16%

Open Spot Landing

1. Tommy Burgess	10.25ft
2. Wes Gimbert	31ft
3. Joel Burgess	33ft
4. Kevin Murphy	54ft

ABOVE: Tom Eisenmenger mourns the loss of his broken egg.
RIGHT: The Skywriter "Rocketmobile" suffers engine cato.
Previous Page: James Sexton's 11' 2" superroc clears the pad.



JUNE 22 FUN FLY

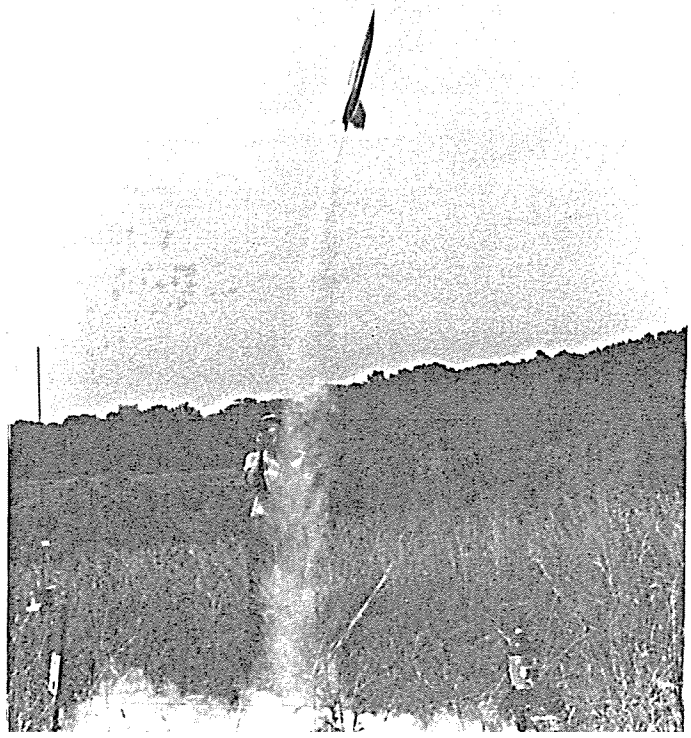
by Adam Nowotarski

June 22nd was a nice clear day for yet another Baron Cameron fun fly. It started off slow and didn't look like there was going to be a big turnout, but then more people showed up to make for some interesting flights. The local airplane club was also there and proved to be a good target throughout the day. As the R/C planes buzzed the launch field, a few NOVAAR members took advantage of the situation and attempted to shoot a few down. There were a few close calls with exhaust trails hitting a few planes, but unfortunately none were shot down (maybe next time).

Herb Desind (alias Mr. Cineroc) showed to launch, what? Cinerocs and Astrocams of course! He also put a Cineroc on top of someone's Mean Machine for a low flight. Dan Mulholland also thrilled the crowd with his two staged Estes UFO's which was made even more exciting when the second stage engine catoed. Not to be outdone, Kevin Brown pranged his flex-wing R/G a few times (I lost track of how many). Ken Brown helped out the launch by launching his 3 litre Pepsi bottle. He also helped some rocketeers prep their Estes X-15s.

Some very "unique" flights were made by Robert Edmonds with his horizontally launched rocket powered air planes. The first flight was impressive and much to the crowd's surprise, it didn't prang! Always trying to improve his ideas, he next launched a R/C version of the glider. It was very impressive. The flight was a little hairy at first, but Robert leveled it out into a level flight under power for a long 4 second burn using an FSI E5. Unfortunately, shortly after ejection, a tree got in the way of the glider and shortened the glide.

The day concluded with Ken Brown flying a three D engine cluster, but unfortunately, only one of the engines ignited. Yet, the flight was nice and slow with the D12 spewing flame. The day proved to be very successful and hope you come to the next one.



How to Tissue Gliders in Ten Easy Steps

by John Kalyan

Have you ever searched long and hard through boost glider plans, only to throw out the perfect one, because you see the words, "all surfaces tissue covered" printed off on the corner of a page somewhere? Neither have I. But, for those of you who might have, here is a guide for tissueing gliders, fins, body tubes, etc.

The main reason for tissueing a glider is to increase the strength without substantially increasing the weight. This is done by using "tissue for rubber powered models," or as it is commonly, but inaccurately called, jap tissue. Do not try to use art tissue, as it will only suffice in turning your fingers a rather offensive color. It will not add any strength to the glider. Jap tissue is a special fibrous tissue that shrinks when clear dope is applied to it. Don't use balsa fillercoat or sanding sealer, because it leaves an ugly finish and does not shrink as well as clear.

Applying tissue is not difficult, and often faster or more desireable than just doping a model. There are ten simple steps to applying tissue. These are:

1) Sand and dope the balsa until it is smooth (two to four coats is usually enough).

2) Cut out a piece of tissue with a 1/2"-1" overlap on all edges. The grain of the tissue should correspond to that of the balsa. (To find the grain of the tissue, tear off a small corner; the tissue will tear straight easily along the grain).

3) Put another coat of dope on the surface to be tissued.

4) While the dope on the wing is still wet, carefully roll the tissue over the surface, smoothing out any wrinkles as they occur.

5) Dip a blotter (Kleenex, paper towel, etc.) in dope thinner and rub over the tissue with it. This is to bring the dope up through the tissue.

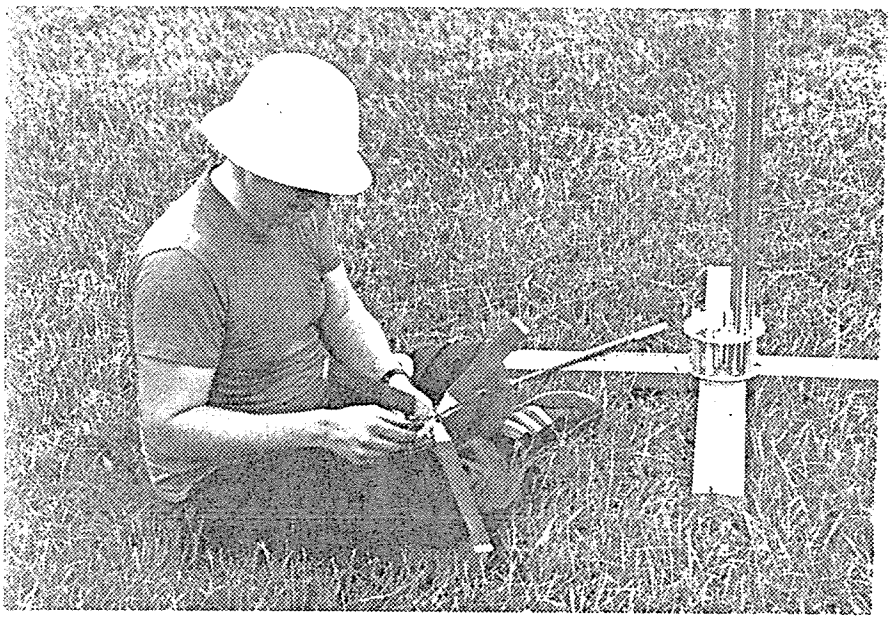
6) Apply another coat of clear dope to the tissue while the last coat is still wet. This is so the dope will penetrate down through the tissue.

7) Rub again lightly with the thinner soaked blotter.

8) With a piece of 600 grit sandpaper, gently sand the edges of the wing to cut off the excess tissue. (Repeat steps one through eight on the other side of the wing as soon as the first is dry).

9) Put on more coats of dope until the surface is as smooth as wanted.

10) Launch your beautiful new model and watch it streak skyward, only to be shredded to bits when the engine catoes.



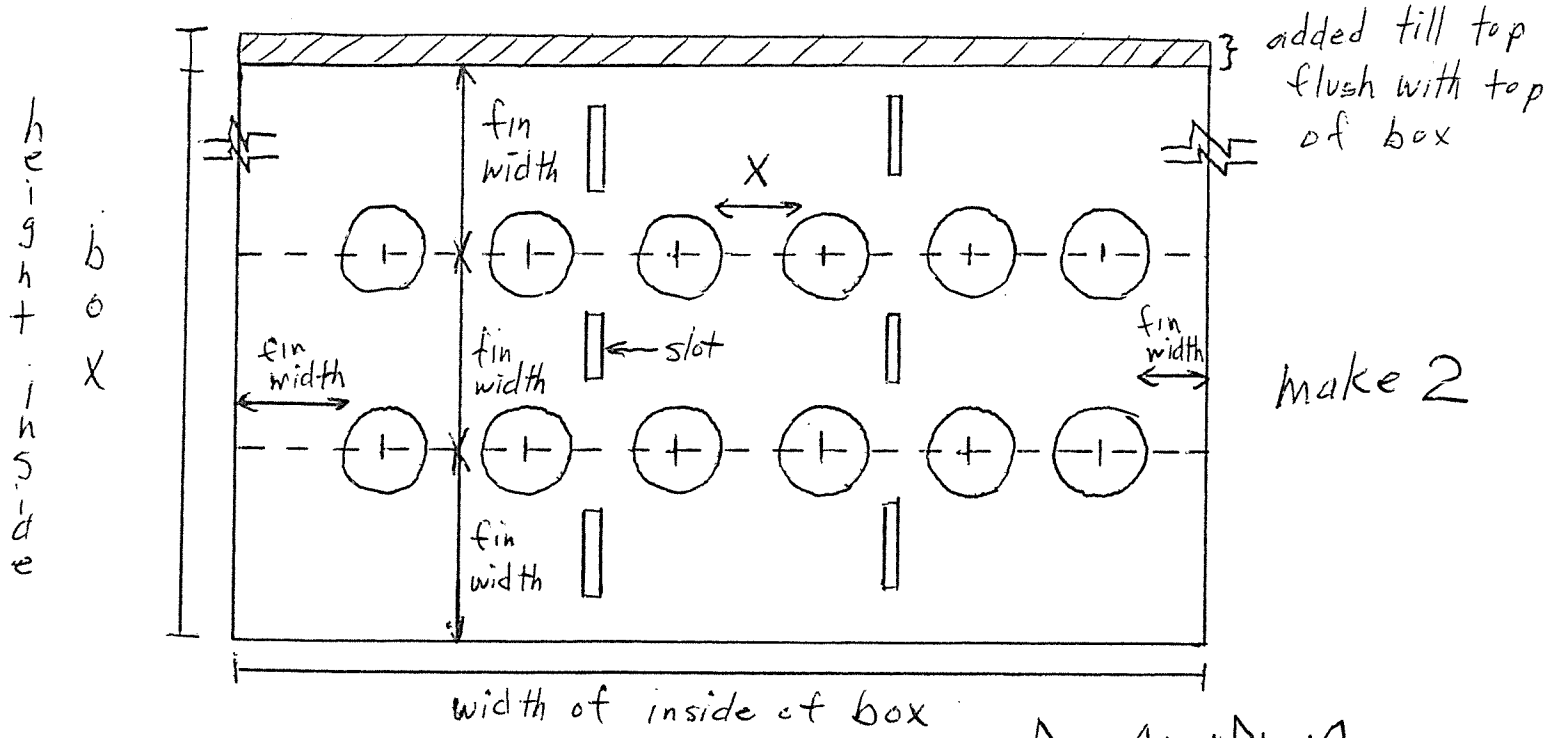
ABOVE: Dan Domina preps his helo model for flight at NICE 6.

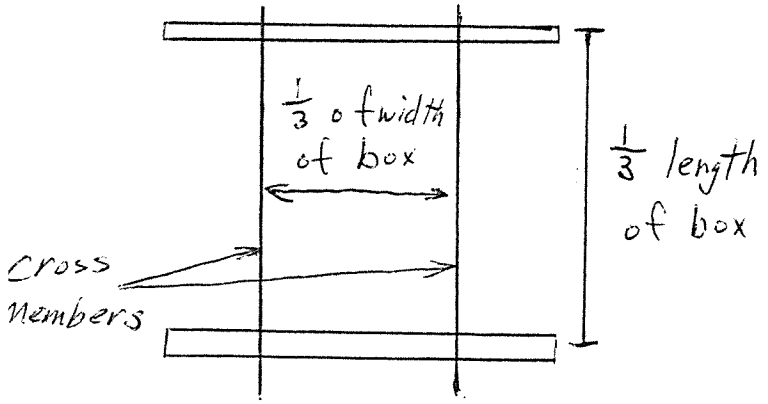
THE CASE OF THE MISSING CASING

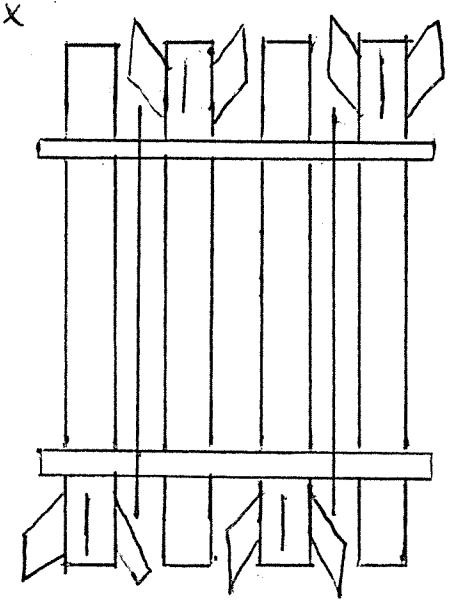
After a perfectly normal flight, Sta Gimbert packed his son's rocket away neve suspecting that the story of the flight would later go down as one of the biggest mysteries in model rocketry.

Later, after arriving home from WUBE the model was unpacked and it was discove -ed that the wadding remained in the bird and would'nt budge. After taking a pole and hammering the wadding numerous times it finally gave way and came out, with an engine nozel.

The engine casing had completely vanished but the nozel had remained stuck in the wadding!! If you have <u>any</u> idea how this could have happened, please let us know. Reasonable answers will be published next month, stay tuned.







The Rocket Rack was designed by Kevin Brown and provides a safe means for transporting your rockets to the field. The carrying rack uses an old box for the frame with two pieces of cardboard placed within the box as the actual rack. Cross members are added to provide extra support.

To build: Cut two rectangles of corrugated cardboard equal to the cross sectional area of the box. Draw holes with diameter of the tubes you plan to carry. X depends on the number of fins per rocket. For three fins I found 3/16" works nicely. Cut the holes out. Draw and cut slots for cross members that hold together dividers of trays. Cut two cross members per tray. Slide cross members into slots and glue together while tray sits on flat surface. Place tray of rockets on top of each other in the box.

COUNTDOWN CALENDAR

NOVAAR meetings are held on the first and third Tuesdays of each month, from 7:00 PM to 8:30 PM, at the Dolley Madison Branch Public Library in McLean. For information call Kenneth Brown at (703) 451-2808.

SAT, July 20th	Goddard Contest, 10 A.M., 1/2A Streamer Duration and 1/2A Streamer Spot Landing. NO MINI SIZED ENGINES!!
TUES, July 22nd	Meeting for beginners to learn basic building techniques. 6:30 - 8:00 at 7021 Barnack Dr., (Bob Kassels house) Springfield. Contact Bob Kassel for info 451-0340. (See page 2 of this issue for details).
SAT, July 26	Public demonstration at Fairview Elementary School, 1 - 4 PM. TENTATIVE, contact Ken Brown (451-2808) for conformation.
August 3-9	NARAM, Champaign Illinois.
TUES, August 19	NOVAAR Meeting. NO MEETING AUGUST 5th!!
TUES, Sept. 2 & 16	NOVAAR Meetings.
SAT, Sept 20th	VACUUM Open Meet. 9 A.M. Manassas Battlefield. 1/2A International Parachute Duration, A International Streamer Duration, C Eggloft Duration, A Rocket Glider, A International Boost Glider, B Superroc Duration, Open Spot Landing.

If there is a red star by your address,
This is your last issue! Renew today by
contacting Sam Powell (781-0392) after 6 P.M.