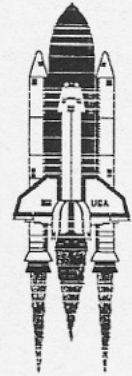


Newsletter of the Huntsville Area Rocketry Association

MAX-Q



Vol. 1 No. 5 October / November 1987



1987 Section Reserve National Champions

HARA ON ASCENT

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and much more!!!

Coming Next Issue:

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 - Model of the Month
 - Tips and Tricks
 - Wadding Scraps
 - NARAM-30 Update
- and more!!!*

Gassaway and Steele return triumphant from Internats !!!



George Gassaway, USA; Victor Kovalev, USSR; and Svetozar Rusev, Bulgaria, look on as their countries' flags are raised and national anthem is played in the awards ceremony for Radio Controlled Rocket Glider at the Internats in Belgrade, Yugoslavia. (See Internats page 2)

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7th World Spacemodeling Championships

Belgrade, Yugoslavia

By Robyn Steele (with consultation from Matt!)

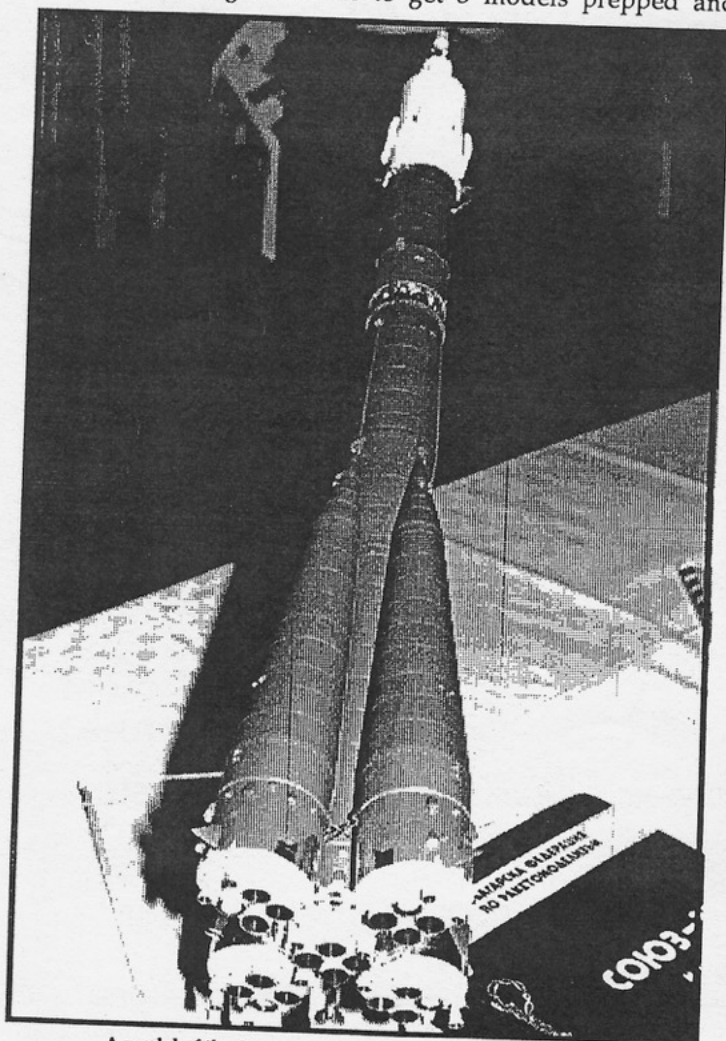
The International Spacemodeling Competition is so different from NAR Competition that a word or two of explanation may be necessary before a report on the competition. So, those of you familiar with Internats can skip this first part and skip directly to the main part of the story.

International events are flown in rounds, each round lasting 1 hour. Usually for each event, there are 3 team members competing and all three team members must be able to launch during the round. That part sounds fairly easy until you realize that each country has one launch pad and one set of timers and all three team members must use the same launch pad and timers. Also adding to the difficulty is the fact that engines for each round are not released to the competitor until the start of the round and if your model is a difficult one to prep, as some of the two stage models are, it becomes a race against time to get 3 models prepped and

launched within the round. If a duration event is being flown, then you add in the thermal factor; waiting for the right thermal to come along before launching. With 3 team members all wanting the best thermals, sometimes the hour round goes by very quickly indeed. Also in the duration events, there are maximum times that must be achieved in order to continue in the quest for the gold medal. For example, in parachute duration, the maximum times for the first three rounds are 3, 4 & 5 minutes. Those who achieve maxs in all three rounds advance into the flyoffs. Flyoff rounds increase by 1 minute each round and as competitors fail to make the maxs of the rounds, they must drop out until only one is left. That one wins the gold. It's a kind of survival of the fittest. In addition, the times of all three team members are added together to get the team standings, so that the teams may also win a medal. As you can see, things are a bit more complicated at the Internats than at our own HARA contests. Also, so there is no confusion with all the different languages, events are numbered rather than named, so that Scale is S7, Parachute Duration is S3A etc.

Other teams competing in the Internats included the Soviet Union, Yugoslavia, Czechoslovakia, Bulgaria, Rumania, Switzerland, West Germany, Great Britain, Poland, Spain, and the U.S. It is really popular in the Communist countries as you can see. It is rumored that the spacemodeling program (as it's officially known) is actually Bulgaria's space program and I wouldn't doubt it.

Tuesday, the 8th of September was the official practice day, to get out, check out the flying field, test some flights etc. They also had a big opening ceremonies in the afternoon. They bused us to a suburb of Belgrade and must have bribed all the school kids to be there because it was at a big soccer field and it was packed with kids. All of the teams had on uniforms (Except for the Russians; I think it was because of the anti Russian sentiments there. Apparently, they just decided not to wear their uniforms and be conspicuous). We marched in like they do at the Olympics, with a young girl or boy in folk costume carrying a sign in front of each country and marched around the stadium. It was kind of fun. We were third and the crowd just roared when we walked in. The only team that got a bigger response were the home town Yugoslav's. We stood in the center of the soccer field for about 20 minutes while they made all the speeches in Yugoslavian welcoming us (I guess) and then we were led to a seat in the stands so we could watch the folk dancers and little program that was prepared. All the kids that were close had to come rushing down to see if they could shake our hands on the way to our seats, it was wild! I felt like a real celebrity! Once we sat down, we were mobbed. We had dark blue ball caps that said USA across the front and every kid in that stadium wanted our ball caps. We were surrounded by kids all beg-



A model of the Soyuz awaits judging in Scale Competition.

ging us for our hats. English is a popular language in the schools and they all knew some.

We finally took off the hats and hid them under our jackets and even that didn't help much. Finally a couple of teachers came over with switches and made the kids go back to their seats- but it was too late to see any of the program. When it was over, it was a free-for-all to get to our bus- I was holding my hat with both hands and kids were tugging on it from all sides. One little girl snatched Matt's hat right from off his head and took off - I guess she got a real prize. Jerry Gregorek, the team manager, also lost his. Matt finally took my hat from me, but they were tugging on my clothes and my arms- I had a death grip on Matt because I was afraid if I lost him in that crowd, I'd never get to the bus. Bob Biedron had the USA flag patch sewn on his jacket nearly ripped off. Once we got on the bus, the kids stood outside and knocked on the windows until the bus finally left. It was the most bizarre situation I think I've ever been in! I don't think I ever want to be a celebrity!!! (Matt says he does though!)

The actual contest started on Wednesday and competition was really intense. This was the most competitors that they've ever had at an Internats- there were 105 total. Each country had their own tent set up (by the Yugoslavian army no less!) to store things and get models ready. Usually only two events were flown each day but competition was so intense that by the end of the day everyone was exhausted. The two events on Tuesday were S3A (parachute duration) and S6A (streamer duration). Parachute Duration team members were Ken Mizoi, Chuck Weiss and Dan Winings. Because of the necessity to hit thermals in both events, all the models are going to drift for quite a distance. This means that all the other team members who aren't flying in these events are scattered out acting as the recovery crew. We had a short range crew, a medium range about a mile out and a long range crew about 2 miles away. We were all in contact by walkie talkie. Short range would spot the model when it first went into the air and talk to the medium range crew until they picked it up and followed it and passed it on to the long range crew who hopefully would be able to recover the model. Unfortunately, some models caught such good thermals that they were still going up when we lost sight of them and there was no way possible to recover them. Also there was a lot of cornfields around and if a model went down in the 10 foot corn, it was lost. The far recovery had the worst job as they had to chase through an awful garbage dump and several "moats" filled with a terrible stag-



U.S. Scale Altitude Team (l to r) Jeff Vincent, Dan Winings, Matt Steele.

nant green water. Recovery was absolutely necessary as a competitor is allowed only 2 models to fly 3 rounds and then a third model is allowed for the flyoffs. Dan did not max in the first round, Chuck lost his first model in the cornfield and his second model thermaled away, but Ken Mizoi did take a bronze medal in this event, (he finally lost all his models in the flyoffs and had to quit) so we were pleased considering all the competition. Andrei Jankov, Bulgaria & Ion Catargiu, Rumania took 1st and 2nd respectively.

Streamer duration rounds went 2,3 & 4 minutes and none of the three team members (Art Rose, Harry Rose and Frank McMullin) were able to get all three maxs to continue on to the flyoffs- so we were out of the competition there. Djulijan Spasov, BUL, Firsov Yuri, USSR, & Atanas Marinov, BUL took the top three places in that order. The U.S. team came in 5th overall.

After being in the field all day, chasing through the dump and the moats, etc. the U.S. embassy gave a party at which we were the guests of honor. Pretty classy huh? Except that we had no time to go back to the hotel & change. They sent 3 vans to pick us up on the field and we went directly to the Ambassador's residence- all sweaty, smelly and muddy. We were rather embarrassed, but we'd warned them in advance and they insisted that we come anyway. Fortunately it was held outside and everyone was very gracious and made us feel very welcome and comfortable but everyone else was rather dressed up. Also attending was a former Russian cosmonaut- now a general. I forget his name but he was one of the ones who went up about 10-15 years ago and stayed up for such an extended time in space. Because he was going to be there, the Yugoslavian hosts of the meet suggested to the American embassy that since the cosmonaut was there, that they should have an astronaut also show up. So, NASA sent Shannon Lucid who will be a mission specialist. Throughout the entire week, those two- the cosmonaut and Ms. Lucid showed up everywhere to-



Kovalev, Gassaway & Rusev, medal winners in RCRG display their winning models after the competition.

gether, along with an entourage of course. The ambassador came out twice to watch the contest so that was very nice of him. Anyway, I thought it was rather thrilling to be a guest of honor at an embassy party even if we were so grubby and sweaty when we showed up.

The next day, Thursday was one of Matt's events, S1A (B altitude) and one of George Gassaway's events, S4B (Boost Glide). With Matt's first model, he wanted to be a little conservative and just make sure that he got tracked. Using a single stage model, Matt got 612 meters on his first flight- which wasn't bad, but not good enough for a medal. For the second flight, he tried a little different model- a two stage. This is what Jeff Vincent and Chuck Weiss were using on all three of their flights. In theory, it should go higher than a single stage model but Matt wasn't entirely convinced of that- and as complicated as it was to prep, a lot of things could go wrong- and did. His second flight- the upper stage didn't ignite and so it was DQ'd. His third flight- old Mr. Improvisor himself went back to his first model, cut away some of the body tube, made some other adjustments, put it in the air and his little modified model (named the Hoodoo B) came up with 844 meters (or 2573 feet) - enough to take 4th and out fly everyone else there with the exception of the three Yugoslavs, Marjan Cuden, Bogo Stempihar & Miroslav Stancevic, who took first, second and third. (There was a lot of questions about the motors they were using and it was thought at first that they would be disqualified because their motors had a longer burn time than what they had tested at but since Yugoslavia was the country in charge and this was their team, well as you can see, nothing was done.) Anyway, Matt was very pleased with the flight and combined with the altitudes of Jeff and Chuck who placed 8th & 9th overall, they qualified for a team silver medal! (By the way, the old U.S. altitude record is 530 meters!)

The event in the afternoon was Boost Glide. This always means flexies in international competition. Again, it is flown in rounds with increasing maximum times of 3, 4 & 5 minutes

and then flyoffs. None of our three team members, (Art Rose, Harry Rose and George Gassaway) made it into the flyoffs although George did put one model into a tree on the first round and Phil Barnes had to climb 80 feet up to recover it! George is ranked 11th in the world in this event now however. Medal winners were Andrei Jankov, BUL, Stefan Gerencer, Czechoslovakia & Evgeny Chistov, USSR. These 3 all won the gold, because mysteriously, they all ran out of models for a final round.

Friday was an "excursion day". There was some grumbling at first about having an excursion day in the middle of the meet instead of at the end, but by Friday we were so exhausted that we welcomed the break. The Yugoslavs planned a glorious day long excursion to a local foundry and disco. It didn't sound like something we really wanted to do- (105 competitors- 102 of them men going to a disco together- who would they dance with?) so most of the U.S. team didn't go and caught up on much needed sleep.

Saturday was Matt's second event- S5C (scale altitude). In this event, you have to build a scale model, have it judged for static points and then fly it for altitude. Matt built an Australian rocket that flew in 1959 called an *Aeolus*. It was a beautiful little model but it wasn't as complex as some of the other models built- like the *Nike Tomahawk* for example that Jeff Vincent and Dan Winings built, so Matt didn't get as many points under "degree of difficulty" and consequently didn't score as high in static points. That however can be made up by the altitude which counts for more. Matt's first flight didn't get tracked and he lost one of the fins on his model. They wouldn't let him replace the fin (as they normally would in other events) because it altered the model. The entire team spent 30-40 minutes combing the area trying to find that fin and when we couldn't find it, Matt was effectively out of the competition. The other two team members didn't do much better. Dan Wining's streamer failed to deploy and his model buried itself in the ground, which most effectively destroyed it, so he was out. (There is only 1 model allowed for scale altitude) Jeff Vincent had a flight good enough to take the gold medal, but he also lost his streamer and even though the model came down very slowly and safely, with absolutely no damage to it, the Contest Judge DQ'd it and he was out. Not a good event for the U.S. team at all. Medal winners included Jan Kotuha, Czechoslovakia, Sergei Ilyin, USSR & Yuri Firsov, USSR.

In the afternoon was S8E (Radio controlled rocket glider). Rounds here are 5, 6 & 7 minutes. Our team consisted of Phil Barnes, George Reibesehl & George Gassaway or Big George (as he is now known in International circles). Phil is the two time gold medal winner in this event. (His wife was the interpreter in 1983 in Poland and they met again when she came to the U.S. to visit her brother and fell in love and got married.)

Big George was very popular at the competition. Everyone knew who Big George was- I guess they just don't grow them that big over in Europe. If they'd had a popularity contest, George would have won it hands down! It was pretty funny.

Back to the contest. One of the reasons Phil had two gold medals in this event is that in the past there just had not been that much competition from the other countries. That's not to say that Phil isn't good- he definitely is still one of the best in the world, but this time he faced some really

stiff competition- particularly from his own teammates. First round every one maxed- no problem. Second round, Phil hit some dead air and was unable to max- he was out of the running for a medal. Everyone nearly went into shock over that one. George and George were still in and they both made it to the flyoffs. Big George has several tense moments in the third round however. With 4 minutes left in the round to max, the cervos in the model quit responding to his transmitter. Matt rushed to the judges tent, got the backup transmitter and still no response. Fortunately, the model was in a booming thermal so that it maxed the round and thermalled away and we were unable to recover it. George had to switch to his backup glider to finish out the flyoffs. Who knows how much better he could have done with his primary model rather than the backup one? Three flyoff rounds were run that night before it got too dark to fly, with times going up to 10 minutes on the last one. It's really tough, even with radio control to keep a glider up for 10 minutes. George Reibesehl dropped out on the 10 minute round- he came in 5th place overall, but Big George was still in. They ran an 11 minute round first thing the next morning for the 3 competitors left, Big George, Victor Kovalev of the Soviet Union and Svetozar Rusev, Bulgaria. Thermals and really good air don't come up usually first thing in the morning and none of them stayed up the entire 11 minute round. When the dust settled, Kovalev took 1st, Rusev 2nd and George took the bronze medal. It was really exciting. Both the Russian and especially the Bulgarian wanted to have their pictures taken with George- I think to show folks back home just how big he really was- and when he went up to receive his medal, he got more cheers and applause than any other competitor. Based on Phil and George Reibesehl's time, (Phil took 10th overall out of 25 competitors) the U.S. also took home the team silver. Big George missed the individual silver medal by 15 seconds and the team missed the team gold medal by 27 seconds. That was kind of tough, but it was a tough competition. The Soviets were flying a really unique flop wing model in this event that took a lot of time to prep and got a lot of attention from the other competitors.

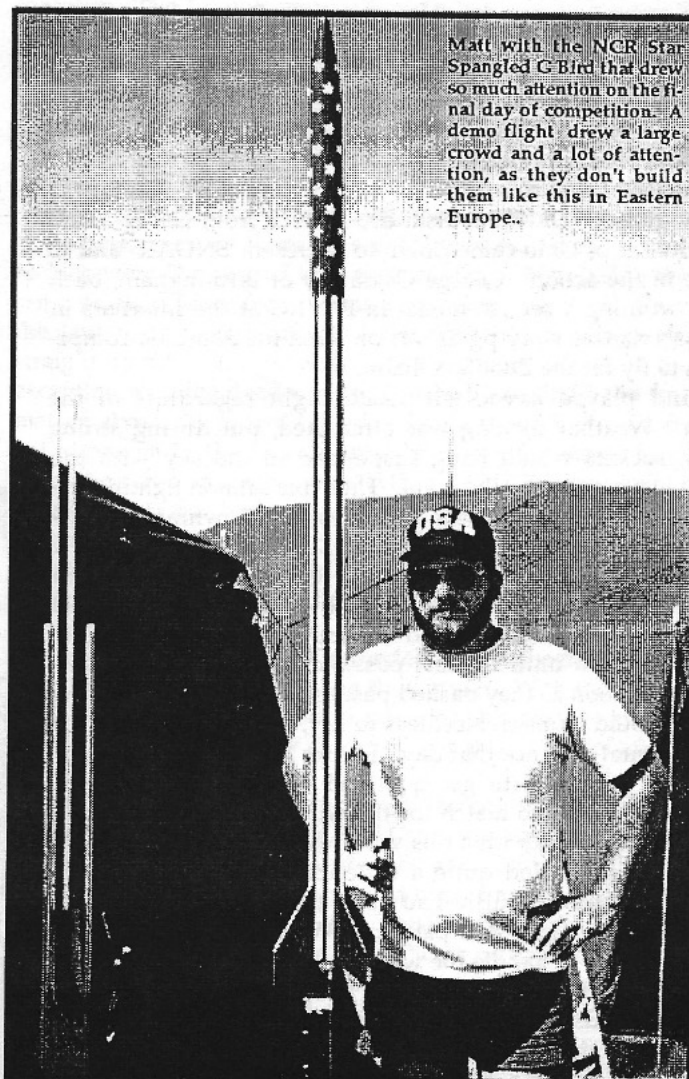
The last event was S7 (scale). Some of these models were absolutely incredible with at least 1200 hours worth of work put into them. That works out to 30 weeks, 5 days a week, 8 hours a day of doing nothing but working on a model! The detail on some of these had to be seen to be believed. The 4 most popular models were the Saturn V & Saturn 1B, the Russian Soyuz and the French Ariane. They are popular because they are so difficult to model. This is the only event that was flown on Sunday and we only had one competitor in this event. Bob Biedron was unable to finish his main model of the Ariane in time, he just finished work on his Phd in Aerospace Engineering within the last month, and so he brought along a Nike-Tomahawk model instead. He did ok- but not great finishing somewhere in the middle of the pack. Everyone turned out to watch the scale models compete- they were so impressive. There were probably 200 spectators watching the scale models. everyone with cameras trying to get good pictures. (we took 12 rolls of film over there!) Scale was won by Alexandr Korchagin, USSR with an impressive model of the Soyuz that had some truly unique special effects upon launch. Anatoly Klochiiov, USSR took 2nd and Stefan Gerencer, Czechoslovakia the bronze.

Following the scale competition, some demo launches

were held. Matt launched an NCR Star Spangled G Bird that got a lot of attention. Most of the teams that attended don't build "fun" model rockets. Both the size of the model and the size of the motor really attracted attention. Quite a few people wanted to have their picture taken with the model and when it was time to launch, the Contest Judge and the FAI jury members had to have a long discussion on how far back spectators needed to stand to be safe. They were really concerned! Of course the launch was greeted with cheers and applause as many spectators saw their first G motor fly.

Sunday night was the awards banquet where they gave out the team awards here along with a beautiful crystal cup. The individual awards were given out on the field with the 3 tiered steps and the flags in the background and the national anthem of the winning country. The banquet was nice-kind of anticlimactic after the intensity of the week, but nice. It's unfortunate that the team as a whole didn't do better. They should have because the talent and the experience was certainly there, but there were just some bad breaks and with the excellent competition- that's what happens.

The next Internats will be held in September 1989 in Romania. Anyone interested in being part of the U.S. team can participate in the flyoff competition held at the end of NARAM. Contact Matt Steele locally for more details.



Matt with the NCR Star Spangled G Bird that drew so much attention on the final day of competition. A demo flight drew a large crowd and a lot of attention, as they don't build them like this in Eastern Europe.

Sputnik I Highlights



To commemorate the thirtieth anniversary of the Space Age, HARA held the Sputnik I open meet on October 3, 1987. The skies were absolutely clear because the wind was too strong to leave any clouds. But the fearless Contest Director, Matt the Man of Steele ordered the contest to proceed despite the brisk weather.

The usual club competitors were on hand to fly it out, plus a few guests. Dave Babulski drove over from Georgia and Dan Kafun of Ohio came down to represent SNOAR and to share in the action. George Gassaway of Birmingham, back from winning a bronze medal in RC/RC at the Internats in Yugoslavia (see story pg 2) was on hand for domestic competition to fly for the Zunofark Team.

Wind played havoc with each flight regardless of the event. Weather cocking was attempted, but during strong gusts, rockets would hang suspended in the sky with the thrust just countering the wind. Then like salmon fighting upstream, they would prevail or get washed downrange. "Almost like static firings," said Wayne McCain, "in midair."

Glider launching was precarious. Glides would not sit on their boosters for a countdown in that wind. So modelers held the rocket together on the pad waiting for the tiniest break in the wind, then until the last possible second on the countdown. As soon as they dashed past the safety limit, the firing officer would launch. Needless to say, models covered a lot of horizontal distance that day. Flexies had a hard time of it, but most managed to get qualified flight times in. Even George's RC was no match for the wind. Although winning the event for the 4th time this year, his model had to go with the flow and landed quite a distance away. Wayne Hendricks and Dave Babulski had good times in their D gliders despite the eccentric stall patterns. Wayne's *Flat Cat* in particular seemed to handle the wind quite well and was only 25 seconds overall behind Zunofark. In 1/2A BG Vince Huegele got 78 seconds and a second place on a single *Dragonfly* flight behind the Zunofark lead of 90 seconds. "It was strange that the wind would give that model its best time of all its

flights this year," said Vince.

Only the daring risked their models in Sport Scale. Wayne Hendricks had a new Saturn V primed for the meet but refused to enter it, instead opting for a Blank Brant alternative. Zunofark's E powered Sandhawk led C Division with Nike Apaches by Marty Williams and Colin Reasoner getting the big points in B and A Division. However, the Sandhawk was retired permanently after being dragged along the ground of the Police Academy parking lot and sustaining quite a bit of damage. We are seeing some good scale models showing up at the contests and expect to see even better ones at the forthcoming meets given the progress we've seen this year so far.

Performance in the other events suffered with the wind also. Times were lower in duration events than in previous contests, "but we're getting fewer DQ's" said Matt, referring to HARA's growing expertise.

The contest ended earlier due to a requirement change. "We only flew two rounds in the International events this time," said Matt. "That probably saved two hours for the whole day, but with the same results."

A Division was captured by Colin Reasoner, edging out Matt Sias in second place who had won it all in July. This was Colin's first meet trophy. Marty Williams was victorious in B Division followed by Lee Olyniec 2nd place, who also proxy flew for Jason Haynes taking 3d.

For the adults, Zunofark broke into four figures for one day to win. "Crocodile" took second and John Kmetz made a fine showing in third.

Fourteen people entered Sputnik I although not all flew in all the events this time, likely leery of the wind. HARA added almost 6000 points to its club score bringing its total to over 11,000 on our way to the NAR Section Championship.



Sputnik - 1

October 3, 1987

Name	Performance	Points
PREDICTED DURATION		
<i>A Division</i>		
1) Matt Sias	14.9%	100
2) John McCain	34.1%	60
3) John Anglin	200%	40
4) Colin Reasoner	550%	20
<i>B Division</i>		
1) Marty Williams	2%	100
2) Lee Olyniec	60%	60
3) Jason Haynes	264%	40
<i>C Division</i>		
1) John Kmetz	0.9%	100
2) Zunofark Tm	3.1%	60
3) Wayne Hendricks	17.2%	40
Dan Kafun	DQ	

1/2A BG	(sec)	
<i>A Division</i>		
1) Matt Sias	16	200
2) Colin Reasoner	11	120
<i>B Division</i>		
1) Marty Williams	59	200
2) Lee Olyniec	47	120
<i>C Division</i>		
1) Zunofark Tm	90	200
2) Vince Huegele	78	120
3) Wayne Hendricks	58	80
4) John Kmetz	49	40
Q) Dan Kafun	39	20

A INT BG	(sec)	
<i>A Division</i>		
1) Colin Reasoner	81	240
2) Matt Sias	7	144
<i>B Division</i>		
1) Lee Olyniec	120	240
2) Marty Williams	76	144

D INT BG		
<i>C Division</i>		
1) Zunofark Tm	187	280
2) Wayne Hendricks	162	168
3) Dave Babulski	136	112
4) John Kmetz	49	56
Q) Wayne McCain	28	2

B INT SD	(sec)	
<i>A Division</i>		
1) Colin Reasoner	140	180
2) Matt Sias	86	108
John Anglin	DQ	
<i>B Division</i>		
1) Lee Olyniec	189	180
2) Marty Williams	160	108
3) Jason Haynes	35	72
<i>C Division</i>		
1) Zunofark Tm	187	180
2) Wayne Hendricks	166	108
3) John Kmetz	110	72
4) Dan Kafun	97	36
Q) Vince Huegele	56	18

1/2A INT PD	(sec)	
<i>A Division</i>		
1) Matt Sias	38	160
John Anglin	DQ	
<i>B Division</i>		
1) Marty Williams	68	160
2) Lee Olyniec	43	96
3) Jason Haynes	19	64
<i>C Division</i>		
1) Zunofark Tm	240	160
2) Wayne Hendricks	166	96
3) Dan Kafun	83	64
4) John Kmetz	38	32

SPORT SCALE		
<i>A Division</i>		
1) Colin Reasoner (Nike Apache)	485	220
2) John Anglin (Phoenix)		470
<i>B Division</i>		
1) Marty Williams (Nike Apache)	810	220
2) Lee Olyniec (Merc-Redstone)	755	132
3) Jason Haynes (D Region)		560
<i>C Division</i>		
1) Zunofark Tm (Sandhawk)	915	220
2) Dan Kafun (Black Brant II)		870
3) Wayne Hendricks (Black Brant III)	790	88
		132

POINT TOTALS:

<i>A Division</i>	
1) Colin Reasoner	780
2) Matt Sias	712
3) John Anglin	132
4) John McCain	60
<i>B Division</i>	
1) Marty Williams	932
2) Lee Olyniec	828
3) Jason Haynes	264
<i>C Division</i>	
1) Zunofark Tm	1028
2) Wayne Hendricks	652
3) John Kmetz	300
4) Dan Kafun	252
5) Vince Huegele	138
6) Dave Babulski	112
7) Wayne McCain	28
1) HARA	5766
2) SNOAR	256
3) IND	200

Club Point Leaders 1987-88 Season

<i>A Division</i>	
1) Matt Sias	1370
2) Colin Reasoner	780
3) John Anglin	436
4) John McCain	360
5) Scott McCain	148

<i>B Division</i>	
1) Marty Williams	1882
2) Lee Olyniec	1444
3) Jason Haynes	264

<i>C Division</i>	
1) Wayne Hendricks	1252
2) Vince Huegele	732
3) John Kmetz	364
4) Dana McCain	280
5) Wayne McCain	184

<i>Teams</i>	
1) Zunofark Tm	1974

<i>Sections</i>	
1) HARA	11,170

Wadding Scraps

HARA on Ascent From the President's Pad

I still don't know what we've gotten into. The end of the summer is usually the time fair weather functions wind down and people get busy with other things. Not HARA!!! Since Labor Day, we've had two contests and a demo launch and still have an open meet to go. It's an incredible way to end our first year.

Since this is the last newsletter of 1987, it is appropriate to reflect on HARA's progress. It is clear to me that the success of our club is due to the active participation of so many people. Whether it is handling a range chore or 'just showing up', everyone has given good support. And the involvement has been with enthusiasm and initiative, as it should be when you know the club is *your* club. When everybody does their part, each job is a whole lot easier.

There are several folks I would like especially to recognize with a laurel and hardy handshake. Thanks to Dave Dooling for giving us places to meet at the ASARC, and to Gloria Johnson for picking up some of the club secretarial duties. We're indebted to Jimmy Williams for his donations of professional, customized equipment. Special thanks to Wayne, Dana and the McCain tribe for their efforts great and small and for doing a lot of everything this year. Hats off to our resident visionary and Club Vice President, Matt Steele for his work in making the NAR contests so successful, for being our inside connection to NAR, and for knowing everything there is to know about rocketry. Finally, give a loud cheer for Robyn, our MAX-Q production editor who spends an excess of 7 hours on each issue, wrestling with the computer, typing in this mess I write, to make the MAX-Q a professional and visually appealing publication.

Regardless of what Wall Street does, stock in HARA remains strong. (Which reminds me, its time to pay your dues again!) We have a great year ahead of us. Not only will we have the same fun all over again, but host something called NARAM 30 as well. Maybe after that, we can consider a throttle down (if not burnout), but for now, we're still **ON ASCENT.**

VINCE

Space Awareness Week Rocket Contest

The students for the Exploration and Development of Space (SEDS) chapter at UAH has asked HARA to assist in a rocket contest to promote Space Awareness Week, November 2-7. The launch will be held on Saturday, Nov. 7th.

"The week is to focus attention on Huntsville's and UAH's involvement in space," said SEDS representative, Ray Cronice. "We want students and the public to be aware of the exploration and research done here. Besides speakers and tours, a rocket contest seems an appropriate promotion."

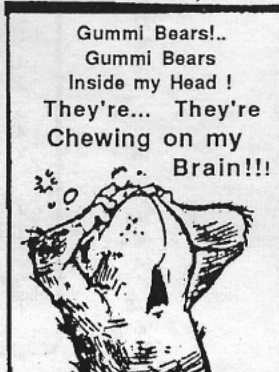
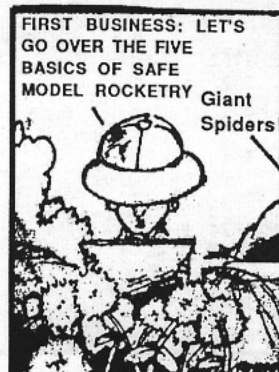
The SEDS contest will be a simplified version of the HARA-AIAA Classic held Oct. 24th. Only two flight events, duration and spot landing are scheduled. HARA will provide range facilities (the club launchers and firing system) along with a firing and range safety officer. SEDS will be responsible for most of the manpower for judges, officials and general contest operations. HARA members are especially invited to attend and compete for the prizes.

"This is a really good chance to bring college people back into model rocketry," said Vince. "All HARA modelers are encouraged to come out, and anyone with a nice demo rocket should bring it along."

The launch will be held in the sector field, behind the Engineering building on the UAH campus.

Contributors to MAX-Q: Thanks to Vince Huegele, Wayne and Dana McCain, Matt Steele, Dan Kafun of SNOAR, the U.S. Internats Team, George Gassaway, Billy and the Boingers and Matty Mouse.

Special thanks to Pat Saucier and Dave Dooling of the Alabama Space and Rocket Center for providing a meeting place for our monthly meetings. We are the envy of clubs everywhere!



and more Wadding Scraps

**Next HARA meeting-
November 19th 7:30**

NASA Demo Launch

by Vince Huegele

It was a dark and stormy night. Then, it was a dark and stormy morning and time to set up the display and demo for the MSFC picnic that was held Saturday September 12th.

Arriving at the picnic site at 9 am in soaking rain was not encouraging. A launch was out of the question as was an outside display booth. All picnic operations were moved inside a NASA hi-bay bld, so HARA found a dry corner and set up a booth.

This booth, like many rocket designs, was put together on the spot, but ended up being very impressive. Large NCR models framed the table, with scale rockets arranged in the center, Estes and NAR handouts were stacked on the front along with the "Don't Touch The Rockets" sign. A VCR and TV with videos of launches was a dynamic attraction. Wayne McCain brought a piece of the LOFT payload section, mostly for other club members to see.

Participating in the days events from HARA were the Williams, Huegeles, Reasoners, Stlukas, Wayne Hendricks, John Kmetz, and Randy Kelling from Birmingham. Matt, Robyn & George didn't make it due to a prior commitment in Yugoslavia. (see Internats pg 2)

Despite the wet morning and the chaos of the picnic reschedules and alterations, the HARA contingent was in amiable spirits. Members sitting behind the booth were entertained by the passing crowd. The booth was at the end of a corridor in the traffic pattern so that people would turn the corner at the HARA exhibit, frown that there was nothing else to see and turn back. The most frequently asked questions were, "How high do they go?", "Do you have anything here free?", and "Where's the ladies room?".

After a lunch of hot dogs, ice cream and similar picnic fare, the clouds broke up and the crowd moved outside to resume the scheduled events of children's games and volleyball. HARA members became restless at the weathers passage and prevailed upon President Huegele to "go for the launch". "I was concerned the field would be too muddy," said Vince, "but after inspecting the launch site with John, we saw it had drained really well. So we decided to go for it."

The booth inside was dismantled since many of the display models were also to be flown. The exhibit wasn't getting much more attention inside with the improving weather drawing everyone to the sun. Launchers were set up in the outfield of the recreational area ballpark, since the infield was still wet. Spectators sat on the bleachers or leaned on the fence surrounding the field.

(continued page 11)

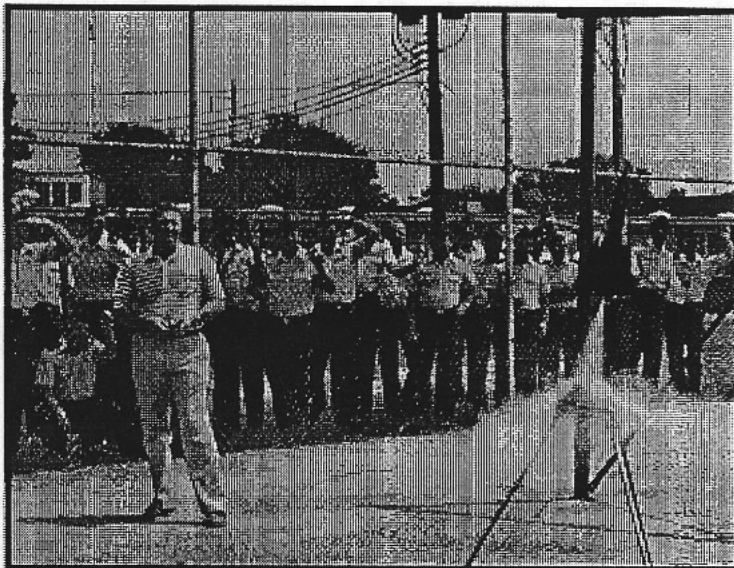
Montgomery Demonstration A Resounding Success

By Dana McCain

One hundred and thirty five Air Force ROTC instructors and principals from around the country recently enjoyed a very interesting talk on the "Fundamentals of Model Rocketry" presented by Wayne McCain. on July 30th, Wayne, myself and Matt, our little 4 year old, rose bright and early at 3:00 am, packed our vehicle full of rockets, pamphlets and assorted Estes promotional material and drove down to Montgomery.

When we got to Maxwell AFB, we were met by Maj. Henry Moreman. He graciously showed us to the coffee and doughnuts and we began to set up our demonstration. Wayne gave about a 45 minute talk that began very simply and ended up discussing some advanced principles of aerodynamics. (Of course, he plugged LOFT!) We then moved outside into what must have been one of the hottest days of the year and made some fire and smoke. There were quite a few oohs and aahs as we launched several different types of rockets, mostly basic models, such as the Alpha and the Big Bertha. The big finale of the day was the launch of Marty Williams' SR-71 Blackbird.

We had a great time doing the demonstration and we'd like to thank everyone who took the time to build models for us to take to this event.



Wayne McCain launches Marty Williams SR-71 Blackbird as AF ROTC instructors look on.

ORBITERS "R" US

by Vince Huegele

If you thought the only glider orbiter was the Estes Space Shuttle kit, think again. You can get a paper or styrofoam orbiter that will out glide that plastic model. They look good, require little trimming and very little assembly.

One development in the field literally came from John McCain playing around with the paper cutout shuttle orbiter distributed by the MSFC Public Affairs Office. What if—this paper glider piggybacked on a Big Bertha type rocket? The first flight told the story as the orbiter easily separated and casually glided down. The design had no trouble with launch loads or the attachment modifications and flew again several times that day.

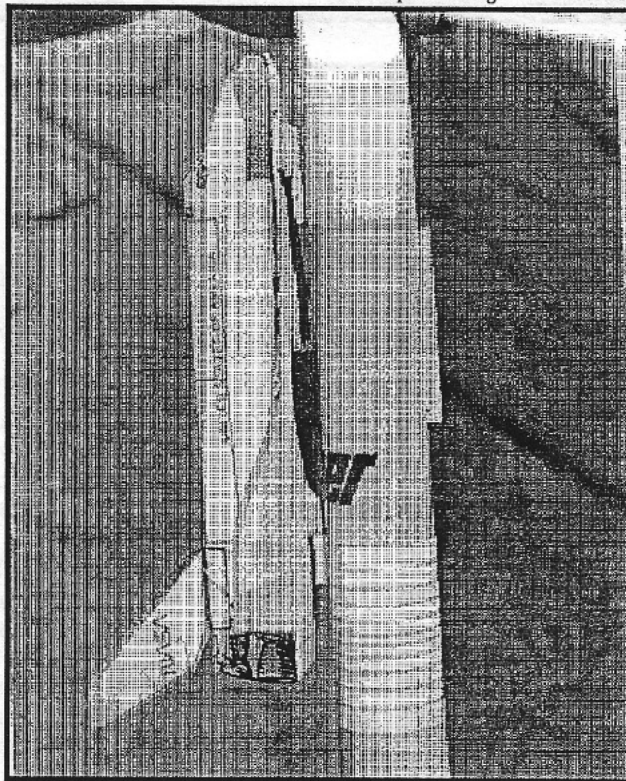
Other orbiter gliders have been proven before. An all styrofoam orbiter by North Pacific is sold as a glider to be launched by a rubber band slingshot. The size and strength of this foam model qualifies it to fly on a D engine Mean Machine booster. Dana McCain has flown this configuration in HARA competition with great success.

Another rubber band launched foam glider is made by White Wings. This orbiter is not molded form but cut out from foam sheets into the appropriate outline. The assembly front view looks like an upside down "T". The wings are a little flimsy, but the design remade in balsa has worked well. So use the kit as a pattern and go from there.

To couple these gliders on the booster requires some extra launch lugs and the same size dowel pins. A lug is glued under the nose and tail of the orbiter. the corresponding dowel mate is attached to the booster body on a short standoff. This installment is made near the fins of the booster and on the opposite side of the launch lugs used for the launch rod. (See pictures for detail.)

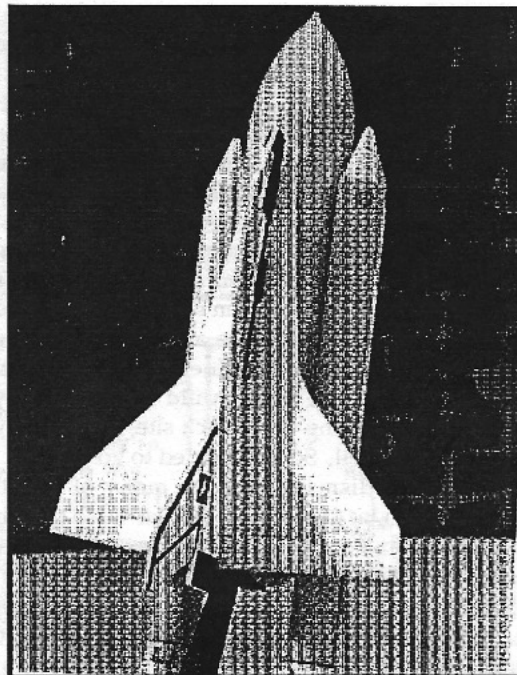
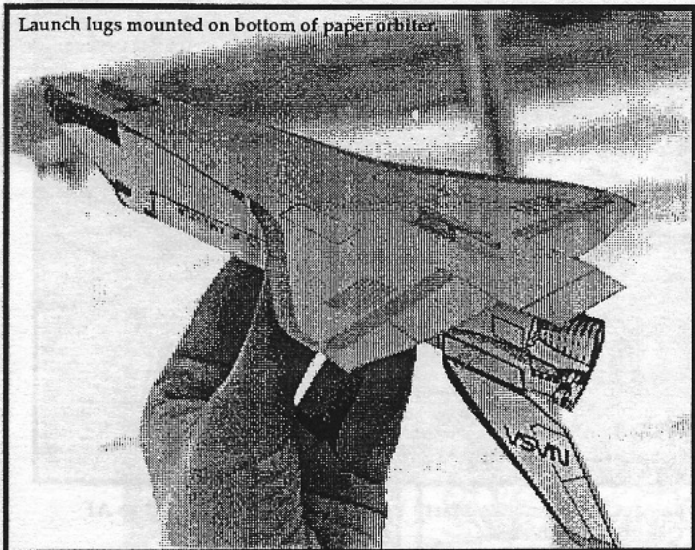
The flat bottom of the orbiter will roll around on the circular booster tube unless you include braces. Between the pin mounts, use two lengths of balsa to shim up the gap. The final form will securely hold the glider on during ascent, but allow its inertia to cerebrate off the rocket at ejection.

Dowel pins mate glider to booster



These various ideas make it easy to launch a space shuttle orbiter. All you need is a long, stable rocket and one of the mentioned orbiters, usually available at toy stores (or at least the ASARC gift shop). HARA can't have a launch without someone putting one up. And they often fly better than the real thing!

Launch lugs mounted on bottom of paper orbiter.

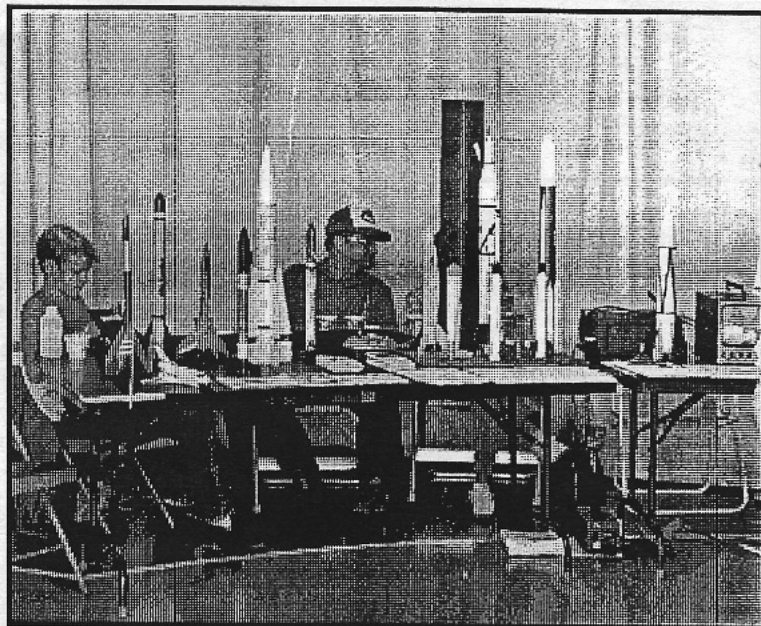


White Wings orbiter fits on the Estes shuttle

LOFT-1 Operation

A number of HARA members have been involved in the Launch Operations Flight Test-1, which is a sounding rocket that will be flown from Cape Canaveral sometime toward the end of November. What makes this launch unique is that it will be the first commercial rocket ever launched from Cape Canaveral. E'Prime Aerospace is a company in Titusville, FL. that would like to go into the launching of commercial rockets. LOFT-1 is a way for them to test their launch procedures with the Air Force and NASA without having to go the the total expense of launching a larger commercial vehicle. E'Prime has contracted with North Coast Rocketry to build the 9 1/2 ft *Santa Maria* that will be launched. The *Santa Maria* will weigh about 80 lbs and will be powered by a Vulcan N-5000 Smokey Sam motor which will carry her to approximately 20,000 ft. The rocket will also carry payloads from Brookwood High School in GA, which is coordinated by Dave Babulski who often flies at our HARA contests, from Weber State University in Ogden, Utah, Utah State University and UAH. Wayne McCain has been coordinating all of the payload integration with UAH for the launch.

Matt Steele and Chris Pearson of North Coast Rocketry have the contract to construct the *Santa Maria*. Built of reinforced fiberglass, the *Santa Maria* represents a big step into the world of professional rocketry for North Coast, which will be building a similar vehicle for a launch in Australia in the first part of 1988. Other HARA members whose help was invaluable in getting ready for the launch include Jimmy Williams who built the launch pad used in firing the boilerplate in Colorado Springs in September and who machined parts for the payload section and Marty Williams, Wayne Hendricks and Vince Huegele who helped in the actual construction of the vehicle prior to its delivery to E'Prime.



Jimmy Williams and John McCain man the display table at the NASA picnic & demo

(NASA Demo Launch continued from page 9)

The rockets flown were essentially standard Estes kits, unlike the modified competition models used in HARA contests. The launch manifest included a V-2, Hercules, Nike Apache, Phoenix, Big Bertha, Maxi Alpha with glider, Crusader Swing Wing, Centuri Shuttle and Centuri Saturn V's. Several piggy back glider orbiters versions that HARA is becoming famous for, were flown. (see Orbiters pg ?) with George's balsa design (in absentia) putting on the best show boosted on a D engine.

As the launch demo progressed, model rocketry was seen at its best, because there was absolutely no wind. Many rockets were D powered and were coming down inside the same outfield fence from where they were launched. Only the launch rod angle affected the trajectories; otherwise, straight up came straight down. Gliders were, of course, the exception with the dead air keeping the birds circling in formation above the crowd's heads. Orbiters coming in on final approach to the launch area drew rave applause from spectators and immense satisfaction to HARA modelers. "It was one of our best performances ever," said Vince.

Again, to underscore the atmospheric calmness, Randy's Saturn V nearly spot landed on its launcher after riding on an F16, the biggest engine fired that day. Wayne Hendricks was similarly able to fair catch his Saturn after flying on a cluster of C's. Both models ascended with a cheering crowd who knew the good stuff when they saw it. With the impeccable finishing of these scale beauties, it's easy to understand the owner's anxiety at each flight and the relief after a safe recovery.

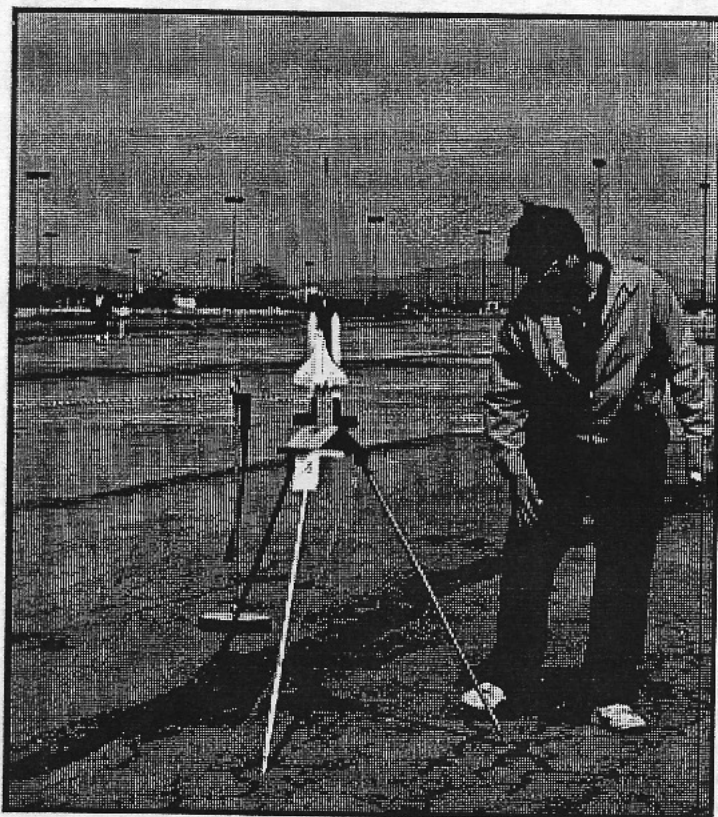
Overall, the launching went very smooth with Vince and Wayne McCain providing a lively commentary on the loud-speaker while models were prepped and recovered. HARA has a new speaker mount that is a bigger and sturdier support thanks to Jimmy Williams. Despite the shaky start, the day turned out to be successful. Picnic officials claim 5000 NASA employees and contractors made it out to the grounds. (I doubt it!) But HARA members enjoy themselves whether anyone is watching or not. "We always have more fun than the crowd does," said Wayne Hendricks.



Matt Steele and Chris Pearson ready the *Santa Maria* boilerplate for its test flight at the launch field near Colorado Springs, CO

Rocket City Classic #6

HARA-AIAA



A Rocket City Classic participant prepared for the launch of his shuttle model.

As an event Huntsville is coming to expect each fall, HARA held the sixth *Rocket City Classic* on Saturday, Oct. 24, 1987 at the old airport. this city wide contest was open to anyone with a model rocket and attracted flyers of all ages.

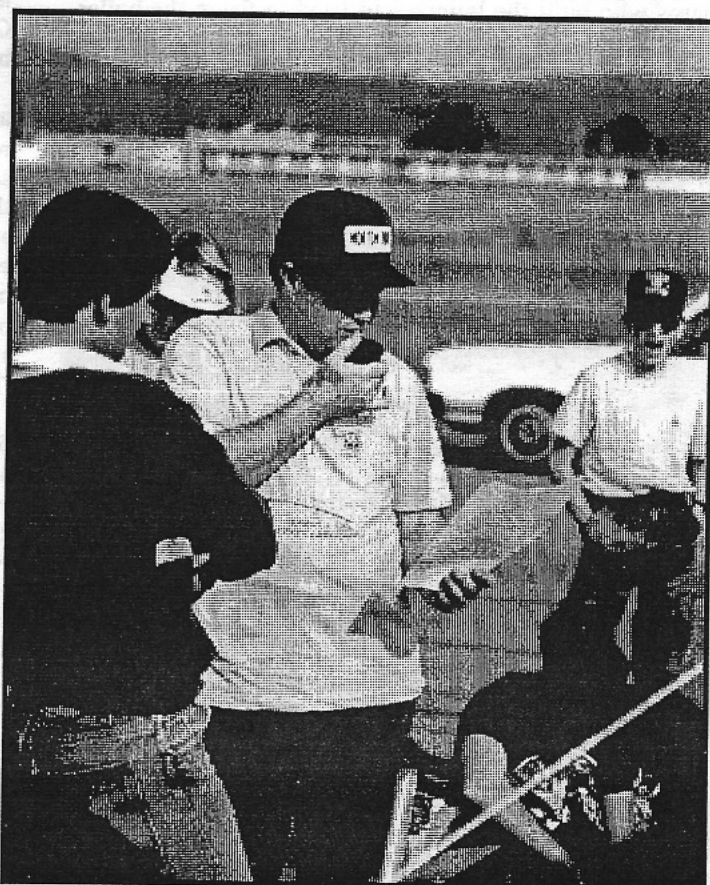
This year, a larger and stronger HARA was able to comfortably manage the operation in what Contest Director Wayne McCain called, "the best organized one we've had yet." Most HARA members abstained from competition to serve in contest jobs. This reduced the number of entries and subsequent launches, making the *Classic* appear smaller and shorter. "It also seemed shorter because all the people helping made it move much smoother and quicker," Wayne said.

Over 200 people came and went during the day, most of them spectators. Registrar Gloria Johnson listed 47 official contestants, with many of them entering several models in respective events. The categories, like last year were, Maximum Altitude, Flight Duration, Scale and Craftsmanship. These events were very flexible to accomodate beginners and inexperienced modelers. The objective is to encourage participation rather than performance, and to demonstrate the different aspects of the hobby. The success of this annual *Classic* was also due to the involvement of the local aerospace community. Recruited by Wayne, space industries contributed money and personnel toward contest operation.

The prime supporter has always been the American Institute of Aeronautics and Astronautics (AIAA). AIAA helped Wayne get this contest going way back when. Also helping this year were Morton Thiokol, Martin Marietta, Morton Thiokol Management Office, District Office and MSFC Office, Lockheed, LTV, Teledyne Brown, SCI, Atlantic Research, Campbell Engineering, WZDX-TV54, Aerojet Technical Systems, ASARC and of course, as always, Estes Industries. Without their support, the *Rocket City Classic* would not be possible.

In the same way, the volunteers made the contest successful. Judges were Bob Tibbs (MM), Ivan Adams (MT), Dick Campbell (Campbell Eng.), Philomena Krodzka (Lockheed), Dick Wagschal (WZDX), and Bill Walker (MICOM).

Firing Officers were Harry Cikanek (NASA), Garret Roberts (Lockheed), Lloyd Love (NASA), Earl Lochrein (TBE), and John Perrin (Rockwell). Tracking was handled by Will Dienier (LTV) and Dr. S.T. Wu (UAH). Sandy Campbell (Athens College) helped with flight evaluation and LuJean White with registration. Pam Wagner (MT) ran the Concession stand.



Contest Director Wayne McCain (sporting new HARA T-shirts) announces contest results at the close of the meet.

Making a welcome appearance this year was RC's Hobbies who ran a range store and sold rocket products out of a car trunk.

Activities began shortly after seven am when the range began to set up. Ground Support Engineer Jimmy Williams (our resident Santa Claus) presented the club with a new firing control panel capable of handling five or more launchers. The tower launcher and the demo pad made seven pads in the barricaded firing area. John Kmetz set up tracking and David Reasoner handled communications. The Range Safety Officer was Wayne Hendricks with Dana McCain managing the computer for flight evaluation. At 9 am, Judging Coordinator briefed the judges on their responsibilities. By the time the contest started at 10, everyone was ready and literally waiting for the flying to begin. "This was much better than last year," said Wayne McCain, referring to the long lines that were at the registration and firing tables. Also serving in recovery, tracking and various duties were Marty Williams, Colin Reasoner, John Anglin, Jeff Yeager, John and Scott McCain. Lee Olyniec attended, not to fly (although he did fly some demo models) but to take video.

The weather was cooperative, with a mild, predictable wind. As the day warmed up, HARA members were able to display the new club T-shirts they were wearing and extra orders were quickly taken. Dana McCain managed the procurement and distribution of these shirts.

The models flown ran the full spectrum from beginner kits to skill level 4 models. Most flights went well with few separations or failures. The best "Prang of the Day" would have to be John Anglin's Space Shuttle that nosed into the pavement near the William's prepping table immediately after launch. "Why shuttles? This is a bad trend," said someone referring to George Gassaway's demo orbiter that shredded at last year's Classic.

The best flights were the demos made by George Gassaway and Randy Kelling of Birmingham. George launched a shuttle orbiter glider and then showed off with his world class RC Rocket Glider. Randy captivated the audience with his F powered Saturn V. George then seemed to climax the demo with his large scale stacked shuttle model. This version did not deploy the orbiter, but ejected chutes out the SRB's. That was a show stopper, but George had one more. Out of his model box, George unveiled a four foot F powered Juno I complete with motorized, rotating payload canister. This impeccable molded and formed model outclassed his E engine Juno seen in HARA Sport Scale events. In a 20 second count down, the nose section remotely spun up to speed momentum before launch in historic realism. The flight was perfect and the recovery safe, giving everyone something to remember for a long time.

As the contest flying subsided, the CD announced the range would close at 2 pm. It did, and take down procedures began immediately. Tallying the final scores was more difficult than expected due to some computer problems. "The only real glitch we had of the day came in the software," said Wayne, "so it took a lot longer to decide the winners."

Taking top honors this year was Jason Haynes of Scottsbo-

ro, a HARA B Divisioner. First place in altitude was Marty Williams followed by Colin Reasoner (both of HARA), Russ Cowart and Bruce Campbell. Duration ranking was the team of John McCain and Jeff Yeager (HARA), then Andrew Williams, Josh Magnusson and Brian Campbell. Scale had only 3 places in the order of Bill Anglin, Greg Forsythe and John Anglin (HARA). Craftmanship listed Andrew Williams, Matt Magnusson, Jimmy Williams (HARA) and Lester Johnson (HARA) respectively.

1st place winners received a trophy and an SR-71 kit. 2nd place got an Interceptor, third received a Mean Machine and 4th got an EAC membership and kit. The champion rocketeer was awarded a plaque and an Astro Cam. All winners received passes to the ASARC.

HARA and NAR were also winners from the *Classic*. "Besides having a lot of fun, we want to attract all rocketeers in the area to join us for regular launches, meetings and organized rocket activities," Vince Huegele said in a TV interview that was not aired. (We got 10 seconds of people sitting around and rockets laying on tables for the evening news.) All available membership applications were handed out and 3 people paid up on the spot. It was last year's *Rocket City Classic* that boosted HARA to its present enrollment. This year has helped as well.



George Gassaway's Juno I demo drew the most enthusiastic response from both modelers and spectators alike.

HARA Members

• Anglin, John 4449 Millvale Dr., 35805	534-7971
• Clark, Al & Chris 124 Liza Lane, Madison, 35758	772-8466
• Dooling, Dave Alabama Space & Rocket Center, 35807	837-3400
• Gassaway, George P.O. Box 59012; Homewood, AL 35259	879-3649
• Halbritter, Markus 9016 Cannstatt Dr., 35802	883-5299
• Hall, Chuck 3120 Andros Dr., 35805	883-6369
• Hendricks, Wayne Box 4922, 35815	n/a
• Hitt, Bill & David 1115 Hermitage Ave, 35801	536-4135
• Hoffman, Luke 6509 D Whispering Pines, 35805	837-6467
• Huegele, Vince, (HARA Pres.) 1028 Antietam Rd., 35803	881-2904
• Johnson, Chris RT 1 Box 519, Lacey Springs, 35754	n/a
• Johnson, Lester & Gloria PO Box 5491, 35814	837-3640
• Jordan, P.R. & Adam 3614 Greenbriar Dr., 35810	852-5649
• Kmetz, John L. Rt2 Box 468 Lacey Springs, 35754	883-7378
• McCain, Wayne (HARA Treas.), Dana, John, Scott and Matthew 4209 Nolen Ave., 35801	536-2241
• Moser, David, Barbara, William, Samantha & Aaron 1468 Shady Lane, Kingston, TN 37763	(615) 376-3653
• Nolin, Damon & Derek 10001 Willow Park Dr., 35803	880-8197
• Olyniec, Lee 1109 Hood Ave, Scottsboro, AL 35768	259-0173
• Papa, Byron 6508 Whispering Pines Trail, 35805	837-1206
• Rabb, David 2123 Gladstone Dr., 35811	536-9195
• Reasoner, David & Colin 3103 Holly Hill, 35802	883-7629
• Shulz, Eric 1013 Riviera Ave., 35802	n/a
• Sias, Mathias 871 Moontown Rd, Brownsboro, 35741	852-8771
• Steele, Matt (HARA VP) & Robyn 13011 Branscomb Rd., 35803	883-6020
• Stluka, Ed & Thomas, Michael 2802 Brett Rd, 35801	852-3850
• Street, Troy (HARA Sec.) & Jonathan 10127 Dunbarton Dr., 35803	883-8318
• Stubblefield, Katie 1714 Sandlin Ave., 35801	534-5359
• Tygielski, Mark 406 Green Acres, 35804	837-7486
• Williams, Marty & Jimmy 3203 Fairacres Rd., 35803	539-4801
• Williams, Ron 5637 Crestview Drive, Hixon TN 37343	n/a
• Wingate, Jason 2908 Azalea Circle, 35805	539-6707
• Yeager, Carl & Jeff 4316 Shelby Ave. 35801	539-2839

This is not an updated list. If your name does not appear on this membership list, please call Robyn Steele at 830-6645 (w) or 883-6020 (h) so we can get you included!

Countdown 1988 Contest Season

NOVEMBER:	19 Nov.; Meeting 7:30 P.M. 14 Nov; Turkey Shoot I; NAR Open
DECEMBER:	No Club Events <i>Happy Holidays!!</i>
JANUARY:	21 Jan; Meeting 7:30 PM
FEBRUARY:	18 Feb; Meeting 7:30 PM
MARCH:	17 Mar; Meeting 7:30 PM 19 Mar; Spring Fling II; NAR Open
APRIL:	21 Apr; Meeting 7:30 PM 23 Apr; Sports Launch
MAY:	19 May; Meeting 7:30 PM 21 May; Redstone-1; NAR Open
JUNE:	16 June; Meeting 7:30 PM 18 June; June Jam II; NAR Open
AUGUST:	8-12 August; NARAM-30 Huntsville, Alabama

Turkey Shoot-1 Events (Nov 14th) *Please note date change!!!*

Predicted Duration

Sport Scale

D INT Boost Glide* (C Div)

A INT Boost Glide* (A&B DIV)

B INT Parachute Duration*

B INT Streamer Duration*

1/2A INT Parachute Duration*

Drag Race

** Only 2 flights will be flown in the International Events*

Meetings are held at the
Alabama Space & Rocket Center

Launches will be held at the Old Airport,
North end by the stadium

Please contact Vince Huegele, HARA President
(881-2904) or Matt Steele, Contest Director (883-6020)
if you have any questions about the schedule or the
contests.

1988 HARA Contest Season Events

Turkey Shoot-1 Open, Nov 14, 1987

- 1-Predicted Duration
- 2-Sport Scale
- 3-D INT BG* (C Div)
- 4-A INT BG* (A&B DIV)
- 5-B INT PD*
- 6-B INT SD*
- 7-1/2A INT PD*
- 8-Drag Race

* Only 2 flights will be flown in International events

Spring Fling-2 Open March 19, 1988

- 1-Predicted Duration
- 2-Sport Scale
- 3-1/2A INT BG
- 4-A Helicopter Duration
- 5-B SD
- 6-D INT BG (C Div)
- 7-A INT BG (A&B Div)

June Jam-2 Open, June 18, 1988

- 1-Predicted Duration
- 2-Sport Scale
- 3-D INT BG (C Div)
- 4-A INT BG (A&B Div)
- 5-1/2A INT BG
- 6-1/2A INT PD
- 7-1/2A SD
- 9-Open Spot Landing

Redstone-1 Open, May 21, 1988

- 1-Predicted Duration
- 2-Sport Scale
- 3-D INT BG (C Div)
- 4-A INT BG (A&B Div)
- 5-A Helicopter Duration
- 6-1/2A INT SD
- 7-1/2A BG

NARAM-30, August 8-12, 1988

- 1-1/2A International Parachute Duration
- 2-B Streamer Duration
- 3-B Eggloft Duration
- 4-A Helicopter Duration
- 5-B Rocket Glide
- 6-D International Boost Glide (flexwings & RCs allowed)
- 7-Predicted Altitude, F Altitude
- 8-Research & Development
- 9-Sport Scale (A&B Division)
- Space Systems (C Division)
- 10-Parachute Spot Landing

Saturday will be the flyoffs for all those rocketeers interested in trying out for the 1989 U.S. International Team.

Trajectories

OF HARA MAMBERS

Gloria Johnson is taking hang gliding lessons. She'll probably do it the regular way instead of having rocket assisted take-offs. Thanks to *Gloria and friends* at WZDX-54 TV for the work on the commercial for the Rocket City Classic contest held recently.

John Anglin has some great stories to tell about Space Camp. Ask him about the time he was doing an EVA during a mission simulation and the crew tried to fire the OMS.

Wayne Hendricks (alias Crocodile) is looking for a good woman. Must like rockets, dumpster diving, rockets, espionage and rockets. Leave name and number.

Jimmy Williams has been generously contributing all kinds of fabricated hardware to the club. Any equipment you see that's too good to be real came from the Williams shop. (We fondly refer to him as "Santa Claus") Son *Marty* has been getting into flex wing gliders for fun and competition. *Marty* and 1987 B Reserve champ, *Lee Olyniec* are going to be top guns in B Division for '88. You heard it first here.

Vince and Sharyl Huegele have moved to a new house at 11108 Argent Drive. Same phone though. The Fire Marshall wouldn't let Vince and Matt live on the same street anymore.

Al Clark is a HARA member who is also president of the RC airplane club. He particularly likes sailplanes.

Byron Papa says he is too busy building houses to build rockets at the moment, but doesn't everyone have a few kits they haven't built yet? Check out what he has built; Byron's models have some of the best paint jobs in the club.

John Kmetz has been a regular at recent HARA launches. He's getting into competition, too. (See Sputnik 1 Results!)

Colin Reasoner spent some of his summer in a kayak. Did it have any rockets on it?

Matt and Robyn Steele are working on a new scale model and addition for the Zunofark team. They are applying for his NAR number sometime in May. (But in plenty of time for NARAM!)

Not to be outdone, *Wayne and Dana McCain* are also collaborating on a scale model due about the 14th of June. We believe in the "grow your own A Divisioners" theory.

Got something juicy on someone? How 'bout yourself? This is the place for it!! Report it to MAX-Q, Scandal Editor c/o Legal Office.

HARA

11108 Argent Drive

Huntsville, AL 35803

