



The COS-Rocketeer

The Official Journal of the Colorado Springs Rocket Society (COSROCS)

NAR Section #515

2000 LAC Award Winner!



Volume 12, Issue 2

March/April 2001



The CHAD-Staged "Yellow-Thing" Takes to the Skies
(Photo by Greg Elder)

Inside this issue:

	Page
The Nagging Editor.....	3
Section News.....	3
Turkey Shoot 2000.....	3
Winterfest X—A Classic.....	5
January Launch Report.....	6
CRASH Hosts CARCIS IX.....	6
NARCON 2001.....	7
February Launch Report.....	7
NARAM-43.....	8
Editor's Design Contest.....	8
New, Simpler Model Rocket Safety Code.....	8
Apogee Components Aspire.....	9
Space News.....	9
COSROCS Calendar.....	10
Styro-F.O. Jr.....	10
Roc-A-Puzzler—2001 Word Search.....	10
Cup of Coffee to Go.....	11

Space Fact: March 16 is the 75th Anniversary of Robert Goddard's first flight of a liquid fueled rocket. On March 16, 1926 Goddard launched his uniquely designed liquid fuel rocket—the rocket motor was mounted above the fuel tank, with the fuel tank protected from the flames by a metal cone. The rocket burned for 20 seconds before building up enough thrust to lift-off. During that time, part of the motor's nozzle melted. Also, the camera that was being used to record the launch ran out of film, so there is no movie clip of this historic event. The rocket flew to a height of 41 feet, leveled out, and then hit the ground—all in about 2.5 seconds. The rocket reached a speed of about 60 mph.

Reminder: COSROCS membership renewals are due in May! Don't forget to send in your dues or give them to Mark James. Thanks.

The Nagging Editor

By Greg Elder

The Editor's Design Contest is coming up in May. I have reprinted the rules on page 8 of this issue. By the way, I have added a second prize to the contest—a Launch Pad Exocet kit. I hope to see some interesting rockets at the May launch. Good luck!

Section News

Launch Site Search Committee Update. In early January, Neil Kinney, Stan Huyge, Mike Frazier, Frank Bittinger, and Warren Layfield checked out some possible locations for a new launch site. The goal is to have a location very near Colorado Springs for flying small model rockets and another location that may be farther away (like the old Ellicott launch site) for large rockets. Further investigation and discussion with landowners is required, but we are getting closer to achieving our goal. Stay tuned for more information via the COSROCS listserv and the newsletter.

Project Big-Roc. Our President, Neil Kinney, has suggested a big rocket project for the club. As most people don't want to take on the expense by themselves of a really big rocket, or find a place to keep it, this would be a way for members as a whole to participate in a large project. Neil is looking for 8-10 people (or more) to donate \$40.00 each and their time to work on the project. Neil suggested we launch the rocket at Albuquerque's Thrust in the Dust. This project is still in the planning stages—no design for the rocket has been selected yet. If you are interested in the project, contact Neil. (Even if you cannot afford \$40.00, you can participate by contributing time and manpower for construction.)

Joint COSROCS/CSAS Activity. Frank has suggested we have some type of joint activity with the Colorado Springs Astronomical Society. This would involve a rocket launch in the late afternoon, followed by a potluck supper or picnic, followed by an evening astronomical observing session with telescopes. If you like the idea of doing something like this, contact Frank.

Who's Going to NARAM 43? If any COSROCS member plans to attend NARAM 43, please let Greg Elder know. We need to get the LAC trophy to NARAM so that it may be presented to the next LAC award winner. We need someone willing to carry it to NARAM for us.

Pikes Peak or Blast XII Announced. We have determined the date and events for Pikes Peak of Blast XII. The event will be held June 2-3. Here are the events: Plastic Model Conversion (alright!), C Eggloft Altitude, A Boost Glide, A Streamer Duration, and Random Duration. We will also have two fun events: B Paper Airplane Duration and 4 X 1/2A Cluster Duration. More information will be provided in the next newsletter.

Turkey Shoot 2000

By Nadine Kinney

"Turkey Shoot" is an annual launch held by the Tripoli Vegas club, and is considered by most Western rocketeers, to be the "last big launch of the season". It is held the weekend after Thanksgiving, when most people are off from work to observe the holiday, and is at a huge, dry lakebed. Kind of like the Bonneville Salt Flats, except it is smaller and is dirt instead of salt.

The morning of Turkey Shoot 2000 was absolutely awesome! The air was crisp and cool, the sky was blue, and the mountains were breathtaking. They were all around us and were going to make a pretty nice backdrop for rocket photographs! The flyers were arriving, motors

were being built, and their rockets were being put on the pads. There were several other people out there on the flat, lakebed, Saturday morning as well. We came across several RC airplane flyers and large, "Ultra Light Aircraft"—airplanes that the person sat in to pilot the craft. (And they say we are nuts?) The planes basically stayed clear of the rocket range, and the launch began. They had a "flyers meeting" at 9:30am and went over the regulations, raffle drawing, and general information. By the looks of it, there must have been about 60 flyers and even more spectators. Several rockets flew early that morning - ranging in different sizes from B-motors to G-size motors and one sparky Skidmark motor that opened the launch of Turkey Shoot 2000.

At the range head, I met a little girl and her dad standing in line to fly. Sierra Phillips, 8 years old, and James Phillips from Henderson, Nevada. They were launching a 5' scratch built rocket on a G-80, and it was a success. I got to meet many nice people, and one of them was John Pretto, from Las Vegas. He was there with his Level-2 project, named "The Spirit of Monica". It took him 2 days to build and was a 52" tall, 2 lb Cohiba Espléndidos Habanna Cuban cigar. It was painted brown with a green, red and white cigar band on it! It flew on a J-90 and went with out a hitch.

We planned to have a group photo taken, and then directly following the photo, there was a 'best of show' contest early in the day. Many people showed up for the contest, there were large rockets, small rockets, a 2-stage rocket and even a big V2 in the contest. The final judging took place—it was down to 3 rockets. The third place winner was a Bullpup, belonging to Scott Weldin, Phoenix, AZ. The second place winner was Gordon McDaniel, Las Vegas, with his scratch built "Addiction", (it even had clear/red lexan fins!) and then, the winner was Gianni Pretto, a 10 year old flier from Las Vegas. His rocket was fashioned after a Gallo salami. The rocket was painted green, white and red, like the wrapper on a Gallo salami, except the name was "Gianni Salami"—after his name. It even had the UPC and nutrition facts on the side! It was a standard G & H LOC kit and looked wonderful!

Dave Urbanek from Utah flew his Public Enemy Psycho on a Skidmark motor. It was a spectacular sight to see as well as hear! His rocket is named "Pork Chop Special" and flew on a full "I" sized motor.

The 1/2 scale patriot was one of the first big motors to go on Saturday afternoon. It belonged to John Sbare and flew on an Aerotech M1315. This was his Level 3 attempt and weighed in at 40lbs. He had an 8 1/2 ft tall rocket that measured 8" in diameter. John said that he worked on it on and off for about 9 months and had the traditional paint scheme. He had Adept electronics as well as dual deployment. It was recorded that it reached an altitude of 8,400 feet.

Additionally, Dave Williams from AZ, flew his very tall rocket. It was a modified Endeavor, and was one of the tallest ones, at Turkey Shoot. The rocket was 11' tall, and weighed in at 16lbs. He built it in a couple of months, working on it in the evenings. "Dave's Endeavor", as he calls it, flew on an Aerotech K550 and had 2 altimeters on board for dual deployment. Perfect flight too! Dave and his daughter Kristina, (12 years old) commented, "they loved this launch site and would be back for sure!" Kristina is a rocketeer too - she has been building and flying rockets for a couple of years now.

Neil Kinney, from Colorado flew another one of the sparky Skidmark motors. This time it was a full J-sized motor and was a perfect flight! The rich black smoke, the shower of sparks and the noise these motors make are something you can never mistake—they are a definitely crowd pleaser! Richard Hine from Arizona also had a nice flight. His was a PML Endeavor and was built as the instructions recommend. He flew it on an Aerotech 54mm longburn J135-W Med delay, in a Dr. Rocket case. He said that it was "less than perfect—but recovered nicely on a Rocketman RC-7 chute". There was no damage

to the rocket as it spiraled into the sky and left a neat smoke trail behind it.

Another flight came from Gordon McDaniel, from Las Vegas, NV. He had his scratch built "Addiction" that flew later on in the day. It flew on an Aerotech M1315 and was pretty neat how it kicked up a cloud of dirt & dust when it launched. It is 88" tall and weighs about 30lbs. It reached a total altitude of 13, 613 feet! They all jumped for joy when this one reached for the sky and finally deployed its chute, since this was his Level 3 flight, and he made it!

Aerotech had a motor test of the production Redline M2300, towards the end of the first day. That was neat to see the motor sticking out of the ground, only about 8 inches or so. It had a burn time of approximately 4 seconds and met all of their design and performance goals. At the count down, there was a small flame, and then WHOOSH there was a huge, brilliant red flame sticking straight up - 5 feet into the air. It was a successful test and the crowd cheered as the flame lessened and then finally went out. They said that the motors will be available in G through M sizes, single use and reloadables. They are hoping to have the certification paperwork completed by this May, and they are working with dealers, which will allow for shipment as soon as the authorization is complete.

Ken Mizoi, from Denver Colorado, flew his scratch built rocket on a 38mm long, K-motor - that was over 3 feet long! He thinks the charge went off at the pad, snapping the shock cord, leaving basically a stick rocket to fly through the air, making it unstable. It landed safely and he was going to download the information to see what happened.

Saturday afternoon also brought something that everyone was on their feet to see. It was the Gila Monster, from Arizona. The rocket was designed and built by Ed Wilk and Bob Heninger, both from Phoenix. The rocket's design was built so that it could be broken down to fit into the back of a pickup truck, as well. The whole rocket was "home made" - starting with sonotube, plywoods of different thicknesses, foam and several other types of fiberglass cloth and epoxys. Avionics used in this project were 2 - Adept altimeters and an Olsen 2 event timer (incase something went wrong). There was a 28-ft man rated parachute and an 8ft drouge chute as well. They also packed a redundant 15ft chute in there, in case there were any unforeseen problems with the main chute. The monster rocket weighed in at 165lbs empty, and with the 3 motors and chutes on board, weighed an easy 210lbs. The length of the beast came to a lurching 17.0 feet tall and had a diameter of 16.35 inches. They used Steve Roberson's mobile rail launcher that had a 20' unistrut rail, making it easy for the crew to get the rocket in a vertical position. The launch came, and the crowd was on their feet. There was silence out at the pad, when it went. The blast from the 3 motors was just awesome to see, as the rocket reached for the sky! There was a minor problem, with the chute deploying early, causing some zippering, but the flight was safe, and the rocket landed only yards from the flight line. The altimeters reported that the Gila Monster soared through the skies and reached an altitude of 4870 feet.

Neil Saunders from Las Vegas, NV flew his large V2. He calls it "Vengeance 2", it is 9.5" in diameter, weighed 48lbs and stands 6 1/2 feet tall. It flew on an Aerotech M1419 and had a missile works RRC2 altimeter on board. It was predicted to reach an altitude of 8500 feet, but had a problem and ended up coming in separated. The rocket hit the unforgiving earth, and was put into the "Bucket Recovery contest". After much consideration, it won the "bucket recovery" award on Saturday.

Greg Forester, Tucson AZ, had a Vulcanite H176 he calls "Glow Worm". He flew it on a G-64 and has flown it a dozen times before. Unfortunately, this time, it seemed like the ejection charge didn't go, and he's not sure what went wrong this time. Additionally, another bit

of bad news came for one of the flyers. A rocket came plummeting down, with no ejection and no chute, hitting the car's windshield. The flyer and car owner were very disappointed about it, being that it was a brand new car, but thankfully, no body was hurt. The two involved parties handled it at the range.

Sunday morning was another wonderful day on the flat land at Eldorado. The weather was even better than Saturday, with not much wind at all. There weren't as many fliers or even spectators, as there were on Saturday, but it was still a great day for launching.

Rick Magee from Simi Valley, CA, had Quantum Leap 10ft tall, 3.1" dia, and was over 16lbs at lift off. The 2-stage rocket flew on a K550 and went to a J135. The rocket is 6 years old and has had 26 combinations of that flight, reaching altitudes of over 13,000 feet, in the past. This time, there was a problem with the booster, and turned out to be a 'Bucket Recovery' landing. He thinks that there may have been an internal crack some where which may have caused the problem. Rick thinks he may be rebuilding it sometime, in the future.

Oliver Schubert, Las Vegas NV, had an interesting rocket. It was an SR-72, remote controlled glider. He has flown his super bird, glider about a dozen times, with the help of his friend, Chad Leonard, from Las Vegas, NV. Oliver builds the motors, launches it, and then Chad takes over the RC part of the flight. He launched it on a G-motor, and without a hitch, it went smoothly, glided through the air, and landed the rocket on its belly, as if someone was actually inside of the plane. Oliver and Chad launched the really neat rocket about 3 different times. The spectators were watching, cheering every time he launched this one.

The name "Turkey Shoot" originally came from a contest, where the contestants were required to loft turkeys inside of their rockets. But it was decided, this year, they were going to launch Cornish Game Hens, instead. Vince Catalano, Las Vegas, NV found they didn't have any hens at the store. So, instead he bought a large turkey breast, in hopes that it would qualify for the contest. He launched his 'turkey' in a scratch built rocket he calls "Extreme M". It was just over 10 feet tall, weighed 40lbs at the pad with motor, electronics, and fowl on board. He confirmed the turkey was in the booster and had it's own 6ft chute. At apogee, the rocket opened and the chutes came out, even the turkey. The altimeter recorded an altitude of 15,200ft, but the breast was no where to be found. They're assuming that a coyote, on the range, had a nice dinner that night. Vince won the "Turkey/Hen Lofting" contest, since he was the only contestant. He won \$25.00 - inevitably to buy his own turkey!

Mike Meehl, Phoenix AZ, became Sunday's "Bucket Recovery" winner when his 9.25", 30lb rocket lawn darted into the hard packed dirt. He launched his rocket on an L-1120 NFPA test motor, and didn't get any ejection. The prize was a little, silver, pail type/bucket -, on a wooden plaque saying "Bucket Recovery Winner".

As the sun was setting, the crowd started to dissipate and Turkey Shoot 2000 was ending. The range closed down around 4:00pm and people were saying their "good byes". We had been advised that our front tire looked as if it was getting low, but we didn't check it out, until the end of the launch. Sure enough, we had hit one of those craters coming in that morning, and had a totally flat tire. Neil changed out the tire to the donut/spare, and we gimped our way to the hotel. We certainly had a wonderful time at Turkey Shoot 2000, and will know better next time, to watch out for those holes out there on the lake bed. This was one of the best rocket trips we have taken, (despite the ticket, and flat tire!). I think I can speak for most people when I say that the Tripoli-Vegas group was so nice, very helpful, the site was wonderful too, and that the whole experience of Turkey Shoot was one that we won't forget. It was AWESOME!!

The total motors burned for the weekend are: (Without the NFPA test motors)

A - 6	H - 44
B - 13	I - 36
C - 26	J - 23
D - 3	K - 14
E - 4	L - 4
F - 7	M - 6
G - 61	

Winterfest X—A Classic!

By David J Nauer

COSROCS' eleventh winter contest proved to be one of the best, bringing in the new millennium with class! The weather was fabulous, warm, sunny, and offered some of the best winter flying we've seen in quite some time. The NAR contest featured ten competitors and our fun contest attracted three other competitors not entered in the NAR contest for a total of 13 people accumulating COSROCS contest points. This year the NAR events were added with the fun contest to determine the winner.

Unlike previous years, there was only one division in the NAR competition because A Divisioneer Randy Chambers was the only flier not in "C" division and was moved there. However, for the overall contest championship we divided the A and C divisioneers.

We got a treat by watching Jeff Proffitt's 1/4A SuperRoc duration flight that set new national and COSROCS records by accumulating 4,200 points. We also witnessed one other COSROCS record when Randy Chambers shattered the prior COSROCS record in the "A" division for C Eggloft Duration with a flight of 56 seconds, almost 30 seconds more than the prior record held by Josh Hays. Here are the results by event.

A Streamer Multi-Round

Each contestant could fly three times but could only use two different rockets. Also, there was a maximum of 120 seconds allowed for each flight, so any time over two minutes was ignored. The flights are added together for a final score. No returns were required, but you had to find at least one flight if you were to fly the third time! Mel Gray had two maximums and took first place, followed by Ed O'Neill who arrived late and was only able to fly two flights, one of which was also a maximum. Ed finished second at this year's National Contest and it is easy to see why! These three maximums were the only in the contest.

<u>Competitor</u>	<u>Flt1</u>	<u>Flt2</u>	<u>Flt3</u>	<u>Total</u>	<u>Pts</u>
1. M. Gray	MAX	105	MAX	345	240
2. E. O'Neill	MAX	111	---	231	144
3. B. Markielewski	115	DQ	106	221	96
4. J. Hitchens	76	89	44	209	48
5. G. Elder	DQ	82	106	188	24
6. J. Proffitt	47	48	58	153	24
7. D. Nauer	65	DQ	77	142	24
8. B. Faling	36	34	35	105	24
9. R. Chambers	DQ	DQ	34	34	24

C Single Eggloft Duration

This seems to be a COSROCS classic, but a CRASH specialty. You can fly twice, but only the best flight counts – this is one exception in duration competition! Although not record breaking, current NAR C

Division National Champion Bruce Markielewski continues to improve his lifetime Egglofting record at COSROCS events with a flight that beat all others by over 40 seconds. This event was CRASH's best as CRASH members held all four places—maybe COSROCS needs to brush up on Egglofting skills! As noted above, A Divisioneer Randy Chambers had to compete with the big guys and this time set a COSROCS record in his division, and placed in an event with eight adults to compete against. Impressive!

<u>Competitor</u>	<u>Flight1</u>	<u>Flight2</u>	<u>Total</u>	<u>Pts</u>
1. B. Markielewski	164	---	164	320
2. M. Gray	DQ	121	121	192
3. E. O'Neill	61	---	61	128
4. R. Chambers	34	56	56	64
5. J. Hitchens	55	35	55	32
6. G. Elder	DQ	31	31	32
7. J. Proffitt	27	17	27	32
8. D. Nauer	16	---	16	32
X. G. Sandras	DQ	DQ	DQ	0

1/2A Boost Glider Duration

This event allows up to two flights that are added together. The modeler must achieve a glide on a glider that may separate from the boost device. Greg Elder proved a consistency and excellence are needed to win as he matched the best flight of the day, and then followed it up with a second flight that was adequate to capture top honors. Somehow I captured second—considering how poorly I do gliders most would find that hard to believe!

<u>Competitor</u>	<u>Flight1</u>	<u>Flight2</u>	<u>Total</u>	<u>Pts</u>
1. G. Elder	50	29	79	340
2. D. Nauer	37	36	73	204
3. M. Gray	5	DQ	50	136
4. J. Proffitt	18	9	27	68
5. B. Markielewski	16	9	25	34
6. G. Sandras	15	DQ	15	34
X. R. Chambers	DQ	DQ	DQ	0

1/4A SuperRoc Duration

This event is unusual as the length of the rocket in centimeters is multiplied by the duration in seconds. In this impulse class the rocket must be at least 25cm in length, and any length over 50cm is ignored. As noted above, Jeff Proffitt set a national record with his second flight of the day, and combined with his second flight captured first place. Mel Gray, the prior holder of the national record for this event finished a close second. The results below represent the points accumulated in each flight.

<u>Competitor</u>	<u>Flight1</u>	<u>Flight2</u>	<u>Total</u>	<u>Pts</u>
1. J. Proffitt	1800	4200	6000	260
2. M. Gray	2750	2000	4750	156
3. G. Elder	1550	2150	3700	104
4. B. Markielewski	1450	1700	3150	52
5. E. O'Neill	DQ	2850	2850	26
6. J. Hitchens	686	1568	2254	26
7. D. Nauer	650	---	650	26
X. R. Chambers	DQ	DQ	DQ	0

Micro-Maxx Fun Event

This event was simple—fly as often as you want for the best single time on a micro-max motor. Everyone except for the winner used standard Quest micro-max kits. The winner, Bruce Markielewski, built a custom fiberglass hand build micro-max rocket and flew it as high as many 1/4A SuperRoc rockets flew on this day. The weighting factor for this event was 7, and it was enough to move Bruce from third to second place in the overall contest. Everyone who flew only managed one flight as we had launch pad problems and in general these motors are difficult to light. Note that two “A” divisioneers flew in this event, so a separate overall A division was calculated for the COSROCS contest, but in the NAR division I couldn’t separate our sole official A divisioneer into his own division.

<u>Division</u>	<u>Competitor</u>	<u>Total</u>	<u>Contest Points</u>
A	C. Williams	8.13	140
A	A. Williams	7.81	84
C	B. Markielewski	20.80	140
C	J. Hitchens	5.41	84
C	G. Schaiffer	2.88	56

Wrap-up

Mel Gray placed first in the NAR division and took “C” division contest honors with a consistent performance – placing in every NAR event. He didn’t fly the fun event. Bruce Markielewski, who barely took second in the NAR placements, easily took second in the overall contest with his impressive micro-max flight. Third was captured by Greg Elder, the highest placing COSROCS member, who missed out on second place in the NAR standings by two points. Jeff Proffitt grabbed fourth place on the heels of his national record performance. Note that although this isn’t reflected in the table below, Randy Chambers finished 8th out of ten in the NAR contest, flying entirely against “C” divisioneers.

In A division, Christiana Williams grabbed first place with her single flight in the micro-max contest. Randy Chambers, who flew all of the NAR events but skipped the micro-max event, took second with the 88 points he accumulated in the NAR events. If Randy had experienced better luck (he qualified in 2 of the 4 events) he could have taken first, but alas, it wasn’t his day! Ariana Williams barely missed placing higher with her 84 points accumulated from her single micro-max flight.

In the section standings CRASH solidly took both the NAR and the overall contest with impressive showings with four of the ten NAR contestants flying, and two others flying the fun event.

<u>Competitor</u>	<u>Div</u>	<u>NAR Total</u>	<u>Contest Total</u>
1. C. Williams	A/B	NF	140
2. R. Chambers	A/B	88	88
3. A. Williams	A/B	NF	84
1. M. Gray	C	724	724
2. B. Markielewski	C	502	642
3. G. Elder	C	500	500
4. J. Proffitt	C	384	384
5. E. O’Neill	C	298	298
6. D. Nauer	C	286	286
7. J. Hitchens	C	106	190
8. G. Schaiffer	C	NF	56
9. G. Sandras	C	34	34
10. B. Faling	C	24	24

1. CRASH	Section	1612	2032
2. COSROCS	Section	1334	1474

January Launch Report
By Warren Layfield

<u>Name</u>	<u>Rocket</u>	<u>Motor</u>
Melissa James	Wildfire	C6-5
Frank Bittinger	Patriot	C6-5
Neil Kinney	VBE24	E18
Jenny Miller	Prowler	D10-5
Tom Dembowski	Maniac/Astrocam	D12-7
Greg Sandras	IVEE2G	½ A2-2
	Oayx	F40-4W
	Venus Probe	D12-3
Greg Elder	Mini-V2	A3-4T
	Styro-UFO	C6-3
James Hitchens	Superroc	¼ A2-2
	A Streamer	A2-5
	Egglofter	C5-3
Jeff Coons	Black Brant II	D20-4
	Mini-Mars Lander	E30-7
	X-39	F50-6
	X-38	F20-7
Eric Junk	Skydive	B6-4
James Junk	Maxi Alpha 3	D12-3
Brittany Junk	Maniac	?
	Viper	B4-4
	Big Bertha	C6-5
Melissa Junk	Cyclone	B6-4
Sara Junk	Maxi Alpha 3	D12-3
Joel Helzer	Mars 201 ?	B4-2
Sean Helzer	No Name Rocket	B6-2
	A13288	B6-4
	Satellite Destroyer	C6-3
	VNS7	C5-6?
Bruce Faling	Wizard	C6-7
David Virga	Gnome	A10-0/A3-4T
	Initiator	F22-5J
Alex Virga	Wildfire	B6-4
	Nike-K	C6-3

CRASH Hosts CARCIS IX
By David J. Nauer

Our friends to the north will be hosting their 9th spring contest at their regular launch site at Bear Creek Park. As always, CRASH is cleared to 3.3-pound rockets for both sport and contest. A full roster of NAR Sanctioned events with a mix of altitude and duration has been set. This will be a NAR regional contest with a full 80 weighting factors.

The contest will be held in a two-day format on April 21-22, 2001 starting at 9:00AM each day. The altitude event will be scheduled in a window on one day, but no determination of that window has been made as of this writing. Contact Dave at 719-487-8737 if this matters to you and you’d like an update. I’ll also ensure any announcements are posted to the COSROCS mail list.

The entry fee will be \$5.00 for the “C” and Team Divisions, while “A” and “B” competitors will fly free. Also note that the park charges

a fee at the gate for one or two days of park usage. Below is a description of the events and a brief summary of the rules.

1/2A Streamer Duration Multi-Round (WF 12)

This event features a maximum flight time of one minute. Any time on a single flight above this will not be recorded or credited. The goal is to use no more than two models to fly three flights up to that maximum time – the idea is to prove consistency while flying to a challenging time requirement. There is no return requirement for any flight, but only two models can be used so some type of return is implicit. If a tie exists after three flights, a fly-off between those tied will be conducted using the remaining models – the fly-off must be conducted with one of the two original models. The winner will be the contestant attaining the best total of three flights. All normal duration rules stand, including the requirements for streamer size, the absolute that the rocket remains in a single piece, and for the rocket to be recovered by a deployed streamer.

1/2A SuperRoc Duration (WF 13)

Super Roc is often a bizarre event with extremely long rockets flopping around in the sky. This impulse reduces the strangeness of the event, because rockets between 50cm and one meter are allowed. Any rocket with a length beyond one meter can be flown, but credit for 100cm only is given. Note that these are relatively short rockets, BUT they must be flown on 1/2A impulse engines! The total of the rocket's length in centimeters times the duration in time are MULTIPLIED together for a point total. Two flights are allowed, and the total of the two flights will be used to determine the winner. For this sort of a rocket your best strategy is to build as light of a one meter rocket as possible.

1/2A Boost Glider Duration (WF 17)

This event combines the total times of two flights. The rocket must feature at least one part that performs a glide, and only that part will be timed. The contestant should fly two flights, and the totals are added together. Highest total time will win. Other parts, which are not part of the glider, must be recovered safely, and ejected engines are not allowed. Note that you **can** fly rocket gliders in this event!

A Rocket Glider Duration (WF 20)

Similar to the boost glider event, two flights are added for a total time. However, rocket gliders must remain in a single piece, including the motor and all parts, and perform a glide after a successful boost. This is generally accomplished by changing the location of the wing or gliding surfaces in some way, although use of variable elevator surfaces is another approach.

C Eggloft Altitude (WF 18)

The contestant is allowed two flights, but only the better of those two flights will be used to determine the winner. The Egg must be recovered intact with no cracks, and must be opened at the contest table. The rocket cannot be caught, and unlike many altitude events, the portion of the rocket with the egg must be returned or the entry is disqualified. Other portions of the rocket do not need to be returned. Staged entries must have the egg in the upper section of the rocket. The rocket flying the highest altitude measured in meters is the winner.

It would be nice for COSROCS to make a real showing at CARCIS-IX. We haven't beaten CRASH in a while – it would be great to make a run of it in Denver! Those needing directions can give me a call at the number referenced above. Fly Safe!

NARCON 2001

By John Dyer

I'm this year's Event Director for NARCON 2001. I would like to invite you come join us in Dallas the weekend of March 23 - 25 for this event. We plan to make it even more exciting than last year.

Our banquet guest speaker is Glen Swanson, NASA's historian at the Johnson Space Center. Before becoming the historian at JSC, he was the Editor for Quest magazine. Needless to say he has a little bit of experience in digging through scale data. He's planning on giving us some insight into NASA.

Here's a partial list of some of our other speakers and the topics they'll be covering:

- John Pursley will be back to talk some more on Scale modeling techniques
- Tom Prestia (of Tango Papa Decals) will be talking about scaling up the Estes Mars Lander
- Ted Mahler will be back talking more about Rocket photography.
- Buzz McDermott will finally be able to talk about cloning the classics. (Last year's NARCON kept him pretty busy. So he wasn't missed out on giving it.)

On the HPR side, we have talks ranging from Fiberglassing to composite construction techniques to how to get your Level III certification.

And there's a whole group of sessions specifically dealing with education and how we can build the interest in the next generation of model rocketeers.

This will truly be an event no Rocket hobbyist will want to miss!

A registration form can be found at: <http://www.dars.org/narcon> or go to <http://www.dars.org> and follow the NARCON 2001 links.

Hope to see you there!

February Launch Report

By Greg Elder

We had a very small turn out for the February launch. So small in fact, that we used only one port-a-pad to launch rockets all day. I suspect most people were at home because of the weather the day before. Even though we had snow on the ground at the launch site and the temperature was on the chilly side, it was a great day for rockets—very little wind and blue skies. If you weren't there, you missed a good launch. Here's a run down of the flights.

<u>Name</u>	<u>Rocket</u>	<u>Motor</u>
Dave Jolly	Nike Smoke	C6-5
Bruce Faling	Wizard	C6-5
Bruce Faling	Home Brew	A2-7
Bruce Faling	Home Brew	A34T
Greg Elder	Small Cup	A3-4T
Greg Elder	Large Cup	B4-2
Greg Elder	Saucer	C6-3
Greg Elder	Swinger	C6-3
Greg Elder	Large Sputnik	D12-3
Jeff Proffitt	Argosy	B6-6
Jeff Proffitt	Photon Disrupter	C6-5
Stan Huyge	Mini Saucer	A3-0T
Stan Huyge	Mini Saucer	A3-0T
Stan Huyge	Harpoon	1/4A3-3T

Stan Huyge	Astron Invader	1/2A6-2
Tom Dembowski	Iris	B6-4
Tom Dembowski	Big Bertha	C6-5
Dave Sannerud	Tornado	A8-3
Dave Sannerud	Fat Boy	C6-5
Dave Sannerud	Deep Surface Probe	C6-3
Jeff Coons	Exo-Skell	C6-3
Jeff Coons	Triple Glider	D12-3



NARAM-43 is being held in Geneseo, New York, 4-10 August. Here is a list of the official events for this year's NARAM:

- 1/2A Boost Glider Duration
- 1/2A Flex Wing Glider Duration
- A Altitude
- B Super Roc Altitude
- C Eggloft Altitude
- A Streamer Duration
- D Helicopter Duration
- Sport Scale
- Research and Development

For complete information about NARAM-43, visit the web site: <http://www.naram43.com>.

Editor's Design Contest

By Greg Elder

In an effort to generate plans for the newsletter, I am sponsoring a COSROCS model rocket design contest. Those of you who have been with the club since the early 1990's may remember when we had President Challenges. This is somewhat similar in concept. Here are the basic rules.

1. The contest is open to any current, dues paying COSROCS member.
2. Since next year is 2001 and the movie "2001: A Space Odyssey" had some great looking spacecraft of the future, the theme for this contest is futuristic. Design what you think a rocket or spacecraft may look like in the year 2051.
3. Designs must be original and must be for a model rocket. The design must be built and must be flown at the first COSROCS launch in May. Rockets that are unstable or unsafe will be disqualified.
4. Along with your rocket, you must provide a set of written instructions (plans) for the newsletter.
5. Rockets will be judged on originality, appearance, and flight performance.

That's it. You have from now until our launch on the first Saturday of May 2001. So, use these winter months to put your creativity and design skills to work.

I will donate an out of production MRC Sidewinder and a Launch Pad Exocet kit as prizes. I would also like a volunteer or two to act as judge(s). If anyone else would like to donate a prize, let me know.

New, Simpler Model Rocket Safety Code

Trip Barber
NAR Vice President

On February 10, The National Association of Rocketry Board of Trustees approved a new NAR Model Rocket Safety Code which is significantly clearer and easier to understand than the previous Code, as well as being quite a bit shorter. This new Code is the authoritative document for governing model rocket activities conducted in the US. Nothing in the new Code contradicts or changes any specific requirements of the old Code, so those who fly under the old one are still following all the provisions of the new one.

The Board also authorized manufacturers of model rocket products to distribute a simplified, shortened version of this Code (the "Basic Safety Code") with products intended for beginning, first-time model rocketeers.

My thanks to all the NAR volunteers who were involved in the development of this new Code, for your enthusiasm and assistance.

NAR Model Rocket Safety Code

1. *Materials.* I will use only lightweight, non-metal parts for the nose, body, and fins of my rocket.
2. *Motors.* I will use only certified, commercially-made model rocket motors, and will not tamper with these motors or use them for any purposes except those recommended by the manufacturer.
3. *Ignition System.* I will launch my rockets with an electrical launch system and electrical motor igniters. My launch system will have a safety interlock in series with the launch switch, and will use a launch switch that returns to the "off" position when released.
4. *Misfires.* If my rocket does not launch when I press the button of my electrical launch system, I will remove the launcher's safety interlock or disconnect its battery, and will wait 60 seconds after the last launch attempt before allowing anyone to approach the rocket.
5. *Launch Safety.* I will use a countdown before launch, and will ensure that everyone is paying attention and is a safe distance of at least 15 feet away when I launch rockets with D motors or smaller, and 30 feet when I launch larger rockets. If I am uncertain about the safety or stability of an untested rocket, I will check the stability before flight and will fly it only after warning spectators and clearing them away to a safe distance.
6. *Launcher.* I will launch my rocket from a launch rod, tower, or rail that is pointed to within 30 degrees of the vertical to ensure that the rocket flies nearly straight up, and I will use a blast deflector to prevent the motor's exhaust from hitting the ground. To prevent accidental eye injury, I will place launchers so that the end of the launch rod is above eye level or will cap the end of the rod when it is not in use.

7. *Size.* My model rocket will not weigh more than 1,500 grams (53 ounces) at liftoff and will not contain more than 125 grams (4.4 ounces) of propellant or 320 N-sec (71.9 pound-seconds) of total impulse. If my model rocket weighs more than one pound (453 grams) at liftoff or has more than four ounces (113 grams) of propellant, I will check and comply with Federal Aviation Administration regulations before flying.

8. *Flight Safety.* I will not launch my rocket at targets, into clouds, or near airplanes, and will not put any flammable or explosive payload in my rocket.

9. *Launch Site.* I will launch my rocket outdoors, in an open area at least as large as shown in the accompanying table, and in safe weather conditions with wind speeds no greater than 20 miles per hour. I will ensure that there is no dry grass close to the launch pad, and that the launch site does not present risk of grass fires.

10. *Recovery System.* I will use a recovery system such as a streamer or parachute in my rocket so that it returns safely and undamaged and can be flown again, and I will use only flame-resistant or fireproof recovery system wadding in my rocket.

11. *Recovery Safety.* I will not attempt to recover my rocket from power lines, tall trees, or other dangerous places.

Launch Site Dimensions

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Site Dimensions (ft.)
0.00--1.25	1/4A, 1/2A	50
1.26--2.50	A	100
2.51--5.00	B	200
5.01--10.00	C	400
10.01--20.00	D	500
20.01--40.00	E	1,000
40.01--80.00	F	1,000
80.01--160.00	G	1,000
160.01--320.00	Two Gs	1,500

Apogee Components Aspire

By Greg Elder

In my opinion, a rocket need not be big in order to be considered extreme. Take the case of Apogee's Aspire. This model rocket-size (29" length) bird can fly on a wide range of motors, from a D12 to a G80. (It should also be able to fly on B and C size motors with the use of a motor adapter.) On an F10 motor, it can achieve an altitude of over one mile. With a G80 motor, the Aspire can reach speeds exceeding Mach-1. Now that's extreme!

The Aspire kit includes a 29mm body tube, balsa nose cone, laser cut balsa fins, heavy Kevlar shock cord material, a long Mylar streamer, components for a 24mm motor adapter, and a water slide decal. Five pages of easy to read, clearly illustrated instructions come with the kit.

Construction of the Aspire is very straight forward. The body consists of two 29mm tubes, 13" long each that are glued together via a coupler. An optional 29mm motor thrust ring may be glued in the bottom of the tube, if desired, to accommodate the longest motor you intend to use with the Aspire. The four balsa fins are glued 3/4" from the bottom of the rocket. If you plan on flying this rocket with high thrust motors, Apogee recommends the use of FIXIT epoxy-clay for

fillets. I used the FIXIT product for the first time building the Aspire. It's great stuff. It comes in two parts that you mix together in equal amounts. The nice thing about the epoxy-clay is that it remains pliable for about 3 hours, so you have plenty of working time. It dries rock solid. The FIXIT product is non-toxic and is sandable, as well as paintable. A 1/4" diameter launch lug is used with the Aspire.

The nose cone has a pre-drilled hole in the bottom. To provide for a recovery attachment, a short piece of Kevlar is folded into a loop, with the ends of the Kevlar embedded in epoxy-clay. The epoxy-clay with the Kevlar ends is then pressed into the hole of the nose cone. An Estes-style paper shock cord mount is used to attach the remaining long piece of Kevlar into the top of the body tube. For my Aspire, I also tied a length of 1/4" elastic shock cord material to the free end of the Kevlar. (I just wanted the over-all shock cord to be longer.) Finally, when everything has dried, the long shock cord may be tied to the Kevlar loop on the nose cone. The long (2" X 56") silver Mylar streamer is tied to the shock cord.

If you plan to fly the Aspire with 24mm motors, the kit comes with a 24mm motor tube and centering rings to build a motor adapter. I believe the Aspire can also fly on 18mm B and C size motors. You could easily build an 18mm adapter yourself, though the kit does not come with parts for one of these.

After sealing the balsa, sanding, and painting the Aspire, you can apply the large water slide decal provided with the kit. The maiden flight of my Aspire was with a D12-5 motor. The rocket had a very straight boost and almost out-of-sight altitude. The long, silver streamer made it very easy to see as it returned to earth. The only draw-back with the streamer is that the rocket seemed to come in very fast and it broke one fin upon landing. (It was a clean break at the body tube and was easily repaired.) A parachute, however, may result in the Aspire drifting very far away after a high altitude launch.

When the weather in Colorado improves for launches to resume at Hartsel, I plan to fly the Aspire on an F10 motor. That should be

some flight!

The Aspire sells for \$15.95 and is available from

Apogee Components

630 Elkton Dr.

Colorado Springs, CO 80907

<http://www.ApogeeRockets.com>



Space News

Shenzhou 2. China took another step towards its goal of manned space flight with the launch of an unmanned Shenzhou 2 space vehicle January 10, 2001. A Long March 2F booster lifted the Shenzhou 2 into earth orbit. After spending about a week in orbit, the reentry capsule of the Shenzhou 2 returned to earth, landing in China's Mongolian province. Before retrofire took place to bring the capsule down, the Shenzhou 2 cast off a two-ton "orbital" module. That section is apparently carrying some experiments, and is replete with its own solar panels and attitude control thrusters. This was the second test flight of the Shenzhou 2 space vehicle. The first test flight in November 1999 resulted in the spacecraft orbiting the earth for 21 hours.

Asteroid Landing. The NEAR Shoemaker spacecraft successfully landed on Asteroid 433 Eros on February 12, 2001, after orbiting the asteroid for a year. Scientists did not expect the spacecraft to survive the “landing”, as it was not designed for any type of landing. However, it did survive and it sent back numerous pictures of Eros, some only yards away, before touch-down. As of February 26, Shoemaker has continued to function. Scientists will collect data from Shoemaker until the end of February.

COSROCS Calendar

Unless otherwise noted, all launches are at Stetson Hills. Business meetings are at the Gold Hill Police Station.

- 3 Mar: Sports Launch, 9AM
- 14 Mar: Business Meeting, 7PM
- 17 Mar: Sports Launch, 9AM
- 23-25 Mar: NARCON, Irving, Texas
- 7 Apr: Sports Launch, 9AM
- 11 Apr: Business Meeting, 7PM
- 21 Apr: Sports Launch, 9AM
- 21-22 Apr: CARCIS IX, Denver, 9AM
- 5 May: Sports Launch, 9AM
- 9 May: Business Meeting, 7PM
- 19 May: Sports Launch, 9AM
- 26-28 May: National Sport Launch, Rush Valley, Utah
- 2-3 Jun: Pikes Peak or Blast XII
- 13 Jun: Business Meeting, 7PM
- 16 Jun: Sports Launch, 9AM

Styro-F.O. Jr.

By Greg Elder

Those of you that have been at our last couple of launches, may have seen me fly a styrofoam flying saucer. It is the Styro-F.O. Jr. produced by Joseph Peklicz. I read about his kits in another NAR section’s newsletter, and since I like odd rockets, I ordered a couple from him.



The main body of this flying saucer appears to be made from two styrofoam plates and a styrofoam bowl. Most of the construction of the kit has already been done for you—appropriate holes have been precisely cut in the plates, and the plates and bowl have been glued

together. In addition, a nice set of port holes have been punched around the top of the flying saucer.

The only construction required is assembly of the motor mount. This consists of a BT-20 motor tube, engine block, three balsa fin struts, and a launch lug. The kit includes a fin guide template to ensure straight and accurate fin alignment. I used wood glue to build the motor mount and 5 minute epoxy to glue the motor mount into the styrofoam body. (Be careful as to the glue you use, as some glues may destroy styrofoam.

The recommended motor for the Styro-F.O. Jr. is a C6-3. This saucer flies very nicely and much higher than the Estes Snitch or Quest Flying Saucer. Being light-weight styrofoam, it returns floating very gently to the ground. If you like flying saucer rockets, this is a good one to have. By the way, Joseph also sells a D powered monocopter. I haven’t tried one of these yet.

The Styro-F.O. Jr. costs \$10.00 per kit plus \$4.50 postage. He can ship three in one box for the \$4.50 postage, so order several. To order, send a check to:

Joseph Peklicz
635 S. Zane Highway
Martins Ferry, OH 43935-1236

Roc-A-Puzzler—2001 Word Search

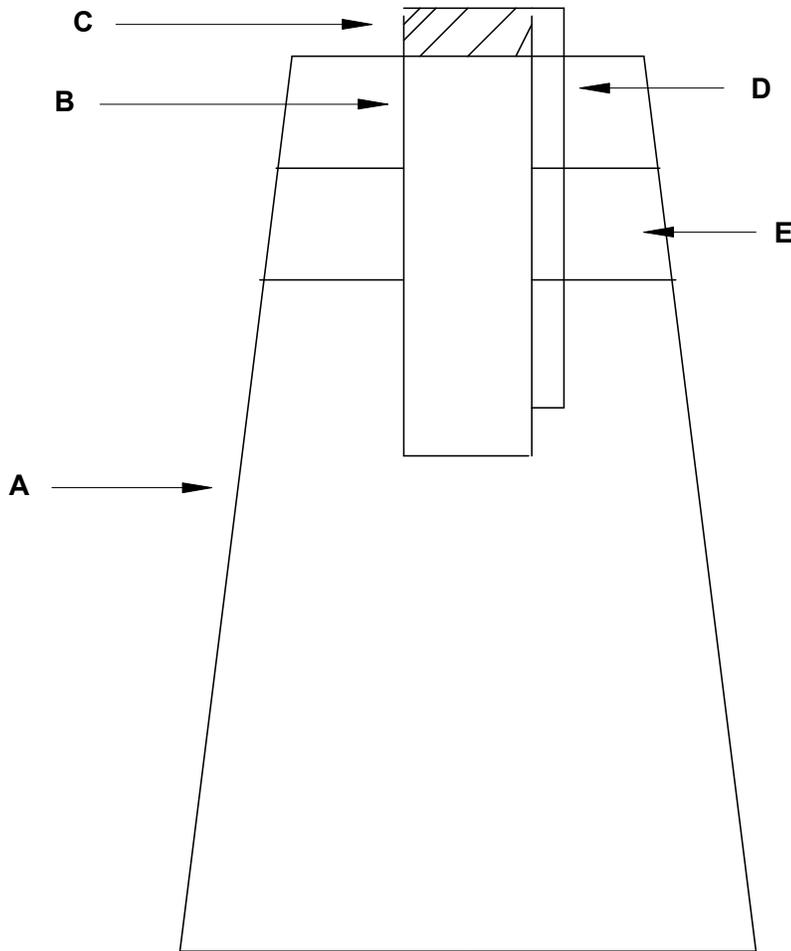
The words in this Word Search are taken from the movie and book, “2001: A Space Odyssey.” Can you find all the words?

V B P Z O A J W J P M V N Y Q V Y W C L
S W X B N L Z A R U D H C S Q Q P S K N
R N Z N M U P R N Z O D C T N X T O V A
R R A L L Z D J X N O O M H X J S Y S D
B Y H M F R H I O R P V D E O P U G W I
L T J M W W A A V H T I L O N O M K I S
I H K Z Z O D S L F Y A P O R U E G I C
J F R G V N B L S F Q L G N S K K D W O
N Y F M D L E J G T T N M J S R C N Z V
C A G I P A U B F K A I W E O Y H E Z E
P T U T V P O K O D K R J R T V Q D K R
S V N E I F P D G N S C C J E A R T H Y
R D C T W J U U I Z H A C H P C I F O N
A Y E L J V R P V E L W Q U I G E S T K
T R U W A A V O D Y S S E Y L L P Q P R
S G K N C R J J R S U Q C K G Y D P Q A
P R Y W O U K H H V Z F T D T F O B O U
Q A R D U A D E B H P X A B G S P E F V
Y I M H W U U T W O S V E R R E L O O P
Q L N I V K C I R B U K J Z Y P J T O K

- | | |
|-----------|-----------|
| HAL | MOON |
| STARS | BOWMAN |
| JUPITER | KUBRICK |
| DISCOVERY | STARCHILD |
| EARTH | POOLE |
| CLARKE | EUROPA |
| ODYSSEY | MONOLITH |

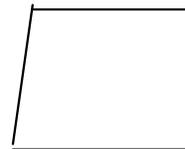
Cup of Coffee to Go

By Greg Elder



Parts List

- A. 20 oz. Styrofoam cup
- B. BT-20 motor tube, 2 3/4"
- C. Engine block
- D. 1/8" diameter launch lug
- E. 3/32" thick balsa fin stock



Fin strut. Three required.

One day while drinking a cup of coffee at work, I thought the styrofoam coffee cup might make an interesting model rocket. That week I built the Cup of Coffee to Go and flew it the following weekend. It flew fairly well and had the side benefit of glide recovery (sort of). It is easy to build. Here are the steps:

1. Cut the bottom off of the 20 oz. Styrofoam cup
2. Using a tube marking guide, draw three lines the length of the motor tube at equal distances apart.
3. Cut three fin struts from the balsa stock.
4. Glue the fin struts to the motor tube along the lines, about 1" from the bottom of the tube.
5. Glue the launch lug along one side of the tube, next to a fin strut.
6. Glue the engine block into the top of the motor tube.
7. After the glue has dried, test fit the motor tube assembly into the cup. The top of the motor tube should protrude at least 1/4" past the top of the cup. (It's really the bottom of the cup, but since the cup flies upside down, the bottom is now the top. Get it? See the diagram.) Sand or add shims to the fin struts as needed to fit the motor tube assembly properly. Finally, glue the assembly into the cup. (**Important:** the motor tube must extend at least 1/4" past the top of the cup to keep the CG far enough forward for stable flight.)



The only motor I recommend for use in the Cup of Coffee to Go is the B4-2. Other motors do not provide as stable of a flight. I've flown this rocket where the motor has ejected after burn out and where it has been retained. In both cases, the model returned via a horizontal glide; however, the best glide results when the motor is ejected. Have fun!



Top Left: Rockets on display at the Space and Rocket Center, Huntsville, AL. Can you name them all? Top Right: Elise and Nathan Coit prepare their large helicopter rocket. Bottom Left: Bruce Faling's streamer duration rocket makes a cold landing in the snow.

(All photos by Greg Elder)



COSROCS
P.O. Box 15896
Colorado Springs, CO 80935-5896