



T.H.O.R.

July/August 2001

VOLUME 8 NUMBER 4

**T.H.O.R. - THE HEARTLAND ORGANIZATION OF ROCKETRY
2001 Events Calendar**

Monthly Meeting Schedule for Summer:
Tuesday July 3rd, Tuesday August 7th,
and Tuesday September 4th.

As usual, each meeting will start at 7:00 PM at the LaVista Community Center.

July

Event: 4th of July Party.
When: Wednesday the 4th (duh...), exact time to be determined.
Where: Bruce Lee's house.
Fee: Free... but bring your own food such as meat and chips!
Description: The club's annual 4th of July party. Bruce has a swimming pool, too, so bring your swimwear!
For More Information: Final details will be determined before the party.

Event: Low Power Launch.
When: Sunday the 8th, Noon to ?
Where: La Vista Sports Complex.
Fee: Free.
Description: Streamer duration contest.
For More Information:

Event: LDRS XX.
When: Thursday the 19th through Sunday the 22nd.
Where: Lucerne Dry Lake, CA.
Description: Large and Dangerous Rocket Ships number 20! This is TRA's big national high power launch of the year.
For More Information: See the link at www.tripoli.org.

Event: High Power Launch.

When: Saturday the 28th, 9:00 AM to 5:00 PM.
Where: Pickrell, NE.
Ceiling: TBA.
Fee: \$5.
Description: Mainly a high power event, but regular model rockets are flown, too.
For More Information: Check the rocketry hotline (402-896-2069) for any delays or cancellations if weather looks questionable.

August

Event: NARAM 43.
When: Saturday the 4th through Friday the 10th.
Where: Geneseo, NY.
Description: NAR's week of model rocketry competition. Typically there is a lot of sport and some high power flying, too.
For More Information: Go to www.naram-43.com.

Event: Low Power Launch.
When: Sunday the 12th, Noon to ?
Where: La Vista Sports Complex.
Fee: Free.
Description: 1/4A parachute duration contest.
For More Information:

Event: High Power Launch.
When: Saturday the 25th, 9:00 AM to 5:00 PM.
Where: Pickrell, NE.
Ceiling: TBA.
Fee: \$5.
Description: Mainly a high power event, but regular model rockets are flown, too.
For More Information: Check the rocketry hotline (402-896-2069) for any delays or cancellations if weather looks questionable.

Event: AIRFest VII.
When: High power flying from Friday the 31st through Sunday September the 2nd. Experimental day on Monday September 3rd.

Where: Argonia, KS.

Description: This is the awesome high power get together thrown together each year by the Tripoli Kansas Prefecture. The Kloudbusters have a very excellent field to fly from and this site has been used for several LDRS's. Many members from THOR have attended the AIRFest launch.

For More Information: Check out the Kloudbuster's web site at www.kloudbusters.com.

TRIPOLI NEBRASKA WEB PAGE
www.tripoli.org/tra_ne/nebraska.htm

THOR WEB PAGE
www.tripoli.org/tra_ne/THOR/thor.html

Fire on the Farm IV

By Richard C. Burney, TRA 6140

Photos by Richard C. Burney and Greg Rothman

The weekend of April 20th through April 22nd marked the fourth annual Fire on the Farm launch held by The Heartland Organization of Rocketry (THOR) and the Iowa Society of Amateur Rocketeers (I-SOAR). Like Fire on the Farm III, the weekend was a mixed bag of nice and poor weather that is typical in this part of the Midwest in the early spring. Though conditions weren't ideal as with the first two Fire on the Farms, we made the best of the conditions that were handed us.

As with Fire on the Farm III, Fire on the Farm IV was held on the farm land just north of Carroll, IA belonging to Don Neiland, which is to the north of the field that was used for the first two Fire on the Farm launches. Other than the large power lines back about half-a-mile to the south and the occasional smattering of trees here and there, there are relatively few obstructions and the land is fairly flat; it is quite suited for high power flying. The main impediment at this site is the restrictive 5,500 foot AGL (air-ground-level) ceiling due to this air space being used by the F-16's of the Air National Guard unit out of Sioux City (occasionally they could be seen and heard practicing nearby at low level though out the weekend).

Flies on the Farm (Day One)...

Friday, April 20th was almost an exact repeat of the experimental day of last year's Fire on the Farm: it was quite warm for middle April (around 80 degrees) and sunny, but there was one exception... it was pretty calm and was a very good day for flying! Because of the warm weather though, there were quite a few flies, some of them quite large, that were circling around and being a general nuisance. Since this was the experimental day of Fire on the Farm IV and also a work day, only the most hardcore rocketeers came to participate or to help set up.



The registration tent is set up early Friday afternoon. Unfortunately, it was damaged in the storm later that evening.



Lanie Cross (center), along with Fred Guis (behind Lanie) and Tim Covey (r), raise Lanie's rocket into position for the first flight of the day.

The first flight of the day was by Lanie "X-15" Cross. For his first flight, Lanie flew a scratch built design of his own powered by a Kosdon "Red" J class motor with an Adept Alts25 altimeter on board. Later on in the afternoon, he flew another scratch built rocket this time powered by a green flame I class motor (Thunder Flame?).

Tim Covey's only flight of the day was his scratch built *Mirak Mark I* powered by a RATT Works H180 Turbo Hybrid. This was his very first flight using this new motor. Dual stage deployment was used to bring the rocket safely back to the ground.

Roger Poe's only flight for the day was his scratch built *Midnight Express*. The motor was an APS I160 Redeye. After two unsuccessful attempts to fire the motor, third time was indeed the charm and the *Midnight Express* finally took off.

For the last several years, Bruce Lee, Tripoli treasurer and president of THOR, has used the experimental launches that THOR has conducted to fly his homebrewed Thunder Flame motors (Bruce took the class a few years ago). For this experimental launch, Bruce had prepared an H300 for flight in his modified THOY Falcon (which now uses the payload section of an



Hayley(l) and Ashley(r) with their father Roger Poe before three attempts to fly their father's rocket.



Those who flew rockets and burned motors (or were here just to hang out ☺) on Friday (l to r): Tim Covey, Fred Gruis, Bruce Lee, Jeff Thomas, Doug Holverson, Lanie Cross, and Roger Poe.



Bruce preps a Green Thunder Flame motor.

Fire on the Farm (Day 2)...

Just a few hours after flying on Friday had ended, northwestern Iowa was hit by some very strong thunderstorms and even a few tornadoes. While staying at the Burke Inn in Carroll, I can remember the 70 mile per hour plus winds slamming into the side of the building along with it heavy rain. By midnight, the storms started clearing out and I was able to get some rest.

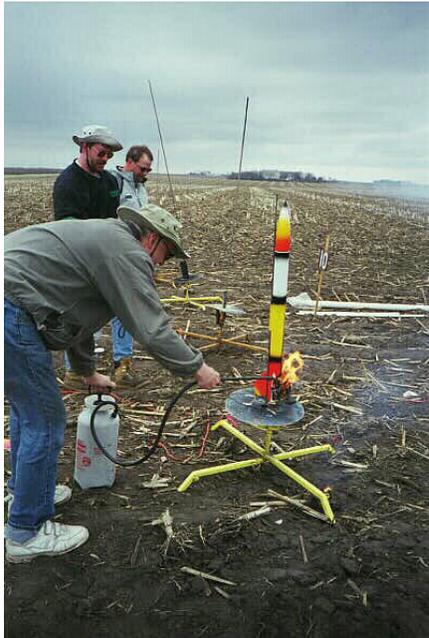
When morning came around, it was very windy outside and quite a bit cooler than the day before. The tent that was to have been used for registration and shade in general had been damaged by the high winds overnight. There would be a mix of clouds and sun throughout the day. Though the forecast had said that it was to make it into the 70's, the high never did get past the mid 60's (I wish I hadn't worn shorts out to the field!). Between 9:00 and noon, it looked like the launch was going to be a bust because the winds were constantly up around 20 to 30 miles-per-hour. By the time it had reached noon, the winds had slacked off to a more acceptable 15 miles-per-hour. And the wind gradually improved throughout the day with an occasional gust or two.

First up to the pad was Jeff Thomas with a G40 powered LOC Graduator. Instead of streaking into the sky, the G40 motor catoed! Instead of either the motor or rocket blowing apart, the bottom half of the rocket caught on fire! Bruce got the fire extinguished quickly, but the rocket was toast (no pun intended). Jeff won the Energetic Disassembly award for that flight! Jeff next tried to fly a LOC Legacy again on a G40. Again, the G40 catoed! This time only the motor came apart with no damage to the rocket. Jeff later attempted to fly a G33 on board the Legacy. This time the flight was a success! During the same day, Jeff successfully obtained his Level 1 and Level 2 Certifications. For his Level 1, flight he flew a scratch built rocket he calls

NCR Patriot). On top of that, Bruce was also using this flight to test out a new deployment system that uses a magnetic sensor to detect when apogee has passed... the ejection charge would fire after the rocket and sensor have tipped over 90 degrees from vertical flight. When the Falcon reached apogee and flipped over, the magnetic altimeter deployed the main chute and the flight was a success.

Though he didn't fly a single rocket during the entire weekend, Fred Gruis burned more ammonium perchlorate than anybody else did the entire weekend! The first three L motors that were static tested on the ground were a red flame L800, a red flame L1000, and a white flame L1000. All three motors were rated at about 3,000 N/S. The final motor was an M4000 rated at about 7,000 N/S. Since these motors remained at ground level, the sound of these motors was quite impressive! They produced some pretty cool flames, too! Hopefully, Fred will fly a rocket with one of these motors next year!

By the time the late afternoon rolled in, clouds had started to roll in and a bit of a light breeze had picked up. By the time 5:00 rolled around, the launch site was secured and most everyone headed back to Carroll for dinner and lodging. There was a total of 5 flights and 4 static motor burns on day one.



Bruce attempts to extinguish Jeff Thomas' LOC Graduator (Mark Uhlenkamp and Jeff, background).



Jeff Thomas with his Streaker ready for a Level 1 flight. Liftoff on an I284.

Streaker on an I284. For his Level 2 flight, he flew a stretched LOC Magnum on a J570. Congratulations, Jeff! Not too many people obtain two or more certifications in one day. Jeff also flew his *Streaker* once again on an I284 and a LOC Minie Magg on an H123. Jeff burned more AP on his flights (about 2,814 N/S worth) than anyone else that whole weekend (of course, Fred Gruis burned more AP period) and had more flights/flight attempts than anyone else the entire weekend (7).

Kevin Barger was one of the other flyers to successfully obtain both his Level 1 and Level 2 Certifications during Fire on the Farm IV. For his Level 1, Kevin flew his scratch built *Little Debi* on an H220 Silver Streak (see less of those classic motors all the time☺). For his Level 2, Kevin flew his scratch built *Uncle Sam* on a J415. Congratulations, Kevin! Kevin

also flew his scratch built *Andrea* on a G80 during the day.

For actual total number of flights, Jeff Moon had the same number of successful flights as Jeff Thomas (5). Jeff twice flew his Estes Enterprise twice on C6-3's (not sure if it was the Enterprise of *Star Trek* fame). On one of the flights, Jeff had the name rewritten as "Neverprize". Jeff also flew an Estes Javelin on a C6-3, he CHAD staged a C6-0 to the rear end of a A3-4T powered Estes Mini Marz Lander, and a PML Bull Puppy on an I357.



Jeff Barnes with his I-roc *My ex wife is a bi... uhm, I mean witch.*☺ Liftoff on an I161.

Jeff Barnes (what's the deal with all these Jeffs anyway?☺), Tripoli insurance guy and Prefect of the Tripoli Iowa Prefecture, had a variety of rockets to fly (still holding off on another Level 3 attempt for the time being). Jeff flew his LOC I-roc, which he nicknamed *My ex wife is a witch* (the "w" replaced a crossed out "b"☺), on an I161. To commemorate his 8th anniversary of his Level 1 Certification at a Danville, IA launch back in April 1993, Jeff flew the very same Level 1 rocket (a scratch build called *Spaceman Spiff* – after Calvin's, of *Calvin and Hobbes* fame, alter ego) on a single use Aerotech H124. Jeff also flew a J415 powered PML Triton Concept based rocket nicknamed *Spy vs. Spy* (after the spy characters in *Mad* magazine).

Tom Boston flew his Estes Python on a D12-5. Tom twice flew his NCR Phantom 4000 on G35 motors. On the second flight, the chute stripped resulting in a hard landing. Tom also flew his PML ¼ scale Patriot on an H123.

Tim Covey had the only two stage, high power flight of Fire on the Farm IV. The rocket was his scratch built *Zero/Mk I* with an I284 in the booster and an H180 in the upper stage. After a bit of a wobbly take off, when the upper stage ignited, a pinched O ring caused a burn through to happen on the H180. The altimeters, though, saved the day and Tim got everything back undamaged (even the motor casing that had the burn through). As Tim said in an email to me, "It looked lots worse than it was."

Four years ago at LDRS XVI at Hartsel, CO, Arley Davis' beautiful LOC Norad was severely banged up when it landed on a hill near the launch site littered with large rocks. Arley rebuilt the rocket using PML's Quantum tubing this past year and gave it a brand new finish. Arley flew his Norad for a successful flight on a G54. Arley also flew his Rocketman Thunder Chicken on an H238.

Brad Hanken joined the high power ranks with his H123 powered AMRAAM 4. Congratulations, Brad, and welcome to high power! Brad also flew his Aerotech Initiator on an F25.

Jay Helberg also joined the high power ranks on Saturday, too. Jay obtained his Level 1 with a PML AMRAAM 3 powered by a H242 (PML AMRAAMs always seem to be a very popular kit for Certification flights). Congratulations, Jay! Jay's sons also did some flying, too. Dylan flew his *Norma* on a B6-4 and Thomas flew an Estes Maxi Alpha on a D12-3.

For the last few years, it has become a popular sport for high power enthusiasts to beef up the Estes Fat Boy kit so it can be flown on 38mm I motors. Mike Kirkpatrick modified his Fat Boy to fly on an I357. The rocket took off like a bat out of hell. Because of the overcast sky, Mike was unable to keep visual track of the rocket and it was lost. Mike also flew a scratch built rocket he named *Statutory Grape* (yes, it's painted purple☺) on a J800.

Bruce Lee managed to get some flights in on Saturday even though range duties kept him busy. Bruce flew an Aerotech Mirage on a G104. The Mirage originally belonged to THOR member Scott Meinhardt who died from cancer last year. Bruce also flew a Ground Zero Air-Oh! on an H180.

Larry Mills has a literal air force of PML and scratch built AIM-120 AMRAAMs. For Fire on the Farm IV, Larry flew his AMRAAM 3 to an altitude of just over 4,000 feet on an I284. This would be the highest recorded altitude for Fire on the Farm IV and would result in him winning the 4,000 foot altitude contest. Larry has successfully cracked 7,000 feet with this AMRAAM 3 using a J570.

Ken Nanfita and his son Eric flew a number of PML and LOC kits. Ken flew the fairly new PML kit the Matrix on an H242. Ken also flew a PML Endeavor on an I300. When Ken was about ready to fly his LOC Minie Magg on an I300, it turned out that I was about ready to fly my Minnie Magg, *I Killed Kenny* (it's decorated with a bunch of South Park stickers), on an H242. We decided to have a drag race. I usually win a Minie Magg drag race using the old trusty H242, but Ken's I300 lit first and beat me by about a second or so.

After I had recovered my Minie Magg, I decided that the winds had died down enough so I could fly my *Macross Plus* on a K550. *Macross Plus* is named after one of the sequels to the 1980's Japanese animated classics, *Super Dimension Fortress Macross*. After prepping the motor and altimeter, I put aboard a special payload: a set of Super Deformed keychains of the VF-1 Valkyrie transformable fighters as seen in the classic *Macross* series. Other than a bit of an arc to its flight



Richard Burney (me!) with his LOC Minie Magg / Killed Kenny (picture by Greg Rothman) and then later with his K550 powered Macross Plus.

path, *Macross Plus* reached an altitude of about 2,200 feet and landed about half-a-mile to the south in the very same field we had used for the first two Fire on the Farms! The keychains were recovered intact and I won the 2,000 foot altitude contest. It was definitely a good day for me! The K550 I flew was the most powerful motor flown that weekend at Fire on the Farm IV (1,700 N/S).

Matt Jones flew the only other K motor for the weekend. Matt flew his *Dunno* (guess he *dunno* what to call it☺) on a K1100 (200 N/S less powerful than the K550, but a much bigger initial kick!) for an excellent flight. Matt also flew his *Yellow Jacket* on an I211.

Kevin Rich had two flights on his PML Callisto. Once on a G80 and then on H97. Kevin also flew an NCR Phantom 4000 on an H128.

Marc Riveland flew a successful Level 2 flight using a stretched Rocketman Explorer 7 powered by a J350. Congratulations, Marc! Marc also flew a Ground Zero Air-Oh! on an H123. Though Ground Zero (originally created and owned by several I-SOAR members) no longer exists, some of their kits, especially the Air-Oh!, continue to show up at high power launches in the Midwest.

Greg Rothman has been with THOR for only a few months so this marked the first multi day high power rocket launch he has been to. Greg flew an Extreme 24 on a D12-5. Greg also flew an Estes Broadsword on an E18 reload. This was the very first time that Greg had assembled and flown a reload motor. Hopefully by the time Fire on the Farm V rolls around, Greg might just have his Level 1 by then!

Kevin Trojanowski flew his 1.6X upscale of the classic Estes Mars Lander on an H128. This rocket is pretty cool to see fly! Kevin also flew a modified Estes Big Daddy on an H73. Just like the Fat Boy, the Big Daddy seems to be a popular choice for converting for high power flight (I can think of Mike Kirkpatrick's modified and upscale Big Daddy's). Kevin's son, Nicholas, flew an Estes Rattler on an A8-3.

Larry Vetter and family flew a variety of rockets. Larry flew a *Fire on the Farm* rocket (probably the kit was a commemorative kit by Glen Shearer from two years ago) on an A8-3. Larry's son Jeremy flew a Holverson Design Tangent on a B6-4, an Estes SR-71 on a C6-3, and a Gemini DC on a C6-3. Larry's wife Jane flew her first composite motor, an E28 in a rocket called *Black Bertha*.



Fire on the Farm IV: Class of 2001!!!

All together, a total of 81 flights took place on Saturday ranging from A to K in power. As with the previous three Fire on the Farms, a banquet and raffle was held at the Knights of Columbus Hall back in Carroll. After dinner, a raffle was held with various rocketry items that had been donated for our event. Most of the individuals who were planning on flying the next day, retired to several different hotels in the Carroll area.

Flood on the Farm (Day Three)...

When Sunday morning rolled around, scattered rain and drizzle had been occurring in the area since right before dawn. The cloud ceiling was only a few hundred feet or less in some places (when I was heading back to Omaha, I could see that the tops of a few grain elevators that were less than a 100 feet tall were disappearing into the low clouds!). Since the ground was a bit muddy, the cloud ceiling was quite low, and the forecast for the rest of Sunday looked pessimistic, the third day of Fire on the Farm IV was canned. The launch pads and equipment was taken down and packed by the few people who showed up to the field. Fire on the Farm IV had come to its conclusion.

Conclusion...

All together, a total of 86 flights and 4 static motor test took place by 48 flyers. A total of 91 motors ranging from A to M were burned resulting in approximately 43,605 N/S expended. Here is the breakdown of the motors used: 4 A's, 3 B's, 10 C's, 4 D's, 2 E's, 2 F's, 12 G's, 23 H's, 15 I's, 10 J's, 2 K's, 3 L's, and 1 M.

There were 9 Certification flights, all of which were successful. Level 1 Certifiers were Kevin Barger, Brad Hanken, Jay Helberg, and Jeff Thomas. Level 2 Certifiers were Kevin Barger, Randy Braye, Jon Chambers, Marc Riveland, and Jeff Thomas. I-SOAR had sponsored four contests and trophies were handed out to the winners of those contests at the Saturday night banquet: Experimental Special Award (Fred Gruis), 4,000 Foot Challenge (Larry Mills), 2,000 Foot Challenge (Richard Burney, me!), and the typical Energetic Disassembly award (Jeff Thomas).

Special Thanks...

Without the contributions of many individuals, Fire on the Farm IV would not have been possible or as successful as it was. A special thanks goes to Don Neiland for letting us fly from his land for the last two years in a row now. It would be difficult to conduct a high power launch like this without any suitable land to fly from! There were many individuals within both THOR and I-SOAR who contributed both time and resources, many of which were mentioned above. In regards to the raffle, about a half dozen companies and individuals generously donated stuff for the auction: Mike Collins (Midwest Aeromodeler), Ky Michaelson (Rocketman Enterprises), Ross Dunton (Magnum Hobbies), and Mike Kirkpatrick (Fire on the Farm shirts). Various items that had belonged to Scott Meinhardt, such as his 54mm reload casing set, were also part of the raffle.

Finally, a special thanks for everyone who came out to fly and to watch despite the less than perfect conditions. If no one had shown up for the event, there would have been no Fire on the Farm to write about! We can only hope and pray that Fire on the Farm V will be an even better launch.

THOR Meeting Minutes: May/June

Compiled by Richard Burney, Secretary

THOR Meeting Minutes 5/1/01

Attendance: Richard Burney, Greg Rothman, Erin Rothman, Kevin Rich, Devin Rich, Doug Deden, Kevin Trojanowski, Bruce Lee, Tobe Wood, Mike Tolfa, Arley Davis, Candy Davis, and Mark Scott.

Meeting starts at 19:20.

Bruce talks about the highlights of Nebraska Heat IV.

Low power launch on the 13th to remain in place (even though it's Mother's Day). High Power launch at Pickrell on the 19th.

Bruce shows the altimeter bay and wiring setup he has for his NCR Patriot's payload section. Shows the magnetic altimeter he has made that's design to fire it's

charge once the rocket has tipped 90 degrees from vertical orientation (typically when apogee has been reached). A guy at MIT is making these for \$30.

Kevin Rich decided to make a reefing system to reduce the loads on a parachute from a high speed deployment. The reef will keep the chute from fully opening until the rocket has started slowly down.

Greg Rothman is building various Vaughn Brother Extreme kits (the 24mm and 38mm versions). Needs advice on shock cord types and mounting.

Rich Burney and Greg Rothman's Fire on the Farm IV pictures are up on the THOR website.

Arley shows some classic kits he got hold of recently: a Centuri F-104, a Centuri Flying Saucer, an Estes Soaring Eagle flex wing glider, and a Centuri Skylab. Arley has the Estes 2001 flyer showing the new and the rerelease of classic kits for this year. Passes around some of the kits for members to check out.

We're hoping for a better banquet or possibly a cookout for Nebraska Heat IV. Night launch on Saturday after banquet.

Ky Michaelson missed out on Fire on the Farm because he was conducting a press release in regards to the next CSXT edge of space attempt.

The final dates and contests are decided on: June 10th – spot landing, July 8th – streamer duration, August 12th – 1/4A parachute duration, September 9th – egg loft.

Meeting adjourned at 20:55.

THOR Meeting Minutes 6/5/01

Attendance: Bruce Lee, Richard Burney, Jeff Moon, Jacob Davis, Arley Davis, Candy Davis, Kathy McGinnis, Denis Gilbert, Tobe Wood, Doug Deden, Mike Slater, Nathan Slater, Jon Damme, Kevin Rich, Devin Rich, Kevin Trojanowski, Doug Holverson, and Larry Drake.

Meeting starts at 19:25.

Mike and Nathan Slater are introduced to the group. Hypertek hybrid motors up to M class have now been certified.

Larry is doing a nitrous fueled, rocket powered go-kart.

Jeff Moon has a few projects in the works: rebuild flying saucer kit, Level 2 project using one of Scott Meinhardt's rockets, and a LOC Magnum.

No Kosdon motors allowed at future launches (certifications expired).

Arley Davis shows pictures that he took at the recent sci-fi convention at the Civic Auditorium on the weekend of May 5th (star attractions were some of the actors from Star Wars).

Kathy McGinnis talks about the PML kits she got recently. When the UPS guy saw one of the kits, it turns out the UPS guy is used to delivering rocket stuff for Bruce Lee!

Denis finished his NCR Lance Beta recently. Tobe shows that BIC pens can be converted into model rockets by using the Quest Micro Max motors.

Jon Damme wants to try an E motor on his "Ringy-Dingies" rocket. According to Jon, Hobby Lobby was getting rid of Estes Command Controllers for \$10 a piece.

Kevin Rich – quick links can vary in quality. Kevin recommends ones made in France. You can get "made in France" quick links at Westlake (stainless steel ones, too!). You can also get delta links at Westlake. Kevin passes around reference guide for parachute (and cord) materials.

Doug Holverson shows the schematic for a launch controller, which could possibly be part of Holverson Design/Fun Rockets.

Larry Drake talks about numerous individuals (including a professor in Japan) who have done large water rockets.

Arley does a fiberglassing demonstration.

Treasurer's Report: Both THOR and I-SOAR will make a net profit of about \$170 from FOTF IV. \$702.59 is in the bank right now. There were \$760 in proceeds from the March auction. \$180 will be paid to the Community Center for renting space for the rest of the year.

Nebraska Heat IV – Holiday Inn is already booked. Beatrice Inn (\$40 range) is available. Banquet choices – Sirloin or More in Beatrice or Terry's Restaurant in Pickrell. Terry's is offering to cater lunch at the field, too. Motion is made and past for Terry's. Scott Meinhardt's 38mm motor casing set and other goodies will be up for the raffle. Night launch after the banquet on Saturday evening. Waiver for 8,500 feet AGL.

Spot landing contest on Sunday, June 10th (*Editor's note: I won first place!*☺).

Polls for the club's tent need to be fixed or replaced/ Motion made and passed to replace tent.

Meeting adjourned at 21:15.

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NAR SECTION 562 Leader

Arley Davis

The Heartland Organization of Rocketry ("THOR") is an officially sanctioned section, #562, of the National Association of Rocketry (NAR).

Tripoli Nebraska #46 is an official Prefecture of the Tripoli Rocketry Association, Inc.

If you are interested in joining The Heartland Organization of Rocketry (T.H.O.R.) simply fill out an application and mail it to:

T.H.O.R.
6211 South 141 St.
Omaha, NE 68137

Meetings are held the first Tuesday of each month, 7:00PM at the LaVista Community Center at 8116 Parkview St, La Vista NE (turn east at the Sinclair Gas Station on 84th St.). Visitors are welcome to attend. For club launch time, launch location or general information call The Heartland Organization of Rocketry at 402-896-2069. THOR strictly follows the safety guidelines set for by the National Association of Rocketry and Tripoli Rocketry Association, Inc.

For more information call The Heartland Organization of Rocketry at (402) 896-2069 and leave a voice mail that will be returned in a few days.

T.H.O.R Membership Application

Personal information

Name: _____

Address: _____

City: _____

State: _____ Zip Code: _____

Phone Number: _____

Email Address: _____

Hobby information

How long have you been involved in Rocketry? _____

Are you a member of a national Rocketry Organization:
NAR# _____ TRA# _____ NERO# _____

Rates (1/2 year memberships divide by 2 and add \$1)

Family membership - \$36

Senior (18 and up) - \$24

Junior (under 18) - \$12

Correspondence - \$10

(people over 50 miles from Omaha)

Newsletter only - \$6

(6 issues per year)

**Membership in The Heartland
Organization of Rocketry is open to
all interested parties.**

I agree to comply with the THOR policies as pertains to the safety guidelines set forth by the NAR and Tripoli. Failure to do so is grounds for expulsion.

Signature _____

Dated: _____