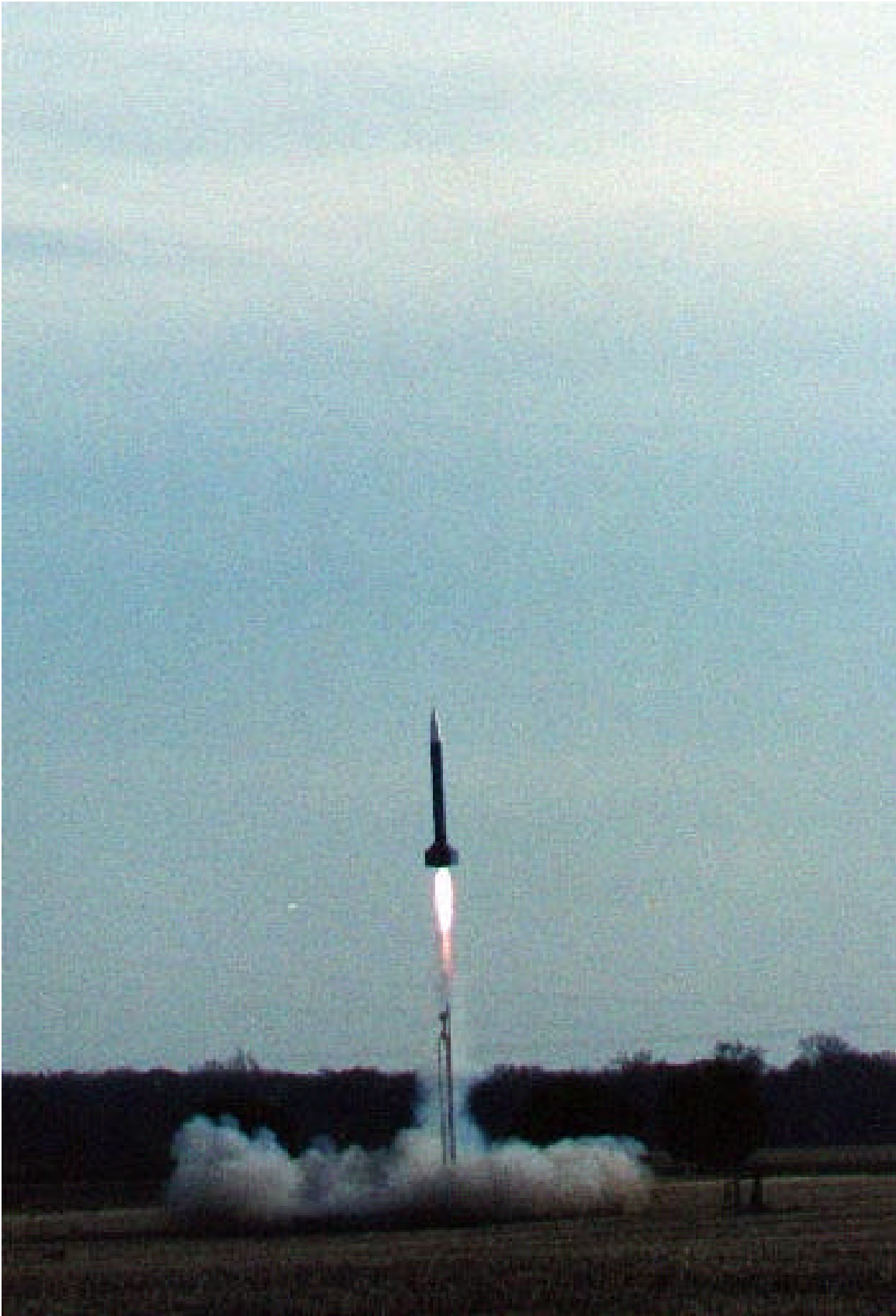




Maryland Tripoli Report

Volume 3, Number 5



Cover: Ed Miller/ Roger Dwyer Thunderhead

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Editor Bob Utley

Another year bites the dust and our club is growing in leaps and bounds. We have our own insurance, have been incorporated, and even have a Board of Directors. Next year we will see even bigger things on the horizon. We are planning a group project, an analog 27 pad launch system, another cell and brain box for our current system, and a on site storage container for the club.

I want to thank Bill Schworer for the Direction Finder and getting it in on time, now if I could do the same. Also Neil McGilvray for his continued twisted humor on the launch reports.

TREASURE REPORT:

Treasurer Dave Weber

We have about \$3000.00 in the bank in the November report.

December report I was absent.

Rocket Radio Direction Finding:

A number of questions have been asked recently about the rocket radio direction finding equipment that several members have brought to the last few launches. Member interest was recently peaked when Bob Utley successfully recovered his rocket lost because of the "slight breeze" at the last Price launch. Bob's rocket was equipped with a beacon transmitter and he found it completely out of sight at the bottom of a ditch by using the tracking system. This short article describes the development of the direction finding (DF) system used by Bob to recover his rocket and how other members can use the same system.

Like many of us, I flew model rockets as a kid. My family moved to the Phoenix area in 1967 when I was in the 7th grade, and a lot of my new found friends were flying model rockets built from kits and parts supplied by Centuri, a company many

of you will remember. We had a blast flying, partly because we were shooting off rockets right out of our "back yards" (we had 20 acres each in our "subdivision"). I guess you could say we were spoiled, because unlike the East Coast, the desert made it easy to always get our rockets back. A lot of us went for altitude because we didn't care how far the parachutes drifted, and we built many combinations of some pretty high performing two and three stage minimum diameter rockets. My interest in rockets quickly faded after my family moved to the San Francisco Bay Area and I started losing even low flyers in the trees.

Fast forward 31 years to Whitakers, where my level 2 certification flight on a PML Endeavor with motor ejection went up almost 5000 feet on a J180. The parachute popped out right at apogee, and I then spent the better part of several hours wandering around the farm field about a mile downwind from the pads looking for the rocket. Although I found mine, that day several other flyers lost their high power rockets from the combination of altitude and wind. This part of high power rocketry certainly wasn't any fun, and brought back old memories of quitting the hobby years ago out of frustration from losing rockets. Standing there in the farm field sweating in 95-degree heat and humidity, I made a vow that future flights above 2500 feet would be with dual deployment and a radio direction finding beacon transmitter.

The altimeter solution was an easy one, setting up a radio direction finding (DF) system was a somewhat more different problem. After a bit of research it became apparent there were no inexpensive commercial DF systems. Costs could be brought down to a more reasonable level by splitting the expense of a commercial receiving system among a number of flyers and letting each buy their own transmitter. However, that concept had problems because additional flyers would need to be found who were interested in going in on a DF system. Once the receiving part of the system was bought there were also the problems of logistics and coordinating receiver use at launches.

The use of a low power ham transmitter seemed to be a logical alternative. There are a number of low cost, low power ham transmitter projects documented on the Internet. Thanks to technology, scanners that receive the 2 meter and 70 cm ham bands can be purchased for \$100 or less. Low cost, small

but sophisticated ham walkie-talkies are also available for less than the price of a single K reload. The Radio Flyer flight control system detailed earlier this year in an excellent High Power Rocketry article used a ham Alinco DJ-S41 70cm walkie-talkie, which can be purchased by licensed hams for around \$80.

Wanting only the DF beacon function of the Radio Flyer system, a pair of these walkie-talkies were bought for testing. In order to convert a walkie-talkie into a DF beacon, a separate circuit needs to be constructed to cause the walkie-talkie in the rocket to continuously transmit an audio tone signal. Also, to comply with FCC regulations, the operator's ham license call sign also needs to be broadcast in voice or Morse code every 10 minutes or less. Derek Toepfen, WA0ETI, has developed a programmable circuit that beeps for 5 minutes, transmits the ham call sign in Morse code, and then repeats the cycle. The size of the board is about 1.5 inches square, and it runs on a 9-volt battery. The board is simply plugged into the mike jack of the walkie-talkie and both systems are turned on. With the Alinco walkie-talkie in the 10mW low power transmit mode, the combined system will run for many hours until the batteries die. Details on this simple beacon/ID circuit and board, which can be built for about \$12, are located on Derek's web page at <http://www.users.qwest.net/~derek/index.html>.

The Alinco and beacon/ID board were flight tested under at least a 12 G load in July at LDRS. The direction finding was done with a 15-year-old battery powered scanner. The receiving antenna and attenuation system were the same as described in the Radio Flyer article, which Jerry O'Sullivan had purchased to support his Radio Flyer flight control system. My son Will (age 12) did the actual direction finding. Although we both saw where the rocket landed on the sod farm, we "pretended" we didn't know where it was located. Will found it with no difficulty simply by listening to the audio signal strength and operating the attenuator. That was part of the test too, if a 12 year old could do it so could the HPR crowd!

The combined weight of the Alinco and beacon/ID board is about 9.5 oz., and it

will easily fit into a 3-inch body tube. Although fine for high power rockets where weight is not that much of a consideration, its size and weight is a problem for low and mid power rockets. Later this year we are going to work on integrating the beacon/ID board with a tiny single frequency Radiometrix 433 MHz ham band 10 mW transmitter, which can be bought assembled for about \$25.00. Details of this tiny transmitter are at <http://www.radiometrix.co.uk/products/txmsh eet.htm>. This combined unit will fit into a 29mm tube and with 9 volt battery will weigh about 2 oz. Of course, this smaller combination could also be easily used in high power rockets.

By now some members may be thinking, "Oh no, I'll need to get a ham license if I want one of these transmitters!" Don't despair, if you are capable of building high power rockets and passing a level 2 written exam then you are more than capable of getting a no Morse code Technician class ham ticket. Study materials are available from most Radio Shack stores and on line from the ARRL (<http://www.arrl.org/catalog/lm/>), these include the entire bank of questions and answers used on the test. Although the FCC issues the licenses, the actual exams are given frequently by ham testing volunteers. The no code, 35 question exam consists mostly of rules and regulations, not a lot of complicated ratio theory, because this is an entry level license designed to encourage further experience and knowledge of ham radio. The Technician license gives you all ham privileges above 30 MHz. Among others, this includes the ability to communicate through ham satellites and converse with shuttle and space station astronauts. I've been involved in ham radio for the last 20 years, it has been a lot of fun and there are a lot of great people in the hobby. To get a lot more information about ham radio, explore the ARRL web site at <http://www.arrl.org>

Bob Utley has invested in a PIC chip programmer so more beacon/ID boards can easily be made. As discussed on Derek's web page, the PIC chip is the "brains" of the beacon/ID system. When you supply your ham call sign and blank PIC chip, Bob will burn the ID program and your call sign into the chip for you. Bob also has templates for

the small circuit board, he can supply these as well. There should be enough receiving systems around at future launches so members won't have to build one for their own use unless they want to.

Bob Utley, Jerry O'Sullivan, and I are happy to answer any questions you may have on the DF system or getting a ham license.

With this low cost DF system Dave Bullis' can change his favorite saying to: "Keep the pointy end up and the fiery end down, and find 'em every time"

Bill Schworer
WC6P #6872

ESL 34: 10-28-29-00

It was a long time coming after a long drought this past summer, the first launch of the fall season. The good news is that our benevolent landowner, Tommy Higgs, recorded a bumper crop with this summer's seemingly constant rains. This meant that launch fields had to be rotated much in the same way Tommy rotates his crops. Our opening launch for the MDRA was held on the front field. With much of the corn still in, even at this late date we still had a reasonable amount of recovery area for even some of those high flying big projects.

By the looks of things there were as many as 250 cars parked at the launch site. Most of the Mid-Atlantic region was represented. There were license Plates from as far away as Massachusetts and North Carolina. MDRA launches have grown from small club launches highly visible regional launches. Most of this is due to all the hard work done by Dave Bullis and crew. But none of this would be possible without the support that Tommy Higgs has thrown in our direction. From all involved, I know that I speak for hundreds of avid rocketeers when I say "Thank-You".

Anticipation was high during the days that were leading up to countdown time. Performance Hobbies and Zeppelin Hobbies were on site to serve up a little taste of what your next project might be constructed out of or powered by. The Road Kill Café was also up and running to give the crowd a taste of what they might be

salivating for. We were looking at as many as 10 M flights and multiple certification attempts at all levels, 1, 2, and 3. Adding to the anticipation was that RATS, Roar At The Shore in Southern New Jersey, had been cancelled. Unconfirmed reports say that this might be permanent. Many of our friends from the New York and New Jersey area planned to make the trip to Maryland to take advantage of one of the premier fields on the East Coast. The local members were chomping at the bit also. With an extra long summer to prep all those special projects, there was only piece of the puzzle missing, cooperation from Mother Nature. She decided that it would be a better weekend for a sailing regatta, than a rocket launch. Winds were up in the 19.9999 MPH range almost all weekend with temperatures in the 50 range. That did put a damper on the possibility of launching some of the larger projects, but in true MDRA spirit lots of AP was burned despite Mother Nature's cold shoulder that was turned our way.

With all that was thrown against us, there were still almost 200 flights put into the rather dynamic Maryland skies this weekend. Many of the flights were in the lower power range due to the conditions so this report will focus on the highlights of the individual flyers.

Alistair Andrulis flew his Estes Nike K on a C-6, Andrew Bahls launched 5 scratch built rockets in the A to C range. Ivan Barnsley, never one to let the wind get in the way of having fun put up 5 of his creations in the F to J range. The highest power flight was his Loud As It Looks powered by the popular J-350. It is nice to see Ivan moving into this power range. With his creativity I am sure he will have some interesting surprises for us in the future. David Bathras flew his SA-14 Archer on a G-64. Rick Brown was almost thrown in jail with his fashion fo-par he calls Kathy's Ugly Rocket. It is named this for a good reason and typically flies as good as it looks.

Dave Bullis decided that more mass was the order of the day as he attempted to fly his all metal Armor Of God on a J-350. Dave decided to use his level 3 launch tower at the away cell for this flight and as fate would have it that was a good idea. The nozzle on the J-350 fractured, spitting the guts of the motor and disallowing any chance for a motor ejection recovery. In

typical Bullis fashion that we have come to admire. Dave's rocket came in ballistic and survived the sudden stop with barely a scratch. Look for this rocket again at a launch near you. Dave also teamed up with almost Tripoli Board member, Brain Slojick to fly a H-160 in a Lil-Nuke. Dustin Crabtree came to fly and fly he did. Dustin had a great flight on his Amraam powered by an I-435. Inspired by the success of this flight, Dustin put up his Big Red on a L-1700. With the past performance of this vehicle, the thought was "what could go wrong". Just hang around rocketry long enough and you will see. The rocket screamed into the clear, somewhat breezy sky, began its 2-stage recovery as planned at apogee, but that's where the good luck ran out. The Big Red rocket never deployed the main chute and came down in pitiful heap. We hope that repairs can be made, as this rocket is always one to watch. Or is that watch out for.

Jerome Craig put his scratch built Carbon Fiber CF Wonder up on a H-242 for a nice fast flight. Lino Crossotti flew his Estes Mach 12 on a C-6-3. John Davies launched his Loc Graduator on a F-25. Vaughn Dickerson did the same on his PML Minnie BB on a H-180. Emily Doughty launched her Green Lantern on a F-25 and brother Zachary lunched an A-10. Michael Ficke took to the skies on a D-12 and E-15. Tom Francesca left them in his dust with his Top Fuel on a H-80. Ivan Galysh had his Arreaux looking north on a F-23. Andrew Gray tore up the pads launching his Aen on an A-8. David Green got in three flights on this breezy day. The highest power flight was his nameless scratch built rocket on a H-123. Sean Guilday had his LOC Graduator in the sky with a F-25. Steve Hackett flew a F-62 in his Phantom 4000. Todd Harrison did the same with his Explorer on a G-40.

Mike Henry launched his rocket named Double Trouble for an appropriate two flights on I-211's. James Kelly had his Arcas flying on a g-38. Greg Kendig used a H-55 to send his Patriot skyward and his son, Jack, had the awesome power of the mighty A-3 propelling his Mars Lander into orbit. Harrison McAndrew had a H-180 working the business end of his Semi-Dynamic. Kevin McGee flew an F-62 in his Eliminator. Stuart McGilvray had I-300

power in his school science fair Amraam for a sub-nominal flight and a sub nominal recovery. Damm canards!! Mike McHugh flew a G-120 in his rocket. Dave and Matt McKeown launched a Nike Smoke on H-220 power and a Black Brant on H-128 power. Glen McNemar let the dogs out with his Bull Pup on a J-480. Wind? What wind? Gary Meier got the same idea as he certified Level 2 with the popular J-350 in his rocket he calls O-Ryan. Congratulations Gary. Norm Miller had everyone cracking their necks as he flew his scratch built rocket on a J-700 for a screaming flight. Jim Miracle had a G-80 moving his Strong Arm off the pad. Captain Kirk Miskimon went to the final frontier with his Patriot on an I-161. Kevin Mitchell braved the winds to launch his Black Brant on a H-128.

Joe Montenrane had his Ninja working on A-10 power. David Morris Blasted his True Blue into the blue Maryland sky with J-275 powering his vehicle. Rick Oasen had G motors working his two flights on Silver Fox and Lilac Time. Eric Ohmir was zooming with his Areobee 350 with a H-220. Jerry O'Sullivan got everyone's attention with his High 5 on K-500 power. Greg Parrish fought off the butterflies to certify Level One with his Small Endeavor on a H-123. Way to go Greg. Scott Pearson was singing with his Danny "Boy" with a G-64. Ted Proceus peeled off the pad with his Orange Crush on a H-180. The Restivo's, Terry and Nathan, had Estes C power on their side. John Ritz was to the pads three times on hard-hitting H and I power. Mike Rossbacht flew his LOC Wren on an E-15. Mike "seldom seen" Rudiger made an appearance with his V-2 on an E-30. Steven Rumpf flew a G-35 in his Wart Hog. Dave Russell marched to the pads four times flying in the F to H range. The highest power flight was his Small Endeavor on a H-110. Michael Ruzzi had D-12's on his side this day. Dennis Sauer was looking up at his PML Miranda on an H-112. Fred Schumacher decided that he needed to build some new rockets and what better way to force the issue than slowly and painfully destroy the ones you have. Fred began this endeavor with his son's Josh and Phillip with their Blue Thing on an E-30, Raptor on a H-180 and YoYo Dyne on a D-12.

Kevin Scrimgear launched two rockets, the Bee and Black and white on E-

15's. Kevin Serdula went from a D-12 to a G-75 to a H-220 with his three launches. Chris Shughrue and brother David launched seven times on Estes power. David Sloan had his Bull Puppy in the air with a H-73 and his Endeavor with an I-200. Keith Soldavin launched three vesicles. His Climbing Crayon on a H-128, Cheap and Dirty, reminds me of an old girl friend, on a G-58 and Minnie Wookie on a H-242. Jim Sutton launched and lost then found intact some weeks later his Custom scratch built rocket for a belated Level Two Certification. Congratulations Jim. Patrick Sween launched an Alpha on B-6. Jim Szypula put up his Binder Design thug on a G-80. The Thomas boys, Keith and Phillip, launched tree rockets on C, F and G power. Tom Thompson blasted his Carolina skyward on a H-123. Curtis Turner had an I-420 pushing his rocket up and out of here fast.

Bob Utley decided that exercise was the order of the day as he rocked the farm with his rocket, Primo, on a DPS blend J-650. Nice red flame against the blue sky. The beauty of this flight was not so much that Bob actually got the rocket back but it was in the time he was gone recovering it and the peace and quite that we had in his absence. Keep flying them high Bob. Jacob Vilnoch was working the Estes pads with three B-6 flights. Cody Wright was waving his Tomahawk on H-128 power for a nice flight. Dave Young and J.R. broke out the big gun, their 7.5" diameter Patriot on a K-550. It was nice to see this big bird up and roaring off the pad as only a K-550 can do. When Dave and J.R. come to fly, they fly. Zoltan Phillips entered the world of high power with his successful I-357 flight on his Auk-1. Z also flew a G-80 to warm up on his Initiator.

Sunday October 29th did not look much better, despite all the praying that went on the previous night and day. As was the case on Saturday, Sunday's weather kept the larger projects on the ground, waiting to fly another day. The reality is that if you wait for perfect weather then you may never fly. A few hardy souls subscribed to this philosophy and took to the skies with their valuable creations.

Adam Brown put up his Halloween on a C-6. While Dad, Rick Brown, couldn't get enough ribbing in on Kathy Gilliland and flew Kathy's Ugly Rocket again on a H-97.

Ray Carlino had two flights. Ray flew his Maxi Magg on an I-195 and his Dispose-A-Roc on a G-25. Nothing like confidence. Dustin Crabtree had one of the most spectacular flights of the Day once again on his Amraam. Though it was one of the most spectacular it was also one of the shortest. Dustin flew what he thought was a slower Red Load K-600 and it turned out to be quite a fast Blue Load in the K-1700 range. The Amraam shredded in a million pieces as it pasted through Mach at about 1.5 seconds into the flight. Though the rocket was totally destroyed, which was real cool, the Altec accelerometer survived to provide a read-out of 750 miles per hour at the moment of destruction. Kids, don't try this at home. In the true spirit of a die-hard rocketeer, Dustin was seen later in the day purchasing a large 3" M-3200 casing from Performance Hobbies.

Lino Cressotti launched his March 12 on a C-6. Jeff Davenport came ready to fly and fly he did with his Callisto EXP on a H-242, GG II on a H-180 and his Sky Raider on a J-350. Lew Garrow flew his Black and Tan on an I-284. Kathy Gilliland flew her Sun Seeker, featured in the latest Point 39 Productions video of LDRS and Small Balls, on another one of Bob Utley's J-650 Red DPS loads. Red and Yellow?? A little bit of a color clash, don't you think? Frank Giorgianni reached for the stars on his Amraam 4, tearing up the sky with a J-800. David Green put up another scratch creation on a H-123. The Grossman's Dan, Ed and Edan kept the Estes pads busy with 5 A and B flights. Mitch Guess had 4 flights in the C to H range. The most notable was his H-180 flight on his Endeavor. Sean Guilday had H power working for him. He launched his Woosher-1 on a H-128 and his Patriot on a H-242.

Todd Harrison launched his Iris on a F-25. Mr. Scale, Mark Henning launched 4 rockets in the E and F range. Mark created a scale of Ray Halm's 4 M-1939 powered Aries rocket that was flown on 4 -E15's. I had the pleasure of pushing the button for this flight, at the count of 3 instead of 0 like most launches. Lesson Learned. Don't touch the button until you are ready to really push it. Ray was present for the flight, which caused about 2 seconds of embarrassment, but I got over it. After the flight Mark presented ray with the model. James Kelly

launched his Thunder on a C-6. David Lappert launched his Lightning Spark twice on H-128's. Craig Lemoncelli launched his Spaz on a H-242. Scott Lissit put his Initiator up on a G-40.

Kevin McHugh flew his Red Dog on a D-10. Mike McHugh put his Black Brant up on a G-75 for a nice flight. Matt and Dave McKeown powered their Patriot with a G064. Glenn McNemar turned some heads with his Special K boosted by a J-480 for a booming flight with lots of snap, crackle and pop. It just goes to how that High Power is not just for breakfast anymore. Gary Meier flew 4 rockets, his Strong Arm, Arcas, Onyx and Initiator in the F and G range. Tobin Milkas had his Endeavor moving on an I-170. Norm Miller was burning AP quickly with an I-300 in his rocket. Kevin Mitchell was serving notice in these high winds with a J-800 in his Bruiser. If you are going to buy'em, better fly'em. David Morris had his scratch built scratches flying high on an I-300. Scott Pearson lit 2 D's and two F's for four nice flights. Joshua and Warren Pelton were burning up the Estes Rack with four flights in the C to E range. John Ritz had I-400's working in his Mynee Magg and his Magnum. Listed as a flight, but I don't believe flown was Arnold RoQuerue with his LOC V-2 he called Hope. This was an interesting rocket nonetheless. It had magnetic launch lugs and was to fly on an Ellis Mountain M-1000. "Hope"fully we will see this flight for real in the near future. Dave Russell had two flights with his Saturn V on E-16 power and two flights on his Initiator on G-33 and G-64 motors. Wayne Sandberg got his Black Brant into the diminishing winds twice with J-275's doing the work. Fred Schumacher flew and quickly disassembled his venerable rocket Saber on a J-250. Fred learned a painful lesson by attempting to perform a two-stage recovery with a none functioning altimeter. Remember, gravity always wins. Fred then moved into his comfort range and launched his Estes Big Bertha on an Aerotech E-30 Composite Rocket Motor. This motor has the capability of lifting up to 1.3 pounds comfortably at a nice safe 5:1 lift off ratio. Fred's young son Josh also launched an E-30 in his scratch built Out Of His Mind. Josh successfully got his rocket back.

Kevin Serdula had his rocket The Speeder in the air twice on H-238's. Bryan

Slojick had all eyes turned to the C rack with his 6" diameter Electric City. Bryan launched this on a J-400 for an impressive flight. Bryan was also involved with one of the biggest rockets to leave the ground this weekend as he teamed up with the Swackhammer boys to launch the K-1000 powered Rattler-7. An Impressive flight was followed by recovery at apogee and a soft touch down. Nice job guys. Joe Sorrentino had three flights off the Estes pads in the A to D range. Jim Strauss flew his Loc IV on a H-128 and had a blinding flight on his Mach Buster being pushed along with a F-72. Patrick Sween had his Alpha moving on a G-125 for a nice fast flight. Robert Taylor punched his Scratch built Shrike with an I-357. Phillip Thomas was at it again for three flights on his scratch built rockets in the D to F range. Tom Thompson had Weezer huffing and puffing on a H-123. Dave Weber finally found time to put a couple of his creations skyward. Dave flew his Minnie Magg on a H-123 and Blinky into the dusk sky on a G-80. Zoltan Phillips received his Level 2 with the flight of Auk-1 on a J-350. The Auk tore into the clear sky and though the chute deployed at apogee and the rocket floated to parts unknown the flight was considered successful. Congratulations Z, we are looking forward to your future flights as you claw your way up the High Power ladder.

All in all it was a successful weekend. Not what we had wished, but I guess that makes you really appreciate when the wind is down and the temperature is up. As always a big thanks go out to Tommy Higgs for the use of his land. Also thanks go out to all of those of you that volunteered with running the launch. Many hands do make the going light. Till next time. Fly high and recover low.

Neil McGilvray

**ESL 35:
11-18-19-00**

The second launch of the fall season looked like dejavu all over again. Not another October launch! But as luck would have it the weather would take a turn for the better, as far as temperature and wind velocity were concerned. Skies were

overcast wind was in the 10 MPH range and Temperatures were in the 40's. It could have been better, but then again it could have been much worse. A smaller group of determined rocketeers was present for this launch. But unlike our October launch, High Power was the order of the weekend. All systems were go and the panel was armed. Weather wise this was our first real launch of the fall season and it was almost Thanksgiving. We were giving thanks that we could finally burn some AP in a big way.

Once again Tommy Higgs was to be our gracious host and head chef at the now world famous Road Kill Café. Nothing like putting some extreme heat and charring up some dead animal flesh. Performance Hobbies and Zeppelin Hobbies were also on hand to assist with those needed bits and pieces before and after some of the flights.

Wayne Anthony had two flights on Saturday with his Conquistador and Python Missile. Both of these rockets were flown on J-600's. Nice high flights were turned in both times. Tyler Bradley flew three rockets, his Titan, jabberwocky and Wac Corporal. Unfortunately the rocket Gods were not smiling on Tyler this day. Sometimes no matter how hard you try and prepare, it still feels like you are swimming up stream. The key in life is learning by other people's mistakes because you will never live long enough to make them all your self. Clark Carrington launched seven rockets between the E and H range. With all this flying Clark also certified Level One with his PML Io on a H-128. Welcome aboard Clark, now start rowing.

Kit Cowger certified Level Two with his Rocket Man Solar Flare on a J-250. This was a nice fast and loud flight. This means that you can sit next to Clark and row even harder. Just wait for that Level Three flight. John Davies was rocking and rolling in the G and H range with four flights. John flew a G-33, G-64, H128 and H-242. Mike DeBey flew three rockets in the E and H range. The biggest and most powerful being his Explorer Stretch on a H-128. A stretch rocket? Funny thing is that my rockets never seem to get longer, only shorter. Emily Doughty flew her Green Lantern on a G-80. Ivan Galysh threw three rockets up on F and G power. Lew Garrow had his High Power juices flowing as he flew two rockets. One was his Black and Tan on an I-211, I wonder

how much beer Lew really drinks and what his favorite flavor might be? Lew also tried his hand at clustering with a J-390 and 2 H-128s. Way to go Lew. Justin Gleiter flew his Lil-Nuke on a H-238, but it paled in comparison to his Osprey on a J-975. Or should I say a controlled explosion. This rocket literally tore off the pad for what had to be a supersonic flight. A bold jester indeed.

Mitch Guess had four flights into the overcast skies above Higgs farm. Mitch flew his Endeavor on an I-161, Graduator on a F-23, Endeavor again on an I-211 and his Arcas on a G-64. Sean Guilday had I-300 power working for him on his Patriot and Woosher I. Sean also flew his Onyx on a G-64. Larry Harris spread the power around between C and H range motors for four flights. The Hosmers kept the Estes Pads very busy with nine flights between Allen and David. The flights included some high C flights and some nice 2-stage flights on their Mongoose and Load Star. Bill Mantell was back at it again with his Eclipse powered by my favorite motor, the K-550. It's always a pleasure to watch Bill's flights. It goes to show that preparation does count for something. Joe May lofted five rockets skyward. Joe launched his Miss Emily and Miss Amanda on C-6 power. Joe also had two flights on his Disney inspired Aristocats on F-20s. Then Joe got down to business, the kind we know him best for. It was flight number 16 of the Dave Bullis designed and constructed Monster. The question is, how much Liquid Nails is really holding this rocket together? We may never know. Joe wowed the crowd with another one of his textbook flights on a Kosdon M-2240. A nice fast and loud boost was followed by a perfect recover. Sean McAndrew flew his Magnum EXP on K-400, DPS home brew I believe, power. As usual Sean did not let us down. Kevin McGee lit up the sky with his White and Blue rocket on a K-550. You have got to love those big birds belching lots of smoke and fire. Neil McGilvray continued launching the remaining 3 Science Project flights for son Stuart. These flights were three I-211s in the Amraam IV. Mike McHugh launched his rocket he calls Starship Enterprise on a G-75. Paul Miller launched two rockets on D and G Power.

The highlight of the day, launch, season, and year had to have been the

phenomenal launch and flight of Ed Miller and Roger Dwyer's monster rocket called Thunder Head. This beast was about 13 feet tall and 12 inches in diameter. It had a typical Ed Miller flawless paint job on it. But that was nothing compared to what this duo had planned. The rocket weighed in at over two hundred pounds and was to be launched on four K-1100s and four I-435s. These motors were going to provide the initial boost before the M-2500 was air started. Quite a challenge that many would never attempt, probably because it has never been done at his scale. That is until ESL #35. History was made on this day. Not only was this the largest rocket to be launched in Maryland, it was also the largest successful single stage air start on the East Coast and possibly the country. The rocket roared off the pad to the deafening scream of 7 motors lighting at once. One of the I motors did not light. But it was enough to lift this massive bird up and away. Then, almost like they planned it, the M-2500 blasted to life and continued the skyward push of this big blue rocket, to the cheers of the entire crowd. The rocket appeared to attain an altitude of about 3500 feet. The two-stage recovery worked perfectly with a drogue at apogee and the big main at about 1200 feet. The rocket was recovered without damage and will fly again. I can't wait. This was monumental task that was executed perfectly. Congratulations Ed and Roger. I hope they know that they just raised the bar. Stay Tuned, film at 11.

Kevin Mitchell got into a High Power mood with two nice flights. One was his Kluster King with a K-1100 augmented with 6 G-40s. Kevin also launched his Q Leap Booster with a J-200 for a nice long burning flight. Jerry O'Sullivan has come down with a case of M fever since stepping up to Level 3 a few months back. Jerry had an outstanding flight with his Sand Hawk on a M-1600. A fantastic flight with a flawless recovery. Nice going Jerry. Later in the season we are waiting for the M to M Terrier Sandhawk two-stage version of this rocket. Or will it be the N to M version. Jerry, if I could give you a little advice. Real men launch N's, take it for what it's worth. Scott Overfield launched his Initiator twice on E-16s and his Arreaux on a D-15. Ken Paduck had three flights in the D to G range. Graydon Pihlajh had the crowd stop what they were doing as he launched his Maxi-

Stomp on a K-550 for a nice flight and recovery. Jeff Potter wanted to hear the sky go "pop" with his Funsville on a K-1100. If going fast in a short period of time followed by going really high is what Jeff was looking for, I think he achieved his goal. Ted Proceus got two rockets into the air on Saturday. His Phoenix on a F-40 and his Upper Air Disturbance on a G-40. Both for nice flights. Kevin Quire not to be out done by rocketry buddy Jerry O'Sullivan launched his Iris on a Kosdon M-1130 for another one of the day's fantastic M flights. The flight was great and recovery was on target, but the beauty of this launch was a chance to witness a long burning Kosdon motor. Usually long burning and Kosdon don't go in the same sentence. If you have an M project that comes in under 50 pounds this may be the motor for you. A long flame and that trade mark Kosdon roar.

As we grow and expand our rocketry family more and more women are joining our ranks and it is a pleasure to see. This day would be no different as Lynn Reamy certified Level One on her LOC rocket she called Tabitha powered by a H-124. Congratulations Lynn, welcome to High Power. Bill "Mr. Smokin Rockets" flew his Arcas on a K-550. Personally I could watch K-550 flights all day. Bill's flight was nothing short of spectacular. If you are looking for a large-scale kit to build and fly, Bill is your man. Keep an eye out for him as he is at most of our launches. A nice guy that makes cool rockets. Josh Russell took to the air with 10 flights on 9 different rockets in the C to G range. Now that is commitment. Michael Ruzzi was not to be out done as he flew 11 times on 9 different rockets. You get these kids started early enough and maybe they will be trying this trick with M's when they get old enough. Fred Schumacher took to the skies with his Saber on a J-250 long burn motor. The long burn ascended the rocket to about 5000 feet where the first stage of the planned two-stage deployment was initiated as planned. What wasn't planned was the second half of the two-stage deployment to be asleep at the wheel. Alas, the poor Saber, we knew it well. Nice boost though Fred! The Shugrues, Chris, David Katie and Phil launched a combined 7 rockets, keeping the Estes rack and the A cells busy with B to G power. Patrick Sween launched his 3X Alpha on a F-50. Robert

Taylor had a neck cracking flight on his I-357 powered Shrike. Tom Thompson bumped it up a notch, Bam! Tom certified Level two with his rocket he called One Eye One Horn... Way to go Tom, Level three can't be far behind. Bob Utley was mixing Mud again and by some miracle, staying out of it. Bob launched his Primo on another one of his home brew J-650's for what only can be described as a nominal flight.

The after shocks are still reverberating through the rocketry world. Our very own Nelson Wallace has successfully certified Level Three. An Outstanding achievement for a guy that has probably flown more rockets than most new members combined. I said flown not recovered. Nelson worked closely with Maryland Tripoli TAP Committee Member Fred Wallace, is there a conspiracy here? Fred was determined that the first time would be the charm and it was. It must be something about that do it right the first time philosophy. Nelson constructed a scratch built Patriot and flew it on a Kosdon M-2240. After a couple of pre-flight mis-cues the rocket was screaming off the pad. Recovery at apogee went as planned and MDRA hatched another Level Three. Congratulations Nelson, it has been a long time coming and you deserve it. We are all waiting for you next M flight. Todd Weaver flew his Ultimate Wahoo on a L-1000. It is so nice to see the big guns out and flying. Dave Weber got into the act with four flights. A somewhat toasted "Kick The Bucket" on a G-35. Lots of base drag and high heat makes for a molten stabilizing system. But I will push the button on Dave's rockets all day. Tuber continues to make history with flight number 113 on a H-97. Dave also launched his Proboscis on a F-32 and his Hi-Tek on an I-284.

Steve Wilson launched his Aura on a G-40 for a nice flight. Darren Wright had people taking notice as he brought his beautifully painted up-scale Monster Manic to the pads. It was a good thing too. The L-650 motor that Darren chose to boost the Manic decided that blowing the nozzle and the back-end off the rocket 2 seconds into lift-off was a good idea. Hopefully repairs will be made and this model will fly again. With that disaster out of the way Darren then proceeded to attempt a cluster of a K-1100

and Two J-350's in his Phoenix. Sometimes it doesn't pay to get up in the morning, let alone put an igniter in a rocket motor. Remember Launching is optional, recovery is mandatory. That includes you too Bob Utley.

Day two, Sunday 11-19-00 brought the same overcast but lighter winds. The launch system was acting up on Saturday and the overnight repairs only seemed to make matters worse. A quick re-wiring of the cells allowed us to get on with the important business of launching rockets. 16 pads are better than none, and so the day began.

Wayne Anthony liked what he did so much on Saturday he did it again on Sunday. Wayne launched his Javelin II on a K-600, Conquistador on a J-600 and his Python missile on a H-142. David Bathras got three rockets into the air. David launched his Cheetah on an F-12, Wart Hog on an F-24 and Wac Corporal on a J-350. Now that's more like it. Carl Bryant had two F-25 flights on his Initiator. Dave Crosby blasted his Yoo Hoo off the pad with an I-154. Gary Deaver had three flights from D Estes motors to clustering a H-220 with G-45's in his rocket he called L-1. Bob DeRosa was looking up at his rockets twice. Bob saw his Minnie Magg fly on an H-242 and his Big Brute on a G-75. Gut DeStefano was smiling with the flight of his I-Roc boosted by an I-435. Lloyd Gold flew a little bit of this and a little bit of that with his five flights. Lloyd flew everything from a coffee can rocket he called Mr. Coffee, an original name, on a D-12 to his LOC IV on a H-124.

Augie Gray unveiled his latest creation. This time it was a scale model of a Harpoon Missile he called Ship Killer. That's what the purpose of the real thing is; don't make them angry they can ruin your day at sea. Augie spent the better part of a year constructing this rocket and it showed. He flew it on a K-700 for a picture perfect flight. Just the right motor for that size rocket if I do say so myself. Augie also launched his Bull Puppy on a G-97 for a nice flight. Adam Higgs launched his Cool Dude on a G-38 for a cool flight. John Kyte got lots of advice and launched his Black Brant on an I-161. John spent a lot of time on this rocket and the I-161 was cutting the power a little short. The short delay worked out great and next time we want to see John go Level Two with this rocket powered by a J-350. John the

rocket is screaming for a bigger motor. Scott Manning flew two f-52 flights on his Initiator and kicked his Lunar Express in the butt with an I-300.

Kevin McGee had more AP to burn after his K-550 shot the day before. Kevin launched three more times. Kevin put up his Strong Arm on a F-23, Phantom on a F-23 and his Sudden Rush on a J-350. They do boost a light rocket right into orbit. Neil McGilvray, yours truly, had been launching I-300's and I-211's in the Amraam IV for the past three launches to download data for my son Stuart's science project and had to bust something bigger off. I launched Udder Madness, my cow rocket, with a DPS L-1000 SRB blend. There is nothing like seeing a 33 pound rocket turn into a dot in the sky, unless you count getting it back in one piece. Which I did, no thanks to Bob Utley. The came time test the structural integrity of the Amraam IV. So I loaded it up with a K-550 and let it rip. Everything worked as planned and after a trip to a mile above Higgs Farm the Amraam will fly again. Ed Miller was still probably higher than any rocket flown all weekend with the phenomenal success of his clustered Thunder Head the day before. But like any true hard-core rocketeer he had fly something to keep those juices flowing. Ed flew his Tekyon on a H-180 and his UFO, flying saucer rocket, on a H-123. Kevin Mitchell flew his Black Brant II on an I-161 for a nice flight. Scott Overfield had his Initiator moving upward and onward with E028 power.

Graydon Pihlajh got in three flights. The most impressive being his Binder Design Excel on a J-570. Hard-hitting and high flying. Mark Polansky launched his Caliper ISP on an I-435 and his D region Tomahawk on an I-211. Both for nice flights. Ted Proceus had threes on his mind as he launched three more rockets on Sunday. His Upper Air Disturbance on a G-80, Big Yellow on a H-128 and his cluster of three motors. A H-238 and two I-150's in his rocket called 3's Crazy. Crazy-yes Cool-definitely. Wallace Rumbley got into the three thing with his three stage Prowler on a C-6/B-6/B-6 combination. Wallace also launched his Mirage on a G-75. Fred Schumacher used his son Josh as a human shield as he launched the poor boy's rocket on an I-300 with a faulty altimeter. Sometimes those

beeps can be deceiving. A great boost lifted Joshes spirits, but only until apogee when it became apparent that gravity was going to win this battle and there would be no chutes to assist in a soft landing. There is nothing more painful than seeing your pride and joy approach the ground only to disintegrate before your eyes with that dull "Thump". George Sechrist knows that feeling also. George had two good flights. One on his Minnie Magg and another on his bog Primed To Go. The second flight proved that Go was the operative word. The sad thing is that the longer you fly rockets the sooner you realize that with every push of the button, there may be crash with your name on it.

Don Shope had two flights one with a G-80 in his Legacy and one on a H-124. Rob Super flew two also. Rob put up his SR-3 on a F-20 and his Navigator 5 on a H-180. Patrick Sween had his Phoenix moving off the Estes pads twice on B-6 power. Speaking of Estes, Bob Utley had a custom blend Red J-650 rocking off the pads for an uncharacteristic nice flight and recover. Will wonders never cease? Fred Wallace had the need for speed as he launched his 5 By 80 on a K-700 and his Optimal 150 for a test flight on a Kosdon K-777 for a real cool flight. Fred should be putting this bad boy up on a M1419 one of these days. Nelson Wallace still coming down off his Level Three high from the day before had to withdraw by launching three more rockets. Nelson put up his Barracuda on a F-20 and his Night Hawk on a G-35. So much for launching rockets that actually looked like a rocket. Nelson then brought out a model of a Rocket Propelled Grenade that he had been planning to "launch" for some months. Well, the time had come. In typical Nelson Wallace fashion that we have come to love and run for cover on, the rocket part of this contraption came tearing out of what was left of the exploded "gun" part of the RPG. Un-aided by the retractable fins that were destroyed in the initial explosion, the rocket caused a few anxious moments. It is good to be back at square one again.

Dave Weber had some interesting rockets flying this day also. Dave attempted an air start of two G-45's off the main H-220 that powered his Archer. Unfortunately, the motors decided that it would look better if they air started independently of each other

and while the rocket was under chute. Cooooool! Dave also defied the laws of aerodynamics by flying a three sided UPS box that he attached fins to. Dave called this creation "Special Delivery". The funny thing about Dave's rockets is that the weirder they look the better they fly. Dave flew his Proboscus on a F-32 and finally moved up with the big pups and loaded a K-550 into his Skyraider. Way to go Dave, it's about time. Woof Woof. Steve Wilson flew his Bull Puppy on a H-123 and his Sandhawk on a H-128. Zoltan Phillips rounded things out with two flights on his SA-14 Archer. Flight one with a H-180 and flight two as a cluster of an H-220 and G-45's.

Once again the members of MDRA outdid themselves and set new standards for the Mid-Atlantic region. K motors, L motors and M motors have become commonplace at our launches and that's something to be proud of. It means that we have a high percentage of members that are Level Two and I am sure as a club goes probably have the highest percentage of Level Three members. None of this could be done without the our gracious host Tommy Higgs and his family, the hard work of Dave Bullis and all that help to make MDRA what it is today. Keep it safe and fly it high and recover it low. The sky is the limit, but only until we figure out a way to get beyond it.

Neil McGilvray

Project Liberty Update:

1-15-01

We are still looking for sponsorship to get the Liberty Project off the ground. If you are interested and would like to contribute a donation or would like to contribute a larger corporate donation, make the check out to:

MDRA Big Project

Mail the Check to:

Dave Weber

5383 Annapolis Drive

Mt. Airy, MD 21771

Or you can give the check to Dave at any of our launches or meetings.

Corporate sponsorship will entitle the sponsor space on the rocket for advertising purposes or just plain pride. The larger the donation, the larger the space available on the rocket. We can't be bought, but we can be rented.

If Making History Was Easy, Anyone Could Do It.

The purpose of the project has remained the same. MDRA will launch and recover the largest armature rocket launched this side of the Mississippi River. Once recovered, all contributors will forever be a part of High Power Rocket History. Recovery will be accomplished by the two-stage method. Expected altitude is in the 4000-foot range. We plan on breaking the vehicle in two at apogee. The rocket will fall, under drogue to about 2500 feet. At this point we will deploy the 105-foot diameter main parachute. The heaviest rocket "recovered" to date is "Down Right Ignorant" at about 825 pounds. The Liberty Project will weigh in at about 1000 pounds. This is a mark that should not be eclipsed in the near future, if ever.

The 4000-foot altitude is manageable on the "limited" recover rear that is available to the MDRA. The drift factor should be minimal and full main deployment will not occur until about 1500 feet, predicted. The project has been well thought out over the past months and all the major components are in our possession and close to assembly. The weight of the project has grown to 1000 pounds. This necessitated the need for a 105-foot parachute. Ask and you shall receive. Thanks to the homework Fred Wallace has done the requirement of the big chute was realized. Fred was instrumental in tracking the chute down and negotiating the deal. The chute weighs 114 pounds by it self. To put things in perspective, it would take a M-1500 just to launch the chute. The big canopy is orange and white striped, like an Apollo recovery chute. It will look awesome once fully deployed. Bring your camera.

Currently the preliminary sanding is complete on the 24" diameter fiberglass

tubes. Thanks to the hard work of Jeff Potter. The aluminum couplers have been fabricated and are ready for fit-up to the airframe. The design has basically stayed the same. The fin root may be lowered some to take advantage of a slightly lower CP. The ¾" Baltic Birch for centering rings has been purchased. I am waiting on final motor details before the thrust plates and centering rings are cut. The nose cone is under construction. Bob Utley, Dave Weber and Jeff Potter are working on this 8' tall behemoth. The tower components are in our possession. Fred Schumacher and Dave Bullis are working on this portion of the project. The tower will stand 50' tall and measures 20" X 30". The base will be constructed of 8" "I" beam and will extend out in an X fashion 12' in each direction from the base module. The legs will have leveling jacks to adjust the angle of the massive tower. Fred Schumacher will be providing a crane for assembly of the tower and placing the rocket on the rail.

As you can see a lot is happening with the project but this is only the beginning. We will be putting out a call for help in the following areas in the near future.

- 1) Help to sand and paint the tower.
- 2) Help to finish sand and paint the airframe. If anyone has access to professional painting equipment, this would be a big help. Dave might paint it with a roller if we don't watch out.

I am waiting for the final piece of the puzzle and when I have it there will be more information available. I would like to think that this project could be launched this spring. In order to do it, we will all have to pull together in a relatively short period of time. Just remember, this is rocketry and everything takes forever then it all has to be done at once. I am convinced that the members of MDRA are some of the best Rocketeers and most creative people around. There is no doubt in my mind that The Liberty Project will fly, will be recovered and will make history.

Neil McGilvray

Special Thanks:

Tripoli MD members.

I wish to thank everyone who helped Roger and I on Saturday. We do not know everyone's name so this has to be a group thank you. The help at the away cell was above excellent. With out it we could not have flown our project. It was a job too big for two people and took much more time than we anticipated.

It took almost two years to get us to this point in time. Roger and I were relieved that everything worked and went according to plan. After the previous launch, with windy conditions, and no flying, this launch was icing on the cake.

And a special thanks to Dave Bullis, who let us abuse his launch rail. I am not sure if the lift off scream was from our rocket or your rail.

Roger and I are planning to write an article for HPR. If any one has photo doubles, we would appreciate it if you could send them to us. Please include your name and address so we can give proper credit. If any of the photos are really cool, I may ask to borrow the negatives to get a poster size photo made. We will also accept VHS videos if anyone wants to make us a copy.

Thanks again to every one

Edward Miller

Lets do the numbers:

This past year Maryland Tripoli now known as Maryland/Delaware Rocket Assoc. (MDRA) saw an increase in attendants to our rocket launches. This is due directly to RATS closing down and lost fields of other clubs in the Northeast. So remember thank Tommy each and every time you see him, we are VERY lucky to have a person like him willing to allow us to use his land.

With that said the numbers for last year total launches are 872 rockets, 899 motors ranging from A to O and **530305** ns of AP burned. That comes out between an R and S motor, or 212,122 A motors, or 52 M motors. Either way that's some serious

amount of AP. The most used motor was an H at 139, G at 129 and C at 90.

249 Scratch built rockets flew, 208 Estes and 102 PML with the rest in 2 digit numbers.

Cert flights were 7 Level 1's and 2's and 3 Level 3, this seems like a low number to me, but then I can only report what is on the flight card, if I get one, hint, hint, hint.....Speaking of Level 3, a plug I know, we will have our first woman get cert. Level 3 this coming year, which I think is a first for the east coast.

Who had the most flights, well as much as you would think he doesn't have time from the way he talks, it's David Weber 27 total flights, the next closes was David Bathras with 17. Remember we are talking flights, don't confuse it with good flights.

The award for the best flight, the one I remember and continue to ride the owner about, the short big flight is Neil McGilvray's 400-foot N flight. Of course he also gets the award for the most AP burned, even if most of it was on the ground after that flight.

So there you have it 2000 was a pretty good year and we are still here for 2001. Having at least 2 launches a month (between Maryland and Delaware) it seems we have plenty to do and see.

Bob Utley

PERFORMANCE HOBBY

<http://www.performancehobbies.com>

Aerotech new RED motors are out and PH will have them in stock as soon as Aerotech releases them.

Almost anything you could need they should have. Phone (202) 723-8257, fax (202) 723-0010.

NEXT ISSUES:

- Launch report of Jan.
- Up coming Level 3 Projects
- Events for Mar & April

Keep The Pointy End
up and the Fiery
End down.
D. Bullis

<http://www.mdtripoli.org>

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Jerry O'Sullivan's Sandhawk.



Flight Log Oct 28-29, 2000 ESL #34

Flyer	Manufacturer	Model	Motors	Result
"Oct 28,2000"				
Andrulis Alistair	Estes	Nike K	C6-3	
Bahls Andrew	Estes	Big Daddy	D12	
Bahls Andrew	Scratch	Valkyrie-2	A8-3	
Bahls Andrew	Scratch	Reliant	C6-5	
Bahls Scott	Scratch	Finless Roc	C6-3	
Bahls Tom	Scratch	Ion Pulsar	B4-4	
Barnsley Ivan	Scratch	Let's Color	H128	
Barnsley Ivan	Scratch	Whistler	F40	
Barnsley Ivan	Scratch	Snack Pack	G104	
Barnsley Ivan	Scratch	Whistler Jr.	G54	
Barnsley Ivan	Scratch	Loud as it Looks	J350	
Bathras David	NCR	SA-14 Archer	G64	
Brown Rick	Scratch	Cathys Ugly Rocket	H97	
Bullis Dave	Scratch	Armor of God II	J350	
Bullis/Slojick/Dave/Bryon	Scratch	Lil-Nuke	H160	
Crabtree Dustin	PML	Amraam	I435	
Crabtree Dustin	Scratch	Big Red	L1700	
Craig Jerome	Scratch	CF Wonder	H242	
Crossotti Lino	Estes	Mach 12	C6-3	
Davies John	LOC	Graduator	F25	
Dickerson Vaughn	PML	Mini BB	H180	
Doughty Emily	Aerotech	Green Lantern	F25	
Doughty Zaehamy	Scratch	none given	A10	
Ficke Michael	Scratch	Rain Bow Flyer	D12	
Ficke Michael	Estes	Rain Bow Flyer	E15	
Frankonski Tom	Scratch	Top Fuel	H80	
Galysh Ivan	Aerotech	Arreaux	F23	
Gray Andrew	Quest	Aen	A8-3	
Green David	Scratch	none given	H123	
Green David	Scratch	Crayon	G104	
Green David	Scratch	Pyamid	D12	
Guilday Sean	LOC	Graduator	F25	
Hackett Steven	NCR	Phantom 4000	F62	
Harrison Todd	PML	Explorer	G40	
Henry Mike	Scratch	Double Trouble	I211	
Henry Mike	Scratch	Double Trouble	I211	
Kelly James	Aerotech	Arcas	G38	
Kendig Greg	Public Enemy	Patriot	H55	
Kendig Jack	Estes	Mars Lander	A3	
McAndrew Harrison	Scratch	Semi-Dyramic	H180	
McGee Kevin	NCR	Eliminator	F62	
McGilvray Stuart	PML	Amraam	I300	
McHugh Mike	Scratch	Scratch Built	G120	
McKeown Dave&Matt	Scratch	Nike Smoke	H220	
McKeown Dave&Matt	PML	Mini Block Brant X	H128	
McNemar Glenn	PML	Bull Pup	J480	
Meier Gary	Scratch	O-Ryan	J350	*Cert 2*
Meier Gary	Aerotech	Mustang	F24	
Miller Norm	Scratch	none given	J700	
Miracle Jim	Aerotech	Strong Arm	G80	
Miskimon Kirk	Scratch	Patriot	I161	
Mitchell Kevin	Scratch	Black Brant II	H128	
Montenrane	Joe	Scratch Airwalker	C6-3	
Montenrane	Joe	Estes Ninja	A10	
Montenrane	Joe	Estes Ninja	A10	
Morris David	Scratch	True Blue	J275	
Oasen Rick	V.B.	Silver Fox	G80	
Oasen Rick	LOC	Lilac Time	G38	
Ohmir Eric	Scratch	Aerobee 350	H220	
O'Sullivan Jerry	Scratch	High 5	K500	
Parrish Greg	PML	Small Endeavour	H123	*Cert 1*
Pearson Scott	Binder	Danny	G64	
Proseus Ted	Scratch	Orange Crush	H180	
Resivo Terry	Scratch	TR3	?	
Restivo Nathan	Estes	Nova Payloader	C6-3	
Ritz John	Scratch	Mynee Mag	?	

Flight Log Oct 28-29, 2000 ESL #34

Flyer	Manufacturer	Model	Motors	Result
Ritz John	Scratch	Stretched Mynee Magl	321	
Ritz John	Scratch	Insaniac	H365	
Rossbact Mike	Thoy	Wren	E15	
Rudiger Mike	Scratch	V2	E30	
Rumpf Stephen	Aerotech	Wart Hog	G35	
Russell Dave	PML	Small Endeavour	H110	
Russell Dave	PML	Small Endeavour	G38	
Russell Dave	Aerotech	Initiator	F40	
Russell David	Aerotech	Initiator	F25	
Ruzzi Michael	Estes	Silver Comet	D12	
Ruzzi Michael	Estes	Python	D12	
Sauer Dennis	PML	Miranda	H112	
Schumacher Fred	Scratch	Blue Thing	E30	
Schumacher Josh	Aerotech	Raptor	H180	
Schumacher Phillip	Scratch	Yo Yo Dyn	D21	
Scrimgear Kevin	Rocket Teck	The Bee	E15	
Scrimgeour Kevin	Rocket Teck	Black & White	E15	
Scrimgeur Kevin	Scratch	Rebecca-Dud	B6-4	
Serdula Kevin	Scratch	Regal RPIA	G75	
Serdula Kevin	Scratch	Roar	D12	
Serdula Kevin	LOC	Glory	H220	
Shughrue Chris	Estes	Alpha	A8-3	
Shughrue Chris	Estes	Hyper X	B6-4	
Shughrue David	Estes	Sidewinder	C6-3	
Shughrue David	Estes	Spitfire	B4-4	
Shughrue David	Estes	Sidewinder	C6-3	
Shughrue David	Estes	Sidewinder	B6-2	
Shughrue David	Estes	Goliath	B6-2	
Sloan David	PML	Bull Puddy	H73	
Sloan David	PML	Endeavour	I200	
Soldavin Keith	Scratch	Climbin' Crayon	H128	
Soldavin Keith	Scratch	Cheap & Dirty	G58	
Soldavin Keith	Scratch	Minnie Wookie	H242	
Sutton Jim	Scratch	Custom	K350	
Sween Patrick	Estes	Alpha	B6-4	
Szypula Jim	Binder	Thug	G80	
Thomas Keith	Scratch	none given	C6-5	
Thomas Keith	Scratch	Hard Head	G33	
Thomas Phillip	Scratch	Siver Bullet	F20	
Thompson Tom	PML	Carolina	H123	
Turner Curtis	Scratch	none given	I420	
Utley Bob	Scratch	Primo	J650	
Villwoch Jacob	Estes	Bull Pup	B6-4	
Vilnoch Jacob	Quest	Tomhate	B6-4	
Vilnoch Jacob	Estes	Yanyee	B6-4	
Wright Cody	PML	Tomahawk	H128	
Young Dave	PML	Patriot	K550	
Zoltan Phillips	PML	AUK1	I357	*Cert 1*
Zoltan Phillips	Aerotech	Initiator	G80	
"Oct 29,2000"				
Brown Adam	Estes	Halloween	C6-4	
Brown Rick	Scratch	Kathys Ugly Rocket	H97	
Carlino Ray	LOC	Maxi Magg	I195	
Carlino Ray	Scratch	Dispose-a-roc	G25	
Crabtree Dustin	PML	Amraam	K600	
Cressotti Lino	Estes	Mach 12	C6-5	
Davenport Jeff	PML	Callisto Exp	H242	
Davenport Jeff	Rocket R&D	Sky Raider	J350	
Davenport Jeff	Scratch	GGII	H180	
Garrow Lew	Scratch	Black Tan	I284	
Gilliand Kathy	Scratch	Sun Seeker	J650	
Giorgianni Frank	PML	Amraam IV	J800	
Green David	Scratch	none given	H123	
Grossman Dan	Estes	Fat Boy	B6-4	
Grossman Ed	Estes	Flash	A8-3	
Grossman Ed	Estes	Arv	B6-4	
Grossman Edan	Estes	Alpha	B6-4	

Flight Log Oct 28-29, 2000 ESL #34

Flyer	Manufacturer	Model	Motors	Result
Grossman Edan	Estes	Skywinder	B6-4	
Guess Mitch	PML	Endavour	H180	
Guess Mitch	Aerotech	HV Arcas	F40	
Guess Mitch	LOC	Graduator	F23	
Guess Mitch	Estes	Amraam	C6-5	
Guilday Sean	PML	Woosher1	H128	
Guilday Sean	PML	Patriot	H242	
Harrison Todd	Scratch	Iris	F25	
Henning Mark	True Modeler	Jupiter C-Juno1	F52	
Henning Mark	True Modeler	Honest John	F52	
Henning Mark	True Modeler	Sentry A-T-H	E15	
Henning Mark	True Modeler	Aries	E15	
Kelly James	Quest	Thunder	C6-7	
Lappert David	Scratch	Lighting Spark	H128	
Lappert David	Scratch	Lightning Spark	H128	
Lemoncelli Craig	Scratch	Spaz	H242	
Lissit Scott	Aerotech	Initiator	G40	
McHugh Kevin	Scratch	Red Dog	D10	
McHugh Mike	PML	Black Brandt X	G75	
McKeown Matt&Dave	NCR	Patriot	G64	
McNemar Glenn	Scratch	Special K	J480	
Meier Gary	Aerotech	Strong Arm	F24	
Meier Gary	Aerotech	Arcas	F52	
Meier Gary	LOC	Onyx	F40	
Merer Gary	Aerotech	Initiator	G33	
Miklas Tobin	PML	Small Endeavour	I170	
Miller Norm	Scratch	none given	I300	
Mitchell Kevin	Scratch	Bruiser	J800	
Morris David	Scratch	Scatches	I300	
Pearson Scott	Aerotech	Mustang	F10	
Pearson Scott	Estes	Big Daddy	D12	
Pearson Scott	Aerotech	Sprint ABM	D12	
Pearson Scott	Aerotech	Mustang	F40	
Pelton Joshua	Quest	Totally Tubular	C5-3	
Pelton Warren	Estes	Alpha	C5	
Pelton Warren	Estes	Maniac	E15	
Pelton Warren	Estes	Firebird	D21	
Ritz John	Scratch	Mynee Mag	I400	
Ritz John	Scratch	Magnum	I400	
Roquerue Arnold	LOC	Hope	M1000	*Cert 3*
Russell Dave	Estes	Saturn V	E16	
Russell Dave	Estes	Saturn V	E15	
Russell Dave	Aerotech	Initiator	G33	
Russell Dave	Aerotech	Initiator	G64	
Sandberg Wayne	PML	Black Brandt X	J275	
Sandberg Wayne	PML	Black Brandt X	J275	
Schumacher Fred	Scratch	Sabre	J250	
Schumacher Fred	Estes	Big Bertha	E30	
Schumacher Josh	Scratch	E's out of his mind	E30	
Serdula Kevin	Scratch	The Speeder	H238	
Serdula Kevin	Scratch	The Speeder	H238	
Slogick Bryan	Scratch	Electric City	J400	
Slogick/Swac Bryan/Al	Scratch	Rattler-7	K1000	
Sorrentino Joe	Scratch	Micro-Magg	A10	
Sorrentino Joe	V.B.	Thug	D13	
Sorrentino Joe	Scratch	Enterprise	A8-3	
Strauss Jim	LOC	IV	H128	
Strauss Jim	Rocket Vision	Machbuster	F72	
Sween Patrick	Scratch	Alpha	G125	
Taylor Robert	Scratch	Shrike	I357	
Thomas Phillip	Scratch	Coolman	D12	
Thomas Phillip	Scratch	Coolman	D12	
Thomas Phillip	Scratch	Coolman	E15	
Thompson Tom	PML	Weezer	H123	
Weber David	LOC	Minnie Magg	H123	
Weber David	Weber Eng.	Blinky	G80	
Zoltan Phillips	PML	AUK1	J350	*Cert 2*

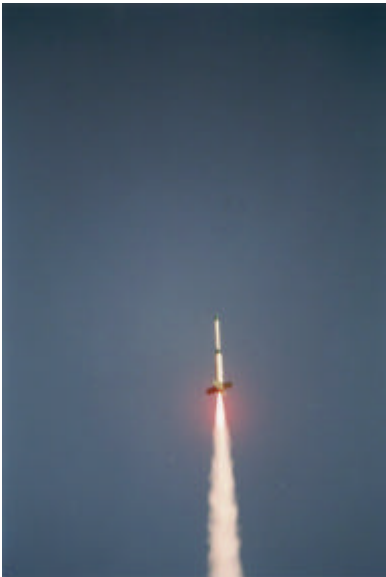
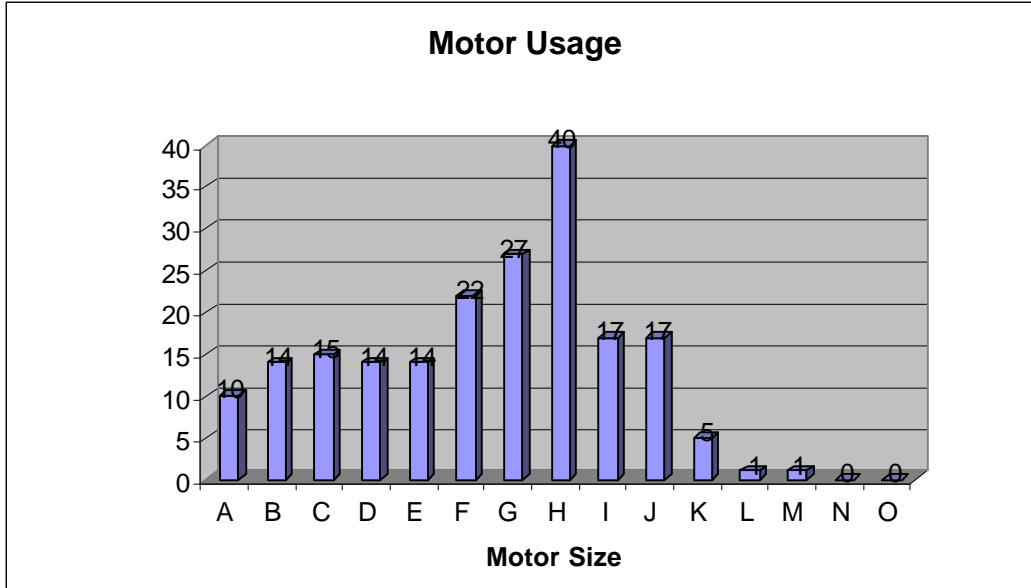
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B	14	70
C	15	150
D	14	280
E	14	560
F	22	1760
G	27	4320
H	40	12800
I	17	10880
J	17	21760
K	5	12800
L	1	5120
M	1	10240
N	0	0
O	0	0

197 TOTAL MOTORS 80765 NEWTON/SECONDS

Atlantic	0
Aerotech	20
Apogee	0
Binder	2
Centuri	0
Cluster R	0
Custom Rockets	0
Dynacom	0
Edmonds	0
Estes	35
Hawk Mountain	0
High Flight Tech	0
Hobby Lab	0
Impulse Aero	0
JD Cluster	0
LOC	10
Launch Pad	0
MSH	0
NCR	4
Neubauer	0
PML	28
Pratt Hobbies	0
Public Enemy	1
Quest	4
Rocketman	0
Rocket R&D	1
Rocket Teck	2
Rogue Aero	0
Rocket Vision	1
TCB	0
Thoy	1
True Modeler	4
Scratch	83
Smokin Rockets	0
V.B.	2
Unknown	0
US Rockets	0
Weber Eng.	1

115	28-Oct
84	29-Oct
199	Total Flights

199 TOTAL ROCKETS



©B. Mantell 2000
Swackhammer "Rattler-7"



©B. Mantell 2000
Dave Young & JR's Patriot



©B. Mantell 2000
Kathy Gilliland, Ed Brun do RSO and CCO



©B. Mantell 2000
Fred Schumacker's "Beer Rocket"

Flight Log Nov 18-19, 2000 ESL #35

Flyer	Manufacturer	Model	Motors	Result
"Nov 18,2000"				
Anthony Wayne	Scratch	Conguistador	J600	
Anthony Wayne	Scratch	Python Missile	J600	
Bradley Tyler	Scratch	Titan	E30/G40	
Bradley Tyler	Scratch	Jabberwocky	J500	
Bradly Tyler	Scratch	Wac Corporal	G40	
Carrington Clark	Aerotech	Arreaux	G35	
Carrington Clark	Estes	Super Big Bertha	F12	
Carrington Clark	Estes	Super Big Bertha	E18	
Carrington Clark	Scratch	Time's Arrow	E6	
Carrington Clark	Aerotech	Mirage	G64	
Carrington Clark	PML	Io	H128	*Cert 1*
Corrington Clark	Scratch	Pencil	E16	
Cowger Kit	Rocketman	Solar Flare	J350	*Cert 2*
Cowger Kit	Rocketman	Solar Flare	J350	*Cert 2*
Davies John	PML	Explorer II	G64	
Davies John	Scratch	Horizon	H242	
Davies John	PML	Mini BBX	H128	
Davies John	PML	Io	G33	
DeBey Mike	Scratch	Chad I	E39	
DeBey Mike	Scratch	Chad I	E28	
DeBey Mike	Scratch	Explorer Stretch	H128	
Doughty Emily	Aerotech	Green Lantern	G80	
Galysh Ivan	PML	Phobos	G40	
Galysh Ivan	PML	Phobos	G40	
Galysh Ivan	Aerotech	Aerraux	F25	
Garrow Lew	Scratch	Black & Tan	I211	
Garrow Lew	LOC	Magnum	J390/H128	
Gleiter Justin	LOC	Lil Nuke	H238	
Gleiter Justin	Scratch	Osprey	J975	
Guess Mitch	Aerotech	HV Arcas	G64	
Guess Mitch	PML	Endevour	I161	
Guess Mitch	LOC	Graduator	F23	
Guess Mitch	PML	Endevour	I211	
Guildan Sean	PML	Patriot	I300	
Guilday Sean	PML	Woosher I	I300	
Guilday Sean	LOC	Onyx	G64	
Harris Larry	Aerotech	Aurex	G35	
Harris Larry	Estes	Load Star	C6	
Harris Larry	Aerotech	Mustang	F20	
Harris Larry	Aerotech	none given	H180	
Hosmer Allen	Estes	Mongoose	C6/B6	
Hosmer Allen	Estes	Skywinder	C6-3	
Hosmer Allen	Estes	Load Star	B6/C6	
Hosmer Allen	Estes	Mongoose	C6/C6	
Hosmer Allen	Estes	Scrambler 2	D12	
Hosmer David	Scratch	Bail Jumper	C6-3	
Hosmer David	Estes	Rampage	C6-3	
Hosmer David	Estes	Droid Fighter	C6-3	
Hosmer David	Estes	Jinx	A10	
Mantell Bill	PML	Eclipse	K550	
May Joe	Estes	Miss Emily	C6-5	
May Joe	Scratch	The Aristocats	F20	
May Joe	Scratch	The Aristocats	F20	
May Joe	Scratch	Monster -016	M2240	
May Joe	Estes	Miss Amanda	C6-5	
McAndrew Sean	LOC	Magnum Exp	K400	
McGee Kevin	Scratch	White&Blue Rocket	K550	
McGilvray Neil	PML	Amraam 4	I211	
McGilvray Neil	PML	Amraam 4	I211	
McGilvray Neil	PML	Amraam 4	I211	
McHugh Mike	Scratch	Starship Enterprise	G75	
Miller Paul	Estes	V-2	D12	
Miller Paul	LOC	Stovi	G42	
Miller/Dwyer Ed/Roger	PML	Thunderhead	M2500/K/I	
Mitchell Kevin	Scratch	Kluster King	K1100/G40	
Mitchell Kevin	Scratch	Q Leap Booster	J200	

Flight Log Nov 18-19, 2000 ESL #35

Flyer	Manufacturer	Model	Motors	Result
O'Sullivan Jerry	Scratch	Sandhawk	M1600	
Overfield Scott	Aerotech	Initiator	E28	
Overfield Scott	Aerotech	Arreaux	D15	
Overfield Scott	Aerotech	Initiator	E16	
Paduch Ken	Estes	Phoenix	D12	
Paduck Ken	Estes	Maniac	D12/D12	
Paduck Ken	Estes	Super Bertha	G35	
Pihlajh Graydon	Scratch	Maxi-Stomp	K550	
Potter Jeff	Scratch	Funsville	K1100	
Proseus Ted	Scratch	Phoenix	F40	
Proseus Ted	Scratch	Upper Air Disturbance	G40	
Quire Kevin	Scratch	Iris	M1130	
Reamy Lynn	LOC	Tabathia	H124	*Cert 1*
Rossi Bill	Smokin Rockets	Arcas	K550	
Russell Josh	Scratch	Two Fig Rocket	C6-3	
Russell Josh	Scratch	CTS Twin Glider	E15	
Russell Josh	Scratch	Yellow Jacket	C6-3	
Russell Josh	Scratch	CTS	D12	
Russell Josh	Scratch	Scream	D12	
Russell Josh	Estes	V-2	D12	
Russell Josh	MSH	V-2	G80	
Russell Josh	Scratch	Lac Rosse	D12	
Russell Josh	Scratch	X-15	D12	
Russell Josh	Scratch	Alano	E15	
Ruzzi Michael	Estes	SM-3 Seahawk	D12	
Ruzzi Michael	Estes	Arcon	C6/B6	
Ruzzi Michael	Aerotech	Warthog	F20	
Ruzzi Michael	Estes	V-2	D12	
Ruzzi Michael	Scratch	Aswac	C6-5	
Ruzzi Michael	Estes	V-2	D12	
Ruzzi Michael	Estes	Heat Seeker	B4-4	
Ruzzi Michael	Estes	Skywinder	B6-2	
Ruzzi Michael	Aerotech	Wart Hog	F23	
Ruzzi Michael	Scratch	Vostok	B4-4	
Ruzzi Michael	Scratch	Vanguard	B4-4	
Shchumacher	Fred	Scratch Sabre	J250	
Shughrue Chris	Estes	Alpha	B4-4	
Shughrue Chris	Estes	Hypee X	C6-5	
Shughrue David	Estes	Goliath	C6-5	
Shughrue David	Estes	Sidewinder	C6-5	
Shughrue Katie	Estes	Mongoose	B6/B6	
Shughrue Katie	Estes	Mongoose	B6/B6	
Shughrue Phil	PML	Black Brant	G75	
Sween Patrick	Scratch	3X Alpha	F50	
Taylor Robert	Scratch	Shrike	I357	
Thompson Tom	PML	One Eye One Horn?	J350	*Cert 2*
Utley Bob	Scratch	Primo Blue	J650	
Wallace Nelson	Scratch	none given	M1130	*Cert 3*
Weaver Todd	Scratch	Penultimate Wahoo	L1000	
Weber David	Weber Eng.	Kick the Bucket	G35	
Weber David	Weber Eng.	Tuber	H97	flight #113
Weber David	LOC	Hi-Tek	H45/I284	
Weber David	Weber Eng.	Proboscus	F32	
Wilson Steven	LOC	Aura	G40	
Wright Darren	Scratch	Monster Maniac	L650	
Wright Darren	Scratch	Phoenix	K1100/J350	
"Nov 19,2000"				
Anthony Wayne	Scratch	Scale Javellin II	K600	
Anthony Wayne	Scratch	Conquistador	J600	
Anthony Wayne	Scratch	Python Missile	H142	
Bathras David	Aerotech	Cheetah	F12	
Bathras David	Aerotech	Wart Hog	F24	
Bathras David	Rocket R&D	Corporal	J350	
Bryant Carl	Aerotech	Initiator	F25	
Bryant Carl	Aerotech	Initiator	F25	
Crosby Dave	Scratch	Yoo Hoo	I154	
Deaver Gary	Scratch	L1	H220/G45	

Flight Log Nov 18-19, 2000 ESL #35

Flyer	Manufacturer	Model	Motors	Result
Deaver Gary	Estes	V-2	D12	
Deaver Gary	PML	Calisto	H180	
DeRosa Bob	LOC	Minie Magg	H242	
DeRosa Bob	NCR	Big Brute	G75	
Destefano Guy	LOC	I-Roc	I435	
Gold Lloyd	LOC	Legacy	G80	
Gold Lloyd	Scratch	Mr. Coffee	D12	
Gold Lloyd	LOC	Legacy	G80	
Gold Lloyd	LOC	LOC IV	H124	
Gold Lloyd	Aerotech	G-Force	G80	
Gray Augie	Scratch	Ship Killer	K700	
Gray Augie	PML	Bull Puppy	G97	
Higgs Adam	Aerotech	Cool dude	G38	
Kyte John	PML	Black Brant X	I161	
Manning Scott	PML	Lunar Express	I300	
Manning Scott	Aerotech	Initiator	F52	
Manning Scott	Aerotech	Initiator	F52	
McGee Kevin	PML	Sudden Rush	J350	
McGee Kevin	Aerotech	Strong Arm	F23	
McGee Kevin	PML	Phatom	G80	
McGilvray Neil	PML	Amraam 4	K550	
McGilvray Neil	Scratch	Udder Madness	L1000	
Miller Ed	Scratch	Tekyon	H180	
Miller Ed	Scratch	UFO-38	H123	
Mitchell Kevin	Scratch	Black Brant II	I161	
Overfield Scott	Aerotech	Initiator	E28	
Pihlajh Graydon	Binder	Excel	J570	
Pihlajh Graydon	Binder	Sentinal	H242	
Pihlajh Graydon	Binder	Sentinal	I154	
Polansky Mark	LOC	Caliber ISP	I435	
Polansky Mark	PML	D Region Tomahawk	I211	
Proseus Ted	Scratch	3's Crazy	H238/I150	
Proseus Ted	Scratch	Big Yellow	H128	
Proseus Ted	Scratch	Upper Air Disturbance	G80	
Rumbley Wallace	Estes	Prowler	B6/B6/C6	
Rumbley Wallace	Aerotech	Mirage	G75	
Schumacher Josh	Scratch	none given	I300	
Sechrist George	Scratch	"V-2 4""	H97	
Sechrist George	LOC	Minnie Magg	H112	
Sechrist George	LOC	Primed to Go	J275	
Sechrist George	LOC	Primed to Go	J350	
Shope Don	Scratch	none given	H124	
Shope Don	LOC	Legacy	G80	
Super Rob	Scratch	SR3	F20	
Super Rob	Scratch	Navigator 5	H180	
Sween Patrick	Scratch	Phoenix	B6	
Sween Patrick	Scratch	Pheonix	B6	
Utley Bob	Scratch	Primo Red	J650	
Wallace Fred	Scratch	5 by 80	K700	
Wallace Fred	Scratch	Optaonal 150	K777	
Wallace Nelson	Scratch	RPG	H240	
Wallace Nelson	Aerotech	Baracuda	F20	
Wallace Nelson	Aerotech	Night Hawk	G35	
Weber David	NCR	Archer	H220/G45	
Weber David	Weber Eng.	Proboscis	F32	
Weber David	Weber Eng.	Special Delivery	G38	
Weber David	Cluster R	Skyraider	K550	
Wilson Steve	PML	Bull Puppy	H123	
Wilson Steven	Rocket R&D	Sandhawk	H128	
Zoltan Phillips	NCR	SA-14 Archer	H180	
Zoltan Phillips	NCR	SA-14 Archer	H220/G45	

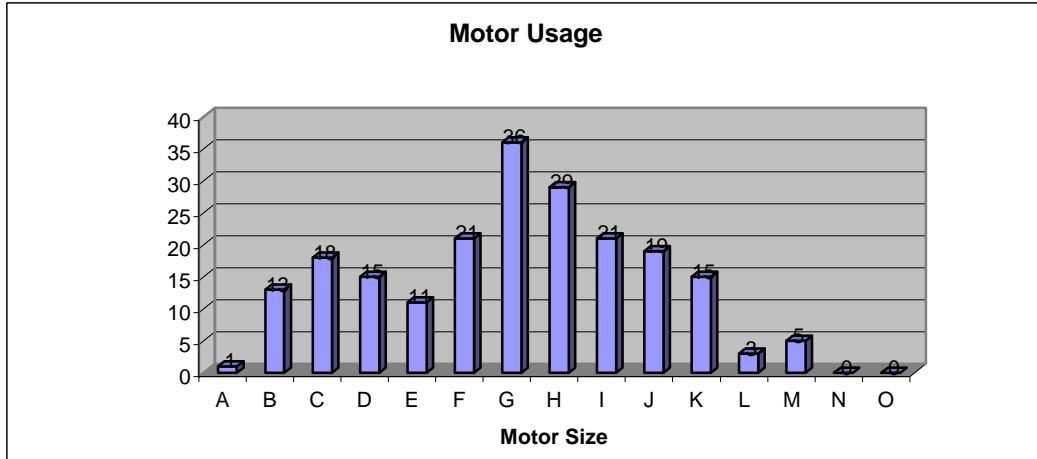
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B	13	65
C	18	180
D	15	300
E	11	440
F	21	1680
G	36	5760
H	29	9280
I	21	13440
J	19	24320
K	15	38400
L	3	15360
M	5	51200
N	0	0
O	0	0

207 TOTAL MOTORS 160427.5 NEWTON/SECONDS

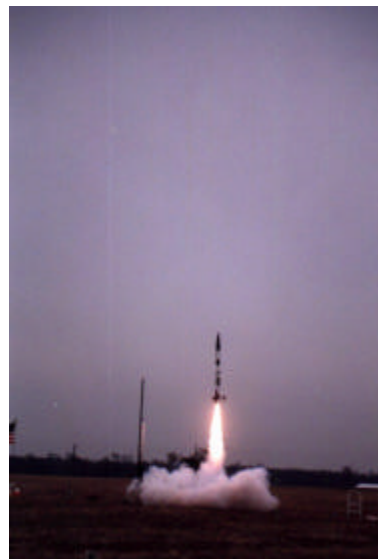
Atlantic	0
Aerotech	26
Apogee	0
Binder	3
Centuri	0
Cluster R	1
Custom Rockets	0
Dynacom	0
Edmonds	0
Estes	32
Hawk Mountain	0
High Flight Tech	0
Hobby Lab	0
Impulse Aero	0
JD Cluster	0
LOC	18
Launch Pad	0
MSH	1
NCR	4
Neubauer	0
PML	26
Pratt Hobbies	0
Public Enemy	0
Quest	0
Rocketman	2
Rocket R&D	2
Rocket Teck	0
Rogue Aero	0
Rocket Vision	0
TCB	0
Thoy	0
True Modeler	0
Scratch	71
Smokin Rockets	1
V.B.	0
Unknown	0
US Rockets	0
Weber Eng.	5

122	18-Nov
70	19-Nov
192	Total Flights

192 TOTAL ROCKETS



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Going and Going



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Neil McGilvrays Rocket



©B. Mantell 2000
Fred Schumackers Rocket



©B. Mantell 2000
Joe May's Monster-016

January 2001

Rocket Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday																																																																																																									
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>																																																																																																									
<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>																																																																																																									
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<i>28</i>	<i>29</i>	<i>30</i>	<i>31</i>	<table border="1" style="font-size: small; text-align: left; margin: 5px;"> <tr><th colspan="7">December 0</th></tr> <tr><th>S</th><th>M</th><th>T</th><th>W</th><th>T</th><th>F</th><th>S</th></tr> <tr><td></td><td></td><td></td><td></td><td></td><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td></tr> <tr><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td></tr> <tr><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>		December 0							S	M	T	W	T	F	S						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							<table border="1" style="font-size: small; text-align: left; margin: 5px;"> <tr><th colspan="7">February 1</th></tr> <tr><th>S</th><th>M</th><th>T</th><th>W</th><th>T</th><th>F</th><th>S</th></tr> <tr><td></td><td></td><td></td><td></td><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td></tr> <tr><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td></tr> <tr><td>25</td><td>26</td><td>27</td><td>28</td><td></td><td></td><td></td></tr> </table>	February 1							S	M	T	W	T	F	S					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
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February 2001

Rocket Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday																																																																																																		
				1	2	3 Rhodesdale Launch																																																																																																		
4 Rhodesdale Launch	5	6	7	8	9	10																																																																																																		
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