TRIPOLI CENTRAL CALIFORNIA

Central Valley Rocket News

Serving the Central California Chapter of the Tripoli Rocketry Association – November 2004

November 21st Launch Report

Walker Team Rocketry

and the

Rocket Rover Lander Challenge

Tripoli Central California
November 21, 2004 Launch Report

It was a blustery day in the hundred acre wood. It was also a blustery day in the 1000's acre dairy.

How windy was it? It was so windy that there was nary an insta-shade to be seen, including at the RSO tables. It was so windy that Andy Woerner of *What's Up Hobbies*, parked his motor home in such a way as to block the wind from blowing his merchandise off his sales tables. It was so windy, that… OK, OK enough of that!

Yes, it was a windy day, but that didn't deter the flyers from putting their rockets up into the clear blue sky. Some had to hike a bit to retrieve their rockets and some of the smaller rockets had a hard time with the wind, but most flights went as planned.

The first flight of the day was by Tom McLachlan. Tom started the day out with a smoky I211 in his silver 7' BSD *Coyote*. This would be Tom's only flight of the day, but it ripped a nice hole in the sky for others to follow.

Tom McLachlan's Coyote

Vendor Row…

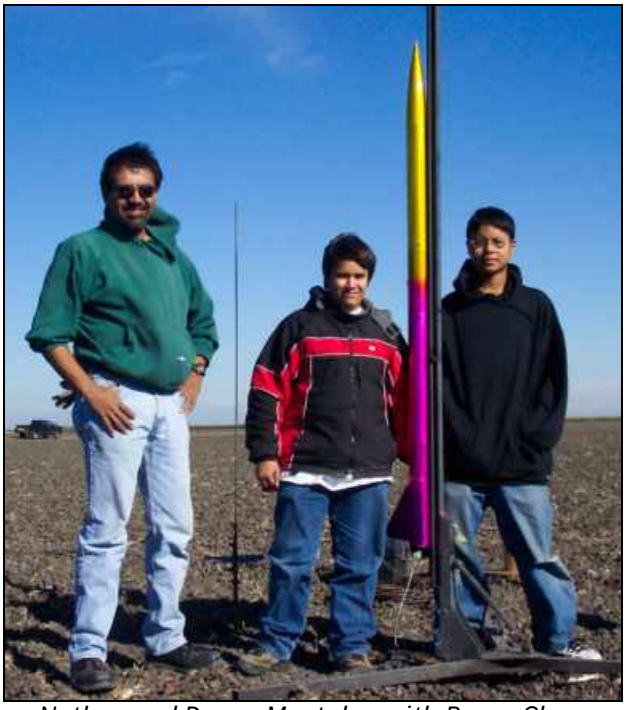
First off the Estes Pads, Kyley Heggen of Fresno, flew a green Estes *Patriot* on a C6-5. Kyley also made 4 other flights throughout the day: A pink and green Estes *Fat Boy*, an un-named blue Estes and camo Estes *D47*, both on D12's and a grey Estes *Ghost* on an E9-8.

Kyley Heggen's Fat Boy

Drew Gleason also made a single flight off the high power pads. Drew has flown his green LOC *Mini Magg* numerous times here at the dairy. Today it flew on an I205. Another fine flight!

Drew Gleason's Mini Magg

Devon Montalvo was designated flyer for the day in the Montalvo clan. Dad, Nathan, prepped this beautifully built red? and gold PML kit weighing in at 10lbs and standing 6' tall. Powered by a J415, the gleaming rocket climbed quickly to over 8400 feet. Devon had quite a walk to recover the rocket, but he did eventually return. Great flight guys!! (See Cover Photo)



Nathan and Devon Montalvo with Bryan Chow

Terry Swift's first rocket was his 42" *Blue Ninja ,* packed with a camera & dual chutes, on a D12. Any pictures from that flight Terry??

Terry's great looking purple and yellow Fliskits *Tres* was a 3-motor cluster powered by 3 C6-5's. The *Tres* did a great loop the loop just above the Estes Pads as it appeared that only 2 of the 3 engines ignited. Cooooool!

Terry Swift's Tres does a loop-the-loop.

Terry also flew his pink LOC *October Skies Special* on an H128-M. Wow, what a screamer off the pad!

Never at a loss for rockets to fly, Jim Norton flew a Fliskits *Dueces Wild* cluster on

2 A8-3's, an Estes *Alpha* 3 on a B4-4 and his yellow Quest *Totally Tubular* on an A8-3.

Steve Sawyer also flew a cluster. His Estes *Ranger* was packed with 3 C6-5's and made straight for the blue. Nice flight Steve.

Steve Sawyer with his Ranger.

Sacramento's Chris Uffelman had a good flight with his black *Big Daddy* on an E9-4, but he also had a bit of bad luck this November day. A few other flyers had come close, but Chris was able to hang his red and white Aerotech *Initiator* on some power lines after a great flight on an F52-8. We kept watch all day, hoping the wind would eventually dislodge the Initiator, but alas, it was still swinging on the lines at day's end.

Chris had successfully flown his green *Little Johnny* outhouse rocket at the October Skies launch, but this time the wind got the best of the latrine, and drove it into the ground on an F40, giving new meaning to "Heads Up!"

Chris Uffleman's Initiator, above, Little Johnny, below

Back once again from San Jose, David Raimondi had 2 successful flights with his cool red and silver PML *X-Caliber*. Equipped with a GWIZ MC for recovery, the first flight was on an H123 and the second really zipped on an H242.

Dave Raimondi's X-Caliber

Shannon Perry, all the way down from San Francisco, had a couple of good flights of his red and black LOC *Vulcanite.* With a glassed airframe and a Missle Works RRC2 for dual deployment, Shannon first powered up on an I285R and later on an I154J.

Shannon Perry's Vulcanite

Lance and Bobby Wright returned again this month to launch a red Estes rocket on an E30-7 and a red LOC *Graduator* on a G33J.

Lance & Bobby Wright with their Graduator

Some flyers chose to make only single flights for the day due to the wind. Chuck Darcy Clarke's PML *Patriot* took to the sky on an H128W and Stockton's Mark Anderson was back flying his blue and yellow PML *Explorer* on an H220.

Chuck Darcy-Clarke's Patriot

Mark Anderson and his Explorer

Fresno's Colin Evans also had a single flight with his black and white PML *Small Endeavor* on an H123W.

Colin Evans's Small Endeavor

Another Fresno flyer, Bryan Chow made it up 3 times with his silver and red Estes *Screech* with D12-7's twice and a white *Mini Cobra* on a ½ A3-4T.

Tim Sheehan made a real straight flight with his venerable *Red Rocket*. I don't have the motor information though Tim. I guess the flight card just blew away. It wouldn't be the only thing.

Tim Sheehan with his Red Rocket

Juliana of Fresno had some recovery problems flying her blue and red *Star Spangled* rocket powered by an A8-3.

Juliana sets up her Star Spangled Rocket

After tearing himself away from duties at home, Mike Smith quickly readied his Polecat *White Lightning* for a late in the day flight on a J800?? These larger Polecat Aerospace kits are really taking hold here at the dairy.

The Smiths set up the White Lightning

Norm Heiger capped off the launch with a successful Level 1 flight. His red, black and white PML *Patriot* had a flawless flight on an H123W. Congratulations Norm!

Norm Heiger - Welcome to High Power

With 19 flyers and 34 flights on a cool and windy November day, this was Tripoli Central California's last launch for 2004. The only thing left to top off the year was the annual TCC Christmas party and dinner. If the pictures come out, you might be able to see what some of your fellow rocketeers look like without their hats and shades, in a more normal environment, in a coming newsletter.

See you all in 2005!
Gary W. Walker
TRA# 9273

THANK YOU

Steve Maddox
& The Maddox Dairy

Tripoli Central California

Tripoli Central California is a chapter of the Tripoli Rocketry Association, an international organization dedicated to high-power rocketry and governed by safety rules promulgated by state and federal agencies. Founded in the mid-1990's, Tripoli Central California welcomes new members. Annual dues are currently suspended. For more information, call one of our officers, check out our club hotline at 559-447-5888, or see our web-site at …

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Gary W. Walker contributing stories and photos in this issue.

I want to extend my THANKS and gratitude to all those who helped out this year with contributions of photos and stories for inclusion in the Central Valley Rocket News. Your help has made my transition to CVRN Editor much easier and enjoyable than it might otherwise have been.

I want to especially thank Mark Canepa for his support and assistance. He has been a great source of knowledge and inspiration.

I also want to thank Nathan Montalvo for his tips, suggestions and EVERYTHING else, too numerous to name.

I also want to extend my appreciation to the Maddox Dairy, all the TCC officers who make this club run so smoothly and the flyers who make it such a joy to come out to each launch. I'm looking forward to another great year in 2005.

Gary W. Walker - Editor

The Rocket Rover Lander Challenge

By Gary W. Walker

Back in January of 2004, I came across a notice on the ROL web-site announcing the creation of the Rocket Rover Lander Challenge (RRLC). What with the worries about increasing regulation of the sport, a number of rocketeers and vendors, spearheaded by Art Upton, came together to create a venture that could help inspire interest in rocketry.

Spinning off of the upcoming landing of NASA's Mars Rovers, the goal for the "challenge" was to launch a "rover" in a rocket to a minimum altitude of 165 feet, deploy the rover after landing and then remotely drive the landed rover to a predetermined location at least 100 feet from the original launch site. No outside interference is allowed after launch, i.e. "no touching, nudging, etc.!!" Points were to be awarded for the cheapest launch per pound and for gee-wiz stuff added on like electronics, cameras, video etc. Simple enough? Maybe. Maybe not!

WALKER TEAM ROCKETRY is born!

Since my 3 younger boys attend Tripoli Central CA launches with me out at the Maddox Dairy in central California and fly their rockets as well, I thought this would be a great father & sons project. It turned out to be a great learning experience for all of us and we had fun at the same time!

While doing our initial planning, we realized we had a small X-10 wireless video camera lying around that we thought we might try to employ in the design to get some video of the flight and drive. (Extra Points!!)

My sons, Brandon, Chris and Michael each chose different parts of the rocket assembly to work on. Brandon was the Rover driver and did the modifications to mount the X-10 on board. Chris chose to work on the Lander portion. This would need to carry the Rover and deploy it on landing. Michael chose the Booster section. This was the last to be built, once we had the Rover and Lander sorted out.

The Rover!

First, we made a trip to TOYS-R-US to select a "rover". The initial Rover RC purchased was a small Tyco **"***Rebound***"**. It had great control, and will operate either side up!! But, it was too small to carry a payload such as the X-10 Video camera. Plus, it didn't do well in grass. We set it aside and figured maybe it could be used as a secondary *Back-up Rover* in the event the main Rover deployment went badly, or as *Scout Rover* to compliment the main Rover's mission.

The next Rover RC purchase was a stout, but not too large Tyco **"***Hot Popper.*" It has some "stunt" action, but that feature seemed to be of little use. It was plenty large to carry an X-10 Cam and batteries on-board but the landing attitude would be more critical. We rapidly realized our project would be much larger and heavier than we originally were hoping.


Brandon Walker with the "Rover" and X-10 video camera attached.

The Lander!

With the video camera mounted, we then started construction on the Payload/Lander section. This was the most critical component as it had to securely hold the RC Rover during ascent, stay upright and open up to deploy the Rover on landing.

The Lander is made up of some scrap 3/8" plywood and some thinner RC Aircraft plywood that we had lying around. We carefully measured and constructed a tray to hold the Rover and had it pivot on a length of ¼" wood dowel between 2 upright plywood strips capped by 6" plywood rings. The Lander legs were also made of scrap plywood.

Deployment of the rover would be accomplished by the means of a long metal rod that acted as a latch for the rover tray. The rod extended about 6 inches below the Lander legs and would release the tray upon impact with the ground.



Chris Walker working on the payload/lander section

Since we would have an operating Video camera mounted on the Rover, we figured we might as well try to record the ascent phase too. We cut a hole in the top of the Lander and

mounted an old compact mirror at a 45 degree angle to allow the camera to view the horizon. This was one of mom's contributions to the project.

We made use of quite a few large rubber bands to extend the retractable Lander's feet and to open the tray that held the Rover.

Michael Walker fitting the fins in the booster.

The Booster!

Now it was time to assemble the booster. It was time for Michael to get to work. The large size of the Rover and Lander assembly made it apparent that we were going to need a fairly substantial motor to get this thing up to the required altitude. Fearing that we might need as large a motor as an H or I impulse, we chose a 38mm motor mount in 4" PML Quantum tubing for the airframe. We fitted some trimmed 35mm film canisters to the side of the booster to retain the Lander legs in flight.

The Booster and Lander were designed to descend independently, so the Booster was fitted with a 30" chute and the Lander assembly with a 52" chute. Since the Lander would have to land in an upright position, the Lander's parachute cord was attached to the nose/top of the Lander and the cord was fed down through a small opening at the top of the booster airframe where the parachute was stored. Our biggest fear was that the Lander's parachute would become entangled with the Lander legs and the whole assembly would come crashing down.

Now that we had a nearly completed vehicle, we headed for the bathroom scales to estimate our liftoff weight and choose a motor. I used WRASP (Windows Rocket Altitude Simulation Program) to get a rough idea how our vehicle would perform. The upper Lander section was about 6" in diameter and the whole vehicle weighed in at 9 pounds.

After trying a few different motor combinations, I settled onto an Aerotech H180. This motor would give us a good kick off the pad to get up to speed but kept our estimated altitude within reason. The simulation told us we would reach 225 feet in altitude which put us 60 feet over the minimum, by the rules, and allowed for some cushion in case we underperformed. The simulation also told us we would have to do some modification to the delay grain as the short delay would not "eject" the chutes until we were down to 75 feet and coming in at 65 mph. Not good!

The Flight Plan!

Here is a brief run-down of the flight plan…

The Rover's X-10 video camera is powered up and the video feed to a ground based VCR are confirmed. The rocket lifts off under the power of an Aerotech H180 with a much shortened delay grain. The ascent is relayed to the ground by the onboard camera. At apogee, the ejection charge separates the Lander from the booster. The Lander legs extend and both Booster and Lander chutes are deployed. The Booster descends to a landing independent of the Lander. Upon contact with the ground, the Lander's "Contact Rod" opens the Rover tray and allows the Rover to be driven out. The Rover is then driven to the pre-determined site at least 100 feet from the launch point with the camera transmitting the trek. All goes well! We win!

What a difference a little paint makes!

With the RRLC deadline rapidly approaching, it was now apparent that we were going to have only 2 days after our first possible launch date to gather together our video and other documentation of our attempt and get it submitted. *Walker Team Rocketry* is now nick-named *Team Procrastination*!

We would have to go for broke. We would have just one shot at this thing and we had to make the best of it.

Launch Day!

Launch day was perfect. Sunny and warm with little to no wind! We loaded up the vehicle and ALL the supporting equipment we would need and headed off to our chosen launch site.

After setting up the launch pad, the video receiver, monitor and VCR, we launched an Estes Fat Boy to check out the wind drift and direction. Using this flight as a guide, we measured out a target site for the Rover 165 feet to the South East of the launch pad. This distance was chosen to make measuring the actual altitude with an Estes Altitrak easier.

We were ready! Mom manned the Altitrak. I had the hand-held camcorder. Brandon held the Rover's radio controller. Chris stood WAAAYY Back! The on-board camera was on and we had an

image at the VCR. Michael gave a long countdown from 10 and the WTR RRLC vehicle roared off the pad in a huge cloud of smoke.

Our rocket arced over to the east as we all held our breath. Almost exactly at apogee, the ejection charge fired. So far, so good! The Lander separated from the Booster and its parachute opened fully, (Whew!) but, the Booster was coming down ballistic. No chute!

The booster slammed into the ground about 150 feet to the east but the Lander was descending nicely and finally reached the ground about 100 yards out. The arcing flight had put us way out away from our expected landing site.

A quick check with mom (Lynette), who had tracked the flight to apogee, confirmed that we had indeed reached and surpassed the minimum altitude.

We half walked, half ran out to assess the situation. As we passed the booster lying on the ground, it was obvious that the chute had become lodged in the airframe and hadn't made it out at all. The only damage however, was a few scuffs and a broken launch button stand-off. Ain't that Quantum Tube nice stuff!

When we made it out to the Lander, we found it lying on its side, covering the Rover tray and preventing it from deploying. Chris and Brandon up-righted the Lander and removed the stuck Rover.

We had already failed to deploy, and were thus disqualified from a successful mission, so we made the best of it from that point on. Brandon began driving the Rover toward the distant target site and had to give the Rover a nudge occasionally as it got stuck in the sand. The Rover finally reached the target and we all celebrated the mission.

When we got home and reviewed the on-board video, we found that we had captured much of the flight up through apogee, but we lost signal soon thereafter and didn't regain the signal until the Rover was just a few feet away from its target.

Over the next day, we edited together our documentation video with our on-board video, composed a letter to the RRLC officials, packed it all together and mailed off our entry. One thing that I stressed to the boys throughout, was that we complete the project to the best of our ability and send in our final product however it turned out.

Final Thoughts

We were somewhat relieved to have completed this little odyssey, but in looking back, we all learned a lot and had a great time trying something different in the field of rocketry. We had a few key failures, but a lot had gone right as well. I think the boys have taken away a real sense of accomplishment and pride from their efforts.

After sending in our entry, we really didn't expect to hear much back since we had failed to complete the goals as outlined in the Challenge rules. Imagine our surprise when we were contacted by the RRLC officials and informed that we had indeed taken 3rd place. Nationwide, there were only 2 completely successful missions and ours was the only other entry that had actually made a flight attempt and submitted the required documentation!

On behalf of Walker Team Rocketry, I want to extend my THANKS and appreciation to Art Upton for spearheading the RRLC. I would also like to thank all those vendors that supported and sponsored the RRLC by providing prizes for the winning contestants.

For more information on the RRLC, go to…

www.landerchallenge.com

WALKER TEAM ROCKETRY
a.k.a. TEAM PROCRASTINATION

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