TRIPOLI CENTRAL CALIFORNIA

Serving California's Central Valley Chapter of the Tripoli Rocketry Association - July 2006

July 2006 Launch, hosted by Tripoli Central California at the Maddox Dairy on July 16, had temperatures around 90 degrees which preceded the hot spell of 110+ degrees of July 23. Hopefully, the weather will again be supportive of an August launch.

The July launch was from 9AM to 2PM at the Maddox Dairy with quite a number of rockets launched. However, without having the flight card statistics or great photos typically provided by Gary Walker provides, this month's TCC magazine will include a slightly different format. The focus will be articles on 2 projects: Paul Sutchek's 2-stage project and Kris Hauert's "Hope", a Cal Poly project. Thanks to Paul and Kris, they provided the details on their projects to Steve Sawyer for inclusion to this month's magazine. Thanks to Jim Norton and Steve Sawyer for additional photos of the launch (see pages 4 through 7).

Paul Sutchek's 2-stage Strawberry Daiquiri

Article: Steve Sawyer

Paul Sutchek's 2-stage project

Photo: Steve Sawyer

Paul Sutchek's 2-stage Strawberry Daiquiri - This over 8 feet tall rocket (photo above) is an excellent example of drag-separation staging techniques. The use of passive separation allows the booster to slip free of the sustainer, the sustainer to gain altitude and distance before air-starting its motor.

Paul (above left) utilized some heavy-duty low-cost materials such as 4" carpet tubing, a mahogany hand turned nosecone (thanks to his woodworking trade in Petaluma), and 23" long 54mm motor mounts.

But the real area of interest is Paul's staging technique (below). The booster has six ¼" stainless rods protruding about 4 ½". These are received by brass tubing built into the sustainer lower centering ring. The fit is very low friction to enable passive drag separation at booster burn-out.


Paul prepares the flight card with Michael watches (left). Booster is being placed onto rail (right).

Michael Larsen (above center), Paul's father in law, assisted with the prepping, check out, and provided the 4 ½ hour each-way drive for this one day launch. Joining Paul and Michael at the Pad 41 away cell is Larry Frieson (above right).

Paul mentioned that he spent only about 3 days in the construction of "Strawberry Daiquiri" and he utilized ample free materials instead of building a 2-stage kit. Paul made his own sturdy components (centering rings, fins, etc.) and used silica thickener for fin fillets.



Strawberry Daiquiri on pad 41 - launch weights:
8.25 lbs (booster with J800);
14 lbs (sustainer with a J415).


Above: Paul ready to push the button - a J800T to a J415W.

Above is a majestic liftoff on the J800 with booster burnout and separation at 800 feet with a coast to 1100 feet for booster deployment from an Adept 50k. The sustainer continued upward after separation and its pyrogen-dipped e-match ignited the J415 and arced up to 5500 feet.

With about 2 calibers of stability for the sustainer, it weather-cocked a bit into the wind. As a result, overall altitude was about 5500 feet (Paul's prediction with RocSim was 9500 feet). Although the deployment occurred at a fairly high velocity, Strawberry Daiquiri was sturdy enough for a successful that recovery in perfect condition.

Later this year, Paul said that he plans to up the motor sizes to a full K booster and large K sustainer (like a K1000 skidmark staging to a K700W – now that ought to be a real kick!). Thanks, Paul for allowing us to cover this successful staging project.

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Kris Hauert's "Hope", a Cal Poly project

Article: Steve Sawyer

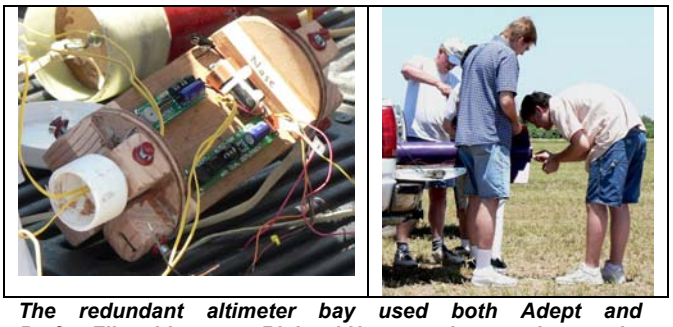
This rocket was named "Hope" – built by Cal Poly Space Systems club members including: John Anberg, Kris Hauert, Shane Wallace, Brian Elkins, Nick Marcotte, Doug Fielden, Kelly Scroggs, Fran L. and Travis Lockyear. Advisors were Dr. Dianne DeTurris (Cal Poly) and advisor Dave Springer (Creston Aerospace).

This rocket was built as part of the Rocketoon Project. The purpose, as are many Cal Poly experiments, is to demonstrate techniques for controlled recovery from space as a replacement for water recovery (the norm for NASA). The July launch was an airframe test to evaluate some new ideas.

Kris' rocket was completely custom-built using fiberglass and carbon fiber. The fins were fiberglass-laminated honeycomb. The motor mount was also completely removable for a 75mm L1420R for this flight.

Here's Kris Hauert's project from Cal Poly.

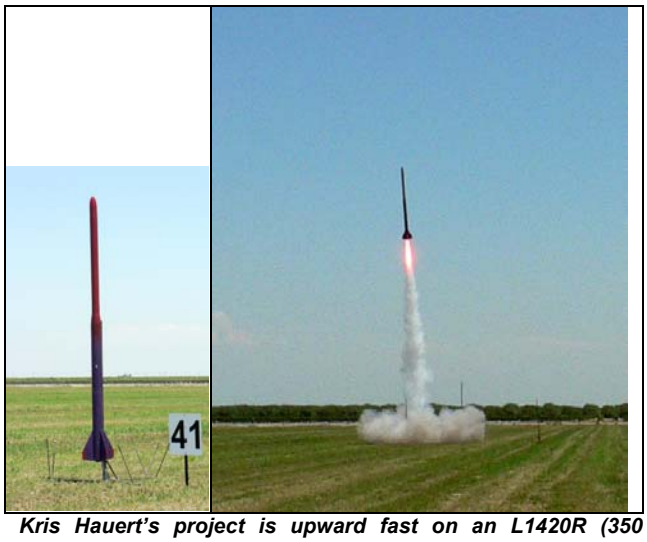
Kris said that the name "Hope" came from the "hope" that it would survive its boost phase. In fact, the LCO also showed some concern during inspection of the coupler that flexed slightly at the transition to the smaller diameter. However, it was agreed to go and the boost turned out beautiful, very straight, and without noticeable wobble (left).



The redundant altimeter bay used both Adept and PerfectFlite altimeters. Richard Hauert arrives to observe the L1420R 75mm motor being installed. Over 13 feet of rocket is about ready to go to the away pad.

LCO, Richard King helps review Hope with the Cal Poly team members.

Hope, ready on Pad 41



Kris Hauert's project is upward fast on an L1420R (350 pounds of thrust) and a roaring long red flame.

There was no drogue separation and the rocket's speed audibly built up downward for several long seconds. Just as the crowd started to worry, the main came out at about 500 feet to save the day.

Minor scorching and no fire at the pad following exposure to the L1420R.

The goal for this coming year is to launch the rocket with the hybrid M motor designed and built from the Cal Poly team. Kris says that he even has plans to turn "Hope" into a 2-stage monster.

Other Launch Photos – July 2006

Other photos from July's launch. Sorry for not having details from each of these flights but perhaps you can find yours.

Photos by Jim Norton

More Launch Photos – July 2006







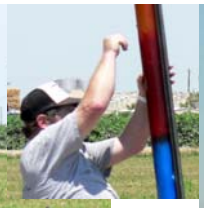




More Launch Photos – July 2006

Beautiful paint and tail cone on a modified Magnum. Notice that jump-master Pooh Bear will need a bath but thanks to the Rocket Hunter, he is recovered to fly another day.

More Launch Photos – July 2006



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Thanks again goes out to Tripoli Central California and the Maddox Dairy for another successful and fun launch for July!

Some of those that made it all possible again this month

Acknowledgment

The listing and advertisement on this page are complementary and provided on a no fee basis to vendor / partners supporting this month's TCC launch and activity.

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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