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LUNAR'clips is also available on-line at

<http://www.starship.org/LUNAR/LUNARclips>



LUNAR Meeting, Thursday, July 9

7:00 p.m. - 9:00 p.m.

Royce Longacre is the featured speaker at LUNAR's July meeting, when he will share some of his finishing secrets. The paint jobs on Royce's creations are arguably some of the best that are found at LUNAR launches, so you won't want to miss this chance to upgrade your skills. LUNAR's next meeting, will start at 7:00 p.m. in the community meeting room at the Livermore Police Station, 1110 South Livermore Avenue. Royce's presentation will follow a regular club business meeting.



Suggested Additions to LUNAR'clips

Bill Orvis has suggested two new items for our newsletter – *Tips* and *Heads Up!*

With *Tips*, LUNAR members can submit a note, limited to a single short paragraph related to rocketry. *Tips* can cover everything from launching to building and painting. For example:

LUNAR Tip: If you are in charge of a scout troop or gate class, write each kid's pad assignment on the back of his or her hand with a felt pen. It saves a lot of time as they will almost always forget what pad they were assigned.

(Maybe we should write the pad assignment on everyone's hand – I usually forget the pad number before I get out there, too!)

We envision *Heads Up!* as a column where we put safety or warning related articles about flying, kits, engines, or club activities. We will archive all of them in a *Heads Up!* section of the Handbook, in the RSO section, where we discuss safety issues.



The Range Head

by Jack Hagerty, LUNAR #002

PASSING THE TORCH

In the January/February issue of Sport Rocketry, Kevin Wickart had some very interesting thoughts in his "Spare Parts" column about continuity in an organization. He writes:

"The long term health of any structured group relies on passing the torch of knowledge and skill to those who come after. This truth holds for businesses, social groups, political administrations, hobbies, and so forth.

"We got to where we are by following the lead of such notables as G. Harry Stine and Verne Estes. A part of why rocketry is still firm of direction is because many of the venerable rocketeers who shaped the hobby are still alive and active.

"Whether we are aware of it or not, we have a definite sense of living history. These people were, and are, living icons of model rocketry. They got us here by teaching us to benefit from their mistakes, by sharing their knowledge and enthusiasm, by bringing us 'up to the same level of ignorance and confusion' (to quote Stine) that they enjoyed. In short, by making us into their peers.

"These men continue to carry the torch they ignited four decades ago. But who will step forward when they are gone? Who will write the future versions of the Handbook of Model Rocketry? Will anyone devote a significant portion of his or her life to ensure the 'ignorance and confusion' of the rest?"

In a chilling underscore of Kevin's words, Harry Stine died of a stroke one week after Kevin wrote that column and shipped it off to the magazine (both the column and Stine's obituary are in the same issue). Now before you think I'm leading up to some big announcement here, relax. I'm not going anywhere; at least not in the foreseeable future. But I did want to repeat Kevin's thoughts because it's something we all have to think about.

LUNAR celebrated its fifth anniversary last October. That was the night launch which was so successful, but we were all so busy that we forgot to make any kind of formal notice! Most of the original "double aught" members are still active in the club: Mark Weiss (001) is the treasurer, I'm the prez and Warren Massey (007) keeps the equipment running and updated not to mention the thankless job of maintaining our membership list. Lynn Kissel (009) is your esteemed newsletter editor and Eric Kleinschmidt (008) still hauls his monster models out nearly every launch. H. W. "Bear" Neff (005) and Joe Mingoia (006) still belong although their participation has scaled way back due to scheduling



Geoff Canham (right) secures his entries in the F/F scale contest to the display table. (photo by Lynn Kissel)

demands. Only Kurt Peters (003) and Joe Ciccone (004) have left the club.

We have no formal program for training “replacements” for the current crop of officers. The closest we have is the volunteer positions at the launches. This teaches the basics of our field operations (which Warren has written down, fortunately) and the rest of it is pretty much the standard parliamentary stuff of most clubs. However, I still would like to invite those of you who might have an interest to think about taking on a larger role in the regular operation of the club. Many of you have already and it’s a good start, but this is a big club (we’re three to four times bigger than the average NAR section) and it always helps to have “understudies” in the wings!

HARRY STINE

Speaking of Harry Stine, as we just were, many of you might remember the poster we had out at the December launch and the January meeting; both of which we dedicated to Harry’s memory. I shipped it off to his widow,

Barbara, shortly after. Recently I received the following note:

“Dear Jack,

The memorial poster arrived last week. Thank you so much for the poster of the memorial model rocket shoots. I shall treasure it and keep it for our eventual history of the model rocketry museum.

Sincerely,

s/ Barbara K. Stine”

LOST & FOUND

Our first auction to thin out our Lost & Found box was a huge success. We raised over \$30 and some folks got some real bargains (like an Aerotech “D Region Tomahawk” for \$5). Note that we won’t have any auction at this meeting or the next because we only sell of items that have been left more than six months. As I mentioned in the last issue, just threatening to auction off some of the items brought people out of the woodwork and they picked up most of the recent



Jack Hagerty sets up the display for his Myst rocket. (photo by Lynn Kissel)



F/F scale contest entries: *Crypt Ship* and artichoke-like vessel by Geoff Canham (center). (photo by Lynn Kissel)

items. Between that and the auction itself, we cleaned out everything up to date. The oldest items in there have a sticker on them saying "Auction 11/98." Christmas is coming...

F/F SCALE CONTEST

The first Future/Fiction Scale Contest in May was a lot of fun. It was somewhat lightly entered with only four models (two in competition and two display only) and the weather was nasty/windy, but everyone who stopped by the table was thrilled at the display and excited by the idea of fictional subjects actually flying.

Here's what we had on display: Lynn Kissel brought out his exquisite model of the ship from "It! The Terror From Beyond Space" (featured in last month's issue). Geoff Canham had two models: the *Crypt ship* from the "Dan Dare" comic books (it's not what you're thinking, in the story it's from the planet "Cryptos") and a strange little vessel from a Star Trek comic book that was shaped like an artichoke. I hauled the *Myst* rocket out again for display,

although it's still not complete (I'm still missing the rivet bands and the permanent air scoops and tail flanges).

Geoff had to leave before the artichoke ship could be judged, which is why only two rockets were actually in competition. Lynn's simple three-legged beauty went up against Geoff's large, complicated effort. The results were remarkably close with "IT!" edging out the "Crypt" 750 points to 715. Thanks to both of Lynn and Geoff for the time and effort that goes into an entry like this.

Despite our efforts here in the newsletter and on our web page, many didn't know about the contest (mostly new members) and wanted to know when the next one would be so they could join in. I sense a boot strapping operation at work here, and I don't want to lose momentum. Next month is a little early (and a lot of people are going to be on vacation) so I'm suggesting the September launch be our next F/F scale contest. That gives you all two months to get something together. Contact me for details.



F/F scale contest entries: *It! The Terror from Beyond Space*, Lynn Kissel (center). (photo by Lynn Kissel)



Flying My Quark

by Allena Hail, LUNAR #441

One Saturday at Livermore park, people were launching hundreds rockets. It was [the monthly launch of the] LUNAR rocket club. Most people were in line to get a launch pad assignment. One of those rockets was called a Quark. It was about 2 inches in height and green with bright orange fins. Because I had a gold ticket, I didn't have to wait in the long line for a pad assignment. On the way to pad 9, I was wondering if I would ever see my Quark again. It is sooo cute!

I tried to get it on the rod but it was too big. I replaced the rod with a smaller one and slid my little Quark down the rod to the bottom. Then I put the clips on the igniter leads. The clips seemed bigger than the rocket.

I pushed the button when it was my turn. I must have blinked because I didn't see it leave the pad. I looked up and saw nothing in the sky. I looked at the ground but I couldn't see it. Someone yelled "There it is!" and pointed up into the sky. I looked up and saw a puff of smoke but still couldn't see my Quark. I continued to look for it, it had to come down soon.

When someone pointed to the ground and said "It's stuck in the ground!", sure enough there was four bright orange fins sticking out of the ground. When I went to go get it, all the green body was stuck in the ground. When I pulled it out, it was all dirty but it was OK.

So every time I fly my Quark I check the ground for bright orange fins sticking up where I think it lands.

[Ed: This is our first newsletter article from a Youth member of LUNAR! The article says a lot about Allena's knowledge of our sport and her enthusiasm for it. Did you note that she had a GOLD CARD that she got from volunteering at the launch? It would be great if we heard more from our Youth (<11), Junior (12-14) and Senior (15-17) members – they bring a different and welcome perspective to our activities.]



LUNAR Tip: Curl the wires of an Estes igniter so the alligator clip touches the wire at two points instead of just one. This gives you a better chance to have a good connection. (submitted by William J. Orvis, LUNAR #309)



ROC-Stock VII

by Geoff Canham, LUNAR #493

My step-son Matt's school finished on June 13, so I drove down to Carlsbad (near San Diego) to bring him and all his

gear back home for the summer (how can one 15 year old collect so much in two semesters?). But I had noticed in NAR's *Model Rocketeer* that ROC (Rocketry Organization of California) was having a three day meet (ROC-Stock VII) out at Lucerne Dry Lake, near Barstow, that weekend, so we stopped off there on the way back.

The meet started on the Friday and went through Sunday, with night launches on the Friday and Saturday, but since the commencement ceremonies at Matt's school were on the Saturday, we didn't arrive until the Saturday evening.

If you don't like getting your car dirty, this may not be the site for you, as the final part of the trip is down a very dusty dirt track, but it is worth having to clean the car afterwards. The collection of campers and cars parked out on the lake made it very easy to identify the site, and the dirt track was clearly visible from Highway 247, as another vehicle was already heading down it, leaving a large dust cloud in its wake.

We arrived just before sunset on the Saturday, in time for the night launch. We had two rockets prepped with lights, which flew fairly successfully, although one of the parachutes didn't fully deploy. The light stayed on until it hit the surface of the desert. It was an entertaining evening, although there seemed to be more fireworks going up (to the chagrin of the organizers) than model rockets. The requirement for night flight at ROC seems to be only that the rocket have some form of light, not necessarily visible at launch, so a number just had light sticks tied to the shockcord.

Arriving back at the site on the Sunday morning about 9 am, the days activities were already well under way. The majority of rockets being launched were high powered, and at one point they had a drag-race of seven rockets, including three or four J's - a real impressive sight! Their launch pads don't have interchangeable rods, so you have to specify which rod size you require. If you can fly off a 1/8" rod, I'd recommend you to do so. I launched three rockets off 1/8" rods while Matt was waiting for a launch pad with a 3/16" rod to become available.

The flights that go wrong are normally the most interesting, particularly one (not one of ours) that ended up flying an almost horizontal wavy course just above the surface of the desert, thankfully away from the cluster of vehicles and humans.

And I shouldn't forget the rocket that left the pad like a bullet, followed by a "POP!" as though it was staging, even though it was a single stage rocket. The "POP!" indicated that it was the first rocket of the meet to break the sound barrier.



There were a number of differences between that launch and a LUNAR launch, but one thing was much the same: they had a marked lack of volunteers for RSO and LCO!



Making Ripstop Nylon Parachutes

by William J. Orvis, LUNAR #309

After spending hours and hours building and painting your latest rocket, using an inexpensive, plastic parachute is like using paper towels in a fancy French restaurant. But then those nice nylon parachutes cost six or seven dollars, which is often more than you paid for the whole rocket including the paint and glue. In this article, I will show you how to make your own ripstop nylon parachutes for a lot less than seven dollars. Now it does take some time, but making a quality parachute is a creative way to occupy your time while the glue is drying on your model.

Materials

The first thing you need is access to a sewing machine (or someone you can sweet-talk into sewing it for you). You can sew a new parachute by hand, but a machine does a much better and faster job. It does not need to be a fancy machine, just a simple straight stitch is all the capability that is necessary.

The other materials consist of:

- I. Light-weight ripstop nylon.
- II. Shock cords.
- III. Cotton-polyester string.
- IV. Paraffin (small chunk).

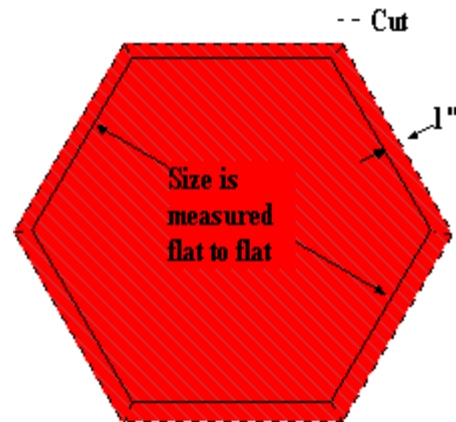
I bought the light-weight ripstop nylon at Dom's Surplus here in Livermore for a couple of dollars a yard. You can make one big (24") or a lot of small parachutes with a yard of ripstop nylon.

For shock cords, go to the sewing section of PayLess or any other drug or department store and get 1/16" round and 1/4" flat elastic. Use the 1/16" stuff on your smaller rockets and the 1/4" elastic on the larger ones. Larger sizes are available for really big rockets. I bought Singer "Knitted Polyester-Spandex" elastic, which costs only a dollar or so per package containing 72" of elastic.

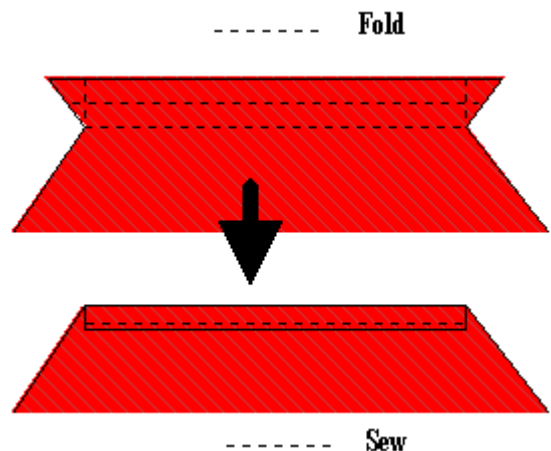
The cotton-polyester string is sold right next to the sewing supplies for a dollar or so per ball and the paraffin you should be able to find in your kitchen or garage. Any hard wax will do if you don't have paraffin (for example, ski wax) and you need only a small amount to wax the string.

Cutting and Sewing

When you have assembled all the parts, the next step is to mark and cut the nylon. First make a hexagonal pattern the size of the parachute you want to make. A 24" parachute would be 24 inches from flat to flat. Place the pattern on the nylon and mark all around the edge. Using a ruler, measure another inch out from the edges of the hexagon and draw another larger hexagon as shown in the figure. Cut out the nylon along this outer hexagon and cut in from the outer hexagon to the inner one at each of the corners.

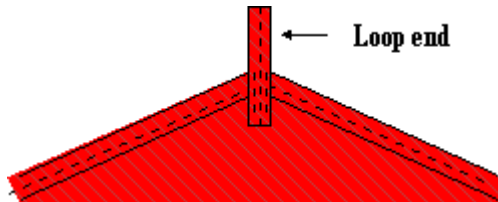


Start with one edge and fold in the small spike of nylon at each corner and fold in the edge of the outer hexagon until it touches the edge of the inner hexagon. Fold this piece over again and pin. Folding the corners in and the edge over twice hides all the cut edges. Sew down this folded over edge to hold it in place. Do the same for the other five edges.





Next, you need to make loops to attach the shroud lines. From the left over scraps, cut a strip of nylon about an inch wide and as long as the scrap piece. You need a total of about 18 inches of this scrap in 3 inch lengths for a 24 inch parachute. Less is needed for smaller parachutes. Leave it as one or more long pieces until after you sew it as it is easier to sew as one long piece than a bunch of short ones. Fold the one inch wide strip in half the long way, then fold it in half again, making a 1/4 inch wide strip. Pin it and sew down the center to hold it in place. Cut a 2 to 3 inch length of this strip and fold it in half the short way. Place the folded strip on one of the corners of the parachute with about half of its length (the loop end) hanging off the edge. Sew this strip down to the parachute with several passes of the sewing machine. Be sure to not sew the loop closed. Do the same for the other corners. For smaller parachutes, use shorter pieces to make the loops.

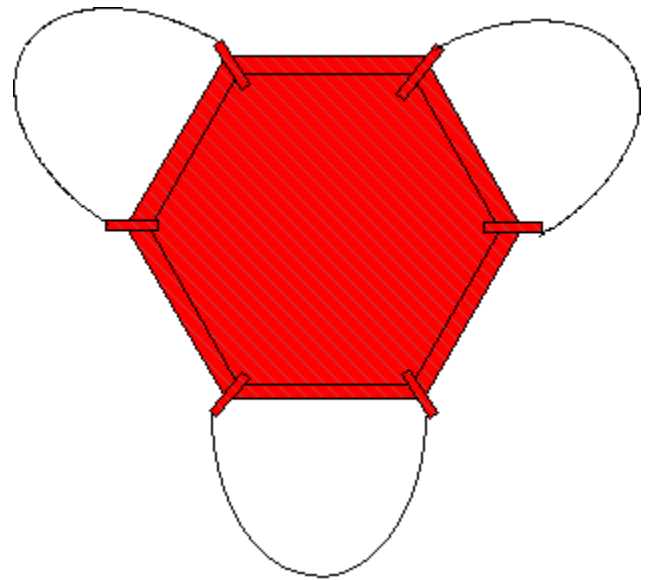


Shroud Lines

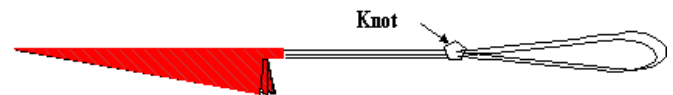
The next step is to make the shroud lines. The shroud lines should be as long as the parachute is wide. That is, a shroud line for a 24 inch parachute should be 24 inches long, measured from where it attaches to the parachute down to where it is gathered together with the other shroud lines.

First cut a length of string that is long enough to make all of the shroud lines. For a 24 inch parachute, this is $(6 \times 24 =) 144$ inches of string. Pull the string across the block of paraffin, pushing it down into the block with your thumb. Do this three or four times to get the string well coated with paraffin. The paraffin stiffens the string a little and helps it stay tightly twisted and less likely to tangle.

Cut the string into three equal lengths, with each length equal to twice the length of a single shroud line. For a 24 inch parachute this would be a 48 inch length. Tie one end of the string to one loop on the parachute. Use a good, non slip knot like a square knot or a bowline. Pull on it to make sure it will not slip. Tie the other end to an adjacent loop on the parachute and test it. Tie the other two strings to the two other pairs of adjacent loops.



Put your finger through the three loops and pull down the center of the parachute. Adjust the strings until all the loops come together and the center of each string is looped over your finger. Pull all the strings together about 3 inches below your finger and tie them together with a single, overhand knot.



Attach It To The Rocket

This finishes the parachute. To use it, slip the looped ends of the shroud line through the loop on a nose cone and pull the parachute through the open loop in the string. Attach the shock cord and you are done. You now have a really nice parachute for less than a commercial one and with enough material left over to make several more.

[Ed: This article has been added as a new subsection of "Building Model Rockets" in the LUNAR Handbook, available on-line at

<http://www.starship.org/LUNAR/handbook/>]





Who you gonna call?

LUNAR HOTLINE	(925) 443-8705
PRESIDENT	
Jack Hagerty, jhagerty@juno.com	(925) 455-1746
VICE PRESIDENT/EDUCATION	
Ron Baskett, rbaskett@hotcoco.infi.net	(925) 462-2197
SECRETARY/TREASURER	
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MEMBERS AT LARGE	
Robert Taylor, 74551.1701@compuserve.com	(925) 447-2291
Warren Massey, masseys@pacbell.net	(925) 443-4933
EDUCATION	
Andrew Pohlman, apoh@sinewave.com	
MEMBERSHIP/EQUIPMENT	
Warren Massey, masseys@pacbell.net	(925) 443-4933
NEWSLETTER	
Lynn Kissel, lkissel@starship.org	(925) 294-8047

Who We Are...

LUNAR is the Livermore Unit of the National Association of Rocketry, Section #534

LUNAR is located in Livermore, California, about fifty miles southeast of San Francisco. We are organized to supply a safe, educational and legal means of furthering the hobby of model and high-powered rocketry in northern California, to aid and encourage the development of all club members' knowledge and expertise in the area of rocketry, to promote youth education and community involvement, and to engage in scientific, educational and related activities. LUNAR is open to rocketry hobbyists of all ages to further the sport and science of hobby rocketry within the NAR (National Association of Rocketry) and Tripoli safety codes. These codes have allowed hundreds of millions of model rocket launches by hobbyists since the late 1950's without serious injuries.

LUNAR also supports assorted rocketry activities of community youth groups. We have hosted launches (and in some case building sessions) for the Boy Scouts, 4H, Indian Guides, the GATE program, and LARPD Science Camp.

Launches

Section launches are usually held from 8:30 a.m. to 12:30 p.m. on the **third Saturday of the month**, unless preempted by other civic events. Our launch site is in Livermore at the soccer practice field of Robertson Park, adjacent to the rodeo grounds, in the southeast corner of town. Generally these are

sport launches, although we occasionally hold sanctioned *contest launches* for points in the NAR national contest standings, *theme launches* where we focus on a particular class of rocket, and *night launches*.

LUNAR's launch site has been certified by the Fire Marshall up through "H" power, and is the only place in northern California where this level of power can be legally flown.

The LUNAR Hotline - (925) 443-8705

The Hotline is available to provide up-to-date event information. It's a good idea to call our Hotline to verify the date of the next launch or meeting.

On launch days, the Hotline recording is updated by 7:00 a.m. to reflect the Go/No-Go status of the launch. On launch days with questionable weather, it is especially important to call the Hotline to get the latest information. You can also leave messages on the Hotline.

Meetings

The LUNAR annual meeting is held during the first quarter of the calendar year at a time and place announced to the membership. At this meeting, officers are elected and other club business is conducted.

Other section meetings are currently held on a bi-monthly bases. These meetings cover section business, and typically include presentations by club members or other experts on some aspect of the hobby, ranging from simple building tips to advanced science and engineering principles.

WWW site!

LUNAR maintains a World-Wide-Web site on the Internet. It is accessible via the URL (uniform resource locator)

<http://www.lunar.org>

There's a lot of stuff to see there, and it always contains the latest information about LUNAR and our activities. For example, you'll find our latest launch and meeting calendar, directions to our launch site, a gallery of photos from past launches, the on-line issues of the LUNAR'clips (the section newsletter), our section bylaws, pointers to member rocket pages, pointers to other rocket and space related information on the Internet, and lots more!

The on-line version of the LUNAR'clips is in some ways better than the hard copy version that we mail to the membership. For example, the on-line version often has color images or additional visual material that doesn't appear in the hard copy version.



LUNAR Calendar

Launches at LARPD Soccer Fields, Robertson Park (N 37° 40.10', W 121° 45.36')

Meetings at community meeting room, Livermore Police Station, 1110 S. Livermore Ave.

WARNING! Times and dates are subject to change with little or no notice. For launch confirmation call the LUNAR Hotline (925)443-8705 after 7 am on launch day. Otherwise, visit the LUNAR web site at www.lunar.org for the latest information.

July 9, 1998, MEETING ◆

Thursday, 7:00 p.m. - 9:00 p.m.

Royce Longacre, finishing techniques

July 12, 1998, LAUNCH ↗

☀ Sunday, 8:30 a.m. - 12:30 p.m.

August 8-14, 1998, NARAM 40

NAR annual meet

Muncie, Indiana

August 15, 1998, LAUNCH ↗

Saturday, 8:30 a.m. - 12:30 p.m.

September 24, 1998, MEETING ◆

Thursday, 7:00 p.m. - 9:00 p.m.

Warren Massey, igniters

September 26, 1998, LAUNCH ↗

Saturday, 8:30 a.m. - 12:30 p.m.

F/F Scale Contest ☺

October 17, 1998, LAUNCH ↗

Saturday, 4:00 - 9:00 p.m.

night launch! ✨

November 19, 1998, MEETING ◆

Thursday, 7:00 p.m. - 9:00 p.m.

Andrew Pohlman, Level 1 Cert.

November 21, 1998, LAUNCH ↗

Saturday, 8:30 a.m. - 12:30 p.m.

December 19, 1998, LAUNCH ↗

Saturday, 8:30 a.m. - 12:30 p.m.



LUNAR

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