

# MASA PLANET

OFFICIAL NEWSLETTER OF THE  
MINNESOTA AMATEUR SPACEMODELER ASSOCIATION



Mukluk Land

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**Holiday Edition, December 2014 Volume 17, Issue 06**

**NAR Section #576**

**Established 1998**

## MASA 2014 Holiday Party

Take out your calendar and write "MASA 2014 Holiday Party" on Saturday, January 3! Our annual MASA Holiday party has been moved a few weeks into January in order to secure a good meeting room. Our party will be held on January 3 from 5:00-11:00 p.m. at the Eagle Lake Community Building at Thoresen Park, 6259 Eagle Lake Drive in Maple Grove.



To view the MASA website for all the details click [HERE!](#)

## Upcoming Events:

- **Holiday Party:**  
Saturday, January 3  
5:00—11:00 p.m.  
Eagle Lake  
Community Building  
at Thoresen Park
- **Meeting:**  
Thursday, January 8  
7:00—9:00 p.m.  
Location: Hennepin  
County Ridgedale  
Library

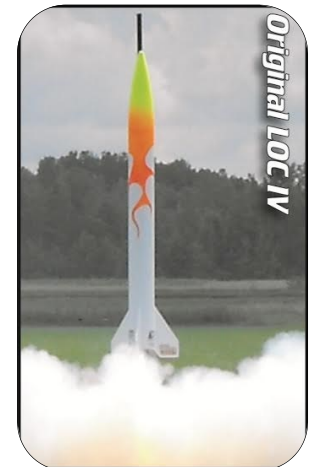


## LOC IV Version 2.0—Lessons Learned: Rising from the Ashes

by Jeff Taylor

In 2007 I built my first high power rocket – a LOC IV. Inspired by Ted's LOC IV, I built this one with a similar zipperless baffle. Other simple upgrades included replacing the stock elastic shock cord with 25-30 feet of tubular nylon, adding an eye-bolt to the Nose Cone, and adding Rail Buttons. I painted some fluorescent flames on it and called it "Miss Fire". After receiving my high power certification in 2007 and after many subsequent flights over the next five years, it lived up to its name and the fin can burned after a CATO in 2012.

The cause of the CATO was quickly and easily determined to be my fault. When assembling the AeroTech H210 Redline motor, I installed the 1/16" O-Ring and the 3/32" O-Ring in the opposite locations. The entire Fin Can and 38mm-29mm motor adapter were destroyed, as well as a 29mm Motor Casing and Aft Closure. Lesson learned: Don't let anything or anyone distract you while assembling a motor, and double check the O-Ring sizes before installing them into the motor – size matters!



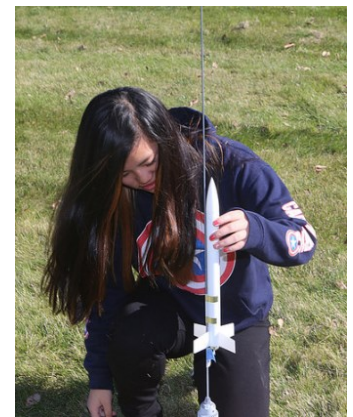
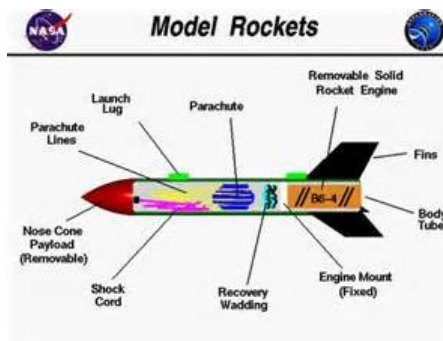
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# Aerospace Camp

by Jon Stenbergen

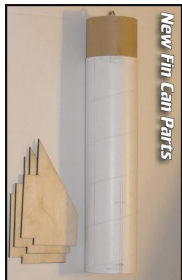
Alyssa Stenberg and family hosted a "Aerospace Camp" in Medina, MN. Nine kids participated who had never been exposed to rocketry. Alyssa taught them the scientific basics of rocketry. A build session followed and the kids participated in a fun contest flying parachute, streamer, helicopter and rocket glider events. Much fun was had!!

Nine new NAR members joined as a result of the camp and there was interest in a spring advanced camp.



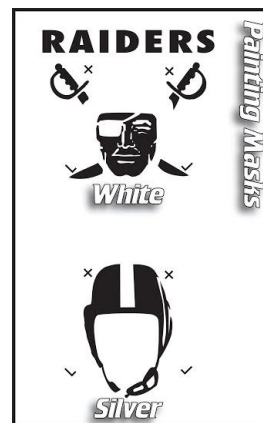
Lessons Learned, from p. 1

When it was all said and done, the only salvageable parts of the original LOC IV rocket were the Nose Cone, Forward Body Tube, Recovery System and Rail Buttons. During the rebuild, I made the following improvements based on lessons learned:



**Improvement #1: Fins.** The Fins on the LOC IV extend well past the end of the Body Tube. This makes it nice for standing the rocket up on end, but for me the Fins tended to occasionally crack on landing. I had broken and repaired each Fin at least once over the years. I decided to try different Fins and ordered a set of Fins for a LOC Phantom. These don't extend past the Body Tube and my hope was that these Fins would be less prone to breaking.

**Improvement #2: Baffle.** While I didn't have any problems with the original baffle that I built, I decided to try a baffle design based on Ken Jarosch's labyrinth design from a 2008 MASA Planet article. This design adds an internal tube inside the baffle that redirects the ejection charge back before it gets redirected again to go forward through holes in the bulkhead.



**Improvement #3: Motor Retention.** My original LOC IV used a Positive Motor Retainer from PML. This is a simple and relatively inexpensive means of retaining the motor using #4 socket head cap screws. But after having used a PML HAMR on another high power rocket I built, I was impressed with the simplicity and elegance of the HAMR and wanted to use it on this rocket too. My original rocket also used a LOC 38mm-29mm Motor Adapter which is a series of tubes and rings that you epoxy together in order to fit a 29mm Motor Casing in the rocket's 38mm Motor Tube. This type of Motor Adapter doesn't work with the HAMR, so I used the HAMR Adapter, again adding simplicity and elegance.



**Improvement #4: Rail Button Stand-offs.** When I built the original rocket, I mounted some 1/4" plywood blocks inside the airframe for the Rail Buttons to mount to. The only drawback to this design is that the rocket is only about 1/32" away from the rail, and that allowed the front end of the rocket to scrape against the rail, scuffing the paint. During the rebuild, I mounted the 1/4" plywood blocks to the outside of the airframe, and that provided just enough space between the rail and the front of the rocket so they wouldn't scrape.

**Improvement #5: Nose Cone Gap and Screws.** The original zipper-less design called for the Nose Cone to be mounted to the forward Body Tube section. To do this, I simply added three screws from the outside Body Tube into the Nose Cone. The Screws and the gap between the Body Tube and Nose Cone never really looked too finished. During the rebuild, I simply attached the Nose Cone to the Body Tube with some epoxy, and then I filled the screw holes and gap with some watered-down Elmer's Wood Filler. Eliminating the Screws and gap provided a much cleaner look.

Continued from p. 3

With NARAM 56 quickly approaching, I was running out of time to get this rocket painted. I decided to go with a silver and black Oakland Raiders paint scheme (not the smartest thing to do flying in Bronco's country). Using my Silhouette Cameo cutting machine, I cut painting masks for the Raiders logo and Raiders text from frisket film. Cutting the masks out of frisket allowed me to easily curve them over several surfaces, since the logo spanned across fins, fillets and body tube. First I sprayed the aft portion of the rocket white, then I applied the fist mask of the logo on each side of the rocket. For the outline of the shield I just used Tamiya masking tape. Then I sprayed silver over the white to add color for the helmet and the first three letters of the text. I then added the masks over the helmet and letters, and then painted the rest of it black. For the forward portion of the rocket I sprayed it all black, added masks for the letters then sprayed it all silver. After removing all the masks it all got a coat of clear.



## Astronaut Quotes



“I fully expect that NASA will send me back to the moon as they treated Sen. Glenn, and if they don't do otherwise, why, then I'll have to do it myself.” — Pete Conrad

“Buzz Aldrin doesn't think we need to go back to the Moon - that we should go straight on to Mars. I'm more on the side that says we should go back to the Moon. I think there's a lot we can utilize the Moon for scientifically.” — Charles Duke



What we find is that if you have a goal that is very, very far out, and you approach it in little steps, you start to get there faster. Your mind opens up to the possibilities.” — Mae Jemison

## Saturn V Launch Camera

Back in September Todd Carpenter posted a link in the use net group of a Saturn V launch camera. This video contains some great narration and is worth a watch.

If you missed it you can click on the picture to the right to go to the video.



# Oakenshield

by Todd Carpenter

OakenShield, the third design to be grown by Sylvan Rocketry, flew for the first time at the VFW fields at the MASA October launch. The knot work and leaves were carved from 3 layers of 1/16" balsa glued and wrapped around a body tube. Figure 1 shows the carving in process. The fins were carved from home-made 4-ply balsa stock, shown in Figure 2. Unfortunately, the fins ended up way too big, so I cut them down considerably. The nose cone in Figure 3 was done by heating old styrene sprues and stretching and wrapping them around a nose cone to look like mistletoe vines on the oak. Oak stain and polyurethane finished the rocket. Figures 4 and 5 (courtesy of Carol Marple) are of OakenShield on an Aerotech D13, clearly winning a drag race. Unfortunately I selected a chute that was a bit small, so a couple fins snapped off at the base. Easily repaired in a few minutes with CA, and it is ready to fly again in spring.



## MASA SHOWCASE

This is the section of our newsletter that showcases recent builds by MASA Members.



Jeff Taylor's Estes Der Red Max finished off with Auto-Air Pearlized Red and Auto-Air Pearlized Black

## MASA DIRECTORY

Established 1998

Founding President: Russ Durkee

### 2014 President

Neal Higgins—nthiggins@gmail.com

### 2014 Vice President

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### MASA Planet Newsletter Editor

Andy Heren—planet.editor576@gmail.com

### MASA Planet Online

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### Club Website

www.masa-rockeetry.org

### Webmaster

Alan Estenson — estenson@mn-rocketry.net

### Club Yahoo Group

http://groups.yahoo.com/group/masarocketry

## MASA Calendar

### Holiday Party

**Date:** Saturday, January 3

**Time:** 5:00—11:00 p.m.

**Location:** Eagle Lake Community Building at Thoresen Park

6259 Eagle Lake Drive, Maple Grove, MN 55369

Click here for all the details!

### Meeting

**Date:** Thursday, January 8

**Time:** 7:00 p.m.—9:00 p.m.

**Location:** Hennepin County Ridgedale Library

12301 Ridgedale Drive, Minnetonka, MN 55305

**Topic:** Officer Elections and 2015 Schedule Planning

*See your article or pictures here!*

*Submit an article or picture for the  
MASA Showcase to*

*planet.article576@gmail.com*

For more information, click [HERE](#) to go to the  
MASA website



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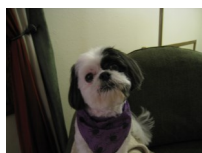


Mailing Label Here

## **MASA**

Minnesota Amateur Spacemodeler Association, founded in 1998, is an active rocketry club with members from the Twin Cities and surrounding areas of Minnesota and western Wisconsin. MASA is dedicated to the safe and enjoyable pursuit of the rocketry hobby. MASA is a registered section (Section #576) of the National Association of Rocketry (NAR). MASA has been recognized by the NAR as “Medium-Sized Section of the Year” in 2006 and 2007, has received the NAR’s North American Rockwell Trophy for best newsletter in 2008, 2009 and 2010, and has hosted NARCON (the NAR’s Annual National Convention) in 2007 and 2008. MASA has an official club launch on the 4th Saturday of each month (weather dependent) year round at one of several different flying sites located in Nowthen, White Bear Lake and Otsego. We also hold monthly club meetings on the 1st Thursday of each month, typically held at the Science Museum of Minnesota in St. Paul. We host a Club Picnic in July and a Holiday Party at the end of the year. MASA also participates in numerous rocketry-related outreach activities including Cub Scouts, Girl Scouts, schools, 4H, TARC and USLI to name a few. Visitors, spectators, and prospective members are always welcome to join us at club events! MASA welcomes rocketeers of all ages and experience levels. MASA members share their building and flying experience to help you hone your skills and become a better and safer rocketeer. Flying in a club environment keeps you in touch with the latest rocketry techniques and products, as well as offers encouragement and support through camaraderie of fellow club members. You do not need to belong to the NAR (National Association of Rocketry) in order to join MASA. However, we do encourage you to consider NAR membership. (Find out more about the NAR at [www.nar.org](http://www.nar.org)) You can find more information on the MASA web site, [www.masa-rocketry.org](http://www.masa-rocketry.org), or email us at [masarocketry@rocketmail.com](mailto:masarocketry@rocketmail.com).

**For more information, or to join MASA ,go to [www.masa-rocketry.org](http://www.masa-rocketry.org)**



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