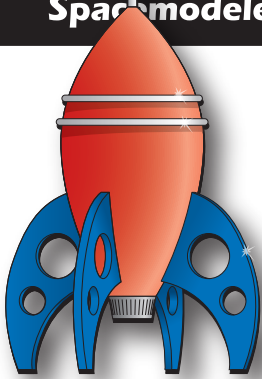


# MASA Planet

Minnesota Amateur  
Space Modeler Association

Volume 10, Issue 1 July - August 2007

UNDER NEW  
MANAGEMENT



mn-rocketry.net

**MASA**

Established January 1998  
NAR Section 576



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## MASA Planet Returns to Orbit

The Planet is finally back in print! Jeff Taylor is now the new Planet editor. Please submit any newsletter items to Jeff at [jeff.taylor@mn-rocketry.net](mailto:jeff.taylor@mn-rocketry.net)



## MASA Celebrates Its Tenth Annual Summer Picnic

Saturday July 21 was MASA's Tenth Annual Summer Picnic, held at the VFW Soccer Fields in Elk River. About 38 people showed up for rocket flying, eating and door prizes. The weather was warm and breezy, but not bad enough to keep MASA members from flying and eating.

Flights were made from 2:00 - 5:00 with Buzz McDermott, Jeff Taylor and Ted Cochran running shifts as LCO in a misfire alley configuration.

The picnic started at 5:00 with lots of burgers, hot dogs and beverages provided by MASA. Members all pitched in and provided a well-stocked table of food and goodies. Andy Heren and Art Gibbens worked the grill, while Alan Estenson and Carol Marple set up the rest of the picnic items.

Door prizes were in abundance and were passed out after eating. Ben Ericksen drew names from a bucket as Alan handed out the prizes. Check the web site to see who went home with what.

Thanks to all who attended and helped at the picnic, brought food to share and donated prizes.

**Continued on Page 7**

## Tenth Annual MASA Picnic - Elk River VFW Soccer Fields - Saturday July 21

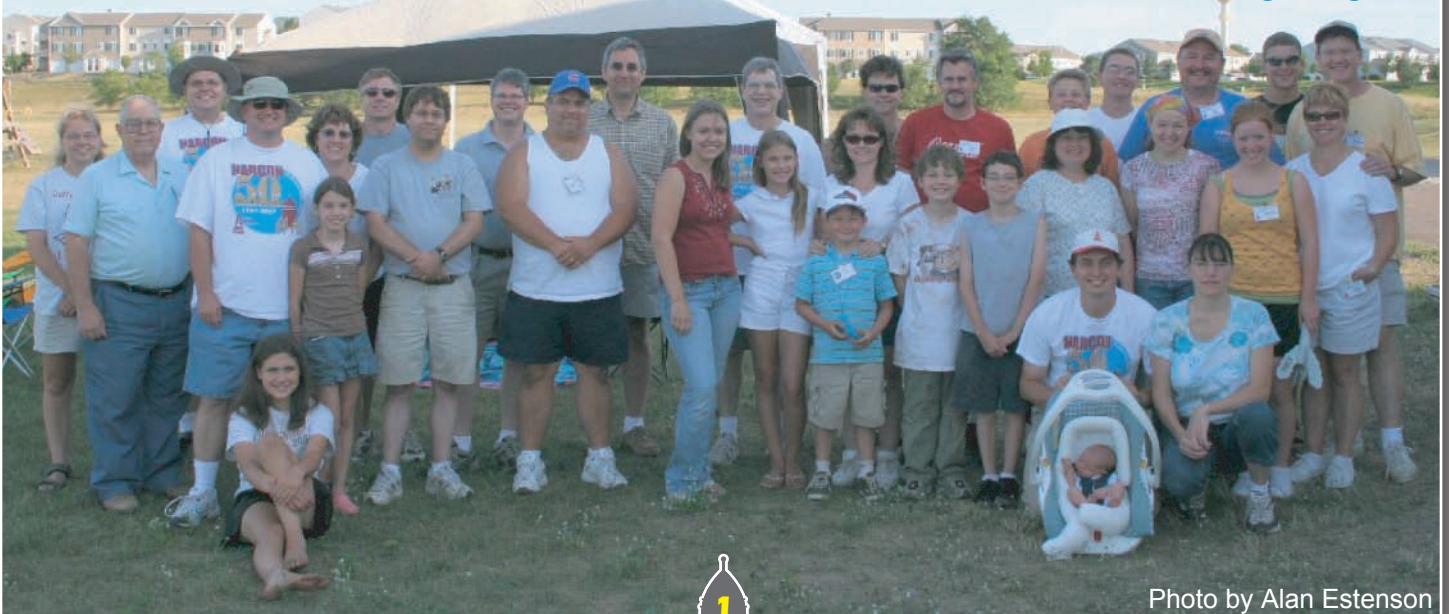


Photo by Alan Estenson



# MASA Planet



## MASA Hosts NARCON 2007

In March of this year, a few hundred rocket enthusiasts descended on downtown Rochester, about an hour south of the Twin Cities, for the annual National Rocket Convention, better known as NARCON 2007. For MASA, this was an extra special NARCON, as MASA was selected as the host section for this event.

MASA President Mike Erpelding set the wheels in motion in the summer of 2006 to work with the NAR, the Rochester Chamber of Commerce, and the Kahler Grand Hotel to find a home for NARCON 2007. MASA submitted the winning bid to the NAR to be the host section, and the Kahler Grand Hotel submitted the winning bid to MASA to be the host hotel.

A NARCON Planning Committee was set up with volunteer MASA members, including (in no particular order) Mike Erpelding, Alan Estenson, Ted Cochran, Carol Marple, Mark Thell, Jeff Taylor, Glen Overby, Andy Heren, Rick Vatsaas, Mark Nelson, and Buzz McDermott.

It was decided to include a sport launch at NARCON 2007, so MASA enlisted the help of Tripoli Southern Minnesota (TSM) to step in as co-hosts. TSM's home launch site is about an hour drive west of Rochester. TSM members Andy Limper and David Donovan coordinated the sport launch activities.

The list of activities that would need to be pulled off over the winter months seemed endless. Guest speakers needed to be identified and recruited. Presenters needed to be lined up. The hotel convention facilities needed to be optimized. A Program Book needed to be designed and printed.

Vendors needed to be coordinated and scheduled. Dates needed to be set. An official web site needed to be created. Travel plans needed to be made. Door prizes needed to be collected. Budgets needed to be drafted and adhered to. Advertising, branding, signs, staff shirts, on-line registrations, media relations, merchandise... the lists seemed to just go on and on.

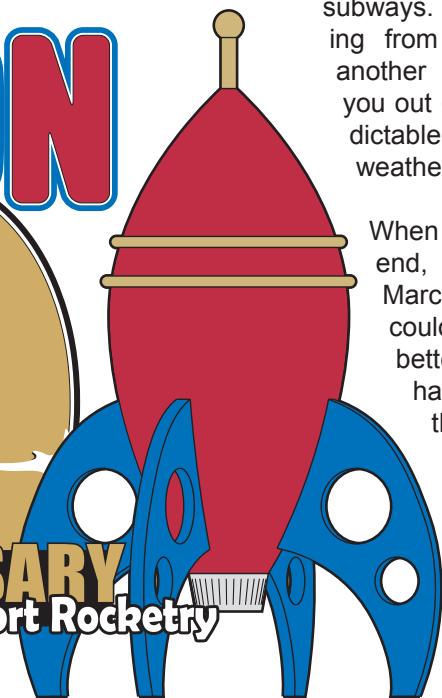
The Kahler Grand Hotel was an excellent venue for NARCON 2007, and their staff was world class. The Kahler Grand is an 80-year-old hotel located right across the street from the Mayo Clinic. The Kahler Grand has been host to many dignitaries and celebrities over the years, due to its close proximity to the Mayo. Downtown Rochester is home to an extensive network of walkways that connect nearly every building to each other. Above ground there are many skyways, but below ground are

many more miles of subways. This made traveling from one building to another simple, and kept you out of the very unpredictable Minnesota March weather.

When it all came to an end, that weekend in March probably couldn't have gone better. There was hardly a single detail that hadn't been thought of and worked out ahead of time. The NARCON planning committee went above and beyond the call of duty to make this the

best convention that it could possibly be. Two special guest speakers, over 25 individual presentations, workshops or seminars, the TSM Sport Launch, scheduled breaks, Bunny's Town Hall Meeting, and literally hundreds of door prizes kept rocket conventioners busy from Friday afternoon until Sunday afternoon.

There aren't enough words to thank all of the MASA and TSM members who worked so hard to make NARCON 2007 a success.



**Look for more NARCON 2007 Coverage in upcoming editions of the Planet, as well as the July/August issue of Sport Rocketry Magazine**



## NARCON 2007 at a Glance

### Special Guest Speakers:

- John Weyrauch - Space Shuttle Development
- Andrew Vano - X-15 Development

### Presentations, Workshops and Seminars:

- Experimental Motors, Composite Motor Staging, Airstarts and Clusters
- Make It/Take It Rocket Building Session
- Hybrid Rocket Motors
- Rocketry Safety and the NFPA Code
- Improving the Scientific Basis for Regulating AP Storage
- Tube Finned Rockets
- Securing and Maintaining Rocketry Fields
- Rocket Design using RockSim and RockSim Pro
- TARC Session
- Rockets for Schools
- Storing HPR Motors and the ATF
- Rocket Design using PowerPoint
- Building for FAI (International) Competition
- The Ancient and Honorable Art of Kitbashing
- NAR Junior High Power Certification
- Electronics Bay Construction
- Safety Risks of Sport Rocketry
- Boost Gliders
- The Baikonur World Championships
- Designing and Packaging a Model Rocket Kit
- NAR Flying Old/Expired Motor Program
- Fourth Grade Rocketry
- Certifying Level 1 to Level 3
- There Must Be 50 Ways to Fill Those Fins
- First Time Fiberglassing

### NARCON Staples:

- NAR Board of Directors Annual Winter Meeting
- Mixers
- Vendor Area
- Welcome Speech
- Vendor's Forum
- Old Rocketeer's Forum
- Bunny's Town Hall Meeting



# MASA Planet

## Vendor Support at NARCON 2007

NARCON 2007 wouldn't have been possible if it weren't for the generous support from the vendors. Whether it was buying advertising space in the NARCON 2007 Program Book, attending NARCON 2007, or donating the many fabulous door prizes and other giveaways, rocket vendors made a huge impact on NARCON.

Vendors who advertised in the Program Book included FlisKits, Semroc, Sunward, PDRocketry, Thrustline Aerospace, Apogee Components, ARA Press, Sirius Rocketry, Hub Hobby Center, Red River Rocketry, BMS, Rocket T-Shirts, and LAUNCH Magazine.

Vendors who were scheduled to attend NARCON included Semroc, Sirius Rocketry, FlisKits, Chutes by Boe, AeroTech Division, Red River Rocketry, Hawks Hobbies, PDRocketry, Rocket Technologies, Apogee Components, Sunward Aerospace Group, Balsa Machining Service (BMS), and even Micro Classics.

Quest Aerospace donated over 25 Aries kits for the Make-It/Take-It session.

In addition to all of the vendors listed above, many vendors help support NARCON by donating door prizes or donating products and coupons for the Welcome Packages. These included ASP - Aerospace Specialty Products, Belleville Hobbies, Dr. Zooch, Everything Hobby of Rochester, Excelsior Rocketry, Hartle Engineering, Inc., jonrocket.com, LOC/Precision, Madcow Rocketry, NARTS - NAR Technical Services, Qmodeling, Sheri's Hot Rockets, Starlight Model Rockets, and Uncle Mikes Rocket Shack.

The Youth Grand Prize (valued at over \$150) was donated by Hub Hobby, and the Adult Grand Prize (valued at over \$600) was donated by Sheri's Hot Rockets.

Discount prices, free kits, new model debuts, and the chance to meet the vendors face-to-face made vendor participation one of the most exciting parts of NARCON 2007.

Thanks to all NARCON 2007 vendors! We couldn't have done it without you!



## Thank You NARCON 2007 Vendors!



# MASA Planet

## VLA & LO

### Adventures in Observation

By Art Gibbens

What has a 13 mile radius, sits on railroad tracks at 7000 feet elevation in the middle of New Mexico and sees deep into space? Why, it's the Very Large Array (VLA), of course! Situated between Reserve and Socorro, New Mexico on US Highway 60, it sets on a high plateau to the South of the highway in the Plains of San Agustin. As we were traveling towards the Gila National Forest to do some site seeing, we noticed the antennas. Then we saw the sign saying it was open daily so we turned around and spent a most wonderful hour or so in the visitors' center looking at displays and watching the movies.

Inside the visitors' center were many displays where we learned things like: there are as many as 27 dishes working on the array at any given time; that inside the antennas the receivers are cooled to -427 degrees F (15 degrees Kelvin); the antennas have 82 foot diameter dishes with aluminum panels formed into a parabolic surface accurate to 20 thousandths of an inch; and that each antenna weighs 230 tons.

Construction on the VLA was begun in 1972 and completed in 1981 at a final cost of \$78,600,000.00. The antennas are moved along railroad tracks. Buried below the ground and along side the track is the waveguide, which is a long hollow tube that has been very accurately formed for the transmission of the signals to and from each antenna to the Control Building. In the Control Building the radio signals from each of the antennas is converted into numbers that represent the signal strength. Then, in a special purpose computer called the correlator, the signal from each antenna is multiplied with the signal from every other antenna. This multiplication is done millions of times a second.

Without computers, operation of the VLA would be completely impossible. These computers continually monitor the performance of thousands of components on the antennas and in the Control Building. The most intensive use of computers at the VLA involves calculations to form

and analyze images. The image data taken with the VLA are stored on magnetic tape. It may be days or even years before an astronomer might look at the tape to analyze the image results, which are the final products of the VLA.

Our second unscheduled stop of observatories brought us to the Lowell Observatory in Flagstaff, AZ. We had scheduled two days of site seeing at the Grand Canyon but saw all we wanted to see in just one day. That left us a second day in the Flagstaff area to fill with other activities. We started out by heading up to Sunset Crater National Park to see a large cinder cone volcano and the



Very Large Array (VLA)

Photo by Art Gibbens

lava flows caused by the eruption. Then we went onward to Wupatki National Ruins to see some old Indian petroglyphs and remains of some housing units. Our initial plan was to head to a natural museum in Northern Flagstaff for the afternoon, but there were about a bazillion people there that day. So we ate our lunch in the shade of one of

**Continued on next page...**



its parking lots and re-strategized. We decided to try to see if we could get to the Lowell Observatory.

What a good choice that turned out to be. They had lots of exhibits throughout the campus. They had a video clip to see in the main exhibition area that told the history of the discovery of Pluto. We were able to catch one of the walking tours to see the different telescopes that were used throughout its history. A couple of things I thought noteworthy were the facts that a bicycle repair shop was chosen to design and build the rotating cover on the large telescope way back when it was first put into service. It has held up surprising well over the years. The other thing that was really cool and made a dramatic point was the to-scale model of the solar system that was along the sidewalk leading up to the telescope where Pluto was discovered.

An interesting tidbit of information concerning the discovery of Pluto was that the math was off, but still close enough for the astronomers to find the new planet. There was an old analog computing machine called The Millionaire that did all the computations of the equations as they

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VLA Sign

Photo by Art Gibbens



Millionaire

Photo by Art Gibbens

charted the heavens. Just a wonderful time capsule of how things were done not so long ago.

Well, that's the scoop on the two observatories the Gibbens' visited on our vacation this year. As they say, if you're ever in the neighborhood, stop by. You won't be disappointed. 🚀

(Portions of this report came directly from literature published by the VLA and LO.)



VLA

Photo by Art Gibbens

# MASA Planet

## Display Stand for 18 and 24 mm Rockets

By Rick Vatsaas

I admit it, I'm a scrounger. Every product I look at, I evaluate its potential for use as a rocket airframe, fin, nosecone or logistical equipment. So, it's no surprise that when I found myself with an empty 100 CD Container, I looked for ways to use it on the rocket bench. The clear plastic shell makes for a handy bin, but if I was to use the base as a lid, the shaft down the middle would have to be cut off. Actually the best use of the CD container base is quite obvious; a display stand for small rockets.

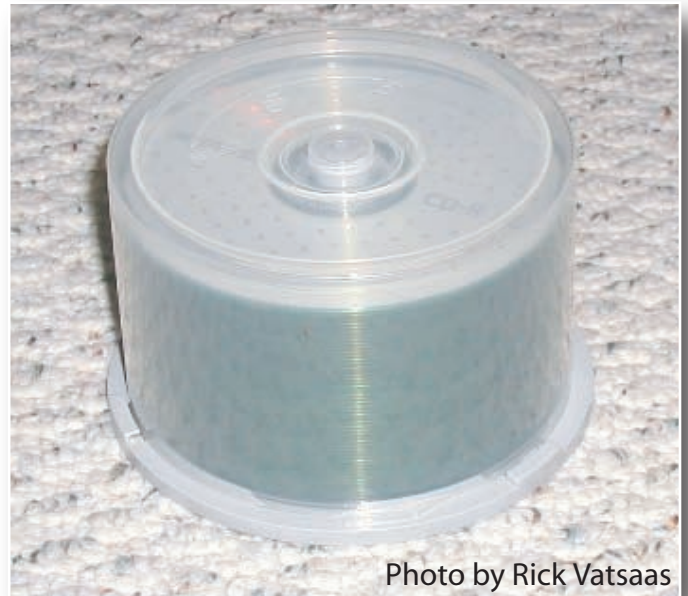


Photo by Rick Vatsaas

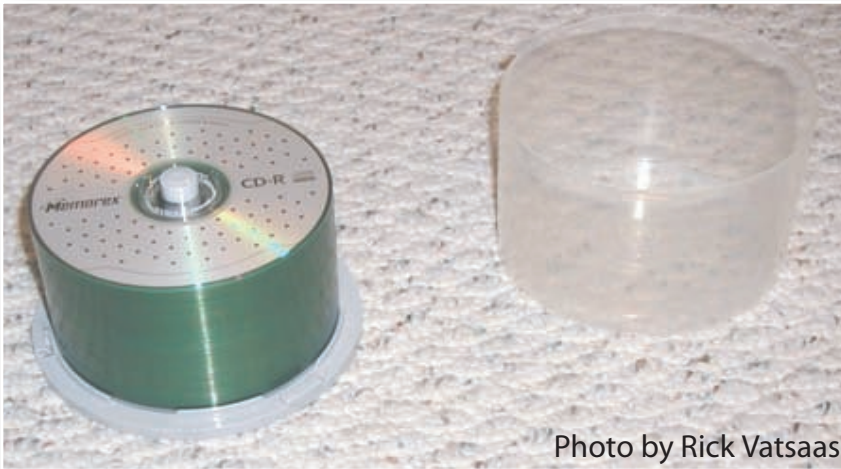


Photo by Rick Vatsaas

### Instructions:

Purchase a 100 count CD package. Remove the shrink-wrap and paper labels. Then remove shiny discs and discard them, as you won't need them for this project. You are now left with the base and the clear cover. The cover, as stated before makes for a nifty storage bin for nuts and bolts on your work bench, or as a hot tub for your action figures. [Editor's note: not to be confused with "dolls"]

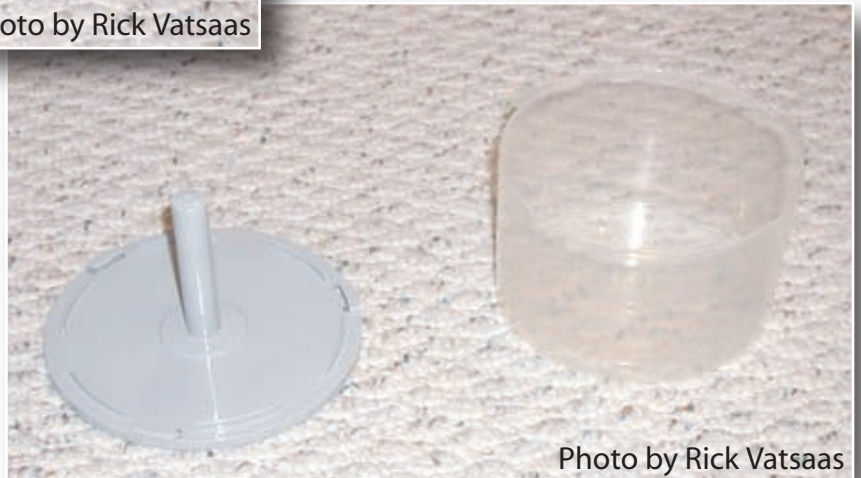


Photo by Rick Vatsaas

The shaft protruding from the base is a tad small to snugly fit within an 18 mm motor mount, so a few layers of tape are needed for a good fit. Use 1 1/2 to 2" wide tape and use care that it wraps smoothly around the shaft. You can adjust to your own taste; you can even leave the tape off completely if you want the model to be easily removed from the display. After installing the tape, the display stand is complete!



Continued on the next page...

# MASA Planet



Photo by Rick Vatsaas

Displaying the rocket:

Simply insert taped shaft into the motor mount. This design works best for lightweight models. Long and heavy models may cause the stand to be easily toppled.



Photo by Rick Vatsaas



Photo by Rick Vatsaas

Modifications:

This displays stand can be easily modified to work with 24 mm motor mounts by fitting a used 24mm motor casing over the taped shaft. You can also jazz up the display stand by recovering one of the discs from the trash and placing it shiny side up on the base (note, this works better if you place the disc before you add the tape).



## More MASA Picnic Coverage



Photo by Alan Estenson



Photo by Alan Estenson



Photo by Alan Estenson

Door prizes generously donated by Hub Hobby of Little Canada, Hub Hobby of Richfield, Jeff Taylor, Ron Wirth, Glen Overby, Mike, Amber and Ethan Erpelding, Ken Jarosh, and Tyler, Ben and Courtney Ericksen.

Grill-Meisters Andy Heren and Art Gibbens kept the club well fed

Ted Cochran's Hawks Hobbies Super Sprite lifts off.



**Continued on Page 10**

# MASA Planet

## 2007 Launch Windows

Subject to Change - Check MASA Website for updates

### MASA July Launch

Saturday July 28 9:00 AM - 4:00 PM  
Nowthen Launch Site  
Theme: Clusters

### NARAM 49

July 28 - August 3  
Kalamazoo, MI

### MASA August Launch

Saturday August 25 9:00 AM - 4:00 PM  
Nowthen Launch Site  
Theme: Great UFO Drag Race, Comanche-3 Drag Race

### MASA September Launch

Saturday September 22 9:00 AM - 4:00 PM  
Nowthen Launch Site

### MASA October Launch

Saturday October 27 9:00 AM - 3:00 PM  
Nowthen Launch Site

### MASA November Launch

(One week earlier than normal)  
Saturday November 17 Time: TBD  
Launch Site: TBD

### IMPORTANT LAUNCH NOTES:

All MASA Launches are "Misfire Alley" (bring your own launch pad and controller)

All launches at the Nowthen Launch Site will have an FAA Waiver to 5500 ft MSL (about 4500' AGL)

## 2007 Meeting Schedule

Subject to Change - Check MASA Website for updates

### MASA August Meeting

Thursday August 2 7:00 PM - 9:00 PM

### MASA September Meeting

Thursday September 6 7:00 PM - 9:00 PM

### MASA October Meeting

Thursday October 4 7:00 PM - 9:00 PM

### MASA November Meeting

Thursday November 1 7:00 PM - 9:00 PM

### MASA December Holiday Party

Date: TBD  
Location: TBD

### IMPORTANT MEETING NOTES:

Unless otherwise specified, all meetings shall be held at the Science Museum of Minnesota in St. Paul, Classrooms 11 & 12

## MASA Directory

Minnesota Amateur Spacemodeler Association  
Established January 1998  
Founding President: Russ Durkee  
NAR Section 576

### Club Website

[www.masa-rocketry.org](http://www.masa-rocketry.org)

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Mike Erpelding  
[fizzbin@meltel.net](mailto:fizzbin@meltel.net)

### Vice President and Webmaster

Alan Estenson  
[estenson@mn-rocketry.net](mailto:estenson@mn-rocketry.net)

### Secretary/Treasurer

Rick Vatsaas  
[rick@vatsaas.org](mailto:rick@vatsaas.org)

### Newsletter Editor

Jeff Taylor  
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The MASA Planet is the official newsletter of the Minnesota Amateur Spacemodeler Association. It is published bimonthly as a service to its members. MASA authors and photographers retain rights to their submissions, which are used by permission. Send submissions to [jeff.taylor@mn-rocketry.net](mailto:jeff.taylor@mn-rocketry.net) The Planet is available in color on MASA's web site: [www.masa-rocketry.org](http://www.masa-rocketry.org)

If your email address, U.S. Mail address, or phone number changes: Please send notice of your change to [masa@mn-rocketry.net](mailto:masa@mn-rocketry.net). Include your name and old and new addresses. We depend on email for communicating important information. When an email address starts "bouncing", we lose contact with you.





## Another L1 Cert Flight for MASA

By Jeff Taylor

I would like to thank Ted Cochran, Alan Estenson and Carol Marple for helping me obtain my HPR Level 1 Certification at the June MASA launch in Nowthen.

I built a LOC/Precision LOC IV for this flight, and incorporated a zipperless baffle design inspired by Ted's LOC IV modifications and various zipperless designs I found on the web, including Rocket Team Vatsaas. Other mods included replacing the elastic shock cord with tubular nylon strapping, replacing the launch lug with rail buttons, and additional internal fillets on the fins inside the tube. I painted the rocket white and airbrushed some fluorescent flames on it, then named it "Miss Fire".



Photo by Carol Marple

Alan and Ted inspected the rocket to make sure I built it right, and Alan and Carol made sure I assembled the massive H180W-M right (this motor casing was bigger than the rockets I usually build).

When it came time for Alan to press the button, the launch was surprisingly loud, surprisingly fast, surprisingly high and surprisingly straight. All I remember seeing was a lot of fire and smoke on the pad. After it arched over, it ejected and the parachute opened perfectly. It

landed about 600 feet from the pad with no damage what so ever.

I thought that I would be nervous, but I wasn't, and I really believe that was because I had such a wonderful support team of mentors behind me. Thanks again to Ted, Alan and Carol. 🚀

# MASA Planet



Photo by Carol Marple



Photo by Carol Marple



Neil Armstrong, Michael Collins, and Buzz Aldrin

The Crew of Apollo 11 after returning from their historic flight. Can you tell by their facial expressions which one *didn't* get to walk on the Moon?

Useful Metric Conversions for the mathematically challenged:

- 1 trillion microphones = 1 megaphone
- 1 millionth of a fish = 1 microfiche
- 1 trillion pins = 1 terrapin
- 10 rations = 1 decoration
- 10 millipedes = 1 centipede
- 3 1/3 tridents = 1 decadent
- 2 monograms = 1 diagram
- 8 nickels = 2 paradigms
- 2 wharves = 1 paradox



# MASA Planet

## More MASA Picnic Coverage

Photos by Alan Estenson



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# MASA Planet

Place  
Postage  
Here