

# THE INVERTED FLYER

NEWS of the BOULDER AEROMODELING SOCIETY  
AMA Charter # 906

## February 2018 Edition

From the Editor

### CLUB DUES ARE DUE!

If you have not yet paid your 2018 dues, now is the time to renew! The gate code will be changed out sometime in early February, and by April, newsletters will only be distributed to active members. The renewal form is included on the last page of this PDF, and can also be found on the club website at <http://www.boulderaero.org/>

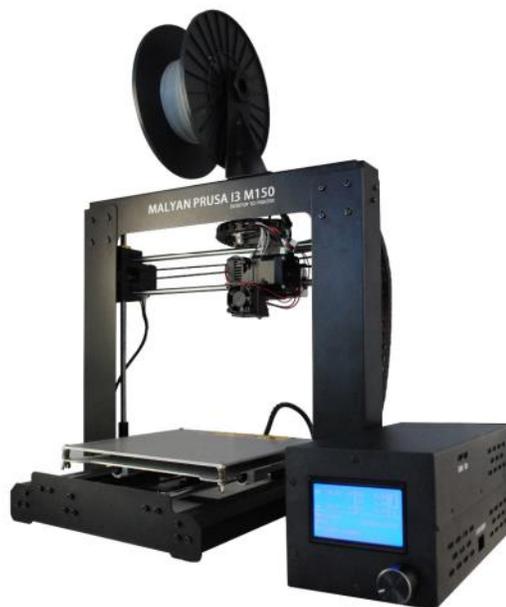
Sincerely,  
James Mack  
[jmack@jmack.net](mailto:jmack@jmack.net)

### My Foray Into 3D Printing

James Mack

On black Friday 2016, I saw a sale that was too good to pass up. There was a 3D printer on sale from HobbyKing for \$250, shipped. It's called a Malyan M150, which was a clone of a clone of another popular 3D printer out of the Czech Republic called the Prusa i3. I knew a little about 3D printers from work (I'm a mechanical engineer), but those were the \$50,000 kind, so I didn't know quite what to expect from something so inexpensive. I did enough research to find that people were generally satisfied with this model, and out came the credit card to bring this beauty across the Pacific to my door the following week.

Setup was straightforward, the unit had half of its frame disconnected so it would pack flat in a box,



Manufacturer photo of the Malyan M150 Printer.

but I had it assembled in half an hour by attaching roughly a dozen screws. The first print was similarly easy; there were a couple example files loaded onto its computer brain, so all I had to do was load some filament (thin plastic "wire" used for printing) into the print head and hit go. Viola! I had a 3D printed mouse of the rodent variety to share.

A typical home 3D printer isn't too different from a common inkjet printer. Where an inkjet moves a print head around and squeezes out dots of ink, the 3D printer moves the print head around and squeezes out molten plastic. Things are built from thin layers of material, starting on the base and working upward. This process is called Fused Deposition Modeling, or FDM, which contrasts to many more expensive printers that print in exotic plastics and metals.

*(Continued on page 3)*

## BAS Meeting Minutes, 1/10/2018

HobbyTown Longmont

The meeting was called to order at 6:30 pm by President Chester Shans. There were 9 members present.

Chester expressed the club's thanks to Murray Lull for his time serving as president.

A motion was made to accept the prior month's minutes as published. Motion approved.

There were no reports from the Vice President or the Secretary.

Dean Ehn reported on the state of the treasury. There was some general discussion about the amount of money in reserve and that the club should look for ways to utilize some funds for fun events.

Al Coelho reported that, to date, we have 44 members, which is slightly lower than this time last year. He also noted that there are 15 float fly members signed up. There was a question of how many of the 44 were new members versus renewals. Al will provide that information at the next meeting.

### *Old Business:*

A question was asked about repairs to the boat trailer tongue. It is believed that Ken Joachim plans to buy the material for that repair.

Chester Shans discussed the topic of our procedures documentation. There are still some tasks and processes that are not included. Chester will organize a meeting to work on getting the list completed.

### *New Business:*

Chester Shans proposed that we have a meeting at the field to review the facility for what work/improvements need to be made. One suggestion was for additional cabinets under the charging table, but no conclusion was reached.

Mike Gulizia agreed to a suggestion to put the field's hours of operation on the front page of the website. Al Coelho suggested that it be put in the banner which now holds notification of the dues and initiation fee reduction. Since that information is now on the membership application, the suggestion will be implemented. A question was also asked about contact information on the website for flight instructors. Mike will check on that.

Wendell Wickstrom asked if the January newsletter had been sent as he did not see it. Al Coelho stated that although there was a problem in the original distribution to AOL mail users, it was corrected and resent to those users. Al stated he would resend Wendell a copy of the newsletter.

Rudy Furman discussed the recent installation of our last spare windsock. He was asked to purchase two new windsocks to keep as spares.

Rudy Glick suggested that we plan some fun fly activities for the club picnic. Also, that we could have gift drawings or a raffle. Al Coelho mentioned that we need to set a date and assign a coordinator. Chester Shans will contact David Goodnow to see if he is willing to plan this year's picnic. Murray volunteered, if David is not available. Al offered to help with event coordination.

**NOTE:** *The gate combination will change in February.*

There being no further old or new business, Dean Ehn moved that the meeting be adjourned. The meeting was adjourned at 7:15 pm.

Respectfully submitted,  
Mike Gulizia

*(Continued from page 1)*

The process of printing involves several steps, many of which are transparent to the user. First, software called a “slicer” divides a 3D model into thin layers, and calculates how to move the print head to deposit plastic for each layer. This gets translated into a script for the printer called G-Code, which has been adapted for 3D printing after use in industrial CNC machines for decades. And this G-Code is sent to the tiny computer brain on the printer to generate the electrical impulses to move the printer motors in a coordinated fashion and print your latest object of joy (or piece of plastic junk, which is common too).

What I learned about personal 3D printers is both how simple and how complex they can be to use. The technology has come far enough that somebody can buy a 3D printer for a couple hundred bucks and expect it to print a reasonable facsimile of items that they’ve downloaded from the internet. But you have control over the entire print process, and can run your own favorite slicer and printer firmware, and can modify your printer for more accurate prints and different plastic materials. It’s a lot like our R/C hobby, where you can buy yourself a ready to fly foamie and have some fun, or get down and dirty detailing every rivet on your favorite scale warbird.

The most challenging part of 3D printing remains the creation of 3D models to print. There’s an enormous community of people sharing the things they have created on sites such as <http://www.thingiverse.com/>. And if you want to make your own 3D models, software has gotten less expensive, though the most capable software still carries a steep learning curve. Google provides their SketchUp software for free, Autodesk provides their Fusion 360 software free to hobbyists, and free tools like OpenSCAD have become popular in the community.

In the end, I’m quite happy that I purchased that printer on a whim when I saw it on sale. It’s provided hours of entertainment figuring it out, tuning it, and creating little widgets to use in my models and around the house. It’s turned into a fantastic new hobby, especially for the colder months when we’re inclined to stay indoors. If you have

an idea for a project that could use something 3D printed, or would like to learn more about 3D printing in general, feel free to send me a note.

James Mack

[jmack@jmack.net](mailto:jmack@jmack.net)

## Colorado’s Aviation History

From Greg Hine

Here’s a cool video with some of Colorado’s contributions to aviation history!

<http://www.rmpbs.org/coloradoexperience/technology/aviation/>



Colorado has been a leader in aviation since the early 1900s. From the Alexander Aircraft Company, which in the 1920s was the largest airplane manufacturer in the world, and Elrey Jeppesen, a young man who turned his passion for penning aviation charts into a booming business, to Emily Howell Warner, the first commercial female pilot, explore Colorado’s history of Aviation and meet the inspiring individuals who have shaped an industry.

**Classified: Battery for Sale**



\$20: Admiral Pro Series 2200mAh 4S 45C LiPo battery with Deans-style connector, JST/XH balance connector. Battery is 2 years old but is in great shape: never flown, roughly a dozen cycles during bench testing. Stored properly, well balanced, still charges to 4.2V per cell. Call Keith at 720-487-0077.



**This month's birthdays:**

Dean Chandler

Rudy Furman

**Informative links**

as you can never remember them...

Club Website: <http://www.boulderaero.org>

BAS RC forum: [www.tinyurl.com/boulderrc](http://www.tinyurl.com/boulderrc)

FAA UAS home page:

<https://www.faa.gov/uas/>

FAA UAS Registration page:

<https://www.faa.gov/uas/registration/>

AMA home page: <http://www.modelaircraft.org>

AMA Newsletter:

[http://www.modelaircraft.org/publications/AMA\\_Today.aspx](http://www.modelaircraft.org/publications/AMA_Today.aspx)

AMA Air: [www.youtube.com/modelaircraft](http://www.youtube.com/modelaircraft)

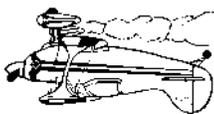
Specialized Balsa Wood LLC

<http://www.specializedbalsa.com>

Will purchase Estate Lots or entire large RC collections.

Richard Myron 303-746-4274

**Next Meeting 6:30 PM, Wed Feb 21st, at HobbyTown USA Longmont.**



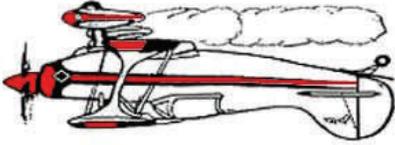
**THE INVERTED FLYER**

Editor: James Mack

The Inverted Flyer is published monthly by the Boulder Aeromodeling Society as a service to its members. Submissions for publication are encouraged and can be but are not limited to: articles pertaining to Aeromodeling, letters to the editor, short news items of general interest to BAS members, and announcements. Space permitting, all submissions will be published except as follows: no anonymous letters or

any submission containing morally objectionable content or language, as judged by the editor. Classified ads will be provided to the members of BAS free of charge. The deadline for all submissions and classified ads will be the first of the month for publication on or about the first Wednesday of the month. Opinions expressed in the Inverted Flyer are not necessarily those of the Boulder Aeromodeling Society general membership.

E-mail [jmack@jmack.net](mailto:jmack@jmack.net)



# Boulder Aeromodeling Society

AMA Chartered Club # 906

www.boulderaero.org

## Membership Application

Renewal  
New Member

\*Dues Year: \_\_\_\_\_

\*Date \_\_\_\_\_ \*AMA No. \_\_\_\_\_ FAA ID. \_\_\_\_\_  
(Required before flying)

\*Name \_\_\_\_\_ Spouse \_\_\_\_\_

Address \_\_\_\_\_ Email \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

Birthday \_\_\_\_\_ Radio channels used \_\_\_\_\_

Comments \_\_\_\_\_

Additional family members, must reside in the same household ( ) Check here if more than one and add to back of form:

Name \_\_\_\_\_ Birthday \_\_\_\_\_ AMA # \_\_\_\_\_

Member Interests:	( ) Sport	( ) Scale	( ) Racing	( ) Big Bird	( ) Pattern	Use Comment field for <u>Other</u>
(Check all that apply)	( ) Heli	( ) IMAC	( ) Combat	( ) Electric	( ) Gliders	

Annual membership dues: (Please check or circle applicable amounts)	<u>Full Year</u>	<u>(New members only) Joining after July 1st</u>
Adult	\$50.00	\$30.00
Youth/Student (Less than 19 by July 1st/In school)	\$15.00	\$10.00
Family membership (Includes primary and all family members)	\$60.00	\$40.00
Disabled Veterans - No dues & no new member fee required ( ) Check here if BAS Life member	\$ 0	\$ 0
New member fee (Suspended as of 3/08/17)		
Float fly fee (in addition to BAS membership): \$20.00		
*Total Submitted \$ _____		
<b><u>Evidence of AMA membership, for the year applied for, must accompany this application.</u></b> ( ) Check here if this is an Associate Membership - AMA not required.		
<u>Youth membership</u> - Birthday required <u>Student Membership</u> - Attach appropriate validation		

If accepted for membership, I agree to conform to the bylaws and standing rules of the Boulder Aeromodeling Society.

Signed \_\_\_\_\_

Make checks payable to "BAS",  
and return to:  
**Al Coelho, Membership**  
6781 Harvest Rd.  
Boulder, CO 80301  
(303) 530-4219

BAS Meetings are held on the 2nd Wednesday of each month at 6:30 PM  
June through August - at the BAS field (come early for flying).  
Sept through May - at the Longmont "HobbyTown" hobby shop.

Check newsletter or web site for additional information