



# *The Bend High Desert Flyer of Chapter 1345*

WEBSITE: <http://www.eaa1345.org/>

KBDN AWOS 134.425

DECEMBER 2011, VOL10, #12

## ***PREZ SEZ:***

Suggestions for Next Year - The following input was originally from Eric Simpkins with additions from Thomas and Sean. The group discussed each suggestion and gave additional input:

1. Spend a portion of one monthly meeting brainstorming Chapter membership growth ideas - did this last meeting.
2. Ways to Advertise EAA 1345
  - a. Call each member before monthly meeting - Phil Volunteered to start this. Advertise in Bulletin and Source - need volunteer to initiate this. It was tried by Erik and Sean over the past year, with minimal results.
  - b. Advertise our monthly presentation to Chapter 617 and/or other local aviation clubs such as the soaring club, Naval Aviators etc. - Henry will take care of working with 617 so they are aware of our activities.
  - c. Sign for Hanger - Thomas indicated he would help to get a sign for the chapter as time permits.
  - d. Contact local builders via Vans Airforce etc. - Need volunteer to handle this.
3. Fly/Drive Outs to supplement monthly meetings. A few trip suggestions were...

.Hood River Museum - this was selected as first trip, scheduled for March/April. Thomas or Sean to coordinate trip. Other possible trips include...

  - a. Vans Factory
  - b. McMinnville Museum
  - c. Arlington Airshow

## 4. Airshow Group Trips

More people may attend air shows (e.g. Madras, Oshkosh, Reno) if there is a organized group that attends, including a schedule, tour plan and willing drivers. Maybe with a side visit to another interesting venue. Possible airshow options include...

- a. Airshow of the Cascades (Madras) in late August. Include an overnight Friday campout (near the Madras airport) with a Friday evening wine and cookout event.
- b. Reno
- c. Oshkosh
- d. Wright Patterson AFB

## 5. Hold a Membership Rally

Chapter members chip in to have a booth at a local Bend event (e.g. Balloons Over Bend or Summer Fest) with a goal of encouraging anyone, but especially youth, to join Chapter 1345. Erik's model plane, and other featured 'grabbers' would serve to attract people. Themes to stress:

- a. The Young Eagles opportunity to have a first flight
- b. Monthly meetings at a venue where you are surrounded by airplanes and pilots
- c. Organized trips to air shows, and other experimental aircraft events

## 2. Conduct Featured Skills Demonstrations

Metal joining demonstration, or carbon composite fabrication, or propeller modification.

Join with EAA national workshops held in Prineville at Chapter 617

## ***Suggestions for Next Year***

3. Hold a Youth Model Rocket Competition – OR – Build and Fly a Model Radio Airplane

Idea here is to engage young members. Have them build a model rocket (lots of kits on-line and in hobby shops). Possibly add an inexpensive altimeter, with a contest to see who can reach the highest altitude. Or, see who can get closest to a land-based target. May want to contact Mountain View High to discuss their shop project. Or contact Oregon Rocketry Organization.

8.Sponsor a Young Eagles event with the Prineville Chapter

a.One goal could be to encourage attending Young Eagles to join the Chapter 1345 during the Young Eagles event.

9.Invite speakers from outside the box:

0.e.g. fuel cells advances in aviation

1."How to avoid "wheels-up landings" - 100% guaranteed"

2.UAV talk (Pacific Northwest Defense Coalition has a speakers group, some may be UAV people from regional companies); ask Roger Lee of EDCO to speak to EAA about their efforts to grow Bend aviation; EDCO has an aviation committee - ask if they would identify a member who might be a good speaker for an EAA meeting; Confederated Tribes of Warm Springs is working actively to get a UAV test site up and running on the reservation - they send a rep to EDCO meetings, that rep could be asked to attend an EAA meeting to pitch the latest developments.

3.As VP, Henry will be the guy to organize the monthly presentations. Please give Henry help on this; it is a big job. Thanks Henry!

***Sean Harbison***, President

## ***Treasurer's Report***

Financial for period 1/1/11 through 11/30/11

Total Income:	\$610.00
Total Expense:	\$515.76
Net Income (Loss)	\$94.24
Cash Balance:	\$2163.64

***Jack Watson***, Treasurer

## ***November Meeting Minutes***

### **EAA Chapter 1345 - Bend Oregon**

1. Social Hour: 6:00pm
  - Pizza and Drinks
2. Call to order: 6:30pm
3. Introductions & Attendees.
  - Mike, Phil, Mike, Bud, Henry, Eric, Devon, Thomas, Sean
4. New Business
  - Officer Elections
    - **President - Open, Required to fill**
    - Vice President - Henry
    - Treasurer - Jack
    - Secretary - Erik
    - Newsletter Editor - Mike
    - **Website Editor - Open**
    - Young Eagles Coordinator - Bud
    - Facilities - Erik
    - **Food - Open until Bruce returns**
  - Christmas Party for December 14th
    - The party will be a potluck.
    - The club will provide the ham and everyone else can bring their favorite dish.

***Sean Harbison***, President

## ***December meeting***

Our December 14th meeting will take place at the "Ellsberg Hanger". This will be our Christmas Dinner/ meeting with a "pot luck", family style dinner. The chapter is supplying a "Xmas Ham" as the main course. Bring your favorite side, salad or desert. Also any adult beverage you care to bring. Doors open at 6pm with dinner at 6:30. All members, spouses, family and friends welcome. Pass it on!

***Tom Phy***, Vice-president

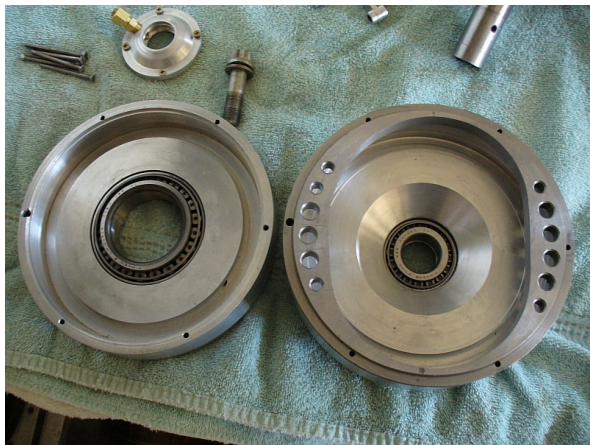
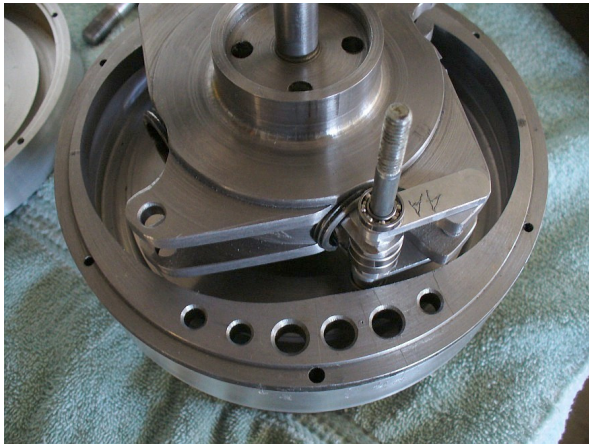
# The Millar Engine

Developed by Michael Pederson

This engine was patented in 1907 by MILLAR of Dublin Ireland, but I for one can't understand why it hasn't been developed.

Bill Blackwood presented his own (patented) engine design to our EAA club a few years back and I thought it had potential; the outer cam with the cylinders turning on the inside. His idea is a two-cycle, two-cylinder, air-cooled, external supercharged design.

My engine (that was designed without knowledge of the Millar engine and the 1907 patent) uses the outer cam with the cylinders rotating inside but with a four-stroke design. The rotor has four cylinder bores in it; four cylinders because it best utilizes the space of the rotor.



The cylinders are not on center, but offset 1/2 bore diameter. This offset is for two reasons. The first is to develop an additional means of making power from the combustion pressure acting on the head, causing rotation of the rotor. This should make the engine three times more efficient: One, the cam roller pressing against the cam produces power. Two, the head being pushed away from the piston by combustion should produce twice the power as a crankshaft type engine.

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This is because the torque arm of the head being offset is a constant of 1/2 bore, while a crankshaft type engine has a torque arm maximum of 1/2 stroke, only occurring at a 90 degree point. Stroke and bore are two different things but for most engines, the diameter of the cylinder and the length of the stroke are close, with the bore often being larger. The second reason for the offset is to aid in water-cooling.

There are other things that should improve it's efficiency like grinding the cam so it pushes the piston closer to the head on exhaust stroke to more effectively clear the cylinder, and shape the cam to give the power stroke a longer duration. Mine has 110 degrees of power stroke.

It has good lubrication with simple splash system and it has liquid cooling.

This type engine should make a good aircraft engine because the output or rotor speed is 1/2 of the piston speed for the cam makes it possible to have all four strokes in one rotation allowing the propeller to turn slow, quiet, and efficient, while the pistons pump at twice the speed. Another reason is the low parts count like no valve cam, no crankshaft, no valve train, no rocker boxes, etc.



I built a model of my design using my 7-inch lathe, which made it a very small model indeed.

It's a working model, but I haven't got it to run yet. I've come to the conclusion that with it being so tiny, any imperfection causes major air leaks. I used two rings on the pistons but there is still too much blow-by; they are only .4 cu. inch pistons. Also the valve plate needs perfecting. I am using just close tolerance to capture the compression, which isn't doing the job. Seals around the ports should help.

**I am running out of interest, money, and tools and need a 20 inch lathe to make a good try at perfecting this engine on my own so I am looking to see if anyone else would be interested.**

**Mike Pederson**, phone [541]318-5303

Millar, U.S. Pat. No. 847489, issued Mar. 19, 1907

Bill Blackwood, U.S. Pat. No. 4038948, issued Aug. 2, 1977



## ***This is my JAG-2 project***

It started life as a completed RV-6A, which I originally built and flew for 250 hours. Out of respect for Van's Aircraft, this aircraft is NO LONGER referred to as an RV-6A.

The JAG-2 is a side-by-side 2 seat twin-engine cross-country aircraft. It will be IFR capable with dual Dynon Skyview EFIS.



Some modifications include, but not limited to:

1. Installing 2 Corvair 2850cc 110hp direct drive 6 cylinder air-cooled engines with 5th bearings.
2. Custom made counter-rotating carbon fiber props.
3. Unique prop brake system in lieu of constant speed feathering props.
4. Increased wingspan by 40".
5. Installed RV-9 tail.
6. Re-designing nose gear with 4130 tubular gear & urethane dampening (similar to RV-10).
7. Many more mods...too many to list!

The airframe...

1. 3 years of engineering & due diligence has gone into this project. All necessary structural modifications are being performed.
2. Increasing wing area to compensate for increased gross weight.
3. Increasing tail area for increased wing area and to make Vmc more manageable.
4. Custom made main gear legs.
5. Re-designing the nose gear.
6. CG calculations have been done...no worries.
7. 54 US gallons of fuel in (2) 27 gallon welded aluminum tanks located just aft of their respective firewall.

The props...

Will be 66" 3-blade counter-rotating and very lightweight with a unique mechanical prop brake system, which will stop a windmilling prop.



The engines...

2. Many mods will be performed on the engine to adapt to my application.
3. One engine will have a custom cam and other minor mods to reverse rotate it.
4. 5th bearings will be added to the case to increase frontal bearing area similar to an O-200.
5. The Corvair 2850cc puts out an honest 110hp (proven & tested). The Lycoming O-320 is rated at 160hp (they had to market these things!!!) but I bet only puts out 80-90% of that on a dyno.

The performance...

1. Estimated empty weight...1450lbs
2. Gross weight...2200lbs
3. Estimated cruise...180-200mph
4. Estimated 2 engine climb rate...1500fpm (will hold altitude to approximately 5000' with engine out...flight testing will determine)
5. Endurance...4 hours

I feel my performance goals are realistic through testing, calculations & comparables. Keep in mind the JAG-2 will have a drag profile 125% of the Wing Derringer but at 60% the weights of a WD. The WD originally flew with O-200's but couldn't meet performance goals at the heavier weights. The engines were upgraded to O-320's and obtained decent climb and a cruise speed of over 210mph. The dimensions of the two aircraft are almost identical.

Best regards,

Jim Tomaszewski  
EAA# 590427  
Home Airport: 21N

**All future updates & photos will be posted at**  
<http://www.homebuiltdirectory.com/index.php?a=2&b=321>

If you read Sean's contributions above, you would have seen that, due to lack of volunteers we had no Chapter President. Under Oregon Law we apparently cannot continue the Chapter without a President.

Fortunately, Jack has volunteered to add this to his Treasurer's position, until we can decide on a permanent solution.

Personally, I do not understand how people can be EAA members and have so little interest in technical or social contact with other members ... maybe someone can explain this ...

I had intended this to be a short Editor's Note but Erik said it so well in his email, that here it is:

Jack,

I missed the last meeting as well because I had a flight to Hillsboro that evening. Apparently the usual happened and everyone sat on their hands during the "call to duty" part. It is getting really old that nobody wants to take any interest in further participation in this chapter. Much thanks of course to everyone who has offered themselves past and present to make things happen. I feel bad that I can't commit any further to the Chapter at this time, but I don't want to "bite off more than I can chew". I have been consumed even more with two "little ones". As many of you know, it can be a challenge being the sole provider for your family and still making some time to spend with the family as well. This doesn't leave much time for many extra-curricular activities. Jack, you have made a very generous and wonderful offer, but I personally don't think any one person should have to take on more than one officer position...especially taking on president and treasurer. No past president....not even Dennis with all of his activities has managed to "spark" any real enthusiasm within this Chapter. Many members have either dropped out or have quit coming to the meetings. In the past two years, I don't believe we have gained more than three or four members and we have probably lost three times that. Correct me if I'm wrong. Jack, you mentioned you could act as president until things, "sort themselves out". Maybe I'm being a "downer" here, but I don't think it is going to sort itself out. I'm guessing that only about 15 percent of our total membership are people who have participated as an officer in this chapter. Should we keep trying to plug the holes of this "sinking ship", or just let it sink?

It seems like a lot of effort has been put out by a very small handful of people just to see 10 people show up for a meeting, gathering or even a barbecue! If free food without any meeting hasn't produced a turn-out, nothing will.

I apologize if I've succeeded in making anybody feel bad or depressed, but as you can probably tell, I'm pretty sickened about the whole thing. It upsets me to see how much time you all have put in and how a majority of the members still can't even find time to come to at least one meeting or party during the entire year.

Thanks so much Sean, Thom, Jack and Mike for the numerous hours you put in during 2011. I guess we'll just have to see where it goes from here.

Erik

P.S. Congratulations Jack! I've seen you flying quite a bit lately!

Please give this some thought .....

Mike Bond

Newsletter Editor

**2010 CHAPTER BOARD thru Dec 2011:**

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Secretary	Erik Rustand	541-617-1435
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Young Eagles Coordinator	Bud Candland	
	<a href="mailto:centorbud@msn.com">centorbud@msn.com</a>	
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