FEBRUARY 2017

ROGUE EAGLE

Official Newsletter of the Rogue Eagles R/C Club - Medford, OR - AMA 534

Goosebumps! A curvaceous Dirty Birdy ARF streaks by in full song. How sleek is that? Funny thing is, nobody knows who it belongs to. Calvin says it's not his, maybe it's Cliff's. Cliff says "Not mine, must be Calvin's." Look for a solution to the mystery in next month's newsletter...

Incredible flight shot by Rick Lindsey (maybe...)

Monthly Meanderings by Bruce Tharpe, Club President

Snow-pocolypse

Hope everybody survived the big snow event in January. It's been called Snow-pocolypse up here in Wimer. Maybe a bit dramatic, but it was pretty rough for a good nine or ten days with a lot of snow and tree damage. Heck, we still have patches of snow in spots. At least it looks like our flying field was unaffected, so that's good.

Unseen Helpers

One reason our field looks so good is because there is a handful of dedicated members who take the time to keep things tidy for us. They weren't given these tasks, they just see things that need doing and get them done. Dale and Suzanne McQuistion are vigilant neighbors who make sure the garbage cans and recyclables are accessible for pickup every week. Guys like Richard Demartini and Gary Neal and others are always cleaning, picking up trash, and retrieving wind-blown chairs. Richard wanted me to remind everybody that the winds at our field become even stronger in velocity in the early a.m. hours. Please put chairs behind the fenced area to keep them from ending up on the far side of the runway and acting like missiles, possibly damaging the flight line fence. To all of the unseen helpers at our field, thank you!

Renew your Membership by Mail

Traditionally, the January meeting is our most-attended of the year because members show up to pay their dues. Well, the weather was pretty rough for the January meeting this year, so we didn't have a huge turnout. Now the February meeting falls on Valentine's Day, so that might hinder attendance as well (then again, maybe not). I just want everybody to know that you can pay your dues with a check sent to the club's PO box. Our new Treasurer checks it every week and will send your new sticker by return mail. The address is:

Rogue Eagles RC Club, PO Box 8332, Medford, OR 97504

They're Heeeeerrre!

We have a couple of new gung-ho members who are big into FPV drone racing. Maybe you have seen them at the field already. Some of our member may wonder if they're "legal" or "allowed" at our field. Well, the quad racers that they fly are model aircraft and they are recognized as such by the AMA. All of the club rules, county rules, and AMA rules apply to all of us equally, so they are free to fly from the main runway and use the established flight zone. Considering their speed, they should not be flown from or around the park flyer runway. The pilots need to display their AMA card on their person like everybody else. One big difference for FPV pilots is that the AMA requires them to have a dedicated spotter to maintain visual line of sight with the aircraft, and the spotter must be capable of taking control of the aircraft at any time safe operation of the flight is in question.

So to our new FPV friends, welcome! Enjoy the field, fly safe, follow the rules, and have fun. If other members are flying traditional models with you at the same time, as always, it's important to maintain two-way communications, loudly announcing any operations over the runway like takeoff, landing, low fly-by,

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etc... What I've always loved about our club is that over the years we have managed to avoid strife or conflict between various groups be it 3D, pattern, turbines, helicopters, racers, and now FPV. That cannot be said for all clubs! The key is communication. Let's keep talking to each other, educating, learning, and sharing. There's room for everybody at Agate Skyways.

Industry Woes

i don't keep up with it as much as in the past, so these tidbits may be old news to some of you. The hobby business can be tough, particularly in a slow economy, because it depends on the discretionary income of what is a relatively small customer base. Unfortunately, the news these days is fairly depressing from the biggest outfits down to the smallest.

One of the biggest players is Hobbico, parent company of Tower Hobbies, Great Planes Model Distributors, and more. They recently sent a letter to their employee/owners describing 2016 as a difficult year and cited what appears to be a "hobby-industry recession." They were forced to delay payments to their employee stock -ownership program. Follow this link to read more.

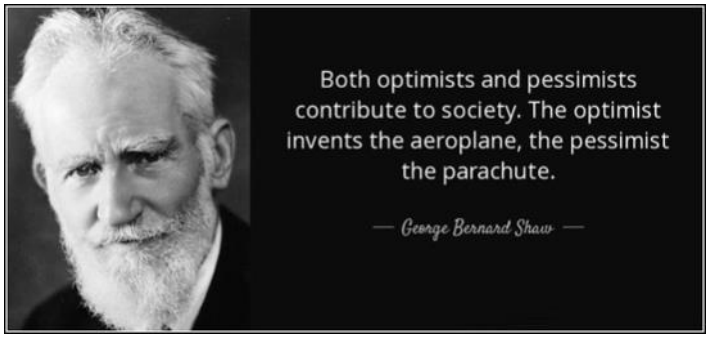
JR Propo made an announcement that they are shutting down their factory in Japan and moving to Malaysia. Citing a decline in the world-wide RC hobby market, they intend to focus their development efforts on the industrial helicopter market. They insist that they will maintain production of their current items, but there may be delays and inventory shortages. This has caused a variety of reactions from loyal JR users with predictions ranging from "beginning of the end" to "they'll come back better than ever." Time will tell.

Hobby People is shutting down after 45 years. Formerly known as Hobby Shack, they were an online retailer with half a dozen or so large hobby shops scattered about southern California and Nevada, and they were also home to Global Hobby Distributors. Their website seems non-functional right now, so I guess they've sold everything. Here's the news story.

Another large online store, Troy Built Models has apparently moved on to greener pastures in the industrial drone business. Their website has also vaporized. Aeroworks, makers of high-quality ARFs for over 25 years, closed its doors last October. You can still read the owners statement here. MACS Products, who produced a massive array of muffler and tuned pipe products for decades, is now in limbo after the passing of their owner and manager, David McAllister.

I normally like to keep things more upbeat in this newsletter, so I'm trying to find a graceful way to wrap up this section. My best advice is to not put off buying planes or equipment with the idea that you'll probably "get it someday." Things can change quickly and procrastinators may miss out. Oh, and don't forget to support our local hobby shop as much as you can. Where would we be without Al's Cycle and Hobbies?

Bruce



PROTEUS, designed by Burt Rutan, built at Scaled Composites

ENGINE MYTHS AND FACTS

by Ray Wasson, Sr.

Introduction by Ye Olde Editor

It's been said many times before that our club is filled with some very bright and creative people with an amazing variety of skills and knowledge. One our greatest assets is our very own Vice President, Clayton "Ray" Wasson. Ray has spent a lifetime working with engines from his cart racing days as a youth, to stock car racing, drag racing, river racing, and truck pulls. He was banned from stock car races in Yreka for a time because he was just too fast. He developed his own carburetor for an ultralight engine that boosted its power significantly. His successes were often the result of modifications and improvements to his engines, not by whimsy, but using reason and a full understanding of the science involved with developing power with the internal combustion engine. This article is a bit more technical than what's usually presented in our newsletter, but stick with it… there's a lot of good info in there. I still want to see how my O.S. .61SF can lift over 500 pounds. According to Ray, no sweat!

I often hear statements like these during engine discussions:

"Horsepower sells engines, torque wins races." **FALSE**.
"Four-stroke engines have more torque than 2-strokes." **FALSE**.
"Four-strokes turn larger props." **FALSE**.

Before you get all excited about these statements, this is not an article against four strokes. Four-stroke engines have many advantages in a lot of situations. The problem is a lot of these statements are made under the wrong comparisons. For instance, a YS four-stroke is supercharged, so it shouldn't be compared to another brand non-supercharged engine of equivalent size. An engine that is supercharged to two atmospheres (just under 15 psi) will have nearly twice the power than non-supercharged. This is the equivalent of doubling the displacement. Also, the more nitro used (to a point) ads oxygen (like supercharging). Most four-strokes call for more nitro and a larger displacement to replace a two-stroke, so of course it will turn a larger prop! This is not a bad thing, just different.

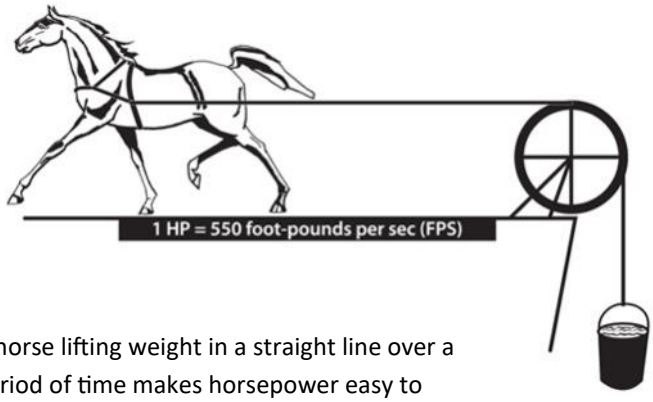
A four-stroke engine has four strokes, five events in one cycle. Events are intake, compression, ignition, power/combustion, and exhaust. A two-stroke has all five events in two strokes. Due to the fact the two-stroke has twice as many power strokes, in theory it should develop twice the power. But in simple model engines they have less efficiency due to fuel loss out the exhaust. In general, given the same displacement and proper port timing, the two-stroke will have the power advantage. I have not seen a four-stroke of the same displacement that is able to turn a larger prop than a normal two-stroke with equal nitro content.

Huge power gains can be had with tuned pipes on two-strokes, but the power range can get very narrow making for poor sport or scale flying. Tuned exhaust works totally different on a four-stroke, making it not practical on most planes due to the length needed. It can also narrow the power band.

The same things apply to gas engines of both types, but they tend to be less fussy due to the ignition system. Glow engines are effected by glow plug heat, outside air temperature, humidity, barometric pressure, prop size, and anything else you can think of. The advantage is they're simple.

If you have a .90 or larger glow engine in good condition, consider converting it to ignition. It would be less expensive than a new gas engine and provide more power using a 0% nitro and methanol oil mix. It will also have less fuel consumption than a glow engine due to no nitro and leaner mixture. The mixture can be leaned to max power without worry of detonation.

Now about horsepower and torque. Horsepower is just that, the work a horse could do over a reasonable period of time, not all it could pull for an instant. When Watt tried to sell his steam engines, the first question asked was how many horses will it replace? By experiment and trial-and-error he decided the horses of the day could lift 550 pounds 1 foot in 1 second. Now some of you will say *"no way will a .60 engine out pull a horse."* With proper gearing it will easily lift 550 pounds a foot per second without getting tired. Think of a chain saw winch.



A horse lifting weight in a straight line over a period of time makes horsepower easy to measure. But a reciprocating engine rotates a shaft at some force; this force is torque. The RPM has to be converted to a straight line force over a distance.

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ENGINE MYTHS AND FACTS

...continued

The formula is:

Horsepower = Torque x Revolutions Per Minute / 5252.1131

5252 is the constant that converts RPM to a straight force. We usually drop the .1131 for simplicity. Here's an explanation where the 5252 comes from...

One horsepower = 550 pounds one foot per second, which can be converted (more math!) into an infinite number of weight-distance-time combinations. For this example, let's use 150 pounds lifted 220 feet in one minute = one horsepower.

Imagine the force of 150 pounds is applied tangentially to a one-foot radius circle. This would be 150 pounds-feet torque.

Next we need to express 220 feet in one minute as RPM. The circumference of a one foot radius circle is 6.283185 feet. The distance of 220 feet, divided by 6.283185 feet, gives us an RPM of 35.014.

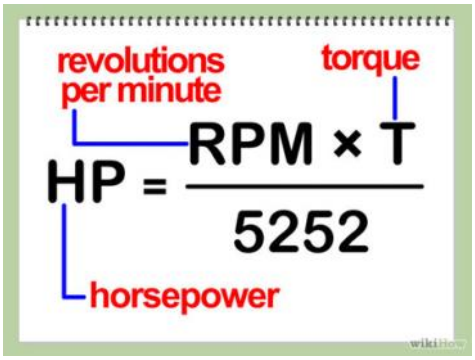
We now have 150 pounds-feet torque x 35.014 RPM equaling one horsepower.

Constant (**X**) = 150 pounds feet x 35.014 RPM / 1 horsepower.

Constant (**X**) = 150 x 35.014 / 1 = 5252.1

Rounding off, 5252 is the constant.

So then HP = torque x RPM / 5252.



From this we can deduct that we can have torque but no power or work done. We must have RPM to do work. At a given RPM, the engine with the most torque will also have the most horsepower. Inversely, the engine with the most horsepower at a given RPM will have the most torque. It should be obvious that at 5252 RPM horsepower and torque will be equal because the constant cancels leaving only the torque reading in the formula. That's not a characteristic of an engine, just a math fact. Under 5252 RPM, torque will always be greater than horsepower. Over 5252 RPM, horsepower will always be greater than torque. If we use different units of measure such as metric the numbers would be different.

A dynamometer only measures torque and RPM. From that information, the horsepower is calculated.

So is peak advertised horsepower useless? **YES**. Is peak torque useless? **YES**. What we need to know is the power range so we can match the engine to the job. In our case, a wide power band would allow a larger selection of props while an engine with high peak horsepower and narrow power band would be more suitable for racing. Racing always wants maximum average horsepower. In cars, gears are used to make torque at the wheels. Gear or belt reductions have been used in planes. High performance cars and motorcycles may use six or more transmission ratios to keep horsepower near peak. Less friction loss, horsepower to the wheels remains the same as at the engine but the torque is multiplied by the gear ratio. The highest power engine will always be able to put the highest torque and horsepower to the wheels or prop with the proper gear ratio.

How does an engine make torque? Torque is made from combustion pressure pushing on the piston which, with the connecting rod, turns the crankshaft. The higher the pressure and the longer the time, the more torque is produced. One often misunderstood concept is that a long stroke-to-bore ratio makes more torque. It is true that a longer stroke has more leverage from the longer crank throw but the reduced area of the piston produces less force. If you increase the bore by 25%, this doubles the area of the piston which doubles the pressure, but if you reduce the stroke 50% you have canceled the torque increase at the crankshaft. (You can see it is easier to increase displacement with bore size than with stroke). By the way, the piston is not at half stroke at 90% crank angle due to geometry. It is in the 70° Range. Also most of the work is done in the 30° ATC range.

Long stroke engines tend to run at lower RPM due to breathing. A small diameter bore is limited in port or valve size making for better breathing at lower RPM and is enhanced by higher piston speed at valve or port opening. This is normally what you find but a large bore engine can have small ports or valves and high low-speed power.

Reciprocating engines produce maximum torque at maximum volumetric efficiency, which is the RPM at which the cylinder is filled to its highest capacity. This is usually in the 80% range but with tuned intake and exhaust or supercharging can exceed 100%. At wide open throttle this the most strain you can put on an engine due to high pressures and temperatures. Some heavy-duty and industrial engines are not to be operated under load at these speeds.

So the moral to this story is pick the correct engine for the job and properly gear it or prop it. Horsepower and torque go together.

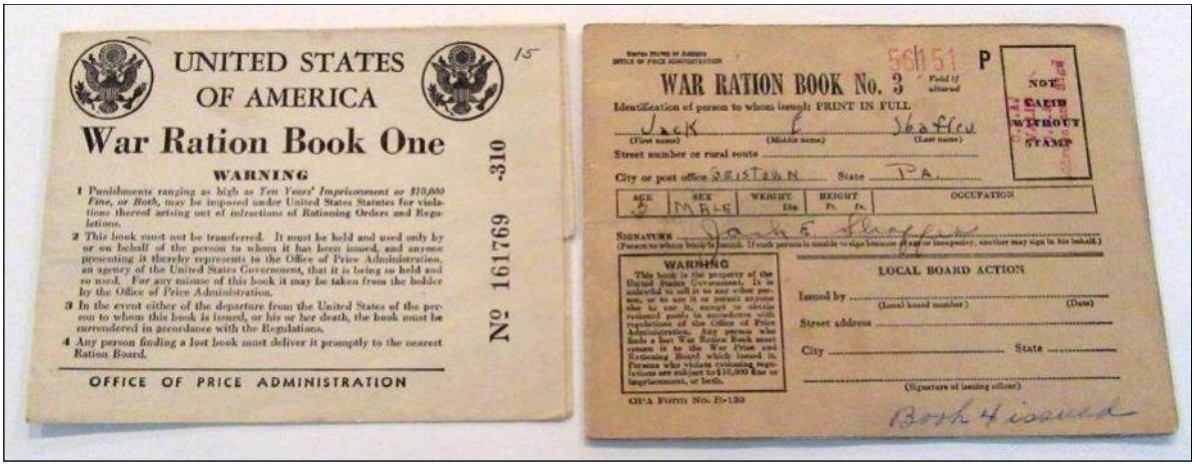
Ray

WAR RATION BOOK

A REMBERANCE

by

Jack Shaffer



UNITED STATES OF AMERICA

War Ration Book One

WARNING

1 Punishments ranging as high as Ten Years' Imprisonment or $10,000 Fine, or Both, may be imposed under United States Statutes for violations thereof arising out of infractions of Rationing Orders and Regulations.

2 This book must not be transferred. It must be held and used only by or on behalf of the person to whom it has been issued, and anyone presenting it thereby represents to the Office of Price Administration, an agency of the United States Government, that it is being so held and so used. For any misuse of this book it may be taken from the holder by the Office of Price Administration.

3 In the event either of the departure from the United States of the person to whom this book is issued, or his or her death, the book must be surrendered in accordance with the Regulations.

4 Any person finding a lost book must deliver it promptly to the nearest Ration Board.

OFFICE OF PRICE ADMINISTRATION

15

-310

№ 161769

WAR RATION BOOK No. 3

Identification of person to whom issued: PRINT IN FULL

Jack (First name) E (Middle name) Shaffer (Last name)

Street number or rural route

City or post office Reistown State PA

AGE 3 | SEX MALE | WEIGHT Lbs. | HEIGHT Ft. In. | OCCUPATION

Signature Jack E. Shaffer

WARNING

This book is the property of the United States Government. It is unlawful to sell it to any other person, or to use it or permit anyone else to use it, except in obtaining rationed goods in accordance with regulations of the Office of Price Administration. Any person who finds a lost War Ration Book must return it to the War Price and Rationing Board which issued it. Persons who violate rationing regulations are subject to $10,000 fine or imprisonment, or both.

OPA Form No. P-130

LOCAL BOARD ACTION

Issued by (Local board number) (Date)

Street address

City State

(Signature of issuing officer)

Book Issued

P

NOT VALID WITHOUT STAMP

My oldest sister passed away late last year. I know we have all had to endure the loss of a loved one and I don't plan to belabor that point. This story is about finding things of the past.

My niece, while going through her mother's things, came across the following that had been handed down from my mother. What she found and sent to me was a war ration book made out in my name by my mother. Now, I'm sure a lot of you have seen or come across war ration books. Hard to believe there was a time when we had to endure rationing. Best I can tell, these documents are 75 years old.

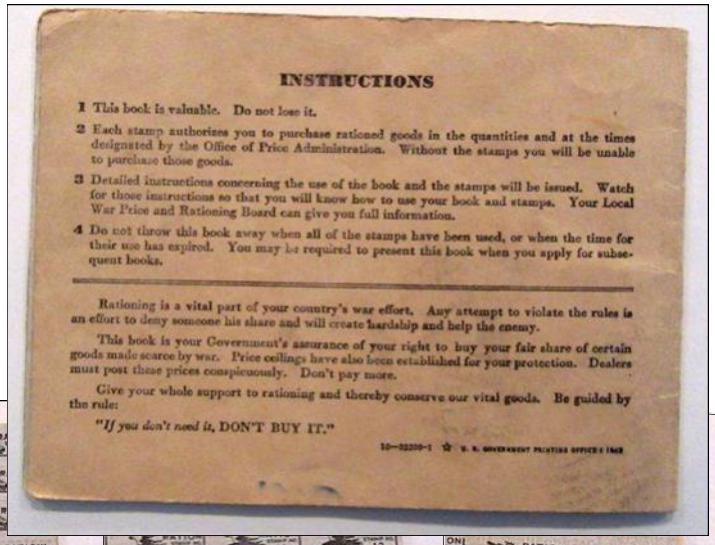
The first picture (above) is the War Ration Book One that contains the certificate of book holder and War Ration Book No. 3 that contains the rations stamps.

The next four photos are of our military might. Do not know what type of aircraft is on the stamp, but happy they are still in the book.

Can't help but love the instructions. The last couple of lines say it all: **Give your whole support to rationing and thereby conserve our vital goods. Be guided by this rule: "If you don't need it, DON'T BUY IT."**

Well guys, at the next warbird gathering when you're prepping your F4U Corsair, AT-6 Texan, P-51 Mustang, P-47D Thunderbolt, or whatever else you have hanging in your workshop, remind yourselves of what our country had to endure to allow us to enjoy what we do.

Jack



INSTRUCTIONS

1 This book is valuable. Do not lose it.

2 Each stamp authorizes you to purchase rationed goods in the quantities and at the times designated by the Office of Price Administration. Without the stamps you will be unable to purchase those goods.

3 Detailed instructions concerning the use of the book and the stamps will be issued. Watch for those instructions so that you will know how to use your book and stamps. Your Local War Price and Rationing Board can give you full information.

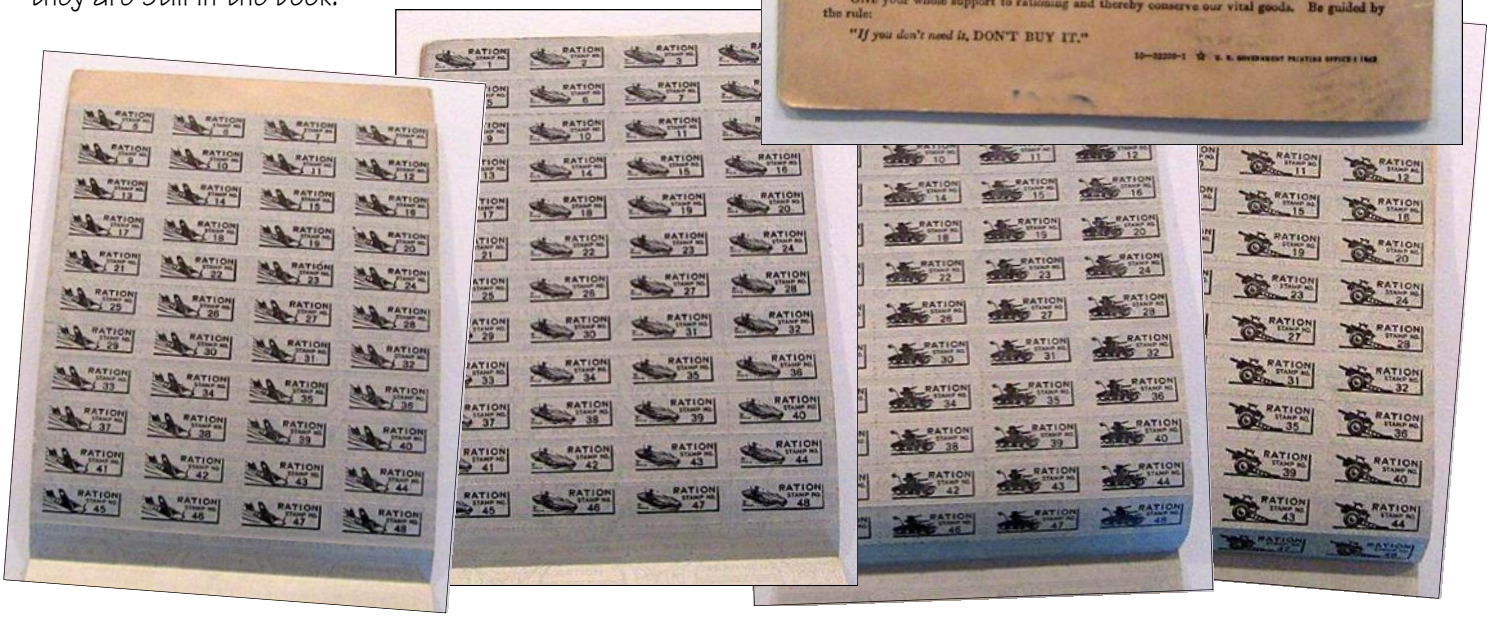
4 Do not throw this book away when all of the stamps have been used, or when the time for their use has expired. You may be required to present this book when you apply for subsequent books.

Rationing is a vital part of your country's war effort. Any attempt to violate the rules is an effort to deny someone his share and will create hardship and help the enemy.

This book is your Government's assurance of your right to buy your fair share of certain goods made scarce by war. Price ceilings have also been established for your protection. Dealers must post these prices conspicuously. Don't pay more.

Give your whole support to rationing and thereby conserve our vital goods. Be guided by the rule:

"*If you don't need it,* DON'T BUY IT."



Making Tracks in the (Rogue Valley) Frozen Tundra

by John Buford

After the unusual amount of snow and sub-freezing temps for the Rogue Valley, during the first week of the New Year, I decided it was time to dust off the floats, aka skis, and head for the flying field.

I had floats set up for two of my foamies, the E-flite Sport Cub and Multiplex Fun Cub. Both make excellent float/snow fliers.

Having resided in the frozen tundra of Wisconsin for so many years, I always had several planes set up and ready to go for the lengthy winter season.

I discovered; however, that floats perform best on fresh powder and frozen snow. Not so much though when it turns to slush.

Arriving at the field on the afternoon of the day after school-closing snowfall, I discovered that I was most likely the only club member with cabin fever. It proved to be quite a chore just to push back the gate in order to drive in.

After my four-wheeling adventure to the field and exiting the truck, I realized that it would have been better to have brought snowshoes than boots. I did manage to make a path out to the runway and engaged in some really fun snow/float flying.

I continued for four consecutive days with my addiction for snow flying. Finally, on Saturday afternoon, another member showed up to find out WHO this snow-seeking individual was, making tracks in the snow. **JB**

FOR SALE

E-flite PT-19 450 (N.I.B.) R/C or Control Line
Included are motor, ESC, all servos and the two pilots for cockpit.
All items are NEW E-flite. **$180**

R.T.F. Great Planes JU-87 Stuka. Excellent condition. Just add your receiver. 70" span with NEW Saito 100 4-stroke All Futaba servos. Sullivan on-board glow driver, with two 6V 2000 mAh batteries. Complete cockpit, customized.
Very nice Warbird! Over $600 invested. **Sale $325**

Contact **JOHN BUFORD** email or call **608-698-6386**

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Club Info Page

For information about the club, how to join, past newsletters, photos, and much more, please visit the Rogue Eagles website.
www.rogue-eagles.org

Meeting Information

The next two General Membership Meetings are scheduled for

Tuesday 7pm, February 14, 2017

Tuesday 7pm, March 14, 2017

We meet at the Central Point Senior Center, 123 N 2nd Street in Central Point.

Click here for directions

Hard at Work for You!!!

Outgoing Treasurer **Ray Wasswon Jr.** (left) and newly-elected Treasurer **Roger Hebner** met at Ray's house to do some intense training on all the tasks required of the position. Roger has been spending many hours learning computer skills and some new software so he can do a good job for all of us.

Special shout-out to our man **Larry Cogdell** for bringing his computer and projector to the January meeting to let us all play with the latest version of Real Flight. That's a lot of work to set up and tear down, so I just wanted Larry to know it was enjoyed and appreciated!

Club Merchandise

These items are usually available at the meetings. For more info, call Phil Baehne at **541-727-7059**

Order New-Style (Top)
John Gaines 541-951-1947

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McMinnville Aircraft Modelers

Swap Meet 2017

March 11 . 2017

Yamhill County Fairgrounds
2070 NE Lafayette Ave.
McMinnville . OR 97128

Vendor set up Friday March 10th 3pm to 7pm
Vendor set up Saturday March 11th 8 to 9am
Swap meet hours Saturday 9 am to 2 pm

Wall tables are $20
Floor Tables are $15
General Admission
$2 per person at the Door

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www.mcminnvilleaircraftmodelers.com
RV's welcome $20 a night , dry camping
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