

Circulator  
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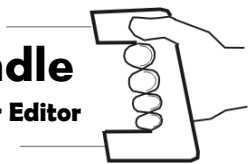


Newsletter of the Circle Masters Flying Club  
Milwaukee Wisconsin  
Academy of Model Aeronautics Chartered Club # 662

March 2018 Volume 15 issue 3

## At The Handle

Ramblings from your Editor



If you would like to contribute material, please submit to the address on the cover or contact me at (715) 697-8458 I may be reached via e-mail at [clmodman@wctc.net](mailto:clmodman@wctc.net)

Welcome to the March 2018 edition of the Circulator. This month things are a little different than normal. I am sure that loyal readers are aware that I try to include helpful Do-It –Yourself articles from time to time. The purpose for these is to help out members and friends who may be newer to the hobby or who have not taken the plunge into doing a little work on their engines, etc. This month I have a whopper for you. I decided that with spring arriving soon I would write up a little ditty to aid in getting the most from your glorious internal combustion power plant. The topic is bearings and by the time it was finished, the article had grown into a four page ball bearing manifesto. I'm only trying to help. Let me know if you guys like these deals or else feel free to write something you would like to share with the rest of us. Maybe one of you electric power cats could put digits to keyboard and produce a how-to on electric motors or batteries or chargers or maybe how Satan lives in your power system. Isn't that special. You get the picture.

Dave has been reminding all of us to keep going with our projects for the various building contests we have going on. I have been working on my stuff and I hope you are too. There haven't been a super lot of updates coming forward from our members. Maybe you are keeping it a big secret and will spring it on us at the field in a couple of months. I guess that's alright as long as you are building and not just hanging around watching 872 channels of crap on the TV. You aren't, right?

Don't forget, in April we will be setting up a display in the library case. As far as I know we are still stuck using just the little display cabinet in the entry way instead of the whole meeting room as we have done previously. I don't have a way to know if I can make it to the April meeting to help with this due to it being shift bid time where I work. Hopefully we can figure out what to include in the display at the meeting.

I don't have any big wordy commentary or a bunch of mean, hurtful opinions this month. I'm all tapped out after writing the article. So this will be a short intro month. Our VP is celebrating her twenty-ninth birthday this weekend so there will be a cake and some refreshments available during our noon social hour before the meeting on Saturday.

That's all for now,

Big How

**CIRCLE MASTERS FLYING CLUB**  
**MEETING MINUTES FOR: FEBRUARY 2018**

The February meeting of the Circle Masters Flying Club was held on Saturday the third. This month we returned to our usual site, the Sussex Public Library. The meeting was opened by Pres. Chris at 1:00 PM. He began by asking the members present (16) if all had read the January minutes from the Circulator and if any errors were discovered. None were found so the minutes stood as published.

The Treasurers report was given by Wayne where he outlined all the last months receipts and payments. This report was approved by the members. Those of you who are reading this and have not paid the **YOUR** club dues are reminded to do so not later than the **MARCH** meeting.

**REPORTS & ANNOUNCEMENTS:** Don reported on the results of the recent R/C Auction. He recently spoke with Lori Jones who is the director of the auction and she thanked the Circle Masters for their support at the event and again we had more helpers then most of the R/C clubs. The new location in West Bend proved to be an excellent choice both in attendance and in cost. Approximately 350,000 attended.

**OLD BUSINESS:** Following a short discussion it was voted to support the Sussex/Lisbon Easter Extravaganza on March 24<sup>th</sup>. Another discussion erupted regarding the newly purchased "Shoestring" which Mike will convert to electric power. It was voted that the club purchase the necessary batteries as we will attempt to use this airplane as a trainer and replacement for the Bat plane. Regarding the "Field Box": following a lengthy discussion it was decided to mount this box on four poured concrete pillars with studs imbedded for mounting. Chris reminded all, of the Sig Mega Order which will be sent in around the middle of March. Dave will email a form to place your order. Replacement club shirts was tabled until March.

**NEW BUSINESS:** A discussion regarding the Maker Faire and weather the club should attend the 2018 event ensued. Following this discussion, it was voted to participate in the 2018 event as we had in 2017.

**WEB BUSINESS:** Dave announced that he will be going to Poland next week and will also attend an indoor stunt contest in the Czech Republic. He asked if anyone had any club related items that he could give away at this contest.

There being no further business to discuss Chris asked for the meeting to be adjourned. This was voted and seconded to adjourn at 2:04 PM.

02/22/18

# *Upcoming Events*

GO TO THE MEETING YOUR CLUB NEEDS YOUR PARTICIPATION

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March Meeting: Saturday March 3rd at the Pauline Haas Library in Sussex. .Social hour begins at noon with meeting to follow.

April Meeting: Saturday April 7th at the Pauline Haas Library in Sussex. .Social hour begins at noon with meeting to follow.

Model Engine Collector's Association Collecto: Saturday April 14th 8 AM until noon at the American Legion Post on Grange Avenue. See the flyer in this issue.

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**NAME**  
**THAT PLANE**



I'm going easy this time to give more members a shot at getting a correct answer. Must be at the meeting to be entered into the final drawing.

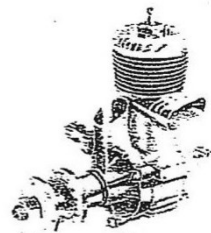


# 15<sup>th</sup> ANNUAL SPRING & FALL IN WISCONSIN

## MECA Region 5

### Collecto and Hobby Swap Meets

Saturday April 14, 2018 8:00 am – 12 Noon



Set up at 7:30 am

American Legion Post # 416

6351 West Grange Ave.

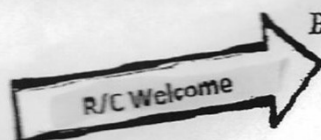
Greendale, WI

Directions in Milwaukee from I-894 Bypass

Exit #7-60<sup>th</sup> Street/South 1.2 miles to Grange Ave.

West 0.3 miles to Post #416

**PUBLIC INVITED**



**BUY-SELL-SWAP-TRADE-FREE APPRAISALS,  
MODEL ENGINES, PARTS,  
PLANES, KITS, CARS, BOATS, etc.**

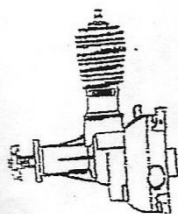
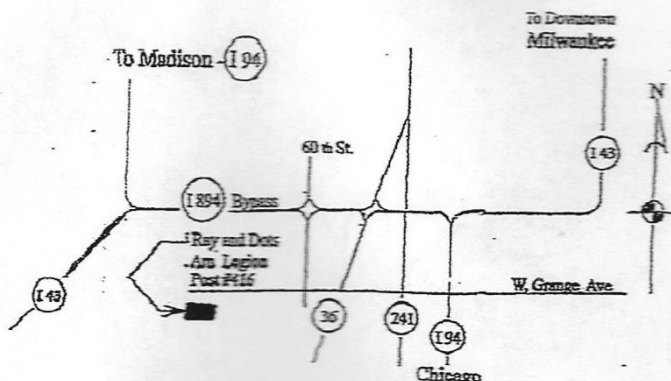
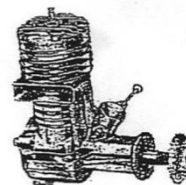
Table: \$10.00 each MECA members (includes one admission)

Table: \$15.00 non-MECA member (includes one admission)

\$5.00 General Admission (under 12 free)

Contact: Don Adriano (262) 677-2835 - e-mail: [exairtec@aol.com](mailto:exairtec@aol.com)

Coffee & Donuts Available



# Get Your Bearings



Welcome to another one of Big How's famous Do-It-Yourself projects for the model airplane person who likes to obsess over things. When you put your engines away last fall, you did give them a little shot of Marvel air tool oil or maybe a couple drops of kerosene to keep the bearings from sticking or corroding, didn't you? Well if not, maybe the ball bearings in your little gem have a ratchety kind of feel or they are seized up solid. Could it be you have flown with your favorite engine so many times, the bearings are plain old worn out? Stop here. If your favorite engine is a Fox .35 or an O.S. FP.40 or any one of a number of simpler designs, there ain't no ball bearings in there, it has bronze bushings so if that puppy is worn out, oil it up with castor to fill in the overly generous tolerances and sell it at a swap meet. Problem solved. On the other hand if your axe needs new ball bearings read on.

The first thing we are going to need to do is completely disassemble the engine. Don't worry, you're a model airplane guy, you can do this. It should be fairly easy to figure out just by looking at the little beast. One note of caution: Remove the back plate with the piston at top dead center. There are some engines out there that have a piston skirt that fits into a groove cut into the top of the back plate when the piston is at the bottom of its stroke. When you pull the back plate out, you can break the piston skirt right off and ruin your engine unless you can buy another piston/cylinder set. Good luck with that. Guess how I learned about this? Nova-Rossi innards aren't cheap is all I'm going to say. Also see that Big How keeps his piston and cylinder in a separate ziploc bag. These parts are easily scratched by rubbing around inside the box with the rest of your engine parts. Scratched equals bad. Lower performance, premature wear, bad bad bad.



So now your engine is disassembled, what's next? We have to get those old bearings out of the crankcase. First, get yourself a sturdy pair of leather gloves. I guess you could use heavy duty cotton gloves if you work fast. Preheat the kitchen oven to 450 degrees and stick your crankcase in there to bake for a half hour or so. Don't get carried away with the heat and don't be tempted to use a torch to heat the case. After she's good and hot, get your gloves on. Sometimes with looser fitting engines, your bearings will already be falling out at this stage but usually they will need some persuading.





To free the rear bearing, hold your crankcase in one hand and give it a good smack into your other palm. Inertia will carry the bearing out of the engine and into your hand. It might take repeated blows to break it loose, but it will come out. I have used this method on everything from .049 speed engines to .60 sized sport engines and it has never failed. You do want to work quickly. The bearing will come out easiest if you act immediately upon removing the engine from the oven. Now you do the same in the opposite direction to shake the front bearing out. The front has less surrounding material and will dislodge more readily than the rear. Remember work quickly! It will take a pretty hefty swing with a sudden stop to work properly, but you can do it!



Ok, you have your bearings out of the crankcase. If you want that engine to purr like it was meant to once again, you are going to need the new ones installed. Let's get at it.



To begin the installation process place your new bearings into a Ziploc bag and throw them into the freezer with your venison, bacon and pizzas. Because if you are a real man's man like Big How, that's all you have in your freezer. What else do you need? Leave them in there for a substantial length of time like a couple hours or more. They should be good and cold. Meanwhile, back into the 450 degree oven with that crankcase for a half hour or so to heat it up again.

Get ready, you have to move right along with this part too. Slide the rear bearing onto the engine's crankshaft with any shields the bearing may have facing the way you want them to. More on this later. I remove both metal shields from my rear bearings to allow them more access to oil flow while running. I typically leave the forward facing shield in place on the front bearing and remove the rear facing shield. This keeps dirt and gunk out of the front bearing while letting the bearing get properly lubricated during operation. Back to installation.



I don't have a super good way to illustrate this next part, so bear with me. Slide the crankshaft with rear bearing in place into the back of the crankcase. With the bearing centered up in the case. Tap the bearing in by using a dowel or plastic rod up against the crank along with a light hammer to seat it. You have to get it firmly seated up against the case or nothing is going to fit properly when you reassemble the engine. It can take a couple good whacks to seat the bearing but it may drop in with little effort, it depends on the case. Use some finesse here. No Gorilla fisted blows in this process, use just enough force to get the job done. You need to accomplish this with the case still hot or it will be rough going.



After the rear bearing is solidly in place, it's time to go to work on the front. If you need to, you can give your case another reheat in the oven at this point. Be careful, you don't want to dislodge the rear bearing while installing the front! Press the front bearing down onto the protruding crankshaft and use any means you can to seat the bearing into the front of the case. You should have no problem figuring this part out, you made it this far. The front will go in easier so you may be able to press it in with your fingers. A couple light taps with the crankshaft backed out of the case and something protecting your new bearing should be more than sufficient to seat it. When the bearing is flush with the front of the crankcase it will usually be seated properly.



When you are finished installing your new bearings, let the whole works cool to room temperature and the reassemble the engine. Lubricate the bearings with marvel brand air tool oil to prevent corrosion and to give them a film of oil prior to the first run. Don't use cheap air tool oil like Harbor Freight, etc. Some of these can contain silicone ( or who knows what ) which has zero film strength and will not protect your engine at start up. I am not a fan of WD-40 either. Back in the Vietnam war era, military armaments technicians found that WD actually attracted moisture and was one factor in weapons malfunctions in the field. If Uncle Sam doesn't like it, neither does Big How. Before starting her up, check to be certain there is no binding when the engine is turned over or you may have to start again at step one. Good luck with your engine project. If you need help with any of this, stop right there and contact me. I'm sure we can figure something out.



A few final points about bearings because I don't want to leave you hanging out there with partial information. There are other reasons to replace bearings other than wear or corrosion but those are two biggies. Some engines simply come from the factory with lousy bearings. Speed, racing and other go fast types seek to squeeze every bit of performance from their power plants and opt for top notch bearings. Some of these have ceramic balls. Ceramic hybrid bearings as they are properly called can get really spendy. You don't gain a thing by installing bearings with ceramic balls in a stunt, scale or sport engine except for maybe some kind of bragging rights. Bearings with steel or stainless balls will work fine for those applications. I have obtained bearings from two sources. Boca Bearings in Florida and VXB Bearings on the left coast. Both can help you find what you need and both offer some pre packaged sets for popular model engines. Boca has the more extensive number of packaged bearing sets. I think VXB sells a higher quality product but you might have to figure out what you need and order individual bearings from their offerings. That being said, the MVVS .40 on my Albatross has a set of Boca premium sport bearings in it and they have been soldiering on now for over ten years with no sign of failure. Both companies can be found by Googling their names.

Now about bearing shields. Bearings have shields or "cages" to prevent dirt or other foreign materials from fouling up the works. Inside your engine, there shouldn't be that many foreign objects floating around. Another thing bearing shields can do is prevent lubricating oil from making it from your fuel and into the bearing balls and races. Not Good. Since the bearings you purchase for your engine likely have a plethora of other uses in the real world they will probably be shielded. Bearings 1 and 2 below, are phenolic cage bearings otherwise known as the el-cheapo bearings that came in our engine from the factory. Phenolic shields will normally allow oil to get through unimpeded. Bearing 3 is our replacement front bearing. It has one of the metal shields in place, that which faces forward, exposed to the dirt and grime from flying off of grass etc. The front shield was left intact to protect the bearing, the shield on the other side is removed for oil flow. Bearing number 4 is our rear crankshaft bearing that lives inside the engine with no exposure. Both metal shields are removed for maximum lubrication and to eliminate any extra drag which shields can also cause. I hope this is making sense. Bearing shields are fairly easy to remove if needed. The metal ones usually have a hair fine snap ring around the perimeter that can be worked out with something pointy. There are Youtube videos showing how to do this, albeit aimed at skateboard bearings but they are much the same as ours.

