

Flight Feathers

The official publication of OneWingLowSquadron.org

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NEXT MEETING

November 1st

@ 11:00 AM

Club Officers' Election

Check out the new chart for Recommended Prop Sizes and RPM Limits on our website under:

Club Info & Links

WISE OWLS

SHAUN ELMORE
PRESIDENT

~
MIKE FLICK
VICE PRES.

~
RON SANDERS
SEC./TREAS.

~
ROB GRANT
SAFETY OFFICER

~
GALE MOORE
CONTEST DIRECTOR

Props: A primer on...well, props

PROPELLER: (1) Wood, plastic or composite device used to stabilize inferior landings. (2) Handy tool to cut away excess skin on knuckles. (3) A large fan designed to keep the pilot cool.

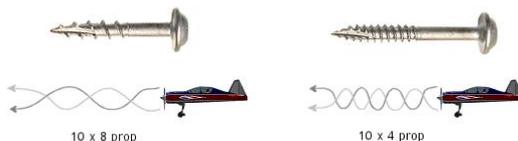
During our marvelous Fun-Fly picnic last month, I had a brief but interesting discussion with Mike Elmore about propellers. So here is some information I garnered from a couple RC sources. Visit their sites for more info.

<http://www.rc-airplane-world.com/propeller-size.html>

In the worst case scenario, the wrong prop can cause serious damage to components and this is especially true for electric powered r/c airplanes. The first and foremost plan of attack is to follow the manufacturer's recommendations for the engine or motor that you have.

The 'twist' in the propeller is there to create the essential Angle of Attack of each blade, just like a wing has an AoA. The twist is greater towards the hub of the prop because of varying airspeeds along the length of the blades, and hence varying thrust generation. This difference occurs because the tips of the prop blades move faster than inner portions of the blades, so the AoA has to change accordingly along the length of the blades.

All r/c propellers are designated two measurements, both given in inches. The first number is the **diameter** of the imaginary disc ('arc') created by the spinning prop, *i.e.* the length of prop from tip to tip. The second number is the **pitch** and this is the harder of the two to understand - but indicates how far that propeller will move through the air per single revolution of the engine.



However, the pitch measurement of your prop must only be taken as a guideline because real-life factors come in to play to influence this distance *e.g.* the material of the prop, its condition, efficiency, air density on the day, etc.

A faster turning propeller (and props can easily turn in excess of 10,000 RPM) generates a lot of noise as the tips cut through the air. In fact, when you hear an r/c airplane flying, it's more than likely it is the propeller that you're hearing more than the engine. So a larger diameter prop *reduces* the engine's RPM at any given power setting, because there is more for the engine to turn over and hence more work to do. And slower turning props generate less noise - therefore, larger diameter props run quieter than smaller diameter props, all else being equal. ✈

hooked-on-rc-airplanes.com

Increasing either the pitch or the diameter puts a *larger* load on the engine. To keep within the safe proper load for a particular motor or engine, you generally *change the pitch and diameter together*. For example: 9x7, 10x6, and 11x5 propellers would all put a very similar load on the engine.

If you want to change the *maximum* RPM, then you need to change the load on the engine. Replacing an 11x6 prop with a 10x6 prop, or replacing an 11x6 prop with a 11x5 prop, will *decrease* the load on the engine and *raise* the max RPM. Changing from a 10x6 to a 10x7 prop, or a 10x6 prop to a 11x6 prop, will increase the load and *lower* the max RPM.

A standard 2 blade propeller is more efficient than 3 and 4 bladed props. A blade creates lift just like the wings of an airplane. Each blade follows nearly the same path as the prop spins. The more blades there are, the less space there is between each blade. So, basically, the blades on a 2 blade prop get a much cleaner bite on the air making it more efficient. (*Much controversy exists over single blade props. I may address that in a future issue ~ Bill*)

A multi-blade prop is a smaller diameter. Multi-blade propellers are used with full-scale airplanes when ground clearance is an issue. WWII fighter planes are prime examples. As a matter of fact, those massive engines actually needed a less efficient prop to help harness all that power!

Twin engine airplanes often use multi-blade propellers because the smaller diameter is needed for the propeller to clear the fuselage.

Evolution Engines offers a three-blade propeller to be used with a trainer. The inefficiency of the prop "tames" the engine a bit for the beginner by allowing the airplane to fly slower while maintaining the thrust needed for easy take-offs and climbs.

The standard way to balance the propeller is to lightly sand the heavy side. *It's not really important whether you sand the front or the back*. But do not remove or sand the tip of the propeller because this will cause the propeller to be dynamically unbalanced even though it may be statically balanced. ✈

What's Your Opinion?

When balancing a prop, the material should always be taken off the front of the blade near the tip. To remove from the rear would alter the pitch. (*Engine Clinic, RCModeler, March 01*)

AGREE ~ DISAGREE ~ DOESN'T MATTER (*Email me with your opinion! Results in next issue!*)

The Quad(rant) & Fly-In...from the Editor's Desk

I took my quad to Yankeetown's Public Park & Boat Launch to get some aerial shots of the coast. Some bikers (the Harley type) were there on a road trip, and I told them what I wanted to do and that I didn't want to violate their privacy. Their response was kind of what I expected ó intrigue. One of the guys even flew R/C 3D, so we had a nice discussion as I showed them all the quad's cool features. ✈



Yankeetown, FL Public Park on the Gulf Coast Northern Eye Photography - 2014



Yankeetown, FL Boat Launch Northern Eye Photography - 2014

On-Top-Of-The-World's 14th Annual Fall Fly-In last Saturday was blessed with a perfect day and jam-packed attendance of pilots and spectators. (See more photos on our website's gallery page.) Only one casualty while I was there: a heartbreaking landing after a perfect flight. ✈



Name This Plane for a Chance to Win a \$20 Gift Certificate to Grey's Hobbies

1. Identify This Plane.

(Preferably from the wealth of useless information stored under your hat.)

2. E-mail Entry to Editor at: keukadiver@gmail.com

One entry per member.

DEADLINE: Midnight 10/20/14

If more than one correct answer is received, winner's name will be drawn from a hat by Editor's wife.

All members will be notified of winner and correct answer.

Name the Plane Hint: Arguable the Red Baron's nemesis, *Peanuts* creator Ed Shultz made the aerial combat term "dogfight+literal" with this plane.

Loose Feathers: Tips & Hints

Proper Fuel Draw (RCModeler March '91)

When you do outside or other negative G maneuvers, the clunk in your fuel tank is thrown violently forward. Sometimes the clunk gets stuck in this forward position and will not feed fuel to the engine the next time you attempt a vertical or sharp climb. This can be a real problem to diagnose or repair. The best fix is to insert a piece of copper or other non-flexible tubing in the middle of your "clunk" line when you assemble the fuel tank. This will prevent the clunk from being thrown forward but still allow it to flop around inside the tank to feed fuel to the engine during extreme maneuvers. Credit: Tim Meranda & Fred Umbricht, Wheaton, IL

The OWLS Nest Gallery

Jerry's Jypsy Moth's pilot!



Don't you just hate it when this happens?

At the South end of our field there is a depression that is home to a very model hungry vortex. I knew it was there as it tried to eat Rob's Super Cub earlier, but of course he recovered nicely. Then along comes me - too slow and too low - and sho'nuff, it bit my little cubby's nose off. That's my story, and I'm sticking to it.

Update: All fixed and ready to take on the dragon again!



Shaun flying Doc's Fusion 3-D



Shaun's Disc & a new Fusion 3-D in the box!

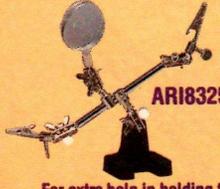


Maiden Flights - Saturday 9/27
Mike's Hangar 9 D-EFXA (above)
Willy's Skeeter (below L.)
Jerry's Jypsy Moth (below R.)
All thankfully successful!



TRIPLE HANDS WITH MAGNIFIER

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hob-
riable
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more



ARI8325 \$7.95

95

For extra help in holding those small parts while soldering, gluing or painting.

This advertisement from Polk's Hobbies in *Model Builder* (April 1988) caught my eye as I had recently been looking at products related to soldering.

Price back in 1988: \$7.95

Amazon Prime's price: \$6.19 (S&H included)

KennyWorld R/C Field

CR 464 west of SR 41
17150 SE 60th Street
Morrison, FL 32668
352-528-3744

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**We're on the Web!**  
**Onewinglowsquadron.org**

**And Facebook!**  
<https://m.facebook.com/profile.php?id=85760217425>  
9072



© Bill Grabinski

## Bird Views...

### Which is the better engine: Ring or ABC?

Depends on application: For high-performance and maximum power, especially under less than ideal flying site conditions, the ringed engine would be better, i.e., a ringed engine can tolerate a lot more dust, dirt, and foreign matter than can an ABC engine. A little dust that might not hurt a ringed engine, other than to shorten the ring life, could cause an ABC engine to lose the piston fit and experience a considerable power loss right away. Proper piston fit is very critical in an ABC engine. ✈

(*Engine Clinic*, RCModeler, April 1994)

Many R/C Engines come in both ABC and Ringed versions. The ABC type engine has an Aluminum piston, a Bronze cylinder sleeve, and Chrome plating on the cylinder sleeve or a variation where Nickel plating is substituted for the Chrome plating. These engines have a tapered cylinder which changes to a non-taper when at operating temperature.

The other type of engine is the ringed engine. This engine has a piston ring. The cylinder is not tapered. It is the ring which prevents gas from passing by the piston (blow-by). The ring has spring tension which forces it against the cylinder wall at all times. This is why it is not necessary to taper the cylinder walls during construction. There is one other important difference. The cylinder walls are not plated bronze. Instead, they are constructed of a porous metal. This means that it has many tiny holes in the metal structure. During engine operation, carbon from the burnt gases will begin to fill these holes on the surface of the cylinder. This carbon makes an excellent lubricant. The piston ring is not porous.

What does this mean to the user? The ABC type engines can typically withstand more heat before they are damaged. More horse power is available from these engines if the fuel mixture and prop sizes are changed to push the engine harder. However, because the cylinder walls are tapered, at low temperatures, they can be harder to start. The ringed engines start easily since the ring prevents blow-by even when the engine is cold. However, all of the friction in a ringed engine takes place at the ring itself, a relatively small area. Also the porous cylinder material does not dissipate heat as fast as the bronze cylinder in the ABC type engine. This means that the engine is more easily damaged by too much heat.

Because of these characteristics, you can expect that the safe operating temperature range of the ringed engine to be shifted lower than the ABC type engine. This means that the ringed engine will require good lubrication at high r.p.m. Since castor oil has a much higher flash-point than synthetic oil, your fuel should contain at least some castor oil. You should also avoid running your engine too lean. ✈

(<http://rcsource.hobbypeople.net/faqs/ringengs.htm> 2014)

## That's A Hoot ...from the Editor's Desk

### Secret to a Long Happy Marriage

My wife and I were sitting on our deck one evening, sipping wine, when she said, "I love you so much. I don't know how I could ever live without you."

So I just had to ask, "Is that you or the wine talking?"

And she replied, "It's me talking to the wine." ✈

### No Respect

The other day I came home and said to my wife, "Teenagers these days show no respect. I was at Walmart standing in line behind a teenage girl, and she turned around and slapped my face."

My wife, of course, was sympathetic and asked, "Why in the world would she do that? Did she say anything?"

"Well," I said, "You know my hearing isn't the best, but it sounded something like, 'Hey, grandpa, keep your hands off my ass.'" ✈