

Carrier Wave

Newsletter of the Phantom Flyers R/C Club

<http://phantomflyersrc.com>

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July 2008

Upcoming Events/Important Notices

16 July, Club Meeting, Flying Field

19-20 July, Electric Fly, Flying Field

2 August, Carrier Fun Fly/COX Pylon, Flying Field

20 August, Club Meeting, Flying Field

23-24 August, Pattern Contest, Flying Field

Articles, pictures, and tech notes for publishing in the Carrier Wave are always appreciated. Please submit articles a week and a half before the meetings. Please send pictures, preferably in JPEG format, in separate files from text files. Text should be in MS Word format, simple text file format, or some format that MS Word can read. Indicate where pictures should be in the text with a note in parentheses such as (Picture ABCDC001.jpg goes here). I will integrate text and pictures in my page layout program.

Thanks,
Dave Evans

2008 Phantom Flyers Event Calendar

EVENT	2008 DATE	DAY	2008 CD
SNOW FLY	1-Jan	TUE	
CLUB MTG @ SR CENTER	16-Jan	WED	CLUB PREZ
CLUB MTG @ SR CENTER	20-Feb	WED	CLUB PREZ
CLUB MTG @ SR CENTER	19-Mar	WED	CLUB PREZ
CLUB MTG @ SR CENTER	16-Apr	WED	CLUB PREZ
PACK 30 ROCKET LAUNCH	19-Apr	SAT	
ELEC RED BULL RACE/CARRIER/COX	4-May	SUN	JAN JANSEN
CLUB MTG-FIELD	21-May	WED	CLUB PREZ
FLOAT FLY : 9:00 AM -12	24-May	SAT	DON VETRONE
FAMILY BBQ / B-A-P / COX PYLON	To be Rescheduled		
CLUB MTG - FIELD	18-Jun	WED	CLUB PREZ
PATTERN SEMINAR 12 NOON	5-Jul	SUN	ED WHITE
FIELD PREP FOR ELECTRIC FLY	12-Jul	SAT	
CLUB MTG - FIELD	16-Jul	WED	CLUB PREZ
ELECTRIC FLY	19-Jul	SAT	
ELECTRIC FLY	20-Jul	SUN	
CARRIER FUN FLY / COX PYLON	2-Aug	SAT	
FIELD PREP FOR PATTERN CONTEST	16-Aug	SAT	BILL AHRENS
CLUB MEETING - FIELD	20-Aug	WED	CLUB PREZ
PATTERN CONTEST	23-Aug	SAT	ED WHITE
PATTERN CONTEST	24-Aug	SUN	ED WHITE
CLUB MTG @ SR CENTER	17-Sep	WED	CLUB PREZ
ELEC RED BULL RACE/CARRIER/COX	21-Sep	SUN	JAN JANSEN
CLUB MTG @ SR CENTER	15-Oct	WED	CLUB PREZ
CLUB MTG @ SR CENTER	19-Nov	WED	CLUB PREZ
CHRISTMAS DINNER	6-Dec	SAT	CLUB PREZ
REVISED	4-Feb		



AMA Club # 393
Phantom Flyers
St. Charles, Mo RC Club



Minutes June 18 2008

Small group and short meeting. Club secretary lead the meeting.

Secretary report was approved.

No Treasurer report.

Safety Report from Dave Evans. Nothing to report.

Tech session this month. None.

Club roster: Copies of club roster was handed out. We will also post it on the website. (As of July 14 the roster is on the website.)

Emery Kattelman brought a Phantom Flyers polo shirt he got from a company on the internet (www.zazzle.com). It had our club logo and a Micro Henry cartoon. Nice shirt, however the company probably violated copy rights.

Mowing: Alan Pickup asked to be removed from the mowing list.

New Business: Website. Some discussion with club members having difficulty accessing the website. There was also some discussion on expanding the website. More discussion during next meeting?

The end. As I said short meeting.

Not part if the minutes, but an item of interest (to me) none the less. This is the editor's Great Planes Super Stearman ready for first flight. First flight occurred July 14, 2008 at approximately 9:00 am. Witnessed by Ben & Bonnie Lanterman. Aircraft is powered by an OS 120 Four Stroke. First flight, as well as flights two and three, were successes. More pictures at the end of the newsletter.



**GSLMA Minutes will be sent separately
due to large size of the file.**

AMA Insider July 2008

From the Anoka County Radio Control Club, Inc., Coon Rapids, Minnesota

Nail Those Landings

By Dan Stahn

Hello fellow members. I was looking through my latest *Plane & Pilot* magazine. Hang with me for a minute. It had an article about getting set up for landings. It was titled "101 Secrets for Super Landings." I picked out 22 that would apply to RC.

Now you're thinking, 101 secrets, that's a lot. How many things do I need to do or think about to land my airplane?

Landings are when you need to concentrate the most on what the airplane is doing and making the airplane go where you want it to go. I'm not going to use all 101 secrets here mainly because they don't all apply. Such as landing on a slope, and using the runway numbers through the windshield to control your glide slope, or even about warning your passengers about moving around during the landing. Or having your radios tuned to the correct ATC frequency before getting in the pattern. You know; stuff like that.

What I have done is to apply those that would help you to place your airplane in the pattern at our RC field as if it were the real, full-scale pattern. Over the years I have used these helpful articles to better myself and to help me make the landing to look much better and hit the runway as many times as I can. Give these a try and see if there aren't any of these secrets that can help you.

1. Have a plan: Don't let the airplane determine your approach. Plan out your landing well in advance. Maybe two or three circuits around the pattern before you make the landing.
2. Visualize the flight path: Think ahead of the airplane and imagine your flight path as a narrow rectangular tunnel with the runway at the end.
3. Keep your downward approach consistent: Put your airplane in the same place every time.
4. Fluctuations in speed are wasting precious altitude and energy.
5. Deploying flaps at too fast of a speed only messes up your trim and you can't keep steady throttle settings.
6. Don't wrestle with it; you make the airplane land.
7. Think centerline: Form a routine where you put the airplane on the centerline of the runway every time.
8. Don't chase the airspeed: Wind gusts can cause air speed fluctuations. Don't chase them; average out the fluctuations by holding the nose attitude steady.
9. Have a go-around point selected: Designate a place on the runway as your touchdown area. If you don't make it, go around. Don't make a bad situation worse.
10. Don't forget to flare: When you are short on final, be thinking of the flare before you touchdown.
11. Make small power changes: It's always best to make small power changes when needed rather than being behind a change and then having to play catch up.
12. Correct flight-path changes immediately: Either speed or position or whatever—if it isn't right, fix it. Don't let needed corrections pile up.
13. Plan ahead: This is very important. Compare where the airplane will go if you don't change anything to where it will go if you do. If they don't match, make it match.
14. Don't fly the pattern too fast: If you fly at a reduced speed, you lessen the chance of missing the runway.
15. Practice approaches: Spend a couple of flights just doing touch-and-gos or complete landings and then take off again. This will help you to get the "feel" for the runway.
16. Think about the rudder as centerline control: Use the rudder to keep the nose ahead of the tail, independent of the ailerons.
17. Adjust for the crosswind before the flare: Use the rudder to keep the nose and tail on the centerline and use ailerons to kill the crosswind.

18. Adjust the landing pattern for the size of the airplane: Small airplanes need smaller patterns. Big and fast airplanes need more room.
19. Don't let the nose land first: If you have tri-gear, hold the flare so you land on the mains first.
20. Don't try to save a bad bounce: Go around and try again.
21. Break the glide then set up the flare: On approach, don't fly into the runway and flare, it will bounce.
22. After a crosswind landing, don't relax the ailerons: Keep the ailerons into the wind until you stop. And use the rudder to stay on the centerline of the runway.

You might be thinking that these hints are not needed when you go out to fly that Pizazz or FunTiger or Ultrastik and that's okay. These airplanes are designed to do tight maneuvers and fly radically and fly slow with small amounts of wind, that's why we like them. But they too can be landed on the runway every time using these hints. It surely helps when you fly the scale or heavy wing loaded airplanes. You might even be able to step up to the next level of airplane with these hints.

See you guys at the field. →

From the Suffolk Aeromodelers, Long Island, New York

Sizing the Model Airplane Propeller

Originally from Hooked-on-rc-airplanes.com

The manual for every engine will give you a range of propellers that is safe to use with that engine. The manual does not specify the exact size propeller because the propellers must be sized for the airplane they are used with. It is very important to stay within this recommended range.

You can also refer to the Top Flite propeller selection chart below to determine the range of propeller sizes that are acceptable for your engine size. Keep in mind that the Top Flite chart is sized for 2-stroke engines. Consult the manual for 4-stroke propeller sizes because these engines produce more torque at the slower speeds and will use a larger propeller.

The propeller puts a "load" on the engine. If the load is too small or too large it will damage the engine. You must choose a propeller within the recommended range that best suits your airplane and your flying style.

The characteristics of a propeller are defined by the diameter and the pitch. The diameter is the distance from one tip to the other. The pitch is defined as the distance the propeller would move the airplane forward in one rotation in a "perfect" world. Perfect world meaning that the propeller is 100% efficient and the air does not compress; neither of which is practical in the real world.

The "twist" of the propeller is what determines the pitch. Basically the length of the propeller and its twist defines its characteristics.

A model airplane propeller size is always referred to as its diameter x pitch. An 11-inch-diameter propeller with a 6-inch pitch is called an 11 x 6 propeller.

Generally speaking, the larger the diameter of the propeller the more thrust will be produced by the engine. The larger the pitch the more speed you will get out of your engine. A small diameter, larger pitch propeller will move a small volume of air really fast. A large diameter small pitch propeller will move a large volume of air at a slower speed.

Increasing either the pitch or the diameter puts a larger load on the engine. To keep the proper load on the engine, you generally change the pitch and diameter together. For example, 9 x 7, 10 x 6, and 11 x 5 propellers would all put a very similar load on the engine.

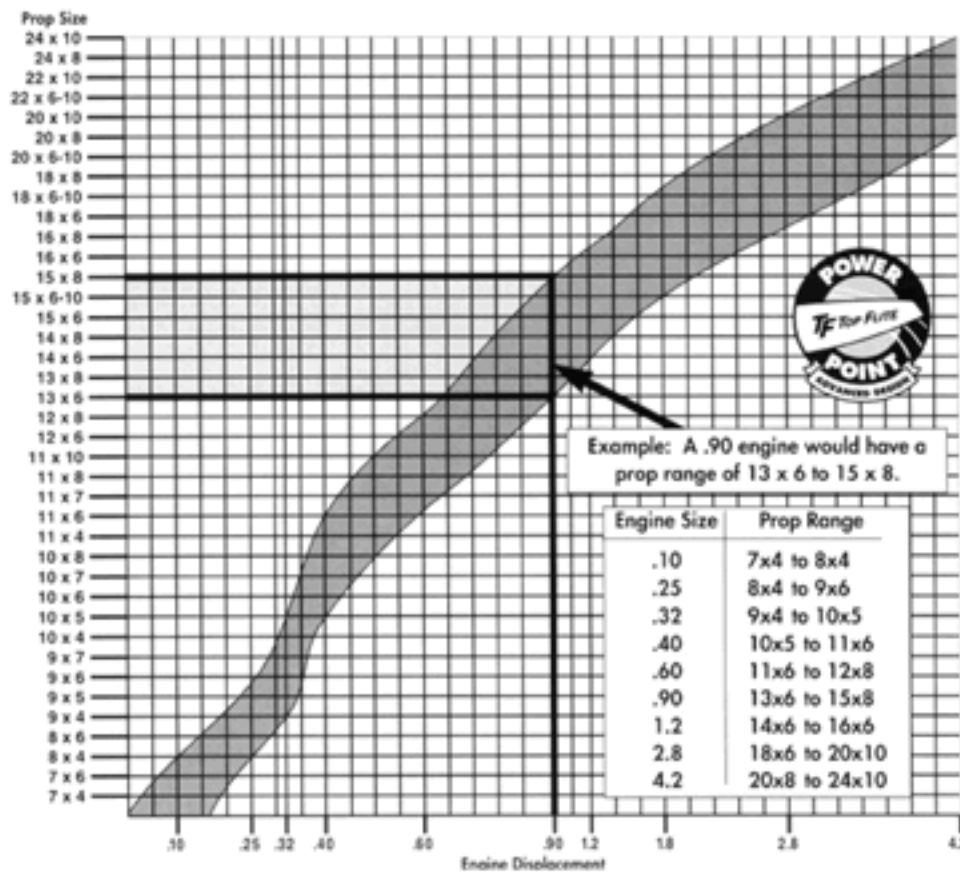
If you want to change the maximum RPM, then you change the load on the engine. Replacing a 11 x 6 propeller with a 10 x 6 propeller, or replacing an 11 x 6 propeller with an 11 x 5 will decrease the load on the engine and raise the maximum RPM. Changing from a 10 x 6 to a 10 x 7 propeller, or changing from a 10 x 6 to an 11 x 6 will increase the load and lower the maximum RPM.

If the propeller load is too large, the engine will not turn fast enough to fly the airplane and could cause the engine to overheat. If the load is too small the engine will turn too fast damaging the engine. So it is important to stay within the window recommended by the engine manufacturer. It is also important to

know that the engine must be tuned each time the propeller size is changed because of the change in load the engine sees.

When choosing a model airplane propeller you must keep in mind that you are choosing the propeller based on how you want the airplane to fly. This really has nothing to do with the engine other than the fact that you must stay within the recommended window of propellers to prevent damaging it. The same engine used on two different airplanes may be using two completely different propellers. If you have airplane with low drag designed for speed then you will want more pitch. If you have a slow airplane with a lot of drag, such as a biplane, you will want more diameter (thrust) and less pitch (speed).

Choosing a propeller that best fits your airplane and your flying style is a trial-and-error process. Pick up several propellers within the recommendation range. If your airplane seems too sluggish when taking off and accelerating, then change to a lower pitch, larger diameter propeller. If your airplane has plenty of pep and you want to make it go faster, then change to a larger pitch, smaller diameter propeller. It's really fun to experiment with different propellers and observe how the airplane reacts.



How to use the chart to find the right propeller for your engine:

1. Find your engine size along the bottom axis.
2. Follow the line to where it intersects with the shaded area.
3. Follow each point within the shaded area to its corresponding propeller size on the left axis. This will be your approximate propeller range.

Note: Four-cycle engines are typically higher torque engines and should use the larger propellers indicated in the range. Recommended propeller ranges will vary depending on your particular engine and airplane. This chart represents average propeller usage and should be used only as a general guideline. Always refer to the manufacturer's instructions included with your engine. →

A123 Cells

By Carlos Reyes

Electric model airplanes have been around for roughly three decades. A huge problem in the early days was battery energy density. In other words, they simply weighed too much for the amount of juice you could get out of them. This situation has improved dramatically in recent years with the advent of Li-Poly cells, but a battery pack for a larger model can easily cost hundreds of dollars. The advent of electric cars, such as the Toyota Prius has spurred an enormous amount of research into new battery technologies. In this article, I will describe an alternative to Li-Poly batteries that offers intriguing possibilities.

A123 Systems (www.a123systems.com) produces Lithium-Ion Nanophosphate cells. These cells have a nominal voltage of 3.3 volts and can withstand continuous discharge rates of 30C. They can be safely discharged down to 2.0 volts. The voltage remains fairly constant through the discharge cycle, but they do have a sharp drop-off at the end. Expect 300 cycles before you notice any reduction in capacity while at 1,000 cycles you'll have 75% of the original capacity. They are very safe. Overcharging or over discharging will not cause an explosion and will have little effect on the life of the battery. Balancing the cells when they are charged is still a good idea, but not absolutely required. They can be charged immediately after use in 15 minutes.

The cells are available in two sizes. The original M1 cell has a capacity of 2.3 Ah and weighs 70 grams (2.47 oz). A newer, smaller size can hold 1.1 Ah and weighs 40 grams (1.41 oz).

The primary source for A123 M1 cells has been DeWalt 36-volt portable power-tool battery packs. Each pack contains 10 cells. I purchased two of these for \$100 each through Ebay. The prices appear to have gone up recently to the \$120-\$130 range. Single cells can also be purchased online for \$15 from a growing variety of vendors. You can find two of the smaller cells in a Black & Decker VPX battery pack which sells for about \$15. The smaller cells can also be had for \$12.50 each.

There are many Li-Poly chargers that support or can be modified to support the charging of these A123 cells. Because of the sharp voltage drop-off when discharged, you are probably better off using a timer when you fly. Otherwise you need your ESC to shut off the motor when 2.0 volts per cell is reached.

Bottom line? These cells give you 70% the energy density of Li-Polys for about 45% of the price. For many of us, that is a good trade-off. They are extremely safe and can be charged in 15 minutes. If you end up buying half as many battery packs because of the shorter charge time, then they become a much better value. →

More pictures of the editor's Super Stearman



**Real airplanes have round
engines and two wings!**