FLIGHTLINE

NEWSLETTER OF THE PALM BEACH RADIO CONTROL ASSOCIATION

Northrop B-2 Spirit

RC Chaser at Markham

The Palm Beach Radio Control Association
Current Board of Volunteers

John Scaduto	President/Webmaster/Newsletter Editor
Tom Severino	Vice President
Princeton Rose	Treasurer
David Spielman	Secretary and Membership Chair
Gary Hoffman	Chief Safety Officer
Jon Gerber	Chief Training Officer
Seth Sterling	Director

Please use the following email address to contact any of the Directors:
pbrca.info@gmail.com

Membership Meeting Dates!
Second Saturday of Every Month
ALL DATES ARE TENTATIVE

July	None	Summer break
August	None	Summer break
September	13th, 2025	10:00 AM at Westervelt Field
October	11th, 2025	10:00 AM at Westervelt Field
November	8th, 2025	10:00 AM at Westervelt Field
December	13th, 2025	10:00 AM at Westervelt Field

For more information and upcoming events please visit the Calendar page of the PBRCA Website

https://www.palmbeachrc.com/calendar

A FRIA approved club (FAA-Recognized Identification Area)

John Scaduto
President/Webmaster/Newsletter Editor

Exciting News from PBRCA!
I'm thrilled to share some fantastic news with all of you—Palm Beach County, through AA Video / Construction Video Services, recently visited our airfield and produced a professionally filmed 13-minute video showcasing the Palm Beach Radio Control Association! The final video is now available, and it looks absolutely amazing.

This segment is part of a County series called "Parks in the Palm Beaches" and will air publicly across the county on July 12th at 7:30 AM EST on Destination America, a national cable channel owned by Warner Bros. Discovery Networks. That's right—our club is going national!

The video will also be shown on The Palm Beaches TV, the County's official tourism television channel. This channel delivers more than 114 hours of original, commercial-free, family-friendly programming that highlights the very best of Palm Beach County.

Here's how you can watch and share it:

- Palm Beach County Channel 20: Tune in locally—this is the same channel shown in area hotels and the PBI airport.
- ThePalmBeaches.TV: Watch the video and other segments on demand.
- YouTube: Visit *The Palm Beaches TV* YouTube channel to find and share the video easily.

Special thanks go out to Donnell McCant, the show's host, and Jeff Aderman of AA Video for their outstanding work in highlighting who we are and what we do.

But this video is much more than just a montage of aircraft in flight. It's a polished, thoughtful tribute to the heart of our club, our passion for the hobby, the dedication we've put into developing and maintaining our field, and the camaraderie that defines our community. The production beautifully captures our aircraft, our facility, and the shared sense of pride that comes from being part of something meaningful. We should all be incredibly proud.

Opportunities like this don't come around often. That the County chose to feature us is a testament to the strong reputation we've built and the positive impression we continue to make. It's also a reminder of why it's so important to remain welcoming to visitors, keep the field clean, and maintain the positive atmosphere we're known for.

I encourage everyone to take a few minutes to watch the video—and then share it! Show it to friends and family, post it on your social media, or send it to that neighbor who's always asking about RC flying. This is a perfect introduction to who we are and what makes PBRCA so special.

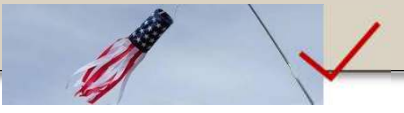
Watch here: Parks in The Palm Beaches Palm Beach Radio Control Association Segment 2025

Thank you to everyone—past and present—who's helped make this club what it is. Let's keep building on that legacy, together. See you at the field and keep soaring.

John

FYI…

The arrow on the east side of the pilots' station has been removed to avoid confusion with its usage. The windsock on the west side is used for pilots to determine flight patterns. There should ALWAYS be communication among the pilots. Cross winds are especially tricky, and more communication is required.



Tom Severino

Vice President

Some of us may have experienced (hopefully momentary) loss of communication with our aircraft during a flight, for me it has happened several times over the years generally over the northwest corner of our field, and recently twice on consecutive flights. For those who fly Spektrum we have the ability to log what happened with the communications during the flight, specifically frame losses, fades, and holds. These are logged in the transmitters flight log, be sure to check before you shut down the transmitter, once shut down the log is cleared.

Antenna fade is the loss of information on one antenna, it's not abnormal to have as many as 50 – 100 antenna fades during a flight. These can be caused by distance, antenna orientation, or electrical interference.

Frame Loss is simultaneous antenna fades, it's not uncommon to have up to 20 per flight.

Holds, these are the bad ones, this is multiple (45) frame losses, when this occurs you lose control for about one second (my EDF shut down for 1 second). If a hold occurs during flight, it's important to take a look at the system, moving the antennas to different locations and/or checking to be sure the transmitter and receivers are working correctly.

If you experience frequent frame losses or holds, here's what you can do:

- Check the placement of antennas, ensuring they are properly positioned and oriented to maximize signal reception.
- Ensure both devices are functioning correctly and that the transmitter and receiver are properly bound.
- Identify potential sources of interference, such as other transmitters or electronic devices.
- In some cases, using multiple receivers can improve signal reliability by providing redundancy.

In my case adding a satellite receiver did the trick.

Princeton Rose
Treasurer

Rocking and Rolling ….

Halfway through the year I am happy to report that club finances remain stable and strong, and our operating expenses are in line with expectations. We remain thankful for your financial support without which we would be unable to provide the facilities and amenities that we use and depend on both at, and away from, our beautiful flying sites. We also remain ever grateful for the continued support of our parks department partner.

It was great seeing members and visitors enjoying a relaxing day at our May 2025 Member Appreciation Fun Fly, and through the generosity of attendees we were able to add some funds to our coffers. As we discussed at our June 2025 General Meeting, we will focus our energies during the remainder of the year on executing our 2025 events schedule that includes the *National Model Aviation Day* event in August, *Warbirds Over the Glades* in November, *Pylons Over the Glades* in December, and of course, *Toys for Tots* also in December. We look forward to these thrilling and fun experiences for club members and visitors and expect a positive financial impact from these significant events.

We have only one significant improvement project planned for the remainder of 2025 and that is sealing the asphalt pads under the West Runway carports. Sealing is needed to protect from the inevitable spills from fueling activities and we ask that pilots exercise great care and use overflow tanks when fueling their aircraft.

As we have been saying over the past year or so, resurfacing our 600ft runway will be necessary in the not-too-distant future. We continue to seek ways to grow our **"Runway Restoration Fund"** that was established for this significant and important project for the club and our parks department partner. Stay tuned for future updates on our fund-raising plans and activities.

Other long-term improvement projects include replacing worn sections of the floor and walls of the Press Box. We cannot afford to lose sight of the need to maintain and preserve this precious facility.

Happy flying and continue enjoying this awesome hobby!

Princeton

David Spielman
Secretary and Membership Chair

Our membership continues to be strong with 265 paid members. This is good news after the multiple TFRs we've experienced this winter due to Presidential visits to Palm Beach. Being a member of PBRCA offers clear and meaningful benefits. For only approximately $1 per week, members have full access to our 600'x60' paved runway, compacted grass runway, Heli Field, covered paved setup areas, paved walkways, solar powered charging station, live video feed of the flight line, field house with defibrillator and first aid supplies, 2 Port-A-Pottys, field irrigation system, Heli Field shelters and set-up tables, heli field tree maintenance, fire ant control, email notifications of important happenings and field weather station.

The long list of benefits to club members comes at a cost and membership dues pays for a bunch of that. Additional income, including event proceeds, donations, and grants—covers the remaining cost of club benefits. Each time you participate in a club event and volunteer or buy raffles tickets and entry fee, you support the club. When you meet people at the field who are experiencing model aviation for the first time and you give them a club info and events card, you are planting the seed that could become another club member. Another important part that each of you play is to help remind members to renew. Wearing your membership card and reminding others to wear theirs helps to remind people when they must renew.

Being a current member of PBRCA is something special—and keeping our dues up to date helps ensure we all continue to enjoy the benefits. Until recently, many of these perks were available to every pilot who visited the field or the website. Over the past month, we've enhanced the members-only sections and transitioned some benefits exclusively to dues-paying members. The live field camera feed, the weather station and the newsletters have already moved to the members' only area. The Heli field Port-A-Potty is locked and only members have access. Getting your membership access is easy. Simply contact the club by emailing pbrca.info@gmail.com and ask for the access code. Don't share this code and don't assume that regular pilots whom you fly with you are members unless you see a current badge. You received this benefit because you paid your dues. We are working to give these special benefits to members only, so that pilots who are not members will want to join PBRCA.

Finally, a quick reminder—if you haven't heard yet, we're hoping to refurbish our runway in about three years. To keep it at the high standard that draws members and supports key events like Warbirds Over the Glades, 3D Over the Glades, Helis Over the Glades, and National Model Aviation Day and more, we'll need to invest in its upkeep. Your dues and participation in events directly support this goal. Help us do that.

Fly Safely
David Spielman
PBRCA Secretary

Gary Hoffman
Chief Safety Officer

1 Designing an RC Electric Power System

By: Dave Majchrzak Last Update: July 23, 2010

Although there is now a large selection of ready to fly or bind n fly electric powered aircraft available, we all once in a while would like to have that larger or more unique aircraft in our hangar. Historically, that aircraft kit or ARF would simply have a glow displacement value in cubic inches: .25, .40, .60, .90 etc. The modeler would simply have to build the aircraft and bolt on the appropriately sized engine. With the advent of brushless motors, Lithium Polymer (LiPo) and Lithium Iron Phosphate (LiFePO4, LFP or A123) batteries, electric power is now an attractive option for these aircraft. The goal of this series is to provide some tools and guidelines to provide a reliable, high-performance electric setup for any aircraft.

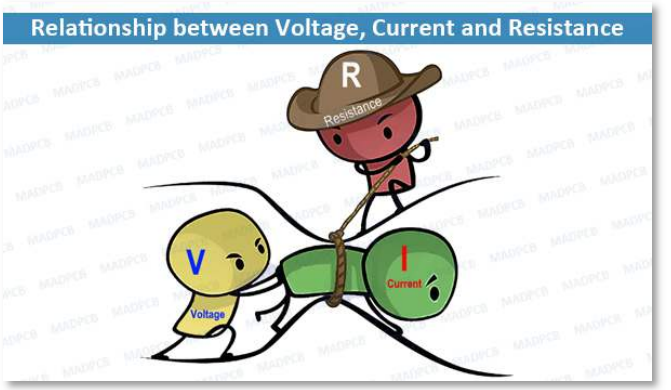
1.1 Background

Before jumping into nitty gritty, it may help to define some terms used in electric motors.

1.1.1 Electricity and Electrons

Circuit: Electricity flows in closed loops through conductors (wire). A completed circuit allows electrons to flow from the negative terminal of a battery to the positive terminal. Strangely enough, current is defined to go in the opposite direction as electrons.

Voltage: This is a measure of the electro-motive-force (EMF) of a power supply or battery. It is roughly the field strength between the 2 terminals of the battery. The unit of voltage is Volts and uses the symbol **V.**



Current: Current is the quantity of electron flow. You can think of voltage as the height of a waterfall, and current as the amount of water flowing over that waterfall. The unit of current is Amps and has the symbol **I.**

Resistance: Resistance is a fact of life. Conductors used in RC flying are not perfect, they offer slight resistance to the movement of electrons. Batteries are not perfect voltage sources. They have source resistance, i.e. their voltage drops slightly as the current they supply increases.

Ohms Law: Voltage = Current * Resistance, $V=IR$

Power: Power, for the purposes of this discussion, is defined as current times voltage. It is measured in Watts and has the symbol **P.**

Power Equation: Power = Voltage * Current. $P=IV$

1.1.2 Motors

All electric motors use a combination of permanent and electro-magnets to convert electrical power to mechanical power.

Brushed: Brushed motors use brushes to make electrical contact between the rotating and non-rotating parts of the motor. Brushed motors are very simple, but the brushes produce resistance and wear out. Brushed DC motors require two wires.

Brushless: Brushless motors do not have any electrical circuit between the rotating and non-rotating parts and therefore do not require brushes. The lack of brush resistance makes them more efficient than the brushed variety. Brushless DC motors require three wires.

kV: kV is often used as an electric motor parameter. It is a measure of revolutions-per-minute (RPM) per Volt. So, a motor with 1000kV with an 11.1v battery would turn 11,100 RPM (in a lossless system).

In-Runner: A construction description. The case of the motor is fixed, and the shaft rotates inside. These are often used with smaller models and may use a gear box.
Out-Runner: A construction description. The case of the motor rotates around a fixed center. These are often used on larger models without gear boxes.

1.1.3 ESC (Electronic Speed Control)

There are many ESCs on the market, but they can essentially be divided into two types based upon the motor they drive: Brushed ESCs, and Brushless ESCs. ESCs are wired between the battery and the motor to, you guessed it, control the speed. Brushed ESCs provide DC current to the motor through 2 wires. They limit the voltage and current to provide speed control. Brushless ESCs are more complicated. They essentially drive AC (alternating current) to 3 motor wires with a very specific phase relationship. Tip: When your plane noses over, and the propeller gets stuck on the ground, immediately cut your throttle. Stalling an electric motor causes very large currents that could potentially damage your ESC or motor.

1.1.4 Batteries

LiCoO2 (LiPo): Lithium Polymer. Very high energy density for size and weight. Not tolerant of abuse. Must use a LiPo charger. Must NOT overcharge, Must NOT over discharge, Must NOT violate C rating. Abuse can result in fire. All that being said, it's the most popular RC battery chemistry currently.
LiFePO4 (A123): Lithium Iron. Lower voltage per cell. More tolerant of charge / discharge abuse than LiPo.
NiMH: Nickel-Metal-Hydride. Good power per volume, but much heavier than Lithium chemistry, and heavy is bad.

	Energy per Weight	Energy per Volume	Self discharge per month	Cycles	Voltage Range Per cell
LiPo	~160 Wh/kg	300 Wh/L	2%	1000+	3.0V 4.22V
$LiFePO_4$(A123)	~90 Wh/kg	220 Wh/L	2%	2000+	2.8V 3.6V
NiMH	~70 Wh/kg	300 Wh/L	30%	1000+	1.4V 1.1V

Table 1. Battery Chemistry Comparison

mAh: milliamp-hours. Indicates how much charge (energy) a battery can store. It's the size of the gas tank so to speak. An example would be 3000mAh.
S construction: Indicates the number of cells in series. Voltage adds in series. So, a 4S LiPo battery would have a typical voltage of 4 * 3.6V/cell = 14.4V.
C rating is a measure of the maximum current that can be supplied by the battery. A constant 1C discharge would drain a battery in one hour. A 2C discharge would drain a battery in 1/2 hour. A 10C discharge would drain a battery in 1/10 hour. C scales with battery capacity. For example. A 1C discharge for a 2200mAh battery is 2200mA (2.2A). A 10C discharge for that same battery is 22Amps. Batteries are voltage sources, but not perfect ones. Each battery has an internal resistance that generates heat proportional to the current

flowing through it. Each battery chemistry has a temperature that should not be exceeded. Never violate the C rating of a battery during discharge.

Tip: Unless specifically stated on your battery, do not charge LiPo batteries faster than 1C. There are some newer batteries that can tolerate higher charge rates.

1.2 How much Power?

The first step is determining how much power your fixed wing aircraft will need. In general, I tend to prefer enough power to get out of any trouble my thumbs have put me in, so my power numbers tend to be a bit higher than the standard rule-of thumb.

Type of flying	Watts per Pound
Puttering around, slow fliers	75-100
Scale, light aerobatics	100-125
Serious Aerobatics	125-150
3D, hovering, stalled maneuvering	150-200+

For example, let's pick a glow bird for electric conversion. An Avistar is a great example. Let's target ~120 Watts per pound. With an estimated all-up-weight (AUW) of 5 lbs., our power system needs to deliver 120W/lb. * 5 lbs. = 600W.

1.3 Pick a Motor and a Prop

Before we select a motor, it's important to understand that electric motors can support a wide variety of props. The motor and prop are a system and must be considered together.

1.3.1 Motor

Every step of the way, I try to build in margin. It is best not to push the power system to its maximum rating for anything but for short bursts. This will extend its life and save you money in the long run. Let's target 25% margin, which puts our maximum Power at 600W * 1.25 = 750W. This is just a guideline.

1.3.2 Props

The Avistar is typically run with a .40 to .46 engine spinning a 10-to-12-inch prop. Well target a similar diameter. Now you'll notice there are electric-only props. These light-weight props provide very fast throttle response. They can be lighter than glow props since electric motors provide smoother power than glow engines. A glow engine has one large burst of power for every prop rotation, while an electric motor has many more, smaller bursts, depending on the number of magnets (poles) around the motor. Some example motors that meet these specs...

Manuf.	**Model**	**kV**	**Cost**	**Case Size**	**Example Prop**	**Power Meas.**	**Power Max.**	**Battery Voltage**	**Max Current**
E-Flite	Power46		$90	L55x D50	13x8E	745W	925W	14.4	55A
Great Planes	RimFire 46	800	$80	L60x D42	11x5E		1100W	18.5	60A
Turnigy	TR50-55B	600	$42	L55 x D50	12x6E	700W		18.5	60A

Let's pick the Turnigy for the Avistar

1.4 Battery

The Turnigy TR50-55B can handle anywhere from a 4-series LiPo (14.4V) to a 6-series LiPo (21.6V). So, let's choose a 5-S battery (5 LiPo cells connected in series) for a voltage of approximately 18.5V.

Given our chosen motor and prop, obtain the current draw at wide open throttle. This information usually comes from the manufacturer's data sheet but sometimes comes from online forums or a computer program. The measured current at wide-open-throttle (WOT) for our motor/battery/prop combination is 38A. P=IV, rearranging, I=P/V = 700W / 18.5V = 38A. Take this number with a grain of salt. LiPo cells can vary from 3.0V to 4.2V per cell. So, we want to build in plenty of margin. The current capability of a battery is the capacity (mAh) * C-rating. So, we can trade capacity and C as needed. Another consideration is flight time. Targeting an 8-minute flight at near full throttle, the capacity used is 38A * 8 minutes / 60 min-per-hour = 5Ah = 5000mAh. Two suitable batteries are shown below...

Manuf	Model	Cost	Chem	S	C	Capacity	Current Max.
Tunigy	T5000.5S.30	$63	LiPo	5	30	5000 mAh	150 A
E-Flite	THP50005SP30	$210	LiPo	5	30	5000 mAh	150A

1.5 ESC

ESC stands for electronic-speed-control. It turns the DC voltage from the battery to a series of continuous waveforms that are specific to the motor type, brushed or brushless. ESCs are often rated in 20A increments (20A, 40A, 60A, 80A etc.). ESCs can catch fire in a quite spectacular fashion if you ever tickle their maximum rating. Given our current estimate is so close to 40A, let's look for a 60A ESC.

1.5.1 BEC

A function often included in modern ESCs is the battery-eliminator-circuit, or BEC for short. In the olden days, a modeler would need a large battery to power the motor, and a smaller 4.8V to 6.0V battery to power the receiver and servos. The BEC eliminates the need for an RX battery by providing a 5V (or similar) voltage regulator directly from the main motor battery. BECs can be separate units or integrated into the ESC.

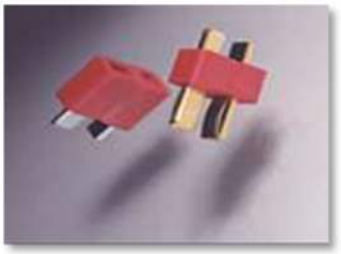
There are two types of BECs: linear and switch-mode. Linear supplies are simple, work well, but are very inefficient and generate heat proportional to the inefficiency. They get more inefficient the higher the motor battery voltage is. They have very good transient and load response though. Switch-mode BECs are more complicated and continuously adjust to the load. They are very efficient, although slightly more electrically noisy than the linear supply. Since our motor battery voltage is so high, let's pick a switch-mode BEC.

Manuf	Model	Type	Cost	Max Current	BEC Current	BEC type
Turnigy	Plush 60	Brushless	$35	60A	3A	Switch-mode
Castle	Phoenix 60	Brushless	$120	60A	N/A	N/A

This one is easy to pick.

1.5.2 Connectors

Connectors must be sized for the application. Higher current requires bigger connectors. There are many options for you to choose.



For batteries, I have standardized on the Deans Ultra connector for my larger aircraft. They are good to around 100 Amps.

Between the ESC and motor, bullet connectors are often used. The 4mm version would work well.

1.6 Verification

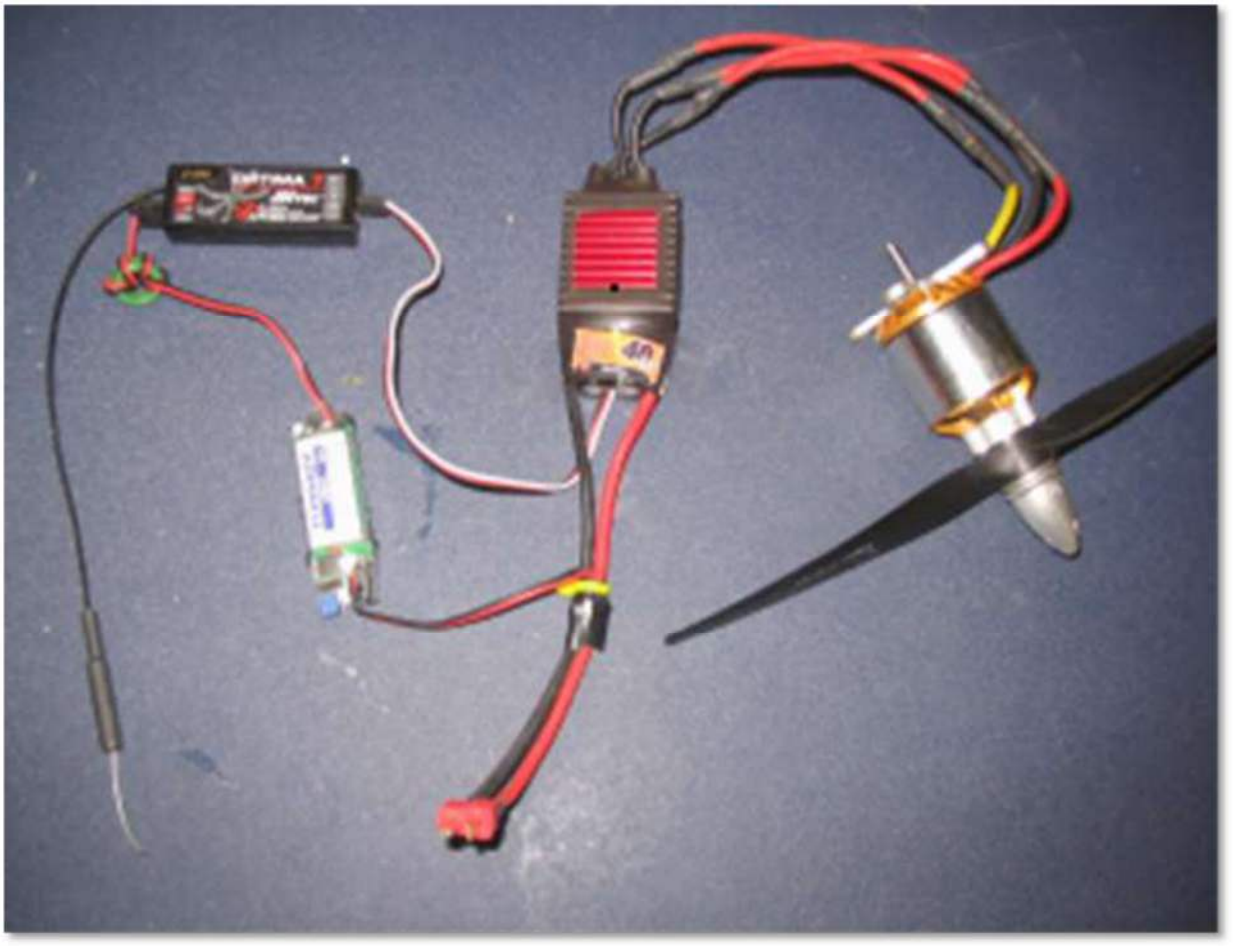
1.6.1 Pre-build

So, we've got a good start with an electric power system design. Now let's verify it with a free software tool. I'm going to use the free "Drive Calculator" program by Christian Persson. Its available at http://www.drivecalc.de/ Let's see how we did...

As you can see, Drive Calc didn't have the battery, so I chose the worst case (maximum voltage). This produces the most demand on the power system. The green dots on the tool indicate our current operating point: 8800 rpm, 43 Amps, 800 W power in, and 600W power out with a 13x8E prop. It is also near the peak efficiency of the system, ~ 75%. The 600W output is right on target with our goal determined early in this exercise. The green dots on the curves represent our operating conditions, while the red dots indicate maximum limits. We've designed in plenty of margin for the modeler to experiment with different props.

1.7 The Build

A picture is worth a thousand words. The picture shows a complete setup. On the left you see a 2.4GHz receiver. The black unit with the red heat-sink is the ESC. The white unit is a separate BEC (the ESC shown does not have a BEC built-in). And finally, 3 wires power the brushless motor.



The BEC powers the receiver and can typically plug in to any open channel. The ESC plugs into the receiver in the throttle channel. Deans Ultra connector (male) is used on the ESC, the female version is on the battery.

1.7.1 Post-Build

The most important tool for your electric field box is a Watt-Current meter. It is used to verify your setup is within parameters. It answers the following questions.
Are you exceeding your ESC current? Are you exceeding your Motor wattage? Are you exceeding your battery current? They also provide valuable information about LiPo batteries such as remaining charge and individual cell voltage.

1.8 Concluding thoughts

I have truly enjoyed the reliability, cleanliness and quiet power of electric flight. Electric power technology has advanced quite a bit in the last few years, opening up many more possibilities for use in RC flight. These advances along with continuing price drops have made electric power a viable option for almost any sized RC aircraft.

Jon Gerber
Chief Training Officer

Seth Sterling
Director

“Hints, Tips, & Tricks to stay a step ahead of Murphy (& his Law)”

Photo #1- Most ARFs use plastic clevises to connect pushrods to control surfaces such as ailerons. These
clevises depend on narrow rubber “keepers” to prevent the clevises from opening and detaching from the control surfaces in flight. By marking these keepers with a Sharpie, it is easier to spot a missing keeper during your pre-flight inspections!

Photo #2- One way to keep your plane from rolling around in your car is by making a set of wheel chocks from scrap balsa.

Add a piece of Velcro to grip your carpet and hold the chock in place.

Photo #3- Don't have any scrap balsa? These auto hose clamps will also work as wheel chocks on carpet floor mats.

Photo #4- A typical servo arm at neutral with about 90 degrees to its pushrod.

In photo #5 you can see that as the arm rotates away from neutral it will not move the pushrod as much as it did when it was centered. This results in uneven control movement from our rotary action servos. But by using about 20 to 25% exponential we are making the servo movement more linear or equal by evening out the rotary motion away from center toward either side. Another way of thinking about adding expo is that the control will be less sensitive around neutral, while still maintaining full movement at either side.

FEATURE ARTICLES

Breezy afternoons are Great for Flying.

Photos and article by David Spielman

Breezy afternoons are great for flying. Not all pilots are willing to brave a bumpy flight if they can make it to the field for a windless morning. The hardy Northeast pilots are used to windy flying and are blind enough to miss the obvious advantage of early mornings at the field. The benefit, fewer planes in the air.

On a recent visit to Westervelt field, I got to see the second day of flying for a 30% Balsa USA hand built “Fly Baby” biplane. It’s big and slow, very pretty and flies on glow fuel. It also has a pilot who like me doesn't mind some extra wind. We had the distinct advantage of just four pilots at the field thanks to a hefty breeze.

Meet Wes Baker and his 1/3rd scale Fly Baby.

Powered by an OS 300 FT Super Gemini running on glow fuel (just under 50cc) with a CH Ignitions electronic ignition, it sounded great with the popping of the engine at low speed. That was such a cool sound, I can still hear it while sitting in my kitchen writing this article. The sweet smell of glow exhaust brought back fond memories of my early days flying control line planes in the 1960's and 70's. Starting required a wet engine and after a few flips of the 23" prop, he got the desired effect, we have ignition.

This Super Gemini engine fits perfectly in the cowl. I'm impressed with the excellent trim job. The engine was sourced on eBay and is running well thanks to the help of fellow modelers who assisted Wes in getting it tuned just right.

The Fly Baby proved herself a good flyer without any surprises. More scale detail will make this a real standout, so it's back to the barn for some more detailed painting. Wes' covering and paint job was beautiful. Paint was smooth and even and the corners and seams were flawless. The cockpit was equipped with scale gauges and essential switches including flight batteries, ignition and a voltmeter. I can't wait to see what the next step of detailing brings out.

The wing tension guy wires are real and had to be adjusted to keep the correct wing camber and twist. A dowel in the middle of the wires keeps the wires from humming. This is a feature of the full-scale Fly Baby too.

Although equipped with Ailerons, the ample sized rudder is needed to shape the turns properly. Ailerons only have the effect of dropping a wing tip, where adding rudder completed the turns nicely.

After one flight Wes, Glen and Andy are seen reviewing performance and discussing improvements.

The Fly Baby was beautiful in the air as seen in this low pass. There was quite a bit of elevator adjustment made during this flight and Wes determined the engine needed some down thrust. This is easily implemented with a few washers to give the desired 1/8” of down thrust.

It’s obviously Wes’ type of plane, big, slow and a predictable flyer. I personally found that the scale detail and the size made this plane worth considering for a build project. The quality and detail of this Balsa USA kit and plans brings this in reach of many builders. If your interest is in scale details, there are lots of parts resources to supplement this build.

Risk Management Practices ……..

We must never tire ourselves of executing effective risk management practices when flying model aircraft at our flying sites that are open to the public, and this article reinforces the *Risk Management Practices* discussion in our Summer 2024 newsletter. Among the risks club members and non-members face are the following:

- Pilots inadvertently hurting other pilots or park patrons, or damaging vehicles in the parking lots adjacent to our flying sites,
- Pilots inadvertently hurting park patrons that fish in the lake at the West side of the runway, and
- Pilots getting hurt by weather events.

As the host club at West Delray Regional Park, PBRCA and its members shoulder a tremendous responsibility for keeping safe the hundreds of visitors and users of the park's RC flying sites.

As part of our efforts to keep park patrons safe, the parks department has several information and warning signs around our flying sites. Signs addressing fishing in the lake at the West end of the runway are posted along the lake. These warning signs alert park patrons to not fish when aircraft are present. Notwithstanding the "No Fishing…" warning signs, it's every pilot's responsibility to avoid a scenario where aircraft are in the air when park patrons are fishing.

For the safety of park patrons around the heli field, driving RC cars is prohibited in the area adjacent to heli field. The warning signs prohibit the driving of RC cars in this area which serves as a safety buffer between the heli field and the RC car track and is intended to deter park users from driving their RC cars in an area that is not designated for RC cars, and protect them and the heli pilots who are subjected to the flying dust and noise of the RC cars. Without signs prohibiting the activity, park users have no reason to believe that their actions subject them and the heli pilots to significant harm from an uncontrollable helicopter.

Members are reminded to occasionally check the club's Bulletin Board on the West Side of the Press Box. In addition to hosting information updates for members, significant postings from the parks department include warnings about thunder.

It's worth reemphasizing that creating a safe environment that protects pilots, nonpilots, and surrounding property is crucial and the responsibility of every individual participating in RC aircraft building and flying. At our West Delray Regional Park flying sites the number of pilots and non-pilots vary by the day of the week and the time of day. The same is true for the vehicles parked in our parking lots. It is incumbent on us to keep everyone

and their vehicles safe and we are happy to continue reporting that club members are generally vigilant in looking out for each other and for park patrons and their pets and vehicles. We are continuing our club's long history of promoting safe flying by enforcing practical safety rules and fostering a "safety first" culture.

PBRCA's Risk Management Program

Our club's "risk management program" includes ongoing efforts to comply with the requirements of the "Special Use Permit" from the parks department **and** the safety code and related guidelines of the AMA (see AMA safety code below). To help us comply with the conditions of the Permit and the AMA, our club has requirements for trainee pilots to fly solo, a detailed set of club safety rules, and safety reporting at our club meetings. **Note, having the rules don't take the place of RC aircraft pilots using common sense and just being considerate of their fellow pilots and visitors to the park.**

AMA Safety Code Effective January 1, 2018

A model aircraft is a non-human-carrying device capable of sustained flight within visual line of sight of the pilot or spotter(s). It may not exceed limitations of this code and is intended exclusively for sport, recreation, education and/or competition. All model flights must be conducted in accordance with this safety code and related AMA guidelines, any additional rules specific to the flying site, as well as all applicable laws and regulations.

As an AMA member I agree:

- *I will not fly a model aircraft in a careless or reckless manner.*
- *I will not interfere with and will yield the right of way to all human-carrying aircraft using AMA's See and Avoid Guidance and a spotter when appropriate.*
- *I will not operate any model aircraft while I am under the influence of alcohol or any drug that could adversely affect my ability to safely control the model.*
- *I will avoid flying directly over unprotected people, moving vehicles, and occupied structures.*
- *I will fly Free Flight (FF) and Control Line (CL) models in compliance with AMA's safety programming.*
- *I will maintain visual contact of an RC model aircraft without enhancement other than corrective lenses prescribed to me. When using an advanced flight system, such as an autopilot, or flying First-Person View (FPV), I will comply with AMA's Advanced Flight System programming.*
- *I will only fly models weighing more than 55 pounds, including fuel, if certified through AMA's Large Model Airplane Program.*
- *I will only fly a turbine-powered model aircraft in compliance with AMA's Gas Turbine Program.*
- *I will not fly a powered model outdoors closer than 25 feet to any individual, except for myself or my helper(s) located at the flightline, unless I am taking off and landing, or as otherwise provided in AMA's Competition Regulation.*
- *I will use an established safety line to separate all model aircraft operations from spectators and bystanders.*

2 Stroke Gas RC Airplane Engines: Advantages, Maintenance and Troubleshooting

By Kyle Hilson

2 stroke gas RC airplane engines are a popular choice for hobbyists and enthusiasts because of their advantages over other types of engines. These engines have a lightweight and compact design, which is ideal for airplanes where weight is a critical factor. Additionally, 2 stroke gas engines have a high power to weight ratio, meaning that they produce more power for their size and weight compared to other engines. They also have a simple construction with fewer moving parts, making them easier to repair and maintain. Finally, they are fueled by gasoline, which is less expensive and more readily available than nitro fuel. All of these factors make 2 stroke gas RC airplane engines a preferred choice for many pilots in the hobby and industry alike.

Finding the Perfect 2 Stroke Engine for Your RC Airplane

To choose the right engine for your airplane, it's essential to consider the power requirements of your airplane. It's also important to think about the size and weight of the engine. Finding the right balance between power and weight is crucial to achieving optimal performance. Choose a reputable brand with good customer reviews to ensure you get a high-quality engine.

When shopping for 2 stroke gas RC airplane engines, look for retailers that specialize in RC engines and parts. HobbyKing and Horizon Hobby are two popular websites that carry a range of engines and accessories for 2 stroke gas RC airplanes. Be sure to read customer reviews and product specifications carefully to find the right engine for your needs. It's also important to check the warranty and return policy before making a purchase. Remember that choosing the right engine is an essential component of your airplane's performance, so take the time to do your research and choose wisely.

Maximizing Performance and Longevity: Maintaining Your 2 Stroke Gas RC Airplane Engine

Regular maintenance and care are essential to ensure the longevity and optimal performance of your 2-stroke gas RC airplane engine. Some essential steps for engine maintenance are:

- Regularly cleaning and oiling the engine to prevent buildup, rust, and wear.
- Properly tuning the engine to ensure it's operating at the optimum performance level for your airplane.
- Knowing when to replace parts or the entire engine. Failure to replace damaged parts or a worn-out engine can cause poor performance or even lead to engine failure.
- Avoiding improper use or over-revving the engine, which can cause unnecessary wear and tear.

Here is a sample comparison table of some popular 2 stroke gas RC airplane engines:

Engine Brand	Displacement (cc)	Power Output (HP)	Weight (oz)	Price Range ($)
OS Engines	46	3.7	17.3	150-250
Evolution Engines	15	1.2	9.6	80-120
DLE Engines	20	2.5	13.6	120-200
Saito Engines	82	6.5	61.8	500-700

When it comes to engine maintenance and purchasing, many local hobby shops offer engine cleaning and tuning services. Additionally, many popular hobby websites such as AMain Hobbies and Tower Hobbies offer replacement parts, fuel, and accessories for engines. With proper maintenance and care, your 2-stroke gas RC airplane engine can provide years of high-powered flying enjoyment.

Maintaining Optimal Performance of 2-Stroke Gas RC Airplane Engines

- Proper maintenance and care for 2 stroke gas RC airplane engines are crucial in maintaining optimal performance.
- Engines can encounter problems that can impact their performance. Some common engine problems faced by users are:
  - Difficulty starting the engine, which can be caused by issues with the fuel, spark plug, or carburetor.
  - Poor performance or power output, which could be due to insufficient fuel delivery, air leaks, or improper tuning of the engine.
  - Engine running too hot or too cold, which can be caused by improper fuel mixture, malfunctioning cooling system, or blocked air intake.

- Addressing common issues with the carburetor or spark plug is necessary to maintain optimal performance.

You can check online forums or seek advice from local hobbyists for troubleshooting tips and tricks. Some useful forum websites for this purpose include RCGroups and Flying Giants. If you are having trouble identifying the issue, consider seeking professional help from a local hobby shop or experienced repair shop or fellow modeler. Additionally, many OEM manufacturers and brands such as RCGF USA and DLE/Horizon Hobby offer repair and maintenance services for their engines.

What are some common engine problems faced by users of 2 stroke gas RC airplane engines?

Some common engine problems faced by users of 2 stroke gas RC airplane engines are overheating, lack of power, incorrect fuel mixture, and difficulty starting.

Where to Buy and Repair 2 Stroke Gas RC Airplane Engines

- There are various sources available for purchasing and repairing 2 stroke gas RC airplane engines.
- Online retailers and hobby shops offer a wide selection of engine brands, sizes, and accessories at competitive prices. Some popular online stores offering a vast range of 2 stroke gas RC airplane engines include:
    - Horizon Hobby
    - Tower Hobbies
    - DLE
    - RCGF USA
    - Stinger engines
    - Desert Aircraft
    - Mike Goes Flying
- Local hobby shops and PBRCA are also excellent resources to purchase or get advice on the best engine for your needs.
- If your engine needs repairing, you can seek out local repair shops or experienced hobbyists in your area. Some online resources, including forums and social networking sites such as Facebook, can help you find local hobbyists willing to repair your engine for a fee.
- Engine manufacturers or brands may also offer repair services and sell replacement parts, including:
    - O.S. Engines
    - Saito Engines
    - Horizon Hobby
    - NGH

With the abundant sources available, make sure to buy from reputable brands or sellers and always double-check the product's reviews and specifications before purchasing.

Troubleshooting Tips for 2 Stroke Gas RC Airplane Engines

To troubleshoot some common issues with the 2-stroke gas RC airplane engines, you need to:

Difficulty starting the engine:

- Check the fuel mixture and the fuel lines.
- Check if the plug or ignition system is damaged.
- Make sure the battery powering the ignition is charged.

Poor performance or power output:

- Ensure the air filter is clean.
- Adjust the carburetor to match the airplane's performance needs.
- Check for signs of a damaged or dirty spark plug.

Engine running too hot or too cold:

- Adjust the fuel mixture to match the airplane's performance needs.
- Make sure the aircraft's cooling system is not obstructed.
- Avoid exceeding the recommended RPM range.

It's essential to have a basic understanding of the engine's operation to troubleshoot any problems effectively. If you are not confident about your skills, seek help from experienced hobbyists, repair shops, or online forums to avoid causing further damage.

Conclusion

In conclusion, 2-stroke gas RC airplane engines offer high power-to-weight ratios, simple construction, and use of gasoline as fuel, making them a popular choice amongst hobbyists. However, choosing the right engine for your aircraft, proper maintenance, and care are crucial to ensure optimal performance and lifespan. Additionally, understanding how to troubleshoot some common problems is beneficial to keep your engine in good working condition.

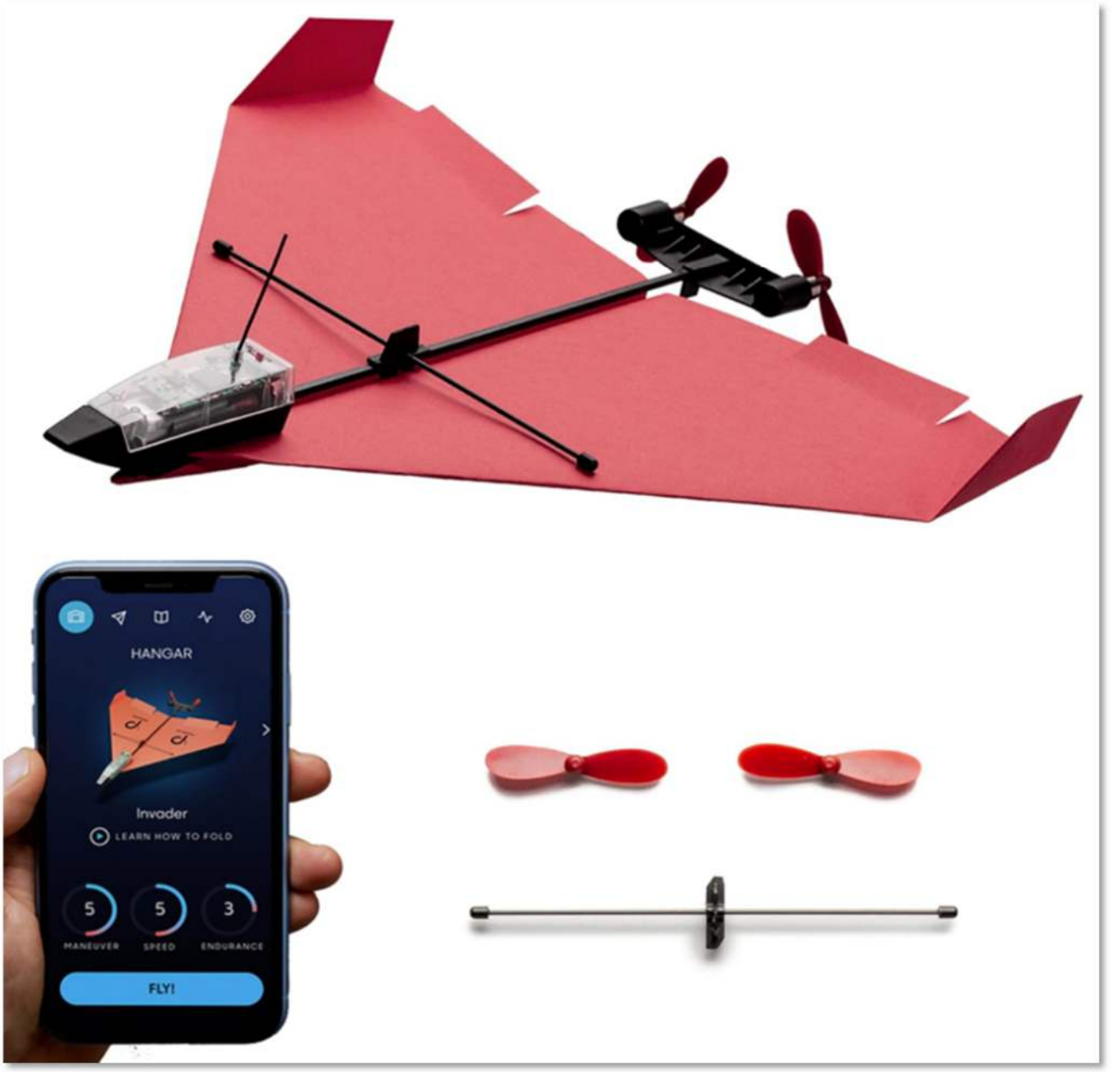
When looking to purchase a 2-stroke gas RC airplane engine, it is best to stick with reputable brands with positive customer reviews. Also, consider the power requirements, size, and weight of the engine for your aircraft. Online retailers such as Amazon or hobby shops and manufacturer-specific repair services are excellent options for sourcing and repairing 2-stroke gas RC airplane engines. Regular maintenance and care of your engine will keep it working optimally and avoid damage.

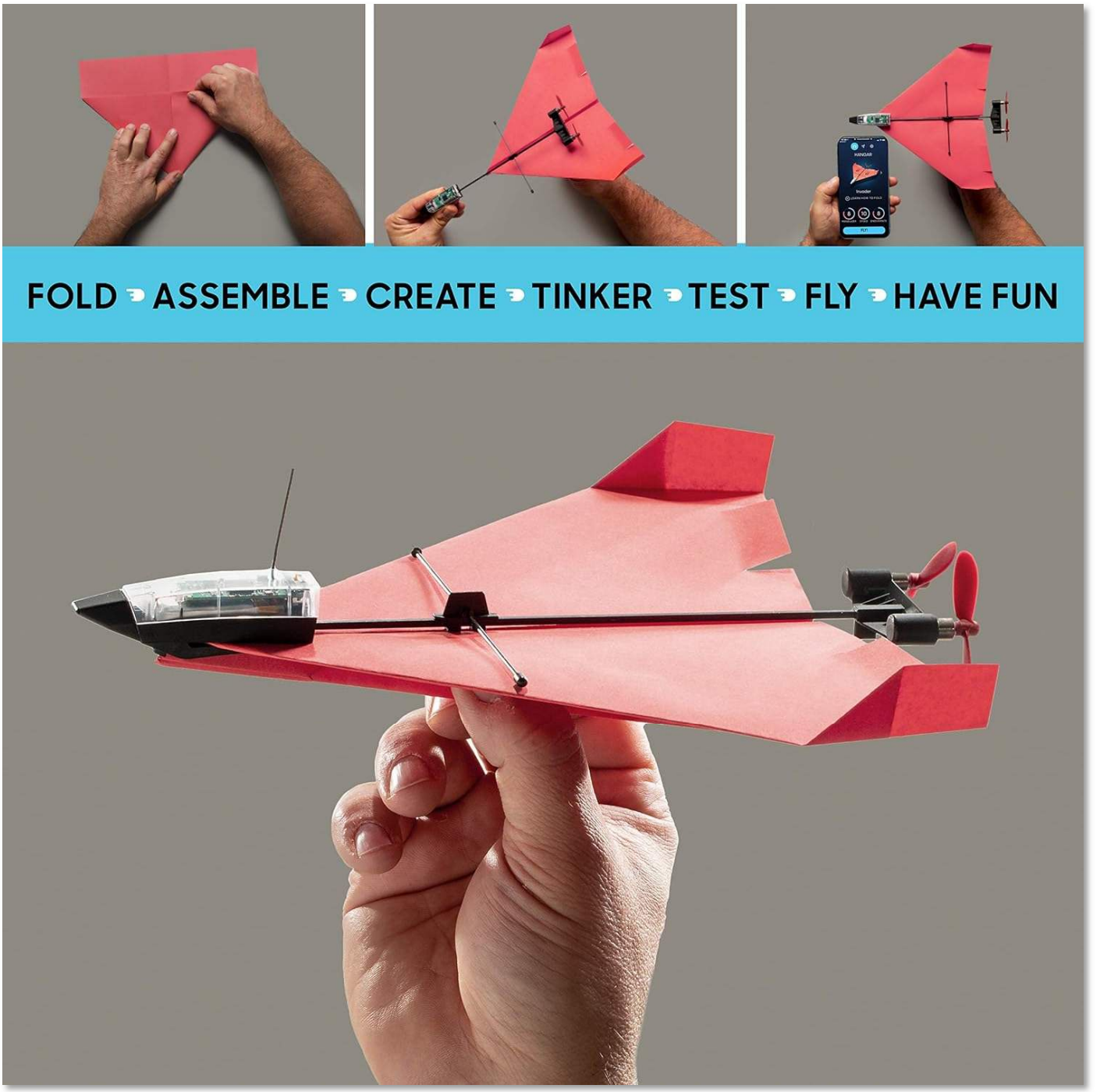
Flying remote-controlled airplanes with 2-stroke gas engines is an exciting and rewarding hobby. With the proper engine, knowledge, and maintenance, you can enjoy hours of flight time.

Wanna try something a little different?

POWERUP 4.0 The Next-Generation Smartphone Controlled Paper Airplane Kit, RC Controlled. Easy to Fly with Autopilot & Gyro Stabilizer
“The #1 Most Gifted in Hobby RC Airplanes”
Flight demo here!

Get yours on Amazon! $59.99

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Board of Directors for an RC Airplane Modelling Club: Definition and Practical Description

Definition:
A Board of Directors for an RC airplane modeling club, like any non-profit organization, is the governing body responsible for setting the club's direction, overseeing its operations, and ensuring it functions in accordance with its mission and purpose. They are legally accountable for the club's activities and decisions.

Practical Description:
In practice, the Board of Directors for an RC airplane club acts as the central hub of operations, where strategies are created, decisions are made, and plans are put into action. They are responsible for:

1. Governance and Oversight:
   - Strategic Planning: Setting the club's goals, vision, and ensuring it remains true to its mission.
   - Financial Oversight: Approving budgets, managing club finances, and ensuring responsible use of funds.
   - Legal and Ethical Compliance: Ensuring the club operates within the law and adheres to ethical standards.
   - Safety Program Compliance: Especially important for RC clubs, ensuring modeling activities comply with safety codes and regulations.

2. Management and Operations:
   - Leadership: Setting the club's direction and guiding its activities.
   - Officer Supervision: Overseeing the work of club officers.
   - Club Activities and Events: Planning and managing events, meetings, and flying sessions.
   - Resource Management: Ensuring the club has necessary resources like flying sites, equipment, and volunteers.

3. Membership and Community Engagement:
   - Membership Management: Approving new members, addressing membership issues, and working to retain members.
   - Communication: Keeping members informed about club activities and decisions.
   - Community Relations: Engaging with the wider community and representing the club's interests.

4. Duty of Care, Loyalty, and Obedience:
   - Duty of Care: Acting with reasonable caution and diligence in making decisions for the club.
   - Duty of Loyalty: Putting the club's interests above personal interests.
   - Duty of Obedience: Ensuring the club complies with its bylaws and applicable laws.

In essence, the Board of Directors is the guiding force behind an RC airplane club, ensuring its smooth operation, responsible management, and continued success in promoting safe and enjoyable model flying activities.

REGULAR FEATURES

The Recreational UAS Safety Test (TRUST)

What is TRUST?

The law requires that all recreational flyers pass an aeronautical knowledge and safety test and provide proof of passage if asked by law enforcement or FAA personnel. The Recreational UAS Safety Test (TRUST) was developed to meet this requirement.

TRUST provides education and testing on important safety and regulatory information. If you fly your drone recreationally under the Exception for Recreational Flyers, you must pass the test before you fly.

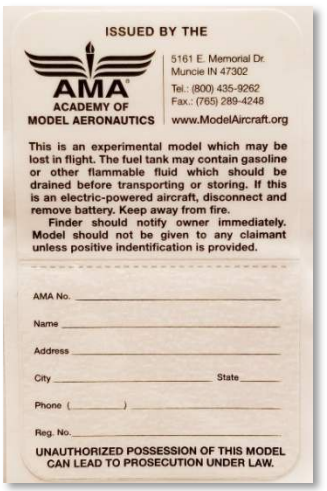
TRUST was developed in collaboration with drone stakeholders to determine content, and how it would be administered. Since June 2021, we have worked with a group of approved Test Administrators to provide TRUST as an online test. We in the FAA provide the TRUST content to the approved test administrators who, in turn, provide the online test to you, the recreational flyer.

Renew your AMA before it expires!

https://www.modelaircraft.org/membership/enroll

Renew your PRBCA club membership before it expires!

https://www.palmbeachrc.com/join-or-renew



To help you comply with the AMA/FAA regulations of having identification on all your airframes, the AMA sells stickers that can help.

This adhesive-backed label has fuel-proof adhesive and space on the bottom for your name and address. A clear plastic flap seals over your information to protect it. One of these stickers on or in your model complies with the Safety Code requirements for identification and will help recover the model if it is lost. 10 labels per pack. Id labels measure 2.125" x 3.5".

Item: 5084 Airplane ID Label 10Pk $3.99 as of today 6/25/2025

Click the link below to get to the respective web page on the AMA site:

https://shop.modelaircraft.org/product/5084-airplane-id-label-10pk/398?cp=true&sa=false&sbp=false&q=false&category_id=16

You MUST have a current AMA membership card to fly at Westervelt Field. This is a requirement of the Palm Beach County Parks & Recreation Department.

Also, please note that we will not create your PBRCA membership card unless you have a current AMA membership card. The Club Membership form is available on the PBRCA web site, www.palmbeachrc.com or at the field in the press box.

Club E-mail Notifications

You should be receiving e-mail notifications for the monthly general membership meetings and semi-annual newsletter publication. If you are not receiving our e-mails, please let David know your e-mail address and we will update our records (David's email: pbrca.info@gmail.com. If you want your name & phone number removed from our website list, also contact David at: pbrca.info@gmail.com.

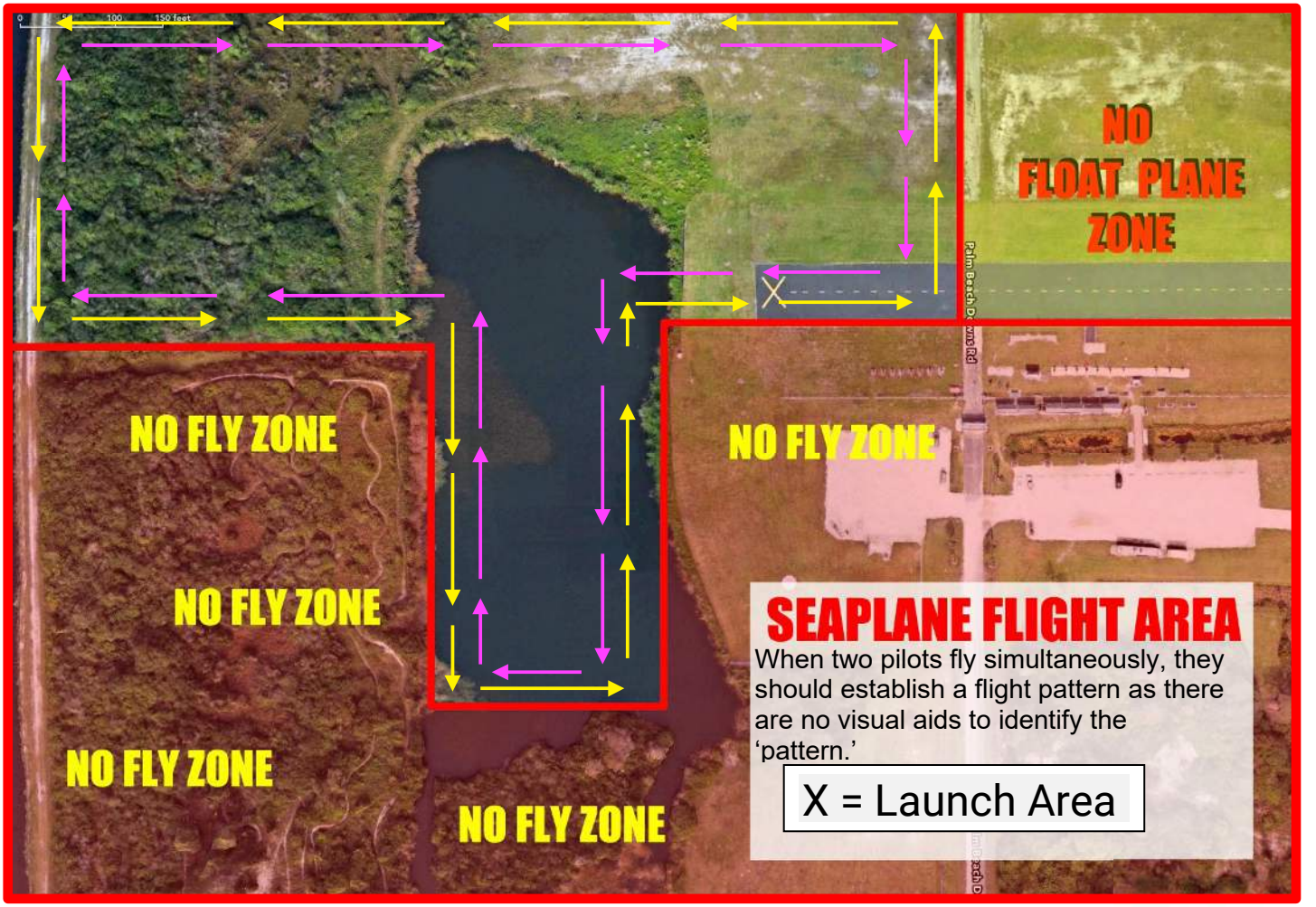
FAA sUAS REGISTRATION

All sUAS (small Unmanned Aircraft Systems - (0.55 lbs. up to 55 lbs.) pilots must register with the FAA. Furthermore, once registered, you are required to affix your assigned FAA Registration number to the 'exterior' of ***every*** aircraft you fly. For more information and registration online go to: https://faadronezone.faa.gov/#/

Click this link for the Club Safety Rules: Flight Safety Rules

Float-plane Flight Area

The membership has approved the proposed rules for flying off 'West Lake' in April 2018. The



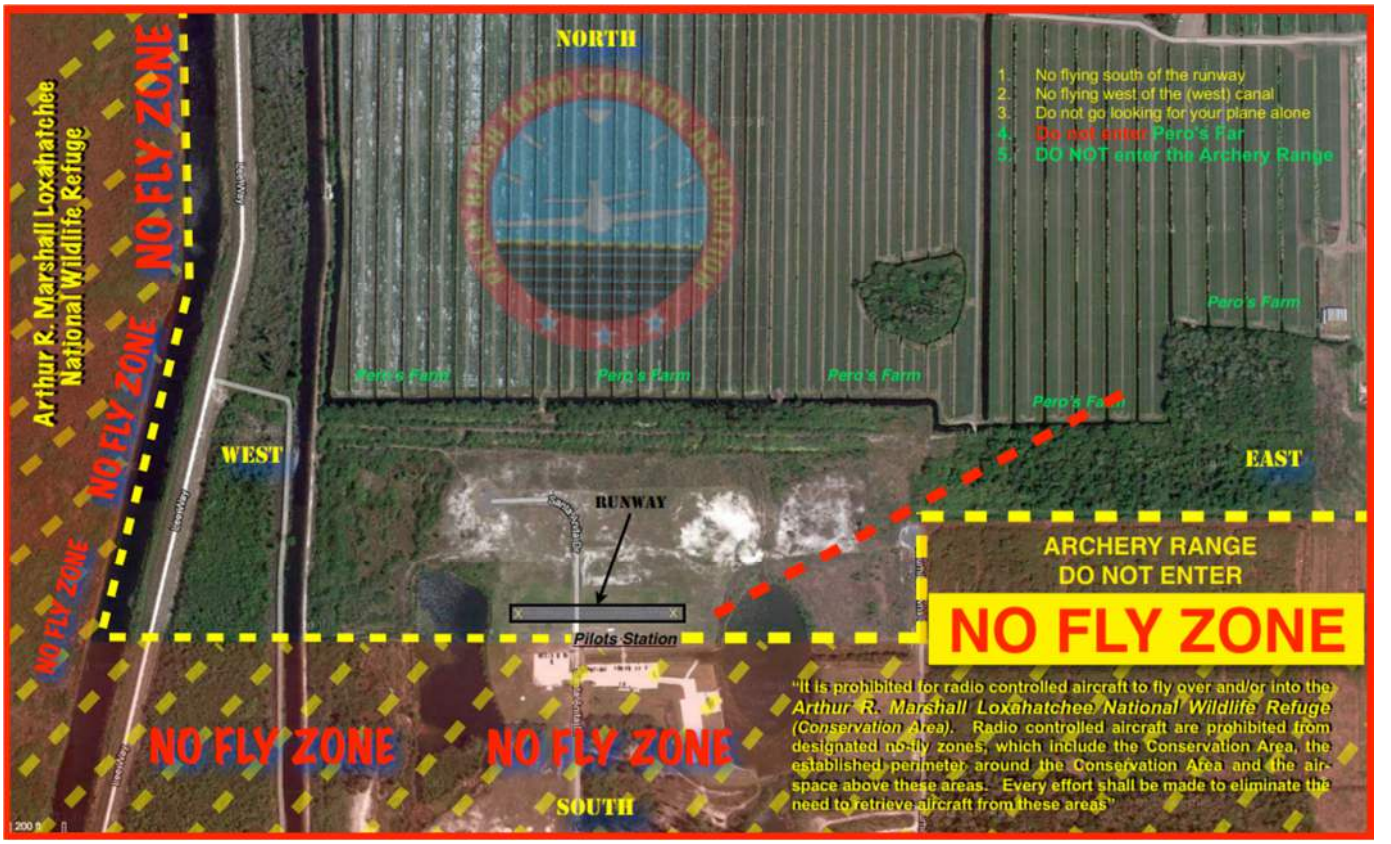
changes and additions are now incorporated into our Safety Rules.

The revised safety rules and the map have been posted on the window of the press box and on our website, and can be accessed at:

Flight Safety Rules

Land-based Flight Area

Palm Beach County has previously established “flying” boundaries and we need to adhere to those restrictions. This is an aerial map showing the boundary lines for West and South flying, and it is also posted in the bulletin board located at the “impound.” Our club has already been warned about flying over the Everglades by a Federal Wildlife Officer. You must fly within the designated boundaries!



PBRCA Battery Charging Station
(Operating Principles)

Note that for fire safety concerns, all battery charging must be done outside of the Press Box and at the charging station. It is against Club Policy to use the 110-volt AC power strip inside the Press Box for charging batteries inside the Press Box.

For the best charging experience while using our DC-volt charging stations, users should keep the following Operating Principles in mind:

- Plan on connecting your battery chargers to the 4mm banana plug connectors on the DC Power Strips, using connecting wires ideally 24" long with banana tip plugs.
- To protect the DC Power Strips from fire, battery chargers and batteries should be placed on the wire shelf below the metal boxes that house the DC Power Strips. Please avoid placing items in the metal boxes.
- Battery charging must only be performed when the Smart Batter Monitor shows the charging system's voltage above 12 volts. For example, in the screenshot

the system is reporting 14.1 volts, so charging would be safe since it's above the minimum 12 volts.

- Users must charge their batteries within the following operating parameters of the DC Power Strips:
  - the maximum output current for each position is 24 Amps, **AND**
  - the total maximum current is 50 Amps.
- Multiple users charging at the same time should coordinate among themselves to stay within the operating parameters of each charging station to avoid overloading the system.
- For safety and convenience, the charging stations are equipped with resettable circuit breakers. In the event a circuit breaker is tripped, first locate, and correct the offending connection(s) and then reset the circuit breaker.

Happy and safe charging!

https://trust.modelaircraft.org/