BURLINGTON

RC FLYERS

Newsletter

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Burlington RC Flyers

President's Letter by Paul DiFeo
July, 2010

Hello Everyone,

The summer flying season has finally arrived with warm temperatures and bright sunshine. Since our last newsletter there have been a number of events and activities at the field and I would like to take the time to say thank you to everybody that was involved in and helped out with:–

The club auction, which we did with the 495th Squadron.
The field day in which a new seating bench and 2 new flight benches were installed and the wholes in the field were repaired.
The club members who installed the new pilot stations.

I would also like to thank Hanscom AFB for their partnership with our indoor flying over the winter and the invitation to participate in their summer bash, we appreciate the opportunity to work with and be a part of the base.

The Fun Fly that we held in June was one of the best to date and everybody had a great time flying, competing and eating. Thanks to everybody that helped out from the competition crew through to the folks that ran the raffle and cooked hotdogs and burgers for everyone (that would be me doing the cooking, hope nobody got poisoned!). A very special thank you to Don Letty and Zach Weber for re-donating their prizes back to the club that they won during the raffle. We also had our first ever "Combat" event – what a blast that was, can't wait to do it again!! P.S. We also hope to have a Fly In at some time in August (date TBA).

On a serious note here and I know it is something we all try to remember to do – if you have finished flying and your pin is up, PLEASE take down your pin so that someone else can get airborne without worrying about taking hits or someone else's slot on the flight line. If we can all just try to keep the tag board up to date it will save somebody the hassle of constantly checking and asking (that would usually be Steve). Your help with this is appreciated.

As I am sure you are all aware the BRCF board introduced a new tag identification requirement. This was due to be effective July 1st however due to a delay in distributing the new pouches this will now be effective August 1st. What does this mean? You must have within your pouch on the tag board your current BRCF membership card and an indication of your frequency, each on one side of the pouch. For example – one side = BRCF membership card – other side = spread spectrum (SS)/2.4GHZ/Channel 26 etc etc. If you have any questions about the new tag requirements don't hesitate to ask a BOD member, myself or other club members. Those without the proper tag pouches after August 1st, will not be able to fly at the field without one**. If you need a copy of your membership card contact Marco to get a replacement.**

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President's Letter Continued…

Lastly a special thanks to Steve for getting the T-shirts, hats and logo stickers printed, the proceeds from the sales of these has benefited the club and boosted our bank balance for this year. Steve also helped us get the pouches for the new tag requirement as well.

On a closing note on behalf of the Club and all it's Members, I would like to bid a farewell and best of luck to Bob Palermo who will be moving to the Carolinas soon to enjoy his retirement. Keep in touch and visit us when you're in town Bob!

Happy Flying and hope to see you at the field soon.

Paul DiFeo
President BRCF

Schedule of Events, 2010

Club Meetings for remainder of 2010 held at Lexington VFW, 7:30pm

September 14th
November 9th

Fun Fly @ BRCF Field, 10am
September 12th

Fall Field Day at BRCF Field, 10am
September 26th

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April 2010, Meeting Minutes
By Dan Quaroni, Club Secretary

- The meeting came to order at 7:33 with 22 members in attendance
- Dan read the April meeting minutes
- Marco read the treasurer's report
- Paul called for old business
- Paul called for new business
- Paul explained the new frequency tags
- The new tag system will be enforced no-tag-no-fly starting July 1st
- Someone asked for a template to print out the frequency. Dan to put on the web
- Paul announced the Hanscom summer bash which is Friday the 22nd at 3pm. Small Electrics can be brought to fly. If you want to go you must give your name to Paul to add to the admissions list
- The continuation of the combat event will be held is weekend, and you can participate in it even if you haven't participated in one yet
- The fun fly will be June 27th with burgers and hotdogs, 10am-2pm
- Paul talked about the gravel we plan to put in front of the pilot stations to aid footing in front of airplanes
- New bench and pilot stations will go in on Sunday
- Paul asked how much it would cost to get the gravel. We can save a lot of money if we use Tony's dump truck and wheelbarrow it in. Rob says inch and a half rock based on a landscaper's recommendation. Al suggests we use sand to bind but Paul will try to use a compactor first
- The meeting broke for coffee donuts and raffle ticket sales
- Rafe talked about the Aerojunkies
- Paul asked for new members. Tom stood, has been flying for 4-5 years and flies electric
- Evan stood and said he has never flown, but he builds static balsa models. He also has a pilots license

- Show and tell:

- Jim showed the leading edge he made from closed cell phone for his spad that flew like a brick with a blunt leading edge. He also showed a flying wing he constructed. He was having troubles with bubbles in his fuel line and bought a special anti-bubble clunk that worked like a charm

- Rafe showed a hyperion 3d foamy. It's a real floater

- Al P showed his first electric. It is an Aeroworks. This one is small but they make a lot of giant models

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June 2010, Meeting Minutes Continued….

- Raffle
  Marco won and took the airplane.
  Tom won and took the air alert.
  Al p won and took a gallon of fuel
  Alex won and took a gallon of fuel.
  Rob won and took the tach.
  Jim won and took the servos

- A mini auction was held on 2 gallons of fuel donated by Rob Catalano. Sold for $15
- Steve talked about this shirts, hats, and decals for sale
- Dave asked if the club wants to do another fuel buy. Dave P. volunteered to coordinate. Bring checks and cash to him at the field
- Frequency tag pouches were distribute
- The meeting adjourned at 9 pm

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Club Member Article

By Jim Rosa

Since we all have an interest in aviation I thought that this may be worth a read. I hope it doesn't bore anyone. All but the last five paragraphs, below, were taken from parts of the official U.S. Department of Transportation, Federal Aviation Administration web sites.

The modern age of powered flight began in 1903, when Orville Wright made the first sustained, powered flight on December 17 in a plane he and his brother Wilbur built.

The Air Mail Act of 1925 facilitated the creation of a profitable commercial airline industry, and airline companies such as Pan American Airways, Western Air Express, and Ford Air Transport Service began scheduled commercial passenger service.

Origins of the FAA

Aviation industry leaders believed the airplane could not reach its full commercial potential without federal action to improve and maintain safety standards. At their urging, the Air Commerce Act was passed in 1926.

In 1934 the Department of Commerce renamed the Aeronautics Branch the Bureau of Air Commerce to reflect the growing importance of aviation to the nation. In one of its first acts, the Bureau encouraged a group of airlines to establish the first air traffic control centers (Newark, New Jersey, Cleveland, Ohio, and Chicago, Illinois) to provide en route air traffic control. In 1936 the Bureau took over these centers. Early en route controllers tracked the position of planes using maps and blackboards and little boat-shaped weights that came to be called "shrimp boats." They had no direct radio link with aircraft, but used telephones to stay in touch with airline dispatchers, airway radio operators, and airport traffic controllers. Although en route ATC became a federal responsibility, local government authorities continued to operate airport towers. While the Department of Commerce worked to improve aviation safety, a number of high profile accidents called the department's oversight responsibilities into question. A 1931 crash that killed all on board, including popular University of Notre Dame football coach Knute Rockne, elicited public calls for greater federal oversight of aviation safety.

To ensure a federal focus on aviation safety, President Franklin Roosevelt signed the Civil Aeronautics Act in 1938. The legislation established the independent Civil Aeronautics Authority (CAA), with a three-member Air Safety Board that would conduct accident investigations and recommend ways of preventing accidents. The legislation also expanded the government's role in civil aviation by giving CAA power to regulate airline fares and determine the routes individual carriers served. In 1940 President Roosevelt split the CAA into two agencies, the Civil Aeronautics Administration, which went back to the Department of Commerce, and the Civil Aeronautics Board (CAB). The offshoot of the original CAA retained responsibility for ATC, airman and aircraft certification, safety enforcement, and airway development. CAB responsibilities included safety rulemaking, accident investigation, and economic regulation of the airlines.

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Article by Jim Rosa, Continued……

On the eve of America's entry into World War II, for defense purposes, CAA extended its air traffic control system to include operation of airport towers. In the postwar era, ATC became a permanent federal responsibility at most airports. The postwar era also witnessed the advent of commercial jets.

On June 30, 1956, a Trans World Airlines Super Constellation and a United Air Lines DC-7 collided over the Grand Canyon, Arizona, killing all 128 occupants of the two airplanes. The collision occurred while the aircraft were flying under visual flight rules in un-congested airspace. The accident dramatized the fact that, even though U.S. air traffic had more than doubled since the end of World War II, little had been done to mitigate the risk of midair collisions.

Birth of Federal Aviation Agency

On May 21, 1958, a bill was introduced to create an independent Federal Aviation Agency to provide for the safe and efficient use of national airspace. Two month later, on August 23, 1958, President Eisenhower signed the Federal Aviation Act, which transferred the Civil Aeronautics Authority's functions to a new independent Federal Aviation Agency (FAA) responsible for civil aviation safety.

From Agency to Administration

President Johnson, concerned about the lack of a coordinated transportation system, believed a single department was needed to develop and carry out comprehensive transportation policies and programs across all transportation modes. In 1966, Congress authorized the creation of a cabinet department that would combine major Federal transportation responsibilities. This new Department of Transportation (DOT) began full operations on April l, 1967. On that day, the Federal Aviation Agency became one of several modal organizations within DOT and received a new name, the Federal Aviation Administration. At the same time, Civil Aeronautics Board's accident investigation function was transferred to the new National Transportation Safety Board.

Evolving Duties

Almost from its creation, the agency found itself faced with a number of unexpected challenges. In 1961, for example, the first series of aircraft hijackings in the U.S. occurred. In August of that year, the federal government began employing armed guards, border patrolmen recruited from the U.S. Immigration and Naturalization Service, on civilian planes. In September, President Kennedy signed an amendment to the Federal Aviation Act of 1958, which made it a crime to hijack an aircraft, interfere with an active flight crew, or carry a dangerous weapon aboard an air carrier aircraft. To help enforce the act, a special corps of FAA safety inspectors began training for duty aboard airline flights. In March 1962 Attorney General Robert Kennedy swore in FAA's first "peace officers," as special U.S. deputy marshals. These men worked as safety inspectors for the FAA flight standards organization and carried out their role as armed marshals on flights only when specifically requested to do so.

An economic boom brought with it growing concerns about pollution and noise. In 1968, Congress vested in FAA's Administrator the power to prescribe aircraft noise standards.

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Article by Jim Rosa, Continued……

With continued growth in the nation's airspace, it quickly became evident that airport safety and capacity had to be increased to prevent system delays. Between mid-1959 and mid-1969, the number of aircraft operations at FAA's airport traffic control towers had increased by 112 percent. Schedule delays cost the air carriers millions of dollars annually, not to mention the cost to passengers over and above inconvenience and discomfort. The Airport and Airway Development Act of 1970 placed the agency in charge of a new airport aid program funded by a special aviation trust fund and made FAA responsible for safety certification of airports served by air carriers.

Air Traffic Control Automation

Realizing the need for continued air traffic control system modernization to keep up with technological developments, FAA began modernizing the NAS in the mid-1960s. The civilian ATC system being replaced by NAS En Route Stage A was essentially a manually operated system employing radar, general purpose computers, radio communications, and air traffic controllers. For terminal airspace, the FAA was developing the automated radar traffic control system (ARTS).

On July 29, FAA established the Air Traffic Control Systems Command Center to integrate the functions of the Central Flow Control Facility, Airport Reservation Office, the Air Traffic Service Contingency Command Post, and Central Altitude Reservation Facility.

Deregulation

The Airline Deregulation Act, signed on October 24, 1978, created a highly competitive airline industry. Deregulation increased FAA workload exponentially. FAA had to certify every new airline and there were hundreds of applications after deregulation that the FAA had to review and approve or disapprove. In the immediate years after the deregulation act, FAA flight standards and other offices focused primarily on the new applicants.

Labor Unrest

The labor contract between FAA and PATCO expired in March 1981. Formal contract negotiations had begun in February, but those ended after 37 negotiating sessions. Informal talks, however, continued until June 17, when PATCO rejected a Reagan Administration contract proposal. After the failure of last minute negotiations, on August 3 approximately 12,300 members of the 15,000-member PATCO went on strike, grounding about 35 percent of the nation's 14,200 daily commercial flights. Approximately four hours after the strike began, President Reagan issued the strikers a firm ultimatum — return to work within 48 hours or face permanent dismissal. After expiration of the grace period, FAA fired approximately 11,400 controllers. Most of those fired appealed the action, and FAA eventually reinstated 440 as a result of their appeals.

The strike and dismissals drastically curtailed FAA's controller workforce. To keep the airways open, approximately 3,000 air traffic controller supervisory personnel worked at controlling traffic. FAA assigned assistants to support the controllers, and accelerated the hiring and training of new air traffic personnel. Military controllers arrived at FAA facilities soon after the strike began, and about 800 were ultimately assigned to the agency.

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Article by Jim Rosa, Continued……

In the aftermath of the strike, PATCO disbanded and the controllers remained without a union until June 19, 1987, when the National Air Traffic Controllers Association became the exclusive representative of terminal and center controllers.

During this time, FAA electronics technicians unionized. On December 29, 1981, the Professional Airway Systems Specialists (PASS) became the exclusive representative of the technicians. FAA and PASS concluded their first national labor agreement during fiscal year 1984.

Technological Innovation

Aviation system disruptions in the aftermath of the PATCO strike led many in FAA to come to the realization that the agency needed a systematic, long-term plan for modernization. In January 1982, FAA publicly released the first annual National Airspace System (NAS) Plan, a comprehensive 20-year blueprint for a state-of-the-art traffic control and air navigation system to accommodate projected growth in air travel over the next 20 years.

As the modernization program evolved, problems in developing ambitious automation systems prompted a change in strategy. FAA shifted its emphasis from the advanced automation system toward enhancing the ATC system through more manageable, step-by-step improvements through the new Free Flight program. At the same time, the agency worked to speed the application of the Global Positioning System satellite technology to civil aeronautics.

In February 1991, FAA replaced the NAS Plan with the more comprehensive Capital Investment Plan. The new plan incorporated the NAS plan projects and included higher levels of automation as well as new radar, communications, and weather forecasting systems. FAA also addressed a wide variety of technical issues as the rapid evolution of aeronautics continued. The Aviation Safety Research Act of 1988, for example, mandated greater emphasis on long-range research planning and on study of such issues as aging aircraft structures and human factors affecting safety. FAA engineers and scientists also investigated areas such as human performance in aeronautical tasks, improvement of runways, and the effects of corrosion on aircraft structures.

Organizational Restructuring

In November 1995, DOT transferred the commercial space transportation office to the FAA. Originally established within DOT in 1984, the new FAA office regulated the U.S. commercial launch industry, licensed commercial launch operations to ensure public health and safety and the safety of property, and protected national security and foreign policy interests of the United States during commercial launch operations. It also issued licenses for commercial launches of orbital and suborbital rockets.

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Article by Jim Rosa, Continued……

On September 11, 2001, nineteen radical Islamic extremists with the group al Qaeda penetrated security at three major airports, seized four U.S. domestic airliners, and turned three of the aircraft into missiles that destroyed the World Trade Center in New York City and damaged the Pentagon in Arlington, Virginia. Passengers on the fourth plane fought the hijackers, causing the plane to crash in a Pennsylvania field. To prevent any further hijackings, FAA immediately put a ground stop on all traffic for the first time in U.S. aviation history. The tragic events of this day radically changed the FAA. On November 19, 2001, the president signed the Aviation and Transportation Security Act, which among other provisions, established a new agency responsible for aviation security — the Transportation Security Administration (TSA), within DOT. FAA remained responsible for aviation security until February 13, 2002, when TSA took over those responsibilities. The November 2002, passage of the Homeland Security Actmoved TSA into the new Department of Homeland Security on March 1, 2003.

Creation of FAA's Air Traffic Organization (ATO)

The ATO officially began operations on February 8, 2004. It consisted of five major service units: En Route & Oceanic; Terminal; Flight Services; System Operations; and, Technical Operations.

The Next Generation Air Transportation System (NextGen)

The Vision 100 — Century of Aviation Reauthorization Act, signed into law in December 2003, endorsed the concept of a Next Generation Air Transportation System (NextGen). The following month, the DOT Secretary announced plans for a new, multi-year, multi-agency effort to develop an air transportation system for the year 2025 and beyond.

Safety First, Last, and Always

Between 2001 and 2007, aviation witnessed one of its safest periods for scheduled air carriers. Not counting the terrorist activities of September 11, 2001, there were only three fatal accidents in 2001; none in 2002; two in 2003; one in 2004; three in 2005; two in 2006; and none in 2007. Fatal accidents became rare events with only .01 accidents per 100,000 flight hours or .018 accidents per 100,000 departures.

My small piece of the picture has to do with certifying new engines and writing airworthiness directives. Almost everything that flies within these United States, with very few exceptions such as hang gliders (with or without power) and, as you know, RC aircraft must be certified to the Code of Federal Regulations, Aeronautics and Space (formerly called Federal Aviation Regulations). All civilian aircraft (airplane of helicopter), the engine and the combination type design* must be certified by one of our Aircraft Certification Offices (ACOs). There are hundreds of regulations that various "products"/ airframes, engines and appliances must meet to be considered airworthy. For example, a gas turbine engine must operate at its most abusive mission (series of cycles**) for 150 hours without malfunctioning. A turbofan engine must be tested by ingesting birds, water, rain, hail, being struck by lightning and still be able to operate safely or not hazard the aircraft; it must also be able to lose a fan blade and not cause a hazard to the aircraft and it must operate safely in icing conditions.

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Article by Jim Rosa, Continued……

Today travel on a transport (large) airplane is the safest mode of transportation in the history of man. I always say that the most hazardous part of my trip is the ride to the airport.

However, there is no perfect aircraft or system; so to correct "unsafe conditions" we write Airworthiness Directives (ADs). ADs have the force of law, so there are civil and/or criminal penalties for non-compliance. The ADs that are written in my office apply to manufacturers, operators and repair stations.

One final F.Y.I., we report to the Executive and the National Transportation Safety Board (NTSB) reports to Congress.

Well, if you read this much maybe you weren't as bored as I feared. See you at the field.

Jim

Notes….
*Beyond that, the Flight Standards organization must issue an airworthiness certificate to every aircraft, individually.
** A typical cycle is a start, takeoff, landing and shut down.

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Fun Fly
June 27th, 2010

It's an early start for the set up crew on a hot Summer's morning....trucks and cars have to be loaded with all the hardware and supplies and transported to the field. It then all has to be unloaded and carted down to the pits ready to be set up..... The field has to be marked and prepared for the day's events.....It's warm even at 7am...it's gonna be a Hot One!!!

8am at the field and there is a whole crew of volunteers setting up tents, tables and chairs....setting up the raffle and grill as well!.. .It's already a balmy 80 degrees!! The competition crew is hard at work painting the bullseye for the egg drop and blowing up and placing balloons for the second event of the day. In the background the "Chef" is checking his grilling and beverage supplies to make sure all the hungry competitors and spectators can be fed and watered!!!

Club Members and spectators start to arrive and set up their planes and chairs....and then sooner than you know it 10am has arrived and it's time for the first Fun Fly of the season to begin!!.....

The first event is the egg drop and balloon pop.... The rules have been refined a little this year to make the competition more even.....you can either roll or loop to drop your egg on target, and everyone is given another opportunity if their "cargo" leaves the plane or heli before they reach the target! Immediately following their egg drop they must proceed to the balloon pop!.....Each competitor has 3 passes to pop as many balloons as they can! Both the egg drop and balloon pop provided a lot of challenges for the pilots, and a lot of entertainment for the onlookers!!!

Watching a plane scream over the painted target then roll, drop the egg and then race to the upper runway to attack the balloons provided a number of interesting tactics and aerial spectaculars - it must be noted that there was a pretty good breeze blowing which meant an approach of approx. 3ft above the lower to get a score and pop a balloon!!! This made for some great touch and goes, even a few incredibly low passes!!!

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Fun Fly Continued……

The first round of the Fun Fly is completed, and as the field crew tally up the scores everyone heads to the grill where "El Presidente" - Paul Difeo - has been hard at work over the hot coals cooking up a storm with his gourmet burgers and hotdogs! Steve has been doing brisk business at the raffle and this continues as everyone walks past for some much needed food and refreshments....!!!

With all the competitors and spectators fed it's time for the third event of the day....back by popular demand, however minus a profile hovering as a target it's time for the "chipping" contest. As we have all proved before, we can certainly fly.....but golfing is not among our skill set as a group!!!! An hour of seriously bad golfing skills goes by to the amusement of all present, and finally we have our winner for this Fun Fly...that would be our very own Naeder, well done! Miguel had a remarkable chip and landed less than a foot from the center of the bullseye winning the golfing contest…wonders will never cease!!

Now it's time for the raffle to be drawn...there's an ARF and engine up for grabs! The first ticket is pulled and the winning number and plane belongs to Don Letty...then Don kindly gifts his prize back to the club (as "The" Don said..."like I need another plane!").....the second ticket is pulled and Zack Weber wins the engine, which Zack then kindly donates back to the club (Zack flies electrics - really doesn't need an OS 46AX!!).....both the winners gladly take a t-shirt as a gift from the Club and a third drawing ensues.....Yeh! You guessed it....None other than our own resident Bulgarian Astronaut Kalin wins and takes the plane – "never to be seen again" I heard it mentioned by an onlooker!!!

With the last of the day's events concluded it's time to eat the last of the burgers and hotdogs.....sip down the last of the water and sodas, and get everything packed up and ready to go.

It's been one of the most successful Fun Fly's to date. Many of the Club Members turned out, along with their Families and a lot of spectators. A great time was had by everyone who attended the event and I'm sure everyone is looking forward to the next one in September.

A very special thank you to all who volunteered and helped set up/pack up for the day, and also to everyone else who ran the grill and raffle as well as the event crew who kept everything running smoothly. These Fun Fly's would not be possible without your contributions of time and effort, and as a Club we all appreciate the extra time and effort you put in to make days like these such a fun time for all!!

Article by – Doug Druce

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Club Member Article
By Adam Woodworth

A Crash Course in Electric Flight

When I came to college in the city, I had to leave most of my airplanes behind. My 8x10 dorm room was more prison cell than potential aircraft hangar. These space constraints, combined with the recent appearance of Li-Po batteries at most retailers, started me down the electric path. I bought a first generation Ikarus Edge 540 Shock-Flyer (complete with brushed 370 motor) and never looked back. Almost eight years later, I've got a bigger apartment, but still haven't put a gasser back in my hangar (partially because my wife doesn't appreciate 2-stroke mix in the "craft room").

Today there are a huge number of choices when it comes to selecting an electric setup, and even to the seasoned electron jockey it can all be a bit overwhelming. To compound this confusion, manufactures are consistently inconsistent with their naming conventions. Some manufactures like E-flight are kind enough to give their motors IC engine equivalents e.g. Power 10, 25, and 46 are drop in replacements for their glow analogs, but others use much more cryptic strings of numbers. Axi, for example, use a fairly straight forward 3 number string 28-26-12 (case diameter - stator length - number of windings), but what does this really tell us about a particular motor. At the end of the day, the easiest way to settle on a setup is to start thinking in Watts. Watts are a unit of power, and about 750 of them make up one hp. To calculate wattage you multiply the operating voltage and amperage. I like to think about it like a waterfall, Volts are the height of the falls, amps are the amount of water going over the falls, and watts are an indicator of how unhappy you would be standing beneath it all. Different flying styles require different amounts of power for a given aircraft weight, and this can all be distilled into associating a given power loading (watts per pound) with how you intend to fly your airplane:

>60 W/lb	Minimum required for comfortable flight
60-100 W/lb	Trainers and Sport flyers
100-150 W/lb	Sport aerobatics, Jets (EDF's on the high end)
150-200+ W/lb	Unlimited aerobatics, 3D, Really fast stuff

Take the expected weight of your plane and multiply it by the W/lb, depending on flying style, shown in the table. This will give you the total watts you want from your setup. Most manufactures will either give a wattage rating for their motor, or a recommended continuous current and operating voltage (W=Volts X Amps), and from here you can pick a motor, battery (based off the voltage and C rating), and speed control (based off the continuous amps). So in a few simple steps you can size your power system and select components. I'll walk through this process for my 70 inch Slick (Which was originally described to me, very eloquently, by the owner of 3D Hobby Shop):

0.) Look at the manufactures recommended setup. If you can afford it you're done! If you want to pick a comparable but cheaper component, either try to match watt rating and weight, or look for a motor with similar case dimensions and Kv rating
1.) This is an all out 3d plane, so we want around 200 w/lb. It's a 9lb plane, so 9lb x 200 w/lb = 1800w.
2.) To balance the plane the motor needs to weigh right around a pound. Looking at motors in this weight range, they can all typically support around 85 amps max.

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Article by Adam Woodworth Continued…..

3.) To pick the number of cells on the battery, work back from 1800w and 85A. 1800w/85A=21V which is equivalent to a 6 cell Li-Po under load.
4.) To pick the pack capacity, assume that we want to be using the cheapest pack possible. This equates to lower C (or discharge ratings). For a 20C pack to support 85 amps we need 85/20=4.25 Amp Hours in the pack. Since packs come in discrete sizes, we go with a 5 Ah, or 5000mAh pack
5.) Finally pick a Kv rating. We know that we want to spin the prop around 8-9k rpm. 8-9k rpm/ 21v= 380-430 rpm/v (or KV)

We can now use these ballpark numbers to pick a complete power system. A few thing to remember, as a general rule of thumb, planes in the sub pound class are happy on 2 cells (7.4v), 1-3 lbs work nicely with 3 cells, 3-5 lbs require 4 cells, and 5lbs on up is where you get into 6+cell packs. Larger planes obviously require more power, and it is much easier to step up voltage, which is why you see larger planes using 6, 8, even 12 cell packs. For example the 50cc version of my slick runs at approximately the same amperage as my 70 inch version, but at double the voltage (2 of those monster packs I have, in series!) Most speed controllers for smaller setups have a built in battery eliminating circuit, or BEC. This powers the servos directly off the flight pack, and is perfectly sufficient for most small setups running micro/mini servos (5 hs-65's is usually what most can power). Once you get above 4 cells most ESC's must use an external BEC to power the servos (I got bit once trying to use the internal BEC on a CC Phoenix 45 on 4 cells and almost lost the plane). Castle Creations sells two very nice external BEC's that you solder in parallel with your ESC power leads, you can set the output voltage between 4.8v and 8v, and they will provide power to the servos even in the event of an ESC failure, a feature I have used several times after letting the magic smoke out of the controller.

I could fill up another couple of pages, but this seems like a reasonable place to end this chapter. As a final note, I encourage anybody who gets into electric flight to buy a digital power meter you can use to measure what's going with your setup. Manufacture's specs are one thing, but until you solder everything together, and run it up under representative loads, you can't be sure if all of your components are up to snuff. I like to leave about 10% margin on max amps for my esc, never discharge your batteries at more than the labeled C rating or more than 80% of their capacity, and motor windings melt at around 170F!

I hope that was a helpful introduction, and as always feel free to ask me any questions you might have about getting started, or putting together a setup to replace that pesky DA100.

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Club Member Article
By Rob Semmler

The Burlington RC Flyers and the 495th RC Squadron Auction

I love auctions, I enjoy just about every aspect of what is the "RC Auction". The drive to the auction is best made with good company, and usually entails talks of scores at auctions past or near misses of items that you should have thrown another ten bucks at! Sometimes you admit to buying a plane that just plain flew like crap, but at the time you thought was a steal. I remember the ride to the NCRCC auction in Vernon, CT that I made with Ricardo and Zahir. IT was about a two hour ride and it felt like it fifteen minutes! Always make the trips with good company!

I have my own little routine when I arrive. First I race to get in, mainly because I'm excited! I quickly pay the door fee and skip the raffle table; I need to get to the 30 dollar and under tables! Many good scores can be found here, odds and ends stuff. I got close to $40 misc. balsa sticks of various lengths and diameters for 6 bucks! One item I regret not buying was a 15ft roll of fuel rubbing for 15 bucks! As soon as I turned around it was gone too. More and more I am seeing electric items as well, given it's not the latest and greatest stuff, but each auction has a little more than before!

The Planes! Isn't that what the auction is mostly about? Folding tables usually stacked two high are the norm for displays of items that will be "run through" the auction. I briskly walk the aisles and glance over each item. I take mental notes of interesting items.

Next I like to get a hot dog. The hot dog is quite possibly the world's most perfect food second to buffalo chicken, but that is for another article in another newsletter. Food sales promote the club(s) as well! Then it's time for another walk through the 30 and under tables then back to the planes for further inspection before the auction begin.

Sunday April 18th was "the" day…the BRCF/495th auction! There were scattered showers and the occasional downpour. Temps were agreeable. I was comfortable in a sweatshirt. It was almost a perfect day to hold an auction! The venue was a church basement in Tewksbury on route 38 near the fire station.

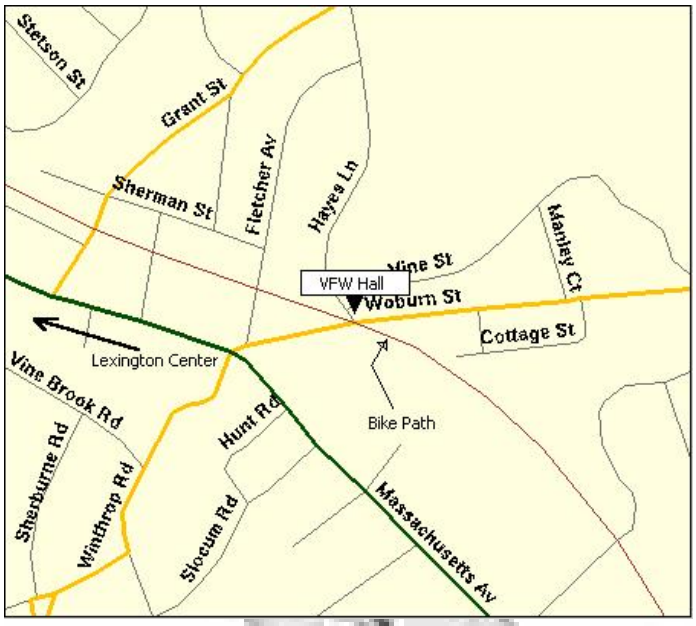
Our own auction was no different, except this time I brought several items from the skungworks (my hangar) to sell. This added a new form of excitement, as I never really brought anything to an auction before. (I usually torture my planes until they become more glue than bulsa). It's fun to see something of yours get bid on and see how high it may or may not go!

The usual suspects were in attendance with a couple other newer club members as well. Plus with the 495ths usual suspects and many new faces the large basement felt a little cramped. As a seller, that can be a good feeling!

I was very surprised as to the number of planes up for auction! Lots of trainers, it really isn't an auction without a dozen or so beaters. However, most that went thru were pretty nice looking! Cubs...another auction favorite, saw a couple of those as well. What auction wouldn't be complete without a p-51, and I think I only saw one! There was something there for everybody; go fast planes or go slow planes, 3d, some d even no d! Even if no purchases were made a good time was had by all.

Unfortunately, my truck had a lot less room in it on the ride home than the ride to:)

Burlington RC Flyers



Meeting Location:

Lexington VFW Hall
2 Hayes Lane (off Woburn St)
Lexington, MA

Beginner Flight Instructors:

Victor Samsanov	781-279-0231
George Hludzik	781-275-2643
Dave Palermo	781-279-0186
Mel Suarez	617-335-9770
Paul DiFeo	617-569-1555
Rob Semmler	978-319-5773
Adam Woodworth	617-548-6636
Doug Murray (Heli)	978-767-1403
Raphael Bustin (Electric)	781-275-5967

Advanced Flight Instructors:

Victor Samsanov	781-279-0231
Dave Palermo	781-279-0186

Helicopter Instructors:

Mel Suarez	617-335-9770

This newsletter is published by the Burlington RC Flyers, a non-profit club organized for the promotion of radio controlled model aircraft building and flying. The club operates a flying field in Burlington, MA and offers free instruction in safe model flying to any member. "Academy of Model Aeronautics" (AMA) membership is required. Contact any club officer for more information

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