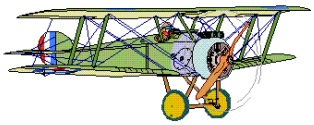
www.rocketcityrc.com



THE RCRC NEWSLETTER

ROCKET CITY RADIO CONTROLLERS, INC. HUNTSVILLE ALABAMA

AMA SINCE 1936

... an AMA Award of Excellence Club!

Proudly serving the Huntsville community at the Captain Trey Wilbourn Model Airplane Field..

P. O. Box 2163 **Huntsville, AL** **August, 2009**

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Vice President Jon Lowe vicepresident@rocketcityrc.com	464-0802
Secretary John Roberts secretary@rocketcityrc.com	883-8722
Treasurer Skip Andrews treasurer@rocketcityrc.com	851-6015
Newsletter Editor Mike Norton newsletter@rocketcityrc.com	653-6632
Committee Chairs	
Field Tony Coberly field@rocketcityrc.com	882-7193
Programs Jon Lowe programs@rocketcityrc.com	464-0802
Publicity Ed Hood publicity@rocketcityrc.com	859-1811
Safety Jon Lowe (Chair) safety@rocketcityrc.com	464-0802
Web Editor Mike Jones webeditor@rocketcityrc.com	(615)885-8817

Flight Instructors		
Wayne Gladden	By appointment	881-6048
Mike Norton	By appointment	653-6632
Tony Coberly	By Appointment	882-7193
Rick Grim	By Appointment	503-5847
Pete Wick	By Appointment	883-7571
Bill Mitchell	By Appointment	650-5181

Prez Sez

Hi all. It's very hot out there these days, so make sure you drink plenty of water!

Over the past few months there have several instances that need to be addressed. Please make an effort to clean up any mess you create prior to leaving the field. We have trash cans at the field, so let's use them. Second thing is regarding violation of our city contract and our flying field rules. Alcoholic beverages are NOT allowed at our field. PERIOD! In accordance with our bylaws, a violation can be considered detrimental to the club, and the board will have to take appropriate measures. All members are required to follow all RCRC rules and regulations at all times.

These rules are to protect members and to make sure we don't violate our city contract. Now lets get past this and get back to enjoying the great flying site we have!

Minutes for the July 2009 RCRC General Membership Meeting

The meeting was called to order at 7:00 pm on July 21, 2009. A quorum of the membership was present.

Board members present:

President, Vice President, Secretary, Treasurer, and Newsletter Editor

Guests: Don Szczur, Member of Team JR.

New members: None.

Board Notices:

Tony mentioned the BPA event that is scheduled for August 7th, 8th and 9th. He urged members to join in on the activity. The $25.00 entry fee includes a catered lunch. There will 4 classes so everyone can join in on the fun.

Old Business:

It was noted that the weather station was on order. Delivery status was unknown at this time.

The city has still not approved the drawings for the handicap ramp

New Business:

A motion was made to approve the June General Membership Meeting Minutes as published in the news letter. The motion was approved.

The 2010 schedule was brought up for discussion. Prior to the meeting only one event, Club Day, was tentatively scheduled. During the meeting the Toys for Tots event was added to the schedule. A motion was presented to approve the two events on their perspective dates of May 19, for Club Day and November 6th, 7th for the Toys for Tots. The motion was seconded and approved.

The vote by the general membership for change to the Bylaws as published in the May Newsletter was undertaken. At the request of several of the members present the vote was done in secret. The result of the vote is as follows:

	Members Present	Mail-in Votes	Total
For	**17**	**11**	**28**
Against	**6**	**8**	**14**

The change to the bylaws passed.

The program was presented by Don Szczur. He discussed the rebuilding of his competition plane after having an incident where it ended up in some trees. He discussed his methods of rebuilding as well as answering question from the members.

A motion to adjourn the meeting was made, seconded and approved at 8:15pm.

Minutes for the August 2009 RCRC Board of Directors Meeting

The meeting was called to order on August 4, 2009, at 18:30

Board Members present:

President, Vice President, Secretary, News Letter Editor

Guests: none

Old business:

The meeting previously planned with Lou Hovatter concerning changes to the club's contract with the city has to be rescheduled due to conflicts. The city still has not responded to the club's plans for a handicap ramp to allow entry into the clubhouse.. The city has also been contacted about repairs to the runway and no response has been given.

New business:

Mike Norton presented the proposal for 2010 Big Bird Event

Dates of event: May28th & 29th 2010

Event Time: Start time 12:00 on the 28th 8:00 on the 29th

Requested Budget: $725.

A Nominating committee needs to be selected. Mr. Art Azlin will be asked to chair the committee. The make up of the committee will be announced at the next general membership meeting.

The meeting was adjourned at 19:15.

From RCMDirect.co.uk

Electronic Speed Controllers (ESC) Explained

In electric if you need throttle control you will need an Electronic Speed Control (usually called an ESC).

These devices are controlled from the throttle channel of the radio and operate the motor much like an I/C engine throttle, from tick-over to full throttle, and all points between. Modern ESCs cover a wide range of applications and offer a sometimes-bewildering range of features and facilities including BEC, brakes, and various startup safety features (more on these later).

An ESC will generally have three sets of wiring. On one side you would have two wires, one black and one red, which go to the battery (Red +ve /Black –ve). On the same side you would normally have your servo or receiver cable, which goes into the throttle channel of your receiver. The other side would have three wires, which could be the same colors, or three different colors, depending on manufacturer and convention used, which normally go to the motor.

Note that this is always plugged into the throttle channel even if the speed controller has the BEC feature and so is providing the power to the radio receiver.

If the three cables on the ESC are black, red, and white, then connect the three wires to the motor in matching colors. Check the direction of the motor and, if it requires reversing, swap the black and white cables over.

In modern speed controllers where the three wires for the ESC are the same color, attach any three wires and, to turn the motor direction around, swap the black and yellow motor cables around.

ESC Ratings

The major things to look for when buying a speed control are the current rating, voltage rating, and features. The various features are individually covered below so let's have a look at the two main ratings.

First on the list is the maximum current rating. Typically this will be given as two figures e.g.18/22A, the first is the current, which the ESC will take continuously, and the second is the short term current allowed normally for no more than 10-30 seconds. So in the example, you could run at 18A forever and use up to 22A for short periods, e.g. at takeoff. We recommend when selecting a speed controller allowing 20% margin so if you have a motor that draws 15 amps, I would select an ESC, which would have a minimum rating of 18 amps, based on the following simple calculation: 15 amps x 1.20 (20%) = 18 amps.

The other main ESC rating is the maximum voltage, more commonly expressed as a number of cells both Lithium Polymer and NiMH/NiCad. This is pretty straightforward. If you try to use the ESC with more cells it will break. It's also worth noting that many speed controls also give a minimum voltage or number of cells.

ESC features BEC

BEC stands for Battery Elimination Circuit. It is a facility, which allows the radio receiver and servos to run off the main motor battery (within certain conditions) so that you do not need a separate receiver battery. There are certain limits associated with BEC circuits that you need to keep in mind. BEC works by reducing the motor battery voltage to down to the 5V needed by the receiver. Doing this creates heat. Because of this it will only work with a main battery of up to some specified number of cells, often 10 cells (or 12V), and also with a specified load often 1 or 1.5A. The load is sometimes expressed as a number of servos and may reduce as the number of main battery cells goes up. For example it may allow three servos up to two Li-Poly cells and only two servos for a three-cell Li-Poly pack, with no BEC over four Li-Poly cells.

Motor cut off

This feature is always associated with BEC. It cuts power to the motor before the battery is completely exhausted so that you still have power to the radio to get to a safe landing. Motor cut-off voltages nowadays are programmed into the speed controller and can auto detect the number of cells used once a power source is initially plugged in.

Brake

Just as it sounds. When the throttle is at zero it applies a braking effort to the motor to stop it turning. This is to allow folding propellers to fold neatly rather than wind milling around creating lots of drag. Most are used on gliders and old-timers, which typically use the motor to get them up and then thermal around, sometimes for ages.

Opto-isolation (OPTO)

This feature electrically isolates the signal from the radio throttle channel from the ESC. Doing this can

dramatically reduce the level of radio interference, which can be created especially with very high currents. You cannot have both opto-isolation and BEC working at once in an ESC, though quite a few allow you to select at installation which of the two features you want to use.

PWM (Pulse Width Modulation / High rate control)

The control of motor speed is obtained by switching the power to the motor on and off in various ratios, e.g. maximum throttle is permanently on, half throttle is on half time, off half time, etc. This switching on and off is done many times a second. The speed at which the switching takes place has a large effect on overall efficiency. Early speed controls used what is known as "frame rate" switching, which means that they switched approximately 50 times a second, the same rate frames of information are delivered over the radio. Most modern ESCs switch at a much higher rate, which makes them much more efficient, i.e. they lose less power as heat in the controller. Switching rates around 3000 Hz (times a second) are about optimum. Anywhere between 1000 Hz and 5000 Hz is acceptable.

Timing Mode

Timing mode is similar to PWM and controls the on/off switching in the motor. There are two types:

- Soft timing: for two-, four-, six-pole motors (Mini AC, Kontronik, Hacker).

- Hard timing; six or more pole motors (Jeti Phasor, Mega, Plettenberg).

Hard timing increases both the motor revolutions and the current (up to 20%) with the same propeller and battery pack when compared to soft timing. Hard timing is more suitable for fast flying models.

Always use soft timing initially and after a few flights if the temperature of the batteries, speed controller, and motor are below 50° Celsius, then it is possible to test the system using the hard timing mode.

Note: Hard timing should not be used with any two-pole motors (Mini AC, Kontronik, Hacker).

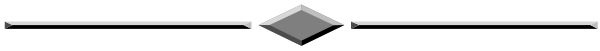
Turning the speed controller on/off

Brushless speed controllers do not normally come with an on/off switch, so to enable an ESC you need to plug the battery into the ESC. Prior to that you do need to ensure your throttle is set to idle/low and it is switched on. Normally a set of beeps or tones will donate it being armed.

To turn off or disarm an ESC just unplug the battery source.

Disabling BEC

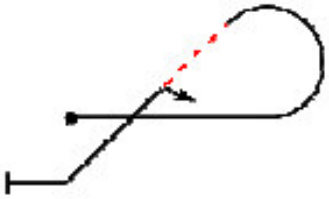
To disable BEC on speed controllers where a separate receiver pack will be used is done by removing the middle cable from the servo, receiver cable which goes from the speed controller to the receiver. In OPTO speed controllers this is not required.



Hey – did you notice we had a Ballistic Pattern event this past weekend? It was quite well attended. The contestants flew 4 events, with 6 rounds in each event. Four rounds were flown on Saturday and two rounds on Sunday. I am sure the CD (Gary Courtney) will provide an article for the September newsletter.

I am sorry I did not beat up on Gary to provide a flyer for last month's newsletter. Maybe, we would have had even more spectators.

41st Annual Rocket City Pattern Contest



Huntsville, Alabama
September 12-13, 2009
Practice flying Friday at 12 Noon

AMA Sanctioned
600' paved Runway
Covered Pilot shed
Electricity onsite
RV's welcome (No Hookups)

GPS Info:
34 41.192 N
86 35.725 W

Entry Fee $30.00
Pre-Register www.rocketcityrc.com
Contest Registration 8am-9am Saturday
Concession Stand, Air-conditioned Club house

Contest Director
Bryan Kennedy 770 335-2228
pattern@rocketcityrc.com

Assistant Contest Director
Tony Coberly 256 508 2339
tony@rocketcityrc.com

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Extreme Flight RC– www.extremeflightrc.com

RCRC NEWSLETTER EDITOR
P. O. Box 2163
Huntsville, AL 35804

To: _____

AMA chartered
club since 1964
Number 715

August, 2009

2009 RCRC Event Schedule

August RCRC membership meeting – August 18th , 2009
September board meeting - September 1st , 2009

†‡	Sept. 12th and 13th	All Saturday and Sunday	RCRC AMA Pattern event	Bryan Kennedy	(770)335-2228
†‡	November 7th	All day	Toys for Tots fly-in	Bob Walls	830-2352

Events held at Wilbourn Field unless noted otherwise
† Field closed to non-participants during this event
‡ Field closed to non-participants from noon onward on the Friday before the event