

# *The RCRC Prop-wash..... May 2010*

## River City Radio Controllers

E. P. "Tom" Sawyer State Park  
Louisville, KY



A.M.A. Gold Leader Club #1263

[www.rcrcy.com](http://www.rcrcy.com)

IMAA Chapter #751

### **Club Meeting:**

E.P. "Tom" Sawyer State Park  
Administrative Building  
7:30 PM - 1<sup>st</sup> Wednesday of each month

### **Training Night**

E.P. "Tom" Sawyer State Park  
The RCRC Airfield  
6:00PM to dark - March through October on  
Mondays during daylight savings time

### **Officers:**

President	Bill Fluke
Vice Pres.	Tim Evans
Treasurer	Jim Schroder
Secretary	Tim Hardin
Safety	Doug Bailey

### **Upcoming Events:**

June 2 -	General Meeting – 7:30PM Sawyer Park Admin Building
June 29 -	Board Meeting – 7:00PM Sawyer Park Building
June 1 -	Wings for Kids Meeting – 7:00PM Sawyer Park Building
June 5-6 -	Wings for Kids RC Air Show

### **Board Members:**

Doug Bailey  
Doug Blakeman  
Travis Collard  
Tom Hohman  
Jim Trombetti

### **News Letter:**

Loren Kloft

## **The Take-Off...**

I am sitting in the airport this evening, waiting to board a flight back home, wondering where the month of May has gone. It seems like most of the month it has either been raining or too windy to fly, although I am certain there were some nice days in there somewhere. At least the runway has been resealed and the grass/weeds growing up through the cracks are now gone, meaning our planes should have smoother take-offs, and hopefully smoother landings (short of any piloting errors).

We have also been preparing for the [Wing for Kids RC Air Show](#) and have been working on sprucing up the field and parking lot. Another interest of mine is vintage John Deere lawn and garden tractors, one of which we have set up with a sprayer that we have used on our yard in the past. I haven't used it for a couple of years but was asked if I could spray the parking lot to kill the weeds and grass growing up through the gravel. It's been sometime since I piddled with any of my vintage tractors since getting into RC airplanes but found it quite enjoyable working with *full-sized* tools to get my 1967 110 started and running again. It was my first vintage garden tractor and is as old as I am – just in better shape. These tractors have so much more capability over the lawn tractors of today, and there just isn't any comparison. I may even have to consider spraying our yard a couple times this year just for fun.



### **May 2010 General Meeting Highlights...**

Approximately twenty members attended the general meeting.

The runway will be resealed on an upcoming weekend. The field will be closed during this operation. As a follow-up, the runway has been resealed. I believe the center stripe is going to get repainted as it was too windy the day they resealed the runway.

A load of gravel was dropped on the parking lot and access road to the field. As a follow-up, the parking lot was sprayed with Round-Up and some additional gravel has since been dropped. It looks as though we may need another load or two.

There was discussion of doubling the capacity of the new charging station. Most likely it will start with the addition of another battery.

We still need some help to get the pavilion painted.

We are looking for some good rail road ties (or suitable stop blocks) to replace the rotting rail road ties currently being used in the parking lot. If you have access to some, please let Bill Fluke know. We are also exploring the costs associated with cement and plastic stop blocks; but initial pricing looks pretty expensive.

Scale Reproductions donated two door prizes for the March meeting. Loren Kloft won a gallon of Wildcat 2/4 cycle fuel, and Doug McCloud won a GWS Slow Stick electric plane.

### **RC Shows:**

Nothing to report this month.

## **Tech Tips:**

I came across this article "[Getting started with LEDs](#)" on the web and thought I would pass it along. I haven't put any lights on any of my airplanes yet, but intend to one day. It really doesn't seem that difficult and perhaps this article will be the incentive that makes you consider doing it on one of your models...

### **Getting started with LED's**

By [Greg Harvey](#)

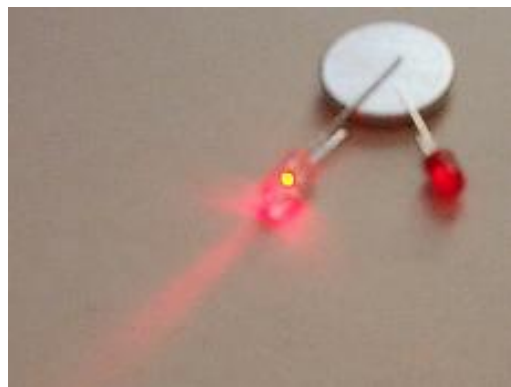
There are many reasons to put lights on a plane. For those modelers into scale aircraft, it can add that additional touch of realism. For those pilots that live in the far north (or far south for southern hemisphere) it gets dark very early. Lights can allow you to fly at dusk and into the night. Winds are generally much calmer at night. Whatever the reason, this article will get you started.

#### **LED Info**

There are three qualities that make LEDs or light emitting diodes a good choice for lighting a RC aircraft.

1. First they are relatively inexpensive. They can cost about \$2.50 (retail) for an assortment pack of 20 LEDs. For larger or brighter LEDs the cost can be as much as \$4 each, but as with most supplies there are mail order and surplus stores where you can get them significantly cheaper.
2. Second they are very light weight usually weighing only a few of grams
3. Third they use very little current. This allows them to run off the flight pack eliminating the need to add weight with a separate power source for the lighting system. Most LEDs draw about 10-30mah or .01-.03 amps. If only a couple are used, almost no change in flight time will be noticed.

The first order of business is picking out your LEDs. They come in every color of the rainbow (red, green, blue, and yellow). They also come in many more exotic colors like purple and orange. The voltage that the LED draws is related to it's color. The green, red, and yellow LEDs are usually around 1.8V, blue is more like 3.7V, and white 4.0V. In addition to a variety of colors there are multitudes of sizes. This is a case where size truly doesn't matter. What matters is the amount of light that the "bulb" puts out. This is measured in luminescence or mcd. The larger the number, the brighter the output. Also there are narrow beam and wide beam LEDs and lastly there are even blinking LEDs. Generally what you will want is a small LED that is very bright (500+mcd). The rest is up to your personal taste. Below is a picture showing the light difference between two red LEDs. The brighter one on the left has an output of 470mcd. Note that an increase in brightness doesn't increase the current draw.



## Basic Test Frame

Now that we know a little about these pint size gems lets hook up the most basic of systems. This is not elegant, but works for trials and temporarily lighting a plane. All you need is an LED and a small 3 volt button style battery like those for hearing aids or watches. The LED has a positive and a negative terminal. Hooking it up backwards doesn't harm it, but you don't get any light. Of the two leads on an LED one is shorter than the other. It is the negative lead. Sandwich the battery between the leads as shown in the picture below.



You can then tape the combined unit onto the plane. This is also helpful when working on the placement of the LEDs before putting them on permanently. If you put an LED on the wing tip facing back at the plane it will light up the wing and fuse. If you place it facing out it will keep the plane dark, but provide a pinpoint of light in the night sky. You can play around with this type of temporary setup until you get the effect you are looking for. To turn off the light when not in use either separate the battery from LED or break the contact by sliding a piece of paper between the battery and one of the LED leads.

## Serial or Parallel

If you are going to go with a permanent installation using a larger battery you have two wiring arrangements to choose from. You wire the LEDs in parallel, i.e. running each back to the power source independently of one another. In this arrangement you will probably need to lower the power going to the LED or you will burn it out. To figure this use the formula Voltage (V) = Current (I) \* Resistance (R) or  $V=IR$ . This same formulas can be expressed as  $R=V/I$  to figure the needed resistance.

Example: If you are running a 6 cell ni-cad pack each cell is 1.2 volts so the pack total is  $6*1.2$  or 7.2. You will also need to know the voltage used by the LED. For this example we will use a 4.0 volt white LED. Next the current LED is rated for is needed. If you don't know the LEDs rating .02amps is a good guess. So  $R=(7.2-4.0)/.02$  or 160 ohms. LEDs can actually be abused so a resistor with a rating greater than 140 ohms should work.

The other arrangement is to run the LEDs in serial, i.e. daisy chained off one another. In this arrangement you run the risk of the old Christmas light problem that if one goes out they all go out. It however will allow you avoid the use of resistors. To do this, simply add the number of LEDs until the voltage they use is greater than or equal to the pack voltage. In the above example adding 2 4.0 volt white LEDs in serial gives the following  $R=(7.2-4.0-4.0)/(.02*2)$  or -20 ohms for resistance needed. A good example of this is the above test bed. By using a single 3 volt cell with a single LED the needed resistance is basically zero.

## Power Source

To conserve weight the most common power source is to "steal" from the flight pack instead of using a dedicated power source. This can be done by tapping into the ESC or using the positive and negative terminals on an unused receiver channel.

## Light Placement

If you are looking for an accurate light scheme, airplane light positions are arranged similar to those of boats and ships. A red light is positioned on the left/port wingtip (when sitting in pilot seat), a green light on the right/starboard wingtip, and a white light on the tail. This arrangement is used for full scale pilots to be able to see other planes and determine the other planes orientation to them. This also works well for the RC pilot watching his plane from the ground.

If both a red and green light of the airplane are observed, the airplane is flying in a general direction toward or away from the pilot. If the red light is on the right the plane is coming toward you. If only a red light is seen or the red light is closer than the green light, the airplane is traveling from right to left. On the other hand, if only a green light is observed, the airplane is traveling from left to right. Note this reverses if you are flying inverted! Also real planes have bright white lights on the belly facing forward for landings.

## Real Life Example

I have attached two LED's to the wing tips of a GWS cub. Each wing tip has a yellow LED pointed in towards the fuselage and then a Red or Green pointed out. They are both wired in serial. On the yellow/green side no resistor is needed, but on the yellow/red side I have used a 100 ohm resistor although I'm sure 60 would have been sufficient I didn't have any on hand. I fried two LED's before I figured out that the difference between the green and red LED's voltage was enough to require the resistor. It's a good reminder to do the math before you start to build. The wire used is from an IDE computer cable, I get 4 feet at a surplus store for \$1. It is light and flat and works well.

The yellow provides general illumination while the colors give the pilot the planes orientation. I have not yet flown it at night due to the current weather conditions. Here are some pictures.



In the picture on the left you can see the wires running to the LED terminals. The wire on the bottom is the antenna wire.

## Features...

If you have a plane, helicopter, or other piece of equipment you think might be interesting to other members and are willing to share, please write up a commentary on it, snap a couple of pictures and send them to [newsletter@rcrcky.com](mailto:newsletter@rcrcky.com). It makes for a more enjoyable news letter to read.



Darrell Bailey spent an afternoon at the field preparing his new Eino Enderby for its maiden flight. It was built from a Balsa USA kit, has an 80" wing span, and is powered by a Zenoah G-23 gas engine. The first flight ended in a dead-stick landing which Darrell landed perfectly on the asphalt runway. The first flight was not what Darrell was hoping for with his new airplane, so he re-propped the plane with a 16x8 prop and found the results much more to his liking on the second flight.

It was kind of strange watching Darrell fly a plane like this as I generally see him flying very fast sport planes. This is a very nice addition to his hanger in that it is different than anything else he has; and now has a great plane to participate in Dawn Patrol events.



Nice plane Darrell!!!

## **Back to the Hangar...**

I believe our club is still planning to host a “Big-Bird fly-in” during the month of July. If you are interested, check the RCRC website for more information as it is added.

This Friday, June 4<sup>th</sup>, we will be setting up for the Wings for Kids RC Air Show. If you are available and would like to help, please stop down at the field during the morning. We could also use help during the show on Saturday and Sunday and especially with tear-down on Sunday afternoon, as a lot of the people who have set up and worked the show the entire weekend will be tired already. If you can show up to help out, please stop by and give us a hand...