



# THE SLOW ROLL



CHARTERED #921  
Since DEC. 1974

**President—Frank Moskowitz**  
**Vice President—Tony Quist**  
**Treasurer—Gene Peterson**  
**Secretary—Rusty Fried**

## JULY 2007

**Editor—Bob Purdy**  
rcbobsvf@aol.com

*The Slow Roll is published by the Sun Valley Fliers  
By and for its membership to all others interested in the  
building of radio control aircraft*



### Inside this issue

Cover Photo showing “Lady Alice” & SVF Dave Linne as rider....SVF Members photos @Scale Squadron Fly In & more ....B’ Days.....Basic Electrics .... Meeting Minutes...\$ Report...Itch to Scratch....BTH?...



**NO JULY SVF MEETING!**

**NEXT MEETING AUGUST 7 WITH PIZZA.**



## **THE PRESIDENTS CHANNEL**

### **FRANK MOSKOWITZ**

Well here we are at the end of June flying in triple digit temperatures. Please be aware of the dangers in not having sun protection on. We have many types of hats for purchase. All our hats and shirts are always displayed at each club meeting. Or during the middle of the week you could purchase from a Board Member since they all have keys to the shed.

Prices are posted at our field. **Remember the July 3<sup>rd</sup> club meeting has been canceled to do conflicts with the July 4<sup>th</sup> holiday and most people traveling that week.** We will resume with our August meeting on the 7<sup>th</sup>. Pizza will be served. Sometime in October (date tentatively the 20<sup>th</sup>) we will have our annual Fun Fly. Charles Beverson will be the contest manager and CD. He was voted a budget of \$2500.00 for prizes. Mr. B. will have Unknown events. Gene Peterson will assist Mr. B. making up the special events. 3 weeks following the fun fly we will have the electric fun fly on Nov 10<sup>th</sup>. **John Geyer will be the CD. Editor: Thank you John!**

I hope everyone has a fun (safe) 4<sup>th</sup> of July. It's a great opportunity to have fun with your family and friends.  
Frank

#### **P.S. --- Club Meetings**

Don't forget to mark the first Tuesday of each month on your calendar for our club meetings. They are held in the meeting hall of the American Legion Post 107 at 20001 N Cave Creek Rd and start at 7:30pm. The hall is on the east side of Cave Creek Rd about ¼ miles south of Loop 101.

The Club meetings will be the place to be. For added fun we have show and tell, we will always have more than one raffle prize and the 50/50 could make you very happy. You never know what might happen, and you don't want to miss it.

**NO JULY MEETING, Next Meeting, August,7@ 7:30 P.M. @ American Legion Hall**



**Meet some of your Officers & Board members**

L to R, Howard Kennedy, Eric Stevens, Tony Quist, Paul Steinberg M.D., Frank Moskowitz, Gene Peterson, Charlie Beverson



## Sun Valley Fliers Club Meeting Minutes

June 5, 2007, *Rusty Fried, Secretary*

The meeting was called to order at 7:31pm by President Frank Moskowitz. There were 35 members in attendance.

**Guests:** Carl Karen

**New Members:**

**New Solo Pilot:** Dave Uhlving soloed. His instructor is Howard Kennedy.

**Secretary's Report:** Voted and accepted as published

**Treasurer's Report:** Gene Peterson. Voted and accepted.

**Safety Officer Report:** Tony Holden

**Old Business:**

Clothing is being brought to club meetings for purchase.

As of 6-5-07 we have 321 paid members.

Safety rules were published in last Slow Roll. Tony Holden also passed out a copy of safety rules at the club meeting.

**Eric Stevens and President Frank are starting a intro pilot program for Heli pilots.**

**Field clean up:** Many thanks to the 14 club members that helped.

**New Business:**

**Next regular SVF club meeting August 7, 2007. This will be a pizza meeting.**

**Door prizes;**

**Fuel R J Powers**

**Fuel Kathy Powers**

**Fuel Chuck Arquette**

**Fuel Dan Jacobsen**

**50/50 Drawing Winner:**

**Dave Uhlving won \$45.00**

**Show & Tell:**

Hobby Zone makes an AC adaptor for most DC chargers.

Spectrum radios have some special procedures needed to set them up, it is call binding.

New from spectrum is a small receiver for the DX 7 radio.

OS has a new 2.0cuid 4 cycle engine.

E flite has a new P-38.

**Thanks to Rick Powers fore show and tell.**

Meeting adjourned at: 8:03 PM.



# \$ TREASURERS REPORT \$ with *Gene Peterson*

Lots of new members in the past couple months, Thanks for joining SVF. If you run into to one or two of these new members at the field, be sure and make them welcome. We have a good club and it's good to have lots of new members.

**New Members** Daniel Baugh, Kurt Clink, Scott Curtin, Russel Gaudlach, Jaime Johnston, Joseph Mallard, Ervine Nemeck Jr., Charles Randel, Dave and Jon Uhlving.

Not much going on in the Treasurers Department this month, But we have published a new Membership Application and Cleaned up the By-Laws Publication and that's working good. New Application included such things as Email Address, and Cell Phone Number. Gee, wonder why we didn't think of these things back in 1990 when the other Application was wrote. Gotta keep up with the times I guess.

Have a nice Independence Day Holiday and see ya at the field.  
Gene Peterson, Treasurer

## SVF JULY BirthDay Boys

<u>First name</u>	<u>Last name</u>	<u>Member type</u>	<u>Dob</u>
Jim	Nystrom	Regular	07/01/1964
Arthur	Soben	Regular	07/02/1947
Jeff	Hansen	Regular	07/05/1948
Aaron	Moskowitz	Junior	07/05/1995
John	Parker	Regular	07/06/1939
Robert	Moore	Regular	07/06/1947
Lorn	Klimchuk	Senior	07/09/1932
Dennis	Mika	Regular	07/10/1939
Melvin	Cohen	Senior	07/11/1928
Norman	Hawk	Senior	07/11/1934
John	Wisniewski	Senior	07/12/1937
Kyle	James	Junior	07/16/0989
Cole	Cunningham	Senior	07/16/1941
David	Fortuin	Regular	07/17/1965
Larry	Stephens	Regular	07/17/1939
Gary	Porter	Regular	07/18/1956
Robert	Putnam	Regular	07/21/1942
John	Wanner	Senior	07/21/1939
Randy	Archer	Regular	07/22/1957
Rusty	Fried	Regular	07/26/1946
Gary	Kurtzman	Regular	07/29/1957
Dick	Summersgill	Regular	07/31/1941
Louis	Graham	Regular	07/31/1942



# SVF MEMBERS PAGE



Here is Ken Henius 4 motor electric transport aircraft. When I was by Ken bench he had his laptop plug into this aircraft. *Checking for pulse, temp., Ken??*



SIG Annual Fly In held in Iowa- Some of the aircraft at this event



SVF/Snowbird Ron Petterec prize



It's the real thing

# FLAGSTAFF FLYERS R/C AIRPLANE CLUB



## High Country of Northern Arizona Fun Fly

Join the Flagstaff Flyers in the cool mountains of Northern Arizona as they host the 14th Annual 'Beat The Heat' fun fly.

This two day event will be held at the clubs flying field 15 miles northeast of the Flagstaff Mall. Spectators are welcome. Food available at the field.

Giant raffle to be held on Sunday, June 29 at 1:00PM.

**IMPORTANT:** Please keep informed as to conditions in forest by going to [www.flagstaffflyers.com](http://www.flagstaffflyers.com)

For questions contact Contest Director - Bob Gillette @ 928.779.1250 email address is; [lotsapaws63@msn.com](mailto:lotsapaws63@msn.com).

Note: Camping at the field is allowed - No hookups and NO fires allowed.

Registration Fee for Pilots: AMA is Required

**\$13.00 PRE-REGISTRATION BEFORE JULY 15, 2007**

**\$15.00 AFTER JULY 15.**

**SPECTATORS ARE FREE AND WELCOME**

**Contest Director:** Bob Gillette

**Contact Info:** Home 928-779-1250

Other 928-526-8666

email: [lotsapaws63@msn.com](mailto:lotsapaws63@msn.com)



### Pilot Registration Includes

- Pilot Only Drawing
- Two Days of Unlimited Flying
- One (1) Free Lunch Ticket
- Registration Form available online at [www.flagstaffflyers.com](http://www.flagstaffflyers.com)

Giant Raffle On Sunday  
July 29 @ 1:00pm

Tickets are \$1.00 each or 6 for \$5.00

### Field Directions

<http://www.flagstaffflyers.com/flyingsites/index.html>

Scratch build, that is. One of the greatest pleasures in modeling is creating your own design—something that no one else at the field has. I've been doing it for more than 20 years, and I still enjoy it.

Let's get one thing straight, before we go any further. When I refer to "scratch build" I mean draw up your own plans and build from them. I don't mean building from someone else's plans, because they've done all the hard thinking for you. Nor do I advocate making scratch builders grow their own balsa trees!

I believe that using stock parts and subassemblies from other models in a new model still rates as scratch building, although I can understand how others might differ. The FAA says that if you do 51% of the work in building a full-scale airplane, then it's a home-built airplane. I say it's the same for models.

Okay, how do you get started in scratch building? Actually, you can do it either of two ways. You can plunge right in, or you can work your way in. That's how I started, by working my way in. Kit-bashing, that is, starting with a kit and modifying it until no one could recognize it as a kit. Kit bashing lets you take known good components and combine them with your own ideas. As long as you don't drift too far from the original design (at least, at first), you can't go wrong.

So, let's talk about how to kit bash. The easiest way to start is by changing wing tip and tail shapes. As long as you keep the areas pretty much the same area, all will be well. Don't get paranoid! If the airplane flies well with a 50-square-inch stabilizer, it'll fly just as well with 48- or 52-square-inch one. On the other hand, making a few changes in outlines can make a big difference in the airplane's appearance.

Going further, you can make a high-winged airplane into a shoulder or low-winged one. You'll lose some stability as you go, so either increase the dihedral or add ailerons! When I converted a Little Stik into a low winger, for example, I traced the side view of the fuselage and wing, and then moved the wing profile straight down to the bottom of the fuselage.

This is where the plans come in handy; just flip them over and trace through them. If you can't quite see through, apply a little oil and the plans will turn transparent—that's cooking oil or clean machine oil. Don't use your old, filthy lawnmower oil and complain about it being opaque! [Technical Editor's note: this is very messy and you must cover the oiled plan to keep it from getting oil on the balsa or anything else.] Keep the stabilizer the same distance back from the wing and keep the same center of gravity.

A Xerox makes replicating the wing side view much easier, provided the Xerox makes true copies. I've run into several that didn't. To check, compare the copy with the original. Or Xerox a ruler and compare that to the original. (As a side note, it's always a good idea to trace or Xerox the ribs and bulkheads when you build a kit, so you have templates for repairs. If you Xerox them, of course, make sure they match the originals!)

When you change the wing's position, you'll have to redo the fuselage side. One solution, popular with fully symmetrical wings, is to just flip the fuselage over. Since the top and bottom of the wing are the same, the wing saddle matches both ways. If you can't do that, then copy as much as you can. Use the same structural methods the original designer did; just change the shapes of the parts.

The hardest part of making a model into a low-winger is usually the landing gear. If you're using foam wings, this is easy; you can even buy preshaped landing gear blocks. One of the reasons I like taildraggers is how easy it is to set them up. For a taildragger, if you don't want to diddle with plywood ribs and the complexities of mounting the landing gear in the wing, just mount it at the wing leading edge. As long as you make sure the gear sweeps back enough so that the axle is under the leading edge of the wing, you should be okay.

Part of the fun of kit bashing is that you can improve an airplane's performance as you go, for example, adding bottom rudder. When the rudder is deflected, it exerts a sideways push on the tail of the airplane. If most of the rudder is above the airplane's center of gravity (as seen from the rear), the push will add roll to the airplane's yawing motion. Please, don't confuse this with adverse yaw! One way to cure it is by mixing in aileron compensation via a computerized transmitter but if you can design it out, you don't need the fancy transmitter!

Here's a typical top rudder (as in an Ugly Stik). Notice that when the rudder is deflected to the left, the airplane rolls to the right (The red dot in the rear view is the roll axis as seen from behind). My Sylph has this pretty badly—I can turn the model on rudder and elevator alone, without any need for aileron.

But, if you move a large portion of the rudder down below the roll axis, you reduce the effect of the rudder on rolling. This is great, if you plan to do stall turns, slips, crabbing, or other maneuvers that entail rudder. Ever notice how all those Extras, CAPS, and other aerobatic full-scale models have their rudders shaped?

But kit bashing can go further than moving the wing up or down or changing the tail shapes. You could start with a common low-wing sport kit such as the 4-Star series, then add a turtle-deck and chin scoop. Throw in some block for a streamlined spinner, curved tail surfaces, and dummy landing gear housings, and you have a "Sorta P-40."

*continued.....*

## Itch to Scratch *continued*

Remember, most of an airplane's personality is in the fuselage, so even if you use a Hershey bar wing on an Me-109, most of the personality will be there. Heck, it'll be a lot easier to fly, too! Unless you plan to compete in a Scale event, what does it matter? I'd rather have a good-looking airplane that looks well, then a great-looking one I'm too scared to fly!

Or, take two Stiks and make a "Zwilling" (twin fuselage). If you use a constant-chord wing, all you need to do is cut out more ribs. If you do a twin of something like a Kougarr, use the root chord for a constant chord center section.

Start simple, then work your way up. At first, you'll see people staring at your model, trying to figure out what's different about it. Finally, they'll get it. As you get more into kit bashing, you'll see them take longer and longer to figure it out. Finally, they'll have to ask you those sweet words: "Okay, I give up. What is it?"

From Propwash, Mercer County NJ

Part 2 next month



Just north of Phoenix the Mustangs stood silent in the dim early morning light. An unusually balmy breeze from the east blew over the dust covered runway as the crew chiefs awakened the Merlins to prepare for the morning mission. Our aircraft and crew chief stood third in line. Aircraft N-MP -01 the battle weary silver stud stood alive and proud. Our pilot approached and reviewed the check list. A note on the bottom of the list said "Remember this plane is mine, You're borrowing it. Don't screw it up." You could just see it coming...maybe the stress or too many hours flapping your wings or it could be the dry heat. Well the mission went great. All were returning. The Merlin is run-

ning smoother then ever, all controls working great, no flak to speak of. Ah the airfield just in sight. If I can just ace this landing all will be great. Radio contact, we're cleared to land, turning downwind, speed reduced, gear down, flaps turning, final line up good. It's picture perfect....What the \_\_\_\_\_. Nice Slick!!!! Never embarrass your caller. Flight plan filed by Dirt



*Editor: I wish you members would send in your photos and articles as I have a heck of a time thinking on what to put in these blank spaces!*

**DOWNONTHEDECK.COM**

**SVF's / ONE EIGHT AIR FORCE MEMBERS @ SCALE SQUADRON of SOUTHERN CALIFORNIA FLY IN JUNE 9-10, 2007**



**LADY ALICE**



**Al Casey**



**Dave's Hurricane**



**Jerry J-3**



**Bob's P-47**



**L. Dave Linne & Ken**



**L. Jerry Wright & John Geyer**

The photos Came from The OEAF Website.

Interested in Scale, go to Thier website and get The info.

<http://www.oneeighthairforce.org/>

Read about the fly in on Their website.



**John**

**Jerry**



**Bob Frey**

**Sam Wright**

## Basics of Electrics (without Math)

Revised December 6, 2006

By Albert Tejera

Tejera Microsystems Engineering, Inc. (TME)

Makers of the revolutionary Xtrema Lithium Charger and Wattmeter

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Understanding the basics of electronics is essential to electric powered aircraft, cars and robots. Having this understanding will allow you to experiment with your motor, gears, prop, wheels and battery to maximize the performance. This discussion on the fundamentals of volts, amps, ohms and watts will hopefully be presented in a fun and intuitive way. Often the math used to teach the fundamentals of electricity, tends to turn off most people to the point where they skip over the material. That is a shame because the concepts of electricity are really not that hard to understand.

In the real world electricity behaves very much like water flowing down a garden hose. Yes it's that simple! We have all had experience with how water flows down a hose which makes relating to electricity much more intuitive.

### **So then, what is a Volt?**

Let's start with this magical word "VOLT". What the heck is it? Well, at the core of electricity is this tiny little thing called an electron. They can move around freely in metal objects called conductors. When you manage to move lots of extra electrons into a piece of metal, the electrons get a little cramped.

For now, forget how they get cramped in the first place. (Hint; it is usually due to a chemical reaction or moving magnets and coils of wire.) Since electrons all have the same negative charge, they tend to repel each other.

This is very similar to a bunch of tiny magnets with all the South poles facing each other. The more electrons you cram together the more they want to repel each other and the greater the pressure they force upon each other.

### **This pressure is measured in units called volts.**

But wait, you may ask, how can water help us understand volts? Well that is simple, volts is like water under pressure. More volts, more pressure! Say you have this big tall 10,000 gallon tank of water on top of a house, the higher you fill it, the more the tank weighs, and the more pressure is available at the bottom of the tank. The weight of the water makes the water want to get out of the tank. More water and weight gives the water more pressure.

With water, we measure pressure in terms of its weight in pounds per square inch or PSI. With electricity we measure the pressure in terms of Volts. So the terms PSI and Volts are units of measurement for water and electricity respectively.

So the answer to the question "what is a volt?" can simply be answered like this: Volts in a battery is like water pressure in a tank. The more pressure (volts) you have, the easier you will be able to get it to move through even the smallest hose (wire). But let's not get too far ahead yet. So far, in understanding volts, nothing is moving yet. We haven't turned on the faucet.

That comes next when we look at..... Amps!

### **OK Volts are easy to understand, so then, what is an Amp?**

If a volt is the pressure of electricity, then the ampere (amp for short) is the flow of electricity. It is no wonder they also call it current! Electricity flowthrough a wire in much the same way that current flow down a river. But for the sake of our discussion we are going to talk about how water flows down a hose. It is easier and more meaningful to equate a garden hose to a piece of wire.

Let's get back to our tank and let's place a shut off valve at the bottom of the tank so that we can let water out and empty it all the way if we want to. Connected to the shut of valve will be a hose. (I promised you it was coming didn't I?) The hose will simply dump the water into the ground. Later we will need to pump the water back up into the tank, but more about that later.

The shut off valve on the tank acts like a switch. It either stops the water current from flowing or it allows it to pass. An electrical switch does the same thing to the flow of electrons. When the switch is on, we have current flowing when we shut it off, we have no current. That was too simple, wasn't it?

[Check out the April Slow Roll for the Ohm's Pie Chart](#)

[continue](#)



Ok, so when are you going to get to what an amp is? Well, here it is. The rate of water that flows down a hose is similar to the rate of electrons that flows down a wire. We might measure the flow in a garden hose in terms of gallons per hour or ounces per minute. However we measure current in terms of electrons per second. Actually one amp is technically defined as 62,420,000,000 electrons going past a point of wire per second. (Give or take a few!) I told you they were tiny didn't I? More amps mean more electrons per second. Fewer amps mean less flow. So how do you get more amps you might ask?

Well, there are two ways. First, if you have more volts (remember pressure) you will provide more motivation for the little electrons to scoot down the wire in a hurry. This is just like putting more water into our holding tank, giving us more weight, and therefore giving us more pressure. The flow of water or the amps of current will be greater with more water pressure or voltage.

The second way to get more current with water, without increasing the pressure, is simply to get a bigger hose. This is one reason why bigger wires can carry more current. Put a fire hose and a bigger valve on the water tank and more gallons per minute will flow.

Now here is an interesting concept. Put a faucet on that water tank and now you can reduce how many gallons per hour will flow even though you may still have a big fire hose. This is why the size of wire you have can limit the maximum current you can deliver. Yes, you can use a pair of automotive jumper cables to power a cell phone but people may think that is quite a waste of wire. Jump starting a car requires many - many amps of current so that is why the wires are big for that application.

The bigger the wires are, the greater the ability they will have to a high flow of current. And just like forcing water down a long skinny hose, lots of PSI (pressure) at the tank side can turn into very little PSI dribbling out the end. A skinny wire can restrict flow and reduce the apparent pressure. That is why in high current applications we want as big a wire as practical.

So getting back to the faucet, we now have this way of reducing the flow of current by simply turning down a knob. As we all know, a faucet merely makes the opening for the water current smaller and smaller offering more resistance until it is fully shut off. Turning a faucet completely off is the ultimate resistance.

**So what is the analogy to this faucet resistance in terms of electricity? Well, this one is easy, the scientific electronics term is called (drum roll please)..... resistance, yes resistance! Resistance to electricity flowing is measured in a unit called Ohm. (No, not the chant that you do in your yoga class.) An ohm is a term that you have to understand when you start talking about amps.**

Why? Because Ohms and amps are inversely related! So what the heck does that mean? Simply that when you have more Ohms (resistance) you have less Amps (current flow) This is like when you turn down a faucet! Also, when you have less Ohms (resistance) you get more amps. This is like opening up the faucet and/or using a big fire hose! This whole discussion, of course, assumes that the volts (pressure) remain constant.

OK so we now know that Ohms and Amps affect each other in opposite directions. On the other hand if you leave Ohms the same and you change the volts (pressure) up and down, you will find that more volts (pressure) means more amps (current flow) and less volts (pressure) means less amps (current flow).

Now if for some reason the discussion above was confusing to you in any way, it is simply because we are using new words to describe principles that

you no doubt already understand. Take the time to re-read the paragraph above until you get it. It's not really hard to understand, plus you will have mastered the fundamentals of electricity when it becomes clear to you.

### **Quick Review:**

**Volt = unit of measurement of electrical pressure.**

**Amp = unit of measurement of the rate of electrical current flow in a conductor.**

**Ohm = unit of measurement of a conductors ability to resist current flow.**

Want a little tiny bit of math? (Its just easy multiplication and division but you can skip over this if you want) Volts are equal to # of Amps multiplied by the # of Ohms

Amps are equal to # of Volts divided by # of Ohms

Ohms are equal to # of Volts divided by # of Amps

The above formulas collectively are called "Ohms Law" and they describe the basics of all electricity and electronics.



**OK, I understand Volts, Ohms and Amps, so what's a Watt?**

The short answer is that the Watt is a unit of work done over time. More watts, then more work is getting done quickly, less watts means less work. OK so how does this relate to water? Think of it this way, Say you had that 10,000 gallon container filled with water and you had a wide open valve going to a fire hose and you decided to have some fun and point the hose at all your buddies standing 5 ft in front of you. I bet that you could knock them all over in no time and make a big mess at the same time. Now suppose you only had 100 gallons of water and a small garden hose. Well the results would not be as spectacular.

I surely doubt you could knock them over with the stream of water from a garden hose and after a few minutes of aggravating them, you would be dropping that hose and running away from some wet and angry friends. The same is true with electricity. Lots of volts and amps with little ohms mean a lot of watts worth of power. Low volts and low amps with high ohms mean much less power. Increasing either volts or amps while leaving the ohms the same will increase watts. Here is a point of reference to help you gauge how much work a watt of electrical power is worth. It takes 745.699 watts to equal one horsepower. Say WATT? That means that a 100 watt bulb is actually a little over 1/8 horsepower.

OK, so watts represents power (work over time) and to get lots of watts you need lots of volts AND lots of amps. This is an important concept to understand when it pertains to the performance of your electric airplane, car, robot or even your power tools. Carefully juggling the right voltage and current for a given motor and its load, without burning your motor controller, wires or batteries is the goal. It's a balancing act.

If your kit has pre-selected all the parts for you, then someone else has done all the engineering for you. The bad part is that you are now stuck with the performance that "they" want you to have. What fun is that? In the immortal words of comedian Tim Allen, all we really want to do is to have "more power!" (Grunt grunt) don't we? So you can begin to see that these concepts are important to understand when we want to tailor the performance of our models or, just like Tim, not having a good understanding may have you end up with smoke or explosions. More on tailoring power after we learn about how they secretly rate the power of batteries.

Want a little tiny bit more math?

Watts are equal to # of Volts times the # of Amps or, " " " # of Amps times # of Amps times # of Ohms, or " " " # of Volts times # of Volts divided by # of Ohms *Get the PIE CHART in the April Slow Roll.*

In a commercial wattmeter, volts and amps are measured and simply multiplied automatically for you.

Batteries!!! They aren't rated in AMPS or Watts; they are rated in mAh, what is that?

Well they are actually rated in amps (sort of) that's what the "A" in mAh is for. Well, mAh stands for milliamp hours. A milliamp is simply one thousandth of an Amp. It seems silly to say 1000 milliamps when you really mean 1 amp but this is exactly how most batteries are usually numbered. (I don't know why so please don't ask!)

The hour part of the milliamp hour rating is simply that, its how many milliamps a fully charged battery can provide for a solid one hour. At least that is the theoretical meaning! So a 1000 mAh battery should provide (in theory) 1000 milliamps steadily for exactly one hour. So what if you change the load resistance (electric faucet) so that it only draws 500 milliamps?

Well, that battery would supply 500 milliamps now for 2 hours since it is flowing out only half as much as before. Think of those trillion trillions of electrons coming out half as fast. It will take twice as long to get them all out. It works the other way too. If you draw 2000 milliamp rate out of the 1000 mAh battery then you would exhaust the battery at twice its rated capacity!

(Sometimes called 2C...more on that later...) That's twice as fast! That means that you would have a dead battery in only half an hour! So the milliamp hour number is simply a measure of capacity or size. It's just like comparing a 10,000 gallon water tank to a 500 gallon tank! You

know that the 10,000 gallon tank will last longer dumping out at the same rate.

So you now have some practical information here. You can see why a 2000 mAh pack will fly your plane or power your robot twice as long as a 1000 mah battery. Here is another interesting bit of information. When you parallel two similar batteries (typically done with Lithium batteries by connecting plus to plus and minus to minus) they each help each other handle the load so that you now have double the capacity.

**WE WILL FINISH THIS ARTICLE NEXT MONTH**



**ATTENTION ARIZONA R/C FLYING CLUBS**

Share with us your event flyer and we'll be glad to place it here in the Slow Roll. Just give us the proper time to place your event.



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 FAX 602-788-3440



Paradise Valley  
 Mall 602-996-7200 Phoenix  
 M-F 10-9PM, SAT 10-9PM, SUN 11AM-6PM

8058 N. 19th Ave. 602-995-1755 Phoenix  
 M-F 9:30-8PM, SAT 9:30-6PM 11-5PM  
 4240 West Bell Rd. 602-547-1828 Glendale  
 M-F 9:30-9PM, SAT 9:30-6PM, SUN 11-5PM

Next Month Issue

We always welcome photos and articles.  
 We have a SVF member to take over our Electric Fly In. So lets give John Geyer a helping hand comes November.  
 Hope you will enjoy it Bob rcbobsvf@aol.com

This Month Issue

Well we got something in this month, Thanks to the OEAF website so I could steal some photos. Lucky Dave to get a ride in Lady Alice. Lets hear all about it Dave. Got some good info on Basic Electricity for you Electric flyers ( try gas, you'll like it. And no MATH)  
 Remember to ZOOM the PDF page to see more.



# THE SLOW ROLL

**Club Officers**  
**Frank Moskowitz, President**

**Tony Quist, Vice President**

**Gene Peterson, Treasurer**

**Rusty Fried, Secretary**

**Walt Freese,**  
**Website Supervisor**

**Please check your**  
**Membership list for**  
**Phone numbers.**



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**Paul Steinberg '07-09**

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YEARS



**SINCE DECEMBER 1974**