



Scale Squadron of Southern California

December 2010



Don't Miss this Month's Club Meeting! December 13

Founders of the U.S. Scale Masters Championships
www.scalesquadron.com



*MY VIEW FROM
THE BENCH*

TIM JOHNSON
SCALE SQUADRON
COMMANDER

TIMOTHY@JOHNSON.US.COM

THE SCALE SQUADRON
OF
SOUTHERN CALIFORNIA



Have you been naughty or nice? Santa will know, and it makes a difference of two dried up bottles of Zap in your stocking, or a fresh engine for your next project.

Speaking of next projects, the AMA Convention is coming quickly. The convention dates are January 7-9, 2011. If you think you can help out for the show please check-in with me at the December meeting. You don't have to stay all day. We are only asking for you to spend a few hours at the booth. If you can stay all day, that would be great too. Helping your club at AMA Con will get you free admission to the event. I really hope to see you help your club at AMA Con 2011.

PVMAC's Wings Over Chino was a great event once again! There were many wonderful scale models that participated in the event. Everyone was able to get plenty of flying in, the weather was a little windy in the mornings, but the wind would die down just before lunch. The brave had no problem flying their models in the wind. A few of the One Eighth Air Force members made it over as well. The food at the field was much better than other events. Laxative dogs and hamburgers were not served at this event. Instead it was BBQ Beef and Chicken cooked to perfection. It was a great change and a better bang for the buck. Great work executing this event PVMAC!

The December meeting will be ran the same way as last month. For the new meeting format to succeed, I need you to bring part of your airplane project, or your whole airplane project to the meeting. If you have questions on how to build or modify something on your airplane, this meeting would be a great opportunity for you. We have so much talent in our club, that I think it is time for our members to help each other out with their projects. So for the December meeting please bring in your project, and your questions. Or if you have a project that you are working on and want to share your technique with the rest of the club, this will be your time to shine!

This is my last Commanders note. With that I would like to thank the Squadron for voting me in for two straight years as your commander. I really hope you enjoyed your time the last few years, and had the opportunity to help your club at one event or another. And most of all I hope you enjoyed spending time at the field and at events with your club mates.

The Squadron is all about sharing, building and flying techniques, as well as having as much fun as possible. I would like to thank everyone that helped out their club in one way or another this year. Without you, the Squadron yearly events like our Fly-In, AMA Con, and RCX cannot go smoothly, and simply is not

EVENTS & ACTIVITIES

Dec 13, 2010
Scale Squadron Meeting

Jan 7-9, 2011
AMA Convention

Jan 10, 2011
Scale Squadron Meeting

Jan 27-30, 2011
Arizona Electric Festival

March 4-6, Gun Smoke Qualifier
1/8th Air Force, Mesa Arizona

March 19 - 20
RCX Show, CA
1/8th Air Force, Adobe Mtn, AZ

April 1-3
Toledo Show

April 8-10 - Hemet Model Masters

June 4-5 Squadron Fun Fly

We'll fill this in more completely
next issue

as fun without your club mates. Keep your eyes open for the yearly banquet, it may happen in January at Ken, Sam and Gordy's hangar, and yes it will be nice and warm just like last year.

Thank you everyone for helping your club, and I hope you show the same kind of support for our next Commander.

I hope you have a Merry Christmas and a Happy New Year.

Tim Johnson

Club Meeting and RE-CAP - November 2010

New Format Well-Received!



Larry Klingburg shows us the amazing progress on his Sikorsky.



The New Format Puts the Show N Tell Models at center-stage. It's a great way to lay out the room and makes for a more interesting meeting. December meeting will be even more refined. Great Job Tim!



Bob's Zero was a HUGE hit at the last meeting!



Bring anything, get help, etc. Trainers, massive scale project, everything is welcome at the Squadron Meetings as long as we're helping you fly more!



Club Meeting and RE-CAP - November 2010

New Format Well-Received!



An award you might not want so much. The Squadron Maintenance Team Award.

Sam's Electricified PC-9



Yeah those are some wheels!

Tim's Staggerwing is looking hot!



FROM THE EDITOR'S DESK

MIKE GREENSHIELDS SCALE SQUADRON NEWSLETTER EDITOR

As 2010 draws to close, I want to thank everyone for a great time in the Squadron this year. You all welcomed me and made me feel like part of the family. I've made some good friends this year and flown and seen a lot of great airplanes. Thank you.

As the Squadron Newsletter editor I've had a chance to share my views while sharing club experiences with everyone who gets a newsletter. It's was an interesting experience.

In 2011, I'm looking forward to even more new experiences in model aviation. If all goes well, I hope to compete in Scale Masters. At our club meetings I hope to see a lot of great airplanes. And, at the flying field I hope I get a chance to fly with you all.

I am hopeful that 2011 will be prosperous for us all and that the hobby is more rewarding than ever before.

To that end, as part of the club's board for 2011 I am committed

to doing everything I can to make your Scale Squadron experience rewarding and fun. Let's work together to make 2011 another great year.

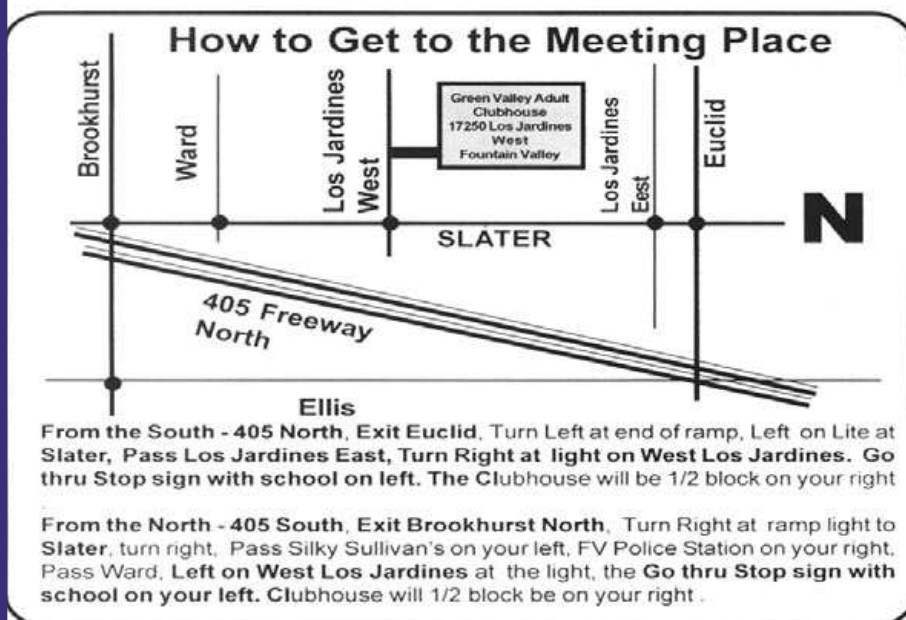
Thank you to you all for everything you do.

Now let's go flying and then get to the Hangar or Silky's and relax with a L.B. and some Wings.

-Mike Greenshields
mikegreenshields@gmail.com

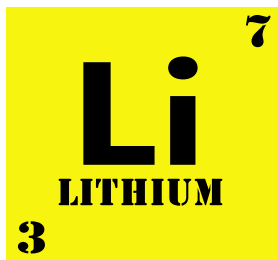


Name that Plane at our next meeting, Win a Prize!



MEETING
Monday
DEC 13
2010
7:00 PM

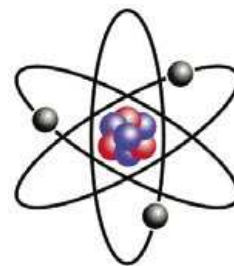
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Lithium Battery 101

V 9.2010



DEFINITIONS:

-  **Li-Po** — is the abbreviation for *Li-ion polymer*. Li-Po batteries are unique in that the lithium is held in a paste rather than a liquid and this makes the battery safer and more powerful for its weight.
-  **mAh** — **mA** is the abbreviation for *milliamperes* or thousandths of an amp of current flow—analogue to a current of water flowing through a hose—and **mAh** (milliampere-hour) is the capacity of the battery and how it relates to discharge time—analogue to the total volume of water stored in the reservoir. Sometimes, large capacity is also expressed as amp-hour (Ah). You'll need to be able to distinguish between the two: 3200mAh is 3.2 Ah.
-  **V** — is the abbreviation for *volts*. Voltage is essentially the potential energy in the battery. In our water analogy, voltage is the pressure build-up in the reservoir (the more cells, the more pressure). Its potential energy just sits there until it is released in a flow of current.
-  **Nominal Voltage** — This is the voltage of a charged battery (after the peak voltage is used) with nothing attached to it, under normal conditions, on an average. Li-Po cells generally have a nominal voltage of 3.7 Volts.
-  **"C" rating** — This is the battery's safe discharge limit rating as a function of capacity. Example: a "20C" battery means it can be safely discharged at a rate up to 20 times its capacity. For example a 3200mAh capacity battery with a 20C discharge rating can be discharged continuously at 64 amps (64000mAh) ($20 \times 3.2A = 64$ amps).
-  **Charge Rate** — This is usually the maximum continuous amps (current flow) the Li-Po can handle when being recharged. Most Li-Po's are designed to be charged between 0.1C and 1C (*i.e.* from 1/10th capacity up to parity). Example: a 3200mAh battery generally should be charged between 0.32 and 3.2 amps. Newer Li-Po batteries with higher C ratings (over 20C) can be safely charged at 3C when using a balance charger.
-  **Maximum Voltage** — (or Max. V): Li-Po batteries, during the charging process, should never be charged to more than 4.2 volts per cell. Example: in a 3-cell pack (where 3 cells are wired in series, making the voltage of the pack 11.1V, the safe maximum voltage is 12.6V. A charger with adjustable voltage levels should be set so that the Maximum Voltage matches the number of cells in the pack.
-  **Minimum Voltage** — (or Min. V): Li-Po batteries should NEVER be discharged below 3.0V per cell. So, a 3200mAh 11.1V pack should never be discharged under 9 volts. The chemistry of the cell changes and can be damaged beyond use.

Li-Po Discussions by Subject

Li-Po Explosions/Fire

Let's start here: ALL energy storage devices are *DANGEROUS*. They contain stored (potential) energy which if mis-handled will cause failure and in some cases, that failure can be VERY dangerous.

What you can do: **AVOID** all conditions that cause battery failure. These conditions include but are not limited to:

Severe Heat – Anything over 160 degrees can limit the battery's life. If heated to extremes—with fire, soldering irons, etc.—the battery may fail and/or explode!

Severe Damage – Examples of severe damage would be: breaking the battery, or putting a hole in the battery.

Over Charge – The charger is either the wrong type or it simply fails and puts more energy at a higher voltage than the battery is designed to handle. Li-Po batteries must *NEVER* be charged above 4.2v per cell!

Over Discharge – This usually comes from an improper ESC that allows the voltage to go well under 3.0v per cell. Also, this term is sometimes used to mean exceeding the “C” discharge rating. If the battery is rated for 64 amps continuous discharge, do NOT discharge it at a continuous rate of 70 amps! This will destroy the battery.

Charging a Damaged or Over-Discharged battery



Warning signs that failure and possible explosion might occur:

If you cause or observe any of the conditions listed above, you can experience battery failure.

So, if any of these things *DO* happen, be prepared that the battery could fail.

Swelling of the pack – Swelling is caused by internal pressure that goes beyond the normal amount of pressure in every battery. This pressure makes the cell swell up like a balloon. Do NOT use a swelled battery! A swelled battery is a battery that has failed and needs to be discarded before explosion or fire results.

Here is what to do with a battery that is on the verge of exploding or is starting to show signs of exploding.

Do not handle it directly! – The material spitting out (if it comes to that) is spitting out at as much as 2000° F.

Try to contain the fire – We recommend a fire-proof container with a lid be kept near the proximity of any cells being used or charged. Fill the bottom with sand. Have this ready to use at a moment's notice. If the cell looks suspicious, put it in the container and drop another large amount of sand on top, then drop the lid. Let it burn out. It will smoke and fume, but the sand will contain the sparks and reduce the transfer of heat.

NOTE – A fire extinguisher WILL help, but it will NOT stop the chemical reaction. The only thing that can be done is to contain the fire until the fire goes out. Most clubs now recommend keeping a fire-extinguisher in your pit area. Considering the batteries, the glow fuel, and the gasoline we use today, it's simply a good idea, regardless.

Li-Po Practical Advice

While there are precautions that must be taken and dangers that must be considered, Li-Po batteries today are very safe, and very easy to use. **BELOW** is a list of practical advice for using this type battery:

Assembly of the pack – Do not solder to the pack!

Installation of the pack – Any pack used for motor power needs high volume airflow for cooling. Heat is the enemy of a Li-Po battery, so when using the battery, having good airflow will help keep the battery cool. The typical Li-Po battery is not durable in case of impact, therefore some protection inside the plane will help save the battery in case of a crash.

Charging – Always use a Li-Po designated charger. Always make sure the settings on the charger match the battery (voltage and amperage) and that the polarity is correct!

- First 5 charges, we recommend 0.5C charge. After that, 1C will give you the best duty cycle.
- Never charge if the battery is hot (over ambient temp or 105°F). Let it cool first!

Balancing – Either during charging or before storage, use a balancer (if one is not already part of your charger). The balancer ensures that each cell is at the same voltage. When using the battery and discharging down to the minimum safe voltage, there will be no individual cell at less than the minimum safe voltage! Thus, the battery will last longer.

Fast-Charge/Balance Charging – Some packs with C-Ratings of more than 20C can generally be charged at 2-5C (check with the battery's maker for this specification). **CAUTION** should be taken when doing this to ensure the battery does not get hot.

Motor Amp Draw – Use an in-line meter to ensure that the power system amp draw does not exceed the rating of the battery.

Storage – We suggest a fireproof container for storing any rechargeable batteries. Li-Po batteries in storage for an extended period should be stored with 60 percent of their capacity. If only for a short time then leaving them with a full-charge is fine. NEVER store them in a discharged state! Some chargers have a “storage” function. Keep the battery pack out of high heat conditions. 60° to 72°F is acceptable.

Damaged Cells – Damaged packs/cells must be discarded immediately. We suggest leaving them in a tub with salt-water (with the insulation removed) for 24 to 36 hours. This will completely discharge the battery. Then cut off the wires, put the battery in a bag, and discard it. *Do NOT charge a damaged pack.*

NEVER – CHARGE A BATTERY UN-ATTENDED. NOT EVER.

NEVER – LEAVE YOUR BATTERY IN A PLACE WHERE IT WILL BE STORED OVER 120 DEGREES F (*i.e.* IN YOUR CAR).

NEVER – CHARGE THE BATTERY IN YOUR CAR.

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The Scale Squadron of Southern California



MEMBERSHIP APPLICATION

Membership in the Scale Squadron is open to all AMA members who are interested in safe, formal, and informal flying, including the research, building and flying of Scale R/C Miniature Aircraft. Membership Annual Dues are \$30.00 covering January 1 through December 31. Membership begins after verification of your current Academy of Model Aeronautics (AMA) Membership Card and receipt of Scale Squadron membership dues. Membership in the Scale Squadron includes a monthly newsletter and Squadron name tag. Meetings are the second Monday of each month at 7:00pm.

NEW ☐ RENEWAL ☐ Recommended by _____ DATE _____
Name _____ Spouse _____
Address _____ City _____
State _____ Zip Code _____ -- _____ Email _____ Birthday _____
Home Phone _____ Work _____ Ext _____ Mobile _____
AMA# _____ NASA _____ USSMA _____ FCC/Ham _____ EAA _____

MODELING INFORMATION

Years in R/C _____ Modeling Level: New ☐ Intermediate ☐ Expert ☐ Need Help ☐
Interest Area: WW1 ☐ WWII ☐ Golden Age ☐ Civilian ☐ Vintage ☐ Jets ☐
Private or Commercial Pilots License & Type Rating _____
Are you interested in Scale Competition? Yes ☐ No ☐ Would Require Assistance ☐
How did you hear about the Scale Squadron? _____

GENERAL INFORMATION

Meeting Preferences. Check all areas that you would like to see at the monthly meetings

How To ☐ Videos ☐ Guest Speakers ☐ Scale Techniques ☐ Scale Contest Prep ☐

Your Ideas _____

Would you be willing to assist at Scale Squadron Events? Yes ☐ No ☐ Maybe with Help ☐

Registration ☐ Gate ☐ Flight Line ☐ Judging ☐ Scoring ☐ Cooking ☐ Radio Impound ☐

Comments _____

NOTICE: This information is only for the Scale Squadron Data Base and will not be shared or sold to any outside agencies.
Your information may be used in a Scale Squadron Membership Guide available only to paid members.

Copy Distribution - **White:** Commander **Yellow:** Membership Chair Person **Pink:** Treasurer

Revised 12/8/2003

Scale Squadron of Southern California



Advancing and Promoting the Hobby of Remotely Controlled Scale Miniature Aircraft

Many people from all walks of life find it fascinating to produce a miniature working replica of a full size object be it a doll house, sailing ship or operating steam locomotive. In our case it is our passion for Flying Machines that motivates the Scale Squadron.

Our members have diversified interests in all facets of aviation history, from the first aircraft to fly at Kitty Hawk to the modern day jet. Advancements in technology have provided us with ready-to-fly kits, on-board cameras, in-flight telemetry, multi-cylinder engines as well as high powered miniature jet turbines that burn real jet fuel. Today as scale modelers we pursue nearly every possible aviation subject with the confidence that not only will our project be successful, but that it may out perform that of its scale counterpart.

Squadron members delight in the pursuit of authenticity for scale projects. This requires research and documentation of specific aircraft and their variants. Many of the flying replicas thus created are of "Museum Quality" and our members take to the skies with these flying miniatures regularly and successfully. On the other hand, not every member makes a scale masterpiece. That's OK too! Whatever pleases you is what counts. Whether

club that embraces all facets of scale aviation R/C modeling and the related community.

Scale Squadron Club Meetings are held on the 2nd Monday of each month at the Green Valley Adult Clubhouse, 17215 Los Jardines West (just north of Slater) in Fountain Valley, CA. The meetings start at 7PM and last about 2 hours. Our meetings throughout the year include the usual club business as well as Member Show-and-Tell, Modeling How-To's, Aviation and Industry Presentations, and good ol' time social gathering to help enlighten and encourage our membership to push the boundaries in the art of Miniature Aircraft

Replication. Like-minded visitors are always welcome. All members and visitors alike are encouraged to bring their latest scale models and projects!



you're kit-bashing, volunteering at charity aviation events, or making molds from scratch for Scale Masters or AMA National Championship competition scale aircraft, Scale Squadron is a



Jerry Ortego, Squadron Founding-Member after a nice flight with his FW-190 at OCMA Field



Larry Klingberg, Squadron Life-Member and Legendary Scratch-BUILDER



**Thank
YOU
for your
hard Work!**



Our UK Squadron Wing Commander Ted Cooke Enjoying the usual flying conditions in the UK

Founders of the U.S. Scale Masters Championships
www.scalesquadron.com