



April 2011

The Carrier

AMA Charter 544

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EBRC Officers

President	Wayne Cook
Vice President	Steve Woodward
Treasurer	Jim Utley
Secretary	Todd Meeter
Safety Officer	Donnie Otting

The Carrier is published monthly by the East Bay Radio Controllers Inc. a club enthusiastically dedicated to the promotion of the exciting sport/hobby of building and flying radio controlled model aircraft. Flight instructors are available to assist new members. EBRC business meetings are at times and places announced elsewhere on this page. Visitors are always welcome and information concerning joining the club and the AMA are available upon request.

Next Meeting 10am, April 17

Newsletter Editor: Tim Wilkerson
twilkers@comcast.net

All meetings are held at the club field on the third Sunday of every month unless otherwise noted.

Newsletter inclusion deadline is the last day of the month after the club meeting. Send all submissions to newsletter editor.

The members of EBRC represent a wide variety of the many activities of this sport/hobby. Our members are involved in Pattern, Giant Scale, Ducted Fans, Pylon Racing, Helicopters and just plain sport flying. All models are powered by electric propulsion systems only effective July 1, 2010. Visitors to our flying site are treated to the sight of many different shapes, types and sizes of model aircraft.

EBRC on the Internet

<http://www.eastbayrc.org>

Send business correspondence to:
EBRC
P. O. Box 5541
Pleasanton, CA 94566

President's Corner

We were blessed with a few days of great weather the last week on March. We had a Wednesday work party and we got some gravel spread around to fill in some of the wet spots at the field. A few members sprayed the weeds on the runway, so we should see an improvement soon. Thanks, to Ken, Lonnie, Pete, Steve, Jim, Tim, Steve, for taking the time to bring a shovel and rake to help. Steve Woodward, Chris Farley, and Tim Wilkerson are working on a proposed charging station at the field. As there are pro's and con's to anything, the membership will have to be involved before

the final decision is made to spend the funds necessary to install the station.

See you at the field.

Wayne

Meeting minutes 3/20

Todd Meeter.

Meeting called to order at 10AM by EBRC President Wayne Cook.

Treasurers Report:

The Treasurer's report was accepted as read. Motion to accept by Steve Woodward; Second by Tom Johnson. Passed.

Secretary's Report: Minutes of the February meeting were published to the members in the March Carrier which is currently available on the EBRC website. The members voted to accept the minutes as published for the February meeting. Motion to accept by Jim Middleton; second by Tom Johnson. Passed.

Vice President's Report: Steve Woodward indicated that there is nothing to report at this meeting.

Safety Discussion: President Wayne Cook and Treasurer Jim Utley discussed upgrades being made to safety equipment at the field. Jim Utley will obtain additional fire extinguishing equipment as follows and locate it at each flight station-(fire extinguisher, shovel, bucket with sand). The objective is to provide club members with the equipment they need in the unlikely case of fire caused by LIPO batteries.

Au Shucks Award: Jim Middleton received the award. The crash was caused by stalling in a turn.

New Business:

A. Charging Station - President Wayne Cook reported that the EBRC BOD has initiated a proposal and review of

alternatives to provide charging capability at the field. The alternatives include solar, generator, and wind turbine. Chris Farley, Tim Wilkerson, and Steve Woodward are leading the analysis and data gathering. They discussed the current status of the planning. More to come on this at a future meeting as the project moves forward. Tim Wilkerson routed an email to all EBRC members requesting information to help evaluate the battery capacity needed. All members are asked to respond to Tim's email request of Saturday March 19 at 11:26AM with the subject heading of "Charging Station Usage".

B. New Member Applications - Jim Utley recommended 2 new applicants for membership in EBRC. They are Ricky Thrower and Michael Fann. Motion to Accept by Bob Donleavy, Second by Mitch West.

C. Jim Utley will procure a load of gravel to level some area around the transportainer and on the road near the inner gate.

Raffle Winners: Chris Farley, TimWilkerson, Mitch West, Jim Middleton, Bob Donleavy, Steve Woodard, Wayne Cook, Todd Meeter.

Meeting adjourned at approximately 10:35.

Board of Directors meeting

Meeting called to order at 7PM 3/15 by EBRC President Wayne Cook.

Attendees: Wayne Cook; Steve Woodward, Jim Utley, Donnie Otting, Tim Wilkerson, Todd Meeter, Chris Farley.

Topic of Discussion	Action Items/Notes
1. Safety Topics	Safety is priority #1 for the BOD and for all members. The BOD and the Safety Officer will be vigilant about promoting safety awareness, safety equipment, and safety practices at the flying field. Jim Utley agreed to make a current review of safety equipment at the field and to purchase any needed additional items. Tim Wilkerson will add safety narrative to the next newsletter and safety will be discussed at our next, and every, general membership meeting.
2. Gate Signage	
3. Treasurer Data	Two new membership applications (Rick Thrower, Michael Fann). Membership to be voted on at our next general meeting.
4. <i>The Carrier</i> Distribution Date, BOD Meeting Timing.	The General Membership meeting is typically the third Sunday of the month at the flying field at 10AM. The typical distribution timing for <i>The Carrier</i> will be 2 weeks prior to general membership meeting. The BOD meeting will typically be held the Wednesday before the General Membership meeting.

Topic of Discussion	Action Items/Notes
<p>5. Battery Charging Station At The Field</p>	<p>Charging Station alternatives considered include:</p> <ol style="list-style-type: none"> 1. Solar, 2. Wind turbine, 3. Generator pad (with ground) for (very quiet) personal generators. <p>Objectives:</p> <p>A charging station that is modular such that it can start simple, so that we can see how it works, and then, be expanded as the club membership needs grow.</p> <p>A system with built in safe guards for user safety and for protection of the system itself from over discharge and potential theft.</p> <p>A system that will supply power for the weather station and other needs at the field (7x24).</p> <p>Action Items:</p> <p>Tim Wilkerson to estimate the battery charging capacity needs at the field.</p> <p>Chris Farley to estimate how many and what type of battery banks are needed and the size of the solar panels needed.</p> <p>Steve Woodward to obtain price estimates for the needed solar panels.</p> <p>Wayne Cook to bring the subject up at our next general membership meeting.</p>

The meeting was adjourned at 8:40PM.

Tim's Tips



Tim Wilkerson

Cubic Wing Loading

Most RC fixed wing fliers are familiar with the idea of wing loading which is the plane weight divided by the wing area as seen from the plans. There is also another kind of wing loading, cubic wing loading that has some additional advantages.

2D Wing Loading

(Traditional Wing Loading)

This is calculated by taking the weight of the plane and dividing by the wing area. A good rule of thumb is for a 40 size trainer one would expect a wing loading of about 16oz/sq ft and will be a docile flier. Let's call this a 2D wing loading in this article.

This is a planform view of the wing area which was common in the older days as everything was built from two dimensional drawing plans. Today it's unusual to have a set of plans due to the proliferation of ARFs. However, the wing area is typically located on the advertising documentation and in the manual along with the expected build weight.

This wing loading is a good reference when planes are of similar size and can be roughly used to see how it will fly and to estimate

landing speed. However, this yardstick starts to fall apart if the size of the plane changes very much.

Cubic Wing Loading

(aka 3D Wing Loading)

There is another yardstick called cubic wing loading or 3D wing loading that is a metric that holds together as the plane change sizes. There is a little more math involved, but it's nice to see a figure of merit that works across the board. There have been magazine articles over the years on this topic trying to popularize the cubic wing loading which I have found to be interesting.

It's all well and good to have different yardsticks for different uses. One of the difficulties with having multiple wing loadings is that it is unusual to see the same plane scaled over a wide range of wingspan. So, it's sort of tough to compare because the plane itself is also changing.

Since I'm fond of 3D Hobby Shop planes these days, let's use them as an example. There is one model, a Slick which is a model of the full scale Slick Aircraft (www.slickaircraft.com) that is offered over a 3:1 range of wingspan, from 42" to 126" wingspans. 3DHS publishes wing area and target weights on their website so we can easily see how both types of wing loading metrics vary over the range of aircraft sizes.

Below is a table showing both 2D and cubic wing loading across a range of 3DHS Slick models and a mid range extra. Let's consider the slick at both ends of the range and note the range over which 2D wing loading changes as compared to the 3D version. On the 2D front, the 42" slick has a 2D wing loading of 12 oz/sq ft while the 126" slick has a 2D loading 35 oz/sq ft, 3:1 wingspan, a nearly 3:1 variation in 2D wing loading.

On the cubic loading side its 7.6 vs 7.8 respectively, wow. Even though the ends of the 3D scale are a bit less than those in the middle, clearly the trend can be seen that the cubic wing loading is near constant over the same 3:1

range of wingspan. While I haven't had the opportunity myself, I have read that there are a lot of similarities between the 42" and 126" slicks regardless of the wingspan variation. Clearly the 3D wing loading was used to target the weight of this modes.

Having just maiden'd my 71" slick, I have to comment that many similarities exist between the 51" and 71" versions especially in landing styles. Regarding weights I'm pretty close to below with the 51" at 4lb and the 71" at about 10lb.

MODEL	SPAN INCHES	CHORD INCHES	AREA SQ INCHES	WEIGHT OZ.	WING LOAD OZ/SQ FT	WING CUBE LOAD
3DHS slick 42	42		375	32	12.29	7.61
3DHS slick 51	51		525	62	17.01	8.91
3DHS slick 70	70		950	152	23.04	8.97
3DHS Extra 330SC	72		1000	160	23.04	8.74
3DHS slick 89	89		1500	288	27.65	8.57
3DHS slick 126	126		2900	704	34.96	7.79

Wing Loading Comparison, 3DHS Slicks and an Extra

Following is another table of a wider range of aircraft with similar calculations from a spreadsheet I found on the web. While I might not always agree with the subjective categorization as "gentle" and "nice flying", it does serve a purpose of categorizing many aircraft in a relative way and certainly the relative classes are ranked appropriately. Some of the models might be familiar. If you have some of these aircraft and have flown them, you might have first-hand experience on how the plane feels; if it's heavy, trainer like, etc. I try to relate how the plane feels to the cubic wing loading column on the far right. Doing this you can start to develop an intuitive view of

otherwise unfamiliar aircraft before even touching them or shelling out the cash.

It seems this table was developed from mostly non electric types but that's ok, most of us came from that space anyway. Also note that within a range of aircraft there is some variation in wingspan, some as much as 2:1 or more. I added my Electrostik to the table where it seemed to fit regarding cubic wing loading and it shows up in the "Gentle Planes" section; I would have to agree it is a gentle flying plane and very forgiving especially considering the original CG placement and how far I moved it before even approaching the Neutral Point as

described in a previous article on Trimming with CG Placement.

MODEL	SPAN	CHORD	AREA	WEIGHT	WING LOAD	WING CUBE
	INCHES	INCHES	SQ INCHES	OZ.	OZ/SQ FT	LOAD
THE "GENTLE" PLANES						
SIG KADET SENIOR .40	62		1150	96	12.02	4.25
SIG KADET SENIORITA .25	63		746	60	11.58	5.09
Grt Planes Fokker Triplane ARF	180 total		1367	160	16.85	5.47
GP U-Can-Do 3D .40 ARF	56.75		904	88	14.02	5.59
GP U-Can-Do 3D .60 ARF	65		1024	124	17.44	6.54
HORIZON HOBBY FUNTANA	56		714	80	16.13	7.25
Revlution Q500	50	10	500	56	16.13	8.66
electrostik	51	11.5	586.5	60	14.73	7.30
THE NICE FLYING PLANES						
SIG SOMETHIN' EXTRA	51.5		614	72	16.89	8.18
GP RYAN STA	82		1066	165	22.29	8.19
Dymond REARWIN ARF	100		1600	312	28.08	8.42
SIG ASTRO HOG	71		824	116	20.27	8.47
SIG SKYBLT	102		798	112	20.21	8.59
SIG SMITH MINIPLANE	84.5	8	676	88	18.75	8.65
SIG 4 STAR 40	47		604	76	18.12	8.85
GP Giant 300L kit	100.5		1670	352	30.35	8.91
SIG 4 STAR 60	70	13.5	945	150	22.86	8.92
J3 CUB (World Models ARF)	72	10	720	100	20.00	8.94
GP DAZZLER .40	48		578	72	17.94	8.95
HOBBICO AVISTAR 40	59.5		602	80	19.14	9.36
GOLDBERG ULTIMATE BIPLANE	107		980	168	24.69	9.46
GP PT-40 TRAINER	60		515	64	17.90	9.46
GETTING MORE ADVANCED						
Pica Spitfire .60 kit	65		714	112	22.59	10.14
GP Extra 300S .60 kit/ARF	64		744	120	23.23	10.22
SIG SPACEWALKER II /G23	13.5	84	1134	232	29.46	10.50
SIG 300 XS ARF	74		990	200	29.09	11.09
F20 TIGERSHARK	47		535	80	21.53	11.17
GP P51 Mustang Kit	57		580	96	23.83	11.88

Lightly loaded planes

MODEL	SPAN	CHORD	AREA	WEIGHT	WING LOAD	WING CUBE
	INCHES	INCHES	SQ INCHES	OZ.	OZ/SQ FT	LOAD
GETTING MORE ADVANCED						
Pica Spitfire .60 kit	65		714	112	22.59	10.14
GP Extra 300S .60 kit/ARF	64		744	120	23.23	10.22
SIG SPACEWALKER II /G23	13.5	84	1134	232	29.46	10.50
SIG 300 XS ARF	74		990	200	29.09	11.09
F20 TIGERSHARK	47		535	80	21.53	11.17
GP P51 Mustang Kit	57		580	96	23.83	11.88
THE HEAVY IRON						
Top Flight Gold P51	65		734	144	28.25	12.51
GP 40 Spitfire kit	55		526	88	24.09	12.61
Top Flite Gold P47 Thunderbolt	63		713	144	29.08	13.07
Top Flite Gold Corsair	62		700	144	29.62	13.44
AT6 (Great Planes .40 ARF)	60		558	104	26.84	13.63
THE LEAD SLEDS!!!!!!!!!!!!						
Top Flite Gold Spitfire	63		687	154	32.28	14.78
Top Flite Gold P40	54		697	160	33.06	15.03
SNJ (Top Flite Gold AT6)	69.4		713	168	33.93	15.25

More heavily loaded planes

The original excel spreadsheet is posted on the EBRC website at the following link (thanks Chris!). If you have Microsoft Excel, just download the spreadsheet and you can plug in your own model parameters and the 2D and cubic loading will be calculated for you.

http://www.eastbayrc.org/articles/Model_Flight_Performance_Chart.xls

There is a section on Ritewing that you can over write, or just highlight the line and insert a new line that you can populate. If you have trouble, drop me an email and I'll be glad to help.

More details

Below are the specific calculations done in the spreadsheet. You can do them by hand with a scientific calculator or on any computer with the built in calculator placed in scientific notation. Or you can just use the spreadsheet.

WING LOADING (2D)

$$= \text{Weight(oz)} * 144 / \text{Wing Area(sq in)}$$

$$= \text{Weight(oz)} / \text{Wing Area(sq ft)}$$

WING CUBIC LOADING

$$= \text{Weight(oz)} / \text{Wing Loading} ^ 1.5$$

Note: Wing Loading ^ 1.5

$$= \text{Wing Loading} * \text{sqrt}(\text{Wing Loading})$$

where sqrt is the square root.

Some Additional Calculators

<http://www.ef-uk.net/data/wcl.htm>

Other links

<http://www.rcgroups.com/forums/showthread.php?t=1203370>

Cubic wing loading offers some advantages when comparing flight characteristics of models of different sizes. It's a nice addition to the toolbox.

Happy flying.



Middleton Mustang (Ken Busse photo)



Wilkerson 71" Slick maiden, 3/27/2011, (Jim Utley Photo)

8S4000, 18x8, ~10lb, 89A, 2900W static

Crash Report. Well, clocked my (Tim's) slick51 last evening. About 6:30, sun was low in the west, inverted flat spin, plane in shadow, lost orientation, hesitated, boom. Broke wing tube(carbon fiber), former under back of battery tray, prop, a couple of stringers on the left side behind canopy, couple of other minor things. Maybe my 51 was jealous of my new 71. Fuse remains strong even with damage, electronics is intact, landing gear intact, wings are fine. Fuse kits are on backorder, not sure next step at this point.



Tim's clocked slick51, 4/1/2011 April fools day

General Items

Weather Stations

EBRC Weather Station

Go to www.eastbayrc.org and click on the weather link (blue box). This will give you current weather status in a nice display with current temp and wind strength and direction. Under this display is another link that will give historical versions of the same data so you can see, for example, what the wind has been doing all day up until current time.

Livermore Airport

www.usairnet.com/cgi-bin/launch/code.cgi?submit=go&sta=klv&state=ca

Bay Area wind patterns

www.usairnet.com/cgi-bin/launch/code.cgi?submit=go&sta=klv&state=ca

For Sale or Trade

Looking for old ignition engines, Cox RR-1's and any parts of any kind you might have and also interested in multi cylinder ignition and multi cylinder glow motors. Contact Steve Woodward, 925-858-1741 cell or scw1@pge.com

Reference Sites and Links

Introduction to Electric RC Airplanes

<http://www.rctoys.com/pr/2008/05/09/introduction-to-electric-rc-planes/>

Glow to Electric Conversions

<http://www.rcgroups.com/glow-to-electric-conversions-247/>

Power Systems

<http://www.rcgroups.com/power-systems-13/>

Castle Power Calculator

<http://www.brantuas.com/ezcalc/castlecalc.asp>

Scorpion Calculator

<http://www.rcgroups.com/forums/showthread.php?t=736782>

Electric RC Calculators

http://scriptasylum.com/rc_speed/index.html

Wing loading calculator, 2D and 3D

<http://baylandsrc.com/viewtopic.php?f=10&t=26&sid=2e57de371239ea545bad5e3e9cfc04bf>

Battery University, offered by Cadex (vendor)

www.batteryuniversity.com

The Jig's Up, This was mentioned in Wayne's past President's Corner. Very nice tool, bought one myself.

<http://thejigsup.net/>

Other local forums


BayRC. This encompasses many south bay flying locations as well as the classic forums. Heavily trafficked.

<http://www.bayrc.com/boards/>

Baylands RC. Seems someone started a separate site for Baylands although the site is also included in BayRC.

<http://baylandsrc.com/>

Good Electric Hobby Shops



Victors Hobbies

Create a delightful pastime

39269 Cedar Blvd
Newark, CA 94560
(510)796- 8049
victorshobbies@sbcglobal.net

HobbyTown
4420 Treat Blvd.
Concord, CA
925-685-3820

HobbyTown
Fremont Hub
39152 Fremont Blvd
Fremont, CA
510-796-2744

AeroMicro

The Source of RC Supplies

2090 Duane Ave
Santa Clara, CA 95054
408-496-6699
408-496-6669
info@aeromicro.com

Perry Lee
Tu-Sa: 10am-6pm; Su: 11am-4pm

<http://www.AeroMicro.com>

RC Country
6011 Folsom Blvd
Sacramento, CA 95819
916-731-5868

Events

I'll try to keep updating this as things come up. If anyone becomes aware of events, please forward them to me and I'll maintain and publish a consolidated list. Thanks in advance.

Event, Location	Date	Link
Toledo RC Show Toledo, OH	April 1,2,3	http://www.toledoshow.com/
Float Fly design challenge San Luis Creek, CA	April 9	http://baylandsrc.com/viewtopic.php?f=5&t=4&sid=906e4ff0e6ebf43b5c11e0d432b62400
SEFF Americus, GA	April 11-16	www.seff2011.com
Rcgroups event repository		http://www.rcgroups.com/electric-flight-events-14/

Other News

Charging Station

As many already know we are in the process of planning a battery charging station to be constructed at the field. This will provide 12VDC to power your personal battery charger. Connections will be with banana jacks and a bussing system for clamp on connectors.

So we can ensure to have enough capacity to go around, we need to plan the size of the station so we build it big enough for everyone's needs. If you haven't already sent me your information please do so in an email. We're not so much interested in all the batteries you may have, but rather the types you might charge at the field. The expectation is that we all come to the field with all batts charged, then replenish depleted packs to get additional flights.

Please send me the following for each battery type you plan to charge at the field and I'll add it to the list.
twilkers@comcast.net

Name

Number of cells

maH

Number of times you will charge this battery type

Days of the week you typically fly

For me, as an example

Tim Wilkerson 8S4000, 2, Sat, Sunday, weekdays lunch occasionally
4S2500, 2, Sat, Sunday, weekdays lunch occasionally

Safety Related

Frequency Pins

It seems several of the frequency pins are missing, specifically channels 22, 25, 27, 38 and 42. While many pilots have made the switch to 2.4, many have not. Leonard was at the field recently and happens to be on channel 38 where there is no pin, so he had to check with everyone to make sure no one was on his frequency. If anyone has the missing pins, please show the courtesy to the other pilots and the club to return them to the field or just drop them in the mail.

Crash Control

We are approaching the summer flying season. In light of increased rain and increased growth, all members must be vigilant about fire prevention and control. So we can increase safety at the field, the Board will be adding equipment conveniently located that can be used to quickly control a fire, however it might start. It is imperative that all members immediately address and control any fire at the field so that it doesn't get out of control.

Several flight stations will be outfitted with a package of equipment to help to control any situations that might arise. These will be located at either end of the field as a minimum so they are within easy and quick access should a plane go down. Each package will include a fire extinguisher, a bucket with sand, and a shovel. This equipment will be light enough to be quickly transported to the location and put to use although it might take more than one person.

In general, in the event of a crash, the membership is requested to stop flying for safety and to rally to the crash site and actively control the situation to limit its spread. Use sand to extinguish persistent stuff, make sure spread is contained, cleanup. A disposal container will also be provided to deposit any residual materials.

If/when something happens please let the Board know so that stock can be replenished.

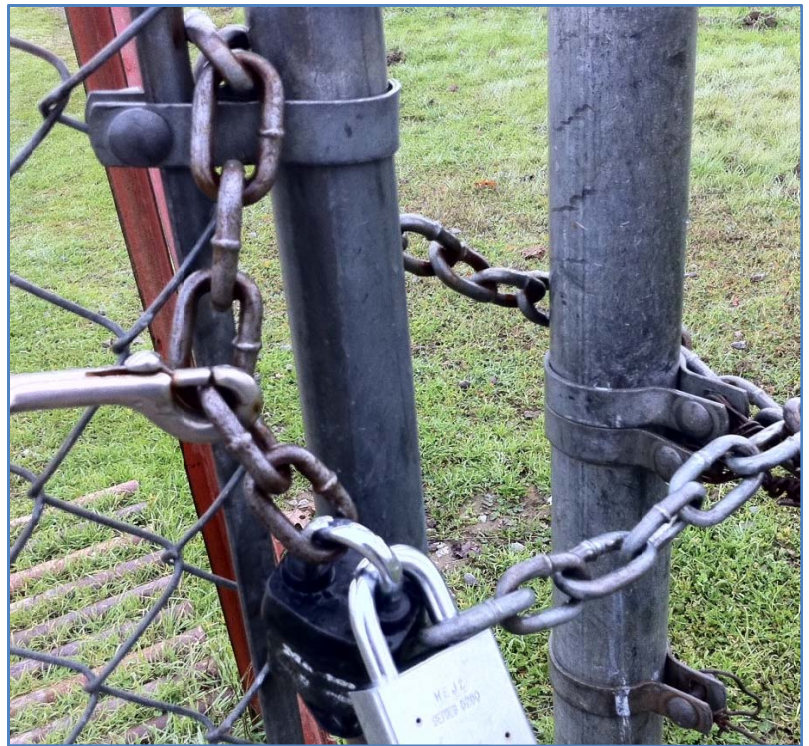
Odds and Ends

I came across this on the castle creations site recently.

3. When I plug in my high voltage battery pack (4s-12s lipo, 12-20 NiMH) into my Phoenix HV or Phoenix-125, etc. controller there is a large spark. Why?

The spark is your friend. If ever you plug your pack into your controller and you don't see the spark, contact tech support at support@castlecreations.com or (913) 390-6939 and send the controller in for repair. Your capacitors will need to be changed. **NEVER** fly if you do not see the spark, especially with high voltage applications! The higher the voltage, the bigger the spark should be. **Remember, the spark is your friend!!!**

How to lock the outer gate. Notice how the two locks are interconnected. Each end of the chain goes to a separate lock then the locks are connected together. The intent is that, in an emergency, either lock can unlock the gate. Otherwise, the emergency personnel will have to cut the lock which is not good.



Please remember to close the gate. It seems our neighbors at the dog park may not be as conscientious as we are.

