OFFICIAL NEWSLETTER OF
SANDERSON FIELD R.C. FLYERS
SHELTON, WA

NOVEMBER 2010
VOLUME XIII ISSUE XI

SANDERSON FIELD R.C. NEWS

New lease agreement discussion

AMA
CHARTER NO. 3079

CLUB MEETING

This months meeting will be held on Thursday November 11th from 7:00 p.m. Doors open shortly after 6:00 p.m..

at PUD #3

At 3rd & Cota

Minutes were read and accepted as read.
Treasurers report was read and accepted as read.

Old Business:
Dates and intent will be submitted to the Port on the 15th. There have already been scheduled 5 days for car clubs.

New Business:
Dick Robb noted that if we want to have a Halloween display at Hunters we need to put a work party together as the field is in bad shape. It's flyable but only just. The road has been graveled and is in pretty good shape.
Chuck asked if there was interest in doing the display, dates available are 16th, 23rd and the 30th. There was not much interest but we will try for the 30th. Chuck will talk to Paul Hunter about the wagon loads of people driving on the road behind us instead of out in front.

Chuck suggested we try to get the PUD auditorium for a micro plane/ helicopter fly-in. Possible dates are: Oct. 23rd, Nov. 13th, Dec. 18th.

Dick Robb mentioned we should have more events at the grass field. He also noted that the Nahwatzel float club will be hosting a float event at lake Isabelle for the Olympia club in June.

Chuck proposed that we have a

mini swap meet at every meeting, if you have something to sell, bring it. We will set up a table for the purpose if anyone wants to do that.

There were a bunch of used engines from the John Bowcutt estate for sale.

Meeting adjourned 7:50

This months meeting is important! There are big changes coming with the new lease agreement. Among the big changes, we will no longer have priority when scheduling our fly-ins and we will have to pay the daily use fee when we do schedule something. This year the use fee was $275 per day and $100 per event for the sani-can. This fee will likely increase for 2011. We have been told our lease fee will remain the same as this year however the contract has not yet been finalized.

If you want any input, COME TO THE MEETING

We will also need to get the Christmas party ironed out.

MICRO FLY-IN

The club held a micro plane/helicopter fly-in at the meeting place on October 23rd. It turned out well and we scheduled one for November 13th and December 18th. Come check it out. There will be coffee and doughnuts.

Engines for Sale

We will bring the used engines again this month. Prices will be $20 for .30 and above and $15 for .25 and below. We will also be bringing some new engines with prices as marked. If you have any engines you want to sell bring them along lets make it a swap meet.

Used engines

Cox .049
OS Max 10
OS Max III 15 (2)
OS FP 20
OS Max 20 (3)
OS FP 25
OS Max 25
OS Max S 30
OS SF 40
OS FP 40 (6)
OS LA 40 (1)

Webra 6.5 CCM

Thunder Tiger 15

ASP 46
Royal 46
Tower Hobbies 46
GMS 2000 47 (2)

K&B 40
K&B 61

Fox Eagle 60
Fox 78
Enya 60 2C

New Engines

OS 20 FP
OS 40 LA
OS 40 FP
OS Max 50
OS FS 75 4C

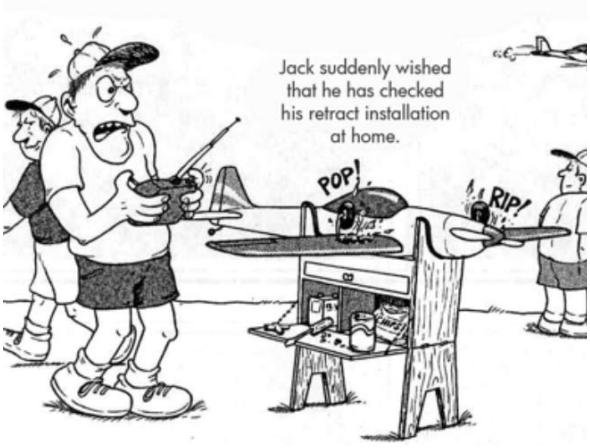
K&B 65 Sport (2)

Enya 46-4C II

MDS 40

SuperTiger S 2000

Cox tee dee .010



Misplaced CG

From the Greater Detroit Soaring and Hiking Society

Misplace Center of Gravity
Misplaced center of gravity (CG) is a perennial killer of newbies and old pros alike. Since it's almost building season, this is a good time to go over the basics. A new airplane with the wrong CG location is almost a guaranteed crash. (I can write authoritatively about this since I've screwed it up so often myself.) If you're an experienced builder/pilot please bear with me, I'll try to pass information to the newer guys without talking down to you.
The basic deal: any and all airfoils in any fluid—air, water, peanut oil, whatever—share this perverse characteristic: when they move through a fluid at a slight angle (the angle of attack), they experience lift forces that act "as if" they are ahead of the CG. This effect makes the foil want to tumble. We've all seen this since we were kids. When you toss a simple strip of wood or a wing-shaped piece of paper and expect it to fly, it won't! It starts tumbling right away.
To stabilize the main wing, most

Misplaced CG (continued)

airplanes (and birds) use the same approach. The CG is placed a small distance forward of the center-of-lift of the wing. The slightly forward CG overcomes any natural pitching-up moment of the main airfoil and makes the "plane" want to pitch forward and down. This overall pitch-down tendency can then easily be controlled by a force (normally down) from a stabilizer/elevator mounted rearward of the main airfoil.

You might ask why the initial step of adjusting the CG ahead of the foil wasn't good enough to control the foil. Why do we need the additional step of adding a rear stabilizer? The answer is that the CG needs to be only a very small distance ahead of the center-of-lift and, if the wing has no other form of stabilization, its location is sensitive and difficult to maintain. On the other hand, a small stabilizer mounted some distance behind (or ahead of the wing as in the case of a canard) makes the job relatively easy. The farther away from the CG the stabilizer is located, the smaller it needs to be. At the extremes, planes with long fuselages like a Blaster hand launch or a super-ship can use what appears to be a relatively small stabilizer. Aircraft with very short distances from CG to stabilizer need relatively large stabilizer-elevators. Flying wings recurve the entire airfoil or use full-span elevons to act as stabilizers.

Let's go through some of the implications of CG location: The farther forward of the airfoil center of lift you put the CG, the more stabilizer down force you need. Generating lift, even in the down direction, generates drag. The more lift, the more drag. So, a plane with CG too far forward will need a stab set to a high-lift, high-drag condition in the down direction. Think of the center of lift of the main wing as kind of a fulcrum or pivot point. The farther forward the CG is from that point, the longer its effective moment arm becomes and the harder it is for the elevator at the other end of the "Teeter-Totter" to swing it around. This makes the model less responsive to elevator control and the airplane can feel sluggish. (This is only a partial reason for control insensitivity but I won't turn this article into a book.)

Even though forward CG makes an airplane less sensitive and increases overall drag slightly, the slower response time can be a good thing for beginners if it isn't overdone.

Going the other way: as CG is moved rearward and closer to the center-of-lift, the required stabilizer down force will decrease and the airplane will become more sensitive to elevator, but eventually the model will get twitchy and hard to control. If the CG gets on top of the center of lift, the plane will become neutrally stable and won't automatically tend to pull out of a dive. It's for this reason that we use a "dive test" to help fine-tune the CG location. It's not a perfect test, but it is helpful. If you're not familiar with how to do it, ask one of the old dogs.

Okay, but you've gotta get the plane set up initially before you can even go out and do a dive test ... how do you get close "on the bench?" Mother Nature helps us here, because the center of lift of almost all airfoils tends to act as if it's at a point about 25% from the leading edge of the wing. (To become more accurate, it's 25% of the "effective chord length" for the leading edge of the "effected chord.") A simple general rule is that the CG should initially be set at 23-25% of the average chord of the wing. (For a flying wing this should be 16-20% of the effective chord.)

Most modern kits and plans show an initial CG location, but a surprising number of older kits don't. And, more troubling, even with modern kits, some of the locations shown are just plain wrong! If you don't know how to determine the effective chord for a given wing, I can quickly show you how.

I don't mean to belabor the moment-arm thing, but the longer the relative moment arm of an airplane (the longer the wing-stab distance of the "longer legged" plane is), the more tolerant it will be of CG location. A long-bodied glider with CG at 33% might fly beautifully while a short-bodied fun-fly plane or scale model with CG at 33% could be uncontrollable.

Be smart: make darn sure that the CG is at or slightly forward of the 25% point for your initial flight with a new plane! Don't bring it home in a garbage bag! After you know how the thing flies, you can adjust the CG rearward to suit your own nervous system.

Last year Wolfie talked me into buying one of the Great Planes balancing stands. If I recall it was about 19 bucks but it's been the best plane saver I've had for some time. When I started using it I was embarrassed to find that the CG locations of some of my planes weren't where I thought they were. I'd been careful balancing them with wing supports, string hangers and so on, but they were off enough to make the planes seem like poor flying machines. They weren't. They were just improperly balanced.

Have fun, lead a balanced life!

Servo Arms

From the Rocky Mountain Flying Machine, Albuquerque, New Mexico
by Richard Lindberg

"Those pesky servos—why can't I ever find one that's properly centered? Every time I attach an arm, it seems as though the servo center shifts! What's going on here?" Sound familiar? What causes this and what can you do about it?

All (standard-sized) servos today have splined shafts on which those servo arms are bolted. The problem arises because of the number of splines (teeth) on those shafts—

Airtronics and JR use 23 splines, Hitec uses 24, and Futaba uses 25. (Your radio may be different—grab a servo and count the splines on the shaft to find out. Use a magnifying glass!) This is a really neat feature, and you should take advantage of it when you set up your airplane! Put a servo arm on a servo. Now, every time you lift and rotate the arm by one spline, you change its position by a fixed number of degrees: for Airtronics or JR, this is 15.65°, for Futaba its 14.4°, and for Hitec it's an even 15°. The formula is simple: 360° divided by the number of splines. Now consider that your servo arms have an even number of fingers—two, four, even six. You can see by experimenting that rotating the servo arm and putting each finger as near as possible to where its predecessor was (about 90°, or 180°, or 60°) will result in a shift in position of 3.91°, 3.6° or 3.75° for Airtronics/JR, Futaba, and Hitech respectively. The formula is equally simple: 360° divided by (the product of the number of splines times the number of fingers). So, for Futaba, finger one is assumed at 0°, finger two (rotating clockwise) is placed at 3.6° offset, finger three at 7.2°, and finger four at 10.8°. (For Airtronics/JR, use multiples of 3.91°, and for Hitec use 3.75°.)

"Whoa, that's too complicated for me!" I hear you exclaiming. Well, don't worry about it—just keep rotating and pressing on the servo arm until you get a finger as close as possible to that magic 90° position.
One of those fingers will be right. (Actually, Futaba makes it simple—the fingers are numbered! Choose number one and you're there. JR has a raised dot in the lower right of its number one finger. It doesn't matter as much with Hitec, as there are even numbers of splines, and two of the fingers (out of four) will be right at any time.

Incidentally, the number of splines being different is the reason why servo arms are not interchangeable between servos of different brands—don't try to use Futaba arms on JR servos, etc.

This also clears up the apparent servo-centering shift. Most of the servos today have electronics that are so good that mechanical centering is a thing of the past and isn't necessary. If you in fact have a servo that won't center properly, or consistently, it's probably bad! Send it back for repairs!

Dues are $100.

If you pay by mail send your dues, proof of 2010 AMA membership and a self addressed stamped envelope to the Treasurer:

Chuck Kentfield
3122 Madrona Beach Rd.
Olympia WA 98502

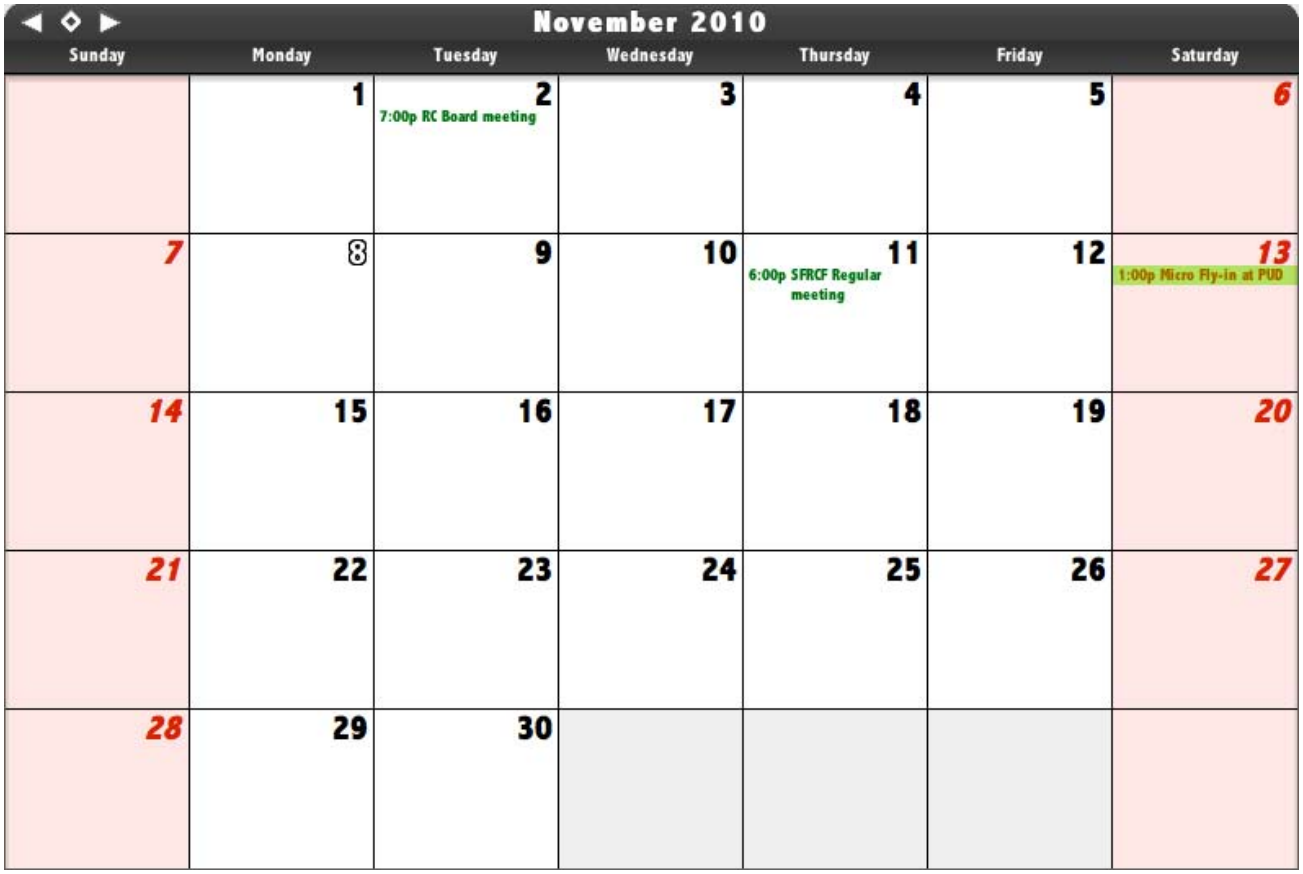
Make checks payable to SFRCF

Club Officers

President	Eric Oberg	(360)789-6011
Vice President	Burt Daggett	(360)427-6653
Treasurer	Charles Kentfield	(360)866-9473
Secretary	Bob Beatty	(360)426-5601
Safety Officer	John Tupper	(360)426-6383

Board Members

Board Member	Eric Oberg	(360)789-6011
Board Member	Jody Diaz	(360)427-6102
Board Member	Stacy Myers	(360)426-9367
Board Member	Bob Beatty	(360)426-5601
Board Member	Burt Daggett	(360)427-6653
Alt Board Member	Bob Mason	(360)426-9256
Alt Board Member	Chuck Kentfield	(360)866-9473



Surprise, Surprise, no one wants to use the runway this month.

http://sfrcf.quintex.com/event/events.html

Event dates in black or red are scheduled. Events in gray are done.

Club Scheduled Events for 2010

January 1st.....First fly of the year
April 25th .....Pylon Race - Come out and help officiate
April 17th .....Sanderson Field RC flyers annual swap meet 9:00 to 12:00 SHS Sub
May 23rd.....Pylon Race - Come out and help officiate
May 15th.....Public Fly-In - 9:00 a.m. to ?????
June 5th.....Forest festival Parade float
June 12th.....Public Fly-In 9:00 a.m. to ?????
June 26th-27th.....Pylon Race - Locked
July 17th.....Scale fly-in/Public/potluck BBQ - 9:00 a.m. to ?????
July 31st .....Fun Fly/BBQ potluck 9:00 a.m. to ????
August 14th.....Fly-In 9:00 am to ????
August 21st-22nd ....Pylon Race North vs South- Locked
September 11th .....Fun Fly/Potluck 9:00 a.m. to ???? Cash Prizes
~~October 9th.....Fly-In 9:00 a.m. to ????~~ Cancelled
November 13th.....Micro fly-in 1:00 pm to 6:00pm at PUD
December 9th .....Christmas Party 6:00 p.m. to 9:00 p.m. (potluck)

It's time for 2011 dues, dues are $100.00

Check out our web site at http://sfrcf.quintex.com