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

AUGUST 2009
VOLUME XII ISSUE VIII

SANDERSON FIELD R.C. NEWS

AMA
CHARTER NO. 3079

Fly-in Aug 22nd
Pylon Race Aug 29th - 30th

CLUB MEETING

This months meeting will be held on Thursday August 14th from 6:00 p.m. to 9:00 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:

We had a good turn out at the Hunters farm fly-in.

Gordon Osberg asked where the lock on the porta potty at Hunter farms went. (it's in the office at the store).

Dick Robb suggested that we only have the porta potty only brought out for events. Eric Oberg was of the opinion we should have it full time but leave it unlocked. Consensus was to leave it for now and see how it goes.

New Business:

Food at the Scale fly-in? Dick Robb motioned to have a Pot luck. Motion carried. I'll start a list.

Bob Treinen offered to store the second canopy so we have a better place to put the BBQ. Dick Robb has repaired the old one but it's in pretty bad shape from being put on top of the canopy for storage. Dick Robb suggested we need a new BBQ for next year.

Dave Fisher mentioned that we need to get people committed to working the pylon race so we have some kind of idea how many more people we need. I will send another email asking for a commitment.

Show and Tell:

Eric Oberg showed his Multiplex electric glider with folding prop. It has plug in connectors in the wing so you have no wires to mess with when assembling for flight.

Meeting adjourned 7:45

The swap meet at the Yard Birds Mall in Chehalis is the first and second of August, from 9-6 both days. Admission $2.

Weather for the Scale fly-in was poor at best! The morning had low clouds and poor visibility. The afternoon was windy.

Servo Setup Issues

This Article was written about giant scale planes, however a lot of the information is useful in general modeling. Editor

Servo Setup issues

This following setup problem is serious enough that we are not waiting for the next edition of Gas Engines Giant Planes to make the update on this subject We are including it at no charge with your new copy of Gas Engines Giant Planes.

I take several calls or visits per week from modelers who have hot running or burned out digital servos, melted wires or extensions and are needlessly crashing planes because of improper setup of digital servos, linkages or radio programming Additionally receiver reboot issues is not a new problem 15 years ago we called it battery dropout and its caused by the same things today that it was caused by 15 years ago If your 6v system (7-8.4V nominal pre-regulated voltage) is running at 3.4V you've got a problem with the setup of your plane.

Modelers often believe the malfunctions to be the result of faulty components or the unnaturally high current flow for digital servos" when it is the improper setup. That has caused the high current flow and resulting damage or receivers that shutdown due to lack of power. Also, you may have heard that you shouldn't use a digital servo on throttle because you will bum it up You will burn it up if you don't set it up correctly but that's a modeler issue not a servo issue. See Below

To handle the higher current rates caused by improper setups modelers often believe they need and use 16 gauge wire and PowerPoles or Deans connectors power isolation systems and other gadgets. While it is not wrong to use these items, these components often mask the true nature of the problem Often the fix is to treat the symptom rather than address and fix the problem I believe we should fix the problem.

Let me give you the typical symptoms Modelers who set up their planes, without using a current meter to properly adjust multiple digital servo linkages, that are driving a single control surface will often experience high idling current, high battery drain, hot running or burned out servos or regulators, erratic operating servos receivers and regulators and in worse cases, system shutdowns from melted wires, burned out servos, overheated regulators or receiver reboots. In short modelers are needlessly punching planes in the ground from not understanding the cause and effect of their improper setup

When modelers set up their planes without using a current

Dues are $100.

If you pay by mail send your dues, your old key, proof of 2009 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)426-8777
Vice President	Dick Robb	(360)427-4521
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)426-8777
Board Member	Dick Robb	(360)427-4521
Board Member	Jody Diaz	(360)427-6102
Board Member	Stacy Myers	(360)426-9367
Board Member	Bob Beatty	(360)426-5601
Board Member	Dave Fisher	(360)490-2338
Alt Board Member	Bob Mason	(360)426-9256
Alt Board Member	Chuck Kentfield	(360)866-9473

Servo Setup Issues (continued)

meter, the above symptoms or failures often occur. The root cause of "abnormally high current draw" is the servo preload or linkage binding that occurs when digital servos are not set up properly. It is virtually impossible to accurately set up travel adjustments without a meter because digital servos have 5 times the centering accuracy of a analog servos. What does this centering accuracy mean in practical terms relative to your setup?

When a standard servo moves from full left to full right the servo moves 1024 incremental steps from stop to stop. A digital servo uses 5120 steps to travel the same distance from stop to stop hence 5 times the centering accuracy. If you are not in perfect alignment one servo will fight the other servo (high current flow, hot regulators etc.)

Unlike a standard servo, when a digital servo feels resistance from any source the servos respond virtually immediately with high torque and holding power causing high current flow.

Analog servos by comparison take several degrees of travel before they ramp up to their max torque and holding power. Coupled with the poor centering accuracy of an analog, relative to digital servos, modelers can get away with sloppy setups with analog servos that would crash the same plane if it were set up with digital servos

Misaligned linkages, Tail wheel binding, hinges or sub trim not adjusted correctly, endpoint and misaligned midrange adjustments always cause high current flow, hot running regs or servos, high battery draw and/or erratic running servos or receivers and with the latest 2.4GHZ receivers a receiver reboot is possible.

Incidentally this receiver reboot problem is not new or limited to 2.4 gig systems. Years ago we called it battery dropout.

While it is certainly possible to get a new defective component that can cause these same symptoms, the common cause of these problems is due to servos fighting each other due to improper setup. In extreme cases servos can actually melt due to the setup error.

A digital servo's normal idling current is somewhere in the 10-20 mah range It depends on the brand and the servo size so check your servo specs My 40% Carden with 13 JR 8611 and JR 8711 digital servos has an idling current of approximately 200 mah with the plane sitting on the ground. If your servos are drawing more than 10-20 mah you've got a problem.

To test your setup plug the current meter between the servo and the receiver to measure the current flow to the servo. One can immediately see if there is binding because of abnormal meter readings.

With your aileron or elevator surfaces in neutral you should be reading your servos idling current. If your meter is reading more than idling current , there is a problem that will result in increased battery draw, hot or burned out servos, melted wires or regulators or systems shutting down .

The 3 setup Issues to electronically measure with a current meter is:

- Subtrim
- End point
- Midrange travel

Procedure (Travel adjust radio program should be set to max 140-150' to obtain the best servo resolution before connecting and adjusting your setup).

Subtrim (neutral)

With the radio turned on plug in one of your wing servos to the current meter and plug the current meter into the receiver or matchbox. Read the meter if the reading is not showing the proper idle current for your servo this tells you one servo is fighting the other. Take out your prolink wrench and mechanically adjust the turnbuckle If the reading gets worse turn it the other way to null out the preload on your servo

Endpoints

With the meter still plugged in move your aileron stick to

Servo Setup Issues (continued)

full right deflection. Watch the meter. When your ailerons are fully deflected against the stop you should be reading idle current. If your ailerons bottom out and the servo continues to travel the servo will stall and draw high current Reduce this travel overdrive by moving the linkage connection out on your control surface or in on your servo. Reducing end point travel either through the matchbox adjustment or through your radio programming is the next step for fine tuning the total travel.

Repeat the process by moving the aileron stick to the full left position and nulling out any preload using the same process described above. On throttle make sure the servo does not overdrive the idle and high speed stop (burned out servo)

Now for the midrange travel

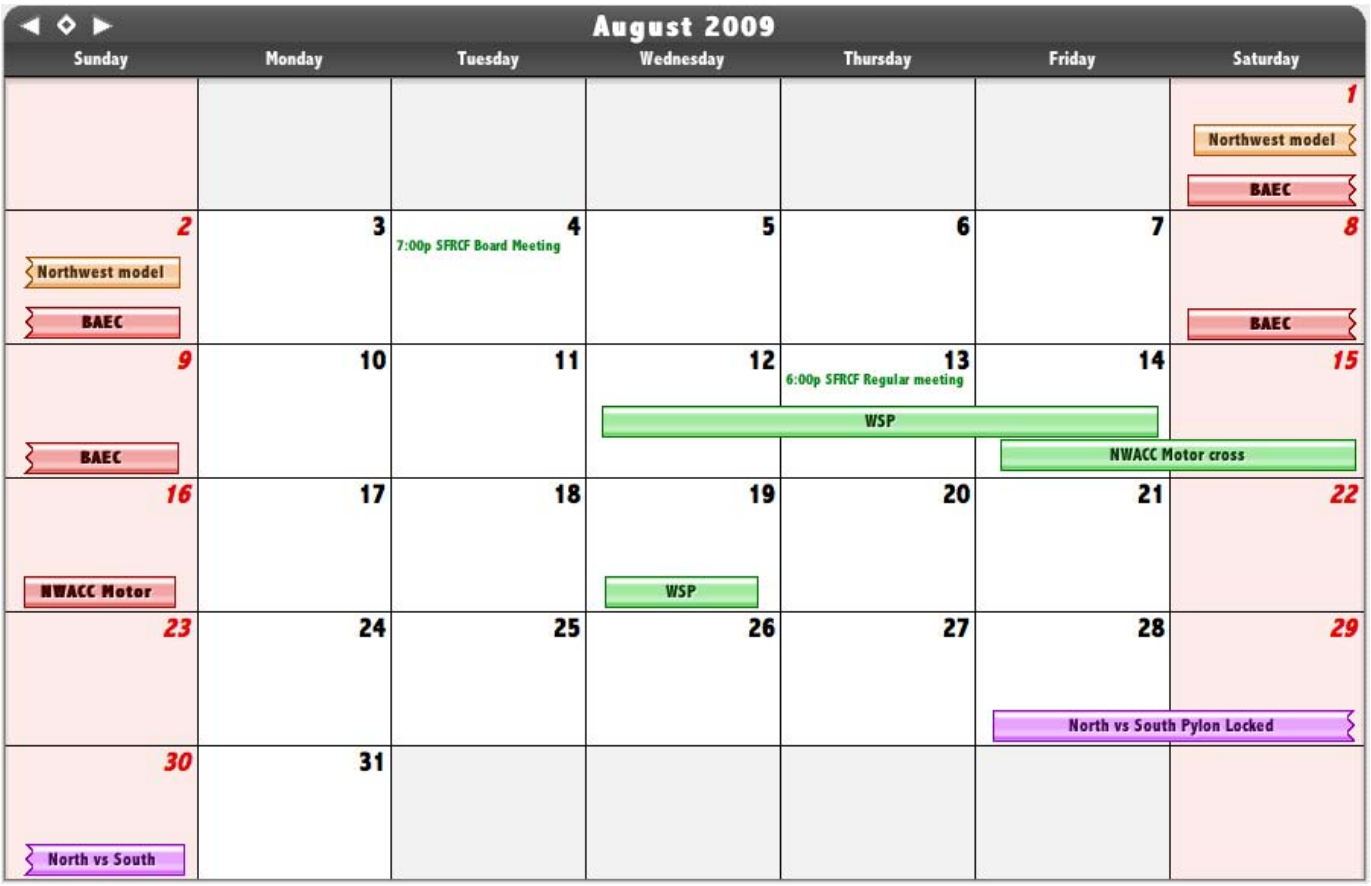
Move your stick 1/2 way If your full travel is 40 degrees move the stick so your surface travels 20 degrees Check the current reading. If it jumps in the mid travel this tells Is you your linkages are not properly adjusted When using bolt linkages such as 8/32 or 10/32, with linkage fittings screwed onto the bolt, the binding at this point is caused because the fitting that the pushrod is connected to, is not connected the same distance from the hinge line. In other words, to illustrate this issue let me exaggerate the problem If you are 20 turns out from the hinge line on one bolt and 10 turns out from the hinges line on the second bolt the mechanical connection may scribe a 1 1/2" radius on one servo and a 2" radius on the second servo. Now you can visualize the binding that takes place if these linkages are not set up in perfect parallel symmetry

Disconnect the linkage and turn the fitting in on the bolt a few turns. Reconnect the linkage and read the meter If the reading is worse disconnect the linkage and go in the other direction until the preload is nulled out. Note, you can check your servo with the linkage disconnected to see if you have a defective servo. If you are drawing more than idle current with no linkage hooked up the servo may be defective (not likely but not impossible).

Now you can see why so many modelers, who don't perform these checks, burn out regulators and servos, draw high current resulting in batteries that drain after just a few flights. The impression to the uninformed is the battery, servos, switch or receiver is defective when the root cause is improper setup. The fix is not to install heavier wire, big connectors, power isolation systems and a host of other gimmicks to compensate for their problematic setup. The fix is to set the plane up correctly. While its not wrong to use these items, all of these devises are unnecessary if the systems are set up properly.

These setup errors often times cause planes to needlessly crash with the blame being incorrectly placed on components that failed due to modeler induced setup errors.

The June 27th Hunter Farms Fly-in was well attended, we had great weather, a good lunch and even a few visitors



This month so far the calendar is busy...Be sure to check the Events page on the Web Site.
http://sfrcf.quintex.com/Events.html

Club Scheduled Events for 2009

January 1st.....First fly of the year - No go... snow and rain
February 8th.....Pylon Race - Come out and help officiate
March 15th .....Pylon Race - Come out and help officiate
April 18th .....Sanderson Field RC flyers annual swap meet 9:00 to 12:00 SHS Sub
April 19th .....Pylon Race - Come out and help officiate
May 23rd.....Fly-In - 9:00 a.m. to ?????
May 24th.....Pylon Race - Come out and help officiate
May 30th.....Forest festival Parade float
June 1st.....Public Fly-In 9:00 a.m. to ?????
June 6th.....Open House Fly-in/work party - Hunter Farms
June 20th.....Public Fly-In 9:00 a.m. to ????
July 18th.....Scale fly-in/Public/potluck BBQ - 9:00 a.m. to ?????
July 24th - 26th.....Pylon Race - Locked
August 22nd.....Fly-in - 9:00 am to ????
August 28th-30th.....Pylon Race - Locked
September 12th.....Fly-In 9:00 a.m. to ????
October 10th.....Fly-In 9:00 a.m. to ????
December 10th .....Christmas Party 6:00 p.m. to 9:00 p.m. (potluck)

It's time for 2009 dues, dues are $100.00

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