



SANDERSON FIELD R.C. NEWS

Pylon Races 12th&13th
Scale Fly-In Aug 19th



CHARTER NO. 3079

CLUB MEETING

*This months meeting will be held
on Thursday August 10th at 7:00
p.m.*

at the Flying Field

*If no one is there check the PUD
auditorium*

Last months minutes are somewhat abbreviated, I had a tape recorder malfunction (perhaps operator error) and nothing was recorded so this is all from memory, and in no particular order. Let me know if you know of any important changes

Minutes were read and accepted as read.

Treasures report was read and accepted as read.

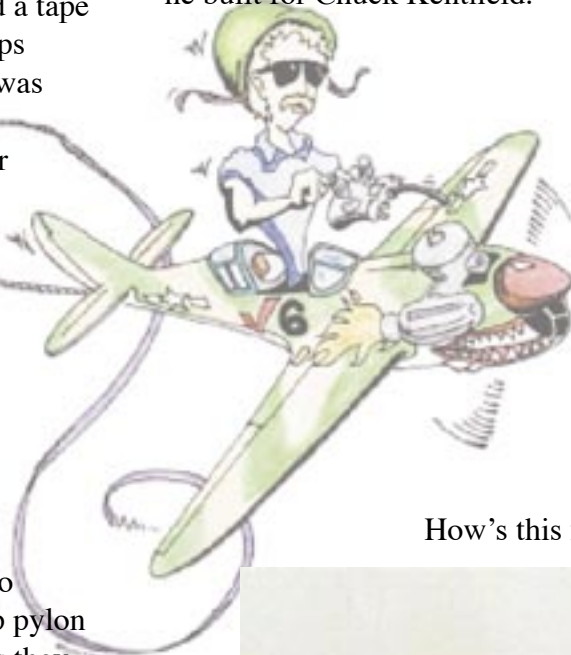
Tom Strom made a motion to have a district championship pylon race in September (23/24) as they lost the Arlington airport site for that time frame - Motion seconded and passed

I was directed to check with the Port about the dates and also about leaving the course set up over night. I talked to Terra Dittmer and was given the OK on both.

A motion was made to approve funds for food for the fly-in on the 15th - Motion seconded and passed.

Welcome new member Tim Strom.

Bob Beatty showed the Utter Chaos he built for Chuck Kentfield.



I would like to remind everyone that if the officers don't show up at the field for the meeting it has probably been moved to the PUD auditorium and to check there before going home.

The July Fly-in went well and although we didn't have a lot of contestants, the Fun fly went pretty well also.

At the Board meeting we discussed the problems with the race people not doing what they said they were going to do. John Tupper, Dick Robb and Dave Fisher went to the Port board meeting to let them know our concerns. We should have someone attend their meetings in the future.

How's this for a LOW fly by (that's a B-52)



Mechanics: Control linkage and Hinges

By RON SWIFT

The purpose of control linkage is to take the motion generated by the radio control servos and transfer it to the airplane's control surfaces and other control devices. Since this motion is mechanical, there are considerations for choosing one technique versus another.

In its simplest terms, a control linkage will include a servo control arm, push rod, control horn, a way to attach the push rod to the servo control arm and control horn, some way to adjust the position, distance of movement, and the controlled device itself. This is obvious to those of us who have been around the Radio Control circuit for a while, but for the newcomer, this is a challenging topic.

Always plan ahead and avoid mechanical interference between the moving parts. Engine vibration, inertial, and G-forces will cause our control linkages to behave erratically. These forces introduce stress and must be considered, even in a docile trainer.

Cost:

The real cost of the control linkage is the price of the entire model if it were to fail doing its job! If we take into consideration the initial

cost of the hardware, the time it takes to install, adjust, and lock, special tools, as well as any maintenance during the life of a model, we might want to consider using the higher initial price of carbon fiber push rods (titanium ends give you special bragging rights!), Nylon brushed control horns, ball/stud clevises, etc.

The old adage, "You get what you pay for," comes into play here, especially for the Giant Scale and Speed models. Often, we use parts because they are part of a kit. We forget that the kit manufacturer makes choices based on cost—many times providing parts that "will do" as opposed to those best for the application. Some don't even provide these parts, leaving the choice to the preference of the model builder.

Precision and strength:

The important measurement for the control surface is whether it will provide the proper movement, with no slop, exact mechanical repeatability, no wear, and no maintenance. It must tolerate the stress placed on it during normal, reasonable flight. It should tolerate changes in temperature and wear slowly. Parts that have been problematic over time are:

- Threaded metal clevises that can split apart and/or become

stripped by vibration (Sullivan provides an interlocking design that is good)

- Nylon parts that are too soft or too brittle
- Wooden dowels that twist and warp from moisture
- Incorrect application or number of supports
- Incorrect application (i.e. braided wire for elevators ... yikes!)

Size and space:

These seem obvious until you consider that each model has many moving parts that may interfere with each other as they move. Some planning for the elevator and rudder push rods is required, even on Almost-Ready-to-Fly (ARF) aircraft, or problems will occur.

Some problems occur with the aileron movement, noticed only when the wing is mounted to the fuselage (parts hit items mounted in the fuselage). Sometimes the needed supports cannot be installed because the construction has already progressed past the point of making this easy (think of an ARF fuselage).

Mechanical gain and differential:

Many times the control horn and servo arm have

MECHANICS (CONTINUED)

different locations for installing the push rod. If the push rods (or pull-pull cables) are installed at the same distance from the pivot center, the travel is linear.

Some modelers will install the push rods so they are in a mounting hole further from the pivot center in the servo and closer to the pivot center at the control surface. This will increase the travel. For precision, moving the push rod to the innermost hole on the servo end and the farthest from the pivot point in the controlled surface provides the greatest precision but the lowest possible movement. Some vendors provide longer servo arms to help get the amount of travel a control surface needs.

Wear:

Providing free movement for our control linkages is one of the goals. Checking that wear has not created slop is one of the routine inspections we should make. Those nylon parts will wear oval holes where they were once round. This introduces a great amount of slop. Check and replace these as needed. Make sure the parts aren't too tight. This speeds up the wear and causes repeatability problems.

Weight:

Although not usually a primary factor, weight in some of the

lighter models is a big thing. Building with components that add unnecessary weight is poor practice. Using composite materials such as carbon fiber rather than wooden dowels or threaded steel rods makes a difference in both weight and precision.

Usually the choice of materials is dependent on several of the factors already mentioned. A good scale (digital or otherwise) is a wise investment for the builder. Choosing parts that perform identically based on their weight is the right way to build. If a model needs additional weight for balance, why not choose the parts that will help balance the model rather than installing dead weight (i.e. lead) later.

Coolness:

Advertisers being good at what they do, the neatest products might not be what you want in your model. Sometimes the simplest, tried and true parts are the ones to stay with. Ask your fellow modelers if they've used the new products. You might save yourself some headaches.

You may want to avoid:

- Clevises that have multiple parts that could get lost
- Plastic stuff that can wear (due to vibration)
- 2-56 linkages
- Parts that require a special tool to adjust might not be field-friendly

You do want to avoid:

- Metal-to-metal connections

CLUB OFFICERS

President	Jody Diaz	(360)427-6102
Vice President	Dick Robb	(360)427-4521
Treasurer	Charles Kentfield	(360)866-9473
Secretary	Bob Beatty	(360)426-5601
Field Marshall	Charles Kentfield	(360)866-9473
Safety Officer	John Tupper	(360)426-6383

BOARD MEMBERS

Board Member	Jody Diaz	(360)427-6102
Board Member	Dick Robb	(360)427-4521
Board Member	Stacy Myers	(360)426-9367
Board Member	Bob Beatty	(360)426-5601
Board Member	Dave Southwick	(360)426-2869
Alt Board Member	Bob Mason	(360)426-9256
Alt Board Member	Chuck Kentfield	(360)866-9473

MECHANICS (CONTINUED)

Ease of use:

Use parts in your control linkage that make adjustments easy to do and will hold those adjustments over time. Soldering clevises onto the steel wire makes a strong connection, but has no adjustment (resoldering). Sometimes, simple is best—like using wheel collars to adjust the push wires on the indoor models.

Adjustability:

Make sure your choice of parts allows easy adjustment of the control surface, both center and overall throw. Being able to make adjustments from outside the model is a huge plus. Also, make sure the adjustable bits can be locked in place and unlocked for later adjustments. Some modelers CyA their threaded parts; others use lock nuts. Some use thread locker; some use safety wire. Many use a combination of these. Ideally, we want our adjustments to stay forever; however, if we've selected less than ideal components, parts with a different coefficient of expansion (the ratio of the change in length or volume of a body to the original length or volume for a unit change in temperature), or incorrectly installed our components, the model may have very different flying characteristics from one day to the next.

A few tips:

- Keep the control linkage as short as possible.
- Use mechanical adjustment to set end points and center rather than relying on a computer radio
- Use silver solder on these types of joints. 60/40 rosin core solder (electrical) should not be used! Make sure to use flux when soldering. Clean the flux off; it is usually an acid.
- Coreless digital servos are expensive for a reason: They are fast, precise, repeatable, and strong.
- Control systems always fail at the weakest point. If you use balsa servo mounts or thin light plywood, guess where the weak link is ...
- Providing bearings for push rods and attachment points for the plastic sleeve is a good thing. Depending on the load and power requirements, you may need to put one every six inches or less.
- Bending the control wires to

IF YOU HAVEN'T PAID YOUR DUES YET IT'S AFTER JANUARY 1ST NOW AND DUES ARE \$40.

IF YOU PAY BY MAIL SEND YOUR DUES, PROOF OF 2006 AMA MEMBERSHIP AND A SELF ADDRESSED STAMPED ENVELOPE TO THE TREASURER:

***CHUCK KENTFIELD
3122 Madrona Beach Rd
Olympia WA 98502***

reach the attachment points weakens the system.

- Slop causes flutter. Slop occurs in the servo output spline, control horn holes, hinges, and the push rod itself. Installing the control rods so they run straight between the servo and the control horn is best but not always possible.
- Counter balancing control surfaces (equal weight on both sides of the hinge), usually prevents flutter.
- Some ARF vendors supply 2-56 or 2 mm metric parts. Sometimes the threads are rolled; sometimes they are cut. Metric and standard (SAE) are not exactly compatible or interchangeable. Close is not good enough. Check your parts and make sure they fit correctly.

Hinges:

Another area that brings modelers' opinion to the forefront is hinges. Many use the hinging techniques that have become familiar. This is all right if you are building models in the same class (size, weight, power, capability, etc.).

When you migrate from Peanut or .40-size Sport Scale to other types of models, different choices must be made. Many kit manufacturers include or at least recommend the type and number of hinges to use. Lately, the large 3-D type ARC/ARF kits do not include any reference to hinging (or control linkages). They leave it up to the modeler to use the

MECHANICS (CONTINUED)

components he or she likes.

There are several new tools available to make hinging easier. The idea is to provide a strong connection between parts that have no slop, small or no air gap, no friction or binding, and are simple and repeatable in use.

CyA: Many vendors make these, but they are not all equal. I have seen many of that type of hinge fail. When they do, it is tough to fix, often involving cutting the control surface off and re-hinging. Still, some modelers swear by them and not at them.

Non-CyA: Most of these hinges are installed with epoxy or white glue. If you use the hinges with a metal hinge-pin, before gluing these in, it is a good idea to put oil or Vaseline on the hinge-pin area to prevent glue from migrating to these areas. Pinning the hinge is a very good idea and may save your model some day.

from Buzzard Droppings
Barnyard Buzzards
Ron Swift, editor
Duvall WA

This month we have a couple of events. The Pylon Race on the 12th and 13th and the Scale Fly-In with fun Scale event.

We have high hopes the race people will have cleared the runway by the 11th but their track record so far is not good. The State Patrol is scheduled to use the runway the 7th -10th so hopefully that will help expedite the matter. If you can come out and give them a hand, please do.

The Scale Event should be a lot of fun, hope to see you there!

BELOW ARE THE SCHEDULED EVENTS FOR 2006

Club Scheduled Events for 2006

January 15thPylon Race
February 12th.....Pylon Race
March 12thPylon Race
April 15thSanderson Field RC flyers annual swap meet 9:00 to 12:00 SHS Sub
May 27th.....Fly-In - 9:00 a.m. to ?????
June 3rd.....Forest festival Parade float
June 10th.....Display at Walmart
June 11thPublic Fly-In
July 15th.....fly-in with novice fun fly - 9:00 a.m. to ?????
August 12th & 13th.Pylon Race
August 19th.....Scale fly-in with novice fun scale event - 9:00 a.m. to ????
September 16th.....Fly-In 9:00 a.m. to ????
September 23rd24th District Championship Pylon Race
October 8th.....Pylon Race 9:00 to 4:00
November 12th.....Pylon Race 9:00 to 4:00
DecemberChristmas Party

It's time for 2006 dues, dues are \$40.00

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