



Rotor Wash

Volume 10, Issue 7

July 2006

Message from the President

Monthly update

Eric Stevens (e_stevens@cox.net)
ARMS President

First I would like to apologize for the lack of last month's newsletter and the delay in this month's. Last month was a little busy for me and there wasn't really a lot to discuss. This month I had computer issues which caused the delay. I would like to welcome our newest member, Rey Torres. Rey is one of the early morning gang.

Field update: Norm with the SVF has indicated in their newsletter that people buying new crystals for their radios should stay away from channels 20, 30, 40, 50 and 60 which will be reserved for helicopter use. It looks like, pending parks approval that this may eventually go through; although I don't really expect to see anything official until this fall (SVF has indicated that the Parks people don't typically move very fast). The Pulte construction at 19th Ave appears to have slowed to a crawl, but that could change pretty quickly dependant on the market. I don't feel that we have anything to worry about this summer, I think about the time Pulte spools up we will know for sure about the SVF deal. I plan to discuss setting the dates for the 2007 fun fly at the next meeting. Anyone with a crystal ball that predicts weather, please attend (notice how we haven't had a rainy weekend since the event). For those who ordered the special fun fly shirts, they have come in. I will also be looking into how everyone feels about getting some new club shirts made up, these will probably be on an order basis rather than stocking shirts (anyone need regular fun fly shirts? let me know, we still have some).

At this time we still have a fair amount of fuel available, 11 cases I believe. I want to warn everyone that the next time we order fuel that the cost will probably go up due to shipping costs. We are at \$18 a gallon right now, but may need to increase to \$19 a gallon on the next shipment. I won't be ordering more fuel until we are down to a case. Short of someone becoming a dealer and eliminating the middle man, I don't see any way to avoid an increase. I hope everyone has/had a happy Fourth of July. That's it for this month.

Eric

INSIDE THIS ISSUE

- 1 President's Column
- 2 Technical Tips
- 3 Photo's from the field
- 4 Note from the Secretary
- 4 Event Calendar

Next Meeting

July 6, 2006

Deer Valley Airport

Technical Tips

Improving cyclic Response

Paul Clifton Jr. (pcliftonjr@cox.net)
ARMS Secretary

Here's a very excellent posting by Jerry Sudmick on RunRyder regarding slow cyclic response. Its primary focus is on the Raptor 90; but I think a lot of it applies to any head setup.

Some words about 'livening up' your R90's cyclics.

There are many variables that influence how fast the cyclics will be on your helicopter. A different servo isn't going to make the difference you want. Based on what you stated is already in there, of course. I have 2 machines. One has 9351's (190oz in at .13) and the other has 9451's (120oz in at .10) They fly identically. They both do the same thing through different means. One is powerful and slow, the other is fast and not as powerful. End result - no difference.

You need to look at the following.

Cyclic deflection - are you utilizing the full mechanical travel range of your aileron and elevator throws? That is probably the first place to start.

Paddle setup - there is more to paddle setup than most folks think. 4 people can show up at the field with V blade equipped Raptor 90's and all 4 might have differing cyclic authority.

Distance from center of rotor head - How far your paddle is threaded onto the flybar can make a big difference. The further out your paddle is from center, the more authority it has - and the faster your cyclic. Therefore - a longer flybar will have faster cyclic than a shorter flybar - or alternatively - a paddle that is threaded way in on a flybar will yield slower cyclic than one that is minimally threaded onto flybar.

Paddle size V paddles come in several popular lengths for a reason. Most folks simply buy whatever the LHS happens to have. A 90mm V paddle has less authority and cyclic speed than a 95mm V paddle. Vic makes custom lengths as well. Some Raptor pilots are running custom lengths such as 105mm to increase cyclic throw.

Paddle weight Heavier is more stable, not as lively. That's pretty commonly known. Flybar weights don't slow cyclics down as much as they add stability to the head.

Mixer setup - The inner hole on your seesaw is faster than the outer hole.

Rotor Blade type and weight Lighter blades will generally be more lively than heavier blades. Blades with a more inboard or aft chordwise CG will also be more aggressive. Radix and V blades are an example of blades that have relatively neutral chordwise CG's with neutral spanwise CG's. This yields a good balance between aggressive and stable flight characteristics. MAH blades will typically have an aft chordwise CG and inboard spanwise CG in comparison. These are a very aggressive blade and have fast cyclic characteristics.

Head Dampening - Stiffer head dampening typically liven's response as well. The red TT dampeners will be better than the blue ones because they are of a harder material. Infinivation dampeners offers a separate tuning kit. This tuning kit has a stiffer durometer black O-ring set than the O-rings that come with the dampening.

Headspeed - The faster you spin the head, the more lively your cyclic will be. We are all running 1900+ for most 3D applications.

One footnote about the above. I haven't mentioned stability. Anytime you increase your cyclic rates with any of the above (except deflection) you lose stability and tracking. Large paddles on a long flybar sure will roll and pitch fast - but will she track in a straightline hands off at 60mph into the wind? Probably not.

All that being said.....life is full of tradeoffs, and that is what makes our hobby so fun. There are so many combinations of the above, and they all fly a little different.

Here are some examples...

Shorter flybar with huge paddles.

Long flybar with small paddles and flybar weights.

Long flybar with large paddles while running the outer seesaw hole

Short flybar, small paddles, flybar weights, aggressive and light main blades.

Pete and I have had good luck with the following general setup.

90mm V paddles - 220mm from head center to setscrew on paddle
Infinivation dampening - 1.5mm shim between head and dampener
480 +/- flybar length
Inner hole on seesaw
TT flybar cage PV0436
Radix or V blades
1930 headspeed
Max mechanical deflection

A word about the flybar cage upgrade.

The R90SE comes with conventional flybar control arms. These arms have two holes - inboard and outboard. The outboard hole yields less paddle deflection. (yet another choice!) The inner hole is the 3D hole.

The PV0436 flybar cage is slightly more aggressive than the 3D hole of the stock flybar control arms. Specifically - the distance from center of head to the 3D hole on the stock arm is MORE than the same distance on the cage. The cage therefore yields increased paddle authority and slightly more aggressive cyclic. It's not only a 'bling' item is what I'm getting at.

Hope some of this helps.

Jerry

Photos from the field...



Spencer giving his Fury a work out!



Michael and his Evo 50



John taking the Raptor 90 to the pad

Notes from the Editor

New Look

Paul Clifton Jr. (pcliftonjr@cox.net)
ARMS Secretary

Hello, you may have noticed some changes with this month's newsletter. I've taken over the club's Secretarial and Newsletter Editing duties from Steven Flarity. It's a work in progress so please let me know what you think. All feedback is appreciated, thanks!

Paul

Upcoming Events

Watch this space

Arizona Rotary Modelers Association
P.O Box 6052
Glendale, Arizona 85312-6052



ADDRESS CORRECTION REQUESTED