

EXTRA! EXTRA! Read all about it! Get the latest scoop on R/C Helicopters.

CHOPPER NEWS

All of your helicopter needs and expert help are as close as your local hobby shop!!!

“United We Stand”

“Let’s Roll”

Northern Illinois Radio Control Helicopter Assoc.

One of

The World’s Largest R/C Helicopter Clubs

AMA CHARTER NO.2099

March, 2003

**Next Club Meeting, 7:30 pm Tuesday,
March 11th**

At John’s Pizzeria in Addison

Editorial

I am still suffering from a mild heli burn out and have not flown since that microburst brought down my heli on January 1st. This is my longest recorded dry spell. I have to try and get back on that horse. It may happen any day now. When I walk past the pile of rubble I can now feel this unseen energy trying to pull me toward it.

We don’t want to be “penny wise and pound foolish”, right? No membership, means no club fuel buy from Al’s Hobby Shop, and it is just on the horizon. I finally had time to do the math on my fuel savings last year. My 80-dollar fuel savings minus our 20-dollar club dues equals a huge 60 bucks savings. My conclusion is our membership does not cost you money but saves you money.

It is either feast or famine in the tabloid business. Thanks for the help with all the great stuff for the newsletter this month, men.

Message from the President

Well, another month goes by, and I have my nose pressed to the window waiting for better weather...tis the season for building and rebuilding....I just finished a ducted fan F-86 Saber for a friend of mine (I know I know....it is a plank...sorry), and also I have been helping member Jeff Anderson build his turbine jets.....yes I said jetsssssss plural... as in three of them, all I can say about these things is WOW. Anyway...he spends the money and I gain valuable building, fiber glassing, and finishing knowledge, not a bad deal...for me anyway. I have been working on my Rappy v.2 and it is almost air worthy. I had purchased the “greaser” from Cindy and do I like that gizmo...I greased every bearing on the bird. It is satisfying to know that you are doing everything to keep your beloved in the air. I have to say...the v.2 has addressed almost every, if not every concern from the original version.

They have fixed:

- Tail Boom supports have plastic molded ends to prevent fatigue cracks
- Tail Boom support screws no longer hit fuel tank or tail boom
- Tail control rod supports are tight to the boom (really tight)
- Fuel tank has larger stand offs to prevent chaffing
- Tank is larger (still uses crap fuel lines – need to replace with the Hayes Black lines)
- Starter shaft tapered at clutch bell top to keep the two from touching (a mod some of our members do to their v.1's)
- Clutch is larger diameter and shorter in height (reports so far is that they are holding)

- More “meat” around the engine mounting holes
- Improved the swash plate (remains to be proved)
- Uses the R60’s tail rotor hub
- Longer vertical tail fin to protect tail rotor
- Beefy frames
- Standoff on frames specifically for header tank screw
- Spaces for nuts to “bolt” on landing gear instead of self tapping screws
- Fan shroud extended for better cooling and better frame support
- Better – thicker collective lever
- 6mm spindle (feathering shaft) and larger bearings in the blade grips
- 3 different stiffness dampeners in 60, 70, 80 durometers (I am going with the 70’s)
- Molded in wire keepers for the gyro and aft mounted rudder servos
- A arm links thicker to prevent cracking
- All links have thicker webbing to prevent cracking (I still replace all links with Rocket City links and JR balls)
- Flybar control arms are thicker to prevent flexing
- The two “jesus” bolts top and bottom are now shanked instead of full thread to better resist shearing.
- Smoked wind screen is a much better fit to the canopy than the original
- Slop removed from main gear and auto rotation bearing...no need for shims any more.

Thunder Tiger really paid attention to what the consumer was doing and fixed most if not all of the problems that were on the v.1. Very impressive, I know I have a big smile.

We only had about 50% of our usual turnout at the last meeting due to the snow storm... for those who did brave the weather we carried on as best as we could and still had fun talking about helis. We even managed to sign up one new member who came in to see what we were about. I did a little discussion about cyclic rings and would be happy to go over the benefits with anyone who missed it...just ask me...I am not afraid to talk. ;-)

Keep the stuff that spins out of the dirt (ice?) Rich Erikson

VP Message

Uniflow System Update:

Back in November I wrote a bit about a fuel system setup many call the uniflow system. It is described best at this website: http://www.fraserker.com/heli/unifl...iflow_works.htm

I have had very good luck using this system. The fuel mixture truly does stay where you set it, from full tank to empty. If your needle valve settings tend to vary during a flight and this inconsistency bothers you, give the uniflow system a try.

Neat Web Site:

Arizonaheli.com Check out Bill Ludwig's site for some of the best, if not the best, painted canopies available. Bill is an extremely helpful guy even if you are painting your own canopy and just have questions. He also can supply most any graphics you may want for your project and can work from your sketches for a truly individual canopy. Bill

has recently developed a fiberglass Raptor 30/50 V2 canopy that looks outstanding. I believe one of our club members has purchased one of his new canopies complete with an awesome paint job. I hope we can all see it at the next meeting.

Email From our President

Martin L Davis <choppernews2@juno.com> wrote:

Rich,
How many people showed up for meeting??? Marty

Answer from President:

We had about half of our normal turnout...not bad considering...but we managed to squeak out a little fun. Sorry ya missed it...I thought you might be trying for a "hat trick" in the crash and smash awards.

Rich

Editor: No hat trick here. I want to share and give everyone a chance!!!

How to....do a flip

Sent in by Rich

Although flips are quite easy in concept, like everything else, doing them consistently, controlled, and well can be a little more challenging. Flips make up the basis of a lot of 3D maneuvers and as such, time taken to get them right will help extensively with more advanced maneuvers.

Setup:

Your heli should have the standard Idle Up 2 (Inverted) setup. It should be able to pull at least 9 degrees pitch both ways in Idle Up 2. Set your pitch curve for 0 degrees at mid stick. Ensure you don't have any binding at full pitch (both positive and negative) while adding in cyclic.

For the throttle curve, start off with something like 100, 70, 50, 70, 100. Remember, you're aiming to hover at points 2 and 4, so you don't want the engine screaming it's nuts

off there, I wouldn't recommend anymore than 70% throttle at either of these points. If your radio has some extra mixers (or if you've got a radio with a dedicated SWASHPLATE function that mixes in throttle with swashplate movements), then become familiar with the use of these functions. They'll become very useful when we get into more advanced aerobatics. We'll discuss the use of this function a little later on. If you've got a heading hold gyro, it's a good idea to setup Idle Up 2 for heading hold. That way the tail can look after itself while you're trying to come to grips with the cyclic controls.

Steps:

The concept of a flip is quite simple. For an elevator flip:

- Either push forward or back on elevator as you reduce pitch slowly and smoothly.
- As the heli goes through the vertical plane you should aim to be at about midstick (zero degrees). This will prevent the helicopter moving too much.
- As the heli passes through vertical, you'll be slowly and smoothly adding negative pitch until the heli is fully negative at which point you should be at the inverted hover point (around -4.5 to -5 degrees).
- As the heli passes through inverted back to vertical, you'll again be reducing pitch back to around midstick and then adding the pitch back on as it becomes upright again.

The same steps are true for aileron flips.

Points:

- Do not over pitch! If you swing on the collective too much you'll kill both headspeed and engine revs, which will take time to come back. An inconsistent headspeed will result in a varying flip rate, which will throw your timing off. You'll also probably lose precious altitude!
- Make sure you're straight and level before beginning a flip. Otherwise the heli will 'walk' or 'run' off in some direction and will make it difficult to control.
- Ensure your gyro is holding well and that your drive system is ok. I did a forward flip with my Standard Vigor the other day only for it to do its own impromptu piro flip because the tail belt had lost its teeth! That was exciting I must say and luckily no damage occurred, but it was stress that need not have occurred. If your tail breaks out, do not panic; just continue to follow through with the maneuver until you are upright, then correct. Don't try to correct during the maneuver because you'll just about always screw up (until you have gained more experience).
- To increase your flip rate, ensure that you're getting the most out of your setup first by making sure you have as much cyclic control as you can get without binding, then your next bet is different paddles. My Voyager increased its flip rate a lot once I installed Hirobo Sceadu paddles, same for my Vigor's with Freya paddles.

Swashplate Mixing:

Something I like to do on my helis for Idle Up 2 is program in a bit of swashplate mixing. What this does is for every cyclic input, the transmitter mixes in a little increased throttle to compensate for the extra loading the cyclic input is putting on the engine.

I use this so that the headspeed is nice and consistent throughout maneuvers, but when hovering either upside down or right side up, the engine isn't screaming too hard.

My radio, the 9Z WCII, has a swashplate function built in, with some of the other radios, you will need to use some of your free mixers to achieve the same result.

© Copyright LittleRotors.com 2001 – 2003

Email for Our CD

Marty, Rich

I have received verification from the AMA for our Fun Fly. It is official now, the dates are Sept 6,7, 2003

Terry

Raptor V2 Part Two: The Transformation by Paul Barsamian **Introduction**

Well since the last article and the initial flights on my Raptor 30 V2 I have put 5 gallons through that Thunder Tiger TT39Pro engine. I have to say I have been very impressed with the performance, consistency, smoothness, and even the fuel efficiency of the engine. I usually got tired of flying well before I ran out of fuel in the main tank. Based on my experience, I would highly recommend it to anyone looking for an engine for ANY 30 size heli.

Since the last article my flying skills have improved vastly as I explored the capabilities of my Raptor. This heli flies WONDERFULLY!!!! I have since learned to do loops, rolls, stall turns, knife edge pirots with pitch pumping, loops with pirots at the top, climbing tic tocs, flips, a bit of inverted flight/hovering, and some very fast moving

forward flight. This heli has performed very smoothly but as I started pushing the heli into harder and harder moving maneuvers I did manage to begin bogging the head. While I am still learning the finer points of collective management, I decided it was time for an upgrade. With that in mind, my fiancé bought me an OS 50 engine for my birthday (with a bit of prompting and begging) and I quickly ordered a 50 conversion kit for the Raptor from Heliproz.

The Build

Since there is no conversion kit available for v2 conversions, I had to make do with what I had. The longer boom and belt installation were very straight forward as was putting the new fan/hub on the 50 engine. The wood blades were set aside and some Maverick 600mm blades were ordered in their place from Heliproz (I liked the 550s so much I figured I stick with what works). The new main gear was countersink drilled to work with the aluminum driven tail hub from Rick's RC Helicopters that I had been using previously.

The first problem I did encounter was with the pinion gear, being a V1 gear, it was made to fit a 5mm start shaft, and the V2 Raptor uses a 6mm start shaft. Also I wanted to add the harder 70 durometer head dampers as I had heard 50s have a much higher tendency for mid air boom strikes due to the longer blades and I figured a stiffer head would help prevent this. I was able to obtain part numbers for the gear and the dampers (oddly enough they are consecutive part numbers PV0380 and PV0381). Despite having the part numbers, nobody seemed to have them or be able to order them within a short time period (and my patience was starting to run thin). I finally found a site www.helikraft.com, which appeared to be an overseas grey market site. I decided to give them a try for the 20 bucks in parts and shipping, I figured it might be worth the risk. In the meantime I decided to try and drill the pinion gear out and get the heli hovering with the stock dampers.

The drill out turned into a total disaster, even with a drill press and fairly precise equipment to keep it in place, I could not get a perfectly straight drill out of the gear, and I gave up and threw it in the parts bin.

After a long 2 weeks of waiting, the parts finally arrived. The gear fit flawlessly as did the dampers. I also ordered another Maverick 1 piece upgrade muffler since the 30 sized one had worked so well for me. I fit the new OS 50 with the engine mounting block from the conversion kit, and had to make my own mounting bracket for governor sensor since the 30 sized one didn't fit the bolt pattern. I used a small strip of brass stock from Al's and drilled/Dremeled it out to fit. Once everything was reassembled I ran a thorough check on the machine to make sure that the moving parts did and the secured parts didn't so to speak.

The Binding Clutch

What I did find in the check over was that with the clutch reassembled and mounted, exactly the same as with the 30, the clutch shoe was binding on the top of the clutch bell. After much iteration of testing and fiddling, and with a lot of verbal complaining, I begrudgingly removed the clutch shim between the shoe and fan hub and was able to get enough clearance to allow the bell to turn freely and consistently. I reassembled the engine, remounted it into the Raptor and tanked her up.

Head Loaders

Since I had been working for some time on my new Xcell Pro 2K to get the engine right, and after reading too many UK based heli magazine articles (won't mention names) I had decided I needed a set of head loaders for tuning. Naturally I ordered a 30/46/50 sized set, AND a 60/90 sized set. The only place I could find that actually sold them was the UK based SUSSEX Model Centre. For about \$60 US, I received shipped to my door two sets of head loaders; I figured this fit in with my theme of ordering the parts from overseas.

For beginners spooling up a new heli for the first time, and for me (now wanting to be extra cautious when trying new equipment and setups) these head loaders provide an easy way to get the machine spooled up to speed without it ever having to leave the ground. This allows you to rapidly break in and tune the engine while listening/looking for issues before having to manage a new or rebuilt heli in the air.

That said, I mounted the 30/50 sized head loaders on the Rappy to spin her up before I risked my nice new set of carbon blades.

Tuning, and First Hover

Per the instructions for the OS 50 I set the high speed needle valve to 2 turns open from fully closed, left the low speed at the stock setting. After a few final checks, I connected my new Radio South Glow Driver, grabbed my starter and cranked her up. The engine turned over after a few turns even in the cold and after adjusting the endpoint for the bottom end of my throttle and a few minor needle adjustments of a click or two, I had the bird sitting with a nice tick over at idle. I spooled up the machine (without using the governor yet) and was surprised by just how quiet and smooth this bigger engine is. In fact, with the Maverick muffler, this machine was noticeably quieter than the 39, and at least half the volume of my 61 SX-WC with the Curtis Muscle Pipe. It sounded more like my electrics than a nitro machine. The machine at 2 turns is slobbering rich and the run only lasts about 7 minutes, OK in my book since this was the engine break in time anyhow.

After running three tanks through the machine in this fashion, and after much tinkering with the clutch (see above), I finally mounted up the carbon mains and leaned the high speed needle to about 1 1/3 turns while over at the field. I also set up the governor for 1750rpm, 1850rpm, and 1920 rpm, reset the gear ratio and governor stick settings, refueled and started it up again. To my surprise, with the governor set properly and the machine spinning at 1850, it was even quieter than before, the leaning had no effect on the sound level.

I brought the machine into a hover, still nice and smooth, and spent the next tank tracking the blades to get a nice even spin on the disc. Once tracked the machine was incredibly smooth and quiet and just seemed to hum in the air with no hints of quirks or instability.

Forward Flight and Climb Out

One of my personal favorite tests to get a feel for a heli is to spend time ‘pounding’ the throttle/collective to get a sense for how quickly the machine can get into the sky. While my 39 had plenty of punch and my new 60 machine felt solid and strong doing this, the Rappy 50 scared the heck out of me!

The climb out was so fast and strong the machine was easily out climbing any 60 heli I had seen so far, and the head just NEVER seemed to slow. The machine felt surprisingly light and tight. Light because the power on tap just never seemed to quit, the heli almost feels like you couldn’t feed it enough pitch (I am running +/- 9 degrees) or make it heavy enough to slow it down. It felt nice and tight in the air; forward flight was as smooth and solid as ever. One thing I had noticed immediately was the lack of tail power with the tail blades that I had been spinning. I had previously chosen carbon MS 80mm blades for the 39 because the Raptor seemed to be in between sizes, and they worked fine for that setup. With the longer boom and bigger main blades though, it was obvious that the next step to 95mm tail blades was needed. I bought a pair of NHP carbon blades from Al’s and the tail settled in shortly thereafter.

Comparisons to the Raptor 50 v2

Of course shortly after I received and built my v2 30 Raptor, the 50 (which I really wanted in the first place) was introduced on the market. I am settling for the conversion.

In a side by side comparison with the Raptor 50 v2 kit, the main differences seem to be:

- Thunder Tiger’s new 30/50 driven tail gear (white), which alleviates the need for the Ron Lund or equivalent driven tail hub.
- The carbon frame brace, I don’t and most others haven’t seen a major improvement in flight qualities with this item.
- The engine mounting block, this V1 block is obviously centered slightly different than the v2 50 engine mount as evidenced by the need for removing the shim between the fan hub and the clutch shoe.

Conclusions

I am quickly becoming convinced that 50 sized helicopters are the sweet spot for smaller model helicopters. My Raptor 50 v2 conversion flies just as stable, (if not more so) than the 30 size and has all the reserves of power I could ever ask for. It flies hard and fast but is just a comfortable in the low and slow arena. A close friend of mine is looking to make a cross over from airplanes into helis and wants to start with a nitro. When asked for a recommendation my knee jerk reply was originally a v2 30 Raptor with the 39 engine. After further reflection, I realized that the 50, for the modest added cost out of the gate might be a much better choice if he was only going to buy one heli and it would take him well past beginner and intermediate skills in flying model helicopters thus being more value for the money.

In my opinion, there isn't a major difference in size and the 50 looks and sounds just as un-intimidating as the 30. It also can fly just as or even more stable and be tuned specifically for a beginner by reducing the head speed and keeping the pitch to a reasonable range.

I absolutely love my Raptor 50, even better than I did the 30 and would definitely recommend this heli to any and all. Paul

The Big Three

For your 2003 calendar:

June 21,22 (St Charles, per Cindy); Aug 16,17(Muncie IRCHA, per ircha.org website);
Sept 6th and 7th for our Nircha Fun Fly

Make your plans now! Steve Jensen, CTS Communications Components, Inc., 171
Covington Dr., Bloomingdale, IL 60108

Phone: (630) 924-3558, steve.jensen@ctswireless.com

For Sale or Wanted, Lots of Good Stuff

For Sale: X-Cell 60 SE graphite Pro, servos: 4-JR-4131- 1-fut-9253, Ext RC 1800MAh battery, Gyro: 1-fut-GY501, Receiver: 1-JR-10Ch S-PCM, Engine: YS 61 ST2 2-custom painted X-cell canopy and fin sets plus lots more. Too much to list. Paid over \$4000.00 asking \$1800.00 O.B.O, contact Shannon @ (708) 534-8512 or (708) 769-5803

For Sale: OS 32, including 49 dollar metal fan and clutch, all for 90 bucks obo, 630-377-1865, Choppernews2@juno.com, Marty

***Sold**An 8 channel Futaba PCM transmitter, FP-T8UAP, on frequency 45, \$175 new, first 80 bucks takes it. Such a deal, 630-377-1865, Choppernews2@juno.com, Marty

***Sold**Wife says, "It has to go!!" Fiberglass fuselage including wing plans for a P40 War Hawk, 1/5 scale, by Nick Zirolì. I have a finished model for you to look at. This P40 has a 94-inch wingspan, will weigh about 28 lbs, needs 4 hp to 8 hp chainsaw engine, 6-inch wheels, and 24-inch prop. It would make a great winter project. 100 bucks obo, 630-377-1865, Choppernews2@juno.com, Marty

**Put your ad here today!! If you set a fair price it will sell.*

Addresses and Phone Numbers of Local Hobby Shops

(630) 832-4908	Al's Hobby Shop, Inc.	121 Addison	Elmhurst, IL
(815) 786-8553	G & D Hobbies	1950 W. Church Street	Sandwich, IL
(630) 587-1256	Hobbytown USA	3627 E. Main	St. Charles, IL
(847) 537-8669	Venture Hobbies	23 Huntington	Wheeling, IL

NORTHERN ILLINOIS RC HELICOPTER ASSOC.

AMA CHARTER NO. 2099

We are actively looking for new members to join our Radio Control Helicopter Club. All that is required is an interest in R/C helicopters, field permit, and a \$20 membership fee. Please feel free to join us at one of our meetings to become a member or just for a visit. We hope to see you at the next meeting. Our Club web page is: www.nircha.com and is maintained by Web Guys, Rich Erikson and Kevin Cashman.

Meetings are held the 2nd Tuesday of every month, at 7:30pm, at John's Pizzeria, 100 E. Lake St., Addison, IL (1/2 block East of the intersection of Addison Rd and Lake St.). During the summer, the monthly meetings are held at the flying field, June, July, and August.

Our Helicopter Forest Preserve Flying field is located on Grace St., in Addison (on the border with Lombard), and about one mile north of North Ave. Field permits can be obtained by calling 630-933-7200.

Club Officers

President
Erikson

Rich
815-356-8518

Vice President

Mark Clausen
815-325-1565

Secretary
Nesheim

Neil
630-351-4002

Treasurer
Tittelbach

Charles
708-352-4915

Newsletter

Editor/publisher

Marty

Davis

630-377-1865

#1 Proofreader
Davis

Linda
630-377-1865

Web Site

The Web Guys

Rich Erikson and Kevin Cashman
www.nircha.com

Membership

Chairman
Girard

Paul
773-774-2365