

TriState Helicopter Club



TRI-STATE HELICOPTER CLUB

# The Collective Pitch

## From The President's Desk

As I sit here and write my October article, all I can think of is where did summer go to!

I just never seem to get in the amount of flying I want to. It is actually the best time of the year to fly, cool temperatures allow you to tweak the needles for that extra bit of power we all enjoy. I will give a presenta-

tion on batteries including how to assemble your own packs for those of you interested in electric flight. Have you planned your winter project yet it's not to early to start.

Now's the time to make that scale dream reality!

See you at the Meeting  
Bob Belluomini.

### PHOTO's to Inspire...?



An *unusual* site: John Anast's Raptor tried to do the routine from the movie "Break-Dance".

No matter how hard we try, when the whirly end contacts the ground, the whirly end loses.

See page 2 for more notable quotables.

### AMA Chartered Club #3373

See us on-line at [WWW.TSHC.ORG](http://WWW.TSHC.ORG)

#### CLUB OFFICERS

President:	Bob Belluomini	(513) 245-0590
Vice President:	Gayl Rotsching	(513) 761-1266
Treasurer:	Al Drees	(513) 791-5412
Safety Officer:	John Anast	(513) 829-3950
Secretary:	Brady Pack	(513) 831-4900
Editor:	Dale Mercer	(859) 689-5953

---

# Safety First, Last, and Always!

---

## *RULES OF THE AIR*

1. Every takeoff is optional. Every landing is mandatory.
2. If you push the stick forward, the houses get bigger. If you pull the stick back, they get smaller. That is, unless you keep pulling the stick all the way back, then they get bigger again.
3. Flying isn't dangerous. Crashing is what's dangerous.
4. It's always better to be down here wishing you were up there than up there wishing you were down here.
5. The ONLY time you have too much fuel is when you're on fire.
6. The rotor is just a big fan on top of the heli used to keep the pilot cool. When it stops, you can actually watch the pilot start sweating.
7. When in doubt, hold on to your altitude. No one has ever collided with the sky.
8. A 'good' auto is one from which you can walk away. A 'great' auto is one after which they can use the chopper again.
9. Learn from the mistakes of others. You won't live long enough to make all of them yourself.
10. You know you've landed with the wheels up if it takes full power to taxi to the ramp.
11. The probability of survival is inversely proportional to the angle of arrival. Large angle of arrival, small probability of survival and vice versa.
12. Never let an aircraft take you somewhere your brain didn't get to five minutes earlier.
13. Stay out of clouds. The silver lining everyone keeps talking about might be some stupid plank going in the opposite direction. Reliable sources also report that mountains have been known to hide out in clouds.
14. Always try to keep the number of landings you make equal to the number of take offs you've made.
15. There are three simple rules for making a smooth landing. Unfortunately no one knows what they are.
16. You start with a bag full of luck and an empty bag of experience. The trick is to fill the bag of experience before you empty the bag of luck.
17. Helicopters can't fly; they're just so ugly the earth repels them.
18. If all you can see out of the window is ground that's going round and round and all you can hear is commotion coming from the passenger compartment, things are not at all as they should be.
19. In the ongoing battle between objects made of carbon fiber going round and round at hundreds of miles per hour and the ground going zero miles per hour, the ground has yet to lose.
20. Good judgment comes from experience. Unfortunately, the experience usually comes from bad judgment.
21. It's always a good idea to keep the whirly end AWAY from the ground as much as possible.
22. Keep looking around. There's always something you've missed.
23. Remember, gravity is not just a good idea. It's the law. And it's not subject to repeal.
24. The three most useless things to a pilot are the altitude above you, runway behind you, and a tenth of a second ago.
25. Remember, Helicopters don't fly – they beat the air into submission.

---

## New Product Review

---


**Note from Editor:** From time to time, as the situation and review warrants, I will take the opportunity to show you the various items that are out there for us to spend our hard earned money on. If you should have any experience(s) good or bad with a product that you have purchased, please send me a short note or a write up of why you purchased the product and if the product met with your expectations straight out of the box and after you've put it through its paces. Items that are of particular interest of the club members will be posted (Some editorial license may be taken to make the text fit within the allocated space) for all of our members to read.

---

### New Product Review Vario Pushrod Caliper Adaptor (part no. 11/86)

By John C. Harrison

Vario has a novel tool that can help you accurately measure pushrods using a standard set of calipers. As they are accurate to less than half a turn, I have found them to be particularly useful in making pairs of identical pushrods (nice if you're building a kit and want everything to match up just perfectly).



The 2 pegs attached to both sides of your calipers using a set-screw located on the bottom. Measurements are conducted from the center of each link as shown in the picture.

At under \$10.00 the adaptor is available from your Vario dealer.

Because it is a tool I think I will use on a regular basis, I give it 4 stars.

---

## Treasurer's Report .....\$\$\$\$

We have a record **37 members!**

*Please welcome our new full and associate members.*

Our bank balance is still in the black and my report for this month is as follows:

Beginning Balance	\$ 781.50
Due's Received	\$ 60.00
<u>Expenditure's</u>	<u>\$ 71.07</u>
<b>New Balance</b>	\$ 770.43

Please check the attached Membership Roster to confirm if all of your information is correct. We are still missing some information from some of you (**especially AMA numbers**) and we cannot update our club roster to the AMA without your AMA number.

You can contact our Clubs' Newsletter Editor, Dale Mercer, or myself for any updates that you have to provide.  
*Al Drees, Club Treasurer.*

---

## AMA Information Corner

What and active summer it has been for the AMA employees, members and volunteers.

1. The GRAND EVENT took place at the site for the first time. This took many hours preparing for the weekend and took the hard work of many staff members and volunteers.
2. AMA National Aeromodeling Championships (NATS). Again, employees Special Interest Groups and many volunteers spent countless hours making the NATS a success.
3. Experimental Aircraft Associations 'AirVenture' at Oshkosh, WI
4. Electric World Championships that were held in San Diego, CA.
5. Camp Jeep (First time participation) in Charlottesville, VA. We will cover the event in a future issue of Model Aviation.
6. Construction continues on the Head Quarters.

Happy Flying,  
Joyce Hagar, Executive Director, AMA

---

## Next Club Meeting:

**WHEN:** October 10th, 2000

**TIME:** 7:30 PM

**WHERE:** Slim Helson's Aerodrome

**See You There!**

**"Keep them rotors outta the dirt"**



---

## Services and Such

Slim's Chopper Repair "IF YOU CAN DRAW IT, HE CAN MAKE IT!"

Machine shop services are available from Slim Helson, call him at 831-3173. He offers a full range of machining services and custom fabrication. Slim also has an extensive Robbe/Schluter parts supply. Slim's shop is conveniently located at 1033 St. Rt 131 in Milford.

Vector Helicopters (Authorized Robbe Field Representative)

Building, setup or repair services for all makes of helicopters is now available. You can also get your wood rotor blades professionally built, weighted and covered to your specifications. Prices range from \$15-\$35 depending on size and complexity. Call John Anast at 829-3950 for an estimate. Remember - **No job is too BIG!** You can also e-mail John at: [janast@tshc.org](mailto:janast@tshc.org) or visit his website at Vector Helicopters [www.tshc.org/VectorHeli/vh.html](http://www.tshc.org/VectorHeli/vh.html)

---

## Web Sites

Helibuf's Home Page	<a href="http://www.helibuf.com">http://www.helibuf.com</a>
Bryce's R/C Heli Page	<a href="http://www.byelectric.com/~fribab/">http://www.byelectric.com/~fribab/</a>
East Coast Model center	<a href="http://www.ecmc.com/#rc">http://www.ecmc.com/#rc</a>
Heli-fever Web Page	<a href="http://helifever.com">http://helifever.com</a>
Leisure Tech	<a href="http://24.113.44.156!/heli/">http://24.113.44.156!/heli/</a>
Rick's RC Heli	<a href="http://www.rcheli.com">http://www.rcheli.com</a>
Tailrtr's R/C Heli Links	<a href="http://www.pcez.com/%7etailrtr/links.htm">http://www.pcez.com/%7etailrtr/links.htm</a>

---

## Hobby Shops

<u>Name</u>	<u>Phone Number</u>	<u>City / Area</u>
Al's Hobby Shop	630.832.4908	Elmhurst, Il.
Flight Zone	746-0015	Boone Co.
House of Hobbies	248-9220	Milford
Northern KY Hobbies	283-1110	Florence (YA'LL)
Phil's Hobbies	385-8616	Cincinnati
Pit Row	891-7487	Kenwood
Slim's Chopper Repair	831-3173	Milford
Starfleet Hobbies	984-9889	Blue Ash

---

## Classified Ads

### Bob Belluomini 513-245-0590

1. Robbe CSC-4 Helicopter Speed Control - \$75 obo
2. Hitec 325 Fast Field Charger - \$35

### John Anast 513-829-3950 .

1. Robbe CSC-4 Helicopter Speed Control - \$75 obo
2. Hitec CG-320 fast delta peak charger - 4-5 cells at 4.5A, 8 cells at 1.8A - \$40 obo

### Craig Golgowski 513-248-1864

1. Robbe/Schluter Moskito, numerous upgrades. Flies great! \$199

---

## How Low can you go? Battery Voltage Explained.....

---

It seems that from time to time that we run across something on the internet that catches our attention. One of those happened to me while I was reading some 'discussion' about a subject that we have been bantering about at the field—that is, namely, about battery care and just how low is low when you are considering how much fuel your batteries have left in them to power your receiver.

We all know what happens when we run out of fuel in our helicopters—we auto. Sometimes we even walk away with the Heli still in one piece—if it didn't go through the trees. So...what happens when your battery runs out of those precious electrons—an dhow do we go about making sure that we don't start up a free flight helicopter that could get someone seriously injured or even still, killed just because we wanted to get in 'just one more flight'. If this gives you the 'willies' - and I hope that it does, read on.....

This is kinda' long, the end result is that **there is no "...lowest voltage..."**, bear with me as this is a **safety** issue. If anyone wants to flame me afterwards then OK...but please consider that the real point here is...**SAFETY**... before you do.

First let me make it very clear that I am the owner of YNT uDesign and, as such, do have a personal "interest", in the continued sales of my product--The BC6 Flight Monitor. I would still make the statements below regardless of my involvement with YNT uDesign or any other company. I would never, knowingly, mislead anyone intentionally...while I believe my statements to be accurate they are, afterall, my own opinion and, as with any advice, you should evaluate it--then form your own conclusion!

In the many years that I have been involved in the R/C hobby I have **NEVER** heard anyone state anything to the effect of:

"...my flight pack combo (servos, Rx, & battery) will work down to  $N_v$  (nominal voltage) volts, therefore I know it is safe to fly it until I get a reading of  $(N_v - .x)$  volts (where  $x$  is some decimal value  $> 0$ ) from my "meter" ("meter" being any device that is capable of measuring and displaying a voltage)..."

(If that doesn't make sense, please re-read it...if it still doesn't make sense, shoot another email out and I'll try again.)

Let's start with the individual components (keep in mind that these are "generalized" concepts):

- The "electronics" system - Your receiver, servos, switch, etc - due to tolerances in compo-

nents it is almost impossible to have 2 sets of electronics function identically, drawing the same voltage, current, etc. It just CAN'T happen. Additionally, due to the breakdown of the electrical properties of the individual components (resistors, capacitors, diodes, etc) within the system eventually, over time, each system will degrade and (eventually) fail. As an example, a servo with a pot going bad will usually require more current to operate, will not be as precise, and if not repaired will fail (how do I know that?).

- The "power source" - Your battery (be it NiCad, LiMh, etc) - A battery provides useful energy as the result of a chemical reaction. There is a finite amount of chemical(s) in our batteries (obviously) and therefore they are usable only until the chemical(s) that can sustain that reaction are depleted (again, obviously) or a premature mechanical failure occurs. Using a NiCad as an example...when first built a NiCad cell has some maximum useful lifespan measured in charge/discharge cycles. Typically we say that is 500 cycles although there is no empirical proof. You begin depleting the maximum lifespan remaining overall AND the maximum capacity per cycle with the very first use and there is *nothing* you can do to bring it back to its maximum because you can *never* replenish the chemical(s) that sustain the reaction. Additional factors that must be taken into consideration are usage, temperature, maintenance, etc... Let's just say that your pack will never have the same capacity (after a full discharge/charge cycle) today that it had yesterday... it will always be some fractional amount less (and it will be some amount more than a discharge/charge cycle tomorrow). You can however, "*maximize*" the remaining values by proper care and feeding of your batteries...that, more than anything else, will contribute to the well-being of your pack.
- The "usage" - How you use the system as a whole. We can put all the things like the pilot, how you fly (gentle flight vs hard 3D), stick movement (a "stick banger" vs "a

# Tri-State Helicopter Club

## Membership Roster

No.	Last Name	First Name	Member Type	Street Address	City	State	Zip	Telephone	AMA	Paid /owe
1	Anast	John	Full	5752 Lake Michigan Drive	Fairfield	OH	45014	(513) 829-3950	167274	YES
2	Barrow	Dave	Full	5236 Madison Pike	Independence	KY	45051	(606) 357-1258	002534	YES
3	Belluomini	Bob	Full	8872 Colrain Ave.	Cincinnati	OH	45251	(513) 245-9580	077207	YES
4	Bridges	Milt	Full	5319 Bonnell Road	Guilford	IN	47022	(812) 487-2100	208151	YES
5	Cooper	Scott	Associate	113 Cornell Drive	Bainbridge	NY	13733	(607) 967-3937	648750	YES
6	Davis	Bob	Full	3935 Montgomery Road	Norwood	OH	45212	(513) 531-4765	?????	YES
7	Drees	Al	Full	7810 Hartford Hill Lane	Cincinnati	OH	45242	(513) 791-5412	523403	YES
8	Duke	Terry	Full	12450 Stafford Road	New Carlisle	OH	45344	(937) 845-1306	055910	YES
9	Dustrude	Ray	Full	8555 Lynnehaven Drive	Cincinnati	OH	45236	(513) 793-3982	042260	YES
10	Fuschen-Zanker	Cindy	Associate	Al's Hobby Shop	Elmhurst	IL		(630) 832-4908		YES
11	Gaertner	Bob	Full	8311 Weller Road	Cincinnati	OH	45242	(513) 530-9676	000321	YES
12	Galvin	William	Full	2252 Whitmer Road	Batavia	OH	45103	(513) 732-8659	598588	YES
13	Golgowski	Craig	Full	5845 Price Road	Milford	OH	45150	(513) 248-1864	439037	YES
14	Harrison	John W	Full	1757 Marquette Avenue	Cincinnati	OH	45230	(513) 232-8833	609808	YES
15	Harrison	John C	Full	1757 Marquette Avenue	Cincinnati	OH	45230	(513) 232-8833	607543	YES
16	Helson	Slim	Full	1033 St. Route 131	Milford	OH	45150	(513) 831-3173	183940	YES
17	Hughes	Rick	Full	6591 Devon Drive	Middletown	OH	45042	(513) 779-3021	675987	YES
18	Knott	Tim	Full	7757 Thomas Road	Middletown	OH	45042	(513) 423-5747	159321	YES
19	Noel	Daryl	Full	3811 Locke Street	Covington	KY	41015	(606) 491-2613	616833	YES
20	Kosar	Richard	Full	1336 St. Route 131	Milford	OH	45150	(513) 831-1641	420322	YES
21	Jacobs	Terry	Full	6653 Paxton-Guinea Road	Loveland	OH	45140			
22	Lynch	Tim	Full	6977 Panther Drive	Middletown	OH	45044	(513) 777-1054		YES
23	Mercer	Bryce	Full	6132 Woodcrest Drive	Burlington	KY	41005	(859) 689-5953		YES
24	Mercer	Dale	Full	6132 Woodcrest Drive	Burlington	KY	41005	(859) 689-5953	629712	YES
25	Milligan	Rod	Full	4169 Heritage Glen	Cincinnati	OH	45245	(513) 752-9032	457808	YES
26	Pack	Brady	Full	5917 Price Road	Milford	OH	45150	(513) 831-4900	577629	YES
27	Pennell	John	Full	6512 Turtle Point Place	Mason	OH	45040	(513) 754-1577	427502	YES
28	Rotsching	Gayl	Full	263 Lux Avenue	Cincinnati	OH	45216	(513) 761-1266	097474	YES
29	Roysdon	Daniel	Full	2649 Thomasville #1603	Cincinnati	OH	45238	(513) 481-5757	665017	YES
30	Shaw	Jesse	Full	6685 Oakland Road	Loveland	OH	45140	(513) 722-8335	660435	YES
31	Shurley	Carey	Associate	PO Box 953303	Lake Mary	FL	32795	(407) 771-7759	165910	YES
32	Stephens	Dwayne	Full	9193 Sunderkand Way	West Chester	OH	45069	(513) 755-9193	006571	YES
33	Wiebold	Bill	Full	5950 Park Road	Cincinnati	OH	45043	(513) 831-3731	?????	YES
34	Walton	Major	Full	1945 Lawn	Cincinnati	OH	45237	(513) 731-4284	339888	YES
35	Yingling	Chris	Full	20811 Bellemeade Drive	Lawrenceburg	IN	47025	(812) 637-6309	359654	YES

smooth caress"), what you fly (a .30 vs a .60), temperature, how rapidly you "drain" the system, etc. There's really no way to "quantify" any of this in real numbers...we just know, from experience, that the more demand you place on the system the quicker it needs to be "cared" for (recharged). If you start with a fully charged pack it will provide a longer overall flight time if you are hovering vs if you are tearing up the sky with all kinds of phenomenal aerobatics...that's common sense. The electronics system components will (usually) also have a much greater service lifetime...again, common sense...you don't abuse it as much so it doesn't wear out as quick.

If we can agree (in principle) on the 3 points above then I think we can also agree that there is no possible way that anyone can state the "...lowest voltage to which the pack can be discharged before being unsafe to fly..." is N volts. It just can't be done and I, from a standpoint of safety (both my own and that of others), wouldn't trust that number if someone could come up with it! YNT has probably the most accurate and sophisticated battery monitor on the market today. No, it's not in a pretty plastic case but it does what it does better than anything else that I know of (I'm biased I guess <G>). The BC6 monitors 250 times per second and *remembers the lowest voltage* it encountered under *actual, real-time* flight conditions and loads. Nothing else does that...and I still recharge when the BC6 advises that my voltage is no longer in the "green"! OK, that was my pitch for the BC6...back to my soapbox <G>! Your system (as a whole) will be different than mine (or anyone else's) even if it uses the same physical components. Your results will vary dependent upon all those things above (and the R/C Heli Gods of course <G>). You cannot ask for a "lowest voltage" and get one that you can rely on - ***PLEASE DO NOT RELY ON ONE IF YOU DO GET IT - your safety, possibly even your life (or that of someone else) may be at stake!*** Again...for all the newbies, lurkers, and those that just haven't thought about it a lot... ***THERE IS NO "LOWEST VOLTAGE" THAT IT IS SAFE TO FLY UNTIL YOU REACH!!!***

Let's go down to the field...You're at the field, you've had a half dozen good flights, you measure your battery pack and it indicates that you

are above your "minimum safe voltage" by some amount. You decide there's enough for 1 more flight but you'll just kinda' cruise, no real hard 3D, just cruise around instead of really working it out. You fire up, take it out to the pad, bring it up into a hover, check it out...cool...good to go...and your off. You make a few passes then decide to do a roll...hmmm kinda fell out of the bottom of that...try it again. A little better that time but not quite right...let's try it again and this time pay attention. So...after 6 or 8 or 10 you're satisfied. You make a couple of passes more, then bring it back down into a hover to check out your fuel level. You're hovering, as most of us do, at about 4-7 feet up and about 8 - 10 feet away. Head speed about 1800 rpm (BTW the blades have a tip speed of around 250 mph at that rpm), your 'glass blades weigh 118g each, and everything is lookin' good! You're hovering nose-in, admiring the steadiness of your machine, your voltage just dropped below your "minimum" (PCM/non-PCM doesn't even enter into it - there's not enough voltage to operate the Rx - period), the fore/aft cyclic servo goes full forward, the pitch servo goes full pitch, and you've got no place to go because that machine just covered the 10 foot distance between you and it in less than a heartbeat! You have just succeeded in "re-kitting" yourself except for one small thing...***they don't make "crash kits" for people, or eyes, or arms, etc.*** (assuming that you are still alive that is). Get my point??? Has this actually happened...not to my knowledge. Do you want to be the "first"??? Is the scenario "extreme"...I guess it might be considered that by some. ***The point is YOU (or someone else) could suffer grave physical damage or even death!***

If you absolutely MUST have a number as a "guideline" then please use the commonly accepted value of 1.1V per cell (4.4V for a 4-cell pack) and DO NOT fly if your voltage drops below that! This number is generally considered acceptable by the manufacturers of our equipment and through countless pilot-years of experience BUT it is NOT the "gospel".

One more time for the record...

***THERE IS NO "LOWEST VOLTAGE" THAT IT IS SAFE TO FLY UNTIL YOU REACH!!!***

***Your safety, possibly even your life (or that of someone else) may be at stake!***

***Know your equipment, know its capabilities, know how it responds to your use of it, and ALWAYS error on the side of caution and good common sense!***



**TriState Helicopter Club**  
c/o Dale Mercer  
6132 Woodcrest Drive  
Burlington, Ky 41005

**Mark your calendar now for the**  
**October 2000 Meeting**  
**Tuesday the 10th**  
**Slim's Aerodome**