HCRC Flyer

February 2022

AMA Charter #341

A Beautiful photo submitted to me by a gentleman named Wes Kistler, flying his Flyzone Beaver flying at Table Rock lake, Missouri. What a beautiful photo, wouldn't you agree?

From the President's desk.....

Hello All,
Just a quick few words.....

Yeah…….there's a forecast threat for a Nor'easter for this coming weekend as I write this and the previous weekend had temps around 0 degrees. This is the perfect time as most of you already know to spend time indoors in the workshop where it's warm and repair some of those "issues" that cropped up last season or to finally break in to one of those kits you've been sitting on for a couple too many years. Spring is only 8 weeks away and it seems to always have a way of sneaking up on ya. We'll be having our Spring clean up before you know it. Come on……Spring!

This is a sad old topic but one that nonetheless needs to be brought up again……..The club needs more volunteers to help at some critical club positions. We still don't have anyone to run the Flight Training program. This position has been vacant now for over a year and the club keeps voting in new members some of which need help and mentorship to learn fly and do so safely. The other is the Events Committee can use more people to help plan and execute the club events. Everybody likes to attend the events and the club likes to host them to make a few extra dollars but they don't happen by themselves. There are several club members involved with this presently but they can always use more help. Be *that* guy (or gal)……help. PLEASE….pretty please……

Let's hope for great flying weather again this coming season and *I'll see you out there!*

Mike

AS Y' KIN SEE -
I FOLLOWED THE PLANS 'ZACTLY!

HCRC Meeting Notes from Thursday, January 6th, 2022

Quorum Present consisting of 19 Members including 4 Executive Members present: Mike Shaw, Dan Kapinos, Ron Paul, Bill Ewers, Gus Coelho, Peter Cincotta, Juan Ortiz, Juan Salgado, Ed Kopec, Pat Malone, Bob Prosciak, Tracy Page, Leland Johnston, Alan Crawford Sr, Dennis Walker, Lou Enselek, Gordie Lauder, Mike Booth and Santiago Mercado

Two Guests - Jim Earls and Coleman Malone

18 members attended the annual Christmas Party. The party went well and a good time was had by all.

Club finances for the month of November and all of 2021 were reported and approved.

New Year's Day Fly-In cancelled due to weather. Maybe next year.

There is a a late penalty of $15 that will apply to 2022 dues. Please pay by the February Business meeting to avoid the late fee.

Election for one 2022 Director was held. Peter Cincotta was voted in.

Indoor flying at RC Madness starts at 9 AM Saturday morning. This is not an HCRC only event and people may be running cars on one or both racetracks. Mike will investigate indoor flying at the church.

Motion to approve a dues increase was voted and passed. Dues have not been increased in over 10 years. The Admin Fee increases to $25 and all other fees to increase by $10. If joining between Sept 1 to Dec 31st it will be $45 and $25 for Seniors. This does not apply to the 2022 dues that we are currently collecting.

Alan Crawford Sr. discussed a wind & solar charging station that he and Santiago Mercado are working on. We are looking for volunteers to help put the station in place this spring.

New Member Applications:
Stefania Wysk and Jim Earls were voted into the club.

REMINDER FOR DUES LATE FEE PENALTY

A vote was taken and approved at the May 2021 business meeting to implement a late dues penalty fee beginning for the 2022 flying season:

Any member who has not paid their dues in full on or before the February business meeting for the upcoming flying season each year as mandated by the club by-laws will be charged an additional $15 penalty.

If you still have not paid your 2022 dues, mail it ASAP to the Treasurer or bring it or cash to the business meeting on February 3rd to avoid the penalty.

Mail your check to:

HCRC

c/o Ron Paul (club Treasurer)

367 Ware Street

Palmer, MA. 01069

Thank you.

Message from Ron

A Note To Members

Our February meeting will be held on
Thursday Feb 3rd at 7PM at the
VFW 18 Meadow Street, Florence.
Food will be served around 6:30.
We will be serving American Chop Suey
Hot coffee and cold drinks also available.

Learn to Hovering — Master this 3D Move

Of all 3D maneuvers, it's possible that none represent 3D flying more than hovering. While learning to hover can be extremely challenging, you can make it easier for yourself by knowing the primary forces involved. Control while hovering is maintained solely by the propeller thrust or "prop-wash" over the tail surfaces and the inboard portions of the ailerons. It typically takes approximately half throttle to maintain a stationary hover but that usually provides only marginal control. Therefore, you need to continually pump the throttle higher while hovering in order to generate more propwash over the surfaces without holding the higher throttle positions long enough to cause the airplane to climb.

Next, understand that the "propwash," generated by the turning propeller, spirals around the fuselage and strikes the left side of the vertical tail, thus producing a strong left yaw tendency during hover. Consequently, you'll

need constant right rudder inputs to keep the fuselage vertical. (Note: Building in a couple degrees of right thrust lessens the effect of the propwash while hovering, but it does not eliminate it.)

A great deal of the propwash also strikes the underside of the left stab, causing the plane to pitch forward during hover. Therefore, barring any wind, you can expect to regularly need up-elevator along with right rudder to keep the fuselage vertical while hovering.

There is also considerable left rotational torque while hovering, so you'll need to hold in large amounts of right aileron to keep the wings stationary. If the plane continues to torque to the left despite holding in full right aileron, you may have to increase the right aileron travel. If you can't keep the plane from torquing even with full aileron, you'll have to boost the throttle higher each time the plane starts to torque to further increase the effectiveness of the ailerons.

CONTROL TECHNIQUE

The standard entry into a hover starts by slowing the airplane and then abruptly pulling to vertical, causing the airplane to suddenly stop all forward movement. Be aware that you most likely will need to input some right rudder and aileron to counter the propeller forces while pulling up to vertical. Then immediately start pumping the throttle to maintain the same height as well as control.

A hover will quickly unravel if you are late correcting a deviation, so keep your fingers moving at all times, even when the airplane appears momentarily stable. This will make sure that you're always ready to respond to deviations the instant they occur.

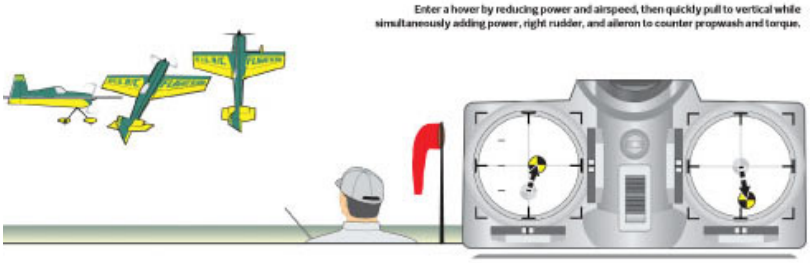
As a rule, if the tail swings more than five degrees from vertical while hanging on the prop, it will be very hard to stop the deviation due to the pendulum effect. To minimize over-controlling, you must try to limit your rudder and elevator corrections during hover to small brief bumps or jabs.

If a deviation is larger than five degrees and requires a larger correction, any large correction will have to be immediately followed by a quick opposite jab to keep the response from escalating.

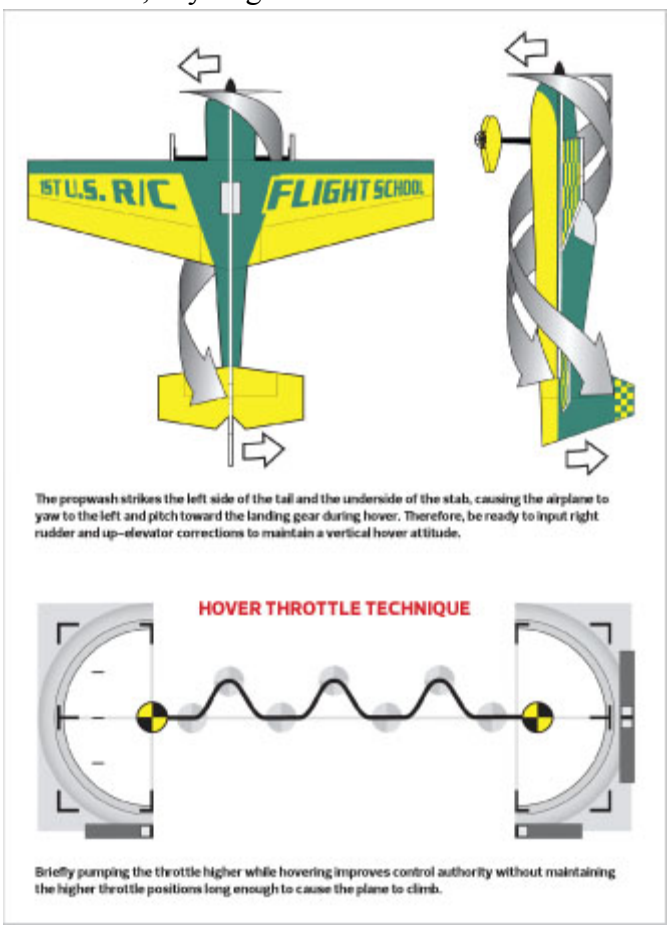
Try to limit over-controlling by keeping your inputs tiny and brief, and if you must input a larger bump, immediately input an opposite bump to limit the response.

ADVANCED HOVER TIPS

Since a sustained hover demands immediate corrections, use of too much expo will delay the control response and thus hinder hover success. If you feel that the plane is lagging behind your control inputs, reducing the expo settings will likely improve your ability to hover.



Enter a hover by reducing power and airspeed, then quickly pull to vertical while simultaneously adding power, right rudder, and aileron to counter propwash and torque.

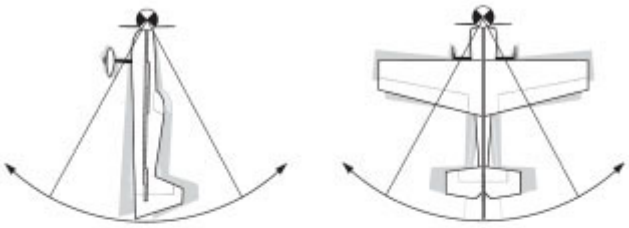


The propwash strikes the left side of the tail and the underside of the stab, causing the airplane to yaw to the left and pitch toward the landing gear during hover. Therefore, be ready to input right rudder and up-elevator corrections to maintain a vertical hover attitude.

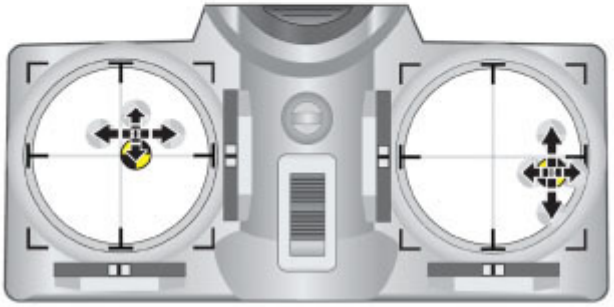
Briefly pumping the throttle higher while hovering improves control authority without maintaining the higher throttle positions long enough to cause the plane to climb.

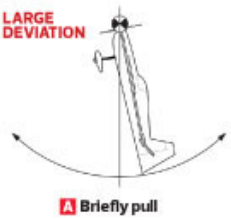
CG Considerations

To avoid aggravating the pendulum effect, larger corrections will require returning the control stick past neutral into a brief opposite input to halt the response.

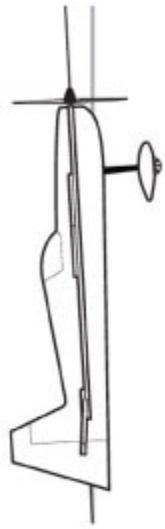


To avoid over-controlling, try to limit your rudder and elevator corrections to small brief bumps or jabs when working to keep the fuselage vertical during hover.





It has long been said that an aft CG makes an airplane easier to hover. While a tail-heavy condition helps flat spins and tumbling maneuvers, after years of 3D flying and testing, neither an aft nor forward CG has proven to have much impact on hovering flight. In fact, more and more professional 3D pilots set up their planes these days slightly nose-heavy to make them more predictable and less erratic. All things considered, most pilots are best served to go with a "neutral" CG (near the wing's thickest point or approximately one third of the wing chord) to achieve the best overall performance.



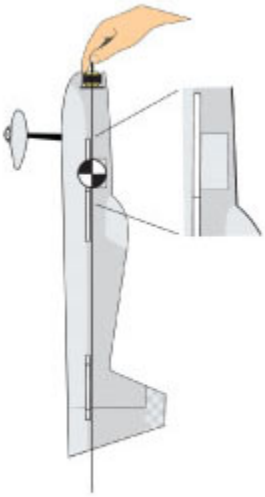
Most models lock into a more stable hover when the fuselage is held a couple degrees past vertical (tilted slightly toward the canopy) to compensate for the propwash striking the underside of the stab.

Although it's rarely possible to achieve a perfectly vertically balanced airplane, i.e., with the tail hanging straight down, getting it as close as possible can make the airplane lock into a much easier hover. If you can, try to position the batteries and other items as high as possible in the fuselage to offset the weight of the landing gear, etc.

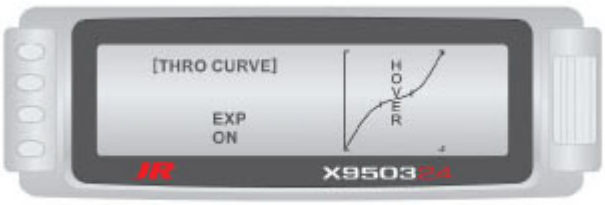
On the other hand, if over-controlling seems to be a persistent problem, i.e., the corrections you make typically end up causing more deviations. To solve this, in addition to practicing smaller control inputs, try increasing your expo percentages.

If your airplane exhibits an especially strong tendency to pitch forward while hovering, putting in additional up-elevator trim will certainly help. But the trick that works best is to aim to hover with the fuselage tilted a couple degrees toward the canopy.

Some 3D pilots like to determine the exact power setting that their airplane hovers at and then they flatten the throttle curve a bit around that setting to make the throttle less sensitive. On a similar note, using a lower pitch propeller affords a larger power sweet spot during hover in which the throttle is less sensitive and therefore less prone to over-controlling.



Check the vertical balance of your smaller 3D models by supporting them from the propeller shaft. When possible, move things toward the top of the fuselage to achieve a better vertical balance and a more stable, less-demanding hover.



If over-controlling the throttle is a problem, some pilots find it helpful to flatten the throttle curve around the hover throttle setting to dampen the throttle response.

CONCLUSION

To avoid over-controlling, try to limit your rudder and elevator corrections to small, brief bumps or jabs when working to keep the fuselage vertical during hover.

While there will always be pilots who try to impress others by throwing the sticks into the corners until altitude forces them to recover, they don't come close to knowing the satisfaction that comes from learning to hover. It may be challenging, but you can take confidence from knowing that you're now armed with the knowledge to learn at a rate much faster than most! Good luck.

Airplane of the month: "Northrop Tacit Blue"

The Northrop Tacit blue was a technology demonstrator aircraft created to demonstrate that a low-observable stealth surveillance aircraft with a low-probability-of-intercept radar (LPIR) and other sensors could operate close to the forward line of battle with a high degree of survivability. Unveiled by the U.S. Air Force on 30 April 1996, the *Tacit Blue Technology Demonstration Program* was designed to prove that such an aircraft could continuously monitor the ground situation deep behind the battlefield and provide targeting information in real time to a ground command center. In December 1976, DARPA and the U.S. Air Force initiated the **Battlefield Surveillance Aircraft-Experimental (BSAX)** program, which was part of a larger Air Force program called Pave Mover. The BSAX program's goal was to develop an efficient stealth reconnaissance aircraft with a low probability of intercept radar and other sensors that could operate close to the forward line of battle with a high degree of survivability. Tacit Blue represented the "black" component in the larger "Assault Breaker" program, which intended to validate the concept of massed standoff attacks on advancing armoured formations using smart munitions. The Pave Mover radar demonstrators provided the non-stealth portion of the program's targeting system, whereas Tacit Blue was intended to demonstrate a similar but stealth capability, while validating a number of innovative stealth technology advances.[1]The radar sensor technology developed for Tacit Blue evolved into the radar now being used by the E-8 Joint STARS aircraft.[2]Tacit Blue was given the designation of "YF-117D" by the Air Force, implying it was a variant of the Lockheed F-117 stealth fighter.

Upcoming Events:

02/03/2022 – Club business meeting 7pm Florence VFW (Food by Chef Ron COME HUNGRY)
03/03/2022 - Club business meeting 7pm Florence VFW

Thank you to our sponsors

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