

LIVE FREE AND FLY



BullSheet



Meeting Schedule

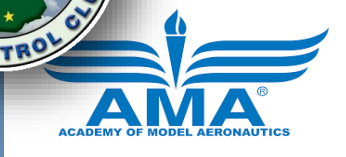
Next Meeting 8 September 2025

Club meetings are held on the second Monday of each month.

Next meeting

Our regular monthly meeting will held on September 8th at 7:00 PM in the Litchfield Fire Department.

The Bull sheet is published by the Southern New Hampshire Radio Control Club (SNHRCC), Inc, a non-profit Academy of Model Aeronautics (AMA) Chartered Club #408, for the promotion of building and flying Radio Controlled (RC) model aircraft.



BullSheet

Greetings Folks,

Last week we visited the Litchfield Conservation Commission meeting in order to request use of the newly purchased Durocher farm. Unfortunately, we were met with a unanimous "no." The idea of the purchase of this property is that it doesn't change in any way (be that getting developed, or our use). The only thing that might change is some of the unused woods may get some hiking trails. We all feel pretty discouraged having been led to believe this land would be used for recreation. The board encouraged us to contact the recreation department, however we anticipate difficulties in getting them to volunteer any land that might work for us. You can watch the meeting here: <https://www.youtube.com/live/juQPjMs510k>

We have also asked about using a different area of the Auburn road site that might make a nicer place to fly, however we have not heard back. We have a few more options as well we will look into. In the meantime, anybody with any other ideas for fields is encouraged to speak up and we can help ask for their use for our flying site.

In better news, the Wagner Fun Fly is coming up on October 4th with a rain date of the 5th at the Concord Skyhawks field in Concord, NH. It will be a fantastic time and I'm very excited about it.

See you Monday!

Cody





Southern NH Radio Control Club Meeting Minutes
 Aug 11, 2025
 Litchfield Middle School



Officers in attendance: Cody

The secretary's, and Treasurer's reports were read and accepted.

Cody gave an update of finding a new field. The officers were preparing a presentation to the conservation site. Pelham said no. Steck farm had no activity. The farm in Dunbarton was trying to turn a profit so there probably was not much hope there. The Derocher and St. Gobains properties were discussed.

John Marien suggested the Merrimack transfer station capped landfills off of Lawrence road. He took the action item to look into this as a proposed flying site.

John Marien also proposed a club event at the Putt Putt Golf location in Litchfield. The club could pay for admission for club members and club members were responsible for their own food and beverages.

Meeting was adjourned at 7:24pm

John Marien (standing in for Mr. Hayes).

Club Officers

PRESIDENT

Cody Wojcik

Salem, NH
 603.479.3799

VICE PRESIDENT

Mark Auclair

Windham, NH

SECRETARY

John Hayes

Litchfield, NH
 603.345-5604

TREASURER

Ed van der Veen

Hudson, NH

WEBMASTER

Ed van der Veen

Hudson, NH

SAFETY OFFICER

Brian Nadeau

NEWSLETTER

John Marien

Merrimack, NH
 603.860.0050
 John@ne-aero.com

FLIGHT INSTRUCTORS

John Hayes

603.345.5604

John Marien

603.860.0050



SNHRCC Winter Meeting Spot!

Our meeting spot is in the Community Room of the Litchfield Fire Dept. Please pay attention to the parking restrictions that are made to accommodate the Volunteer Firefighters on call. **Violators will be mocked until they move their vehicles.**

BURLINGTON RC FLYERS PRESENT:



FUN FLY-IN EVENT


**WHEN: SUNDAY, SEPTEMBER 14
11:00AM – 3:00PM**

***RAIN DATE: SUNDAY, SEPTEMBER 21**

**WHERE: MARY CUMMINGS PARK,
BURLINGTON MA**

(33-27 BLANCHARD RD, BURLINGTON, MA 01803)

WHAT TO EXPECT

- A FULL DAY OF RC FLYING FUN WITH THE BURLINGTON RC FLYERS
- FOOD & DRINKS PROVIDED 
- RAFFLE WITH GREAT PRIZES

PARKING

**PICNIC AREA
PARKING AVAILABLE**

**ADDITIONAL PARKING
ACROSS THE STREET
AT THE ORACLE LOT**

www.burlington-rc.com

Questions? Contact: membership@burlington-rc.com

Inverted Flat Spin (80/20 Rule)

Entry (Getting Into It)

1. Set Up Inverted Stall

- Roll the airplane inverted at altitude.
- Reduce throttle to idle.
- Hold **full up elevator** (which is *down elevator stick* when inverted).

2. Spin Induction

- Kick in **full rudder** (left or right).
 - Add some **same-direction aileron** to flatten the spin.
 - Airplane will rotate flatly, nose high, spinning flat around the vertical axis.
-

Sustaining the Spin

- Keep **full rudder + elevator + some aileron** in.
 - Power (1/4–1/2 throttle) may help keep it flatter and more dramatic.
 - Airspeed is low — visual rotation count is key.
-

Recovery

1. **Throttle to idle.**
 2. **Neutralize ailerons.**
 3. **Full opposite rudder** to stop yaw.
 4. **Push forward elevator (down stick)** to break the stall.
 5. Once rotation stops, neutralize controls and **smoothly add power** to regain level flight.
-

Instructor Notes

- Needs altitude — at least **3 mistakes high** before trying.
- Every airplane responds differently; some recover instantly, others wallow.
- Too much aileron during entry can *flatten* the spin so much that recovery takes longer.
- Some aerobatic designs (Yak, Extra, Edge) excel at this; trainers or warbirds generally do not.

Inverted Flat Spin

Here's the **80/20 breakdown** for performing and recovering from an **Inverted Flat Spin** with an RC aerobatic airplane:

Entry (Getting Into the Inverted Flat Spin)

1. **Fly inverted** at a safe altitude (plenty of room for recovery).
 2. **Throttle to idle** – power off to reduce forward speed.
 3. **Forward elevator (down elevator stick)** – since the plane is inverted, this acts like “up elevator” and stalls the wing.
 4. **Full rudder (left or right)** – apply full rudder in the direction you want the spin.
 5. **Aileron (optional)** – add a touch of aileron in the same direction as rudder to flatten the spin.
-

Spin Count

- Visually track the airplane's rotation.
 - For a flat spin, the nose will stay fairly level with the horizon while the fuselage rotates around the vertical axis.
 - Count the desired number of turns (commonly 1 to 2 for demonstration).
-

Recovery (Getting Out of the Spin)

1. **Neutralize rudder and aileron** – stop feeding spin inputs.
 2. **Forward elevator neutralized** – center the stick to break the stall.
 3. **Add throttle** – power on to regain airflow and flying speed.
 4. **Smoothly return to level flight** – correct orientation with gentle stick input if needed.
-

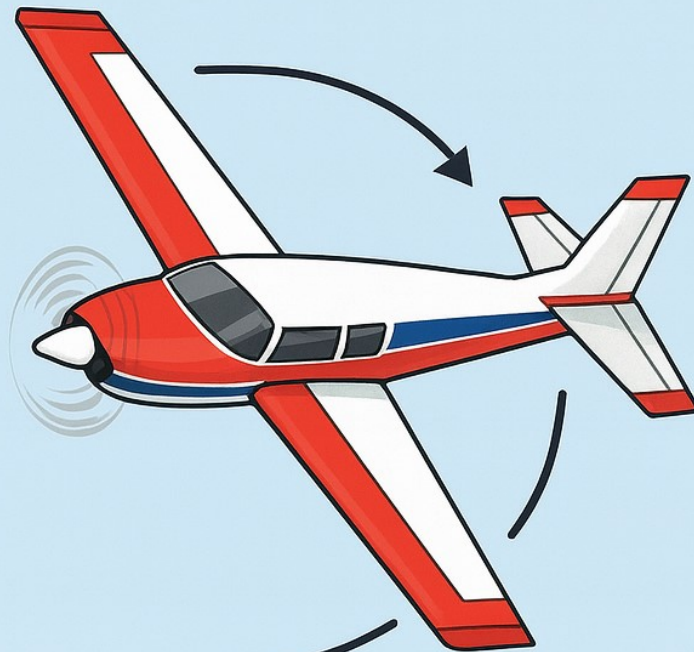
The 80/20 Rule Here

- 80% of success comes from **setup and entry**: inverted, idle throttle, forward elevator, full rudder.
- 20% is **clean recovery**: neutralize controls, add power, and let the airplane fly out.

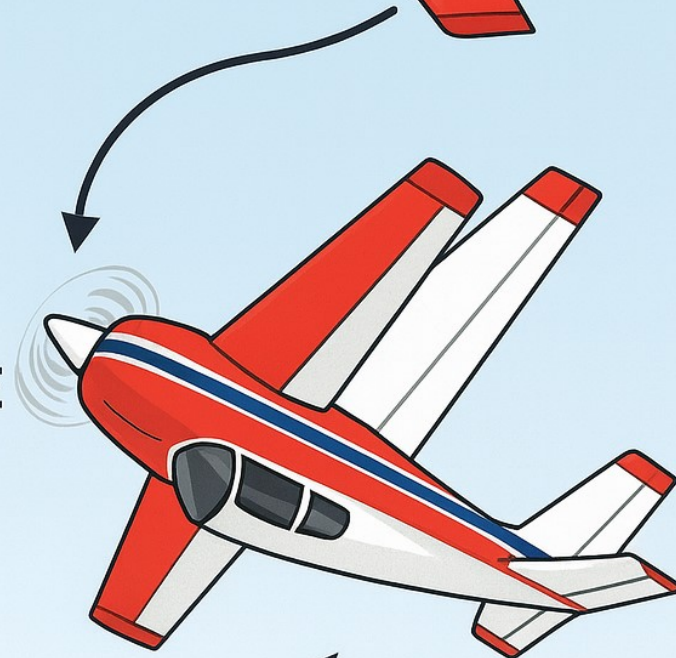
80/20 RULE

INVERTED FLAT SPIN

ENTRY
THROTTLE TO IDLE
• **FORWARD ELEVATOR**



SPIN COUNT
NEUTRALIZE RUDDER



RECOVERY
NEUTRALIZE RUDDER
ADD THROTTLE

Using ChatGPT to solve a modeling mechanical issue!

I set up my 85” Edge by connecting the throttle arm on my DA60 to the servo arm on the servo. Then I adjusted the end points on the throttle servo so that I had a smooth transition from throttle idle to full throttle. Everything looked great and off I went flying. But when I was trying to do an upright harrier, I could not get the throttle to be “right”. The difference of 1 click on the throttle stick meant I was climbing or sinking. I knew I had to fix this. The problem was in the lengths of the throttle arm, servo arm, the degrees of rotation of the throttle arm and the degrees of rotation of the servo. This was the day when Algebra was going to save my life. Well, not so much. I’m good at math, but I was just in the woods here. So, I turned to ChatGPT to solve the problem for me :-)

Here’s the prompt:

Off went ChatGPT for 7 seconds and came up with the following (next page)

Solve for the length of Arm H in the following problem:

For the description 0-degrees is due West and 90-degrees is due North.

There are two pivot points each with its own arm connected to the pivot point and the arms extend outward at 0-degrees.

Given Pivot Point G as the starting point, Pivot Point A is at 90-degrees to Pivot Point G and 60mm North of Pivot Point G. Both Pivot Point A and Pivot Point G are fixed.

Pivot Point A has an Arm B with length 16mm.

Arm B is at 0-degrees and the East end rotates around Pivot Point A.

Pivot Point G has an Arm H with an unknown length.

Arm H is at 0-degrees and the East end rotates around Pivot Point G.

The West end of Arm B and Arm H are connected together with a fixed length rod that pivots at the end of each arm so that as Arm H rotates from 0-degrees to 60-degrees it drives Arm B to rotate from 0.0-degrees to 37.5-degrees.

Nice geometry puzzle — let's walk through it cleanly.

Setup (coordinate system & conventions)

- Put Pivot G at the origin: $G = (0, 0)$.
- North is $+y$; East is $+x$. Pivot A is 60 mm north of G , so $A = (0, 60)$.
- Angles are measured from due West ($0^\circ = \text{West}$, $90^\circ = \text{North}$). A direction for an angle θ (measured CCW from West) corresponds to the unit vector $(-\cos \theta, \sin \theta)$.
- Arm lengths: $B = 16$ mm (given), $H = \text{unknown}$. Each arm's **east end** is at its pivot; its west end is at the pivot plus the arm length times that direction. The two west ends are connected by a fixed-length coupler, so the distance between those two west-end points is constant.

Coordinates of the west ends

- For Arm H (pivot at G , angle θ_H):

$$P_H(\theta_H) = (-H \cos \theta_H, H \sin \theta_H)$$

- For Arm B (pivot at $A = (0, 60)$, length 16, angle θ_B):

$$P_B(\theta_B) = (-16 \cos \theta_B, 60 + 16 \sin \theta_B)$$

Constant-coupler condition

The distance between P_H and P_B must be the same in the initial position and the final position.

Initial position: $\theta_H = 0^\circ$, $\theta_B = 0^\circ$

Final position: $\theta_H = 60^\circ$, $\theta_B = 37.5^\circ$

So the equation is

$$\sqrt{(16 - H)^2 + 60^2} = \sqrt{(16 \cos 37.5^\circ - H \cos 60^\circ)^2 + (H \sin 60^\circ - 60 - 16 \sin 37.5^\circ)^2}.$$

Square both sides and simplify to solve for H .

Plugging in trigonometric values (to high precision)

$$\cos 37.5^\circ \approx 0.7933533403,$$

$$\sin 37.5^\circ \approx 0.6087614290,$$

$$\cos 60^\circ = 0.5,$$

$$\sin 60^\circ \approx 0.8660254038.$$

Solving the resulting equation (numeric solution) gives the physically relevant positive root:

$$H \approx 11.517 \text{ mm}$$

Sanity check

- The coupler length in the initial position (both angles 0°) is

$$\sqrt{(16 - H)^2 + 60^2} \approx 60.1673 \text{ mm}.$$

- The same distance computed at $\theta_H = 60^\circ$, $\theta_B = 37.5^\circ$ is the same (within numerical precision), so the solution is consistent.

OK, that was fun and I had my answer. But I wanted something useful that I could calculate, like an Excel formula:

Please write an Excel formula that solves the above problem using the following Cell definitions:

The value of Arm B length is in Cell B1.

The value of Arm H length is in Cell B2.

The distance between Pivots Points is in Cell B3.

The rotation, in degrees, that Arm H moves is in Cell B4

The rotation, in degrees, that Arm B moves is in Cel B5

Place the Excel formula that calculates the Length of Arm H in Cell B2.

Additional cells below B6 can be used for intermediate values as needed

Got it — we'll set this up so B2 (Arm H length) contains a formula that directly computes the answer using your given parameters.


Since we have to solve for H from the equation

$$\sqrt{(B1 - H)^2 + B3^2} = \sqrt{(B1 \cos(B5) - H \cos(B4))^2 + (H \sin(B4) - B3 - B1 \sin(B5))^2}$$

we can use Excel's **Solver** tool *or* algebra to isolate H and put the closed-form solution into B2.

Here's the closed-form Excel formula (radians conversion included) that you can paste directly into B2:

excel

 Copy code

```
=(
(B1^2 + B3^2 - B1*COS(RADIANS(B5))^2 - B1*SIN(RADIANS(B5))*(B3 + B1*SIN(RADIANS(B5))))
/
(COS(RADIANS(B4))*COS(RADIANS(B5)) + SIN(RADIANS(B4))*(B3 + B1*SIN(RADIANS(B5))) - B1
)
```

Cell meanings (per your spec)

- B1 = Arm B length (mm)
- B2 = Arm H length (mm) ← formula above goes here
- B3 = Distance between pivots (mm)
- B4 = Rotation of Arm H in degrees
- B5 = Rotation of Arm B in degrees

How it works

- `COS(RADIANS(...))` and `SIN(RADIANS(...))` handle angle conversions from degrees to radians.
- The numerator and denominator come from rearranging the distance-equality equation and solving algebraically for H .
- This avoids iterative guessing — you just enter your parameters and Excel instantly calculates Arm H's length.

Great. But plugging it into Excel failed. ChatGPT got it wrong.

Please check your Excel formula for Cell B2. When I plug that formula into Excel, it responds with a length for Arm H (B2) of 70.6944

Ah — I see what happened.

My earlier formula didn't correctly account for the **squared distance equation** and ended up giving a completely wrong scale.

Let's fix this properly.

Restating the problem in equation form

We know:

Initial position ($H_0=0^\circ$, $B_0=0^\circ$):

$$d^2 = (B1 - H)^2 + B3^2$$

Final position ($H_1=B4^\circ$, $B_1=B5^\circ$):

$$d^2 = (B1 \cos B5 - H \cos B4)^2 + (H \sin B4 - B3 - B1 \sin B5)^2$$

Here:

- B1 = Arm B length
- B2 = Arm H length (unknown, H)
- B3 = Distance between pivots
- B4 = H rotation in degrees
- B5 = B rotation in degrees

The d^2 term is the same in both equations, so we can set them equal and solve for H.

The cleaned-up algebraic solution for H

Starting from:

$$(B1 - H)^2 + B3^2 = (B1 \cos B5 - H \cos B4)^2 + (H \sin B4 - B3 - B1 \sin B5)^2$$

After expanding, collecting like terms, and simplifying, we get:

$$H = \frac{-B1^2(\cos^2 B5 + \sin^2 B5 - 1) - 2B1B3 \sin B5}{2B1(1 - \cos B4 \cos B5 - \sin B4 \sin B5) - 2B3 \sin B4}$$

That simplifies (since $\cos^2 + \sin^2 = 1$) to:

$$H = \frac{-2B1B3 \sin B5}{2B1(1 - \cos B4 \cos B5 - \sin B4 \sin B5) - 2B3 \sin B4}$$

Divide numerator and denominator by 2:

$$H = \frac{-B1B3 \sin B5}{B1(1 - \cos B4 \cos B5 - \sin B4 \sin B5) - B3 \sin B4}$$

In the end, this was the final Excel code:

```
=-(B1*B3*SIN(RADIANS(B5))) / (B1*(1 - COS(RADIANS(B4))*COS(RADIANS(B5)) -  
SIN(RADIANS(B4))*SIN(RADIANS(B5))) - B3*SIN(RADIANS(B4)))
```

And that got me full resolution on my throttle within the geometries present. Flying the perfect Harrier was still another issue...

Seacoast United

88 Shirking Rd Epping, NH
around the corner from Petersons field



how about flying inside
for the winter
just think indoor plumbing



Any questions text Wayne
@603-498-4690

9:00am to 1:00pm
Every Tuesday & Thursday

starting January 23rd

cost: \$10.00/day or \$60.00 Monthly membership
credit card only

Darrell Wagner Memorial Fun Fly



October 4th 2025

Oct 5th Raindate



**This event will be held at
the Concord Skyhawks
field from 10AM to 3PM.**

27 Locke Road, Concord NH.

**Come have a fun filled day as you know Darrell
would have enjoyed. Food will be provided by
the clubs.**



A food donations box will be available and greatly appreciated by the SNHRCC and Skyhawks

The NHFT club is offering 50% off dues for SNHRCC members who have not joined them yet.

SNHRCC members can also fly on guest passes for a bit to try out the field.

There are many of us who have already joined the NHFT club.



Accepting, photographs, interests, build projects, personal updates, news, stories, gossip, anything -

....Please send to your humble editor to be included in next edition.

John@ne-aero.com





The Recreational UAS Safety Test (TRUST)



<https://www.youtube.com/watch?v=ZklBwvy6gZc>

This video explains the TRUST Test REQUIREMENT.

<https://trust.modelaircraft.org/>

This is the Course/test site.

ABOUT THIS TRAINING

WELCOME TO THE RECREATIONAL UAS SAFETY TEST (TRUST)

The Academy of Model Aeronautics is an **FAA-approved Test Administrator of The Recreational UAS Safety Test** (TRUST).

TRUST is a collaboration between the FAA and industry to provide TRUST and educational safety material to Recreational Flyers.

Recreational flyers can access the TRUST here by clicking START below!

Upon completion of the test recreational flyers should print or save a digital copy of their completion certificate and keep it on their person when they fly. The Academy of Model Aeronautics cannot re-issue your completion certificate if it is lost. The FAA cannot re-issue your completion certificate. Should you lose your completion certificate, you will need to re-take TRUST and obtain a new certificate.



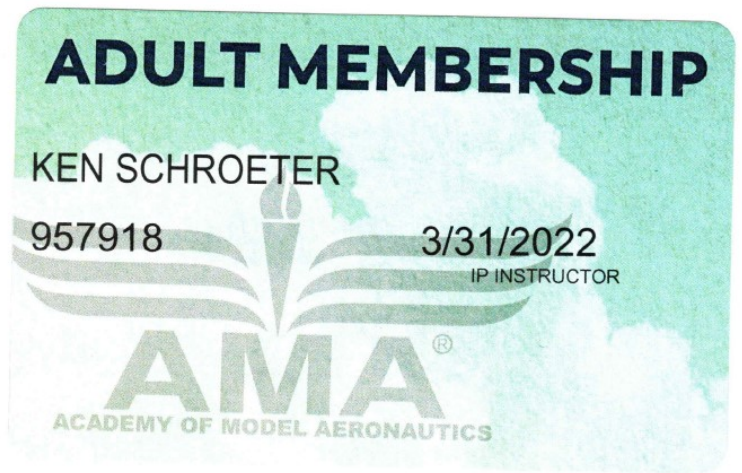
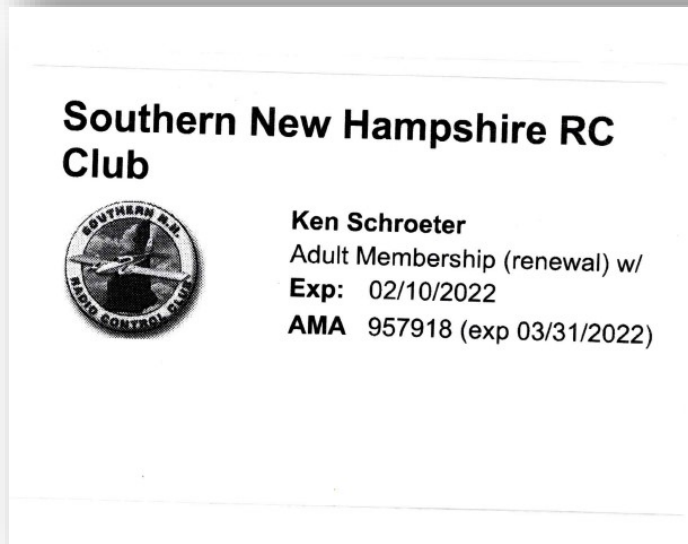
NOTAM

This is a requirement of the AMA and FAA, so please take the few minutes to take the course. The “test” is a set of slides explaining the knowledge base required, followed by a few “keep doing it until you get it right” questions that is the actual test. Its quite simple if you watch the slides. You will need to keep a copy of the certificate with you when flying. Once and done forever.

No whining,

REQUIRED FLIGHT DOCUMENTS

These are the required documents to fly at an AMA Chartered Field.
For the FAA you technically only need your FAA Number where it can be seen on your aircraft in plain view (i.e. not inside). I keep them in my radio box.



1. FAA Drone Registration Number/Card
2. TRUST Certificate
3. Current Club Card
4. Current AMA