

LIVE FREE AND FLY



BullSheet



Meeting Schedule

Next Meeting 9 March 2026

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

Next meeting

Our regular monthly meeting will held on March 8th at 7:00 PM in the Litchfield Middle School.

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

Happy spring! Maybe.

Despite the recent snow storm, I think we are getting more melting than freezing these days. I am ready some summer flying and hopefully setting up a new field!



I wanted to give a few updates regarding our field search. We were contacted by the owner of AJ's sports bar, and they have a softball field with decent flyover area behind their building, they have invited us to check it out and see if it would work for us. We will be visiting on Wednesday to see it and talk over details. It's not huge, but it might be a great place to fly smaller stuff until we find some place bigger.

We have also looked into the Elwood Orchard, and as far as we can tell, it's not available just yet. It might be good to see how we could get our foot in the door for that spot as well.

I'll miss the meeting Monday, but look forward to hearing how it goes. We will report back results of our meeting with AJ's.

Thanks!

Cody



No Secretary's Report for this month.



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What pitch Prop do I need?

by John Marien

I want to select the best prop for an upcoming project where I'm building a 1/3rd-scale Fokker DR.1 Triplane. This Triplane would be powered by a 4-stroke motor swinging a propeller with a diameter of 34"-38". The question is that I want the airplane to fly at a scale speed. The original Fokker DR1 airplanes cruised around at 90mph. So, my scale speed target is 30mph.

So, let's look at the knowns:

- Speed: 30 mph
- Maximum RPM of the Engine: 5,500 RPM
- Target RPM of the Engine: 5,000 RPM (always leave some in reserve)
- Engine size: 210cc 4-Stroke Gasoline
- Recommended Propeller Diameter: 34"-38"

From here, I asked both Google's AI and ChatGPT the exact same question and they each came up with different, but close answers.



Here's the Question:

You are acting as an aerodynamic expert in radio-controlled modeling of airplanes, specifically World War I airplanes. For a 1/3rd scale Fokker Triplane weighing 15-20 lbs., powered by a 210cc 4-stroke engine with a maximum of 5500 RPM Where the engine manufacturer recommends a 2-blade propeller with a diameter 34"-38", what pitch propeller is best at 5000 RPM to travel at 30 mph?

On the next 2 pages are ChatGPT's answer and Google's AI answer. So, what is your guess before turning the page?


Google Answered Like This:

For a 1/3 scale Fokker Triplane (a very high-drag, slow-flying aircraft) weighing 15-20+ lbs and powered by a 210cc 4-stroke engine, **a propeller pitch in the range of 10" to 12"** is best to maintain a scale speed of roughly 30-35 mph at 5000 RPM, while keeping the engine well-loaded.


Given the recommended 34"-38" diameter range, the ideal propeller size is likely around:

- **34x10 to 36x10** (for higher drag/maximum thrust)
- **34x12 to 36x12** (for slightly higher speed/better efficiency)

Technical Reasoning and Calculations

- **Target Speed (30 mph):** 30 mph is 528 inches per minute ($30 \times 63360 / 60$).
- **Propeller Pitch Speed:** Pitch speed is calculated as $\text{RPM} \times \text{Pitch (in inches)} \times 60 \text{ minutes} / 63360 \text{ inches/mile}$.
- **Calculations at 5000 RPM:**
 - **34x10 Prop:** $5000 \times 10 \times 60 / 63360 = 47.3 \text{ mph}$ (Theoretical). Due to high slip (approx. 30-40%) on a slow biplane, this will yield an actual speed close to 30-33 mph.
 - **34x12 Prop:** $5000 \times 12 \times 60 / 63360 = 56.8 \text{ mph}$ (Theoretical). This will likely fly a bit faster (35-38 mph) and is better if you want a slightly higher cruise speed.
- **Why Not Higher Pitch?** A 34x14 or 34x16 would offer too much speed for a Fokker Triplane, causing the engine to struggle with the load at lower airspeeds, leading to overheating or poor acceleration during takeoff. 

Recommendations

1. **Start with 34x10 or 36x10:** These will ensure the 210cc 4-stroke engine is loaded heavily enough to not over-rev, providing excellent slow-speed handling and climb performance suited for a DR.1 Triplane.
2. **Propeller Choice:** A 34-38 inch prop is very large, so ensure you have enough ground clearance (1/3 scale triplanes usually have adequate gear).
3. **Adjust for Performance:** If the plane is too slow, increase the pitch (e.g., 12"). If the engine sounds like it is struggling to pull the prop, decrease the pitch.  Facebook +4

Disclaimer: 1/3 scale modeling with engines this size (210cc) often requires fine-tuning pitch based on altitude, air density, and the exact drag coefficient of your specific model.

ChatGPT Answered Like This:

At this speed/RPM, prop **pitch** is basically set by "pitch speed" (then you back off a bit for slip).

The math

$$\text{Pitch speed (mph)} \approx \text{RPM} \times \text{Pitch(in)} / 1056$$

Solve for pitch at **30 mph** and **5000 RPM**:

- **No slip (pure theory):**

$$\text{Pitch} = 30 \times 1056 / 5000 = 6.34"$$

But real props have **slip** (the airframe + prop efficiency + drag). A WWI triplane is *draggy*, but at **cruise** the slip is often around **15–25%** (it's usually worse at static, better once moving).

So:

- With **20% slip**: Pitch = $6.34 / 0.80 = 7.9"$
- With **25% slip**: Pitch = $6.34 / 0.75 = 8.45"$

Best practical answer

A very solid "best pitch" target is **~8 inches**.

That's because at 5000 RPM:

- A **8" pitch** prop has a theoretical pitch speed of

$$5000 \times 8 / 1056 = 37.9 \text{ mph}$$

and to actually fly **30 mph**, that implies slip of:

$$1 - 30/37.9 = 0.208 \rightarrow \sim 21\% \text{ slip (totally believable for this setup).}$$

What I'd actually bolt on first

Given the manufacturer's **34–38" diameter** guidance and your goal of a slow-ish WWI cruise:

- **Start with a 36×8** (classic sweet spot)
- If you want more "pull"/scale-y climb without overspeeding, try **38×8** *if the engine can still turn ~5000-ish unloaded in the air.*

Quick tuning rule

- If you're seeing **<4800 RPM** in the air at full throttle → drop pitch (or diameter).
- If you're seeing **>5200 RPM** and you want more bite → go up to **9" pitch**.

So: **aim for an 8" pitch prop** (most likely **36×8**, optionally **38×8** depending on RPM and clearance).

In summary:

For Google:

34x10 to 36x10 (for higher drag/maximum thrust)

34x12 to 36x12 (for slightly higher speed/better efficiency)

And for ChatGPT:

36x8

38x8

Now the engine manufacturer makes the following 2-blade propeller recommendations for this motor as follows:

Recommended props:

34 x 16 Fiala 2-blade

36 x 14 Fiala 2-blade

38 x 12 Fiala 2-blade

There you have it! Ask three people a question and you get three answers. My initial “gut” instinct was an 8-10 pitch propeller. I have a 32”x12”, a 33”x12” and a 34”x12” in my propeller stash — all from different manufacturers. At this size, a 34”x12” in one brand is not the same as a 34”x12” in another brand because the airfoil of the propeller has an effect on performance and load on the engine.

Based on the responses, and what is available, I went back and refined the question challenging my 5,000 RPM cruise RPM and lowering it to 4,000 RPM.

By doing this, ChatGPT narrowed its answer to a firm 38”x12” 2-blade propeller. While Google refined its answer to be: 34x10, 34x12, 36x10, or 36x12 configuration, depending on which diameter flies better on your specific airframe.

Pulling it all together, it looks like a 12” pitch is the sweet spot with a diameter of 36”-38” or a 14” pitch in the 34”-36” diameter range.

At \$110-\$150 per prop, I’d rather not spend too much hunting for the right propeller.



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

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

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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.



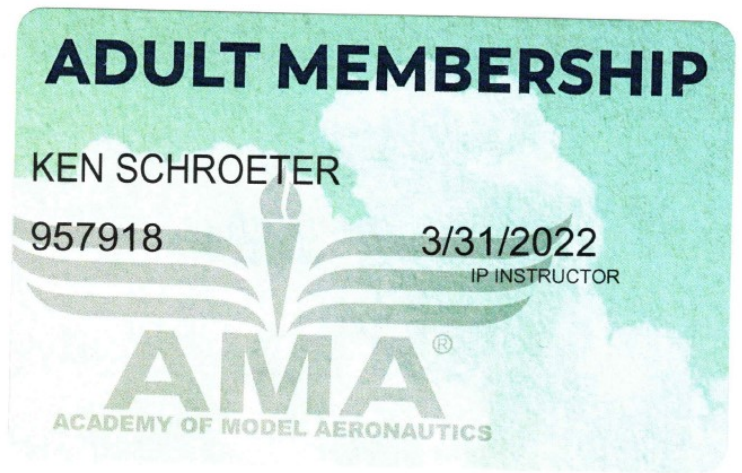
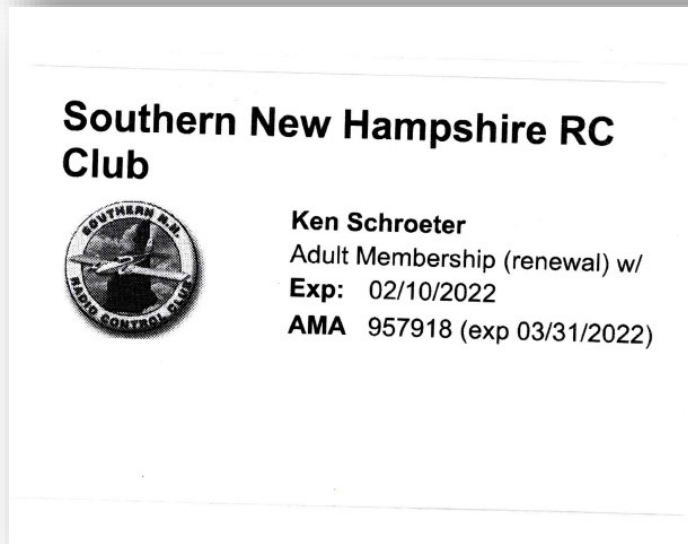
NOTAM

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