The propeller for the plane-engine-usage combo

I lately did some propeller tests on my planes after ready a paper in the August edition of Model Airplane News. A long time designer and writer from the St-Laurent zone, Andy Lennon wrote it. Many magazines have published his papers and designs.

A recommendation from Andy, who I spoke to a few times during my testing, was to insure the propeller was chosen for the plane-engine-usage combo. I my case, I wanted a more constant speed in vertical up and down as well as level flight for my pattern plane. It is equipped with a SuperTigre G90 and weight 8.5 lbs. Another recommendation from Andy, was to use the engine at his peak torque RPM in lieu of the peak power RPM.

When I first flew the plane last year, I had a 12x7 APC, turning to fast at 14000 RPM. It was also very noisy. I then changed to a 13x7 @ 12500 RPM. It was better but not perfect. I used that set-up for a few months until I try a 14x6 @ 11000 RPM. That was really better. The verticals up were better controlled and the vertical down were slower. After ready Andy's paper and talking to him, I decided to go wild. I installed my Saito 150's propeller on the ST90. That is a 16x8 @ 7200 RPM. That was quiet! However it didn't feel right in flight. I then try the 16x6 @ 7800 RPM. Wow! The vertical up were good and at constant speed. The vertical down almost seems to slow down the plane. The plane was very easy to fly. I could do square loops with all 4 lines at the same speed. The noise and the consumption were both very lower and the engine run cooler compared to the 14x6. The acceleration are a slower and the plane take a bit more time to get to flying speed but it is not a big problem.

I had great expectation for the Stetson Pattern contest I was getting ready for. Unfortunately, the plane got destroyed in a mid-air a week before the contest. I then applied what I had learned to my other plane. It is a 25% scale Cap232 weighting 10.5 lbs with a ST2300. I was using a 16x8 @ 9200 RPM and I changed for a 18x8 @ 8300 RPM. The results were similar. The plane was easier to fly. It shows at the contest and I won my class.

Later, I tested with my Aurum ARF from Kyosho equipped with a ST51 and weighting approx. 5lbs. I was using a 11x6 @ 12000 RPM. I had tried a 12x4 @ 13500 RPM for better acceleration. It could take off vertically from my own hands but it was very noisy. I then tried a 12x7 @ 10100 RPM and a 13x6 @ 10200. Again, the results were similar. Less noise, lower consumption and smoother flight. I plan to test a 13x5 and a 14x5.

I suggest that you try it out with your combo to optimise it. You may be surprised of the results. It is like using the 5th gear on the highway for constant speed, quiet driving, better mileage and most likely longer engine life. For quick accelerations, we downshift but I will be surprise we use 3rd gear at 60mph from Montreal to Toronto.

Merry Christmas

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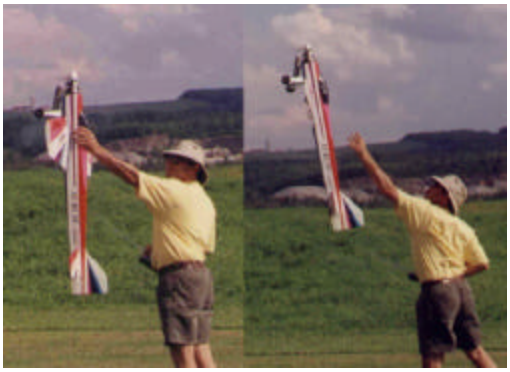
The Nova with a ST90 & APC 14x6

The Cap 232 with a ST2300 and APC 17x8



The Aurum Sport with ST51 and APC 12x4