WHICH PROP IS BETTER

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"I dunno," that's probably an honest answer. I know we've all tried or flown behind different propellers but its not often we have the same airframe/engine combination and several composite *constant speed* propellers available for evaluations. Several years ago the Hoffman propeller off my Zlin 50 made an extended visit to the prop shop, a borrowed a MT propeller gave me a rare chance to compare two aerobatic composite *constant speed* propellers on the same aircraft, the Zlin 50 powered by an AEIO-540/260hp.

So…what did I find out?

In this early comparison the take-off, climb and cruise were all about the same, no marked difference. Slow speed pushes and pulls revealed a noticeable difference. The Zlin 50 is a remarkable aerobat; it flies well at slow speeds such as found in the vertical S described below.

Using the original equipment Hoffman propeller starting at about 160mph in level flight using full power and no more than a 3 G pull the 1st half of an inside loop was completed. Hanging upside down I would hesitate a moment looking for a minimum of 85 mph, then with no more than –3G I could push over the top and the 1st half of an outside loop was completed; all this with a very solid feel to the aircraft. I then switched to the MT propeller, using the same technique; all was the same until I reached the vertical phase of the half outside loop? Shutter, shutter, shake, shake and the maneuver was all over. Even an evaluation as simple as this is uncommon. Below we've tried to go a step further and expand the comparison paramaters.

For the ya-buts, what-ifs and nit-pickers…

We have tried to be as consistent as possible in our comparative evaluations. The same pilot, same aircraft and same procedures have been used in comparing five different composite aerobatic propellers.

a. The same pilot, Sean DeRosier;
b. the same aircraft, G202 with a Monte Barrett AEIO-360, 180 hp;
c. temperatures varied +- 5 degrees for all evaluations;
d. all power readings were read directly from an electronic VM 1000 ;
e. All speeds are indicated mph with the exception of the GPS mph ground speed.

The following <u>composite</u> aerobatic propellers were compared:

1. Hartzell Composite wide blade (Claw) 2 blade,
2. Whirl Wind 200 Series 2 blade – wood core, composite skins,
3. Whirl Wind 200C Series Composite wide blade 2 blade,
4. Whirl Wind 400 Series 3 blade – wood core, composite skins, and
5. MT 3 blade – wood core, composite skins.

The following comparisons are offered for information only. They represent real numbers, hanger flying, dreaming or salesmanship is not a factor.

We are not in the business of selling propellers, the final decision in yours.

(Notes)	GSPD (1)	R/C (2)	VMAX (3)	VMAX (4)	VERT PENETRATION (5)
HARTZELL CLAW 2 BLADE 52 lbs. – 78 inch diameter A/C EW 1037 lbs.	**210**	1957 fpm	**210** mph	**195** mph	**1800** feet
WHIRLWIND 2 BLADE – 200 Series 45 lbs. – 78 inch diameter A/C EW 1030 lbs.	207	1836 fpm	205 mph	**195** mph	1500 feet
WHIRLWIND 2 BLADE - 200C Series 46 lbs.– 77 inch diameter. A/C EW 1031 lbs.	**210**	**2000** fpm	**210** mph	193 mph	**1800** feet
WHIRLWIND 3 BLADE – 400 Series 65 lbs. – 74 inch diameter A/C EW 1050 lbs.	204	1682 fpm	202 mph	190 mph	1500 feet
MT 3 BLADE 59 lbs. – 76 inch diameter A/C EW 1044 lbs.	202	1764 fpm	202 mph	193 mph	1400 feet

(notes)

(1) GPS ground speed 4 way average, full power – 1500 MSL - 31.5mp / 2680 rpm
(2) 2000-5000' - full power - speed stabilized at 100mph, 1-G flight prior to beginning timing.
(3) 3500 MSL - 29 mp / 2680 rpm – level flight
(4) 3500 MSL - 25 mp / 2500 rpm – level flight
(5) Vertical penetration is initiated from level flight at 1500' MSL, VMAX (3) using a 3.5G pull and full power (31.5 mp / 2680 rpm.) The vertical is held till the aircraft begins to slide backwards.

There are numerous distributors for Hartzell and MT propellers, these can be found in publications such as SPORT AEROBATICS, SPORT AVIATION or TRADE –A-PLANE. Whirl Wind products are only available from the manufacturer at:

Whirl Wind Propellers Corp.
1860 Joe Crosson Drive, suite J
El Cajon, CA 92070
619-562-3725
http://www.whirlwindpropellers.com