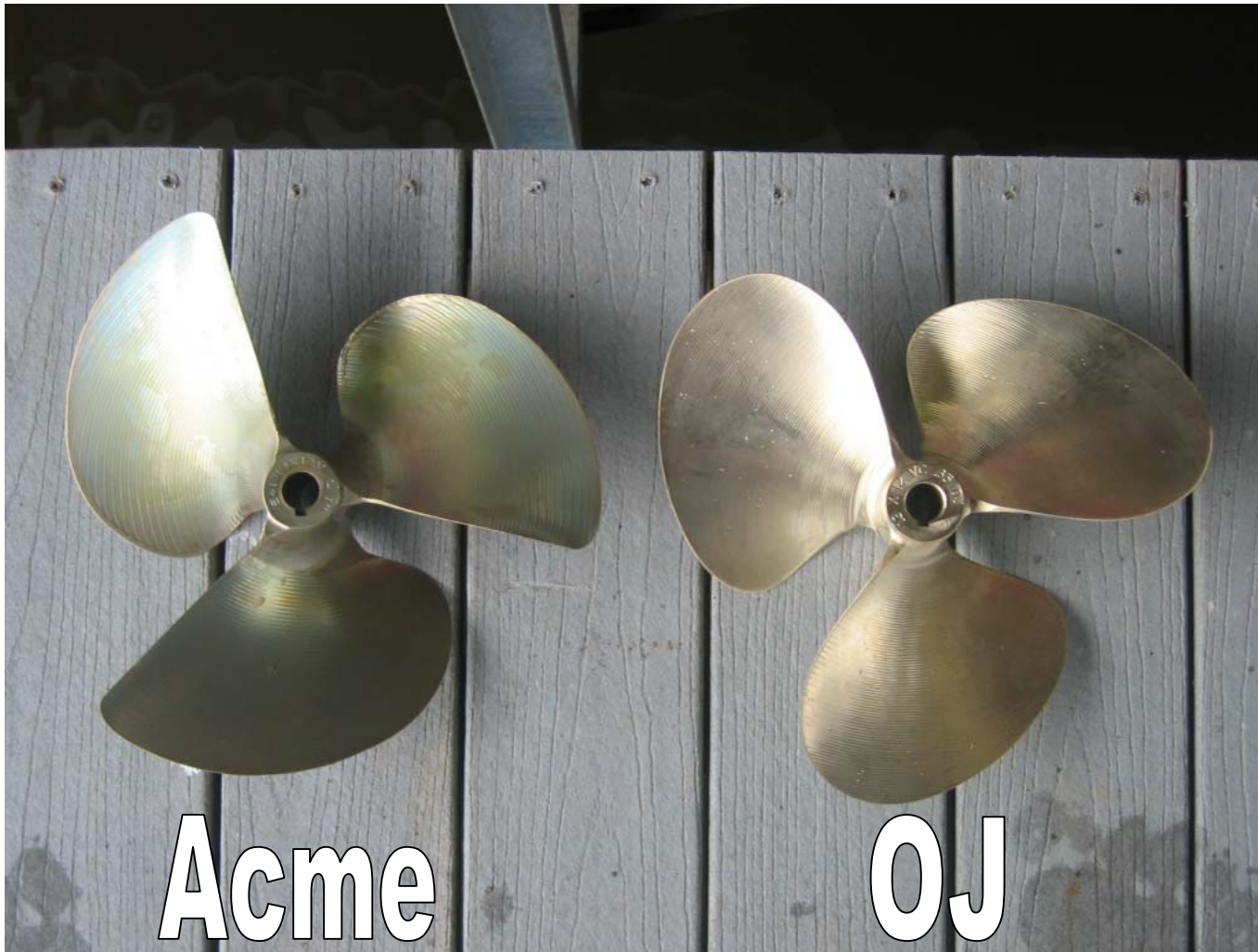


Propeller Tests

OJ XMP 13x12 v. Acme 13x12



When I began these tests, my goal was to be as accurate with my results as possible. What I did not fully realize is that the variables present in testing a propeller on the water are almost too many to list, i.e., water conditions, wind speed, amount of gas in the tank, direction of the current, etc. These results should be considered in light of the fact that you cannot test props in a vacuum. OJ has, in the past, offered to let anyone interested test its propellers. Acme has, to the best of my knowledge, offered a 30 day guarantee on its propellers. If you are able, I strongly recommend you try both propellers before you buy them. The results could easily differ from boat to boat or lake to lake. It also bears mentioning that in my emails to Eric Johnson, he told me that OJ usually recommends a 13x11.5 for my application (1993 MC Prostar 205 351 H.O. 285+ hp). Acme also offers a 13x11.5 prop for my application. However, since I was already running a 13x12 Acme, he sent me the 13x12 XMP for an equal comparison.

Blade Size



The Acme has an *approximate* blade size of $8 \frac{3}{16}$ " across the blade (vertical in the picture) and $5 \frac{1}{8}$ " from hub to the edge of the blade. At first glance, the surface area of the blades appears larger on the Acme. From my measurements, it appears that the Acme has about 1" on the OJ on the vertical blade measurement. From hub to edge, they are about the same.



The OJ has an *approximate* blade size of $7 \frac{3}{16}$ " across the blade and $5 \frac{1}{8}$ " from hub to the edge of the blade.

Wide Open Throttle

Acme	OJ
<p>The top end on the Acme tested at 44.7 mph at 4,520 rpms. I did not take a measurement going the other direction.</p> <p>*Note: As you will see in the OJ results, one direction yielded different results than the other. In the past, I have achieved 45.5 mph at 4,600 rpms. The next time I'm on this body of water, I will try running W.O.T. in the other direction and post the results here. But for now, I do not have "faster direction" results for the Acme.</p>	<p>In the "slower direction," the OJ yielded 43.8 mph at 4,600 rpms. In the "faster direction," the OJ yielded 44.5 mph at 4,630 rpms.</p>

How the Pull Feels to a Skier

As they say, my pallet is unrefined. I couldn't tell you one of these props gave me a softer pull as opposed to the other once I was up and skiing. That said, I had some really good sets behind the OJ on Friday and Saturday evening.

Wake Shape and Turbulence

The pictures below should give you an idea of wake shape and turbulence between the two props. The OJ definitely had better weather, but the water was glass for both photo ops. We tried to keep the angle as close as possible, but as you might imagine, it's pretty difficult to achieve. My impression was that the Acme produced a bit more turbulence. As for skiability, I didn't feel that either prop had a softer or firmer wake. They felt just about the same to me in this respect.

Speed	Acme 13x12 3 Blade	OJ XMP 13x12 3 Blade
36.0	 A photograph showing the wake of a boat with an Acme 13x12 3 Blade propeller at 36.0 mph. The water is dark, and the wake is wide and turbulent, with a lot of white spray and churning water. The background shows a dense line of green trees under a cloudy sky.	 A photograph showing the wake of a boat with an OJ XMP 13x12 3 Blade propeller at 36.0 mph. The water is dark, and the wake is narrower and smoother, with less white spray and churning water. The background shows a dense line of green trees under a clear blue sky with a few clouds.

34.2



32.3



30.4



28.6



26.7



24.9



Baselines

These numbers are what they are. My conditions were very calm when I ran both and I only ran baselines in one direction just to be sure (even though our course is not on a river). I was running Perfect Pass Digital Pro 6.4 using magnets and a smart timer to get these numbers.

Acme (rpms)	Speed (mph)	OJ (rpms)
3,475	36.0	3,465
3,300	34.2	3,250
3,130	32.3	3,060
2,980	30.4	3,015
2,765	28.6	2,680
2,600	26.7	2,485
2,360	24.9	2,225

Hole Shot

This is one of those criteria that is, to an extent, a matter of opinion and feel. That said, it was my impression, from both a driver's and a skier's standpoint that the Acme had a little more bite out of the hole. I didn't notice this so much when I first switched to the OJ. But when I put the Acme back on and hammered the throttle (and later took one last ski set), I really noticed a bit more response. This is not to say that the OJ wasn't responsive out of the hole. This was just my impression.

Acceleration

Again, just one of those things where we got a different result each time. I was driving the boat and working the throttle. I ran several trials for each prop and have recorded the best times below. For each set of tests I had about ¾ of a tank of gas.

Acme	Speed (mph)	OJ
5.37 seconds	0—30 mph	6.28 seconds
6.81 seconds	0—36 mph	7.42 seconds

Vibration at Speed

This would be another one of those things you'd have to give to one side or the other. But even with that caveat, I just can't say one prop was better. Both of these propellers were whisper quiet at all speeds. Vibration? What vibration?

Maintaining Speed in a Straight Line

We ran this test by setting the Perfect Pass at 3,000 rpm in RPM mode and running a straight line. I would watch the digital speedometer while my spotter would watch the speed readout on the GPS. We did not perform this test with a skier in tow because the pull factor would just vary too much.

Acme	RPMs	OJ
+/- 0.4 mph	3,000	+/- 0.2 mph

Maintaining Speed in a Turn

Similar to our straight line test, we set the Perfect Pass to 3,000 rpms in RPM mode, let it settle in, made some right-angle turns and recorded the drop in rpms. Noticing that the drop was greater when turning right, we tested both directions.

Acme	RPMs/Direction	OJ
-2.0 mph	3,000/RHT	-1.0 mph
-1.8 mph	3,000/LHT	-0.8 mph

Conclusion

As I mentioned earlier, results vary, so only from a first-hand test, can you determine what prop is right for you. Both manufacturers seem quite willing to let you see the results for yourself. I suggest you take them up on it. The wake shape and softness was virtually indistinguishable between the two propellers. Likewise, neither propeller showed more discernible vibration over the other. OJ held speed a bit better both in straight line and in the turns, while the Acme posted better numbers on acceleration and top end. As for me, with a baby on the way, I had no intention of buying a new prop, so I have sent the XMP back to the good people at OJ. My many thanks again to Eric Johnson for sending me this prop and puller to make this test possible. Thanks also to Acme for making a fine propeller although I did pay for that one myself. So thanks to me for fronting the cash for the Acme and for the many gallons of precious gas that I ran through my boat taking pictures, running baselines, and checking all of this other stuff when I could have been skiing.