Aerovane II

Which arrow works best with your bow using Aerovane II?

January 10-11, 2009

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Jan 10	Tested multiple arrow functionalities using Aerovane II.
Jan 11	Continue testing using a different spine shaft

Flight Test

Upon receipt of the new Aerovane II, I knew I held in my hands a revolutionary archery product. The airfoil on the leading edge, the textured surface, the airflow channel, and the cut away portion on the underside of the airfoil would all add to exceptional flight. All of this weighing in at just over 6 grains, that is incredible. If these vanes performed anything like their larger brother, the Aerovane, I knew I would not be disappointed. I was eager to make up a few arrows and put them through a series of tests.

Before I get into the actual testing, I wanted to talk for a quick minute about the noise these vanes produce, or should I say the lack there of.

That is correct, there was no distinct sound coming from Aerovane II during flight. When shot either before or after the arrow fletched with Blazer vanes (discussed below), there was a dramatic difference between the two arrows in the sounds they produce.

I decided to fletch up five different arrows, all with the same basic composition; which included a spine of .400, a full wrap measuring 7 inches in length, a Firenock Practice Nock, the standard insert, and 100 grain tip. I also decided to fletch a comparison arrow with Blazer vanes and put this through these tests as well. The tests would consist of three different portions. The first portion is speed. I will shoot all of the arrows through a chronograph at distances of 0 yards, 10 yards and 20 yards. I will then use this information to determine which arrow looses speed the fastest. The second portion is what I call Field Tuning. I will shoot all of the arrows at the top of a "T" 40 yards away placing my 20 yard sight pin at the top of the "T". Whether the arrow hits left or right will tell me how much adjustment will be necessary to move my rest for Perfect Center-shot flight. The third portion will involve switching the field point out with a broadhead and shooting at a target 30 yards away. This will give me a good idea if the arrow combination is too stiff or too weak. The broadhead used in this test is the G5 Striker. I am using the new 2009 PSE X-Force Dream Season set at 67 pounds and my arrows are all cut to 29 3/8 inches. I am using the Vapor Trails Limb Driver for my rest along with a Scott Sabertooth release to complete the set-up.

The testing actually comprised of two days; which I will discuss in a few minutes. As a result of the first testing portion, all of the Aerovane II arrows (except for the lighter weight arrow) lost between 11 and 13 Feet Per Second (FPS) between 0 and 20 yards. The lighter arrow lost 16 FPS; which is expected, while the Blazer vane arrow lost 14 FPS. I am sure if I were to continue this test out to 40 yards, we would see an even more dramatic difference in speed that is lost. The second testing portion resulted in most of the arrows hitting left of the vertical line; which would require me to move my rest in towards the bow for perfect center-shot alignment. The third testing portion provided peculiar results. Each of the arrows headed to the left portion of the broadhead target, then corkscrewed in a clock-wise fashion to the right side. Therefore, the testing results show the arrows hitting to the right of the bullseye. However, the initial reaction of the arrow is what we need to concentrate upon. Having all of the arrows swing to the left upon release is telling me the arrow is too stiff.

I decided to switch the 100 grain tip with a 125 grain tip and reshoot portions 2 and 3 of the original testing. The second portion of the testing using a 125 grain tip resulted in most of the arrows hitting to the right of the vertical line. The greater distance away from the vertical line along with the change in side is telling me I definitely have changed the spine configuration by adding 25 grains to the tip. The third portion of testing still had the arrows head to the left and corkscrew clockwise to the right. However; the amount the arrows flew to the left and corkscrewed to the right was dramatically reduced. Therefore, this result tells me I am on the right path to finding the right tip combination. In order for the arrows to fly correctly, I need to still decrease the stiffness of the spine. Remembering the rule of thumb, "adding weight to the nock end of an arrow increases the stiffness; whereas adding weight to the point end decreases the stiffness," I removed the weight in the Firenock Practice Nock and shot the arrow with a 100 grain broadhead.

The arrow flew completely straight with no corkscrewing at all out to 50 yards. Now, I definitely know I am on the right track. Although, in order to use this combination, I would not be able to utilize the incredible aspects of the Firenock Lighted Nock. Therefore, I needed to find another way; which resulted in testing on day two.

Reviewing the first days results, I knew I had to decrease the stiffness of the arrow and find a way to use Firenocks Lighted Nock system. Therefore, I decided to try an arrow with a spine of .494 along with the Firenock Practice Nock; which as stated above will increase the stiffness. Day two's testing consisted of two arrows; Carbon Express Maxima 250 with a regular nock and 100 grain tip; and Carbon Express Maxima 150 with a Firenock Practice Nock. Both arrows were tested utilizing the same three portions as mentioned above. I tested the Maxima 150 using both 100 grain and 125 grain tips. The end result of day two's testing is the Maxima 150 with 100 grain tip performed flawlessly. During the second portion of the testing, this arrow combination touched the vertical line. During the third portion of the testing, the same arrow hit dead center in the bullseye at both 30 and 40 yards.

I was finally able to see the benefit of the Aerovane II vane first hand. Whatever your normal arrow combination is, decrease the stiffness, and your arrow fletched with Aerovane II will fly perfectly. Just for fun, I shot the Maxima 150 arrow tipped with a 100 grain field point at the 60 yard target. I was able to use my 50 yard pin to place the arrow directly in the bullseye on the 60 yard target.

Please refer to the Microsoft Excel Spreadsheet for our complete results logged by my assistant Cheyenne Bailey.

~Photos by Diana Bailey

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Arrow	Grains per inch	Spine	Total Arrow Weight	Front of Center	Feet per Second @ 0 yards	Kinetic Energy @ 0 yards	Feet per Second @ 10 yards	Kinetic Energy @ 10 yards	Feet per Second @ 20 yards	Kinetic Energy @ 20 yards
DAY ONE TESTING RESULTS										
Carbon Express Maxima 250 (Note 4)	7.3	0.404	380	8.94	304	78.00	298	74.95	292	71.96
Gold Tip Pro Hunter (Black) 55/75 (Note 4)	8.2	0.400	407	8.51	294	78.13	289	75.50	283	72.40
Blackhawk Vapor Pro (Black) 3000 (Note 4)	7.9	0.400	407	8.94	295	78.67	289	75.50	283	72.40
CarbonTech Whitetail 40/65 (Note 4)	7.9	0.400	398	9.79	297	77.97	293	75.89	284	71.30
CarbonTech Cheetah 400 (Note 4)	6.4	0.400	372	10.21	307	77.87	302	75.36	291	69.97
Carbon Express Maxima 250 (Note 3 and 4)	7.3	0.404	392	9.36	300	78.36	293	74.74	286	71.22
DAY TWO TESTING RESULTS										
Carbon Express Maxima 250 (Note 6)	7.3	0.404	363	11.49	310	77.48	303	74.02	297	71.12
Carbon Express Maxima 150 (Note 7)	6.3	0.494	395	11.49	298	77.91	293	75.32	286	71.76
Carbon Express Maxima 150 (Note 8)	6.3	0.494	369	8.94	307	77.24	302	74.75	292	69.88

Arrow	Distance from vertical line (Note 1)	Distance from center of target (Note 2)
DAY ONE TESTING RESULTS		
Carbon Express Maxima 250 (Note 4)	Left - 1.0	Right Edge of Bullseye
Gold Tip Pro Hunter (Black) 55/75 (Note 4)	Left - 2.0	Right - 2.25
Blackhawk Vapor Pro (Black) 3000 (Note 4)	Right - 1.25	Right - 5.0
CarbonTech Whitetail 40/65 (Note 4)	Left - 1.25	Lower Edge of Bullseye
CarbonTech Cheetah 400 (Note 4)	Left - 0.5	Right Edge of Bullseye
Carbon Express Maxima 250 (Note 3 and 4)	Left - 2.5	Right - 2.5
Carbon Express Maxima 250 (Note 5)	Right - 1.75	Center of Bullseye
Gold Tip Pro Hunter (Black) 55/75 (Note 5)	Center	Right - 1.75
Blackhawk Vapor Pro (Black) 3000 (Note 5)	Right - 3.5	Right - 4.0
CarbonTech Whitetail 40/65 (Note 5)	Right - .25	Right - 2.5
CarbonTech Cheetah 400 (Note 5)	Right - 3.0	Right - 3.5
Carbon Express Maxima 250 (Note 3 and 5)	Left - 0.75	Right Edge of Bullseye
DAY TWO TESTING RESULTS		
Carbon Express Maxima 250 (Note 6)	Left - 0.;5	High - 2.0
Carbon Express Maxima 150 (Note 7)	Left - 1.0	Left - 2.0
Carbon Express Maxima 150 (Note 8)	Center	Center of Bullseye

Note:

1) The measured distance in inches away from the center of a vertical line 40 yards away. The arrow is shot using the 20 yard pin placed at the top of the vertical line.
2) The measured direction and distance in inches from the center of a target 30 yards away to where the arrow hits the target. The arrow is tipped with a G5 Striker Broadhead
3) This is considered the comparison arrow using Blazer Vanes
4) Field point and Broadhead were both 100 grains
5) Field point and Broadhead were both 125 grains
6) Carbon Express Maxima 250 with a regular nock and 100 grain field point and broadhead
7) Carbon Express Maxima 150 with a Firenock Practice Nock and 125 grain field point and broadhead
8) Carbon Express Maxima 150 with a Firenock Practice Nock and 100 grain field point and broadhead