

2010 Compound Bow Evaluation

Hoyt AlphaBurner

By Anthony Barnum



Hoyt AlphaBurner

Introduction:

For the first time ever, Hoyt has coupled their tournament proven Spiral X Cam & 1/2 with XT 2000 parallel split limbs in a high-speed hunting bow. The result is the AlphaBurner, which is Hoyt's speed bow offering for 2010. This combination offers a smooth, stable shooting platform providing speeds of up to 340 fps while also maintaining the strength and consistency we've come to expect from Hoyt. Smooth, sweeping lines are incorporated into both the front and back of the Total Engineering Concept (TEC) riser while the bridge flows seamlessly with the top and bottom of the bow. The Pro Lock limb pockets provide positive limb containment and alignment, which is critical for shot consistency. These elements are combined with the StealthShot® and Shox accessories, which help to reduce felt recoil and vibration. One of the more notable features of the AlphaBurner sample provided for this evaluation is the Half & Half finish. As "Half & Half" implies, contrasting finishes are utilized for the limbs and riser. The limbs are coated with RealTree® APG® HD camo that is quite crisp and highly detailed while the riser is coated in a matte black finish. This combination offer versatility for the hunter who uses both treestands and ground blinds while in pursuit of their game.

The AlphaBurner sample that was provided for this evaluation was measured to have a brace-height of 5.970 inches, while the axle-to-axle length was measured to be 34 9/16 inches. The requested 30 inch, 70 pound model was measured straight out of the box to have a 30 9/32 inch draw length and peak draw-weight of 71.1 pounds. When shot by hand with a 350 grain arrow, the AlphaBurner achieved an average speed of 343.8 fps in the out of box configuration with only a brass nock added to the string. Per request from Hoyt, two twists were added to the string the limb bolts were loosened 1/2 turn to bring both draw length and draw weight into specification.

Subjective Test Results:

Fit & Finish:

The Fit & Finish of the AlphaBurner sample provided for this evaluation was very good. The Pro Lock limb pockets, eccentrics and other machined components exhibit tight tolerances while also providing a nearly flawless anodized finish with no machining marks. The finish of the riser was quite good, as well, with only minor blemishes noted along a cutout near the site window. Otherwise, no blemishes were noted on the remaining components, which is testament to Hoyt's attention to detail

Grip:

Like its brother the Maxxis, the AlphaBurner incorporates a 1-piece synthetic grip called the 180 Grip that provides both thermal and vibration damping benefits when compared with the 1-piece laminate grip from years past. The 180 Grip is smooth and comfortable and my attempts to intentionally torque the bow at full draw were met with a high amount of resistance; removing the torque resulted in the AlphaBurner settling comfortably back in the appropriate position.

Draw Cycle:

The Spiral X Cam & 1/2 system used on the AlphaBurner is quite aggressive. The bow ramps up very quickly, but smoothly, to a lengthy holding period where peak draw-weight (or close to it) is maintained for quite a duration. A small increase in draw weight is experienced before the eccentrics transition smoothly into a short but solid valley. This bow is truly a speed bow as it does want to pull forward with even the slightest relaxation out of the valley. On average, the AlphaBurner stores 4.77 ft-lbs. of energy for each inch that you draw it back.

Sound & Vibration:

At the shot, the AlphaBurner exhibits a little bit of jump and has a tendency to rotate forward slightly. Some residual vibration is felt in the riser for a modest duration after the shot, as well. To the ear, the AlphaBurner seems to be about average or slightly above in noise output but that is to be expected with a bow that is putting out these kinds of speeds.

Hoyt AlphaBurner

Contact Info: Hoyt Archery
www.hoyt.com

MSRP:	\$999	Draw Length:	22"-30"*
Cams:	Spiral X Cam & 1/2	Draw Weight:	40-80*
Limbs:	XT 2000 Split Limb	Brace Height:	6"*
Grip:	Pro-fit Custom 180 Grip	Axle to Axle:	34 3/4"*
Let-off:	70%*	Mass Weight:	4.8 ^
String:	Fuse		*Advertised
Damping:	Alpha Shox, StealthShot®		^Measured
Finish:	Half & Half (Realtree® APG® HD Limbs / Black Riser)		

Performance at a Glance (70.1 lbs, 30 1/4"):

Arrow	Speed	K.E.	Momentum
350 Grains	338.9	89.2	16.9
420 Grains	312.0	90.8	18.7
490 Grains	290.2	91.6	20.3
540 Grains	278.0	92.6	21.4

Arrow (Grains):	350	420	490	540
Dynamic Efficiency:	83.1%	84.5%	85.3%	86.3%
Speed Per Inch of PS:	15.0	13.8	12.9	12.3
Noise Output (dBA):	89.0	88.9	87.6	84.5
Total Vibration (G):	363.8	362.2	314.6	311.4



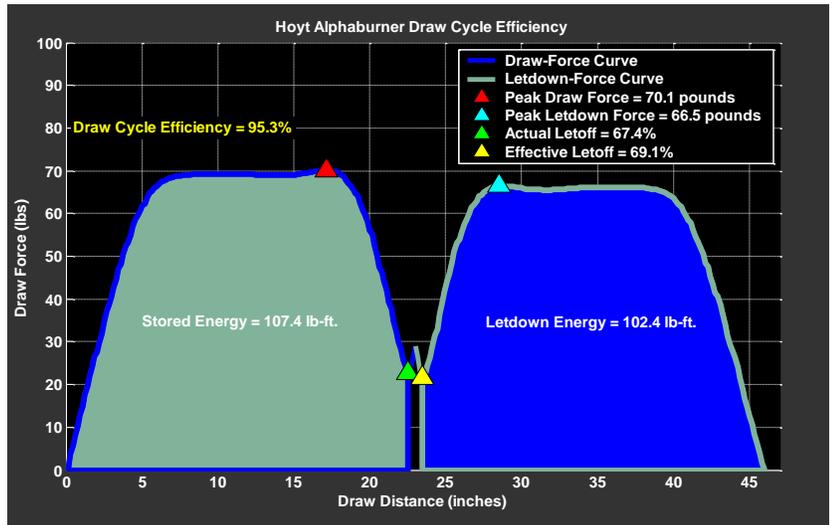
Hoyt AlphaBurner

Objective Test Results:

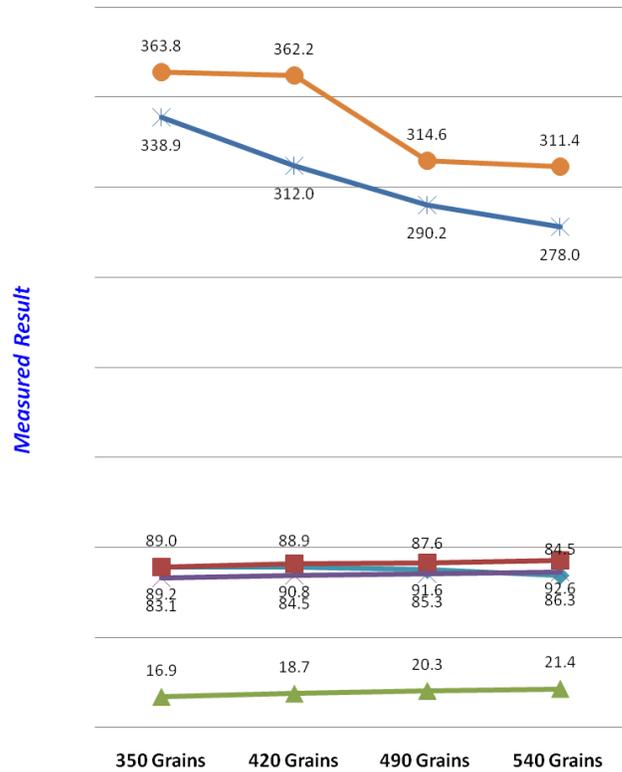
Speed / Performance Measurements:

Speed measurements are made with 4 different arrow weights to determine the average speed of the bow per inch of Power Stroke. Draw Cycle Efficiency is calculated using the stored energy and the let-down energy captured in the Force-Draw curve. The stored energy is used further to determine the average dynamic efficiency of the bow.

Speed per inch of Power Stroke: 13.5
Dynamic Efficiency: 84.8%
Draw Cycle Efficiency: 95.3%



Performance Characteristics



Arrow Weight

- Arrow Velocity (fps) -vs- Arrow Weight
- Total Vibration (g) -vs- Arrow Weight
- Noise Output (dBA) -vs- Arrow Weight
- Dynamic Efficiency -vs- Arrow Weight
- Kinetic Energy (ft lbf) -vs- Arrow Weight
- Momentum (ft lbf/sec) -vs- Arrow Weight

Vibration Measurements:

Vibration measurements are made with 4 different arrow weights to determine the average vibration in 3 dimensions as well as the total average vibration.

Positive X-Vibration: 167.2 g
Negative X-Vibration: -161.0 g
Positive Y-Vibration: 224.8 g
Negative Y-Vibration: -257.5 g
Positive Z-Vibration: 148.9 g
Negative Z-Vibration: -216.4 g
Total Vibration: 338.0 g

Sound Measurements:

Sound measurements were made with 4 different arrow weights to determine the average sound output, the average A-Weighted sound output (mimicking the human ear) and the average C-Weighted sound output.

Unweighted Sound Output: 108.2 dB
A-Weighted Sound Output: 87.5 dBA
C-Weighted Sound Output: 97.0 dBC

The addition of the 12 inch B-Stinger Pro Stabilizer with a 14 ounce weight yielded a reduction of peak A-weighted sound Output when measured with a 420 grain arrow.

B-Stinger Reduction: 1.6%