



X-Bow Sight



INSTRUCTIONS AND CAM SETTING CHART

THANK YOU for purchasing a *Leatherwood X-BOW*

Sight. Our goal is to provide you with the latest Leatherwood system technology, coupled with high quality optics, at a price similar to ordinary hunting scopes. We hope you'll agree that we've met that goal with the *Leatherwood X-BOW Sight*.

Building on technology developed for U.S. Army snipers in Vietnam, this sight greatly enhances the ability to hit with Man's oldest sporting weapon.

The *Leatherwood X-BOW Sight* is a 1X to 4X variable power scope that automatically corrects your line of sight from 20 yards to 80 yards. It does this through the use of a unique circular cam that actually raises and lowers the rear of the scope. The effect of this, when aimed at a target, is to correspondingly lower and raise the line of flight of the bolt, and thereby adjust your aim to eliminate the effect of bolt drop due to gravity. The *Leatherwood X-BOW Sight* does not rely on fragile internal ranging devices, complicated and undependable battery-based electronics, or changes to the elevation and windage adjustments. It is actually a mechanical computer that calculates the trajectory correction based on the target being framed in the reticle. By using one trajectory cam that is incrementally adjustable for your bow weight and bolt type, this scope is the **ONLY** scope that is able to mechanically compensate for the curved trajectory of a crossbow.

A BRIEF HISTORY OF THE ART SCOPE TECHNOLOGY

The ART scope technology was born out of necessity in the early years of the Vietnam War. Enemy snipers were killing American servicemen, but the US Army was not equipped to deal with the problem. The solution was to place newly trained snipers into battlefield service as soon as possible. Sniper training at that time was a lengthy process that required long hours on the range teaching recruits to estimate distance and to use the proper amount of "hold-over" (aiming high to compensate for bullet drop) in order to make successful first round hits.

About this time, 2nd Lieutenant James M. Leatherwood entered the Army, and brought with him his recently patented design for a ranging scope that would raise and lower the rear of the scope like an open sight. Shortly after, the US Army issued Leatherwood ART system scopes in the hands of Army snipers. The use of the new scope system had dramatic effects. It was now possible to rapidly train snipers to get first round hits out to 600 meters without having to spend as much time training recruits on distance estimation or “hold-over”. Soon, American snipers were dominating the field in Vietnam, and the ART scope system became a legend.

“Ever since I developed the first ART scope, my goal has been to bring my ART BULLET DROP COMPENSATING technology to hunters and sport shooters everywhere, with high quality at a low price. I hope you’ll agree that I’ve met that goal.” - *Jim*

Leatherwood, 2004

SPECIFICATIONS

POWER: 1X - 4X

OBJECTIVE: 24MM

LENGTH: 10.2 In.

WEIGHT: 20.5 Oz.

EYE RELIEF: 3 - 3.3 In.

TUBE DIAMETER: 30mm

MOUNTING: PICATINNY OR WEAVER RAIL

OPTICS: FULLY MULTI - COATED

TRAJECTORY COMPENSATION RANGE: 20 - 80 YARDS

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U.S. and foreign patents: #3,340,614; #3,431,652; #3,492,733; #914, 957. Other U.S. and foreign patents in process.

Section 1: Nomenclature



A. Eyepiece:

The Eyepiece (A) is located at the rear of the scope. Adjust the scope's reticle focus to suit your eyesight by turning Eyepiece clockwise or counter-clockwise.

B. Range Ring/Power Ring:

The Range Ring (B) encircles the Power Ring and has a scallop shaped, knurled outside face. There are two sets of numbers on the Range Ring. The lower set is magnification. The upper set is distance in yards.

The triangle on the Eyepiece (A) indicates the magnification setting in manual mode or the distance in automatic mode.

C. Calibration Ring:

The Calibration Ring (C) is located behind the Range Ring (B) and has a series of numbers and increments for setting the Trajectory Cam (D). The scale is marked from 2 to 8 and represents Trajectory Cam settings 200 to 1000.

The Trajectory Cam settings are changed by loosening the set screw on the Calibration Ring (C). Trajectory Cam settings are indicated by the arrow on the Trajectory CAM (D).

D. Trajectory Cam:

The Trajectory Cam (D) is adjacent to the Calibration Ring (C). The Trajectory CAM (D) sits on a nylon cam roller set in the rear of the scope mount base.

As you turn the Trajectory CAM, the back end of the base will rise or lower, automatically compensating for your bolt drop. The amount of external elevation adjustment added by the Trajectory CAM depends on the CAM setting.

Warning: Never loosen the setscrew on the Trajectory Cam (D) unless you are changing the installed Trajectory Cam for a custom Trajectory Cam.

E. CAM Brake Screw:

The CAM Brake Screw (E) is located adjacent to the Trajectory Cam (D) and is used to lock the Trajectory Cam when you are shooting at a specific range.

There are two parts to the screw. The top half of the CAM Brake Screw locks the Trajectory Cam (D) in place. The bottom half of the CAM Brake Screw keeps the screw in place.

F. Rheostat

The Rheostat (F) is on the left side of the scope turret block. NV1, NV2, and NV3 are for use with night vision optics. 4 and 5 are for low light illumination and 6 to MAX are for medium brightness light conditions. 0 is off.

G. Elevation and Windage Adjustments:

The Elevation and Windage Turrets (G) move the point of impact by ¼ MOA (or, ¼ inch at 100 yards) per click. Total range of the adjustment is 100 MOA for elevation and 80 MOA for windage. The threaded turret caps seal out moisture and debris. They also prevent accidental adjustment of the turret when transporting the scope.

Both the elevation and windage turrets can be re-indexed to correspond to your actual zero.

H. Mount Cradle:

The Mount Cradle (H) allows the trajectory cam to move the scope vertically.

I. CAM Roller

The Cam Roller (I) allows the Trajectory CAM (D) to rotate smoothly when making ranging adjustments.

J. Scope Rings:

The **ART X-BOW** is pre-centered on an optical collimator at the factory, so you do not need to loosen or remove the scope rings. If necessary, you may slightly rotate the scope tube to plumb the crosshairs with the crossbow.

K. External Windage Adjustment

The front Scope Ring (J) includes the **External Windage Adjustment** (K) for use in the event you cannot zero your windage adjustment with the Windage Turret (G) External Windage Adjustment provides an additional 40 MOA adjustment to the left and to the right.

Section 2: The Computer Ranging System

The combination of the reticle, zoom optics, power ring, range ring, calibration ring and trajectory cam ring is the mechanism we call the COMPUTER ranging system.

Auto/ Range™ Mode

When the tabs of the range ring and calibration ring are lined up and the pins on the calibration ring are engaged with the range ring, all of the rings will turn together. When all the rings turn together, the scope is in the **Auto/Range mode** (see below).



Figure 1: ART X-BOW in Auto/Range Mode

In the Auto/Range mode, the scope will automatically compensate for the trajectory of the bolt at all ranges from 20 to 80 yards.

When shooting known distances in Auto/Range mode, you can simply dial the cam to the appropriate distance and hold dead center. Point of Aim = Point of Impact.

The ART X-BOW scope also excels when shooting a known size target at an unknown distance within the ranging capacity (20-80 yards).

By framing the known size target within the appropriate area on the reticle, the ART X-BOW will have already compensated for the trajectory. This is achieved by utilizing relationships between the second focal plane reticle and the optical system.

See Section 5 for examples on how to frame the known dimensions of the target within the reticle in the AUTO/RANGE mode.

Manual Mode

When you loosen the set screw on the range ring tab and disengage the range ring from the calibration ring, the magnification setting can be adjusted independently of the cam. The scope is now in **Manual mode** (see below).



Figure 2: ART X-BOW Manual Mode

In Manual mode, the range ring turns independently of the trajectory cam. Turning the range ring will change the magnification setting **ONLY**. Turning the range ring will not add external elevation adjustment in the base.

The purpose of the Manual mode is to allow the shooter to select combinations of magnification and range to better suit their intended

application than if the scope is in the Auto/Range mode.

For example, by using the manual mode you can set the scope's magnification to 1X power and the Trajectory Cam to 50 yards. The Computer will correct the bolt's trajectory at 50 yards while the lower magnification allows you to see a wider field of view.

When the desired range has been selected, the cam brake screw may be tightened down to retain the Trajectory cam in place.

Determining the Cam Setting

The ART X-BOW Trajectory cam can be calibrated for a wide range of weights and speeds.

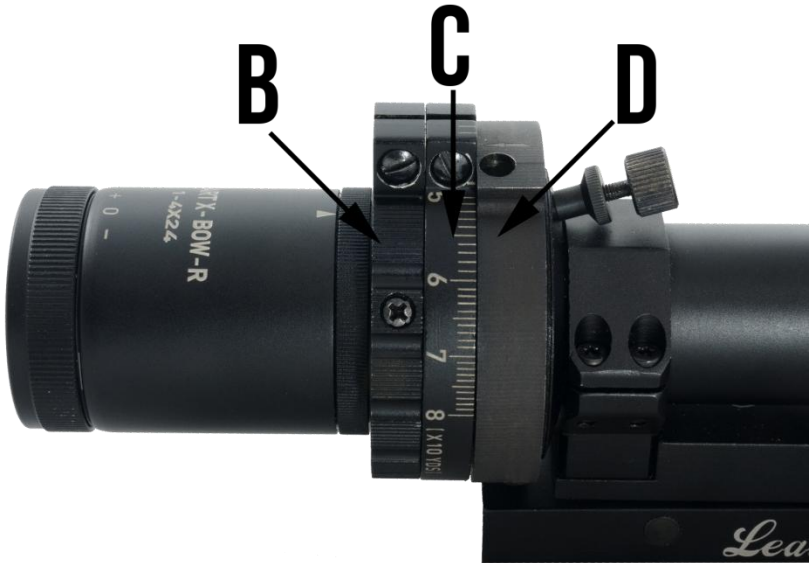
When you have determined the type of bolt that you want to shoot, do the following:

Refer to the Setting Chart located at the rear of this manual and identify the cam setting that corresponds with the actual speed of the bolt and type of bolt that you are shooting.

If your combination is not listed, just use the one that you think is the closest. Find the cam setting number for selection on the left side of the chart.

Setting the Cam Setting

After determining the cam setting for your bolt and speed, set the Trajectory Cam to match this load.



1. Loosen the set screw slightly on the Calibration Ring (C). Two turns of the screw should be enough.
2. Rotate the Calibration Ring (C) until the small arrow on the Trajectory Cam (D) matches the cam setting of your load on the Calibration Ring (C).
3. Re-tighten the set screw on the Calibration Ring (C).
4. Push the two pins on the Range Ring (B) firmly into the Calibration Ring (C). Make sure that the thumb tabs on the Calibration Ring (C) and Range Ring (B) are aligned.

Do not loosen the screw on the Trajectory Cam (D). This is a guide screw used to secure the Trajectory Cam (D) in place.

Section 3: Mounting

Mounting the Scope on the Crossbow

Loosen the two thumbnuts along the left side of the mounting cradle.

Push the scope forward slightly until the mount stops against the front of a groove (this is not necessary, but will reduce the chance of shifting due to recoil).

Tighten the thumbnuts securely with finger pressure only. DO NOT USE PLIERS!

Use of pliers or other tools may deform the mount base.

Section 4: Zeroing the ART X-BOW

Initial Zeroing

1. Set the ART X-BOW scope in Auto/Range mode by aligning the tabs and tightening the set screws on the Range Ring (B) and the Calibration Ring (C).
2. Set the Trajectory Cam (D) in the lowest position. Turn the Range Ring (B) all the way to the right so that the numerals 1X and 20 YDs are on top.
3. Set up a target at 20 yards and zero the scope using the elevation and windage adjustments in the usual manner.
4. When the crossbow is shooting "dead-on" at the point of aim at 20 yards, it is properly zeroed in and ready for use.
5. Re-index the elevation and windage turrets to your new zero by loosening the 2 set screws on the top of each turret. Gently rotate each turret so that the 0 on the turret lines up with the adjustment index. **Make sure that you do not hear or feel any clicks when rotating the turret.** After re-indexing the turrets, tighten the set screws back down.

Your ART X-BOW Crossbow Scope should now be zeroed. However, every bow and bolt combination can function a little differently. If you could not find your bow weight and bolt setting or if your combination operates slightly differently, it may be necessary to fine-tune your

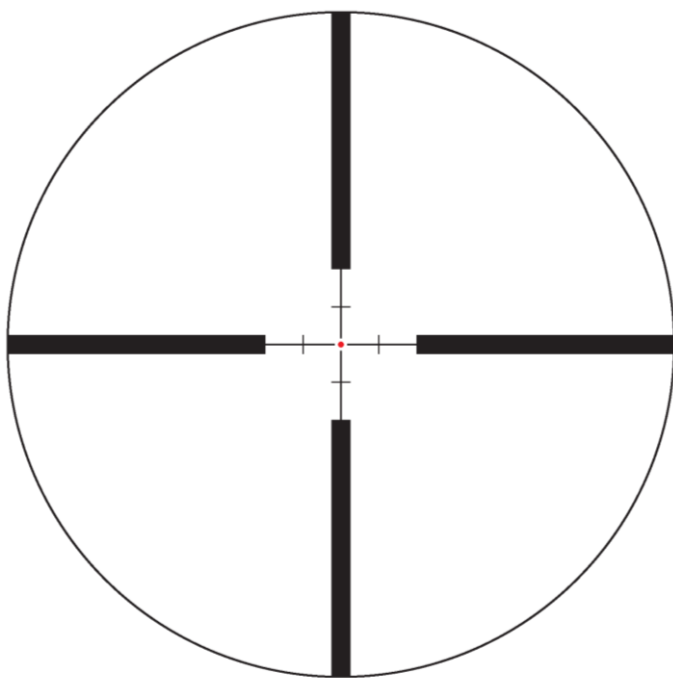
system.

To check the sight correction, move to 80 yards. In Auto/Range mode, turn the range ring to 80 yards. Aim dead-on the target and your bolt should hit at the point of aim.

We recommend the following advice when calibrating your cam setting:

If you are shooting HIGH, adjust the cam setting 1-2 tickmarks HIGHER.
If you are shooting LOW, adjust the cam setting 1-2 tickmarks LOWER.

Section 5: The ART X-BOW Ranging Reticle



ART X-BOW Reticle

Up to this point, you have programmed the CAMPUTER™ with the correct cam setting for the bow weight and bolt that you are using. This sets the scope to use the correct portion of the trajectory

cam. Next, you zeroed the scope, which set the center aiming dot at the point of impact at a set distance.

Now, in actual use, you must input information to the scope so it can compensate for the bolt trajectory.

You do this by making use of the framing marks.

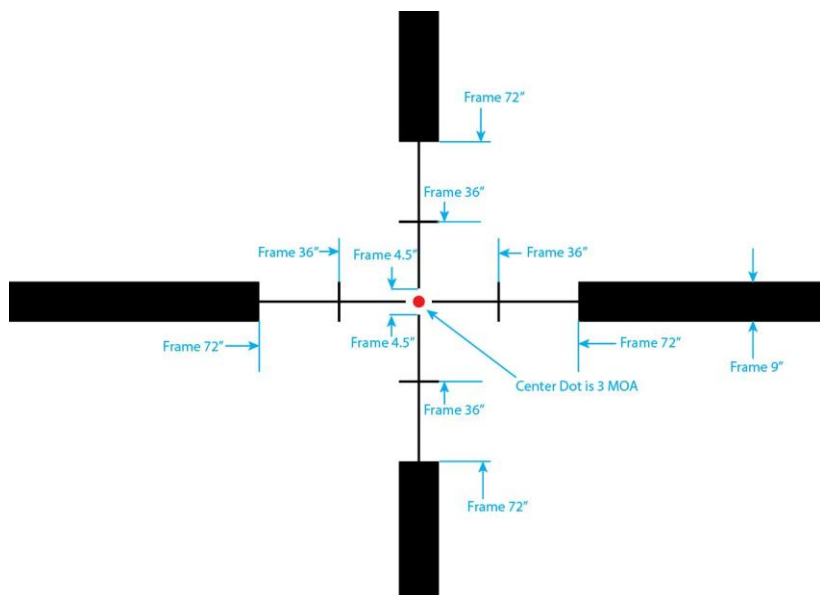
The tickmarks and thick posts that you see in the reticle allow you to overlay (“frame”) a known dimension onto an equal known dimension at the target. This dimension at the target can be all or part of the target.

If you are shooting at a bull’s-eye or silhouette target for example, you will generally know how high or wide that target is in inches. Likewise, if you are shooting at live game, you will want to know the useful dimensions of that animal.

As you “frame” the known sized target by “zooming” the power and changing the apparent size of the target relative to the reticle, the scope automatically compensates for the range.

Once you have the target framed, the scope has already set itself for the range and all you have to do is aim “dead-on”.

ART X-BOW Reticle Framing Dimensions



The Center Dot of the ART X-BOW reticle subtends 3 MOA.

The First Hashmarks are used to frame a 36" horizontal or vertical target.

The Thick Posts are used to frame a 72" horizontal or vertical target.

Any combination or portion of the posts and tickmark may be used for framing. For example, we can frame a 36" horizontal target from the center dot to the thick post. Similarly, an 18" target may be framed from the center dot to the first hashmark or from the first hashmark to the thick post.

Whatever your target is, be prepared to know or estimate its size relative to the reticle.

Framing Examples

Example 1: A large deer has a chest “kill zone” height of about 18 inches. There are several portions of the reticle that we could use to frame the 18” target.

Here are a few examples of how to properly frame the 18” chest cavity of a large buck.

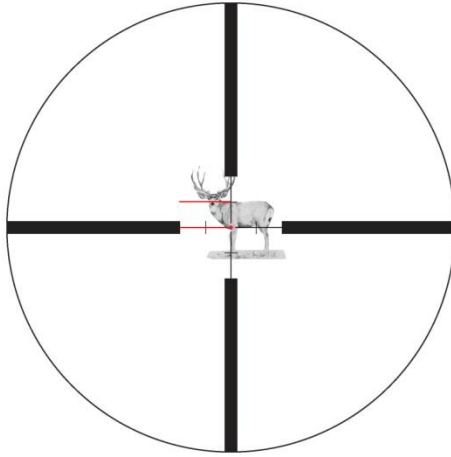


Figure 3: Framing 18” Vertical Dimension Using Center and 1st Tick Mark

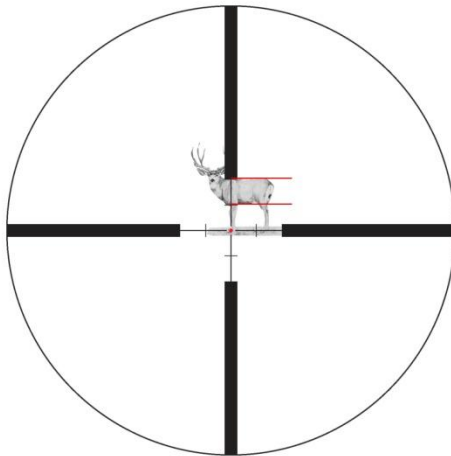


Figure 4: Framing 18” Vertical Dimension Using 1st Tick Mark and Thick Post

Example 2: Horizontal dimensions can also be used. For example, the length of a coyote is about 36" long.

Here are a few examples of how to properly frame the 36" length of a coyote.

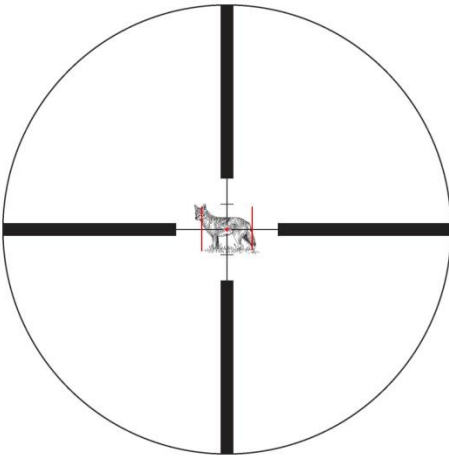


Figure 5: Framing 36" Horizontal Dimension Using the Tick Marks

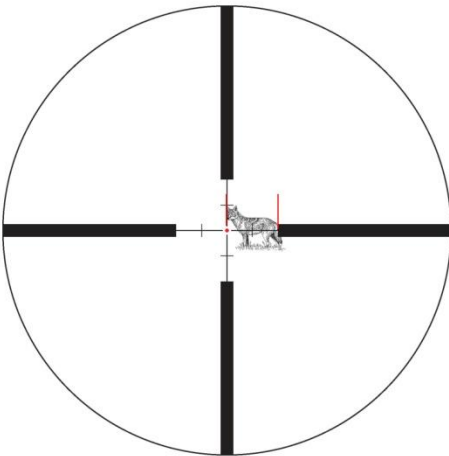


Figure 6: Framing 36" Horizontal Dimension from Center to Thick Post

Section 6: Trajectory Cam Setting Chart

The Trajectory Cam Setting Chart is useful when determining the initial cam setting for your ART X-BOW scope.

The Trajectory cam is interchangeable and can be swapped out for custom Trajectory cams in the future.

Using the Cam Setting Chart

The ART X-BOW Trajectory Cam Setting Chart is useful when determining the initial cam setting for your crossbow and bolt.

To determine the appropriate initial cam setting, you will first need to reference your Data on Previous Engagement (DOPE) or use a ballistic calculator. The DOPE or Ballistic Calculator data should reflect a 20 yard zero.

Next, we will compare our DOPE or Ballistic Calculator data to the Trajectory Cam Setting Chart.

Now we will need to determine the maximum effective range for your crossbow speed and bolt weight. If you are hunting, you will need to consider the kinetic energy of your bolt and the type of game you are hunting.

Select the setting that most closely matches your DOPE or ballistic calculator data out to your most effective range.

Crossbow Speeds

The Standard Trajectory Cam for the ART X-BOW scope is versatile and can be calibrated for a variety of crossbow speeds and bolt weights. The “sweet spot” of the standard cam is for crossbows with speeds between 350 fps to 450 fps.

The total weight of your crossbow bolt affects the speed of the crossbow as well. **For the best results** when using a ballistic calculator, we recommend **using a chronograph to determine the actual speed of your crossbow and bolt combination.**

ART X-BOW
 Chart of Trajectory Paths for Cam Settings
 (Drop Data In Inches)

CAM SETTING	20 (YD)	25 (YD)	30 (YD)	35 (YD)	40 (YD)	45 (YD)	50 (YD)	55 (YD)	60 (YD)	65 (YD)	70 (YD)	75 (YD)	80 (YD)
25	0"	1.8	4.9	8.8	13.4	19.8	26.2	34.3	41.5	50.7			
26	0"	1.8	4.8	8.6	13.2	19.2	25.7	33.9	40.8	49.7	56.4		
27	0"	1.7	4.6	8.2	13.0	18.4	25.4	32.2	40.2	48.0	56.4		
28	0"	1.7	4.7	8.1	12.8	17.9	24.7	31.7	40.2	48.0	56.4		
29	0"	1.6	4.6	8.1	12.6	17.7	24.3	31.1	39.3	47.0	55.3	62.8	
30	0"	1.6	4.4	8.0	12.4	17.2	23.6	30.5	38.0	46.3	54.2	63.6	
31	0"	1.6	4.4	7.9	12.1	17.0	23.0	29.9	37.1	45.6	53.1	62.0	69.5
32	0"	1.6	4.1	7.5	11.5	16.6	22.2	29.4	36.4	44.2	52.4	60.1	69.5
33	0"	1.4	3.8	7.5	11.5	16.5	22.2	29.4	36.1	44.2	51.7	59.7	69.5
34	0"	1.4	3.8	7.4	11.2	16.0	21.5	27.8	35.2	41.9	50.6	58.1	69.1
35	0"	1.3	3.7	7.1	10.9	15.5	20.9	27.1	34.6	40.8	49.1	57.3	67.4
36	0"	1.3	3.5	6.8	10.7	14.9	20.5	26.2	33.3	40.4	47.6	56.1	66.2
37	0"	1.3	3.5	6.6	10.5	14.4	20.2	25.3	32.4	39.5	46.5	55.4	64.5
38	0"	1.3	3.3	6.0	10.1	13.9	19.1	24.8	31.1	38.8	45.4	53.9	63.7
39	0"	1.2	2.8	5.9	9.6	13.7	18.8	24.4	30.2	37.8	44.7	51.8	62.8
40	0"	1.2	2.8	5.9	9.4	13.4	18.3	23.6	29.4	36.1	43.2	50.3	61.1
41	0"	1.2	2.8	5.6	9.0	13.1	17.8	23.0	28.9	35.6	42.9	49.5	59.5
42	0"	1.2	2.8	5.5	8.8	13.0	17.3	22.5	28.6	34.4	42.1	49.5	57.8
43	0"	1.2	2.8	5.3	8.4	12.6	17.0	22.2	28.1	33.7	41.0	47.9	56.7
44	0"	1.2	2.8	5.1	8.2	12.2	16.8	21.6	27.3	33.0	39.9	47.1	55.7
45	0"	1.2	2.8	4.9	8.2	12.2	16.8	21.3	27.0	32.7	39.6	46.7	55.3
46	0"	1.2	2.8	4.9	8.2	11.8	16.5	21.0	26.7	32.3	38.8	46.2	54.4
47	0"	1.2	2.8	4.9	8.2	11.8	16.3	20.7	26.4	32.1	38.4	45.5	54.0
48	0"	1.1	2.8	4.9	8.2	11.6	16.2	20.7	26.3	32.0	37.8	44.4	53.6
49	0"	1.1	2.8	4.8	8.0	11.3	16.0	20.4	25.8	31.5	37.4	44.0	52.8
50	0"	1.0	2.8	4.9	7.9	11.1	15.7	20.2	25.1	31.0	36.8	42.8	51.5
51	0"	1.0	2.7	4.8	7.5	10.8	15.2	19.6	24.8	30.3	36.4	42.0	50.3
52	0"	1.0	2.7	4.8	7.3	10.8	14.9	19.6	24.5	29.7	35.6	41.5	49.4
53	0"	1.0	2.7	4.8	7.1	10.8	14.8	19.6	24.5	29.3	35.0	40.8	48.4
54	0"	1.0	2.7	4.8	7.1	10.6	14.4	19.0	23.9	28.9	34.4	40.8	47.7
55	0"	1.0	2.7	4.6	7.1	10.4	13.9	18.4	22.9	27.6	33.3	39.3	46.1

NOTES:

- On cam settings 25-30, the maximum range of the cam is limited. The maximum range of cam setting 25 is limited to 65 yards. The maximum range of cam settings 26, 27 and 28 is 70 yards. The maximum range of cam settings 29 and 30 is 75 yards.
- The red cells indicate that the necessary amount of adjustment will exceed the range available in the cam.
- Typically, the lower cam settings are for crossbows with slower speeds. The higher cam settings are for crossbows with higher speeds.
- Use the following rule of thumb when you are calibrating the cam setting.
 - If you are impacting HIGH, adjust the cam setting HIGHER.
 - If you are impacting LOW, adjust the cam setting LOWER.

Section 7: Suggested Cam Settings

In the chart below, you will find the suggested cam settings based upon crossbow speeds from 310-450 fps and total bolt weights from 350 to 500 grain.

Suggested Cam Settings Chart

(Crossbow Speeds from 310 - 450 fps; Total Bolt Weights from 350 - 500 grains)

Drop Data in Inches

Speed (fps)	Bolt (gr)	Cam Setting	20 (YD)	25 (YD)	30 (YD)	35 (YD)	40 (YD)	45 (YD)	50 (YD)	55 (YD)	60 (YD)	65 (YD)	70 (YD)	75 (YD)	80 (YD)
310	350	25	0	-2.4	-5.7	-10.1	-15.5	-21.9	-29.5	-38.1	-47.9	-58.8	-70.8	-84.1	-98.6
310	400	25	0	-2.3	-5.7	-10.0	-15.3	-21.7	-29.1	-37.6	-47.2	-58.0	-69.8	-82.8	-97.0
310	450	25	0	-2.3	-5.6	-9.9	-15.2	-21.5	-28.9	-37.3	-46.8	-57.3	-69.0	-81.8	-95.7
310	500	25	0	-2.3	-5.6	-9.8	-15.1	-21.4	-28.7	-37.0	-46.4	-56.8	-68.3	-81.0	-94.7
320	350	25	0	-2.2	-5.4	-9.4	-14.5	-20.6	-27.6	-35.7	-44.9	-55.1	-66.4	-78.9	-92.5
320	400	25	0	-2.2	-5.3	-9.4	-14.4	-20.4	-27.3	-35.3	-44.3	-54.3	-65.4	-77.6	-90.9
320	450	25	0	-2.1	-5.2	-9.3	-14.2	-20.2	-27.1	-34.9	-43.8	-53.8	-64.7	-76.7	-89.8
320	500	25	0	-2.2	-5.3	-9.3	-14.2	-20.1	-26.9	-34.8	-43.6	-53.4	-64.2	-76.0	-88.9
330	350	25	0	-2.1	-5.0	-8.9	-13.6	-19.3	-26.0	-33.6	-42.2	-51.8	-62.4	-74.1	-86.9
330	400	25	0	-2.0	-5.0	-8.8	-13.5	-19.1	-25.7	-33.2	-41.6	-51.1	-61.5	-73.0	-85.5
330	450	25	0	-2.1	-5.0	-8.8	-13.5	-19.0	-25.5	-32.9	-41.3	-50.6	-60.9	-72.2	-84.5
330	500	25	0	-2.0	-4.9	-8.7	-13.4	-18.9	-25.3	-32.7	-41.0	-50.2	-60.4	-71.5	-83.7
340	350	28	0	-1.9	-4.7	-8.4	-12.8	-18.2	-24.5	-31.6	-39.7	-48.8	-58.8	-69.8	-81.8
340	400	28	0	-1.9	-4.7	-8.3	-12.7	-18.0	-24.2	-31.2	-39.2	-48.1	-57.9	-68.7	-80.5
340	450	28	0	-1.9	-4.6	-8.2	-12.6	-17.8	-23.9	-30.9	-38.8	-47.6	-57.6	-67.9	-79.5
340	500	28	0	-1.9	-4.7	-8.2	-12.6	-17.8	-23.9	-30.8	-38.6	-47.3	-56.9	-67.4	-78.8
350	350	31	0	-1.8	-4.5	-7.9	-12.1	-17.2	-23.1	-29.9	-37.5	-46.1	-55.5	-65.9	-77.3
350	400	31	0	-1.8	-4.4	-7.8	-12.0	-17.0	-22.8	-29.5	-37.0	-45.4	-54.7	-64.9	-76.0
350	450	31	0	-1.8	-4.4	-7.7	-11.9	-16.9	-22.6	-29.2	-36.6	-44.9	-54.1	-64.1	-75.0
350	500	31	0	-1.8	-4.4	-7.7	-11.8	-16.7	-22.5	-29.0	-36.3	-44.5	-53.6	-63.5	-74.2
360	350	32	0	-1.7	-4.2	-7.5	-11.5	-16.2	-21.8	-28.2	-35.4	-43.5	-52.5	-62.3	-73.0
360	400	32	0	-1.7	-4.2	-7.4	-11.3	-16.1	-21.6	-27.9	-35.0	-42.9	-51.7	-61.3	-71.8
360	450	32	0	-1.7	-4.1	-7.3	-11.2	-15.9	-21.4	-27.6	-34.6	-42.4	-51.1	-60.6	-71.1
360	500	32	0	-1.7	-4.1	-7.3	-11.2	-15.8	-21.2	-27.4	-34.3	-42.1	-50.6	-60.0	-70.5
370	350	34	0	-1.6	-4.0	-7.1	-10.8	-15.4	-20.7	-26.7	-33.5	-41.2	-49.6	-59.0	-69.1
370	400	35	0	-1.6	-4.0	-7.0	-10.8	-15.2	-20.5	-26.4	-33.2	-40.6	-49.0	-58.0	-68.1
370	450	36	0	-1.6	-3.9	-6.9	-10.6	-15.1	-20.2	-26.1	-32.8	-40.2	-48.4	-57.3	-67.1
370	500	36	0	-1.6	-3.9	-6.9	-10.6	-15.0	-20.1	-25.9	-32.5	-39.8	-47.9	-56.8	-66.4
380	350	37	0	-1.6	-3.8	-6.7	-10.3	-14.6	-19.6	-25.3	-31.8	-39.1	-47.1	-55.9	-65.5
380	400	37	0	-1.5	-3.8	-6.6	-10.2	-14.4	-19.4	-25.0	-31.4	-38.5	-46.4	-55.1	-64.5
380	450	38	0	-1.5	-3.7	-6.6	-10.1	-14.3	-19.2	-24.8	-31.1	-38.1	-45.9	-54.4	-63.6
380	500	38	0	-1.5	-3.7	-6.5	-10.0	-14.2	-19.1	-24.6	-30.8	-37.8	-45.4	-53.8	-63.0
390	350	39	0	-1.5	-3.6	-6.4	-9.8	-13.9	-18.6	-24.1	-30.2	-37.1	-44.7	-53.1	-62.2
390	400	39	0	-1.5	-3.6	-6.3	-9.7	-13.7	-18.4	-23.8	-29.8	-36.6	-44.1	-52.3	-61.2

Speed (fps)	Bolt (gr)	Cam Setting	20 (YD)	25 (YD)	30 (YD)	35 (YD)	40 (YD)	45 (YD)	50 (YD)	55 (YD)	60 (YD)	65 (YD)	70 (YD)	75 (YD)	80 (YD)
390	450	41	0	-1.5	-3.5	-6.3	-9.6	-13.6	-18.2	-23.5	-29.5	-36.2	-43.6	-51.6	-60.4
390	500	41	0	-1.4	-3.5	-6.2	-9.5	-13.5	-18.1	-23.4	-29.3	-35.9	-43.2	-51.1	-59.8
400	350	41	0	-1.4	-3.4	-6.0	-9.3	-13.1	-17.7	-22.8	-28.7	-35.2	-42.5	-50.4	-59.1
400	400	42	0	-1.4	-3.3	-6.0	-9.1	-13.0	-17.4	-22.6	-28.3	-34.8	-41.8	-49.7	-58.1
400	450	42	0	-1.4	-3.3	-5.9	-9.1	-12.9	-17.3	-22.3	-28.0	-34.4	-41.3	-49.0	-57.4
400	500	43	0	-1.3	-3.3	-5.9	-9.0	-12.8	-17.2	-22.2	-27.8	-34.1	-41.0	-48.5	-56.8
410	350	43	0	-1.3	-3.3	-5.8	-8.8	-12.5	-16.8	-21.8	-27.3	-33.6	-40.5	-48.0	-56.3
410	400	44	0	-1.3	-3.2	-5.7	-8.8	-12.4	-16.6	-21.5	-27.0	-33.1	-39.9	-47.3	-55.4
410	450	46	0	-1.3	-3.2	-5.7	-8.7	-12.3	-16.5	-21.3	-26.7	-32.7	-39.4	-46.7	-54.7
410	500	46	0	-1.3	-3.2	-5.6	-8.6	-12.2	-16.4	-21.1	-26.5	-32.5	-39.0	-46.3	-54.1
420	350	47	0	-1.3	-3.1	-5.5	-8.4	-11.9	-16.0	-20.7	-26.0	-32.0	-38.5	-45.7	-53.6
420	400	49	0	-1.2	-3.0	-5.4	-8.3	-11.8	-15.8	-20.5	-25.6	-31.5	-37.9	-45.0	-52.7
420	450	49	0	-1.2	-3.0	-5.4	-8.3	-11.7	-15.7	-20.3	-25.4	-31.2	-37.5	-44.5	-52.1
420	500	49	0	-1.2	-3.0	-5.3	-8.2	-11.6	-15.6	-20.1	-25.2	-30.9	-37.2	-44.0	-51.5
430	350	50	0	-1.2	-3.0	-5.2	-8.0	-11.4	-15.3	-19.8	-24.8	-30.5	-36.8	-43.6	-51.2
430	400	51	0	-1.2	-2.9	-5.2	-7.9	-11.3	-15.1	-19.5	-24.5	-30.1	-36.2	-43.0	-50.3
430	450	52	0	-1.2	-2.9	-5.1	-7.9	-11.2	-15.0	-19.3	-24.3	-29.7	-35.8	-42.4	-49.7
430	500	52	0	-1.2	-2.9	-5.1	-7.8	-11.1	-14.9	-19.2	-24.1	-29.5	-35.5	-42.0	-49.2
440	350	52	0	-1.2	-2.8	-5.0	-7.7	-10.9	-14.7	-18.9	-23.8	-29.2	-35.2	-41.7	-48.9
440	400	53	0	-1.2	-2.8	-5.0	-7.6	-10.8	-14.5	-18.7	-23.5	-28.8	-34.6	-41.1	-48.1
440	450	54	0	-1.1	-2.8	-4.9	-7.6	-10.7	-14.3	-18.5	-23.2	-28.5	-34.2	-40.6	-47.5
440	500	54	0	-1.1	-2.8	-4.9	-7.5	-10.6	-14.2	-18.4	-23.0	-28.2	-33.9	-40.2	-47.0
450	350	55	0	-1.1	-2.7	-4.8	-7.3	-10.4	-14.0	-18.1	-22.7	-27.9	-33.6	-39.9	-46.7
450	400	55	0	-1.1	-2.7	-4.8	-7.3	-10.3	-13.8	-17.9	-22.4	-27.5	-33.1	-39.3	-46.0
450	450	55	0	-1.1	-2.7	-4.7	-7.2	-10.2	-13.7	-17.7	-22.2	-27.2	-32.7	-38.8	-45.4
450	500	55	0	-1.1	-2.6	-4.7	-7.2	-10.1	-13.6	-17.5	-22.0	-26.9	-32.4	-38.4	-44.9

NOTES:

In our ballistics calculations, we made the following assumptions:

- 1) The Bolt Shaft Length is 20"
- 2) The Bolt Shaft Diameter is 0.346"
- 3) The Vane Length is 3.00"
- 4) The Vane Height is 0.470"

The speeds listed in the Speed Column refer to the actual speed of your crossbow with your completed bolt, not the rated speed of your crossbow. **For the most accurate results, you will need to use a chronograph to determine your crossbow speed.**

The cells that are shaded red indicate that the maximum range of

the specified cam setting is limited. You will not be able to turn the range ring to that distance in Auto/Range mode. As a result, you will need to dial clicks or holdover if you wish to shoot further than the maximum range.

Section 8: DIAMONDTUFF GUARANTEE

Hi-Lux, Inc. warrants its products against defects arising from faulty workmanship, or materials, for the lifetime of the product. Any attempt to alter, dismantle or change the standard specifications of the products, will make this warranty null and void. This warranty is made to the original purchaser of the goods, and applies only to the products purchased in the United States. The warranty is transferable. Warranty obligation is limited to the repair or replacement of any product returned to Hi-Lux, Inc. that is determined by the manufacturer to have defects arising from faulty workmanship or materials that adversely affect the satisfactory operation of the product. It should be noted that on items containing an etched glass reticle that the occasional appearance of some small particles is common and not a warrantable repair. We have a one-year warrantee for the electronic components that are contained on the products. Hi-Lux, Inc. reserves the right to request proof of purchase and purchase date. To guarantee warranty service, the enclosed warranty form must be completed and returned within ten (10) days of purchase to establish all warranty rights between you, the original purchaser, and Hi-Lux, Inc. We assume no liability for any incidental or consequential damages, or incidental expenses. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you. No warranties are made, or are authorized to be made, other than those expressly contained herein. To file a claim under this warranty, please contact the Customer Service Department of Hi-Lux, Inc. at (310) 257-8142 to obtain a Return Authorization number (RA number). After receiving your RA number, please mark the number on the outside of the package; enclose the defective item with a brief explanation of the problem. Please be sure to include your name, address and phone number. Failure to obtain a RA number may result in either refusal upon delivery, or lengthy delays for warranty repairs and service required for the item returned to us. All returns are to be shipped prepaid direct to Hi-Lux, Inc. including a check or money order in the amount of \$21 to cover postage and handling.

Attn.: Warranty & Service Dept.

Hi-Lux, Inc.

3135 Kashiwa Street

Torrance, CA 90505

Tel: (310) 257-8142, Fax: (310) 257-8096

E-Mail: info@hi-luxoptics.com

www.hi-luxoptics.com

In the event of a non-warranty repair, you will receive an estimate prior to any work being done. This warranty gives you specific legal rights and you may have other rights, which vary from state to state. As defined by federal law, this is a limited warranty.

