

Recurve Bow
OWNER'S MANUAL



 **Hoyt** USA™
www.hoytusa.com

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Congratulations! You have just purchased the world's finest recurve bow. Hoyt's recurve bows have been designed for the serious recurve archer. Hoyt bows have brought home more Olympic and World medals than any other bow in the world.

With your new Hoyt bow you get the support of a company which has been making bows for almost 70 years. From well crafted limbs to precise risers, we are sure you will be happy with your new purchase. In addition, Hoyt USA backs you up with the most comprehensive warranty program in the industry.

The following information provides helpful instruction on the various parts and components of your new bow as well as a helpful guide to getting your bow set-up and ready to shoot.

Hoyt USA
543 N. Neil Armstrong Road
Salt Lake City, UT. 84116
(801) 363-2990 phone
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BOW OWNER'S PERSONAL RECORD

Hoyt Bow Model _____

Limb Type _____

Length _____ Weight _____ #

Purchased From _____

Purchase Date _____

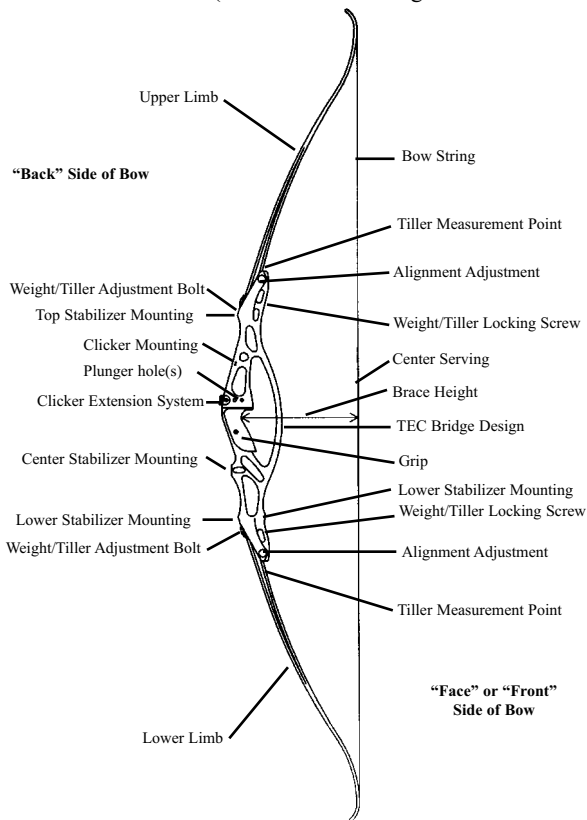
Important Note: Save your sales receipt. The receipt is your proof of date-of-purchase. Proof of date-of-purchase is required should your bow ever need warranty service.

The following space is reserved for your sales receipt. Please attach it for safe keeping.

IMPORTANT!
Staple or tape your
sales receipt here
for safekeeping.

RECURVE BOW TERMINOLOGY

Understanding recurve bow terminology and measuring techniques is very important in setting up your new bow. Please familiarize yourself with the following terms and measurements. Refer to them as needed. (Bow shown from sight window side of bow.)



Bow Length

Bow length is the distance from the tip of the top limb to the tip of the bottom limb of a strung bow. Depending on which riser length and limb length you choose, you can tailor your bow to your specific needs. Refer to the following chart to determine your bow length.

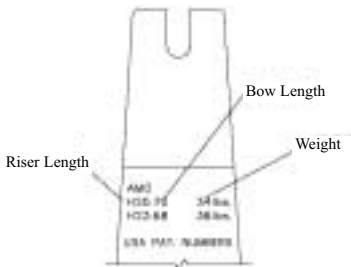
<u>Riser Length</u>	<u>Long Limbs</u>	<u>Medium Limbs</u>	<u>Short Limbs</u>
Short Riser (23")	68"	66"	64"
Long Riser (25")	70"	68"	66"

The recommended bow lengths are usually determined by your draw length. The following chart suggests the best match for draw length to bow length.

<u>Draw Length</u>	<u>Bow Length</u>
up to 27"	64"
24 - 29"	66"
27" - 31"	68"
29" and up	70"

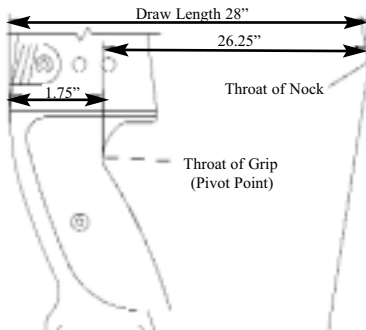
Draw Weight

To determine the weight on your Hoyt bow, refer to the limb specifications located on the bottom limb. The numbers are read horizontally. Example: a 25" riser with a long limb produces a 70" bow with a draw weight of 34 pounds at a 28" draw length. If these limbs are used on a 23" riser, the combination would produce a 68" bow with a draw weight of 36 pounds at a 28" draw length.



The weight marked on the lower limb is measured at a 28" standard A.M.O. (Archery Manufacturers and Merchants Organization) draw length. A.M.O. draw length is measured at 26 1/4" to the throat of the bow grip plus 1 3/4". This produces an industry standard by which recurve bows are measured.

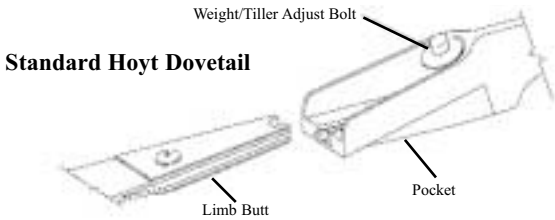
Note: Your draw weight will change due to draw length. Add or subtract approximately two pounds for each inch your draw length is over or under the 28" standard.



BOW ASSEMBLY

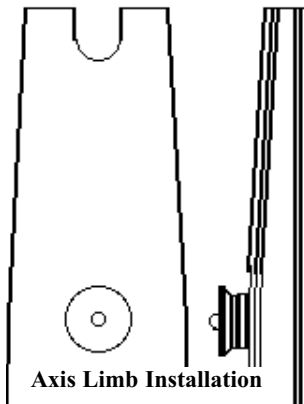
Installing Detent Limbs

Install one limb in each pocket (the limb noting specifications is the bottom limb). Carefully insert the limb bushing into the dovetail groove in the pocket. Push the limb forward until the detent button engages. You should hear a "click" indicating the limb is fully seated.



Installing Slot Limbs (Axis Riser)

The Axis pocket system is designed specifically for limbs containing the slot system. It is not compatible with a traditional detent limb system. To attach the limb using a slot system pocket, snap the butt of the limb into the pocket. Then, pull the limb slightly away from the riser. While looking from above, into the pocket, screw the thumb screw through the riser until the tip is visible inside the pocket. Then align the tip of the thumb screw with the slot in the limb. Do not screw thumb screw in limb yet. Next, firmly snap limb back into pocket. The limb will bottom out on the alignment dowel. An approx. 1/16" gap will appear between the limb and pocket itself. At this time begin screwing thumb screw into limb slot until finger tight. The thumb screw should screw in without extra force. If extra force is needed adjust the alignment until the thumb screw screws into the slot easily. You may want to snug up the thumb screw after stringing the bow.



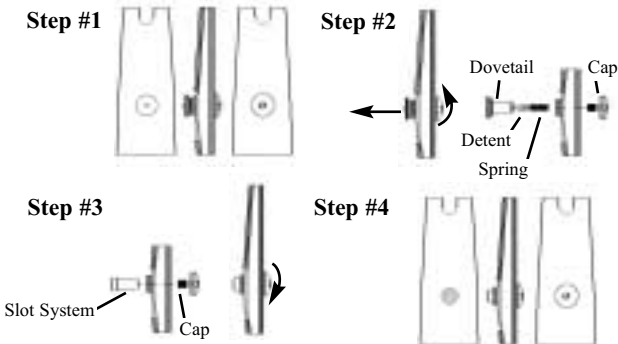
Changing the Limb Hardware (Axis Riser)

All Hoyt limbs are shipped with the standard dovetail detent system installed (Step #1). This configuration is used on all Hoyt risers with exception to the Axis. In order to use the limbs on the Axis riser, Hoyt provides a convenient, quick-change system.

To remove the detent system (Step #2), turn the cap screw counter-clockwise to loosen. Once the cap is removed, pull the dovetail, detent and spring from the limb. You may wish to keep these in a safe place for future use.

To install the slot system (Step #3), insert the slot cylinder where the detent system was previously. Replace the cap and securely tighten to ensure a solid fit.

With the slot system installed (Step #4), your limbs can be shot with the Axis riser. To change the limbs back to the detent system, just follow the above instructions in reverse. Be sure to include the detent and the spring when changing back to the detent system.



Note: If your limbs were purchased prior to the 2000 product year, you will need to purchase a limb conversion kit for your limbs in order to shoot the limbs with the slot system.

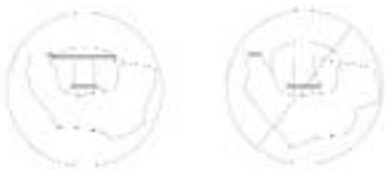
Adjusting Weight and Tiller

Hoyt bows are equipped with a unique limb weight/tiller adjustment system. The limb weight/tiller adjustment bolt is used to adjust bow weight and limb balance (tiller).

Weight

The weight on most Hoyt bows is adjustable in a range of approximately 10%.

If you are using the traditional detent system, adjust weight by loosening the weight/tiller locking screw. Do this by using one of the allen wrenches provided to hold the weight/tiller adjustment bolt in place, and the



Warning: Do not adjust weight on any adjustable bow beyond the limit shown in the drawing above. The weight/tiller bolt should never go above flush with the riser. There must be at least six threads of engagement between the riser and weight tiller bolt.

other wrench to loosen the weight/tiller locking screw. Once the locking screw is loose, you can adjust the weight/tiller adjustment bolt to the desired weight. Turning the weight/tiller adjustment bolt clockwise will increase bow weight. Turning the same bolt counter-clockwise will

decrease bow weight. Be sure to lock down the weight/tiller locking screw before shooting the bow.

If using the slot system like that used on the Axis, follow the directions for the detent system above, but be sure to loosen the thumb screw and alignment locking screw (Do not remove, just loosen.) before adjusting the weight/tiller bolt.

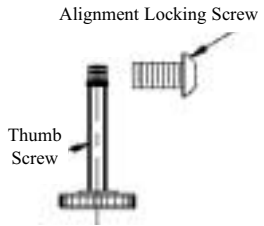
Standard Hoyt Dovetail

Weight/Tiller Adjust Bolt



Weight/Tiller Locking Screw

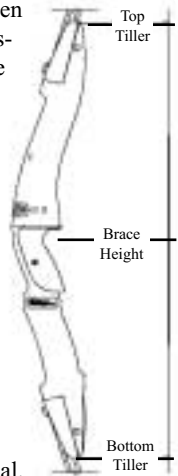
Then, adjust the weight up and down with the weight/tiller bolt until the weight is where you desire. Then simply tighten the weight/tiller locking screw, alignment locking screw and thumb screw finger tight, and you are ready to shoot.



WARNING: ALWAYS loosen the thumb screw and alignment locking screw when adjusting weight or tiller on the Axis riser. Failure to comply will cause damage to the pocket. NOTE: To loosen the thumb screw after shooting, you may use a coin in the screw slot.

Tiller

Tiller is the difference in draw weight between the upper and lower limbs. This is easily measured by noting the difference in distance between the top limb butt to the string, and the lower limb butt to the string. To set tiller, measure the distance from the base of the limb pockets to the bow string on both the top and bottom bow limbs. The main function of tiller is to allow the archer to more easily and comfortably aim during the draw and release of the shot. When initially putting your bow together, we recommend you begin with 0-1/8" positive tiller. (Bottom measurement 0-1/8" less than top measurement.)



Tiller can then be adjusted to fit each individual.

If you find your sight moving up as you are drawing, increase the bottom limb poundage slightly, or decrease the top limb poundage. If the sight is moving down as

you draw, make the opposite adjustments. To adjust the tiller without affecting bow weight, adjust both the top and the bottom weight/tiller adjustment bolts in equal but opposite directions.

NOTE: A tiller adjustment will move the nocking point position.

Adjusting Brace Height (“Fistmele”)

Brace height, or “fistmele” is the perpendicular distance from the bowstring to the pivot point of the handle. This height is an important aspect of tuning. The following chart gives you the recommended brace height range for your Hoyt recurve bow. The FX Limb has a unique design requiring different brace height and string lengths than traditionally used.

Brace Height Range Chart (Standard Limbs)

<u>Riser Length</u>	<u>Long Limbs</u>	<u>Medium Limb</u>	<u>Short Limbs</u>
Short Riser (23")	8 1/2 - 9 1/4" 21.5 - 23.5 cm	8 1/4 - 9" 21 - 22.8 cm	8 - 8 3/4" 20.5 - 22 cm
Long Riser (25")	8 3/4 - 9 1/2" 22 - 24 cm	8 1/2 - 9 1/4" 21.5 - 23.5 cm	8 1/4 - 9" 21 - 22.8 cm

FX Brace Height Range Chart

<u>Riser Length</u>	<u>Long Limbs</u>	<u>Medium Limb</u>	<u>Short Limbs</u>
Short Riser (23")	8 1/4 - 8 3/4" 21 - 22 cm	8 - 8 1/2" 20.5 - 21.5 cm	7 3/4 - 8 1/4" 20 - 21 cm
Long Riser (25")	8 1/2 - 9" 21.5 - 22.8 cm	8 1/4 - 8 3/4" 21 - 22 cm	8 - 8 1/2" 20.5 - 21.5 cm

Slight adjustments can be made to the string to adjust brace height. Adding twists will increase the brace height while removing twist will decrease the brace height. If there are no twists in the string at the brace height you want, a longer string will be needed. Generally, Hoyt does not recommend more than 30 or less than five twists in a string. Optimum brace height is one that gives a smooth bow action, good arrow flight, tight grouping and a quiet shot.

Choosing the Correct String Length

Depending on the length of your riser/limb combination, A.M.O. recommends the following string lengths. String length is approximately three inches shorter than the bow length. The following string lengths are actual lengths, when ordering strings from Hoyt USA use the bow length as a reference.

String Length Recommendations

<u>Riser Length</u>	<u>Long Limbs</u>	<u>Medium Limbs</u>	<u>Short Limbs</u>
Short Riser (23")	65" 165cm	63" 160 cm	61" 155 cm
Long Riser (25")	67" 170 cm	65" 165 cm	63" 160 cm

FX String Length Recommendations

Because of the unique contour of the FX limb, Hoyt recommends extending the length of your string at least 1/4" to 1/2", or approximately one centimeter.

Adjusting Your Pocket Adjustments (Select models)

An adjustable pocket system allows you to adjust the limb pockets to achieve perfect limb/riser alignment. This allows archers to more easily determine centershot, but has little effect on shootability. **The limb pockets are set at the factory and should therefore be very close if not exact.** Need for adjustment should be very minor, if at all. If the pocket needs some adjusting, first string the riser and limbs only. Check the limb alignment of both the top and bottom limbs by viewing down the bowstring from end to end on the face of the bow. While looking down the string line, check the location of the tip you are holding to the face of the limb in your hand. The limb tip should be reasonably close to the center of the limb.



Condition A

Need to adjust
limb tip to the
right.



Condition B

Need to adjust
limb tip to the
left.

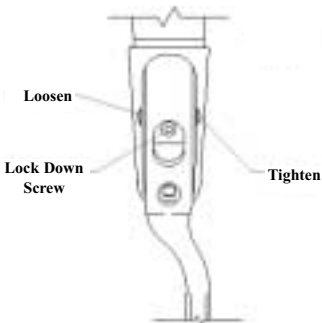
Adjusting Your Avalon Plus

Adjusting a Limb Tip to the Right: (Condition A)

Viewing from the rear or bowstring side (the face), loosen the Lock Down Screw, then loosen the right Pocket Adjustment Screw by turning it counter-clockwise and tighten the opposite (left) Pocket Adjustment Screw by turning it clockwise. Make adjustments in small increments (1/8 to 1/4 turn at a time). Be sure to tighten the lock down screw before shooting. After each adjustment, draw the bow a couple of times to allow the string to seat before checking again.

Adjusting a Limb Tip to the Left: (Condition B)

Viewing from the bow-string side (the riser face), loosen the lock down screw, then loosen the left pocket adjustment screw by turning it counter-clockwise and tighten the opposite (right) pocket adjustment screw by turning in clockwise. After each adjustment, draw the bow a couple of times to



allow the string to seat before checking again. Make adjustments in small increments (1/8 to 1/4 turn at a time). Be sure to tighten the lock down screw before shooting. **Warning: Do not over tighten the adjustment screws! They only need to be snug to the riser.**

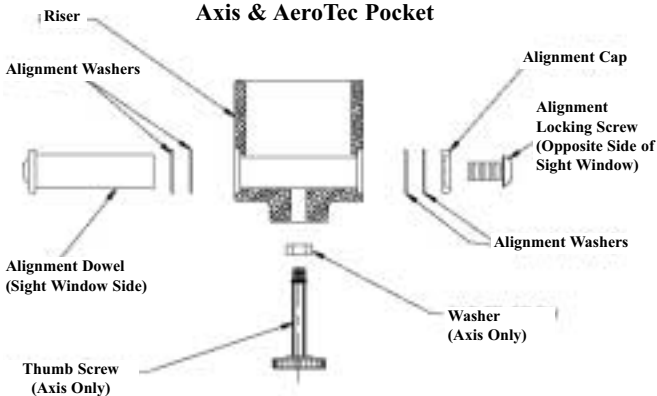
Adjusting the Axis and AeroTec Risers

The Axis and AeroTec limb pocket design is the most advanced pocket alignment adjustment system available today. This limb alignment system maintains its settings in all conditions. You can adjust your limb alignment to make it perfectly compatible to the riser simply by removing or adding the supplied washers to the alignment dowel.

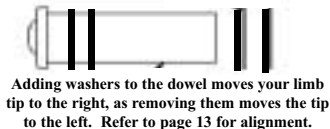
To adjust your pocket follow these directions:

1. With the bow unstrung and limbs removed from the riser, unscrew the thumb screw (Axis only) and washer completely out of the alignment dowel.

Axis & AeroTec Pocket



2. Unscrew the alignment locking screw and remove the alignment cap and washers. Pull the alignment dowel and washers out from the sight window side of the pocket. (Do not lose any parts !).



3. (Refer to the limb visual on page 13) If your limb is showing **Condition A**: Simply **ADD** washers to the **SIGHT WINDOW SIDE**

(**MAXIMUM OF 4**) of the alignment dowel. If your limb is showing **Condition B**: **REMOVE WASHERS** from the sight window side of the dowel. Limit your adjustments to one washer at a time. You can store any unused washers between the riser and alignment cap because the washers on the alignment cap (non-sight window) side of the pocket do not affect the alignment.

4. To reassemble the pocket, first insert the alignment dowel and washers in the riser (be sure to always put the alignment dowel in on the sight window side of the riser). Place the washers,

alignment cap and alignment locking screw in the dowel. Be sure washers are not caught on the threads of the alignment screw, they must be flat against dowel shoulder prior to tightening.

For Axis: Do not completely tighten the alignment locking screw until attaching the limbs. Looking from above, into the pocket, align and screw the thumb screw into the slot in the alignment dowel. Snap the limb into the pocket and pull the limb slightly away from the riser. Turn the thumb screw in until you can just see the tip through the alignment dowel. Rotate the dowel using the thumb screw as a lever until the limb slot aligns with the tip of the thumb screw. If properly aligned, the thumb screw should engage the limb easily without binding. Tighten the thumb screw finger snug and finish by securely tightening the dowel locking screw with the supplied allen wrench.

For AeroTec: Rotate the dowel until the flat surface of the dovetail slot matches the flat surface of the limb pocket. Then securely tighten the dowel locking screw with the supplied allen wrench.

After the limb tips are adjusted, align the string down the center of the limbs, riser and stabilizer. Move both the top and bottom pocket adjustments the same amount in the same direction, as you have already set them for the center of each limb. Continue to make adjustments until the string runs nearly down the center of all three alignment points.

Applying a Nocking Point

A nocking point marks the exact position of the arrow on the bowstring for each shot. To apply your nocking point, slip an adjustable nock set on the center serving, and slide it into position. Initially, set the nocking point at approximately 3/8" above the level point of the rest. Close the nock set with nocking pliers so it is firm, but do not over tighten the nock set as it could break your serving.

Setting Your Center Shot

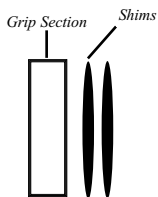
The final step before shooting is to position your center shot. To start, position the arrow slightly offset of the center of the bowstring. To do that, begin by nocking an arrow and placing it on the arrow rest. Do not draw the bow, but position yourself behind the string side of the bow, looking down the arrow. Align the string down the center of the limbs and riser and check to see the position of the arrow tip relative to this line.

Adjust the plunger or arrow rest until the inside edge of the arrow shaft aligns with this line.



Axis Adjustable Grip Section

Hoyt's Axis grip is designed with an adjustable grip section that can be laterally adjusted to the archer's preference. Two positions are selectable, center (traditional, recommended) and 1/8" inside center. The grip is shipped from the factory in the traditional center position. To change the position of the grip, simply remove the two button head screws on both sides of the grip with the supplied wrench, and remove the grip section. To move the grip to the 1/8" inside position remove the composite shims and place them opposite of the sight window side of the grip. One shim on each side of the grip will return the grip to the traditional center alignment.



Shims need to be placed opposite of sight window on the grip for the 1/8" inside position.

Tuning

Tuning is the process of adjusting your bow to optimize its accuracy. Optimum tuning matches the arrow to the bow, to achieve the best arrow flight and grouping. The following is a simple tuning process that can be done the first time in set-up.

To tune your bow, have on hand three fletched arrows and three bare shafts (arrows without fletching), all identical and straight. From about 15 to 20 yards, shoot your fletched arrows at a target (aiming at the same place on all shots). Follow the three fletched arrows with three bare shafts and note where the group of the bare shafts impact compared to the fletched arrows.

Nocking Point/Cushion Plunger Adjustments

The first consideration is your nocking point position. If the bare shafts are grouping below the fletched shafts, lower the nocking point. If the bare shafts are grouping above, move the nocking point up. Be sure to only move in small increments (never more than a 1/16" at a time). Each time the nocking point is moved it will affect your sight setting, so you will need to reset your sights after each move. Continue to make adjustments until the two groups of arrows impact at the same height.

Next, work on the left/right impact. For right handed shooters, if the bare shafts hit to the right of the fletched shafts, increase the spring tension on the cushion plunger or decrease bow weight. Should the bare shafts hit to the left of the fletched arrows, loosen the spring tension or increase bow weight. With each change in spring tension or bow weight, re-adjust the sight before shooting the bare shafts.

Note: Left handed shooters need to reverse these instructions!

For advanced methods, see your local dealer an additional source of detailed information is the Easton Arrow Tuning and Maintenance Guide, available for a nominal fee from Easton Technical Products, 5040 W. Harold Gatty Drive, Salt Lake City, UT 84116 (801) 539-1400, or on the Internet at www.eastonarchery.com.

Warranty

Hoyt USA recurve handles are warranted against defects in materials and workmanship to the original owner for the life of the product. Hoyt USA recurve limbs are warranted for one (1) year. A dated proof of purchase is required for warranty coverage. Products must be purchased through a Hoyt USA authorized dealer for warranty coverage. Hoyt USA, at its discretion, voids all warranty claims either expressed or implied including but not limited to evidence of abuse, modification to original design or use of attachments or accessories that cause excessive stress.

There are no other warranties, expressed or implied, that extend beyond those written here. No agent, employee or representative of Hoyt or its dealers has the authority to bind Hoyt to any agreement not herein stated. Buyer agrees that the sole and exclusive remedies for breach on any warranty concerning Hoyt bows shall be repair or replacement of defective parts. Hoyt shall not be liable for injury or property other than the bows themselves.

Warranty Service

To obtain warranty service, you should return to the Hoyt Dealer where you purchased your Hoyt bow. The dealer can help you determine if Hoyt factory service is required or if the repair can be completed by the dealer. If the bow must be returned to the factory, the bow owner is responsible for the return postage to Hoyt. Hoyt, in turn, will match the postage for reshipping the repaired bow.

Hoyt bows requiring Hoyt factory warranty service should be sent to:

Hoyt USA
543 N. Neil Armstrong Road
Salt Lake City, UT 84116-2887

Note: Before any bow is returned to the Hoyt factory for warranty service, a Hoyt **Return Authorization Number** must be obtained by calling Hoyt USA at (801) 363-2990.

Any bow returned must have the following:

- Must be sent postage paid.
- Must include a copy of the dated sales receipt.
- Must include a short note explaining the nature of the problem.
- Must include a Hoyt Return Authorization number.
- Should not include accessories unless otherwise instructed when the Return Authorization Number is obtained.

IMPORTANT INFORMATION

1. Never Dry Fire Your Bow. Dry fire means to draw and release your bow without an arrow. Shooting without an arrow, which absorbs most of the bow's stored energy, could cause severe damage to the bow and possible injury.

2. Never Expose Your Bow to Extreme Heat or Prolonged Moisture. Excessive heat, such as could be experienced on a sunny day inside of a closed vehicle, could cause limb failure. Prolonged storage in a hot, dry attic or damp basement could also be damaging and will void your warranty.

3. Carefully Inspect Your Bow Before And During Each Shooting Session. Carefully note condition of bowstring, limbs and riser before you shoot. Frayed bowstrings should be replaced. Damaged or suspect limbs should be reported to the dealer where you purchased your bow.

4. Inspect All Arrows. Before Shooting, inspect your arrows for defects. Replace cracked nocks and loose fletch and discard fractured or dented arrows.

WARNING: This bow is a deadly weapon. Always abide by all safety advisements. Children should be supervised by an adult.