

8

***The Bow Station*--Nomenclature,
Inspection, Operation,
Maintenance, and Repair**



The Bow Station -- Nomenclature, Inspection, Operation, Maintenance, and Repair

Lesson Objectives

BAI candidates will learn names for parts of the compound bow. They will also learn how to inspect bows, maintain, operate, and repair before and during use for the sake of safety and performance.

Classroom Application

This is a lesson generally put off until students have enjoyed a day or two of shooting.

Discussion

Throughout beginning archery lessons, it is necessary for the instructor to refer to various parts of the bow. It is important that students learn the correct nomenclature for these parts to facilitate archery discussions in the classroom and beyond. For example, if a student sees what might be a crack in the bow's limb, the student could be able to communicate this to the instructor by knowing upper from lower limbs, and bow face from bow back. In other words, instead of a student saying, "There appears to be a crack in this long green part ." The student could say, "There appears to be a crack in the face of the bow's upper limb."

It is important before every archery class that the instructor inspects equipment to make sure it is in safe working order. Students should also learn to inspect equipment so they can help keep their archery experience safe and enjoyable.

Many instructors will be fully capable of handling most inspection, maintenance and repair issues with the bow. However, it is often helpful to develop a cooperative relationship with a local archery shop manager to help with these types of issues. Because these managers enjoy archery, many will be eager to help you have successful archery classes. Many of these retailers recognize the possibility of your students becoming future archery customers. It is also common for cooperative archery experts to be among the school faculty or in the school district.

Classroom Set-Up

This is a non-shooting lesson. Therefore, it is unnecessary for the archery range to be set up. However, because students will be handling bows during this lesson make sure students have enough space to prevent bumping one another.

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Materials Needed (figure 9.1)

- Universal draw-length Genesis® compound bows (for every student or student team and instructor)
- NASP tackle box with: hex wrench, string wax, serving thread, lighter or match, bow square, knot demo rope, and marker.



Fig. 8.1

Conducting the Lesson (Teaching Suggestion 8.1)

Sample Introduction

“The title of this lesson is the *Bow Station*. The purpose of the lesson is to teach the names of bow parts, how and when to inspect a bow, how to adjust the bow, and how to make certain, simple repairs. Information contained in this lesson will help ensure bows remain in safe, good shooting condition.

The Universal Draw-Length Compound Bow — Nomenclature:

- Have every student spread out so all can see the instructor. If the archery range is set up, students should be behind the waiting line.
- After reminding everyone of the “dry fire” rule, provide each student or pair of students a bow to refer to as parts are named. The instructor might want to make a copy of the manual illustration that details bow parts for students to also refer to.

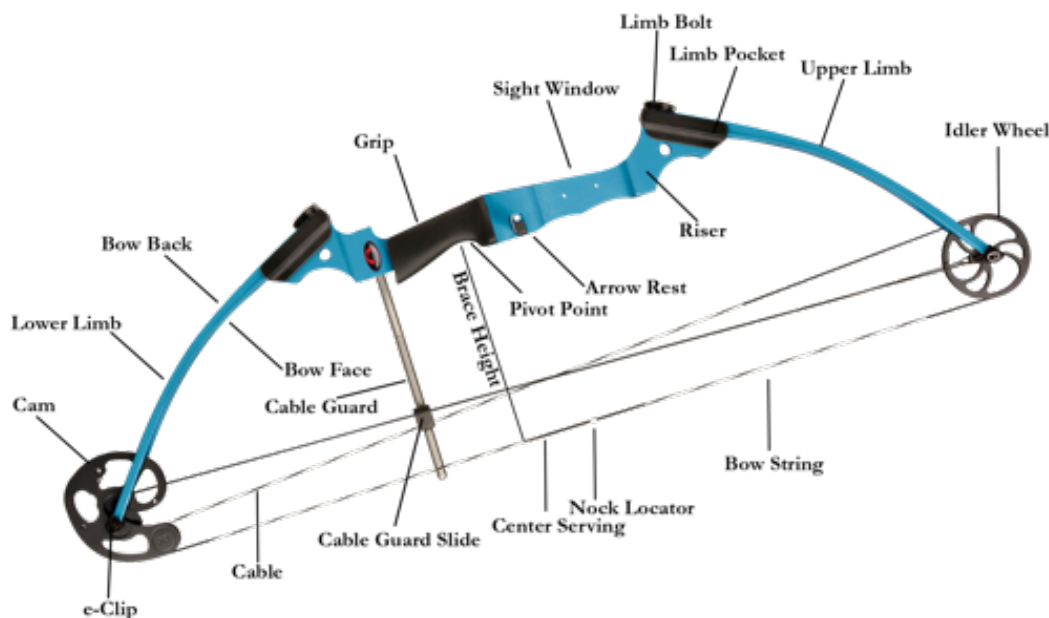


Fig. 8.2

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- C. The instructor should point to and name all parts of the bow.
- D. Students should follow the instructor by also pointing to and naming the part. **(Figure 8.2)**
- E. Instructor should show students how the shelf of the left-handed bow makes an "L." **(Figure 8.3)**
- F. For review the instructor should select students one by one to name a particular part.

The Universal Draw-Length Genesis® Compound Bow — Safety Inspection:

- A. The bow should be inspected periodically to make sure it is safe to use. This should be done before the beginning of each archery class. The bow should also be inspected if it is dry-fired, dropped or looks or feels like something might be out of order.
- B. As when teaching the names of bow parts, it would be ideal if the student had a bow in hand when teaching this material. Use safe handling techniques as described above.
- C. The instructor should list what the inspection will cover and what to do if inspection reveals an issue. Save the actual maintenance and repairs until the inspection is complete.

- Bowstring & cables: broken strands or frayed – replace broken string and wax frayed string
- Serving: replace if coming unwrapped
- Bowstring and cables should be in wheel tracks and string & cable ends around cam posts
- Nock locator: missing or loose - replace
- Bow limbs: cracks or splinters - replace
- Bow riser: cracks (extremely rare) - replace
- Arrow rest: bent, missing or broken - fix or replace



Teaching Suggestion 8.1 Handling Equipment in Large Groups

Since no shooting will occur during this lesson and because the instruction will likely take place in a group setting without using archery range lines, arrows and bows should be kept completely separate to make sure arrows are unavailable to nock on bows.



Fig. 8.3



Teaching Suggestion 8.2 Preset Draw Weights to Accommodate All Abilities

Instructors often pre-set bows at various draw weights before archery class begins. Then, if a student seems to be over-bowed, (trouble drawing, holding, etc.) the instructor refers that student to a bow that "fits them better or is more comfortable" - one the instructor knows has been pre-set at a lower draw weight. In the case of the Genesis® bow which comes in several colors, the instructor might color code the draw weight settings: red, purple, black, and orange bows could be set at the maximum 20 pounds, yellow @ 14 pounds (4 left counter clock-wise turns) and green @ 11 pounds (six CC turns).

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- e-clip on both sides of cam axle: missing - replace
- Each limb is adjusted equally (observe gap between limb pockets and riser) - adjust

The Universal Draw-Length Genesis® Compound Bow: Draw Weight Adjustment and String in Wheel Tracks

Draw Weight: Using the limb bolts on each limb and a 3/16th inch hex wrench, the bow's draw weight can be adjusted. A complete, counter-clockwise turn of the wrench on each limb reduces draw weight by a total of approximately 1.5 pounds (see owner's manual if using other than a Genesis® compound). A complete clockwise revolution of the hex wrench on each limb adds 1.5 pounds of draw weight. When making adjustments, the same number of turns must be removed or applied to each limb bolt. The recommended draw weight adjustment range of the Genesis® compound bow is 10-20 pounds. Thus, when fully tightened the bow's draw weight will be 20 pounds. If fully tightened and then six counter-clockwise revolutions of each limb bolt are applied, the bow's draw weight will be reduced to 11 pounds — very near the recommended minimum for the bow. The bow will gently come apart if too many turns are removed (10-12). If you forget how many turns have been made, fully tighten the limb bolt(s) and start over with your count. **(Figures 8.4 - 8.6 and Teaching Suggestion 8.2)**

String Out of Wheel Tracks: If they jump their tracks, the string and cable can easily be returned to the wheel and cam tracks. It will be useful to have another identical bow of the same hand (right or left) to be used as a model. From a fully



Fig. 8.4



Fig. 8.5

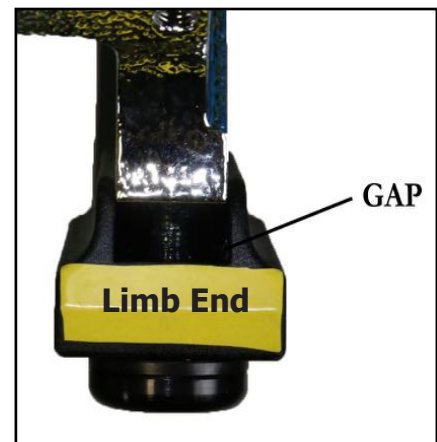


Fig. 8.6



Teaching Suggestion 8.3 How the String Can Jump the Wheel Tracks

Sometimes, the bow's string will "jump" the upper wheel or lower cam string tracks if the grip is severely twisted or grip torque occurs upon release of the string. This is most likely to occur when the bow is set at the lowest draw weight settings.

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Fig. 8.7

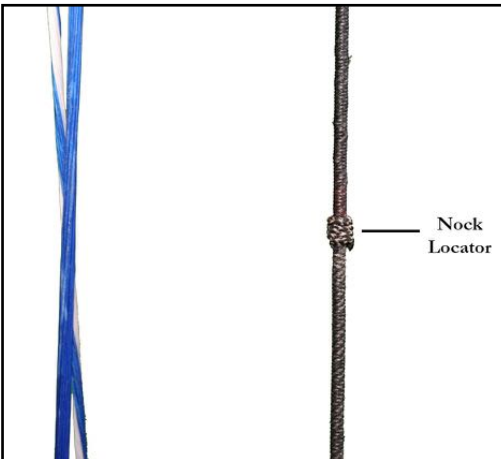


Fig. 8.8

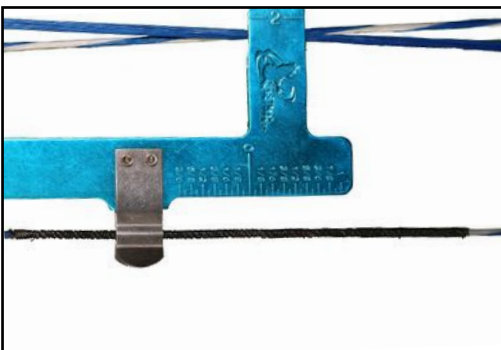


Fig. 8.9

tightened position, reduce the draw weight of the bow by loosening each limb bolt 7-8 turns each which is below the minimum recommended for shooting. You should then be able to return the string and cables to their original position by referring to the model. Be sure to re-tighten the limb bolts when repaired because at 7-8 turns of weight reduction the bow's draw weight is too low to shoot. **(Teaching Suggestion 8.3)**

String Maintenance

Bowstring & Cables: To extend the life of the bowstring and cables and to prevent excessive fraying, they should be waxed after every few days of shooting or if the strings appear dry. Using a stick of bowstring wax, apply wax to the string by running the stick up and down the string and cables a couple of times. Then rub your fingers along the string to melt the wax into the string and cable fibers. **(Figure 8.7)**

Nock Locator: If the nock locator breaks or becomes loose, it must be replaced. If the locator is loose, it may be because the center serving of the bowstring needs to also be repaired or replaced. Serving repair should be accomplished at the bow shop or by an experienced and properly equipped archer.

It is common for archers to use "C" shaped brass nock locators on their bowstrings. In very rare cases, especially if the brass locator has been improperly secured, it may fly off the string and injure the archer or a bystander. For safety reasons, brass nock locators are kept out of NASP®. The authors of this training program recommend using knotted serving thread or heat shrink nock locators. **(Figure 8.8)**

To place or replace a nock locator, its proper location on the bowstring must first be determined and

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marked. Using a bow square, mark a location on the string 1/2-5/8 inch above horizontal (above the "0" mark on the square's scale). **(Figure 8.9)**

Making a Serving Thread Locator: (Teaching Suggestion 8.4)

1. Start with a 12" (30 cm) length of serving thread.
2. Place the bow in a stable position with easy access to the center of the bowstring.
3. At the 1/2-5/8" measurement marked with the bow square, begin tying a series of knots.
4. A total of 7 knots will be tied, one above the other moving up the bowstring.
5. The first knot tied is a surgeon's knot. **(Figure 8.10)**
6. Next 5 knots will be alternatively tied at the face and back of the bowstring. **(Figures 8.11-8.12)**
7. The nock locator is finished with another surgeon's knot.
8. Using a tiny flame melt the tag ends of this knot to prevent unraveling. **(Figure 8.13-8.14)**
9. String suppliers recommend against applying glue to the knot as this can result in string breakage when the glue dries.



Teaching Suggestion 8.4 Simulated Tying a Serving Nock Locator

Arrows or wooden dowel rods can be used with twine to practice or demonstrate the making of a tied on nock locator. Arrows or rods are pushed in the top of a foam target or other material so they are held vertically (or bridged between targets if a horizontal perspective is desired). In this manner an arrow shaft or rod simulates the bowstring. Twine is used to tie the seven knots to practice making nock locators. **(Figure 8.15)**

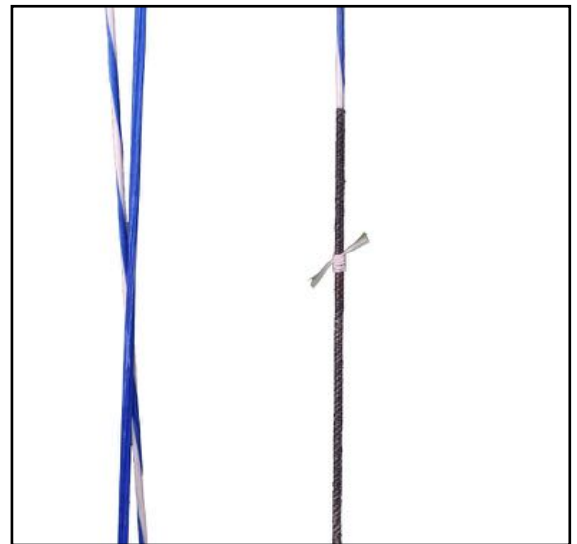


Fig. 8.12

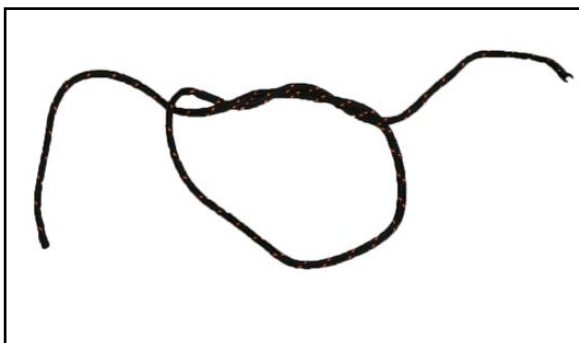


Fig. 8.10

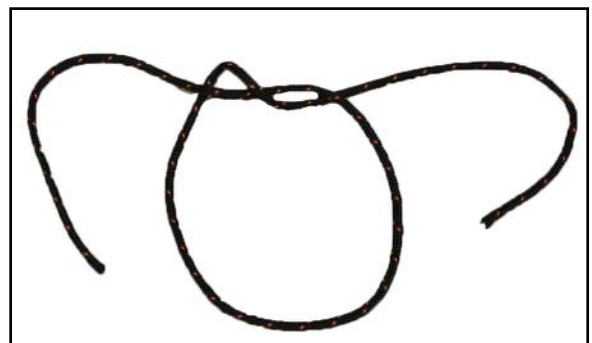


Fig. 8.11

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Fig. 8.13

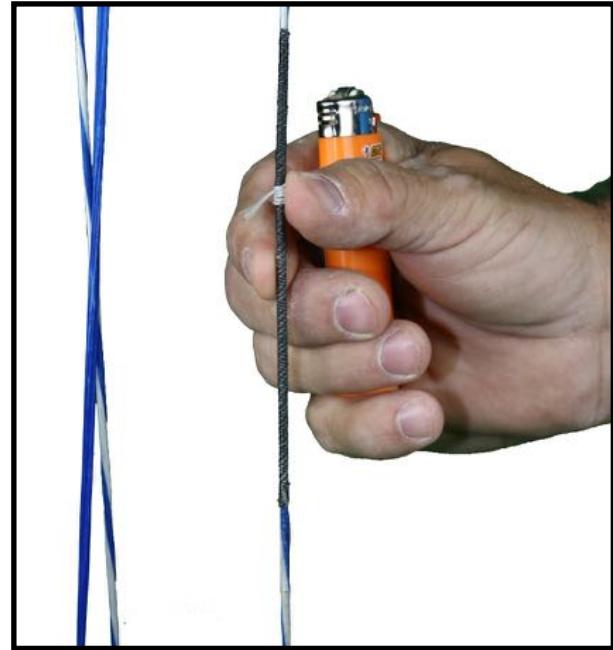


Fig. 8.14



Fig. 8.15



Checks for Understanding

Why is it important for archers to know the proper names for bow parts?

Why is it important to check the bowstring for broken strands before shooting?

Why are tied on nock locators used in NASP®?