

## **Bare Shaft Planing Test (Finger Release – Recurve Fingers, Compound Fingers)**

In addition to tuning, the bare shaft test is also been selected. If the left/right adjustments outlined under “Fishtailing” do not cause the unfletched shafts to group with or very near the fletched shafts, then a weaker or stiffer spined shaft (based on where the arrows have impacted) must be selected. Arrows that do not fly well and do not group tightly are usually affected by one or more of the following problems:

1. They may PORPOISE in flight.
2. They may FISHTAIL in flight.
3. They may not CLEAR the bow properly as the arrow leaves the bowstring.
4. They may MINNOW in flight (a specific type of clearance problem).

### **Porpoising**

It is important to correct for Porpoising first. If the arrow leaves the bowstring with the nock too high or too low, a motion known as Porpoising occurs. Porpoising is caused by an incorrect nocking point location. Use the Bare Shaft Planing Test to find the correct nocking point location. Shoot at least three fletched shafts at a distance of 15 to 20 yards (or meters). Then shoot two identically aimed unfletched shafts. Once you get the bare shafts to impact close to the fletched arrows at 20 yards (or meters), you may want to try shooting 25-30 yards (or meters) for a finer tuning indication. If the unfletched shafts impact above the identically aimed fletched shafts, move the nocking point up on the bowstring until both fletched and unfletched shafts strike at the same elevation. If the unfletched shafts impact below the identically aimed fletched shafts, move the nocking point down on the bowstring until the unfletched shafts hit at the same elevation or slightly lower than the fletched shafts.\*

To assure you have eliminated Porpoising, repeat the test, shooting first the fletched, then the unfletched shafts, and make adjustments to the nocking point until both fletched and unfletched shafts impact at the same elevation. ( It is sometimes desirable to have the bare shaft impact just slightly below the identically-aimed fletched shafts. Bare shafts that impact above identically-aimed fletched shafts indicate a low nocking point. If the nocking point is too low, it may force the arrow fletching down into the arrow rest, creating Clearance problems.

### **Fishtailing**

If the arrow leaves the bow with the nock end leaning to one side or the other, Fishtailing occurs. The nock end of the arrow will appear to move from side to side as the arrow follows its flight path. Use the Bare Shaft Planing Test to correct Fishtailing. Shoot three fletched shafts at a distance of 15 to 20 yards (meters), then shoot two identically-aimed, unfletched shafts. If the unfletched shafts impact left (stiff) of the identically aimed, fletched shafts, either decrease the spring tension on the cushion plunger, increase bow weight slightly (if your bow weight is adjustable), or increase arrow point weight. If the unfletched shafts impact right (weak) of the identically-aimed fletched shafts (for a right-handed archer), increase the spring tension on the cushion plunger, decrease bow weight slightly (if your bow weight is adjustable), or decrease arrow point weight. Your equipment is basically tuned when the bare shafts and fletched shafts impact at the same or very near the same location. It is common on a well-tuned bow to have the bare shaft impact a little low and slightly stiff (to the left of the fletched shafts for a right-handed archer). Occasionally, a good tune may be achieved with the bare shaft impacting slightly weak (to the right of the fletched shafts for right-handed archers), but this is less common.

Proper clearance is absolutely essential for optimum grouping, consistency and accuracy. This is especially true with ultra-light weight arrows like the UltraLite aluminum, the A/C/E and A/C/C HyperSpeed shafts. After you have performed the Bare Shaft Planing or Paper tuning Arrow Test, it is a good idea to check for adequate clearance.