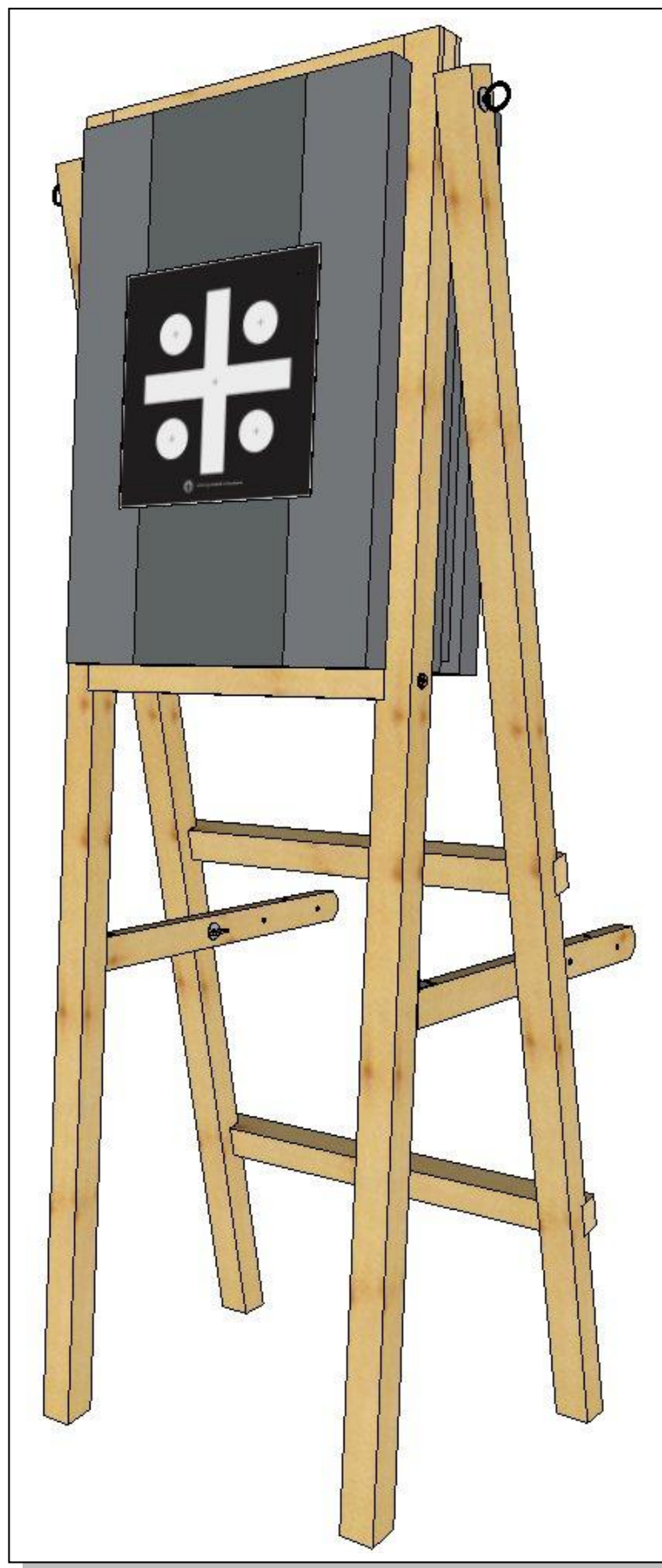



## DANAGE TARGET face type 'TUNING'.

### Tuning guide.

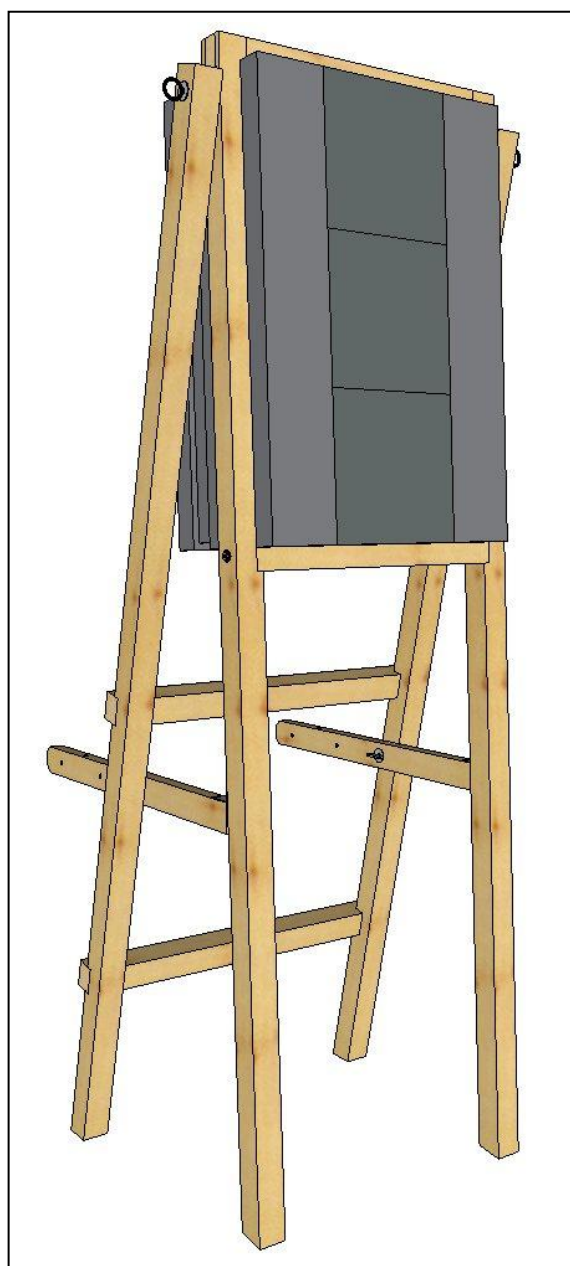


## Danage Target face type 'Tuning', instructions.

### Introduction.

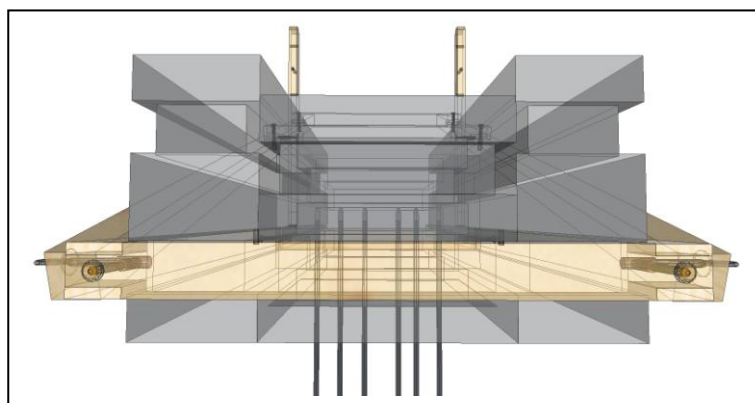
These instructions for using Danage Target face type 'Tuning' are based on the "Easton arrow tuning and maintenance guide" . For initial and basic bow setup and basic tuning, please refer to above mentioned or similar guides.

The target mat used in this instruction is the new Danage Domino No Frame Target type E/D. This target mat is perfect for training at home or as a compact mobile target mat for the archery club. The foam mat is 44x66 cm, and is designed with 3 pcs. 22x22x21 cm UP-foam target centers in the middle. This setup gives the archers a target mat that is very long lasting and versatile. It is perfect to use with vertical tripple target faces and if used with full face, single spot or t.ex. Danage mini-tripple target faces at the center, the two other UP-foam centers serves as reserve centers, when the middle center is worn out.



The target mat type E/D, assembled.

Note: The colors of the foam materials are just for illustrative purpose. The color of the Danage UP-foam may be slightly darker grey compared with the Danage PE-foam, but not as much as shown here.



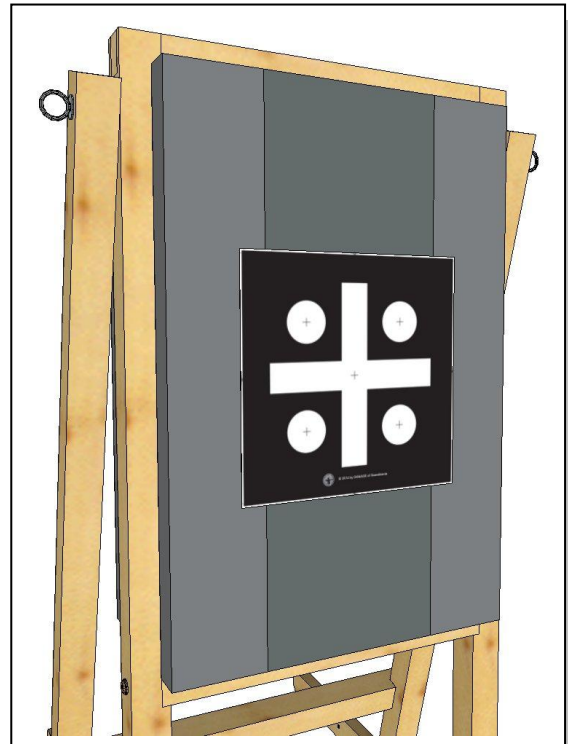
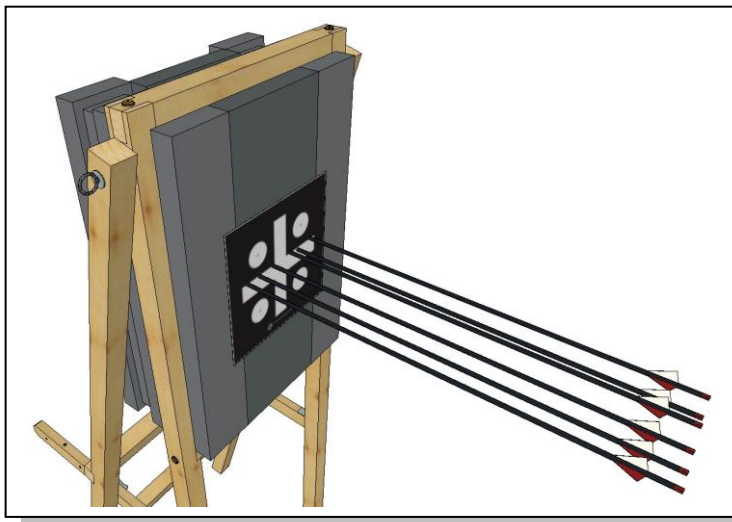
One of the great advantages of the Danage UP-foam is that the arrows doesn't penetrate very deep into the material and at the same time the stopping power is gentle to the arrows. On the image above is shown that the arrows goes appr. half way through the center (of thickness 21 cm), but it may be even less. ACC Prohunting 440 arrows, appr. 400 grains for example, shot from a 42# 300 fps IBO speed bow, penetrates only 7 cm. A test by John Dudley, where he shot a 510 grains arrow with fixed broadhead, shot from a 75# compound bow, showed that the arrow didn't penetrate through a UP-foam center at 14 cm thickness!! This is one of the reasons that the UP-foam center lasts a long time, before replacement is needed - and with the 21 cm thickness centers, it is even possible to use the center twice by turning the center backside out! Another reason is that the arrow holes are self-healing to a high degree. Plus an extra advantage is that the arrows are very easy to pull out.

## Short distance tuning - compound / recurve, without broadheads.

After basic tuning with either bare shaft test or paper tuning test have been performed, it is a good idea to perform a fine tuning of the equipment with the short distance tuning method. The reason why this is a very good tuning method is that the arrows has the maximal flexing and vibrations at the short distance - right after leaving the bow. Set the target mat up at t.ex. 12 m shooting distance and place a Danage Target face, type 'Tuning' at the center of the target mat. This target face is also excellent for practice shooting, resulting in less wear of the center, while placing 1 arrow in each of the 4 circular spots.

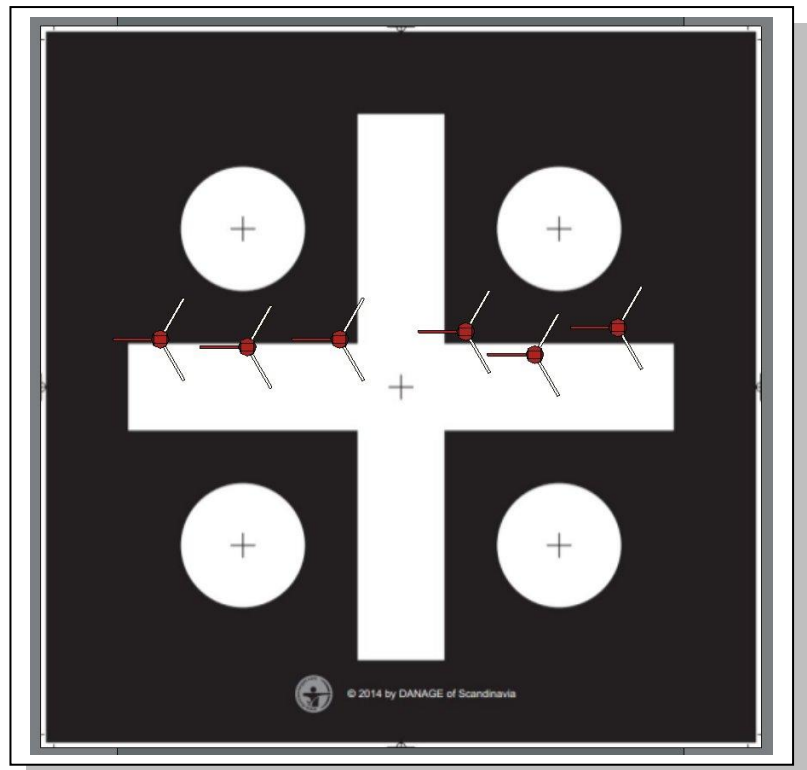
### *Up-Down Impact test.*

Using fletched arrows only, shoot a group of 6 arrows. Aim for one of the horizontal edges in the white cross of the tuning target face.



What to look for in this test is the up/down alignment of the arrows along the horizontal line. If you consistently is not able to line the arrows up along the horizontal line, this indicates small tuning issues in the equipment. To correct the tuning issue, move the nock point on the string a little up or down, not more than appr. 1/32" (0,8 mm) at a time. If you start with moving the nock point up and the arrows are consistently widening in up/down impact, then go back to the original nock point position and try to move the nock point downwards in stead.

Since moving nocking point "just a little at a time", can be quite a hassle it may be a great benefit to move the arrow rest up or down in stead, if you have a micro tunable arrow rest. To move arrow rest up, gives the same as moving nock point down and vice versa.



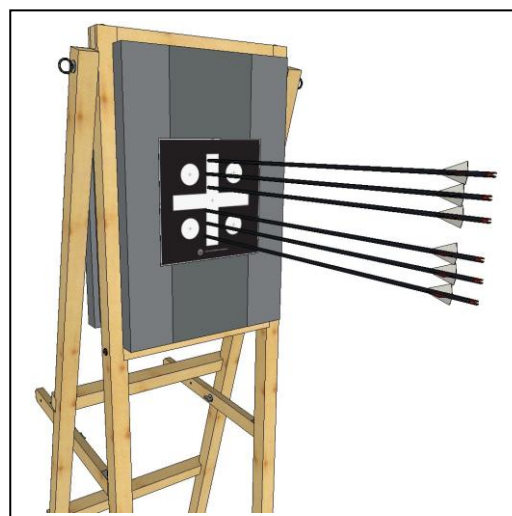
### ***Left-Right Impact test.***

Still using fletched arrows shoot again groups of 6 arrows. But this time you aim for one of the vertical edges of the cross, in the tuning target face.

As with the Up-Down Impact test, this test is about to fine tune the equipment so that the arrows are lining nicely up along a straight line.

*Compound archer, release or finger shooting;*

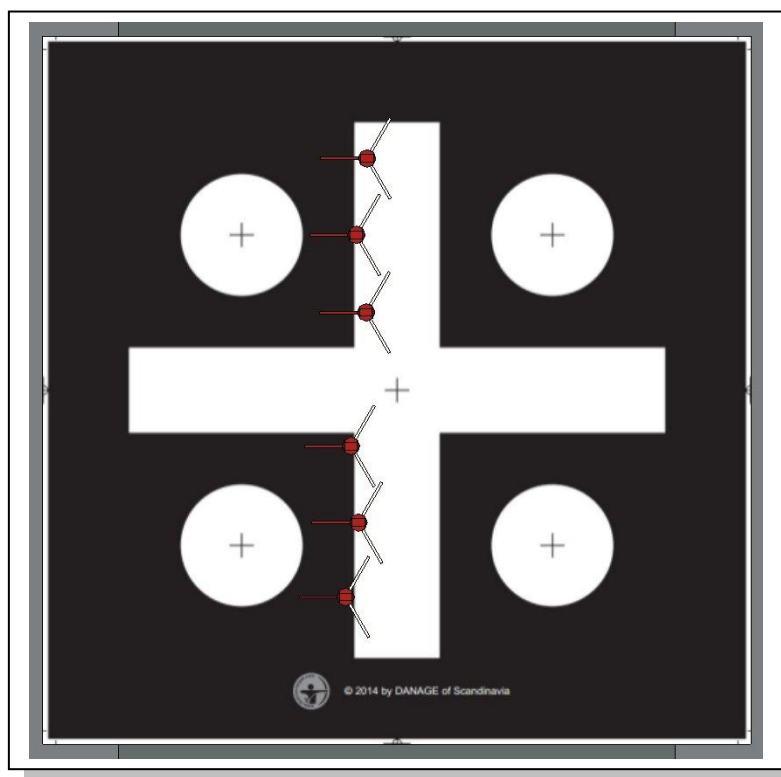
For these two groups of archers there is a common method to do adjustments, if the arrows consistently are not hitting along a straight vertical line.



The adjustment to be done here is to move the arrow rest, either to the left or to the right, again in small increments of appr. 1/32" (0,8 mm) each time. If the arrow groups are widening, go back to the original position and adjust the arrow rest in the other direction. If the arrows are lining up along a straight horizontal line, the adjustment is correct. Continue until you get the as straight as possible line, as you can achieve.

*Compound archer, finger shooting, using plunger;*

This group of archers can after adjustment of arrow rest sideways position, also try to increase / decrease plunger tension, to straighten up the arrow impact.



*Recurve archer;*

Recurve archers must not move the arrow rest in / out, while performing this test. Because the center shot / arrow-string alignment was set up, during the basic bow setup. The tool recurve archers can work with if the arrows are consistently not hitting along a straight vertical line, is to adjust the spring tension of the plunger. Start for example by decreasing the spring tension 1/8 turn at a time. If the left-right impact of the arrows widens, go back and try instead to increase the spring tension of the plunger.

Remember always to do just one adjustment at a time, so that you can remember what adjustments you have done. For left hand archers, the sideways adjustments are the opposite as for right hand archers.

## Broadhead tuning guide.

The Damage Target Face type 'Tuning', can also be used for broadhead tuning. While shooting arrows with broadheads, be sure to never shoot un-fletched arrows, as the broadhead on a bare shaft will cause the arrow to behave unpredictable in the flight. While doing this test, be sure to use identical arrows with screw in inserts for points. Be sure to use field points of the same weight or as close as possible to the same weight as the broadheads you intend to use for hunting.

When you start on below test, all basic and finetuning tests, inclusive Up-Down and Left-Right Impact tests, must already be finished, with as good as possible tuning results. These basic and finetuning tests must be done with field points on the arrows.

Set the target up at t.ex. 18 m, and start with shooting groups of arrows with field points in the center of the cross of the tuning target face. When you are warmed up and are shooting as good groups as you can, shoot then also a group of 3 arrows with broadheads, aiming at the same spot as the arrows with field points.

*Left / right grouping of broadhead arrows;*

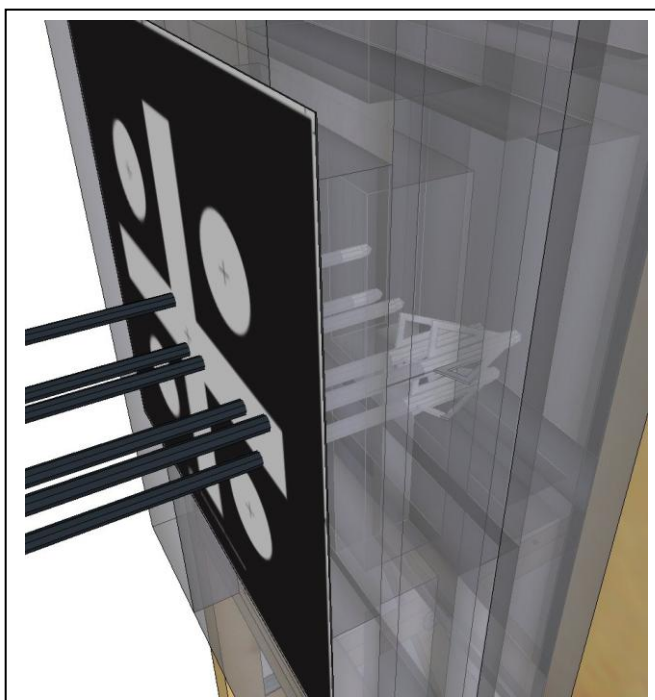
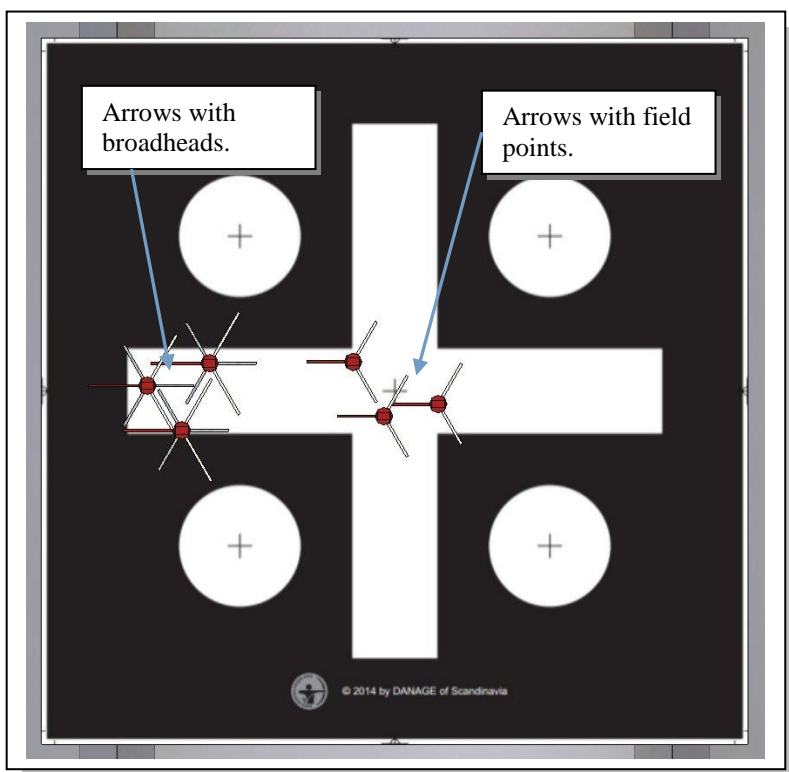
If the broadhead arrows are grouping to the left of the arrows with field points, as shown on the image to the right, one or more of the following steps can be done to make the broad head arrows group together with the arrows with field points:

- Increase poundage of the bow.
- Change to heavier broadheads.
- If using plunger, decrease spring tension.
- Move arrow rest or plunger in towards the bow, in 1/32" adjustments at a time.

This kind of broadhead grouping is caused by the broadhead, making the arrow shaft act as being too stiff.

If the broadhead arrows are grouping to the right of the arrows with field points as shown to the right, one or more of the following steps, can be done:

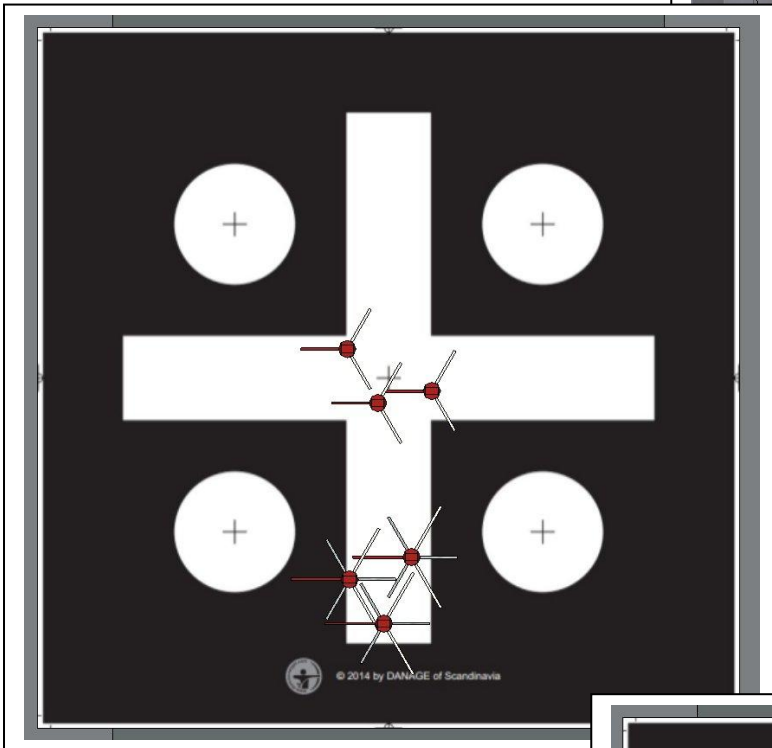
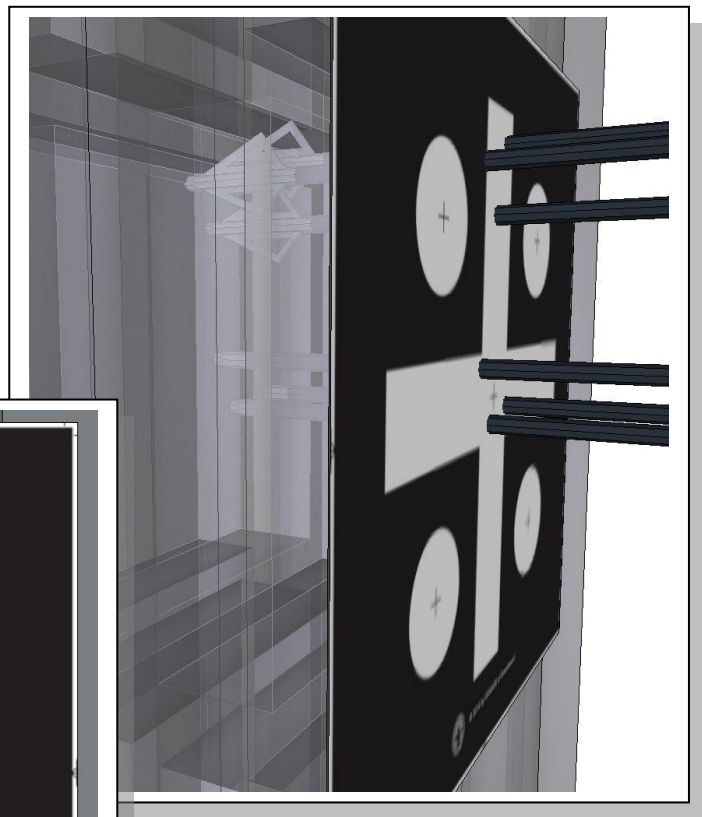
- Decrease poundage of the bow.
- Change to lighter broadheads.
- If using plunger, increase spring tension.
- Move arrow rest or plunger out, away from the bow, in 1/32" adjustments at a time.



*Up / down grouping of broadhead arrows;*

If the arrows with broadheads are grouping above the arrows with field points, as shown in image to the right: Movenock point up or move the arrow rest down.

If the arrows with broadheads are grouping below the arrows with field points, as shown in the image below: Movenock point down or move the arrow rest up.



Remember allways to do just one adjustment at a time, so that you can remember what adjustments you have done. For left hand archers, the side-ways adjustments are the opposite as described in this guide.

There can be situations where the broad-head arrows are grouping near or in one of the 4 circular spots, as shown in the example to the right. Taking this example, make first adjustments as if the broadhead arrows are grouping below the arrows with the field points. After that make the adjustments for arrows with broadheads grouping to the right of the arrows with field points (arrow shaft acting as being too weak).

If the arrows with broadheads are grouping in one of the other corners, make similar actions to correct the tuning of the bow and arrow setup, until the broadhead arrows groups together with the arrows with field points.

