

Arrow Tuning & FOC Cheat Sheet

One page, field-ready: front-of-centre ranges, how to raise FOC, and reading a paper tune – the numbers our calculators are built on.

FOC REFERENCE

Ideal FOC Ranges: Target vs. Hunting Arrows

<8%

GETS HARD TO TUNE

Fixed-blade broadheads fight you; fine for indoor target work.

10–15%

EASTON'S HUNTING WINDOW

Where most tuned hunting arrows land, aimed for or not.

19%+

ASHBY "EXTREME FOC"

A measurable penetration step-change once heavy bone is breached.

Between roughly 10% and 16%, most experienced shooters can't tell the difference in flight – the ends of the range matter far more than the middle.

THE AMO FORMULA

$$\text{FOC \%} = 100 \times (\text{Balance Point} - L/2) / L$$

L = arrow length, throat of nock to end of shaft (point excluded). Balance point measured from the same throat, with everything fitted.

BUILD

How to Increase FOC – Step by Step

- Add point weight first.** Moves FOC more per grain than anything else – +25gr at the tip buys roughly 2.5 points on a 390gr hunting build.
- Switch to a heavier insert.** A 50gr brass insert vs. a 12gr alloy one adds meaningful front weight without touching the broadhead.
- Cut for spine, not for FOC.** Shortening the shaft moves FOC by only a fraction of a point per inch – it's the stiffer spine that enables more point weight.
- Trim weight off the back.** A lighted nock, an extra vane or a wide wrap all pull the balance point backward.
- Verify on a knife edge.** Balance the finished arrow and compare to your calculated figure – within a tenth of an inch means you're done.

DIAGNOSE

Reading a Paper Tune

TEAR	POINT AIMS	BROADHEADS LAND
Tail left	Right	Right of field points
Tail right	Left	Left of field points
Nock high	Down	Low of field points
Nock low	Up	High of field points

The tail shows where it went; the point – and the broadhead – steer the opposite way. This geometry holds regardless of handedness.

Ranges follow Easton's published FOC guidance and Dr Ed Ashby's penetration research, carried on by the Ashby Bowhunting Foundation. For the full arithmetic, live sliders and a spine/GPI cross-check, use the free calculators at ArcheryEra.