

# Choosing your first Compound Bow

SCAS coaching conference 2020

Session 4

Dave Morris

# Introduction

- Background in mechanical engineering security print industry
- IT projects banking, Coutts & co, NatWest, RBS
- Archer for 18 years Recurve & Compound Target and Field
- President Surrey Archery 5 years
- AGB event Volunteer
- County Coach
- AGB Performance Academy Coach

# Plan for the session

- Considerations when choosing a bow
- Bow designs
- Cams
- Bow accessories
- Setup and tuning

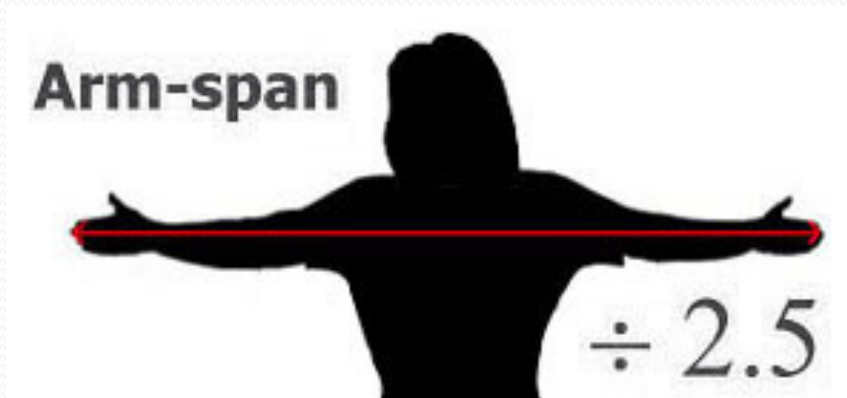
# Things to consider

- Draw length ?
- Bow size A2A length?
- Draw weight & let off ?
- Physical weight
- Accessories Bow sight, Arrow rest, Release aid
- Price

# Bow measurements

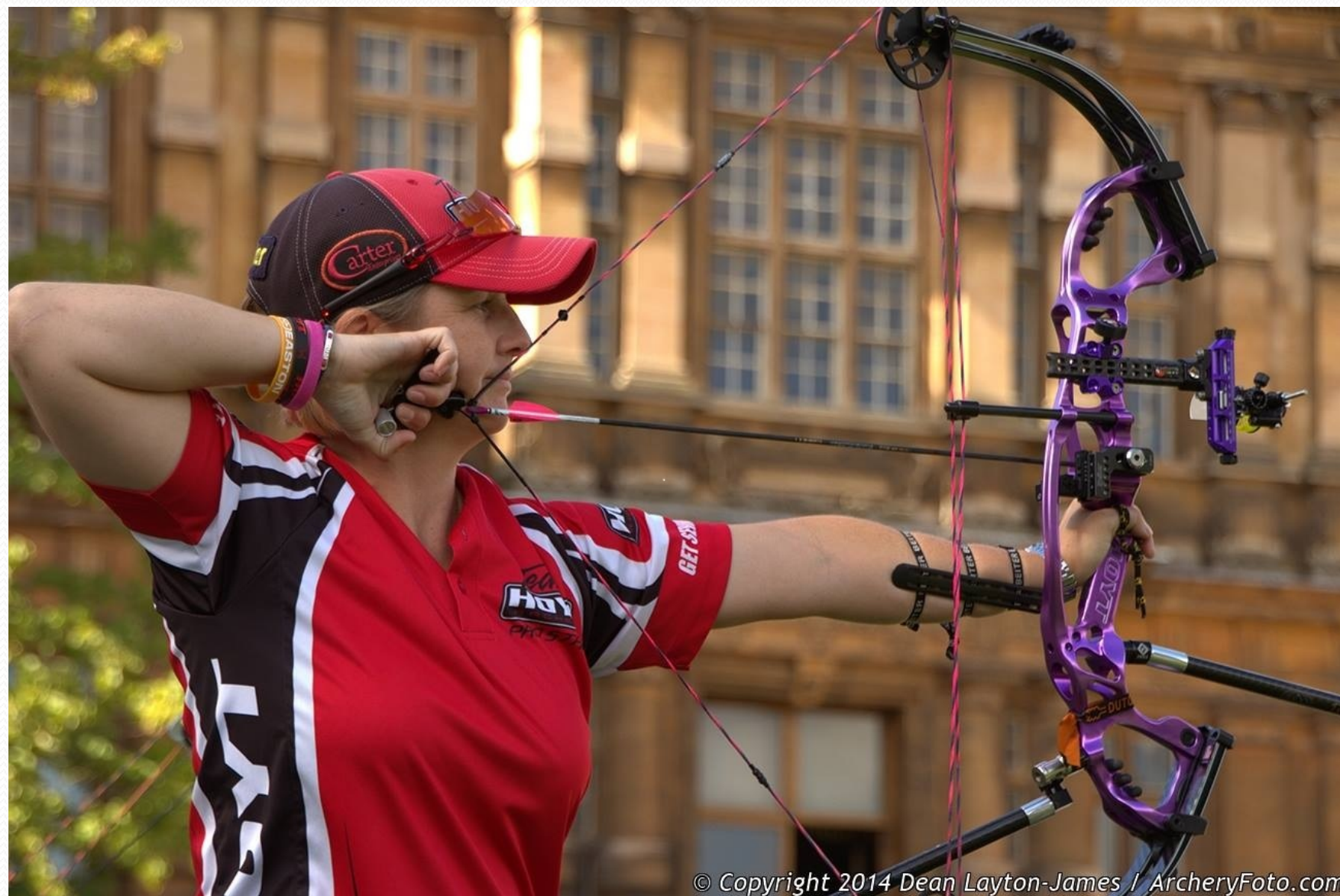
- **Draw length ATA standard** measured at full draw from centre of throat of the grip to inside of string + 1.75"
- **Draw weight** normally 10 lb adjustment 30/40, 40/50, 50/60 # WA 60# max
- **Axel to Axel length** rough guide
- Under 25" draw length 31 - 35" A2A - Short
- 25 - 28" draw length 33 - 37" A2A - Mid
- Over 28" draw length 37-40" A2A - long

# Draw length



# Bow Fit

- String angle
- Reference points at full draw
- String on the tip of nose
- String through the corner of the mouth
- Nock vertically below the eye
- Solid anchor point
- D Loop length (Rear elbow alignment)



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# String Angle









# Riser Geometry Design

Deflex



Straight



Reflex



# Riser Construction (MO)

- A Riser starts life as a 50lbs alloy billet
- Aircraft grade Aluminium Alloy 6061 (T6)



# Riser Construction

- CNC machining process reduces this to finished weight of 4.1lbs



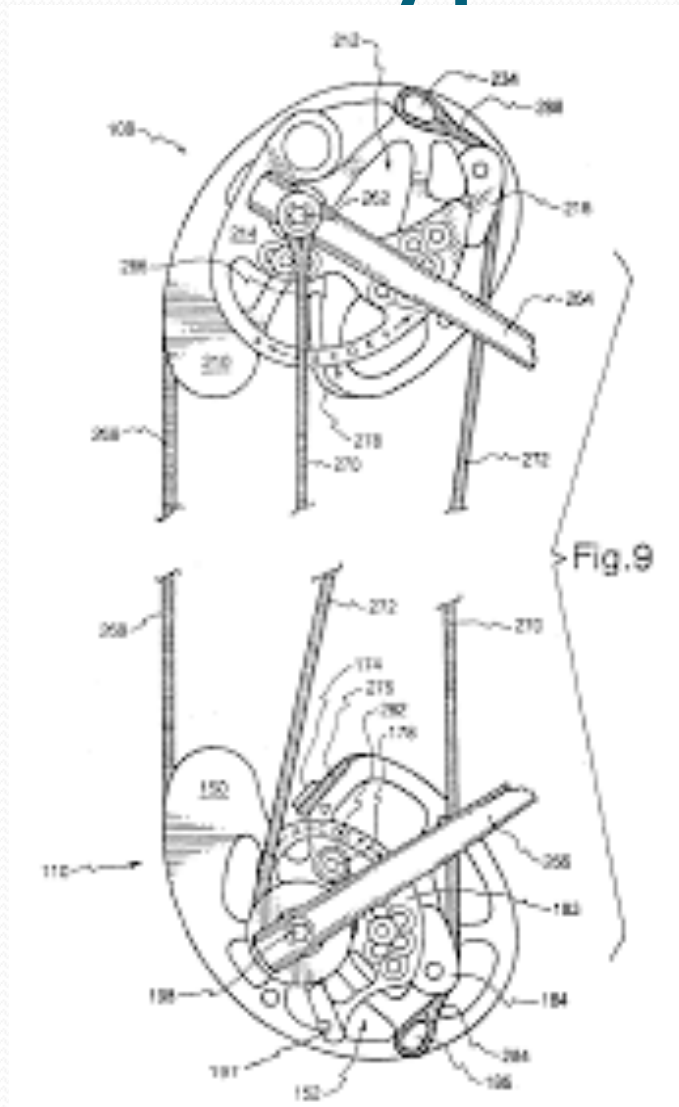
# Limbs

## Solid Vs Split

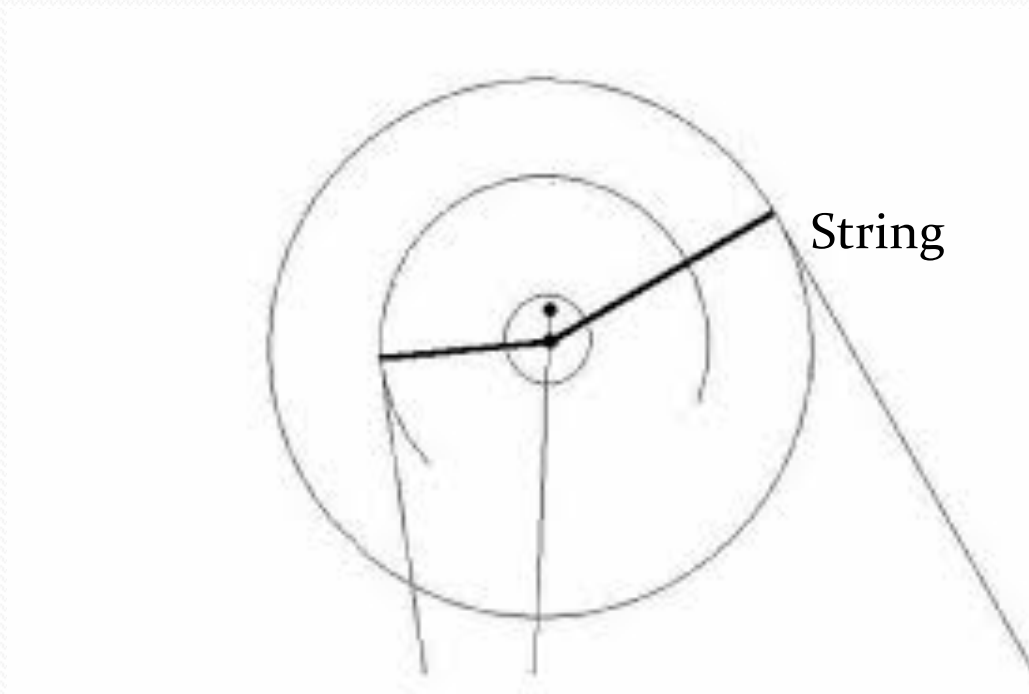


- There are 3 main types of limb construction
  1. Compression moulded fiberglass
  2. Machined or extruded fibreglass blank
  3. Laminated foam -carbon layers

# Cam Types (DM)



# Basic cam



Cables

Drawing back the string rotates the cam - Inner module cables compress the limbs

# Cam terminology

- Draw stops
- Part of the cam or module that comes to rest against the cables or limb at full draw
- Let off
- The amount of draw weight reduction at full draw
- 60lb bow @ 65% let off holding weight = 21lbs
- 60lb bow @ 80% let off holding weight = 12lbs
- Cam Timing
- Top and bottom cams come to rest/contact cables or limbs at the same time at full draw

# Types of cam system- Single cam



Single Long string 100"+ 1 x yoke cable

# Twin Cam



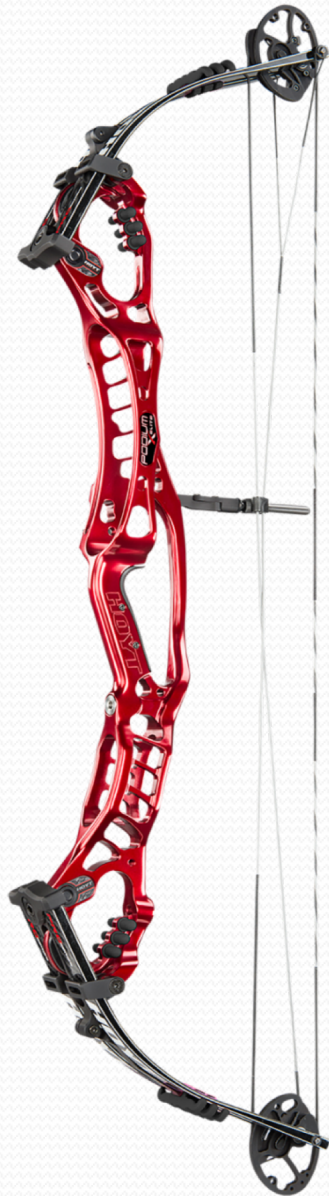
1 x String 2x Identical Yoke cables (cam to limb)

# Binary cam



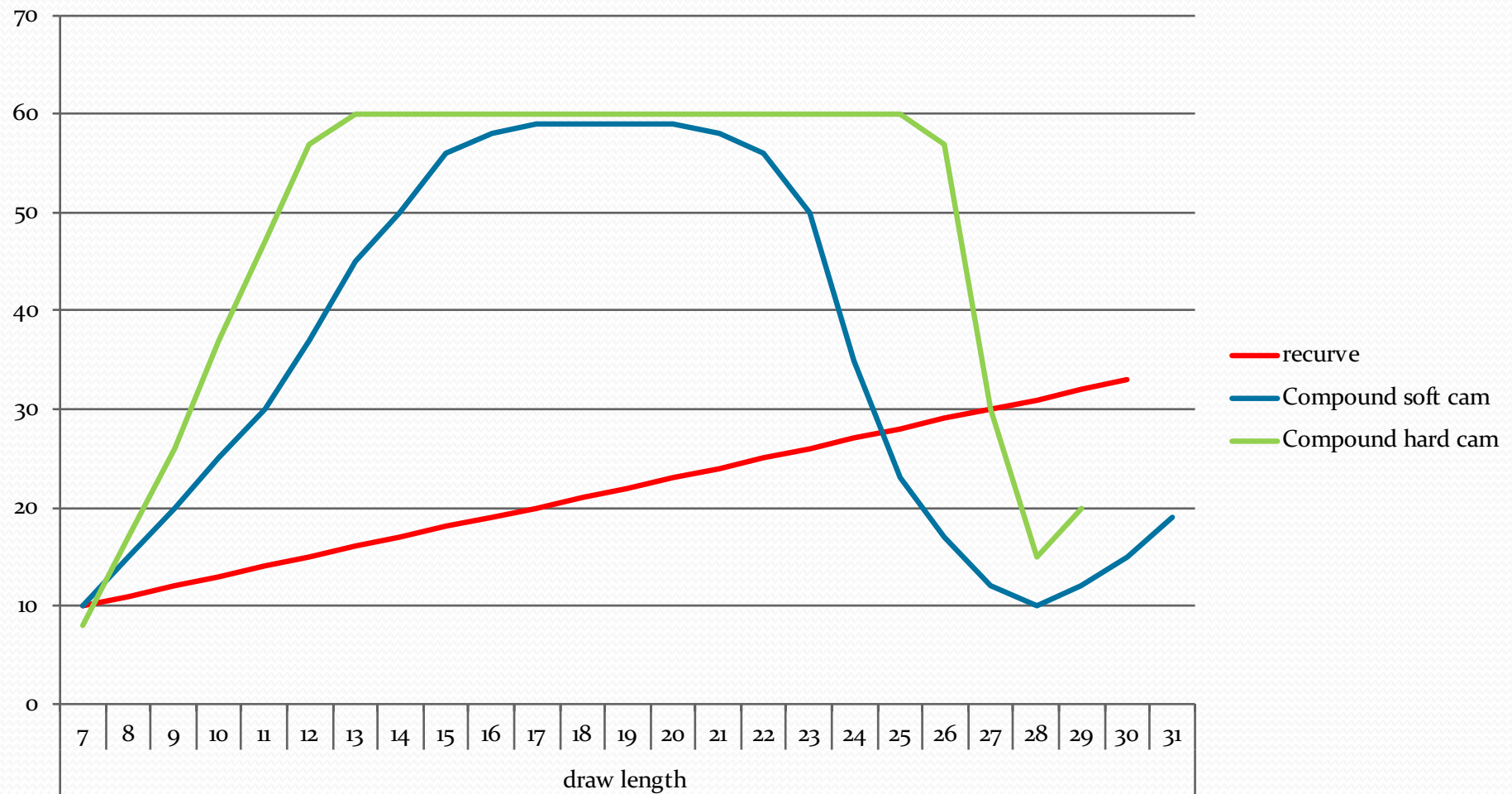
1 x String 2x Identical Control cables (cam to cam)

# Hybrid Cam



1 x String 1 x yoke cable (buss) 1x control cable

# Draw force Curves





# How to change Draw Length

- Draw length - manufactures standards  
how to measure
- Draw length Adjustment, cam sizes,  
change modules, rotate modules
- Fine tune adjustment with strings &  
cables

# Draw Length

## Manufacturers standards

- ATA (Archery Trade association )
- To accurately and correctly measure the draw length of a Compound Bow, the bow should be drawn to its full-draw condition and held at the bow's Centre of Valley.
- The force-drawing the bowstring shall be positioned at or near the nocking point location on the bowstring.
- The device contacting the bowstring shall be a round section with a radius of 1/8 inch. While held at this position, measure from the string nocking point location to a vertical line through the pivot point of the bow grip and then add 1¾ inches to the measurement.
- This is the Compound Bow's ATA Actual Draw Length. ATA Technical Guideline ATA/BOW-101-2008

# Draw length Adjustment

- For bows fixed draw length – string pegs options
- Change cams 1" or  $\frac{1}{2}$ " increments



# Individual Modules

- Change modules  $\frac{1}{2}$ " increments



# Rotatable modules

- Rotate modules  $\frac{1}{2}$ " increments 2-5" to full draw range



Chigoro 10/2017

# Draw length Adjustment

- Fine tune adjustment with strings & cables
- String –Adding or removing twists – shorten or lengthen draw length
- ( Warning under or over rotating the cam may change draw weight and draw force curve )

# Binary/Twin cam cable Adjustment

- Adjusting Cables on a Binary \Twin cam bow
- Adjust both cables by equal amount
- Adding twists will increase draw weight and increase draw length
- Removing twists will reduce draw weight and reduce draw length

# Hybrid cam Adjustment

- Adjusting Cables on a Hybrid or Cam  $\frac{1}{2}$  cam bow
- Cables are different Yoke and control cable may require different number of twists to maintain synchronisation
- Adding twists to the yoke cable increase draw weight and increase draw length
- Removing twists will reduce draw weight and reduce draw length
- Control cable synchronises cams

# Single cam Adjustment

- Adjusting Cable on a Single cam bow (fixed draw length)
- Minimal amount of adjustment only
- Adding twists to the yoke will increase draw weight and increase draw length
- Removing twists will reduce draw weight and reduce draw length
- ( Warning under or over rotating the cam will change nock height and travel)

# Bow Accessories

# Target sights



# Target Scopes



29mm 35mm 40mm



1 1/8" 1 1/4"



1 1/2"

# Lens power

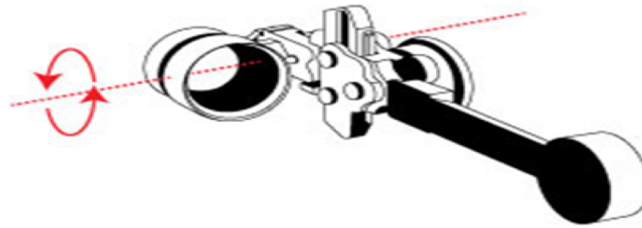
- Magnification
- 1.0, 0.75, 0.5, 0.25 Diopter
- 6x, 5x, 3x Power
- 1.0 lens at 18m on a 40cm face should give you a '7 ring and in' picture at 24" draw & '8 and in' picture on a 28 inch draw.
- Starting point 0.5 0.75 / 5x 6x lens
- The higher the magnification the more movement you will see when aiming
- Lens Quality and anti reflective coating does make a difference £££

# Aiming reticules

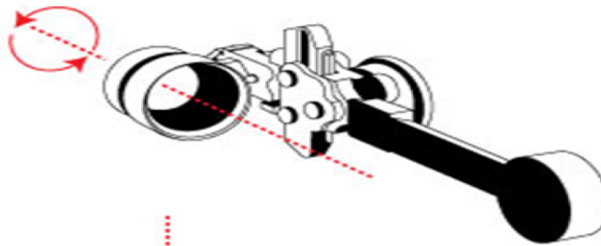


# Setting up sight & scope

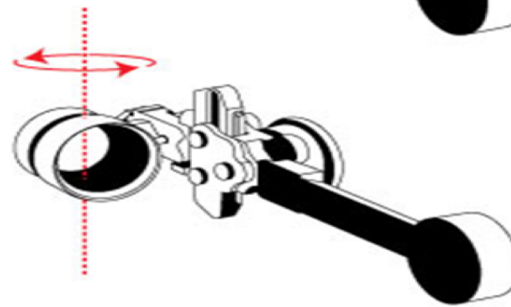
**FIRST AXIS**



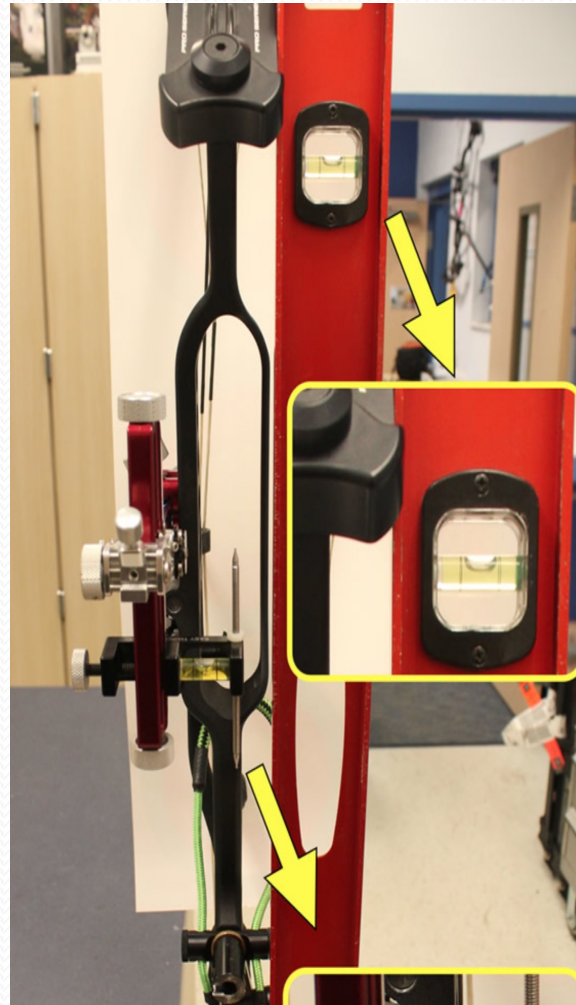
**SECOND AXIS**



**THIRD AXIS**

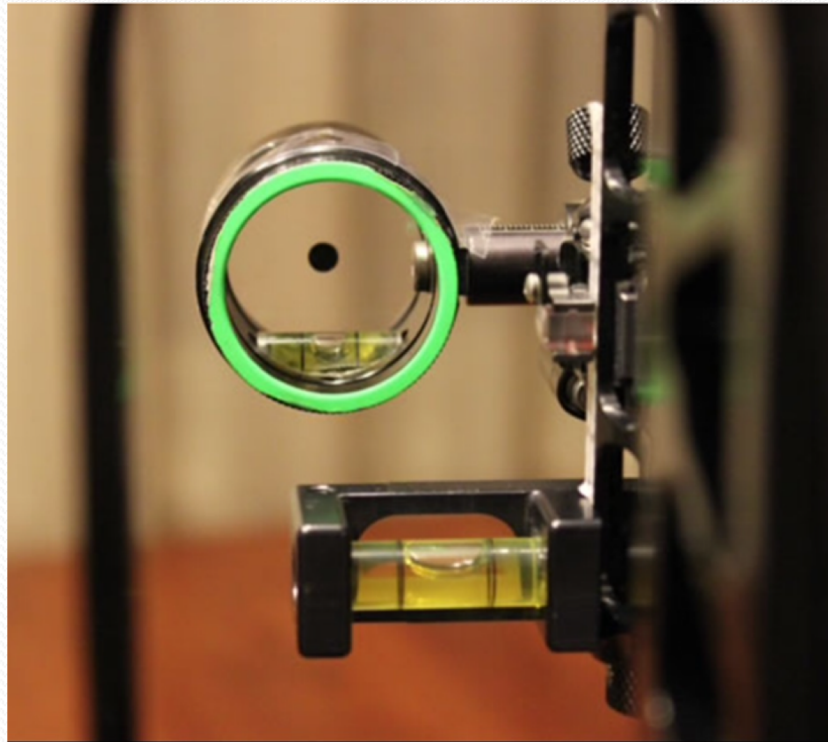


# 1<sup>st</sup> Axis



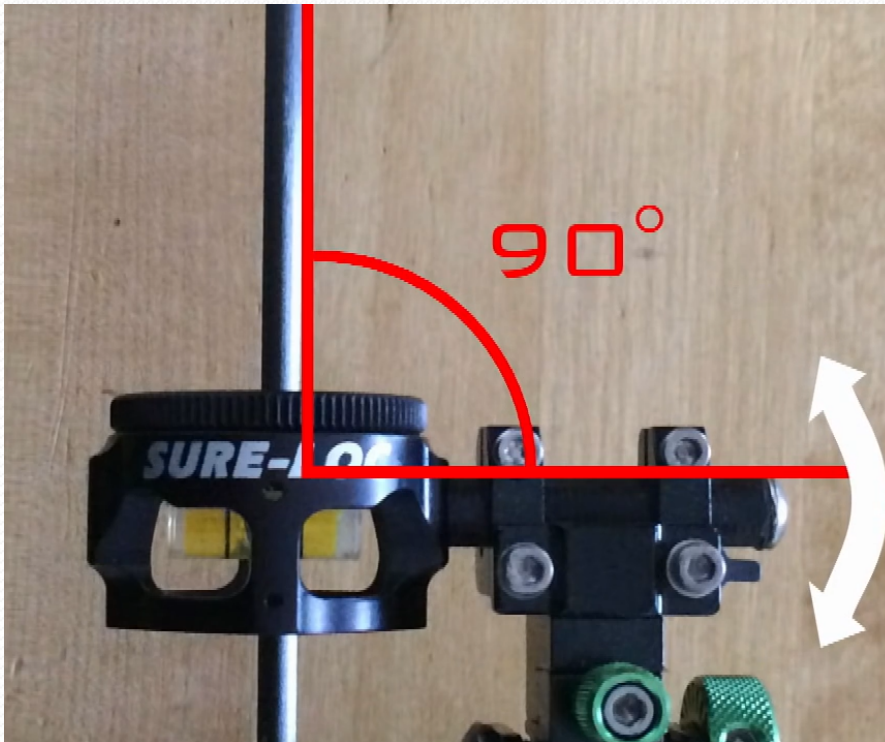
Sight bar vertical  
parallel to riser

# 2ndAxis



Scope at right  
angle to vertical  
sight bar

## 3<sup>rd</sup> Axis



Start at 90 degrees to sight extension bar,  
Very important in field archery when shooting up and down hill,  
This adjustment is to compensate for torque caused by change in balance of the bow at full draw

# Peeps



# Securing a peep



# Setting peep height

- Method 1
- Set sight , come to full draw and anchor with aiming eye closed – open your eye to check peep relation to the sight, then adjust
- Method 2, Shooting in.
- Sight you bow in @ 20m without a peep sight fitted
- Fit the peep and adjust position to where you sighted in without moving the sight
- Correctly set will give a consistent and comfortable anchor point without being influenced by the peep



# Arrow rest



Things to consider

Arrow weight & blade thickness

Blade width Narrow Vs Wide

Blade angle

Starting point 35-38 degrees



# Stabilisers

- Personal preference and feel
- Starting point 30" long rod 12" side/ back rod or V Bars
- Shorter draw lengths go shorter 27/8"
- Long draw lengths go longer 33/15"
- Stabiliser weights, Start light ( 3 on front 6 on back )
- Front to back ratio 1-2, 1-3, 1-4,

# Release aids

# Index finger (wrist) release



# Trigger \ Thumb button



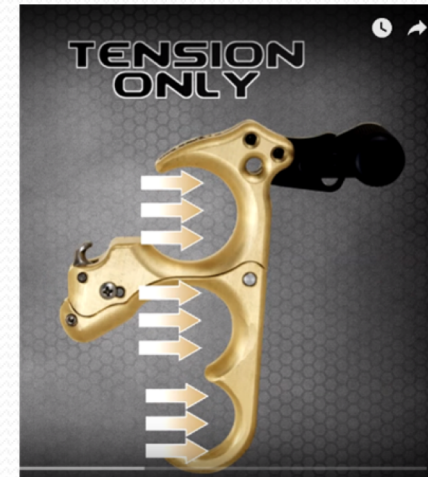
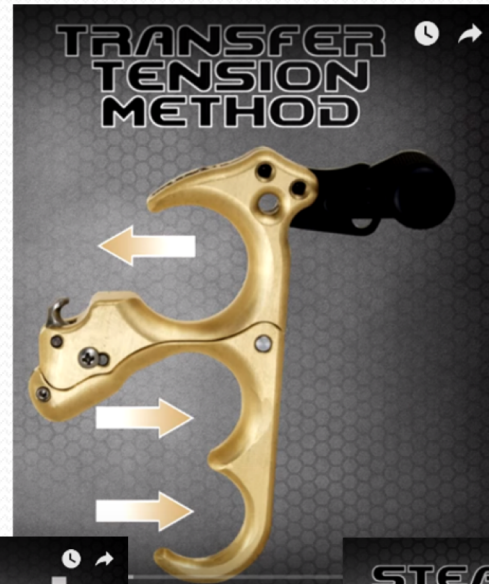
# Back tension \ Hinge



# Resistance activated release



# Hybrids



# No 1 compound shooting tip

- Learn to shoot the release aid properly first before shooting the bow !
- Use a static string loop adjust it to your draw length and practice practise practice !

# Setting up a compound bow

# Safety check

- E clips

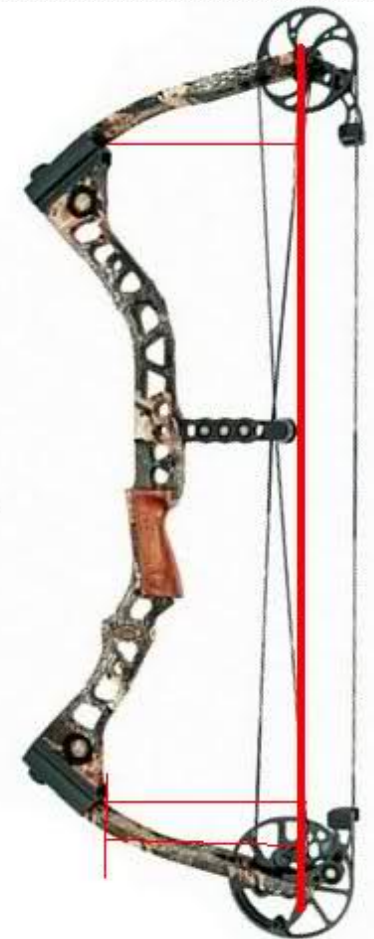


# Working safe



# Bow specs

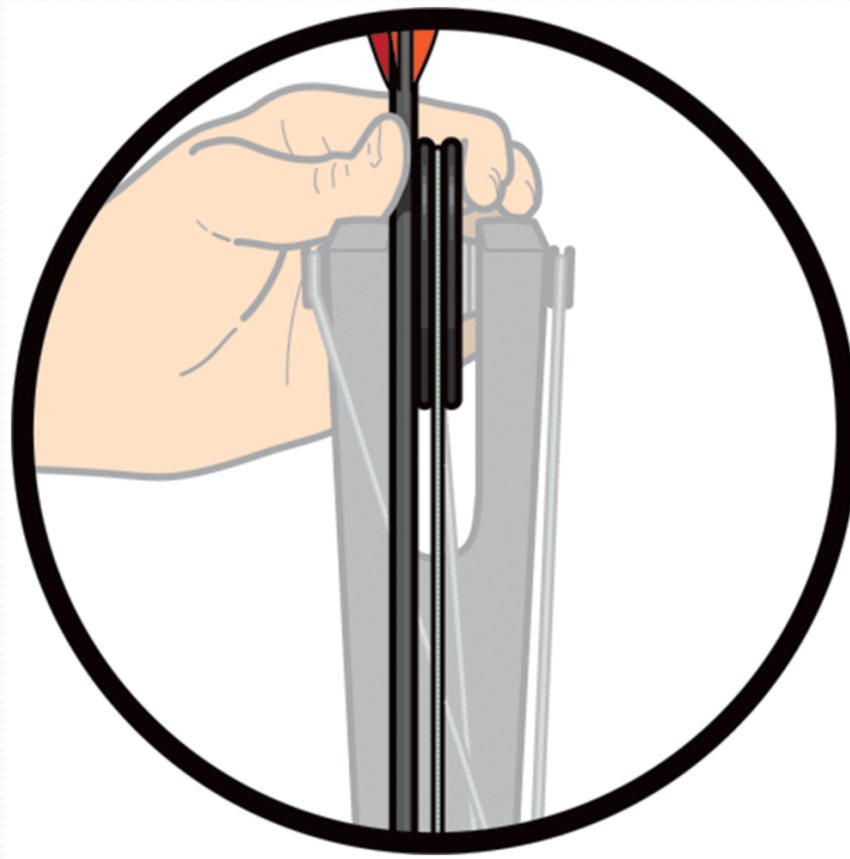
- Manufacturer's specs @at max draw weight
- Limb bolts wound in
- A2A
- Bracing height
- Tiller ? line from centre of top axle to bot



# Cam lean

- bows with yokes

Adjust Yoke cable ends  
the same amount each  
side to maintain cable  
length

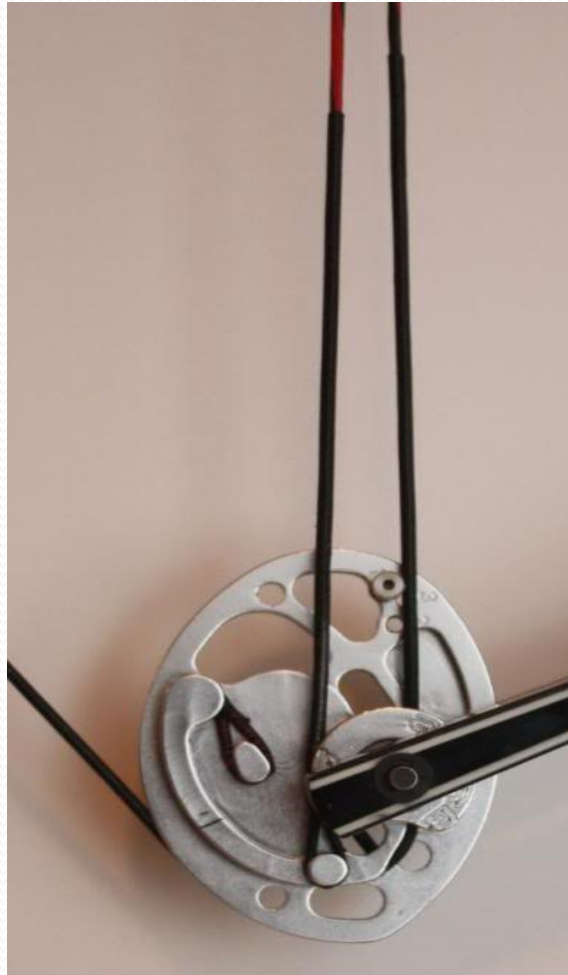




# Draw length

## Cam timing

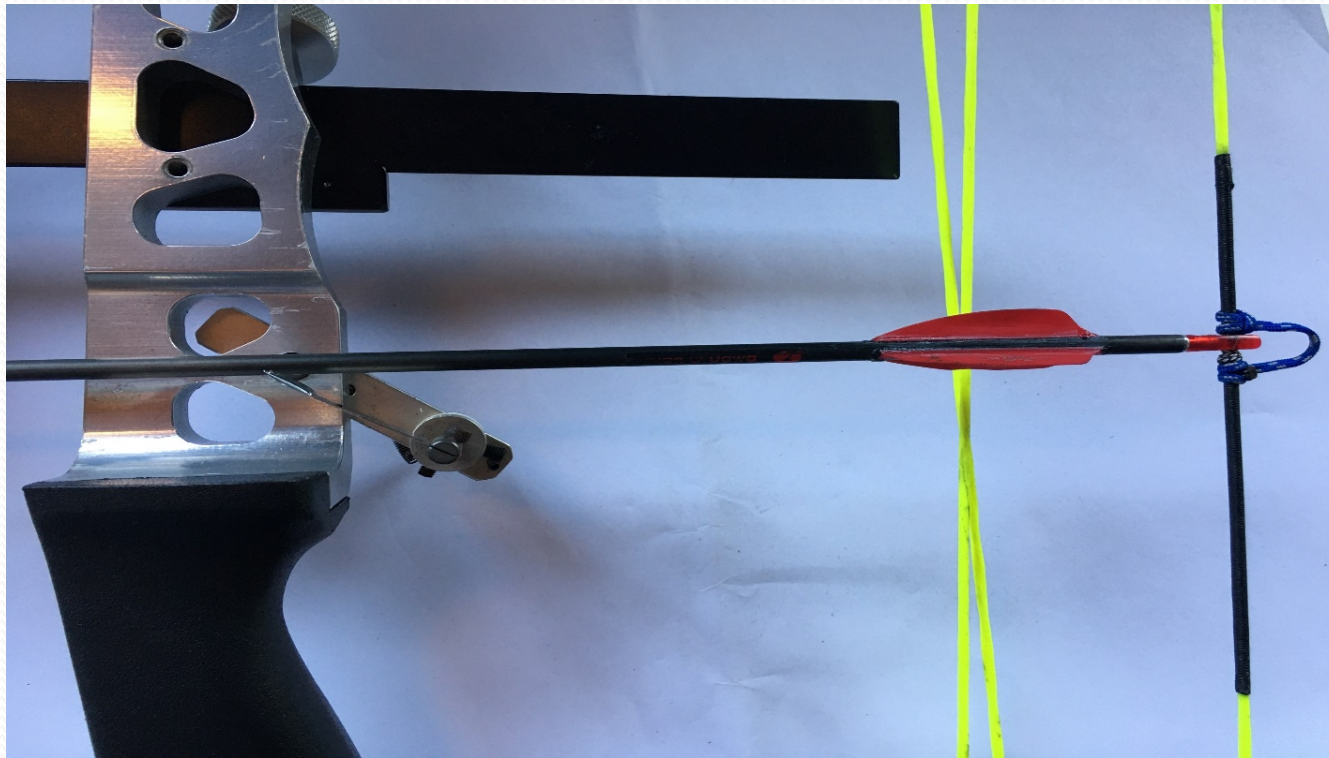
- Fit temporary D Loop
- Check at Full draw
- Use a Draw board



# Peep install

- Temporary fit the peep in centre of string equal amount of strands either side, 2 colour string easy
- Single colour string it should be marked with piece of serving material or tag, Install peep at approx. 5" above nocking point
- Secure with a wrap of serving material
- ? Peep rotation when drawing the bow - String damage, number of twists or quality
- Strings Manufacturers Vs aftermarket

# D loop & nocking point position



Nocking point first Centre of nock through centre of the berger hole

# D Loop



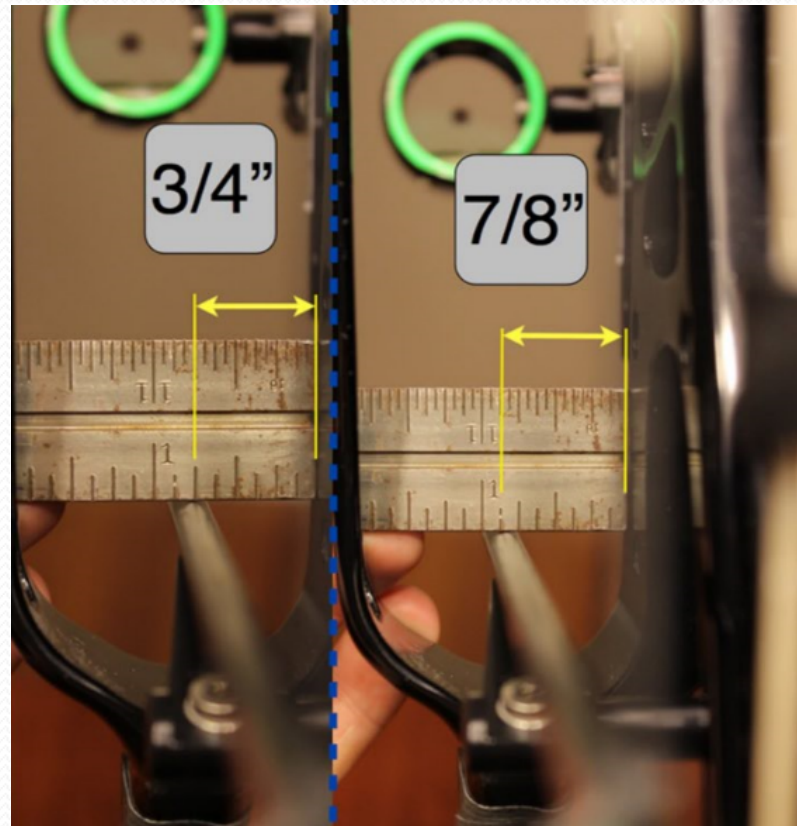
Good starting point is  $\frac{3}{4}$ " length (4" pre prepared)

# Nocking point height

- Fit Arrow rest and adjust the rest to give desired nocking point height
- Starting point  $1/16'' - 1/8''$  2-3mm
- Measured from bottom of the nock to the tip of the blade
- Remembering the arrow will sit in the V of the blade
- Consider diameter of the arrow shaft

# Centre shot

- Manufacturers recommendation



# Centre shot -take 2

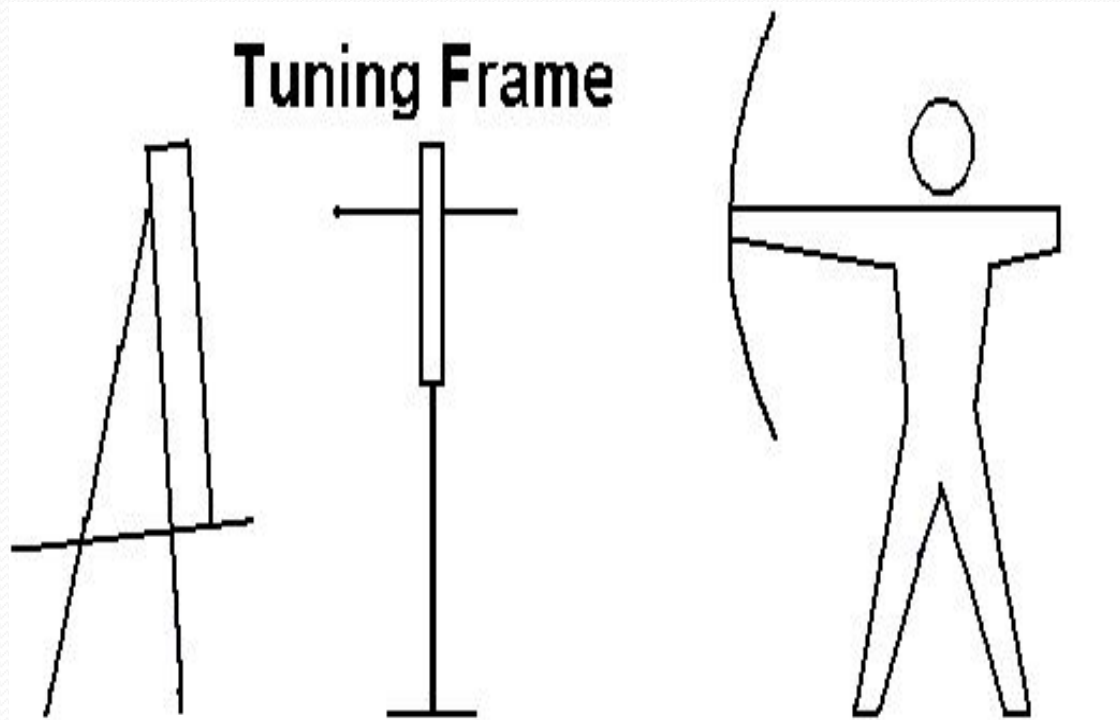
- Lazer alignment tool
- By eye, line up the string with the top cam track
- Parallel with the inside of the riser
- Parallel with top cam

# Recap

- 1 Safety check
- 2 Bow specs
- 3 Cam lean
- 4 Draw length, Cam timing
- 5 Peep sight
- 6 Nocking point, D Loop
- 7 Arrow rest, Nocking point height, Centre shot

# Compound Bow tuning

# Paper tune



Start at close range

# Factors that will affect tuning

- Bow hand torque or gripping the bow
- Excessive face contact with string
- Release aid activation/movement up/down left right
- Stabilisers (Side bar)
- Nock fit, D Loop torque, Arrow rest contact



**GOOD!**



**TAIL LOW**

Raise nocking point or lower rest.



**TAIL HIGH**

Lower nocking point or raise rest. If not corrected, arrow spine could be weak.

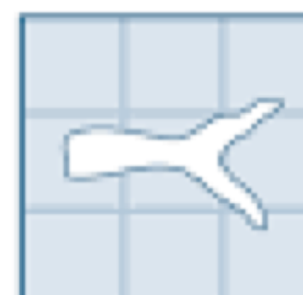
**MULTIPLE**

Always fix the vertical tear first, then address the horizontal tear.



**TAIL RIGHT**

Move rest to the left. Always "chase the point" with your rest.



**TAIL LEFT**

Move rest to the right. If not corrected, arrow spine could be weak.



# Advance - Tuning

- Yoke tuning - adjusting yoke cables
- Tail Left – add twists to the left side, remove from the right.
- Tail Right – add twists to the right side, remove from the left
- Always add remove same amount of twists other wise it will effect cam timing
- Manufacturers Specific, PSE L.A.S, Mathews top hat

# Bullet hole



# French tuning



Set sight @ 50m & sight in @ 2-3m



Shoot @50m

# John Dudley HIL method

Determine group size using 3  
different point weights





Question time