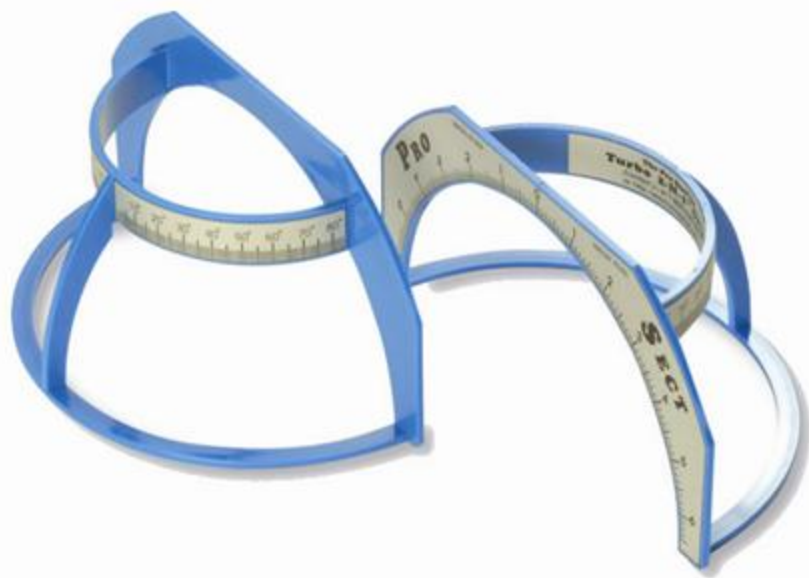




Motion Enhancement Guide

For use with the Pro Sect™ Quarter Scale
from Turbo 2-N-1 Grips



US Patent 5,603,165

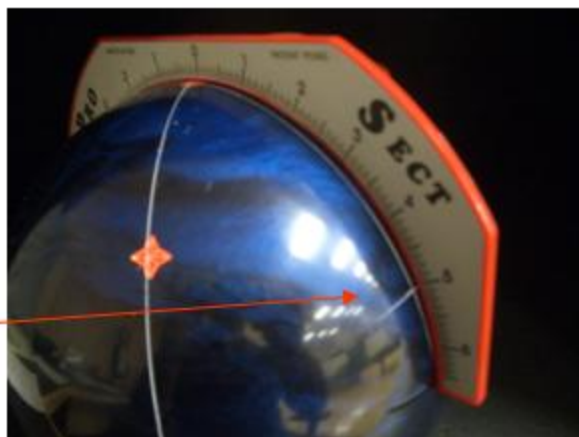
Right Handed Layout Guide

* When laying out a ball, first draw a line from the pin through the Mass Bias Marker / Center of Gravity of the ball.* Continue the line through the MB/PSA or the CG of the ball if none is marked, out to a distance of 6-3/4" inches.



•Determine the angle of the desired layout using the Pin distance and Degree chart. Ex. 54° degrees.

* With the Turbo Pro Sect 180° Pro Tractor draw a long line outward at the angle chosen.



* On this line use the determined Pin distance to the Positive axis Point for the layout chosen.

Ex. 5" from Pin to PAP

* After the distance is determined this point, this will be the PAP for the layout, draw a mark at this point.



* A realignment of the layout must be formed to protect the Layout and be flare safe for the bowler.

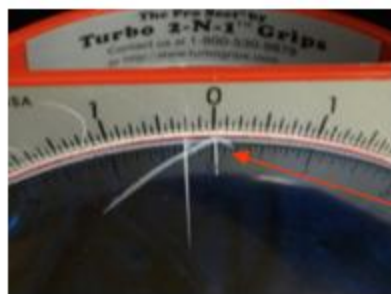
* Draw a new angle off of the line which was used for determining the distance of the pin to pap with the Pro Tractor EX. 35°

* This angle can be 35 degrees for bowlers with a large Horizontal measurement of 5-1/2" or more or 45 - 55 degrees for bowlers with a Med - Small Horizontal measurement of 5-1/2" - 4-1/2" or less.

* Use the appropriate "Flare safe degree angle" for the bowlers PAP Horizontal measurement.

See chart for appropriate angle

* At the location of the PAP and the selected realignment angle draw a line through this point. This is the new Vertical Axis Line. Draw a long line through the PAP downward.



VAL
PAP



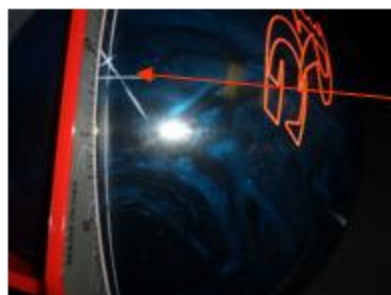
EX . PAP
H- 6" >
V-1/4" ^

*From the PAP on the VAL reverse the bowlers PAP vertical measurement.

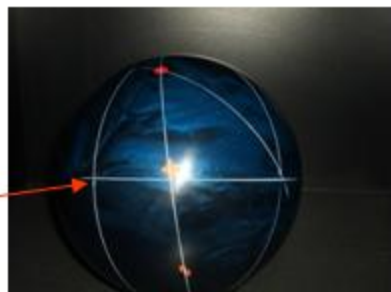
EX. 1/4"

*At this point now draw a 90 degree angle toward the the center of the grip using the horizontal measurement.

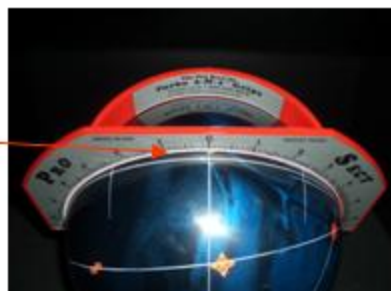
*This location is the midline of the ball.



*After reversing the horizontal distance back toward the grip the center of the bowlers span can be located. At a 90 degree angle place the bowlers span into the ball from the midline. This is the centerline of the ball

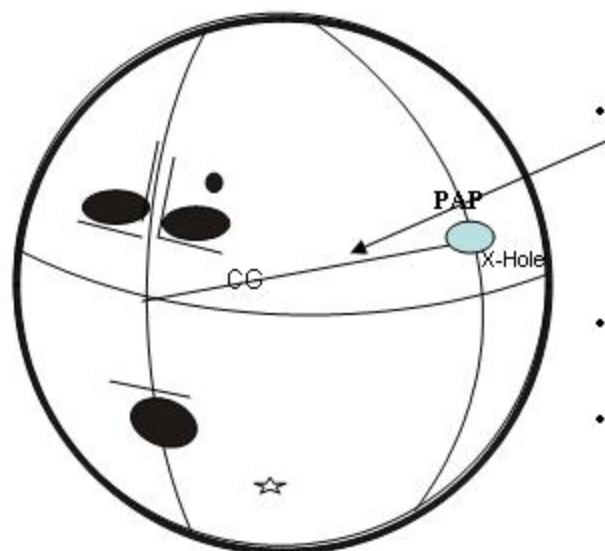


* Split the largest span measurement and use the Pro Sect to program the span into the ball



•A flare safe layout has been programmed and the span was properly located using the bowlers Positive axis coordinates

•*Reverse this layout method for Left Handed bowlers*

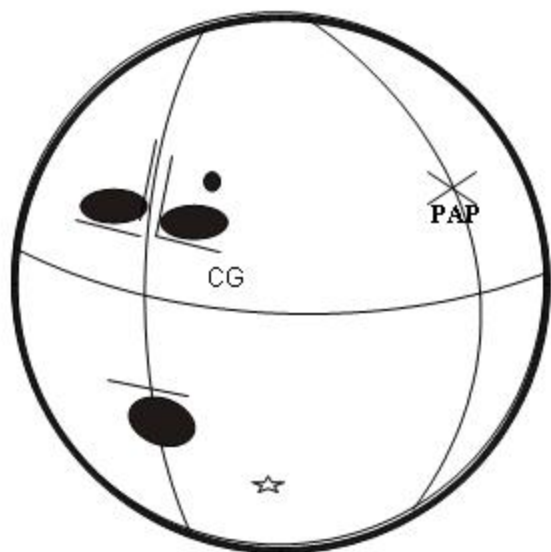


- Now that the layout has been created weigh the ball and check for legal static weights.
- If a balance hole is needed draw a line from the center of grip through the C.G. onto the VAL and drill the appropriate size and depth hole to bring the ball back to legal limits.
- *Balance Hole placed on the VAL will be flare safe for most bowlers*
- *Balance Holes placed 2-1/4" beyond the VAL will increase Track Flare and may cause the ball to Flare around the balance hole.*
- *Balance Holes Placed 2-1/4" inside of the VAL will decrease Track Flare*
- *Static weights may change depending on where the CG is located above or below the midline. Re-drilling of the Fingers or the Thumb Hole may be necessary to bring the ball back into legal limits.*
- *"Keep in mind that static weights have little to no bearing on the motion of the ball"*

Things to Remember!

"The layout angle is important in helping to define the motion of the ball but is only a fine tuner to the following;

- *Lane condition*
- *Cover Stock Composition*
- *Ball Surface Texture*
- *Core Shape,*
- *Pin to Axis Distance*
- *Balance Hole Size and Placement.*



Motion Enhancement Chart

High Track Players with Horizontal Measurements of 5-1/2" or Larger

Flare Safe Alignment @ 35° degrees to the VAL

		Pin Distance to PAP & Layout Angles					
Motion Enhancement	1"	2"	3"	3 3/8"	4"	5"	6"
Roll- VAL	34°	32°	29°	27°	22°	16°	7°
Strong / Roll	40°	42°	42°	42°	42°	37°	32°
Strong	46°	52°	54°	54°	54°	54°	52°
Arc / Strong	53°	61°	66°	68°	69°	70°	70°
Arc	95°	92°	90°	90°	90°	90°	91°

Medium Track Players with Horizontal Measurement of 4-1/2" to 5-1/2"

Flare Safe Alignment @ 45° degrees to the VAL

		Pin Distance to PAP & Layout Angles					
Motion Enhancement	1"	2"	3"	3 3/8"	4"	5"	6"
Roll- VAL	45°	43°	40°	37°	33°	23°	10°
Strong / Roll	49°	50°	49°	49°	48°	44°	36°
Strong	55°	57°	60°	61°	61°	59°	56°
Arc / Strong	64°	69°	72°	74°	74°	74°	74°
Arc	93°	93°	91°	91°	91°	91°	90°

Low Track Players with Horizontal Measurements of 4-1/2" or Less

Flare Safe Alignment @ 55° degrees to the VAL

		Pin Distance to PAP & Layout Angles					
Motion Enhancement	1"	2"	3"	3 3/8"	4"	5"	6"
Roll-VAL	55°	53°	47°	45°	40°	28°	13°
Strong / Roll	59°	59°	57°	56°	55°	51°	43°
Strong	62°	66°	66°	67°	66°	66°	64°
Arc / Strong	71°	74°	76°	78°	78°	78°	78°
Arc	93°	94°	92°	91°	91°	91°	91°

Using a system where the arc, strong and Val lines are constant in a ball, adjusting the layout angle in a flare safe position will allow for the Mass Bias to fall on the primary sections of a balls dynamic motion

