Motion Enhancement Guide

For use with the Pro Sect ™ Quarter Scale from Turbo Accessory Products

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.

* From the PAP on the VAL reverse the bowlers PAP vertical measurement. EX. ¼”

*At this point now draw a 90 degree angle toward 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.**
### Pin Distance to PAP /w layout angle with a flare safe alignment @ 35 degrees to the VAL

<table>
<thead>
<tr>
<th>Mass Position</th>
<th>1&quot;</th>
<th>2&quot;</th>
<th>3&quot;</th>
<th>3 3/8&quot;</th>
<th>4&quot;</th>
<th>5&quot;</th>
<th>6&quot;</th>
<th>Average</th>
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<tbody>
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<td>27</td>
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<tr>
<td>Mass Position</td>
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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 ball dynamic motion.
Bonus Material
for Use with Pro Sect Quarter Scale

Dynamic Layout techniques
for 2 piece ball designs

Things to keep in mind:
Bowlers Positive axis measurements
Type of Layout
Pin distance to Positive axis wanted
What realignment method to use 35-45-55
Will it be flare safe
Pin out distance from CG
Starting top weight
*Bowlers with a Horizontal positive axis point of 5-1/2” or more use a 35 * degree realignment adjustment to locate the Vertical axis line

* Bowlers with a Horizontal positive axis point of 5-7/16” to 4-5/8 use a 45 * degree realignment adjustment to locate the Vertical axis line

*Bowlers with a Horizontal positive axis point of 4-9/16” or less use a 55 * degree realignment adjustment to locate the Vertical axis line

These alignment methods should accommodate most spans and keep the pin in a safe environment and help to match the core angle for the player.
* When laying out a ball, first draw a line from the pin through the Center of gravity of the ball.
* Continue the line through the CG of the ball at a distance of 6-3/4” inches.

* Determine the angle of the layout with a Turbo Pro Sect layout tool. Ex 75 degrees.
* Draw a long line outward at the angle chosen.

* Determine the Pin distance to the Positive axis Point.
* After the distance is determined, this point will be the PAP for the layout.

* A realignment of the layout must be formed to protect the Layout and be flare safe.
* Draw a new angle off of the line which was used for determining the distance of the pin to PAP.
* 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 smaller horizontal measurement of 5-7/16” or less.
* These alignments will be flare safe for all bowlers using this guide.
* at the new 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.

* From the PAP reverse the bowlers PAP vertical measure
* 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 this to program the span into the ball

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

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