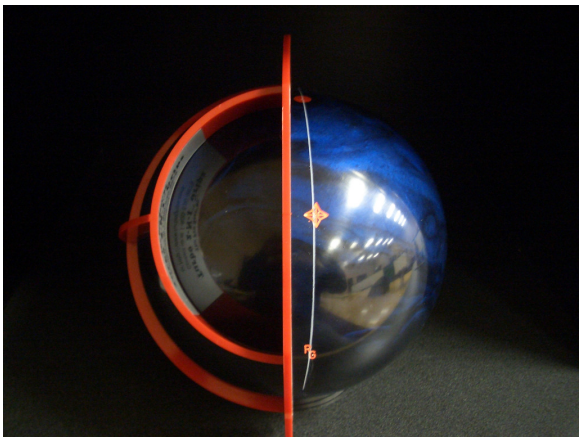
Motion Enhancement Guide

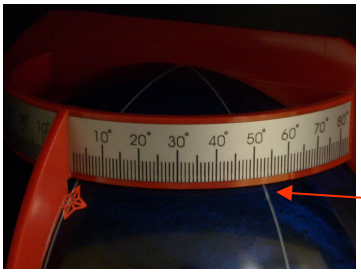
For use with the Pro Sect ™ Quarter Scale
from Turbo Accessory Products

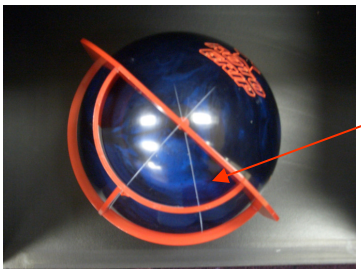
US Patent 5,603,165

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.**

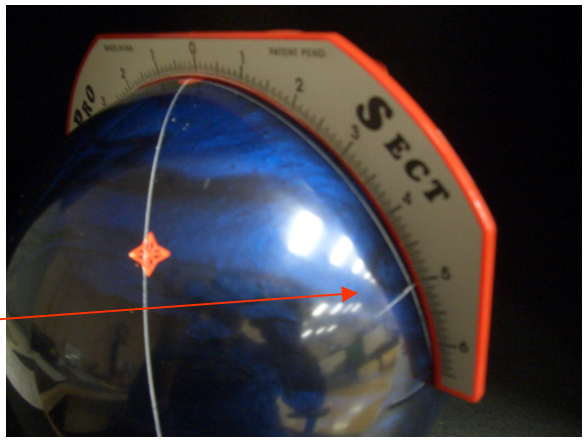






•Determine the angle of the desired layout using the Pin distance and Degree chart. Ex. 54° degrees.

*** 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.**

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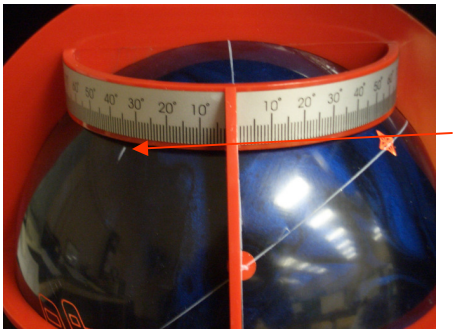


*** A realignment of the layout must be formed to protect the Layout and be flare safe for the bowler.**

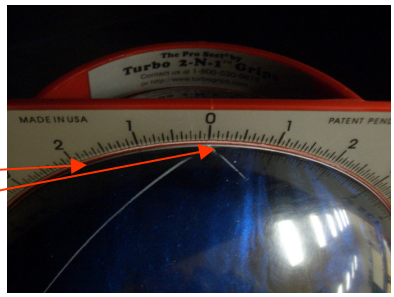
*** Draw a new angle off of the line which was used for determining the distance of the pin to pap with the Pro Tractor EX. 35°**

*** 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.**

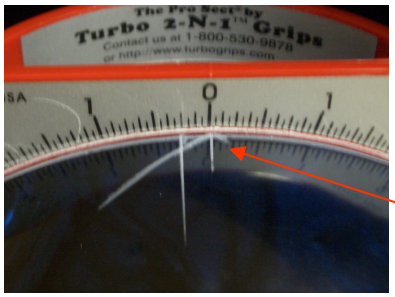
See chart for appropriate angle

*** 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.**

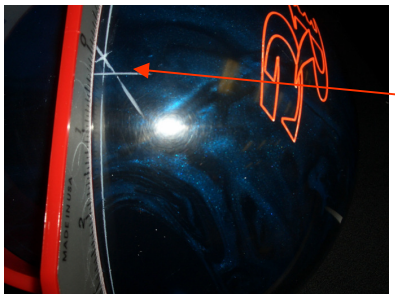


VAL

PAP



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



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

EX. ¼"

***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.**

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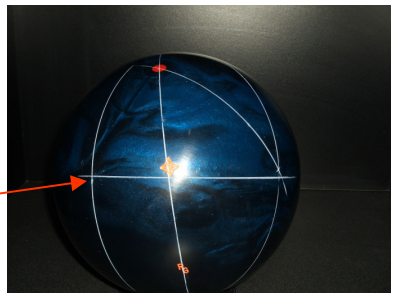
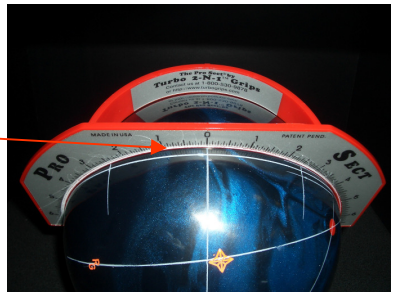
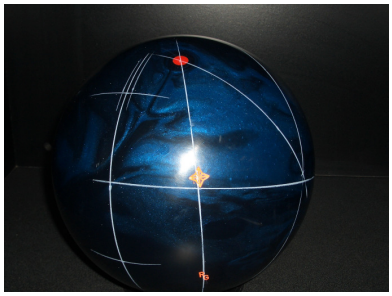
***After reversing the horizontal distance back toward the grip the center of the bowlers span can be located. At a 90 degree angle place the bowlers span into the ball from the midline. This is the centerline of the ball**



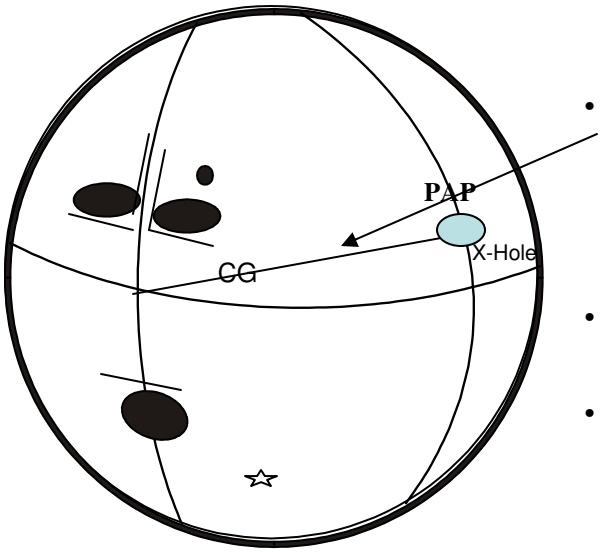
*** Split the largest span measurement and use the Pro Sect to program the span into the ball**





•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

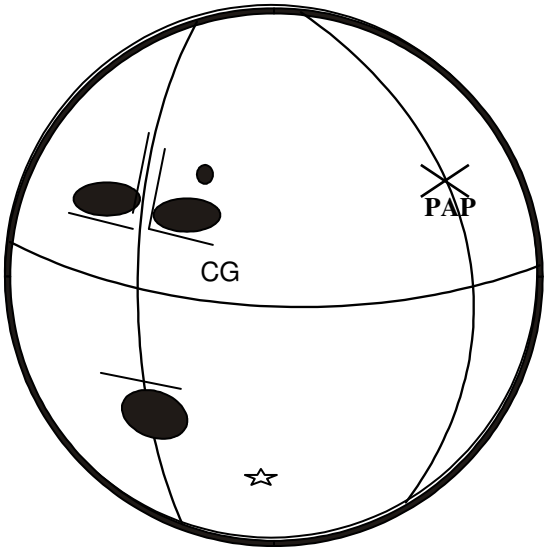


- **Now that the layout has been created weigh the ball and check for legal static weights.**
- **If a balance hole is needed draw a line from the center of grip through the C.G. onto the VAL and drill the appropriate size and depth hole to bring the ball back to legal limits.**
- ***Balance Hole placed 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.***



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Pin Distance to PAP /w layout angle with a flare safe alignment @ 35 degrees to the VAL								mass @ 6-3/4 from pin
Mass Position	**For High Track player**							
	1"	**2"**	**3"**	**3 3/8"**	**4"**	**5"**	**6"**	**Average**
Val	34	32	29	27	22	16	7	23
Strong Val	40	42	42	42	42	37	32	40
Strong	46	52	54	54	54	54	52	52
Arc / Strong	53	61	66	68	69	70	70	65
Arc	95	92	90	90	90	90	91	91

Pin Distance to PAP /w layout angle with a flare safe alignment @ 45 degrees to the VAL								mass @ 6-3/4 from pin
Mass Position	**For Medium Track player**							
	1"	**2"**	**3"**	**3 3/8"**	**4"**	**5"**	**6"**	**Average**
Val	45	43	40	37	33	23	10	36
Strong Val	49	50	49	49	48	44	36	46
Strong	55	57	60	61	61	59	56	58
Arc / Strong	64	69	72	74	74	74	74	71
Arc	93	93	91	91	91	91	90	91

Pin Distance to PAP /w layout angle with a flare safe alignment @ 55 degrees to the VAL								mass @ 6-3/4 from pin
Mass Position	**For Low Track player**							
	1"	**2"**	**3"**	**3 3/8"**	**4"**	**5"**	**6"**	**Average**
Val	55°	53°	47°	45°	40°	28°	13	44
Strong Val	59	59	57	56	55	51	43	54
Strong	62	66	66	67	66	66	64	65
Arc / Strong	71	74	76	78	78	78	78	76
Arc	93	94	92	91	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 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**

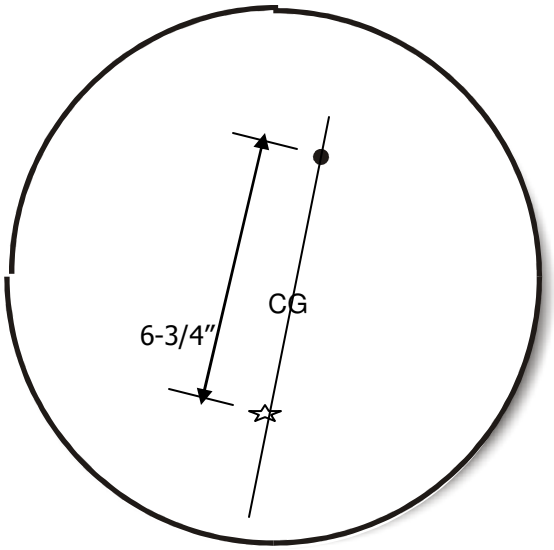
***Bowlers with a Horizontal positive axis point of 4-9/16" or less use a 55 * degree realignment adjustment to locate the Vertical axis line**

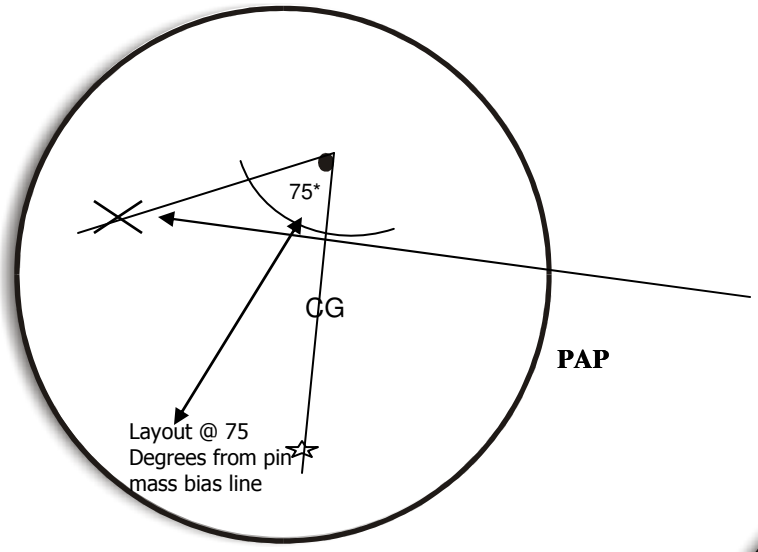
These alignment methods should accommodate most spans and keep the pin in a safe environment and help to match the core angle for the player

*** 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





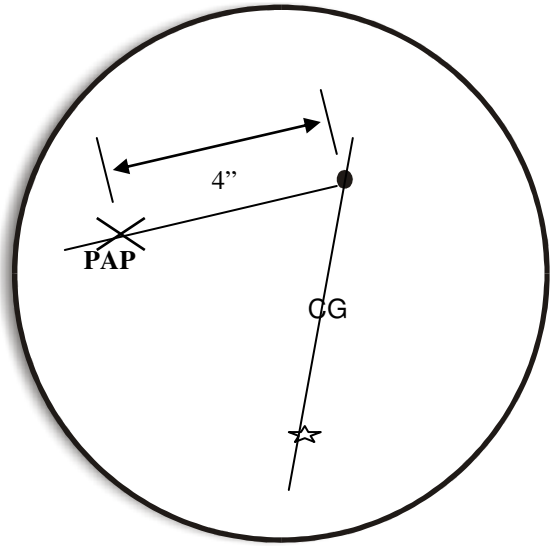
*** Determine the angle of the layout with a Turbo Pro Sect layout tool. Ex 75 degrees.**

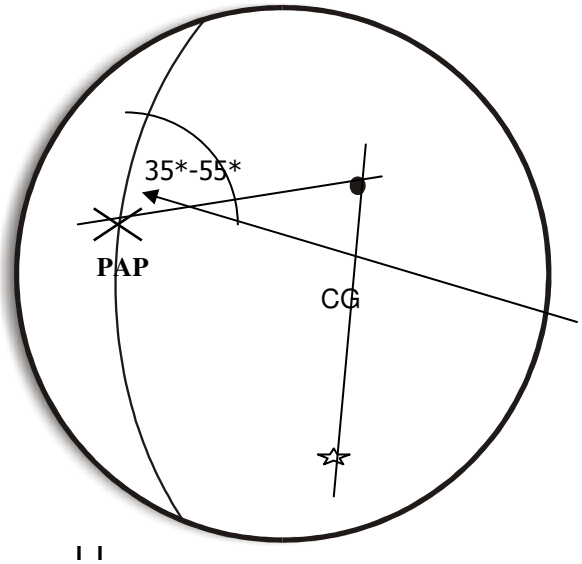
*** Draw a long line outward at the angle chosen.**

*** Determine the Pin distance to the Positive axis Point**

*** After the distance is determined**

this point will be the PAP for the layout





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*** 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.**

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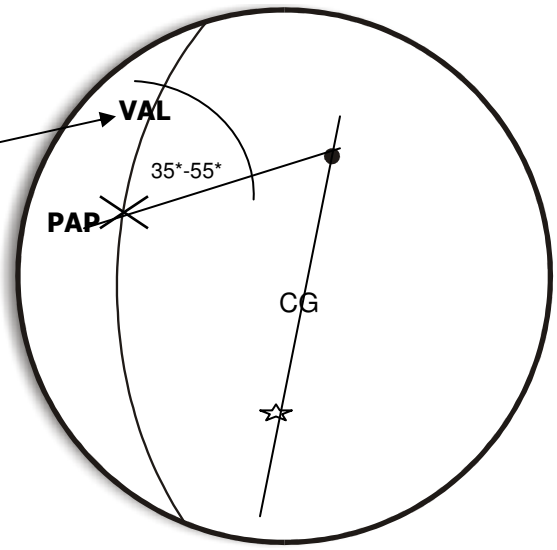
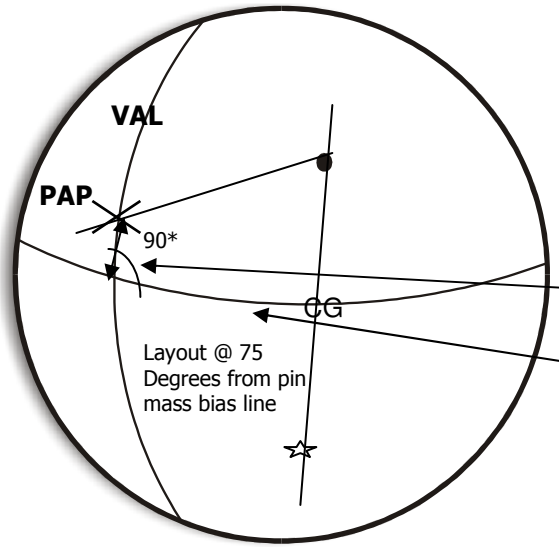
Driven to Bowl

*** 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.**





EX . PAP
H-5" <X V -3/4"^

***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**

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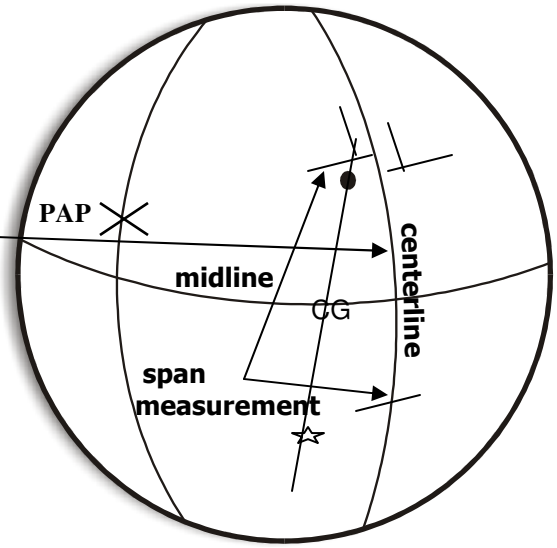

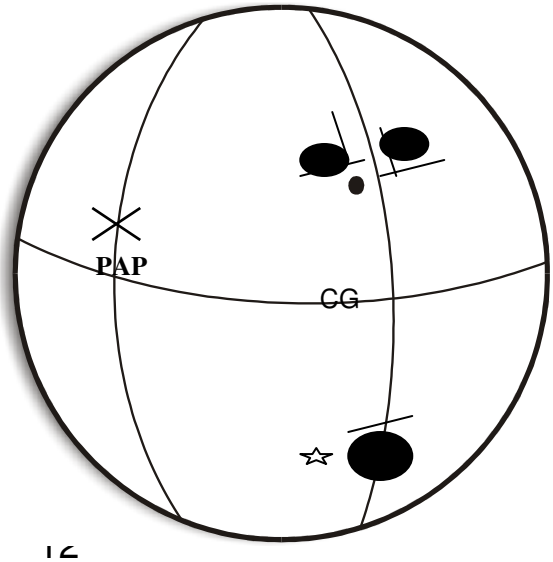

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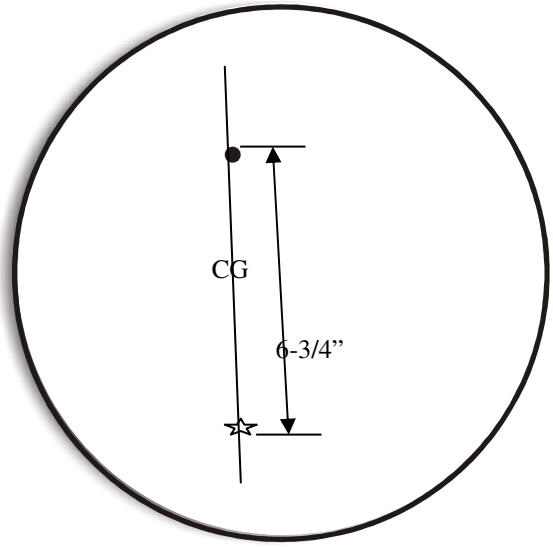

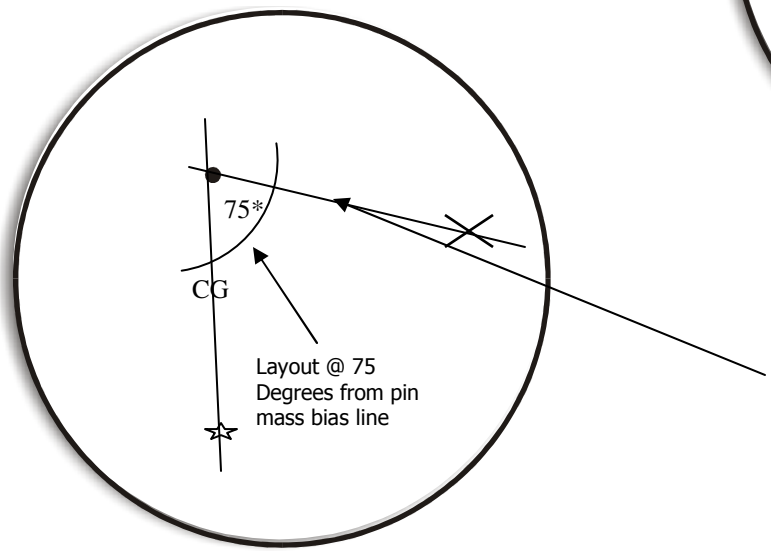

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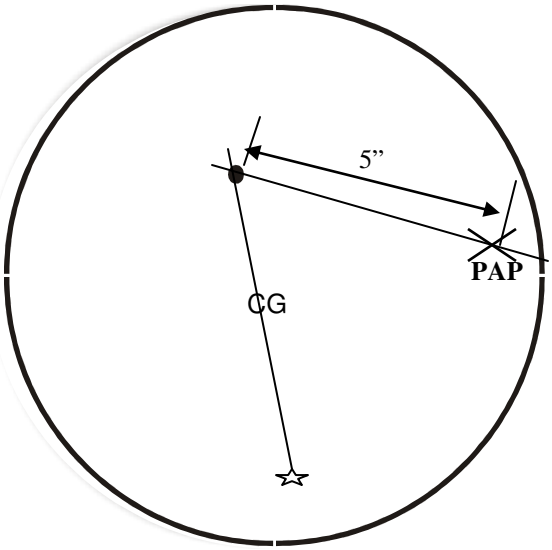

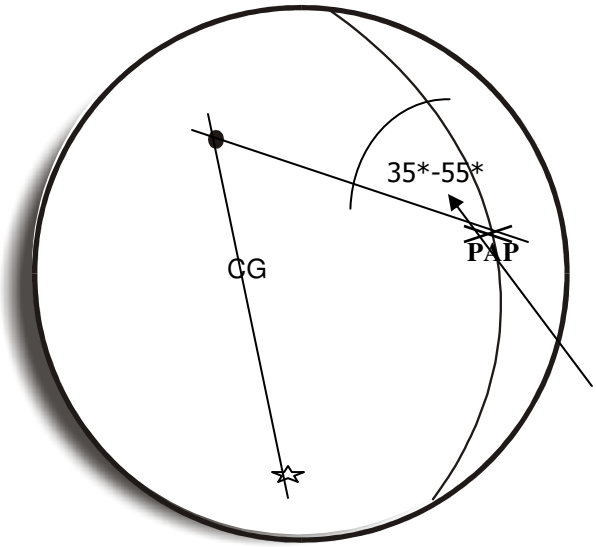

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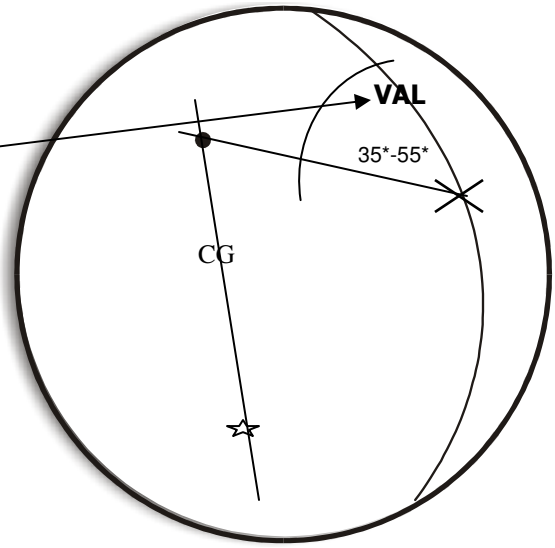

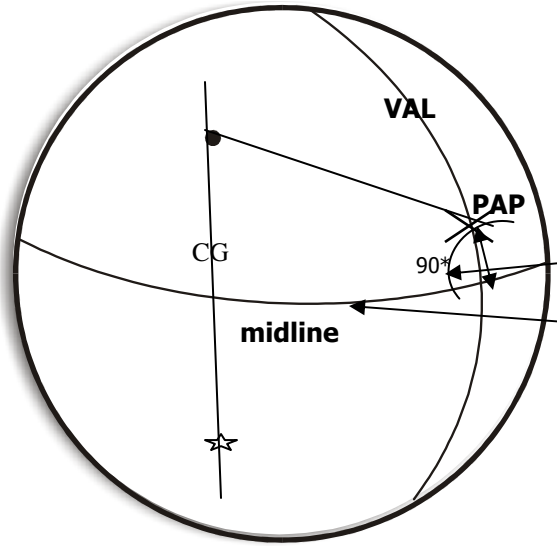

EX . PAP
H-6"> X V -1/4^"

*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

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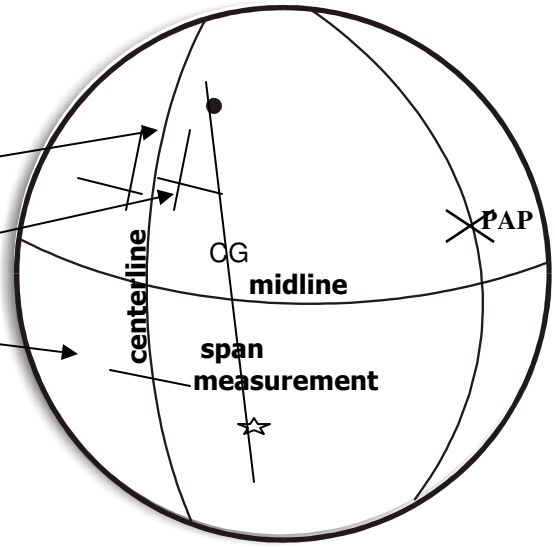

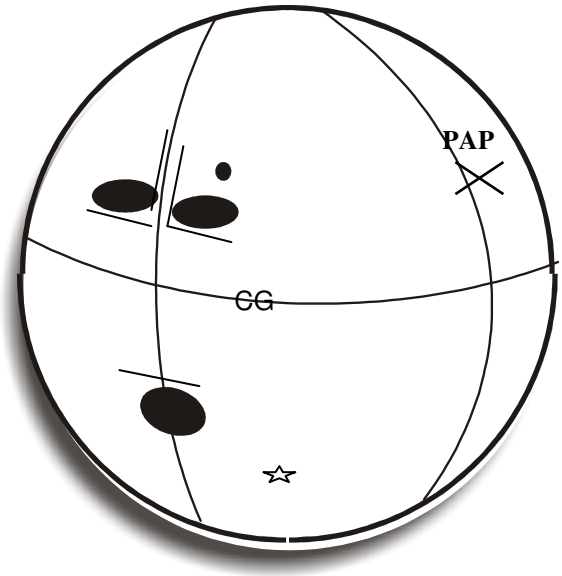

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