



SYMMETRICAL WEIGHTBLOCK DRILLING INSTRUCTIONS

Thank You for purchasing a Lane Masters™ bowling ball,

We hope you enjoy the quality we build into every ball and want you to get the most out of it. As you read through these common ball layouts, keep in mind that there are many variables that can affect the reaction of a particular drilling. Four of the main variables are Ball Speed, Rev Rate, Axis Tilt, and the Axis of Rotation. Any of these can drastically affect the amount of total reaction, but the basic principles of each layout will remain constant. Often, a desired ball reaction can be achieved by proper placement of the *Pin* and *CG*, along with the use of a *Balance Hole* in some cases. Please look over the common drilling layouts provided and see which one best matches up to your desired reaction. Once you have reviewed them, we recommend you discuss these layout possibilities with your pro shop professional so they can better work with you to achieve a ball reaction that will best fit your game.

All of the common layouts can be modified by the drilling basics on the following page. The area for each of these layouts have been generalized and does not mean that you are unable to use a layout in an area different from what is recommended. Before getting started, it is important for the driller to be able to find your *Initial Track* (by the oil tracings

For technical assistance on any of our products,
please feel free to call 916.476.9542 between the
hours of 9:00a.m. and 7:00p.m. PST
or visit our website 24 hours a day www.lane-masters.com.

Glossary of Drilling Terms

1 Initial Track - The first revolution of the ball in contact with the lane upon release.

2 Centerline - Vertical midpoint of your grip between fingers and thumb.

3 Midline - Horizontal midpoint of your grip between fingers and thumb.

4 PAP (Positive Axis Point) - Positive side end point of a bowlers axis.

5 Pin - 7/16" dot used to locate the top of the weight block.

6 CG (Center of Gravity) - Point of zero static balance in all directions.

7 Balance Hole - Used to fine tune a ball reaction after drilling
and/or comply with USBC weight specifications.

8 Track Flare - The migration of the ball as it gravitates towards its preferred axis.

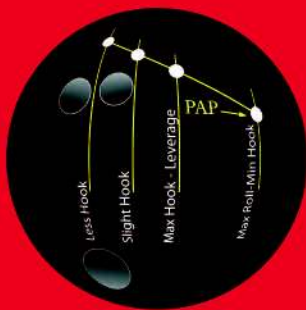
9 VAL (Vertical Axis Line) - A line perpendicular to the Midline that intersects a bowlers PAP.



Ball Drilling Basics

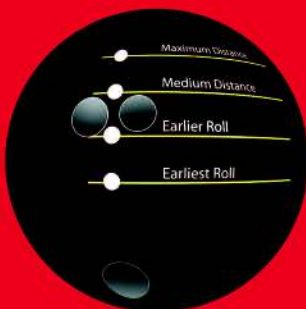
Horizontal Pin Placement

Moving the *Pin* left to right affects the amount of skid, roll, and hook produced. To get maximum *Track Flare* and ball reaction, place the *Pin* closer to the "Max Hook" position. By placing the *Pin* closer to or on the *Track*, you can minimize *Track Flare* and overall hook. Placing the *Pin* directly on your *PAP* will minimize hook and create maximum ball roll.



Vertical Pin Placement

Moving the *Pin* up and down, in relation to your *Centerline*, changes the length of the ball reaction. A *Pin* placed towards the center of your grip provides an earlier roll (It is not recommended to place the pin any lower). As the *Pin* is moved up, the length of the ball reaction will increase.



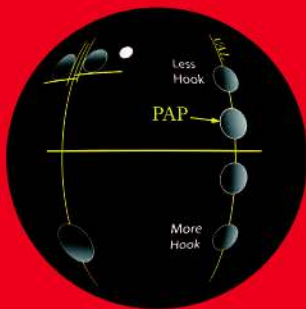
CG in relation to Pin Placement

The position of the *CG* in relation to the *Pin* and *Centerline* play an important roll in ball reaction. Placing the *Pin* and the *CG* equal distance from the *PAP* (Stacked Leverage) will produce the most overall hook. Placing the *CG* closer to the *PAP* than the *Pin*, results in earlier hook and more arc (roll). Placing the *CG* closer to the *Track* than the *Pin* will result in less hook.



Balance (Weight) Hole Placement

The position and size of a *Balance Hole* will change the reaction of a bowling ball. A hole placed on the *PAP* will stabilize the ball earlier and add backend reaction. Placing a hole lower on the *VAL* will create earlier *Track Flare*. Placing a hole upward of the *PAP* on the *VAL* decreases *Track Flare*. At any location the size of the hole changes the effect. A smaller hole produces more snap while a larger hole creates more arc.



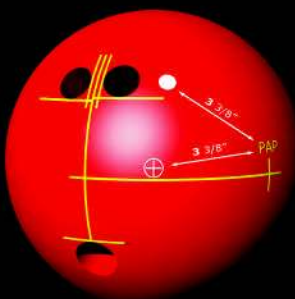
Common Ball Layouts



Stacked

The *Pin* and *CG* are located equal distance from your *PAP*. A "Stacked Leverage" drill locates the *CG* and *Pin* 3 3/8" from your *PAP*. Stacked Leverage produces the most overall ball reaction and is a favorite of higher ball speed and/or medium to lower rev players.

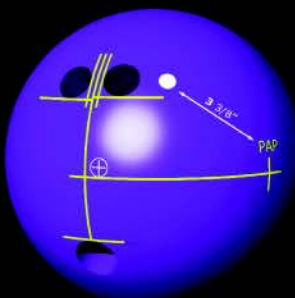
Hook: **100%** Backend: **70%** Length: **40%**



Label Leverage

Place the *Pin* 3 3/8" from your *PAP* and the *CG* close to the middle of your grip (about 1/4" to 1/2" right of the *Centerline*). This layout will produce a good overall reaction while taming down the backends. A preferred layout among many stroker type bowlers.

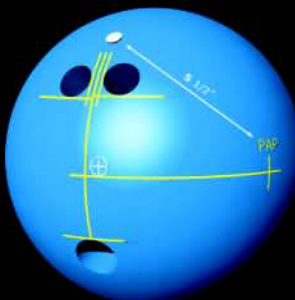
Hook: **80%** Backend: **50%** Length: **50%**



Length

Place the *Pin* 5" to 5 1/2" from your *PAP* and the *CG* 0" to 1/2" right of the *Centerline*. A Length drill is best suited for deep inside lines and is a favorite of higher rev players.

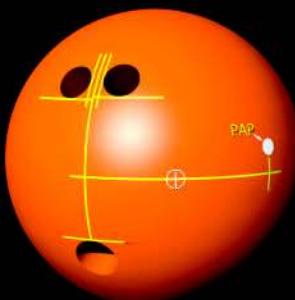
Hook: **60%** Backend: **70%** Length: **80%**



Pin Axis

The *Pin* is located directly on your *PAP* with the *CG* placed on the *Midline*. This layout will produce the most roll and least skid. By adding a large *Balance Hole* on your *PAP*, you can increase this effect. Many competitive bowlers carry a Pin Axis drill in their arsenal.

Hook: **20%** Backend: **40%** Length: **20%**



Low Track and Full Roller Ball Layouts



Low Track Leverage

Place both the *Pin* and *CG* $3\frac{3}{8}$ " from the your *PAP*, keeping the *Pin* below the fingers and the *CG* just below the *Centerline*. This will simulate a "Stacked Leverage" drill for Lower Track Bowlers. A *Balance Hole* may be necessary to comply with USBC rules.

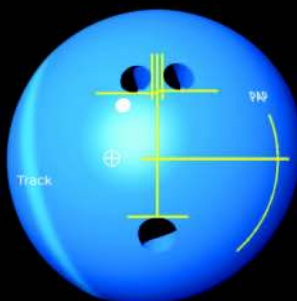
Hook: **100%** Backend: **70%** Length: **40%**



Low Track Length

Place the *Pin* closer to your *Track* and below the middle finger, with the *CG* shifted even closer to your *Track*. This layout minimizes both *Track Flare* and backend reaction while providing excellent length for Low Track Bowlers.

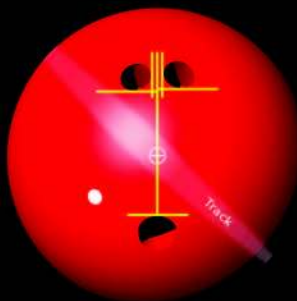
Hook: **40%** Backend: **50%** Length: **80%**



Full Roller Leverage*

Place the *CG* directly on your *Track* at the *Midline*, with the *Pin* located at a 45° angle (approximately 7:30). For Full Rollers, this layout will simulate a standard "Label Leverage" drilling.

Hook: **80%** Backend: **70%** Length: **50%**



Full Roller Length*

Place the *CG* directly on your *Track*, at the *Midline*, with the *Pin* located at a 45° angle (approximately 10:30). For Full Rollers, this layout minimizes both *Track Flare* and overall reaction while providing excellent length.

Hook: **50%** Backend: **60%** Length: **80%**

