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MASTER DRILLING INSTRUCTIONS

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## STORM LEGEND

- = Major Pin
- ⦿ = Center of Gravity (CG)
- PAP = Positive Axis Point
- ⊗ = Balance Hole
- - - - = Ball Track
- = = = = = Perpendicular Axis Line (PAL)
- MC<sup>2</sup> = "Motion Control" Locator Pin, Mass Bias Indicator

### BALANCE HOLE LOCATION GUIDE

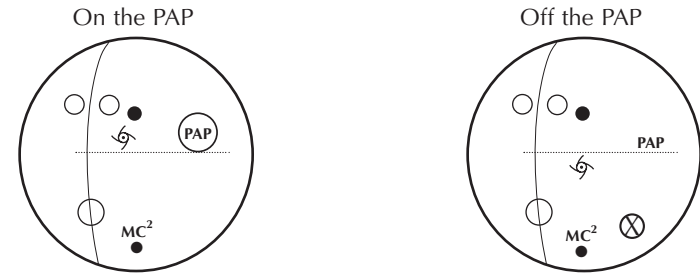
#### EXTRA HOLE PLACEMENT:

- On the PAP - Will produce earlier roll and a smoother break point.
- Off the PAP - Will produce much earlier roll with increased hook potential.

For heavy oil and players with low rev rates, always use layouts that utilize an extra hole for a stronger ball reaction.

#### STORM WARNING

High rev players should use extra holes located no farther from the grip center than the PAL. Also, for these players, consider using a smaller drill bit (7/8" and down) and drilling deep to remove excess weight.



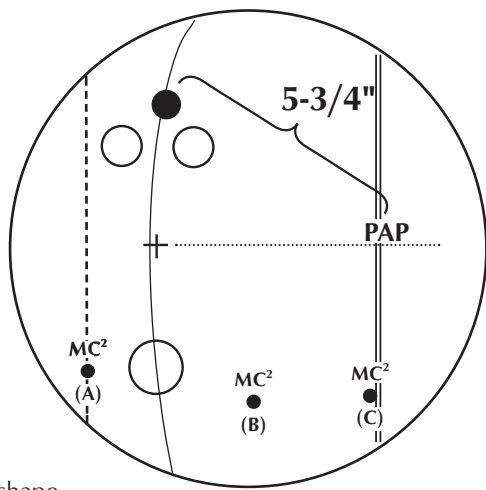
### STORM XTRAS SURFACE REACTION GUIDE

BALL REACTION	PROCEDURE	RESULT
Too much skid - not enough hook	Sand ball with 800-320 grit wet/dry sandpaper or Scotch-Brite (as you decrease in grit the ball will hook earlier)	Earlier roll with stronger hook
Good	Clean ball with Storm Xtras Reacta-Clean or Proacta-Clean	Consistent ball reaction with increased pin carry
Slightly early hook	Polish ball for 30-90 seconds with both Storm Xtras Step #1 and Step #2	Increased length - increased backend
Good with slightly early hook	Polish ball for 30-90 seconds with Storm Xtras Step #1	Increased length - increased backend
Early hook	Polish ball for 30-90 seconds with both Storm Xtras Step #1, Step #2 and Step #3	Increased length - increased backend
Early hook - over hook	Polish ball for 30-90 seconds with both Storm Xtras Step #1, Step #2, Step #3 and Xtra-Shine/Proacta-Shine	Increased length - increased backend
Early hook - over hook	Polish ball for 30-90 seconds with both Storm Xtras Step #1, Step #2, Step #3 Proacta-Shine/Xtra-Shine and Diamond Gloss	Increased length - increased backend

No matter what surface you use, Storm Xtras Reacta-Clean and Proacta-Clean pulls the oil out of the shell, restoring the tacky feel, resulting in a more consistent ball reaction with increased pin carry.

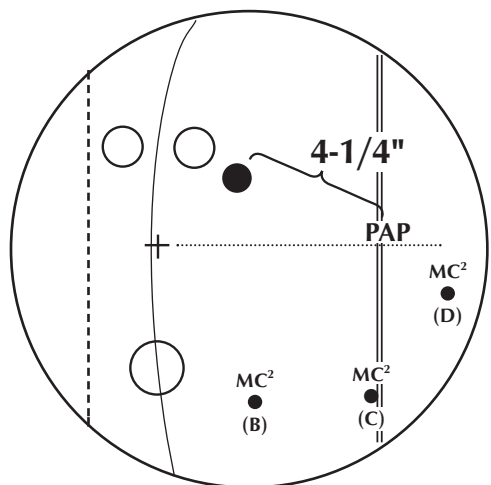
The following layouts are for right-handed players.  
Remember to flip or rotate to produce "mirror-image" for left-handed players.

## LAYOUT #1



- With this layout, we place the pin 5-3/4" from the PAL, above the finger holes, to produce length on drier conditions.
- Next we select a mass bias, MC<sup>2</sup>, position suitable for our desired breakpoint shape.
  - (A) Mass Bias in the Ball Track - designed to produce a late and smooth breakpoint.
  - (B) Mass Bias in the Strong Position - this will produce an earlier and sharper breakpoint than Position A.
    - Good for extreme entry angle!
  - (C) Mass Bias on the Perpendicular Axis Line (PAL) - produces the earliest breakpoint of the three positions while providing a controllable and "readable" backend.
    - Works great on heavy oil patterns!
- Be sure to check for excess side weight and finger/thumb weight, as a balance hole may be necessary for any of these layouts. If one is required, draw a line from the center of the grip through the CG and extend to the PAL. This will be the location of the balance hole.

NOTE: For reaction adjustments, consult the Ball Surface Guide.

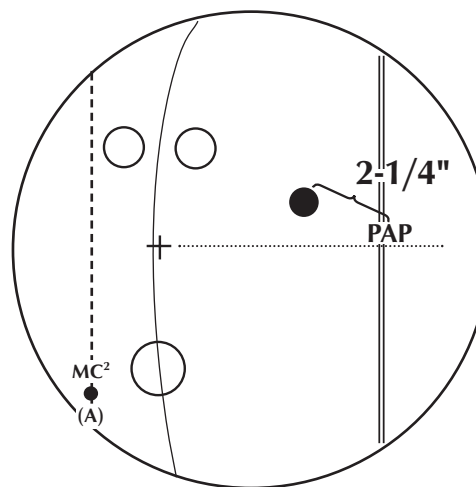


## LAYOUT #2

- With this layout, we place the pin 4-1/4" from the PAL. This position will produce medium to high flare, great for players trying to "open up" on a medium to heavy oil lane condition.
- For bowlers with medium to high rev rates, this in position will often produce the most overall hook throughout the entire lane!

- Now select an MC<sup>2</sup> position:
  - (A) Locate the MC<sup>2</sup> halfway between the ball track and PAL to produce a sharp breakpoint
  - (B) Place the MC<sup>2</sup> at the PAL for an earlier, smoother breakpoint.
  - (C) Place the MC<sup>2</sup> 2" past the PAL for a very heavy midlane roll on long oil patterns.
- Be sure to check for excess side weight and finger/thumb weight, as a balance hole may be necessary for any of these layouts. If one is required, draw a line from the center of the grip through the CG and extend to the PAL. This will be the location of the balance hole.

NOTE: For reaction adjustments, consult the Ball Surface Guide at the end of these instructions.



## LAYOUT #3

- With this layout, select a ball with the pin 3 - 4-1/2" out from the CG.
  - Place the pin 2-1/4" from the PAL.
- Locate the MC<sup>2</sup> in the player's ball track.
- Weigh the ball to ensure static balance is within 1<sup>oz</sup> in both left/right and finger/thumb directions. For this particular layout we will not use a balance hole.

- This layout will produce an early roll, a minimum amount of flare and works well for controlling conditions with dry backends.

## LAYOUT #4

### FOR FULL ROLLERS

- For players who track between the fingers and thumb (full rollers), place the major pin 4-1/2" from the grip center in the southwest direction.
- If a weight hole is necessary, be sure to locate it 6-3/4" from the grip center in the direction of either the major pin or MC<sup>2</sup> pin.

