MASS CHAOS™

COLUMBIA 300

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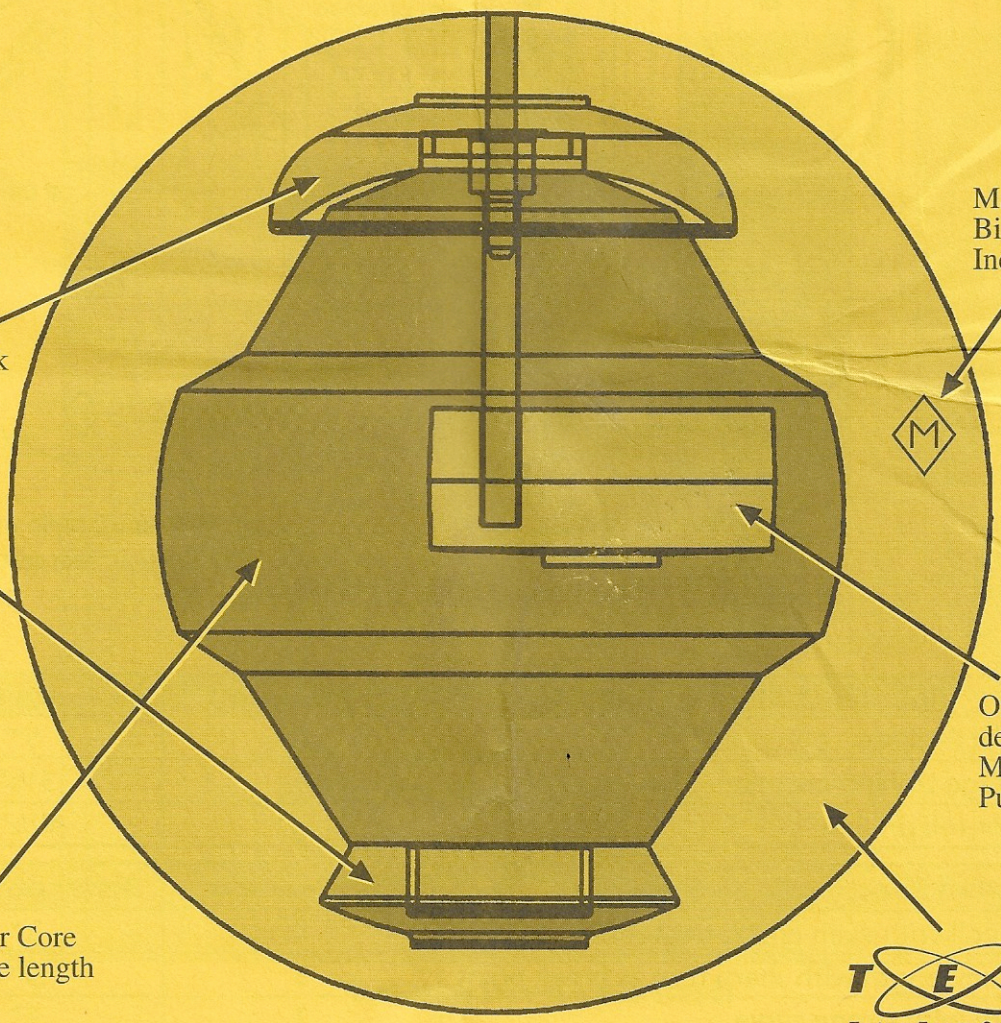
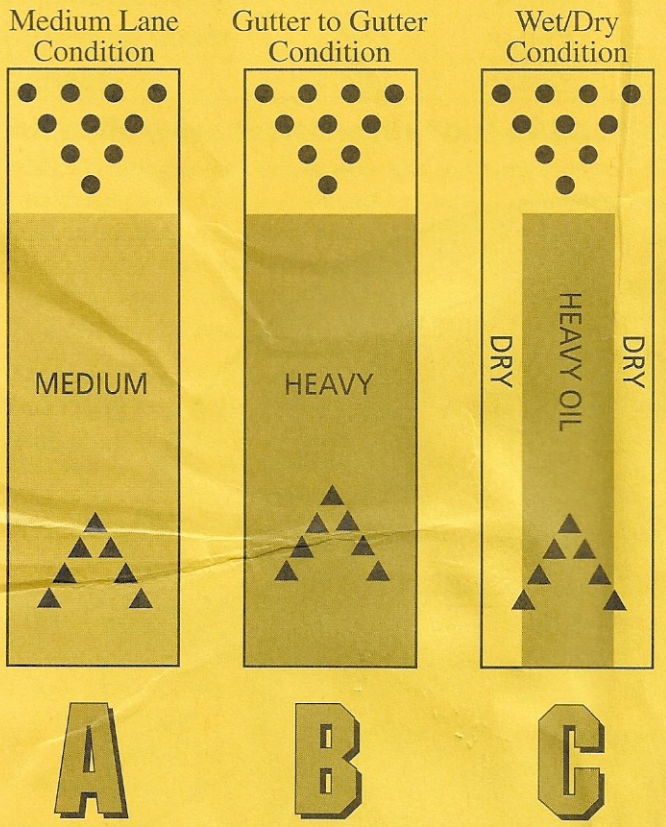


TEC

Texture Energy Control

Suggested Drilling Patterns

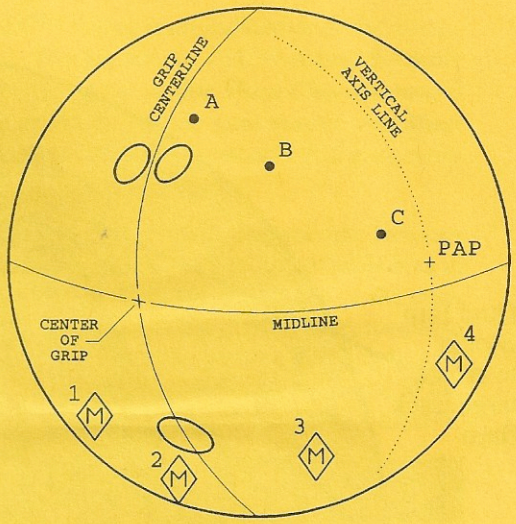
Common Lane Conditions



PAP-Positive Axis Point

• Pin Positions: A, B or C

Mass Bias Ⓜ Positions: 1, 2, 3, 4



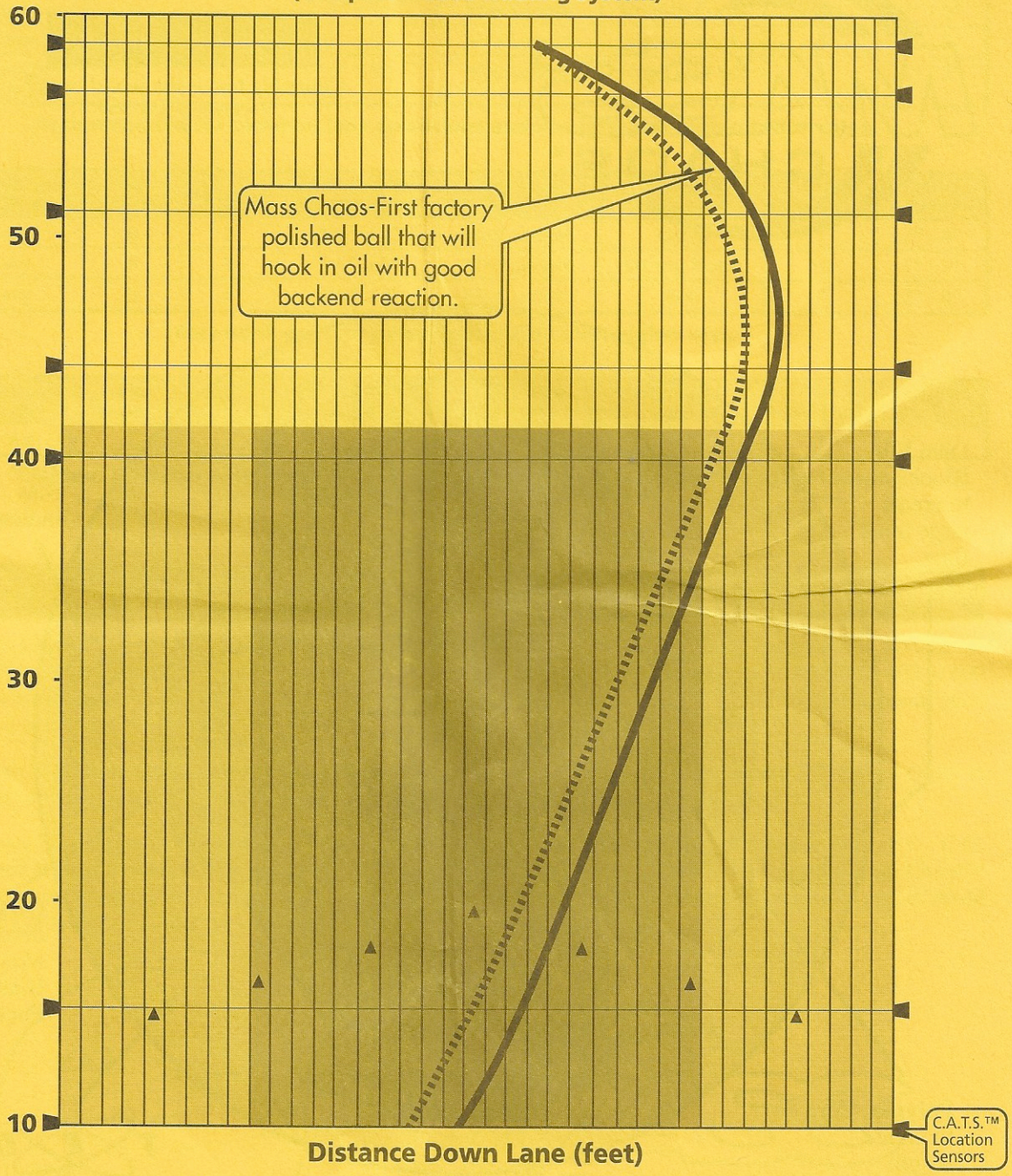
This illustration is an example of a layout with a 5½" PAP location from center of grip.

Ball Reaction From Pin	Pin Position	Distance to PAP
Length Drillings	A	5"
Leverage Drilling max flare	B	3⅜"
Axis or roll drilling	C	1½"

Ball Reaction from Mass Bias	Ⓜ Position	Distance to PAP
Early roll with even arcing backend	4	3"
Medium length with sharp turn at break point	3	5"
Length with strong curve	2	7"
Length with hook and set motion	1	9"

Ⓜ is Mass Bias Indicator

C.A.T.S.™ Results
(Computer Aided Tracking System)



Preferred Lane Condition	Pin Position	Position	Distance from Pin x to PAP	Front End Reaction	Back End Reaction	Flare 1=Min 10=Max	Suggested Pin Out
Medium	A	2	5" x 7"	Max Length	Smooth Curve	5	1" - 5"
Medum	A	3	5" x 5"	Max Length	Strong Hook	5	2" - 5"
Medium/Dry Backends	A	1	5" x 9"	Max Length	Hook and Set	5	2" - 5"

Recommended for common lane conditions and bowlers with high rotation rates.

Preferred Lane Condition	Pin Position	Position	Distance from Pin x to PAP	Front End Reaction	Back End Reaction	Flare 1=Min 10=Max	Suggested Pin Out
Heavy	B	2	3 3/8" x 7"	Med Length	Curve	7	2" - 4"
Heavy	B	3	3 3/8" x 5"	Med Length	Strong Hook	10	1" - 5"
Heavy	B	4	3 3/8" x 3"	Med Length	Roll	7	2" - 4"

May hook early and stop for bowlers with higher revs.

Preferred Lane Condition	Pin Position	Position	Distance from Pin x to PAP	Front End Reaction	Back End Reaction	Flare 1=Min 10=Max	Suggested Pin Out
Extreme Wet-Dry	C	2	1 1/2" x 7"	Early Roll	Roll or Arc	1	0" - 2"

Caution: A bowler with a high track might roll over the finger holes with this layout. Least hooking of all drillings.

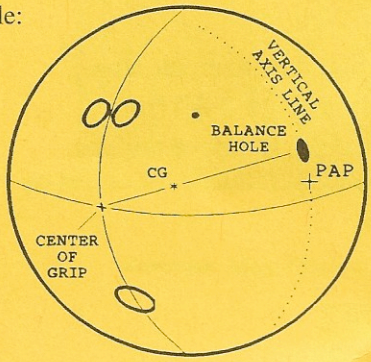
Surface

The Mass Chaos™ comes with a factory polished surface. This polished surface retains energy in the front of the lane and promotes a sharper turn at the break point. For an earlier break point, the ball can be sanded to 400 or 600 grit. The surface can be adjusted with different grit sandpaper, scotchbrite and polishes to adjust the break point of the ball to suit any bowler's needs.

Remember to position pin on or above a line drawn from the PAP to the finger holes. If the pin is moved closer to the center of the grip, it might flare over the finger holes for high track players.

If a balance hole is required, it should be positioned on a line drawn from the center of the grip through the C.G. and located at the intersection with vertical axis line. **Caution**: Due to the high differential Rg of the Mass Chaos™ core, it is recommended that balance holes be kept within 6" of the center grip. Balance holes located past 6" could potentially cross into the final flare rings of the track.

Example:



MASS CHAOS™

Technical Ball Information

	Rg (X-Axis) (16 Pounds)	Differential Rg (16 Pounds)	Hook Rating (Boards of Hook)	TEC™ Rating* (End of Oil)	(End of Lane)
Mass Chaos	2.559	0.058	23	7	36
Complete Chaos	2.539	0.069	25	9	37
Extreme Chaos	2.565	0.043	22	8	35
Chaos	2.509	0.051	23	10	35

All balls were tested with "out-of-box" finish.

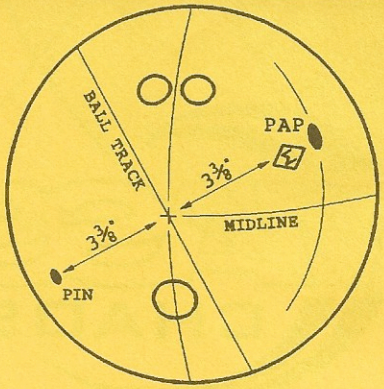
**TEC™ rating is the percent decrease in kinetic energy. The TEC™ rating is an indication of the energy transferred from kinetic (forward velocity) to rotational (hook). The higher the TEC™ rating the more hook up to that area of the lane. The TEC™ rating of 7 at the end of the oil for Mass Chaos means it hooked later than all the other Chaos. The 36 TEC™ rating at the end of the lane means that Mass Chaos hooked a lot more on the backend resulting in an increased entry angle (nearly 1 degree more than Complete Chaos).*

The Mass Chaos™ is Columbia's latest TEC (Textured Energy Control) ball with microscopic balloons in the shell for added traction to the lane. This ball has a dense, offset internal puck to create mass bias in the ball. This dense offset puck (which can be drilled) acts as a third weight block on the side of the core. This ball combines the most popular coverstock in the marketplace with a high Rg (2.559) core, medium-high differential Rg (.058), and a mass bias puck. This all adds up to the most aggressive hooking ball on the backend of the lane. This is the first ball to ever be designed with a factory polish that will hook in oil. If you are looking for a polished ball that hooks with the best of them, you need the Mass Chaos™.

Things to Remember

1. Any of the drillings can be drilled back to negative side-weight for earlier roll and less backend.
2. C.G. is defined as center of gravity.
3. PAP is defined as Positive Axis Point.
4. Recognize that all illustrations shown are for right-handers. Reverse for left-handers.

Full Roller Drillings



Maximum hook and flare to create strong backend. Put pin and ◇M◇ 3 3/8" from center of grip and ◇M◇ 2 1/2" above midline. Use 3+" pin out balls.