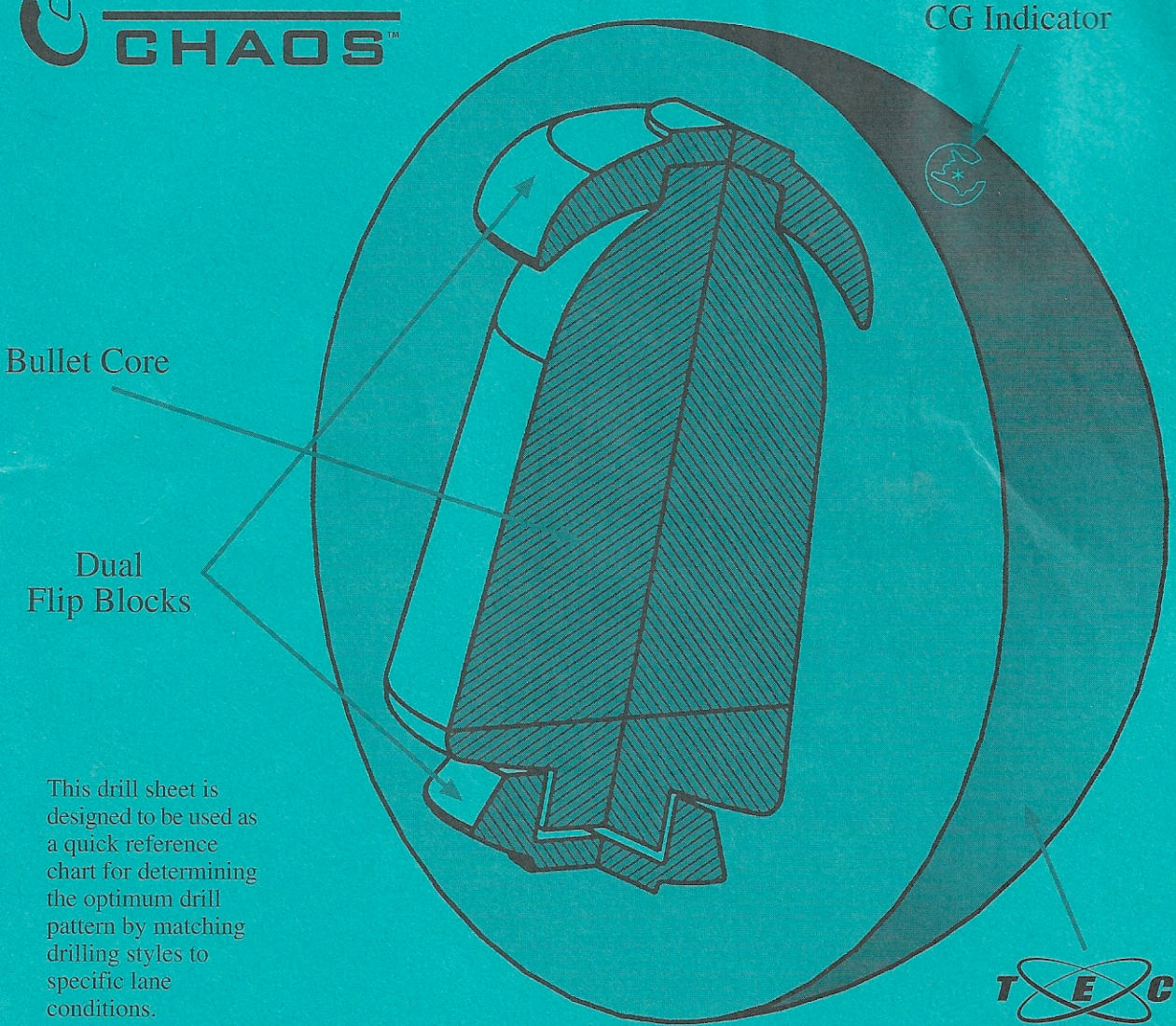


WITH TEC™ (Texture Energy Control) COVERSTOCK



COLUMBIA 300

Columbia bowls the world over.®  
www.columbia300.com



Bullet Core

Dual  
Flip Blocks

CG Indicator

This drill sheet is designed to be used as a quick reference chart for determining the optimum drill pattern by matching drilling styles to specific lane conditions.

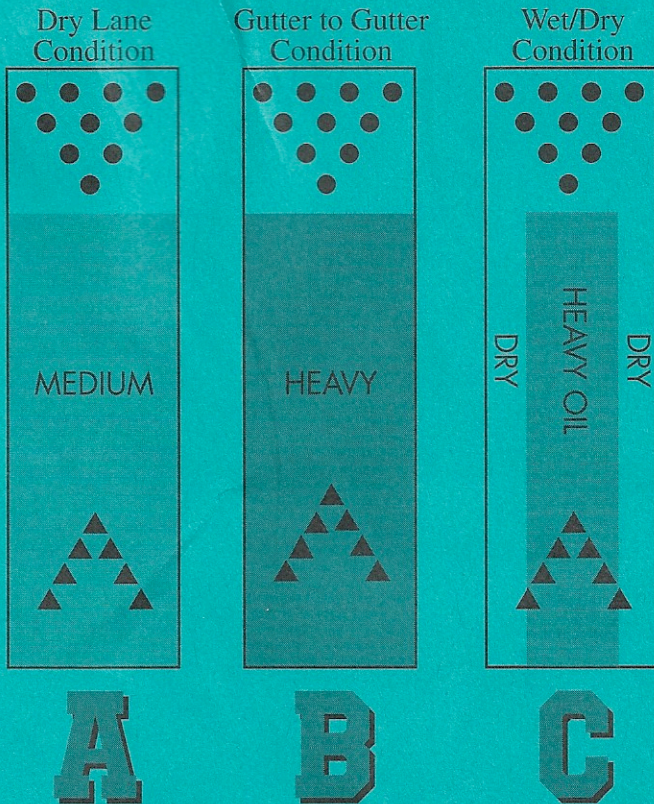


By adjusting flip block densities, a strong dynamic core is maintained in lighter weights: 16 lb. Diff. Rg = .069, 15 lb. Diff. Rg = .060, 14 lb. Diff. Rg = .050



# Suggested Drilling Patterns

## Common Lane Conditions



## PAP-Positive Axis Point

• Pin Positions: A, B or C

C.G. Positions: 1, 2, 3



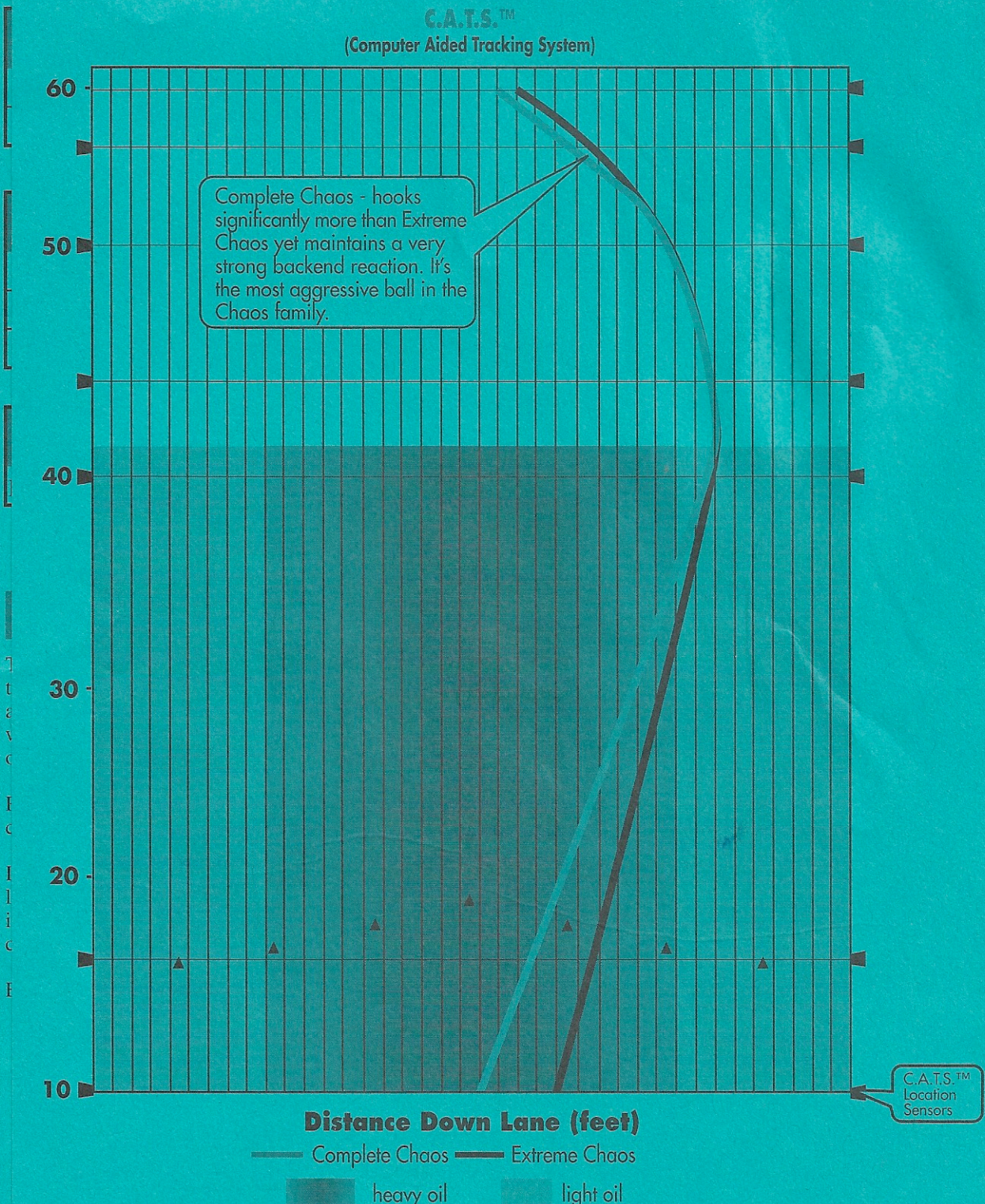
This illustration is an example of a layout with a  $5\frac{1}{2}$ " PAP location from center of grip. Based on the actual pin out distance and PAP location, the final layout may not look exactly like the drawing. For example, a 5" pin out will have the C.G. below the mid line.

Ball Reaction	Pin Position	C.G. Position	Distance to PAP
Length Drillings	A	1	5"
Leverage Drilling max flare	B	2	$3\frac{3}{8}$ "
Axis or roll drilling	C	3	1"

C.G. is defined as center of gravity.



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





Preferred Lane Condition	Pin Position	C.G. Position	Distance from Pin x CG to PAP	Front End Reaction	Back End Reaction	Flare 1=Min 10=Max	Suggested Pin Out
Medium	A	1	5" x 5"	Max Length	Smooth Curve	5	1"-5"
Medium	A	2	5" x 3 <sup>3</sup> / <sub>4</sub> "	Max Length	Strong Hook	5	2"-5"

**Recommended for common lane conditions.**

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

**May hook early and stop for bowlers with higher revs.**

Preferred Lane Condition	Pin Position	C.G. Position	Distance from Pin x CG to PAP	Front End Reaction	Back End Reaction	Flare 1=Min 10=Max	Suggested Pin Out
Extreme Wet-Dry	C	3	1" x 1"	Early Roll	Roll or Arc	1	0" x 2"

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

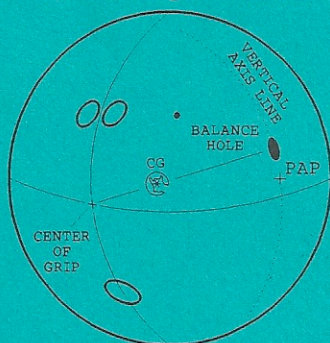
## Surface

The Complete Chaos comes out of the factory with a 600 grit, concentric sanded surface. This semi rough finish gets the ball into a roll in the oil. For an earlier break point, the ball can be sanded to 400 or 320 grit. For more length and a stronger backend finish, the surface can be polished. Columbia has developed a new TEC polish for maximum gloss with our TEC surfaces. The surface can be adjusted with different grit sandpaper 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 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 of the Complete 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:



COMPLETE  
CHAOS™




## Technical Ball Information

	Rg (X-Axis) (16#)	Differential Rg (16#)	Hook Rating (Boards of Hook)	TEC™ Rating*	
				(End of Oil)	(End of Lane)
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%

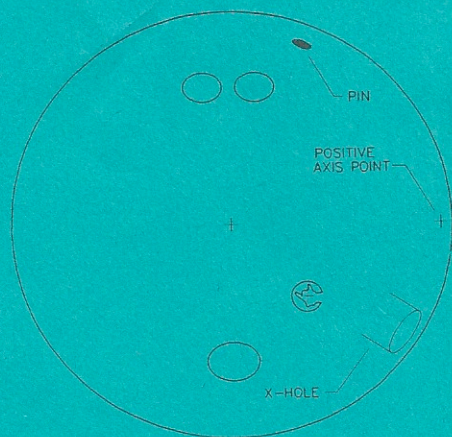
\*TEC rating is the percent decrease in kinetic energy. The TEC rating is an indication of the energy transferred from kinetic (forward velocity) to rotational (hook). The higher the TEC rating the more hook in that area of the lane. The TEC rating of 10% at the end of the oil for Chaos means it hooked sooner than Complete Chaos. The 37% TEC rating at the end of the lane means the Complete Chaos hooked more on the backend.

The Complete Chaos is Columbia's newest  (Texture Energy Control) ball with microscopic balloons added in the SuperFlex™ shell for added traction. This ball hooks more than any Columbia ball on the market with a stronger backend reaction. The Complete Chaos has a strong dynamic bullet core creating maximum track flare. The high friction  shell along with the dynamic bullet core enable the Complete Chaos to grab the lane at the end of the oil or in carrydown and make a sharp turn at the break point. The Complete Chaos has a medium Rg (2.539) and high differential Rg (.069) to create 6-9 inches of flare.

## 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 indicated by 
3. PAP is defined as Positive Axis Point.
4. Recognize that all illustrations shown are for right-handers. Reverse for left-handers.

## Drillings for Pin Out 4-6". Top Wt. 1.5-4 oz.



### Heavy Oil

Pin 4½" from PAP. C.G. 4" from PAP and 1½"-2" below center of grip. Position X-hole over 5"-6" and 2½" down.

### Medium Oil

Pin 5½" from PAP. C.G. 4½" from PAP and 1½"-2" below center of grip. Position X-hole over 5"-6" and 1½" down.

