

# MULTI-COLOR SUPERFLEX WITH TITANIUM TECHNOLOGY

# MESSENGER™

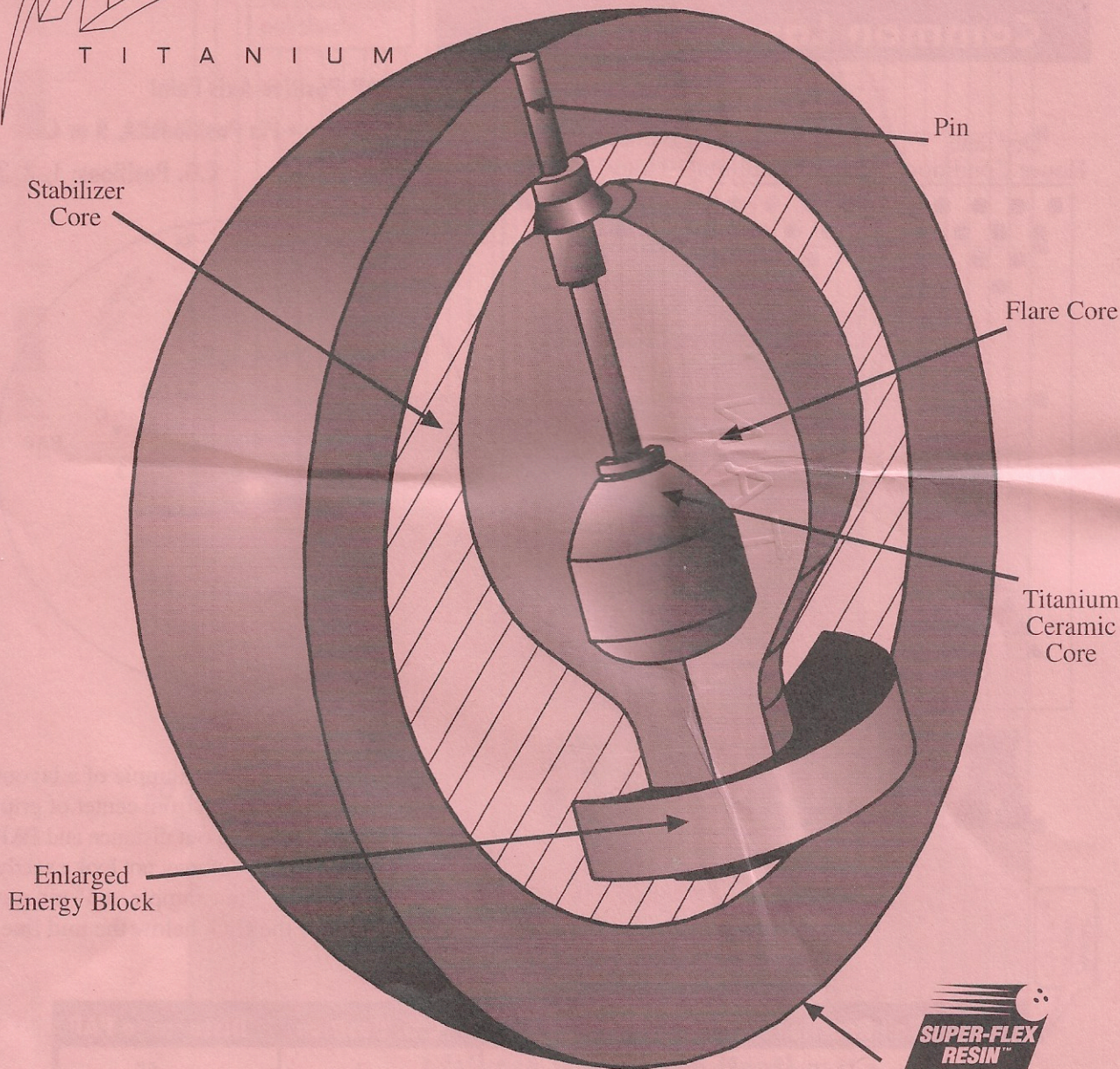
TITANIUM



COLUMBIA 300

Columbia bowls the world over.®

[www.columbia300.com](http://www.columbia300.com)



**SUPER-FLEX™ RESIN**

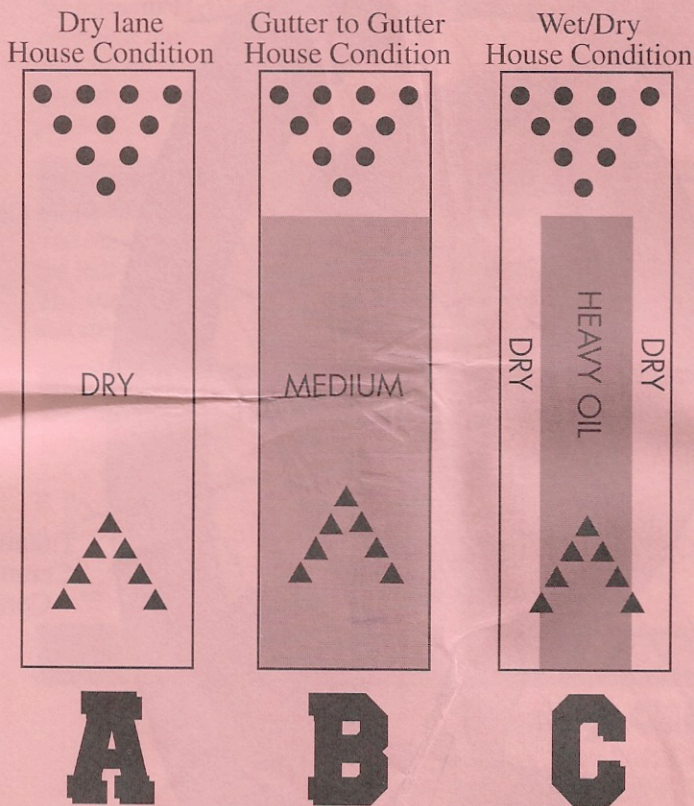
This drill sheet is designed to be used as a quick reference chart for determining the optimum drill pattern by matching drilling styles to specific lane conditions.

\*The energy block density is adjusted in 14 and 15# models to maintain the low differential Rg.



# Suggested Drilling Patterns

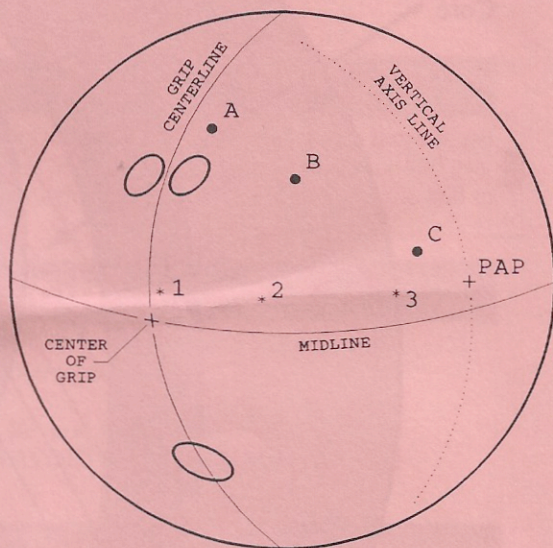
## Common Lane Conditions



### PAP-Positive Axis Point

• Pin Positions: A, B or C

C.G. Positions: 1, 2, 3



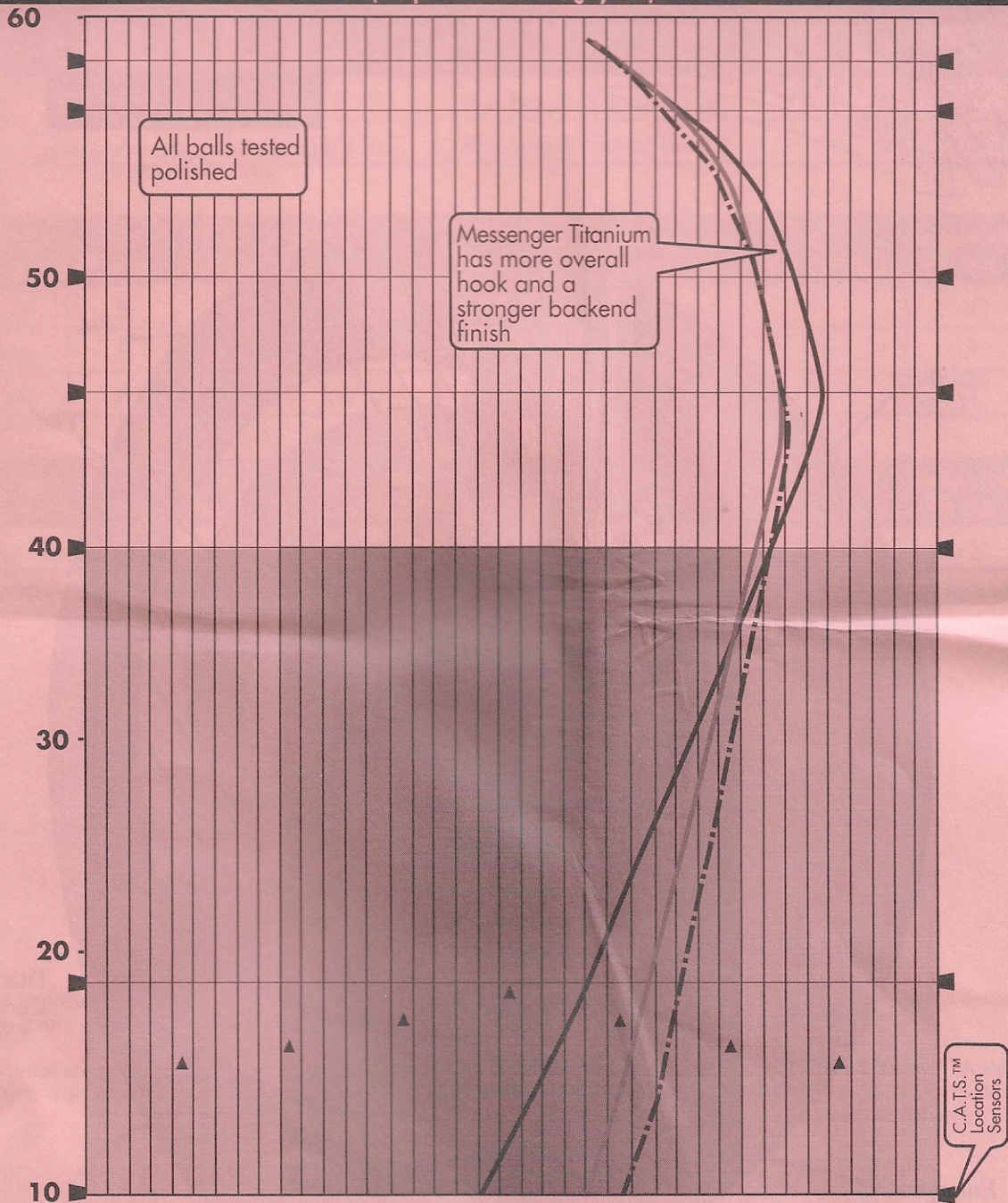
This illustration is an example of a layout with a 5 1/2" PAP location from center of grip. Based on the actual pin out distance and PAP location, the final layout may not look exactly like the drawing. For example, a 5" pin out will have the C.G. below the mid line.

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

C.G. is defined as center of gravity (found near the Columbia 300 label).



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



All balls tested polished

Messenger Titanium has more overall hook and a stronger backend finish

C.A.T.S.™  
Location Sensors

**Distance Down Lane (feet)**

- Messenger Titanium
  - - - Messenger Electric Green
  - · - Messenger Pearl Flame
- heavy oil
  - light oil

™C.A.T.S. is a trademark of W.I.B.C.

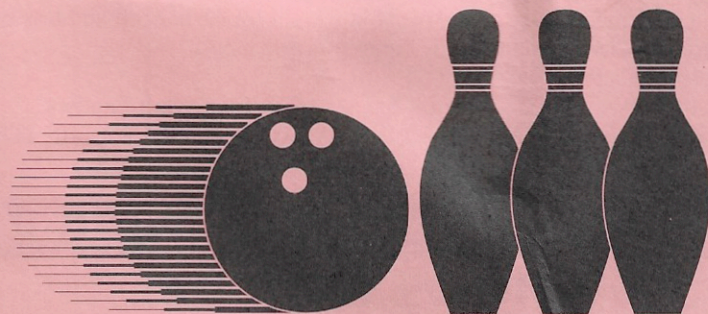


Preferred Lane Condition	Pin Position	C.G. Position	Distance from Pin x CG to PAP	Front End Reaction	Back End Reaction	Flare 1=Min 10=Max	Suggested Pin Out
Dry	A	1	5"x5"	Max Length	Smooth Curve	5	1"-5"
Dry	A	2	5"x3 <sup>3</sup> / <sub>4</sub> "	Max Length	Strong Hook	5	2"-5"

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	B	1	3 <sup>3</sup> / <sub>8</sub> "x5"	Med Length	Smooth Curve	7	2"-4"
Medium	B	2	3 <sup>3</sup> / <sub>8</sub> "x3 <sup>3</sup> / <sub>8</sub> "	Med Length	Strong Hook	10	1"-5"
Medium	B	3	3 <sup>3</sup> / <sub>8</sub> "x1"	Med Length	Roll	7	2"-4"

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"x1"*	Early Roll	Roll or Arc	1	0"x2"

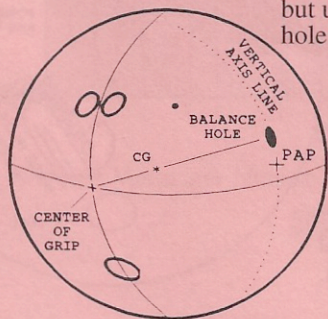
\* **Caution: A bowler with a high track might roll over the finger holes with this layout.**



Remember to position pin close to 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 balance holes are required, they should go on a line drawn from the center of the grip through the C.G. and located at intersection with vertical axis line. Balance hole can be located up to 2" past the vertical axis line to increase reaction but use caution because the flared ball track might roll over the balance hole if located beyond the vertical axis line.

Example:





## RG Measurement Chart

	Rg(X-Axis) (16 pounds)	Differential Rg (16 pounds)	Hook Rating* (boards of hook)
Messenger Titanium	2.527	0.043	17
Messenger Elect Green	2.528	0.041	15
Messenger Pearl Flame	2.528	0.041	14

The newest Columbia 300 Messenger™ Titanium is more hook for your money. This ball out hooks any of the previous Messenger balls. This multi-color, solid ball has the aggressive SuperFlex™ cover for maximum hook in a reactive shell. It has a .043 differential Rg for 4-5 inches of flare. The Rg is medium low (2.527). This all adds up to a ball which has a strong midlane arc for control with plenty left on the backend for a greater entry angle into the pocket. It also includes a hardened titanium nugget at the center for more hitting power.

## Surface

The Messenger Titanium comes factory polished with 2000 Grit Degree finish. This shiny finish helps to get the ball down the lane. For an earlier and more arcing break point, the ball can be sanded to 600 or 400 grit. The surface can be adjusted with different grit sandpaper and polish to adjust the break point of the ball to suit the bowler.

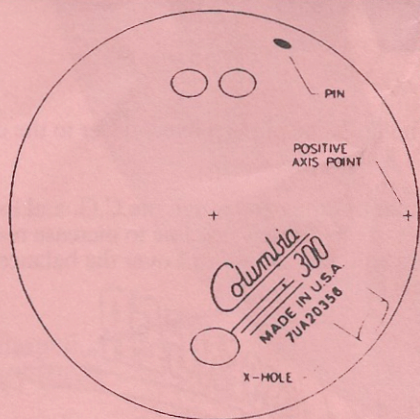
## Things to Remember

1. Any of the drillings can be drilled back to negative side-weight for earlier roll and less backend.
2. Cg is defined as center of gravity (found near the Columbia 300 label).
3. PAP is defined as Positive Axis Point.
4. Recognize that all illustrations shown are for right-handers. Reverse for left-handers.
5. DON NOT DRILL ANY HOLES DEEPER THAN 2 3/4" TO AVOID HITTING THE TITANIUM CERAMIC CORE.

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

### Heavy Oil

Pin 4 1/2" from PAP. C.G. 4" from PAP and 1 1/2"-2" below center of grip. Position X-hole over 6" and 2 1/2" down.



### Medium Oil

Pin 5 1/2" from PAP. C.G. 4 1/2" from PAP and 1 1/2"-2" below center of grip. Position X-hole over 6" and 1 1/2" down.

