

Appendix A

Rules and Specifications

-The manufacturing specification requirements will be updated on 1/6/24 as follows;

<u>Manufacturer Specifications</u>	<u>Minimum</u>	<u>Maximum</u>
Diameter	8.500"	8.595"
Roundness	N/A	+/- 0.010"
Standard Ball Hardness (HD)(average)	73.0HD	N/A
"Urethane-Like" Hardness (HD)(average)	78.0HD	N/A

-The below PBA National Tour rules will be updated on 1/6/24 as follows;

11.0 Balls Allowed on the PBA National Tour. Only equipment registered, certified and listed on PBA.com will be allowed on the PBA National Tour.

Only balls manufactured on or after 8/1/22 are allowed. This corresponds to the full implementation of the USBC 73 minimum hardness rule. Serial numbers will be checked on ball cards, year will be required as well. Spot checks of any ball or ball card may be conducted at any time at the Tournament Directors discretion. Player challenges (see Rule 12.4) will still be in effect and penalties, in these cases, will be fully enforced.

11.8.1 Surface Hardness – Field Test. For PBA National Tour events, all bowling balls recorded on scorecards during the tournament may be checked at any time for hardness. If a ball is tested and the results are below 71.0D hardness (allowed for gauge inaccuracies), the ball will be eliminated from any further PBA competitions and the player penalized. If a bowler cannot produce a specific ball for testing, that ball is automatically eliminated from any further PBA competitions. If any player is found to be using a ball that has previously been eliminated from competitions, they will be disqualified and subject to a Code of Ethics penalty determined by the PBA Commissioner.

PENALTY: 1st Offense – Ball Disqualified and Ball Line Investigated

2nd Offense – Ball Disqualified and \$200 Fine

3rd Offense – Ball Disqualified and PBA Code of Ethics Violation - Disqualification

4th Offense – Ball Disqualified and PBA Code of Ethics Violation – Suspension at Commissioner Discretion

Penalty if any Ball Ever Tests Below 67.0HD - PBA Code of Ethics Violation – Suspension at Commissioner Discretion

NOTE: A player may request the PBA to perform an additional hardness (Lab) test in a controlled environment. Any expenses associated with this Lab test will be the players' responsibility. If the bowling ball is passed by the PBA, the ball may be cleared again for PBA competition and the matter will be reviewed.

NOTE: A Surface Hardness Field Test is not the same as a Surface Hardness Lab Test done for approval, which is done in a lab setting, in a controlled environment.

11.8.2 Surface Hardness Field Test Procedure.

- a. Ball is to be tested at room temperature (70-77 degrees Fahrenheit) with a clean surface, and in compliance with ASTM 2240-15, using a certified D type durometer with test stand.
- b. The Rex Type D Durometer indenter shall be wiped clean with isopropyl alcohol prior to testing each ball.
- c. No alterations to the ball surface may be conducted prior to presenting the ball for testing. The ball may be wiped with a dry towel by the player. The individual conducting the test, with the player present and giving consent, will clean the entire surface of the ball with isopropyl alcohol prior to testing.
- d. The ball must have an average hardness from 10 readings taken across the surface of the ball of at least 71.0D. The difference between the Field specification and the manufacturing/Lab specification is due to variation between durometers documented by both the tool manufacturer and ASTM.
- e. Only someone approved and appointed by the PBA Director of Rules and Equipment may conduct the test.
- f. Only the individual conducting the test, the player, the Tournament Director and the PBA Commissioner may be present during the test.

NOTE: PBA staff may conduct a test on any ball at any time to determine bowling ball hardness and may at their discretion remove the bowling ball from competition if it averages a hardness below 71.0 from 10 readings on a D scale Durometer.

PENALTY: (PBA Tour) See 11.8.1.

PENALTY: (PBA Tour) if ball surface is altered by player prior to testing, 1st Offense – Ball Disqualified and \$200 Fine

Appendix B

Field Tests - Springfield, Shawnee, TOC, WSOB PBA Stops

Date	Ball Manuf	Ball Name	Ball Type	Avg Temp F	Durometer #	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
2/9/2023	900G	Zen U	Urethane	66.9	99	73.0	73.0	73.1	73.0	73.3	72.5	72.8	72.9	73.0	73.8	73.0	
2/15/2023	900G	Zen	Reactive	68.2	99	73.5	73.4	74.0	73.6	73.6	74.0	72.8	73.3	73.2	73.5	73.2	
2/15/2023	900G	Zen U	Urethane	66.3	99	73.4	73.5	73.3	73.4	73.8	73.2	73.3	73.9	73.2	73.4	73.4	
3/15/2023	900G	Reality	Reactive	69.2	99	72.9	73.0	72.6	73.2	72.9	72.6	72.3	73.2	72.9	73.1	73.2	
2/15/2023	Brunswick	Defender	Reactive	69.8	99	74.0	74.4	72.7	75.4	73.6	73.7	74.3	74.1	73.9	73.7	74.0	
2/15/2023	Brunswick	Envy Tour	Reactive	69.6	99	72.6	72.2	72.4	72.1	71.9	74.5	73.6	72.0	72.4	72.4	72.4	
2/15/2023	Brunswick	Bonus	Reactive	69.4	99	72.5	72.2	72.4	72.5	72.7	72.2	72.2	73.3	72.7	72.1	72.2	
2/15/2023	DV8	Brutal Collision	Reactive	67.8	99	72.1	72.3	71.5	72.8	71.9	72.1	72.1	72.7	71.5	71.7	72.5	
2/15/2023	Ebonite	GB2	Reactive	69.1	99	73.8	73.1	73.7	73.1	75.2	73.0	73.9	74.5	74.2	73.5	73.6	
3/14/2023	Ebonite	The One	Reactive	66.0	99	73.1	72.0	72.6	72.8	73.1	73.3	73.1	73.3	73.0	74.7	73.2	
2/9/2023	Hammer	Purple Hammer	Urethane	69.8	99	70.1	71.2	69.9	69.6	69.7	69.9	70.1	69.8	69.9	71.1	69.9	
2/9/2023	Hammer	Purple Hammer	Urethane	68.1	99	69.9	70.1	69.9	70.0	69.9	69.6	68.6	70.4	69.6	70.5	70.2	
2/9/2023	Hammer	Purple Hammer	Urethane	69.5	99	70.3	70.2	71.1	70.6	71.1	69.9	69.7	70.9	70.3	69.7	69.1	
2/9/2023	Hammer	Purple Hammer	Urethane	68.0	99	70.1	69.1	69.9	69.9	69.8	69.7	69.7	70.6	70.4	70.5	71.0	
2/10/2023	Hammer	Envy	Reactive	68.6	99	71.5	71.9	71.2	72.8	71.4	71.8	71.5	71.2	71.7	70.9	71.0	
2/10/2023	Hammer	Purple Hammer	Urethane	65.4	99	68.6	68.9	67.8	70.3	69.9	68.2	68.2	68.5	68.0	68.2	68.2	Day after PTQ. After 1st round.
2/14/2023	Hammer	Purple Hammer	Urethane	68.5	99	68.9	69.7	68.4	69.3	68.6	68.7	68.2	68.6	69.2	70.5	68.2	Used 2-2.5 games today. ~30 games total.
2/15/2023	Hammer	Purple Hammer	Urethane	66.0	99	71.0	69.9	70.7	71.7	72.1	72.4	69.5	72.4	69.3	70.8	71.6	Not used today.
2/16/2023	Hammer	Purple Hammer	Urethane	64.1	99	70.7	69.9	72.2	71.5	69.5	70.1	72.0	70.1	71.6	70.1	70.0	Next am.
2/15/2023	Hammer	Purple Hammer	Urethane	70.2	99	70.1	70.0	70.4	72.4	69.2	69.4	69.9	69.5	70.1	69.3	70.8	
2/15/2023	Hammer	Purple Hammer	Urethane	70.4	99	70.1	69.7	70.9	71.8	70.2	69.9	70.4	69.8	69.3	69.5	69.4	
2/15/2023	Hammer	Purple Hammer	Urethane	68.5	99	70.2	69.9	71.1	71.3	70.3	70.3	69.6	69.6	70.3	69.9	69.9	
2/15/2023	Hammer	Attack	Reactive	68.6	99	72.8	72.1	73.5	72.0	74.3	72.0	73.6	72.1	72.0	72.6	73.5	
2/15/2023	Hammer	Purple Hammer	Urethane	66.7	99	70.6	71.6	70.0	70.6	70.4	69.4	69.7	71.6	71.9	70.0	70.4	
2/15/2023	Hammer	Envy Tour	Reactive	68.1	99	72.9	73.7	72.1	72.8	72.6	72.8	73.4	72.0	73.4	72.2	73.7	
2/15/2023	Hammer	Black Widow	Reactive	68.3	99	72.4	71.8	74.0	74.1	72.0	71.4	71.1	73.4	73.1	71.5	72.0	
2/16/2023	Hammer	Purple Hammer	Urethane	65.6	99	70.3	71.8	69.9	69.2	68.6	70.9	70.3	71.1	69.0	71.0	71.1	Drilled, unused, sanded.
2/15/2023	Hammer	Purple Hammer	Urethane	68.1	99	70.3	71.2	71.1	71.9	70.0	72.1	70.0	69.4	69.1	68.8	69.2	~6 shots.
2/16/2023	Hammer	Purple Hammer	Urethane	64.1	99	71.1	70.5	73.5	70.8	70.5	70.9	70.2	72.0	72.5	69.9	70.1	Next am.
2/15/2023	Hammer	Purple Hammer	Urethane	72.5	99	68.7	69.0	69.1	70.1	68.1	69.7	68.1	68.7	68.4	68.7	67.4	Used most of block, ~8games.
2/16/2023	Hammer	Purple Hammer	Urethane	64.1	99	71.5	72.3	70.3	70.4	72.2	71.0	71.7	71.2	72.7	72.7	70.7	Next am.
3/14/2023	Hammer	Purple Hammer	Urethane	67.4	99	69.7	69.7	69.6	70.6	69.5	70.0	69.5	70.0	68.9	70.1	69.1	
3/15/2023	Hammer	Purple Hammer	Urethane	67.4	99	71.0	73.1	70.8	70.1	70.0	70.9	71.0	71.0	73.3	70.6	69.1	Retest the next morning (+1.3HD).
3/14/2023	Hammer	Web	Reactive	66.3	99	72.3	72.4	72.5	72.4	72.6	71.4	72.1	72.3	72.4	72.9	72.0	
3/14/2023	Hammer	Envy Tour	Reactive	68.5	99	71.6	70.3	71.0	71.5	71.3	72.0	71.8	71.5	71.9	73.3	71.6	
3/14/2023	Hammer	Black Widow	Reactive	66.6	99	71.5	71.8	72.1	71.3	71.5	71.4	71.1	71.5	71.3	71.2	71.5	
2/9/2023	Motiv	Purple Tank	Urethane	68.0	99	75.3	76.3	75.5	75.7	75.1	75.5	74.9	75.5	74.7	74.7	75.2	
2/9/2023	Motiv	Black Venom	Reactive	70.0	99	72.7	72.5	73.7	72.6	72.3	72.2	71.9	73.4	72.4	72.8	73.6	
2/9/2023	Motiv	Primal Shock	Reactive	68.4	99	72.9	74.5	72.4	73.0	72.4	73.1	72.2	72.5	72.6	73.9	72.0	
2/10/2023	Motiv	Purple Tank	Urethane	69.0	99	74.2	74.6	74.5	74.9	74.0	73.9	73.7	73.9	74.0	74.1	73.9	
2/10/2023	Motiv	Blue Tank	Reactive	69.2	99	75.8	75.6	76.0	77.0	76.7	74.9	76.5	76.4	75.0	75.1	74.6	
2/15/2023	Motiv	Jackal Ghost	Reactive	69.8	99	72.9	73.9	72.1	71.3	72.5	72.3	73.2	74.6	72.3	71.7	74.9	
2/15/2023	Motiv	Venom Shock	Reactive	71.4	99	72.4	72.8	71.0	71.3	72.7	73.1	73.2	72.8	72.1	72.7	72.4	
2/15/2023	Motiv	Black Venom	Reactive	69.0	99	73.3	72.4	73.3	73.1	73.3	73.3	74.6	73.2	74.7	72.6	72.4	
3/15/2023	Motiv	Black Venom	Reactive	66.8	99	71.6	71.8	71.2	71.8	71.6	71.9	71.6	71.4	71.7	71.4	71.5	
3/15/2023	Motiv	Black Venom	Reactive	67.1	99	72.2	72.3	71.8	72.1	72.7	71.8	72.1	72.0	72.9	71.5	72.8	
3/15/2023	Motiv	Primal Shock	Reactive	67.3	99	71.4	70.7	71.6	71.4	71.3	71.3	72.3	71.9	71.5	71.3	70.5	
3/15/2023	Motiv	Venom	Reactive	67.1	99	72.1	72.9	73.0	72.5	71.6	70.7	72.5	72.0	71.9	72.2	71.9	
2/9/2023	Roto	Idol Cosmos	Reactive	64.5	99	73.5	75.0	74.4	73.5	72.5	73.1	73.1	72.6	73.0	73.6	74.0	

Field Tests - Springfield, Shawnee, TOC, WSOB PBA Stops

Date	Ball Manuf	Ball Name	Ball Type	Avg Temp F	Durometer #	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
2/10/2023	Roto	TNT	Reactive	66.3	99	72.5	72.6	73.1	72.6	72.8	72.1	72.1	72.6	72.5	72.6	71.8	
2/15/2023	Roto	RSTX1	Reactive	68.4	99	73.2	72.9	73.5	73.1	73.5	73.3	74.4	72.8	72.6	73.1	72.8	
2/15/2023	Roto	TNT	Reactive	68.3	99	74.0	73.6	73.5	75.1	75.1	73.2	74.2	74.3	74.4	72.7	74.1	
2/15/2023	Roto	Rubicon UC2	Urethane	68.0	99	72.8	72.5	73.0	72.6	72.8	72.9	72.8	72.4	74.1	72.7	72.6	
3/15/2023	Roto	Idol	Reactive	68.3	99	72.0	73.4	72.2	71.9	71.4	72.2	71.4	71.5	72.1	71.9	71.6	
3/15/2023	Roto	Gem	Reactive	68.8	99	72.0	72.1	72.1	72.2	72.0	71.7	71.8	72.2	72.0	72.0	71.9	
2/10/2023	Storm	Pitch Black	Urethane	69.3	99	70.1	70.0	69.8	69.2	69.1	70.4	70.8	72.2	69.8	69.0	70.2	
2/9/2023	Storm	Pitch Black	Urethane	68.2	99	71.9	72.0	72.8	72.0	72.1	72.1	71.2	72.8	71.5	70.5	71.9	
2/10/2023	Storm	Pitch Black	Urethane	66.9	99	71.4	72.0	70.9	70.4	71.5	69.7	71.9	72.7	72.6	71.5	70.8	
2/10/2023	Storm	Super Nova	Reactive	68.0	99	72.3	72.4	72.5	71.8	72.2	71.9	70.6	72.7	74.0	71.7	73.6	
2/10/2023	Storm	Pitch Black	Urethane	67.0	99	70.5	70.5	70.7	70.4	70.4	70.8	70.5	70.8	70.0	70.2	71.0	
2/10/2023	Storm	Pitch Black	Urethane	67.5	99	70.3	70.9	70.1	72.4	70.4	70.2	69.6	70.1	69.3	70.1	70.0	
2/10/2023	Storm	Pitch Black	Urethane	67.8	99	70.6	69.9	72.8	69.5	70.0	69.8	69.8	72.1	70.6	69.7	71.6	
2/10/2023	Storm	Pitch Black	Urethane	68.0	99	69.8	70.2	69.8	69.3	69.5	70.2	70.3	69.7	69.8	70.1	69.3	
2/10/2023	Storm	IQ Tour Black	Reactive	66.2	99	72.1	72.0	72.0	72.3	71.6	71.2	73.5	73.4	71.7	71.7	71.4	
2/15/2023	Storm	Infinite Physics	Reactive	70.1	99	72.7	72.9	72.9	72.9	73.1	71.8	72.6	72.4	72.6	72.6	72.9	
2/15/2023	Storm	Phaze II	Reactive	68.0	99	72.4	73.2	72.6	72.4	72.4	72.6	72.6	72.2	71.9	72.2	72.3	
2/15/2023	Storm	Fate	Reactive	66.9	99	74.4	74.7	74.2	75.0	74.9	74.1	73.6	73.8	73.8	75.7	74.3	
3/15/2023	Storm	Pitch Black	Urethane	68.1	99	71.0	70.9	70.8	72.1	70.6	70.9	71.1	71.2	70.5	71.0	70.9	
3/14/2023	Storm	Pitch Black	Urethane	64.4	99	71.6	72.8	70.7	70.2	72.2	71.1	70.6	71.4	72.3	72.9	71.8	used 1 game
3/14/2023	Storm	Phase V	Reactive	67.3	99	72.6	73.0	72.6	73.6	72.3	72.7	72.3	71.9	73.0	72.1	72.6	4.5 games today
3/14/2023	Storm	Super Nova	Reactive	63.0	99	73.9	74.3	73.5	73.7	74.6	74.0	74.4	73.3	74.2	72.9	73.9	
3/15/2023	Storm	Pitch Black	Urethane	68.8	99	69.7	69.6	69.9	69.7	70.0	70.0	70.3	69.4	69.0	70.1	69.2	Cleaned w/IPA. Tested @3pm after Rnd 1. (retest in Apr)
3/15/2023	Storm	Pitch Black	Urethane	68.8	99	70.1	70.0	69.6	70.4	70.2	70.0	69.6	69.3	71.6	69.8	70.4	Retested 30 min later (+0.4HD).
3/14/2023	Track	Sensor	Reactive	67.5	99	72.8	74.0	72.6	72.8	73.4	72.5	71.8	73.1	72.6	73.8	71.8	
2/15/2023	Track	Paragon	Reactive	67.0	99	73.6	72.9	74.8	75.0	72.7	73.3	75.3	72.9	73.2	73.2	73.0	
4/10/2023	Hammer	Purple	Urethane	73.5	62	70.1	69.2	70.4	70.1	70.8	70.8	70.1	69.8	69.5	70.8	69.9	
4/10/2023	Ebonite	The One	Reactive	75.9	62	73.9	74.0	73.8	74.3	74.0	73.9	73.6	73.9	73.7	73.4	74.2	
4/10/2023	Hammer	Purple	Urethane	71.9	62	71.0	70.7	70.5	70.9	71.3	70.9	71.8	72.5	69.7	70.8	70.5	
4/10/2023	Hammer	Purple	Urethane	73.2	62	70.5	72.1	69.4	70.8	70.7	70.8	70.4	69.9	71.4	69.7	70.2	
4/10/2023	Hammer	Purple	Urethane	70.8	62	70.1	69.7	70.9	71.1	69.5	70.1	70.3	70.7	68.8	69.1	70.3	
4/10/2023	Track	Stealth	Reactive	70.8	62	73.7	73.8	73.5	74.2	73.4	73.2	73.3	74.2	74.0	73.8	73.4	
4/10/2023	Track	Tundra Fire	Reactive	71.7	62	73.1	73.4	73.0	73.3	72.9	73.4	72.8	73.0	72.8	73.2	73.5	
4/10/2023	Hammer	Purple	Urethane	73.9	62	70.5	70.6	69.8	70.3	70.6	71.1	71.3	70.1	70.8	70.5	70.3	
4/10/2023	Track	Arctype	Reactive	71.2	62	73.3	73.1	73.6	73.1	72.9	73.7	73.3	72.9	73.4	72.8	73.9	
4/10/2023	Hammer	Envy	Reactive	70.8	62	73.4	73.3	73.9	73.8	73.5	73.9	73.4	72.9	72.5	73.2	73.3	
4/10/2023	Hammer	Black Widow Hy 2.0	Reactive	72.5	62	72.9	73.0	73.2	72.2	73.0	72.8	72.7	72.8	72.8	73.5	72.5	
4/10/2023	DV8	Trouble Maker	Reactive	74.8	62	72.7	72.0	72.9	72.2	72.8	73.8	73.2	72.7	72.9	72.5	72.4	
4/10/2023	Storm	Pitch Black	Urethane	72.8	62	73.1	72.9	73.2	73.1	74.3	73.5	73.1	72.4	72.8	72.7	73.1	
4/10/2023	Storm	Revenant	Reactive	72.3	62	74.4	74.8	74.7	74.1	74.4	74.1	74.4	74.6	74.1	74.0	74.3	
4/10/2023	Storm	Super Nova	Reactive	71.9	62	74.2	73.9	74.4	73.6	74.1	73.9	74.6	74.2	74.4	74.3	74.9	
4/10/2023	Hammer	Purple Hammer	Urethane	72.8	62	69.8	68.2	70.3	70.0	70.0	69.2	70.1	69.8	70.0	70.4	69.9	
4/11/2023	Hammer	Purple Hammer	Urethane	71.4	62	70.0	69.6	70.7	70.7	70.6	68.7	70.6	69.8	70.3	69.0	69.6	#2 0930 next am
4/10/2023	Hammer	Purple Hammer	Urethane	75.0	62	69.4	69.3	69.5	70.1	68.5	69.1	70.5	69.2	69.5	69.5	69.2	
4/10/2023	Hammer	Purple Hammer	Urethane	75.0	62	70.0	69.7	70.2	70.4	69.3	69.9	70.0	70.2	70.2	70.2	70.1	Retest (10-15 mins later)
4/10/2023	Storm	Pitch Black	Urethane	73.9	62	71.8	71.6	70.7	72.0	72.0	72.3	71.8	71.9	72.3	71.6	71.7	
4/10/2023	Storm	Pitch Black	Urethane	72.0	62	70.3	70.7	71.1	70.4	70.0	70.3	70.0	69.6	70.5	70.2	70.0	
4/10/2023	Hammer	Purple Hammer	Urethane	71.6	62	70.2	70.4	70.3	70.9	70.4	70.7	70.0	69.0	70.0	70.3	69.7	
4/10/2023	Hammer	Purple Hammer	Urethane	72.6	62	69.7	70.5	69.7	69.7	70.1	69.4	70.3	69.8	68.6	69.3	69.9	
4/11/2023	Hammer	Purple Hammer	Urethane	70.4	62	70.6	70.8	71.4	70.5	70.7	69.8	69.9	71.2	70.7	70.7	70.0	#2 0920 next am
4/10/2023	Hammer	Purple Hammer	Urethane	73.5	62	69.2	69.0	68.9	68.7	69.0	70.1	69.0	68.9	69.9	70.0	68.0	(Used all 10 games today)
4/11/2023	Hammer	Purple Hammer	Urethane	72.1	62	69.8	69.6	70.2	69.4	70.6	69.9	69.4	69.9	69.4	70.0	69.1	#2 0935 next am
4/11/2023	Storm	Pitch Black	Urethane	74.3	62	71.7	70.7	71.8	72.1	71.9	72.0	72.1	71.7	71.0	72.9	71.0	

Field Tests - Springfield, Shawnee, TOC, WSOB PBA Stops

Date	Ball Manuf	Ball Name	Ball Type	Avg Temp F	Durometer #	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
4/11/2023	Hammer	Purple Hammer	Urethane	75.3	62	70.1	71.0	69.5	70.5	69.6	69.6	70.6	69.9	70.4	70.4	69.6	
4/11/2023	Track	Kinetic	Reactive	75.3	62	72.8	73.0	73.2	72.3	72.4	72.8	73.1	73.1	72.3	72.9	72.7	
4/12/2023	Hammer	Purple Hammer	Urethane	73.6	62	71.0	70.4	70.5	71.1	71.6	71.6	71.7	69.5	71.2	71.2	71.6	(used 2-3 games today)
4/12/2023	Hammer	Purple Hammer	Urethane	72.2	62	70.7	70.8	70.6	69.9	70.1	71.0	70.6	70.6	71.7	70.4	71.5	(used 3-4 games today)
4/12/2023	Hammer	Purple Hammer	Urethane	75.0	62	69.9	70.3	70.6	69.0	70.3	69.6	69.7	70.0	69.6	70.4	69.2	#1 315pm (used all 5 games today)
4/12/2023	Hammer	Purple Hammer	Urethane	74.1	62	70.0	70.1	70.2	70.0	69.8	70.5	69.5	69.4	70.3	70.1	70.3	#2 505pm same day
4/12/2023	Hammer	Purple Hammer	Urethane	73.2	62	69.0	68.7	68.4	69.3	69.0	68.9	69.8	67.9	69.7	68.9	69.4	#1 315pm (used all 5 games today)
4/12/2023	Hammer	Purple Hammer	Urethane	73.9	62	68.8	68.4	68.9	69.2	69.0	67.8	68.8	68.6	69.9	69.1	68.4	#2 510pm same day
4/13/2023	Hammer	Purple Hammer	Urethane	73.2	62	69.4	68.8	68.8	69.4	69.4	68.8	71.0	69.8	69.7	69.3	68.5	#3 Next day (4/13) @245pm
4/13/2023	Storm	Pitch Black	Urethane	72.3	62	71.2	71.6	71.7	71.7	71.2	71.1	71.7	71.2	70.6	70.4	70.9	
4/13/2023	Storm	Pitch Black	Urethane	73.0	62	72.0	71.4	71.2	71.5	72.8	72.9	71.7	71.5	72.6	72.2	72.1	
4/13/2023	Storm	Pitch Black	Urethane	72.6	62	73.2	73.5	73.8	73.8	72.0	72.3	73.3	73.9	73.3	73.0	73.0	

New OOB from Truck

Durometer #99

Date	Ball Manuf	Ball Name	Serial Number	Ball Type	Avg Temp F	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
02/14/23	Storm	Pitch Black	23TUBA24G021	Urethane	61.2	73.5	73.4	73.6	73.4	73.9	73.5	72.5	74.3	73.4	73.7	73.1	New OOB unused and uncleaned. Manuf 1/24/23.
02/14/23	Storm	Pitch Black	23TUBA24G021	Urethane	62.0	73.6	73.4	73.3	73.2	73.9	74.9	74.7	73.1	73.5	72.8	73.6	New OOB, unused cleaned w/IPA.
02/14/23	Storm	Pitch Black	23TUBA31B121	Urethane	61.2	72.6	70.4	71.6	72.7	73.0	72.4	73.3	73.0	72.1	74.5	73.2	New OOB unused and uncleaned. Manuf 1/31/23
02/14/23	Storm	Pitch Black	23TUBA31B121	Urethane	62.3	73.5	73.0	73.5	73.6	73.4	73.2	73.5	72.7	74.6	74.2	73.0	New OOB, unused cleaned w/IPA.
02/14/23	Hammer	Purple Hammer	ARH1137G	Urethane	62.8	72.9	74.8	74.6	72.4	72.4	71.7	73.3	72.4	72.7	72.3	72.1	New OOB unused and uncleaned. (JAN '23)
02/14/23	Hammer	Purple Hammer	ARH1137G	Urethane	62.8	72.7	72.4	72.8	72.5	71.9	74.3	72.7	72.8	72.8	72.5	72.5	New OOB, unused cleaned w/IPA.
02/14/23	Hammer	Black Widow 2.0 Hyb	AR31039B	Reactive	63.0	72.3	72.9	72.5	72.0	72.3	72.1	72.4	72.1	72.0	72.3	72.2	New OOB unused and uncleaned. (JAN '23)
02/14/23	Hammer	Envy Tour	MP72041A	Reactive	63.5	72.2	72.8	72.6	72.2	71.8	71.5	72.0	72.1	72.1	72.3	72.1	New OOB unused and uncleaned. DEC '22)
02/15/23	Hammer	Purple Hammer	ARJ1002G	Urethane	65.1	72.5	71.1	71.7	72.1	71.9	74.1	73.1	74.0	72.4	73.1	71.3	New, scribed, undrilled. (JAN, '23)
02/16/23	Storm	Pitch Black	23TUBA24G021	Urethane	58.0	74.1	72.4	75.6	73.0	72.9	75.7	75.5	73.0	73.9	74.9	73.8	New OOB, Retest, Manuf 1/24/23.
02/16/23	Storm	IQ Tour Ruby	23VQBA2510005	Reactive	60.8	72.9	74.0	72.5	72.9	72.5	73.3	74.2	72.4	71.8	72.4	73.1	New OOB, undrilled, uncleaned. Manuf 1/25/23.
02/16/23	Hammer	Purple Hammer	B9911190	Urethane	62.4	72.4	71.9	73.8	71.2	73.0	71.8	71.1	74.0	71.9	71.4	73.9	New, scribed, undrilled. (FEB, '23)
02/16/23	Hammer	Purple Hammer	BRT1049G	Urethane	63.4	72.6	72.6	71.4	72.3	73.2	73.9	73.8	71.8	71.6	73.9	71.2	New, OOB. (FEB '23)
02/14/23	Hammer	Purple Hammer	ARJ1002G	Urethane	63.0	73.1	72.6	73.9	73.5	72.2	73.9	71.8	74.1	74.5	72.2	72.0	New OOB unused and uncleaned. (JAN '23)
02/14/23	Hammer	Purple Hammer	ARJ1002G	Urethane	63.2	72.7	73.2	74.4	74.0	72.3	72.8	72.4	72.4	73.2	71.2	71.4	New OOB, unused cleaned w/IPA.
02/14/23	Hammer	Purple Hammer	ARJ1002G	Urethane	64.2	69.7	70.1	69.0	69.0	69.9	69.7	70.3	70.1	69.7	69.7	69.2	New OOB, wiped w/Absolute Control (Oil).
02/14/23	Hammer	Purple Hammer	ARJ1002G	Urethane	64.2	69.8	69.3	70.2	69.5	69.7	70.3	69.8	70.1	69.7	69.6	69.8	New OOB. Oil cleaned with IPA (some oil still present just below surface)
02/14/23	Hammer	Purple Hammer	ARJ1002G	Urethane	64.2	71.9	70.8	71.3	69.9	73.4	72.3	73.2	72.2	71.5	72.3	71.8	New OOB. Applied oil on indentor, tested clean/unoiled portion of ball.

Lab Research

Date	Ball Manuf	Ball Name	Serial Number	Ball Type	Avg Temp F	Durometer SN	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
03/24/23	Storm	Pitch Black	22TUBJ07F093	Urethane	73.4	62	74.0	75.1	73.8	73.3	73.5	73.4	74.8	75.2	74.0	72.9	73.7	initial test on 3/24
03/24/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.5	62	71.7	72.6	71.6	71.0	70.7	71.2	71.3	72.4	72.1	71.8	72.1	after 10 shots
03/24/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.3	62	72.6	72.7	73.3	72.2	72.3	72.6	72.9	72.4	73.2	72.7	72.0	after 40 total shots
03/24/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.5	62	71.9	73.0	72.3	71.6	71.5	71.7	72.5	72.2	73.0	71.2	70.4	after 70 total shots
03/24/23	Storm	Pitch Black	22TUBJ07F093	Urethane	74.0	62	72.1	73.0	72.2	71.2	72.3	71.5	71.6	72.4	72.9	71.4	72.6	after 100 total shots
03/27/23	Storm	Pitch Black	22TUBJ07F093	Urethane	70.3	62	72.9	72.7	73.1	72.2	73.3	72.8	72.9	72.6	72.9	73.1	73.0	initial 3/27 test (recovery from last test)
03/27/23	Storm	Pitch Black	22TUBJ07F093	Urethane	71.0	62	71.7	71.7	71.9	71.5	71.6	72.7	70.6	72.1	71.8	71.1	71.5	after 10 shots (110 cumulative on this ball)
03/27/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.3	62	71.6	71.9	71.3	71.7	72.2	72.4	71.9	70.9	71.5	70.7	71.2	after 40 total shots (140 cumulative)
03/27/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.5	62	71.7	72.0	71.1	71.5	71.6	70.8	71.9	72.2	71.8	71.3	72.5	after 70 total shots (170 cumulative)
03/27/23	Storm	Pitch Black	22TUBJ07F093	Urethane	73.2	62	70.8	70.7	70.8	70.7	70.6	70.5	71.5	70.9	71.0	71.2	70.3	after 100 total shots (200 cumulative)
03/29/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.0	62	72.5	72.6	72.5	73.0	72.2	71.8	73.0	73.3	72.4	72.5	71.9	initial 3/29 test
03/29/23	Storm	Pitch Black	22TUBJ07F093	Urethane	71.8	62	72.1	72.0	71.9	72.0	72.3	71.9	71.2	72.9	72.2	72.1	72.5	after 10 shots (210 cumulative)
03/29/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.2	62	71.8	72.7	72.1	71.7	71.5	71.8	71.6	71.9	71.2	71.5	71.6	after 40 total shots (240 cumulative)
03/29/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.0	62	71.6	72.7	71.2	71.3	71.6	71.4	71.5	71.7	71.3	71.8	71.2	after 70 total shots (270 cumulative)
03/29/23	Storm	Pitch Black	22TUBJ07F093	Urethane	71.5	62	71.4	72.1	70.7	71.5	71.4	70.9	71.1	72.2	71.9	71.0	71.3	after 100 total shots (300 cumulative)
03/31/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.3	62	72.6	72.8	73.0	73.2	72.6	71.5	71.9	72.7	72.5	72.6	73.1	initial 3/31 test
03/31/23	Storm	Pitch Black	22TUBJ07F093	Urethane	71.7	62	72.5	72.6	72.5	72.0	72.3	72.8	72.0	73.2	73.0	72.4	71.8	after 10 shots (310 cumulative)
03/31/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.0	62	72.3	72.9	72.5	72.9	71.8	71.1	71.9	71.8	72.9	72.7	72.3	after 40 total shots (340 cumulative)
03/31/23	Storm	Pitch Black	22TUBJ07F093	Urethane	72.0	62	72.4	72.3	71.8	72.3	72.6	72.7	72.4	72.6	71.5	72.6	72.7	after 70 total shots (370 cumulative)
03/31/23	Storm	Pitch Black	22TUBJ07F093	Urethane	71.5	62	72.7	72.8	72.6	72.3	73.3	72.6	73.7	72.6	73.7	71.1	72.5	after 100 total shots (400 cumulative)
04/03/23	Storm	Pitch Black	22TUBJ07F093	Urethane	71.5	62	72.8	73.5	73.1	72.9	73.1	72.1	71.7	72.6	72.8	72.8	73.6	Initial 4/3 only.
03/20/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	71.5	62	74.4	74.2	74.6	73.6	73.9	74.3	74.9	74.5	74.4	74.8	74.7	initial OOB test 3/20
03/24/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	73.5	62	73.8	73.7	74.0	73.8	74.5	73.6	73.7	73.5	73.5	73.6	73.7	initial 3/24 test
03/24/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	74.0	62	73.4	73.5	73.3	73.7	72.5	73.2	73.6	73.7	73.6	73.6	73.4	10 shots on Approach
03/27/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	73.0	62	73.7	73.5	73.9	73.7	73.2	73.3	73.8	74.3	73.3	74.3	73.3	initial 3/27 test
03/27/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	74.0	62	73.4	73.9	73.5	73.2	73.0	73.2	73.6	72.8	74.0	73.2	73.7	after 10 shots
03/27/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	74.5	62	72.6	72.2	73.2	72.8	72.6	72.4	72.7	72.8	72.3	72.7	72.7	after 40 total shots
03/27/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	75.0	62	72.4	72.0	72.8	72.4	72.5	72.5	71.8	72.2	72.3	72.8	72.3	after 70 total shots
03/27/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	75.3	62	72.4	72.8	72.6	72.3	72.4	72.3	72.0	72.8	72.3	72.4	72.5	after 100 total shots
03/29/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	72.5	62	73.6	73.6	73.7	73.6	73.7	74.0	72.9	73.7	73.3	74.1	73.7	initial 3/29 test
03/29/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	73.5	62	73.4	73.5	73.8	71.9	73.6	72.7	73.5	73.7	73.8	73.5	73.5	after 10 shots (110 cumulative on this ball)
03/29/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	73.0	62	72.9	72.5	73.0	73.0	72.4	73.1	73.5	73.2	73.1	72.2	73.4	after 40 total shots (140 cumulative)
03/29/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	75.0	62	72.7	73.5	72.9	72.5	72.0	72.8	73.0	73.1	72.4	72.7	72.3	after 70 total shots (170 cumulative)
03/29/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	76.0	62	72.4	73.4	72.4	71.9	72.7	72.4	72.0	72.6	72.3	72.5	72.1	after 100 total shots (200 cumulative)
03/31/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	72.0	62	73.7	74.1	73.7	73.7	73.5	73.5	73.4	73.7	73.8	73.7	74.1	initial 3/31 test only
03/24/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.1	62	73.8	73.5	73.8	74.0	74.1	73.6	74.3	73.6	73.3	74.2	74.0	initial OOB test 3/24
03/24/23	Hammer	Purple Hammer	ARH2005H	Urethane	70.0	62	71.0	70.5	70.8	70.3	71.4	70.5	71.1	72.0	71.5	71.0	71.1	10 shots on Approach
03/24/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.0	62	70.8	70.6	70.9	71.6	71.7	70.7	70.2	70.0	71.0	71.3	69.9	after 10 shots
03/24/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.5	62	71.0	70.8	70.5	71.5	70.7	70.6	71.2	71.6	71.6	70.6	70.4	after 40 total shots
03/24/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.5	62	70.9	70.5	70.8	70.5	70.8	71.7	70.7	71.5	71.0	70.9	70.1	after 70 total shots
03/24/23	Hammer	Purple Hammer	ARH2005H	Urethane	74.0	62	70.6	70.8	71.2	70.3	69.3	70.2	71.3	70.2	71.5	70.5	70.4	after 100 total shots
03/27/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.5	62	72.6	72.5	73.1	73.0	72.6	73.1	71.8	72.9	71.6	72.4	72.7	initial 3/27 test
03/27/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.5	62	71.1	70.9	71.9	72.4	71.6	70.3	70.7	71.5	70.0	71.9	69.8	after 10 shots (110 cumulative on this ball)
03/27/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.8	62	70.2	70.8	69.9	71.0	68.8	69.8	69.5	70.9	70.6	70.7	70.0	after 40 total shots (140 cumulative)
03/27/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.2	62	70.2	70.1	70.7	70.9	70.0	70.1	69.7	70.7	69.2	69.8	70.3	after 70 total shots (170 cumulative)
03/27/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.5	62	69.9	70.1	70.2	69.9	69.7	70.1	69.7	70.1	69.8	70.2	69.2	after 100 total shots (200 cumulative)
03/27/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.0	62	70.4	70.0	69.6	70.9	70.4	70.2	69.9	70.7	70.8	70.6	70.5	after 130 total shots (230 cumulative)
03/29/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.3	62	71.3	71.5	71.1	70.4	71.7	71.0	71.1	71.9	71.3	71.5	71.0	initial 3/29 test
03/29/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.5	62	71.4	71.3	71.5	70.9	71.0	71.4	71.4	72.5	70.7	71.5	71.4	after 10 shots (240 cumulative)
03/29/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.2	62	70.6	70.0	70.2	70.9	70.3	71.2	70.6	71.7	70.3	70.4	70.0	after 40 total shots (270 cumulative)
03/29/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.8	62	70.2	70.3	71.0	70.8	69.8	69.6	70.0	70.6	70.5	69.7	70.0	after 70 total shots (300 cumulative)
03/29/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.0	62	70.3	69.0	70.1	70.2	69.8	70.6	70.4	70.7	70.5	70.7	70.6	after 100 total shots (330 cumulative)

Lab Research

Date	Ball Manuf	Ball Name	Serial Number	Ball Type	Avg Temp F	Durometer SN	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
03/31/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.5	62	71.1	71.3	71.4	71.6	71.5	71.2	70.5	70.3	71.2	71.1	71.2	initial 3/31 test
03/31/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.8	62	71.7	72.3	72.0	71.2	72.0	70.8	71.9	70.8	72.1	71.9	71.7	after 10 shots (340 cumulative)
03/31/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.5	62	71.2	71.9	70.6	71.8	71.5	71.1	71.7	71.1	70.1	71.3	71.0	after 40 total shots (370 cumulative)
03/31/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.0	62	71.2	71.5	70.8	71.7	70.9	71.1	71.4	71.9	70.8	70.7	71.3	after 70 total shots (400 cumulative)
03/31/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.0	62	70.9	70.8	70.7	70.5	70.8	71.0	71.3	70.9	71.9	70.4	71.0	after 100 total shots (430 cumulative)
04/03/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.5	62	71.1	71.3	71.1	70.8	71.5	71.7	70.7	71.1	70.9	71.0	70.7	initial 4/3 test
04/03/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.0	62	71.0	70.2	71.6	69.8	71.2	71.3	71.4	71.2	70.9	71.4	70.5	after 10 shots (440 cumulative)
04/03/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.8	62	70.8	71.2	69.8	71.4	70.3	71.2	71.8	70.8	70.9	70.5	70.4	after 40 total shots (470 cumulative)
04/03/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.6	62	70.7	70.6	71.5	70.0	71.0	70.5	69.8	71.4	70.8	70.7	70.4	after 70 total shots (500 cumulative)
04/03/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.8	62	70.5	70.6	70.7	71.9	70.2	70.8	70.4	70.5	69.6	69.5	70.8	after 100 total shots (530 cumulative)
04/03/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.0	62	70.4	71.0	70.2	71.0	69.3	70.0	69.9	71.8	70.7	70.8	69.1	after 130 total shots (560 cumulative)
04/03/23	Hammer	Purple Hammer	ARH2005H	Urethane	74.0	62	70.2	69.1	69.2	70.3	70.5	71.4	70.4	70.0	70.5	70.9	69.8	after 160 total shots (590 cumulative)
04/03/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.8	62	70.1	69.3	70.2	69.4	70.2	70.4	70.3	70.7	70.0	70.0	70.0	after 190 total shots (620 cumulative)
04/05/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.3	62	70.7	69.8	71.0	70.5	70.1	71.6	71.0	71.0	70.8	70.2	70.8	initial 4/5 test
04/05/23	Hammer	Purple Hammer	ARH2005H	Urethane	71.0	62	70.5	71.2	70.7	70.0	69.3	70.3	71.6	70.8	70.6	70.0	70.3	after 10 shots (630 cumulative)
04/05/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.0	62	69.8	69.7	69.3	68.9	69.5	69.8	70.1	69.9	70.1	69.9	70.6	after 40 total shots (660 cumulative)
04/05/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.5	62	70.1	70.5	70.4	69.8	69.7	70.2	69.8	70.2	70.0	70.3	70.0	after 70 total shots (690 cumulative)
04/05/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.2	62	70.3	70.9	70.3	70.1	70.4	70.3	70.0	70.5	70.6	70.6	69.7	after 100 total shots (720 cumulative)
04/05/23	Hammer	Purple Hammer	ARH2005H	Urethane	74.0	62	69.8	69.1	70.3	70.1	70.3	70.1	69.3	68.9	70.7	69.6	69.8	after 130 total shots (750 cumulative)
04/05/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.5	62	69.4	68.7	69.9	68.8	68.5	70.3	68.5	69.6	69.6	69.6	70.0	after 160 total shots (780 cumulative)
04/05/23	Hammer	Purple Hammer	ARH2005H	Urethane	74.0	62	69.8	69.6	70.1	70.0	69.7	70.5	69.6	70.9	69.1	68.4	70.1	after 190 total shots (810 cumulative)
05/01/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.8	62	71.4	71.1	71.4	70.6	71.6	71.7	68.7	72.9	71.6	72.4	71.7	initial 5/1 test
05/01/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.2	62	70.2	70.0	70.5	70.5	69.6	69.5	70.4	69.9	70.9	70.6	70.3	after 10 shots (820 cumulative)
05/01/23	Hammer	Purple Hammer	ARH2005H	Urethane	74.0	62	70.1	69.3	70.7	70.5	69.5	70.2	69.4	70.3	69.6	70.8	70.5	after 40 total shots (850 cumulative)
05/01/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.7	62	69.9	69.1	70.5	70.5	70.6	69.6	69.5	69.4	70.4	69.7	69.2	after 70 total shots (880 cumulative)
05/01/23	Hammer	Purple Hammer	ARH2005H	Urethane	75.0	62	69.8	69.5	69.5	70.7	69.9	69.4	69.2	69.7	69.9	70.2	70.1	after 100 total shots (910 cumulative)
05/01/23	Hammer	Purple Hammer	ARH2005H	Urethane	74.3	62	69.4	70.8	70.1	68.9	69.6	68.9	69.4	69.1	68.9	69.5	69.2	after 130 total shots (930 cumulative)
05/01/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.4	62	70.4	69.5	70.3	71.0	70.3	70.9	70.4	70.7	69.8	70.6	70.8	after 160 total shots (960 cumulative)
05/01/23	Hammer	Purple Hammer	ARH2005H	Urethane	74.0	62	69.9	70.8	69.9	69.3	69.5	69.5	70.1	70.2	69.7	70.0	69.6	after 190 total shots (990 cumulative)
05/22/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.2	62	72.1	73.3	72.1	71.0	73.8	71.6	71.9	71.7	71.1	72.2	72.6	initial 5/22 test
05/22/23	Hammer	Purple Hammer	ARH2005H	Urethane	73.9	62	70.2	70.9	70.2	68.9	71.3	70.0	69.7	71.0	70.1	71.1	69.1	after 10 shots (1000 cumulative)
05/22/23	Hammer	Purple Hammer	ARH2005H	Urethane	75.7	62	69.6	69.2	68.0	70.6	70.5	69.1	69.2	70.9	69.3	69.6	70.0	after 40 total shots (1030 cumulative)
05/22/23	Hammer	Purple Hammer	ARH2005H	Urethane	76.4	62	70.3	70.0	70.3	69.9	69.1	71.3	70.3	71.6	70.5	69.4	70.8	after 70 total shots (1060 cumulative)
05/22/23	Hammer	Purple Hammer	ARH2005H	Urethane	76.6	62	69.6	68.8	68.7	69.1	70.7	69.4	72.2	70.1	69.3	69.2	68.2	after 100 total shots (1090 cumulative)
05/22/23	Hammer	Purple Hammer	ARH2005H	Urethane	77.0	62	69.1	69.0	69.1	67.7	69.4	69.1	69.5	69.5	69.1	69.8	68.9	after 130 total shots (1120 cumulative)
03/20/23	Storm	Pitch Black	23TUBB24J001	Urethane	70.3	62	73.5	73.1	73.4	74.0	74.7	74.0	73.2	73.2	72.9	72.4	73.9	Initial OOB test
03/20/23	Storm	Pitch Black	23TUBB24J001	Urethane	74.6	62	71.2	71.7	71.9	71.8	71.7	70.0	70.9	71.4	70.2	70.8	71.1	after 10 approach shots (no oil)
03/20/23	Storm	Pitch Black	23TUBB24J001	Urethane	71.2	62	71.4	72.0	70.9	71.8	72.8	71.0	71.2	71.4	71.4	70.8	71.1	After 10 shots
03/20/23	Storm	Pitch Black	23TUBB24J001	Urethane	74.6	62	70.5	69.5	70.8	70.7	71.8	70.8	70.2	70.6	70.0	70.4	69.7	after 40 total shots
03/20/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.2	62	70.7	70.8	70.0	71.0	70.8	71.2	70.4	70.9	70.0	70.6	70.8	after 70 total shots
03/20/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.1	62	70.6	70.1	70.3	70.9	71.8	70.8	70.5	71.0	70.4	69.9	70.7	after 100 total shots
03/24/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.0	62	70.3	70.3	70.9	71.2	70.6	70.1	68.7	70.4	70.2	70.3	70.5	initial 3/24 test
03/24/23	Storm	Pitch Black	23TUBB24J001	Urethane	74.0	62	70.1	69.7	69.5	70.8	71.1	70.7	69.2	69.9	70.7	69.6	70.0	after 10 shots (110 cumulative)
03/24/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.5	62	70.8	71.0	70.6	71.7	71.3	69.9	70.3	70.2	71.0	71.5	70.6	after 40 total shots (140 cumulative)
03/24/23	Storm	Pitch Black	23TUBB24J001	Urethane	74.0	62	70.4	70.3	70.7	71.0	71.4	69.5	70.0	69.7	70.4	70.9	69.9	after 70 total shots (170 cumulative)
03/24/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.5	62	70.6	71.3	70.4	71.1	70.9	70.1	69.9	70.3	71.1	69.8	70.8	after 100 total shots (200 cumulative)
03/27/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.0	62	71.3	70.9	71.2	71.4	72.2	71.5	71.4	71.5	71.3	70.9	71.1	initial 3/27 test
03/27/23	Storm	Pitch Black	23TUBB24J001	Urethane	72.0	62	71.1	70.3	71.2	71.7	71.3	71.6	71.6	70.8	70.3	70.8	71.0	after 10 shots (210 cumulative)
03/27/23	Storm	Pitch Black	23TUBB24J001	Urethane	71.7	62	70.4	71.0	69.8	71.5	70.9	70.1	69.3	70.3	70.3	70.8	70.2	after 40 total shots (240 cumulative)
03/27/23	Storm	Pitch Black	23TUBB24J001	Urethane	72.6	62	70.1	69.6	70.1	70.3	70.4	70.6	70.2	70.1	69.5	70.0	69.7	after 70 total shots (270 cumulative)
03/27/23	Storm	Pitch Black	23TUBB24J001	Urethane	72.5	62	69.9	69.7	70.4	69.9	70.2	69.1	69.9	70.1	70.3	69.5	69.7	after 100 total shots (300 cumulative)

Lab Research

Date	Ball Manuf	Ball Name	Serial Number	Ball Type	Avg Temp F	Durometer SN	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
03/29/23	Storm	Pitch Black	23TUBB24J001	Urethane	71.8	62	70.9	70.8	70.3	71.9	71.3	71.1	71.3	70.8	70.8	70.3	70.2	initial 3/29 test
03/29/23	Storm	Pitch Black	23TUBB24J001	Urethane	72.3	62	71.4	71.3	71.5	71.7	71.0	72.0	71.1	71.6	71.7	71.2	70.5	after 10 shots (310 cumulative)
03/29/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.2	62	70.6	70.1	70.6	71.1	70.7	71.1	71.2	69.6	70.4	70.0	71.1	after 40 total shots (340 cumulative)
03/29/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.5	62	70.3	70.6	69.9	70.6	70.9	70.2	70.1	69.7	69.1	70.5	70.9	after 70 total shots (370 cumulative)
03/29/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.0	62	71.1	71.0	69.9	71.3	71.4	71.1	71.1	71.6	71.4	70.8	71.0	after 100 total shots (400 cumulative)
04/03/23	Storm	Pitch Black	23TUBB24J001	Urethane	71.5	62	71.0	69.6	69.9	71.5	71.1	72.4	71.9	70.4	70.7	71.5	71.4	initial 4/3 test
04/03/23	Storm	Pitch Black	23TUBB24J001	Urethane	72.0	62	71.9	71.6	73.0	72.0	72.0	71.1	72.0	71.0	71.0	72.5	72.5	after 10 shots (410 cumulative)
04/03/23	Storm	Pitch Black	23TUBB24J001	Urethane	72.7	62	70.6	70.6	70.7	70.6	72.0	70.5	69.5	70.2	71.2	70.9	69.9	after 40 total shots (440 cumulative)
04/03/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.5	62	70.7	70.2	70.3	71.5	70.5	71.5	69.6	70.4	71.0	70.7	71.4	after 70 total shots (470 cumulative)
04/03/23	Storm	Pitch Black	23TUBB24J001	Urethane	74.0	62	70.4	70.3	70.0	71.0	70.3	70.6	70.5	70.4	69.4	70.0	71.2	after 100 total shots (500 cumulative)
04/03/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.2	62	69.9	70.0	69.4	70.0	70.7	70.0	69.5	70.0	70.2	69.6	69.7	after 130 total shots (530 cumulative)
04/03/23	Storm	Pitch Black	23TUBB24J001	Urethane	74.0	62	68.9	69.3	68.8	69.0	70.1	69.2	68.1	69.0	68.6	68.6	68.1	after 160 total shots (560 cumulative)
04/03/23	Storm	Pitch Black	23TUBB24J001	Urethane	75.0	62	70.5	70.7	71.2	70.6	71.1	70.2	70.4	70.1	69.9	70.2	70.1	after 190 total shots (590 cumulative)
05/01/23	Storm	Pitch Black	23TUBB24J001	Urethane	65.8	62	71.5	71.6	71.5	72.3	72.1	71.1	71.7	70.8	70.9	71.1	71.5	initial 5/1 test
05/01/23	Storm	Pitch Black	23TUBB24J001	Urethane	67.0	62	71.5	71.5	71.0	72.0	71.5	71.7	71.0	71.8	71.7	71.5	71.6	after 10 shots (600 cumulative)
05/01/23	Storm	Pitch Black	23TUBB24J001	Urethane	69.6	62	70.7	70.6	70.9	70.5	71.1	70.9	70.9	70.9	70.4	70.6	70.4	after 40 total shots (630 cumulative)
05/01/23	Storm	Pitch Black	23TUBB24J001	Urethane	70.2	62	71.0	71.3	70.6	71.0	71.4	71.5	70.6	71.0	71.5	70.8	70.6	after 70 total shots (660 cumulative)
05/01/23	Storm	Pitch Black	23TUBB24J001	Urethane	72.3	62	70.3	69.3	70.4	70.5	70.3	70.0	69.9	70.6	70.7	70.9	70.4	after 100 total shots (690 cumulative)
05/01/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.8	62	70.2	69.6	69.7	70.3	71.4	71.0	69.7	69.8	70.2	70.2	70.3	after 130 total shots (720 cumulative)
05/01/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.7	62	70.6	70.9	69.8	71.2	70.7	70.3	70.6	70.7	70.6	70.8	70.5	after 160 total shots (750 cumulative)
05/01/23	Storm	Pitch Black	23TUBB24J001	Urethane	73.0	62	70.0	70.2	69.5	70.1	70.3	70.5	69.4	69.6	70.4	70.4	69.9	after 190 total shots (780 cumulative)
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	70.1	62	74.5	74.7	75.1	74.3	74.0	75.6	74.6	73.5	74.2	74.4	74.2	Initial OOB test - 3/20
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.4	62	71.9	71.2	71.6	72.0	72.1	73.0	72.6	72.0	72.0	71.3	70.9	After 10 shots on the approach
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	71.9	62	72.8	73.8	72.5	72.7	73.2	73.4	71.2	72.1	73.0	72.5	73.1	Post drill, zero lineage (1hr later)
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.2	62	70.4	70.0	71.0	70.0	70.8	70.9	70.3	70.1	70.1	70.2	70.6	after 10 shots
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	74.1	62	70.4	69.3	70.5	70.9	70.7	70.0	70.9	70.5	70.6	70.2	70.7	after 40 total shots
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.7	62	70.4	70.1	71.4	70.3	71.2	71.1	70.7	69.7	70.0	70.1	69.6	after 70 total shots
03/23/23	Hammer	Purple Hammer	ARH1168C	Urethane	74.6	62	71.2	71.2	72.2	71.4	71.5	71.2	71.1	71.0	69.9	71.7	71.1	initial 3/23
03/24/23	Hammer	Purple Hammer	ARH1168C	Urethane	71.5	62	71.8	71.6	72.6	72.4	71.7	71.4	71.8	72.5	71.9	70.5	71.3	initial 3/24 test
03/24/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.0	62	71.2	71.6	71.7	70.7	70.9	71.5	71.3	71.2	71.6	71.3	70.3	after 10 shots (80 cumulative)
03/24/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.5	62	71.0	71.5	71.0	71.2	71.9	72.2	71.1	69.4	70.1	70.6	71.3	after 40 total shots (110 cumulative)
03/24/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.0	62	70.7	70.5	70.7	71.5	71.0	70.4	70.5	70.4	70.6	71.1	70.6	after 70 total shots (140 cumulative)
03/24/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.5	62	70.9	70.1	70.6	71.0	70.9	71.8	70.8	71.1	70.6	71.3	71.2	after 100 total shots (170 cumulative)
03/27/23	Hammer	Purple Hammer	ARH1168C	Urethane	72.5	62	72.0	71.6	72.0	72.2	72.4	72.7	71.3	72.2	71.8	71.0	72.5	initial 3/27 test
03/27/23	Hammer	Purple Hammer	ARH1168C	Urethane	72.2	62	71.2	70.0	71.1	71.8	72.0	71.1	69.9	70.4	71.7	72.0	71.9	after 10 shots (180 cumulative)
03/27/23	Hammer	Purple Hammer	ARH1168C	Urethane	72.7	62	70.5	70.0	71.4	70.8	71.6	69.9	69.2	69.6	70.8	70.9	70.5	after 40 total shots (210 cumulative)
03/27/23	Hammer	Purple Hammer	ARH1168C	Urethane	75.0	62	70.6	69.8	70.2	70.9	71.1	70.6	69.9	70.2	71.3	70.6	70.9	after 70 total shots (240 cumulative)
03/27/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.5	62	70.5	70.0	70.5	71.0	70.6	69.6	69.0	70.7	71.3	71.5	70.7	after 100 total shots (270 cumulative)
03/29/23	Hammer	Purple Hammer	ARH1168C	Urethane	71.7	62	71.6	71.1	72.1	72.0	71.4	71.2	71.0	71.5	72.0	71.7	72.1	initial 3/29 test
03/29/23	Hammer	Purple Hammer	ARH1168C	Urethane	72.0	62	71.2	71.2	70.1	72.2	71.8	70.9	70.3	71.6	70.7	71.2	71.5	after 10 shots (280 cumulative)
03/29/23	Hammer	Purple Hammer	ARH1168C	Urethane	71.8	62	71.2	70.5	71.4	71.8	70.5	71.6	70.6	71.2	70.6	71.6	71.7	after 40 total shots (310 cumulative)
03/29/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.0	62	70.3	69.6	70.0	70.9	70.5	70.3	69.8	70.1	70.3	70.5	70.7	after 70 total shots (340 cumulative)
03/29/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.5	62	70.2	70.3	70.9	69.7	70.9	69.9	69.8	70.4	70.0	69.3	71.2	after 100 total shots (370 cumulative)
04/03/23	Hammer	Purple Hammer	ARH1168C	Urethane	72.0	62	72.1	71.2	72.8	71.2	73.0	72.0	73.1	72.4	72.5	71.6	71.4	Initial 4/3 only.

Lab Research

Date	Ball Manuf	Ball Name	Serial Number	Ball Type	Avg Temp F	Durometer SN	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
03/29/23	FabBall	Purple Hammer	2BOI7622	Urethane	71.5	99	76.1	73.7	75.0	75.4	73.8	75.4	77.4	76.3	78.4	78.8	76.3	initial 3/29 test (Used)
03/31/23	FabBall	Purple Hammer	2BOI7622	Urethane	71.5	99	76.5	76.2	76.4	76.5	77.1	76.5	76.3	76.6	76.1	76.3	76.6	After 10 shots on 3/31
03/31/23	FabBall	Purple Hammer	2BOI7622	Urethane	72.0	99	76.4	76.6	76.8	76.0	76.2	76.8	76.5	77.0	75.4	75.9	76.3	after 40 total shots
03/31/23	FabBall	Purple Hammer	2BOI7622	Urethane	71.0	99	75.4	75.3	75.7	75.6	74.9	74.4	74.8	76.0	76.2	75.9	75.5	after 70 total shots
03/31/23	FabBall	Purple Hammer	2BOI7622	Urethane	71.7	99	75.6	76.1	75.5	75.7	75.5	75.8	75.7	75.7	75.5	75.3	75.0	after 100 total shots
04/03/23	FabBall	Purple Hammer	2BOI7622	Urethane	73.0	99	76.7	77.0	77.5	77.2	76.6	75.7	76.6	75.7	76.2	76.6	77.4	Initial 4/3 only.
03/31/23	AMF	Bobcat	O3C1106	Urethane	71.5	99	76.7	76.9	77.1	76.8	77.1	77.0	77.1	76.8	75.7	76.6	76.3	initial 3/31 test
03/31/23	AMF	Bobcat	O3C1106	Urethane	72.0	99	74.7	74.5	75.7	75.0	74.9	74.5	74.3	74.5	74.7	75.1	74.2	after 10 shots
03/31/23	AMF	Bobcat	O3C1106	Urethane	72.5	99	75.0	75.2	75.1	75.4	75.1	75.4	74.5	75.6	74.9	73.7	75.0	after 40 total shots
03/31/23	AMF	Bobcat	O3C1106	Urethane	72.0	99	74.6	75.5	75.3	74.5	74.7	74.5	74.7	75.0	74.4	73.6	73.5	after 70 total shots
03/31/23	AMF	Bobcat	O3C1106	Urethane	71.5	99	74.7	75.8	75.7	75.3	73.7	74.6	75.0	74.9	74.5	73.6	73.7	after 100 total shots
04/03/23	AMF	Bobcat	O3C1106	Urethane	72.7	99	75.9	74.3	75.5	76.4	76.5	76.0	75.3	76.3	75.9	76.3	76.2	Initial 4/3 only.
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	71.5	62	74.3	74.5	74.6	74.5	74.1	73.2	73.5	73.8	74.9	75.0	74.4	initial OOB test 4/6
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	71.5	62	74.0	73.1	74.2	75.2	74.0	74.9	75.3	74.1	72.4	73.9	72.8	After Determinator test (2 min)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	72.0	62	74.2	74.1	74.4	74.9	74.5	74.5	74.0	74.5	74.1	73.6	73.4	After 2nd Determinator test (another 2 min)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	72.7	62	72.3	72.8	73.4	72.8	72.1	71.5	70.9	72.7	72.6	72.6	72.0	After 10 shots on dry lane (no oil, down ramp)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	72.6	62	71.6	71.8	71.6	71.4	71.4	71.5	71.8	71.8	71.4	71.9	71.4	After 20 shots on dry lane (no oil, down ramp)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	73.6	62	71.4	72.5	71.6	71.7	71.9	71.0	72.0	70.9	70.8	70.9	70.7	After 30 shots on dry lane (no oil, down ramp)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	73.0	62	71.6	71.3	71.5	71.9	72.4	71.4	72.4	71.4	71.1	71.6	71.3	After 40 shots on dry lane (no oil, down ramp)

Lab Testing & Research

Date	Ball Manuf	Ball Name	Serial Number	Ball Type	Avg Temp F	Durometer SN	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
03/06/23	Storm	Pitch Black	22TUBJ07H013	Urethane	71.0	99	72.8	72.4	73.8	73.0	72.4	73.0	73.6	72.9	72.0	71.9	73.1	A99. Compare testers and durometers. Initial OOB
03/06/23	Storm	Pitch Black	22TUBJ07H013	Urethane	71.3	99	72.6	72.6	71.9	72.4	72.4	73.0	72.5	71.0	73.2	72.5	74.3	B99.
03/06/23	Storm	Pitch Black	22TUBJ07H013	Urethane	71.0	62	74.8	74.9	74.8	74.9	75.8	75.0	74.5	74.7	73.8	74.5	75.5	A62.
03/06/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.6	62	74.7	74.1	74.8	75.0	74.6	75.5	75.0	74.4	74.6	74.5	74.4	A62. Comparisons. Initial OOB
03/06/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.6	62	74.5	74.9	75.2	75.1	75.0	74.9	73.8	73.5	73.2	74.6	74.8	B62
03/06/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.6	99	72.9	71.4	73.5	72.0	73.0	73.4	73.1	74.4	72.4	72.5	72.8	A99
03/06/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.6	99	72.5	72.4	72.0	72.3	72.5	72.6	72.6	72.5	72.1	73.4	72.2	B99.
03/06/23	Hammer	Purple Hammer	CPJG10183	Urethane	67.4	62	72.4	71.4	73.1	73.0	73.4	72.2	71.7	71.5	73.4	71.6	73.0	A62. Old Hopkinsville Hammer.
03/06/23	Hammer	Purple Hammer	CPJG10183	Urethane	69.0	62	71.5	72.3	71.3	71.9	71.1	72.2	71.3	71.5	71.5	70.7	71.3	B62.
03/06/23	Hammer	Purple Hammer	CPJG10183	Urethane	69.4	62	73.2	72.5	74.2	73.1	72.2	73.7	72.9	72.1	73.2	73.2	75.1	B62. cleaned ball w/IPA(99).
03/06/23	Hammer	Purple Hammer	CPJG10183	Urethane	70.0	62	72.9	72.6	73.3	72.7	72.9	73.3	74.0	71.5	72.2	73.6	72.9	B62. Cleaned indentor after each reading.
03/06/23	Hammer	Purple Hammer	CPJG10183	Urethane	67.4	99	70.8	70.0	71.1	71.4	72.3	70.0	69.3	71.6	72.5	69.9	70.2	A99
03/06/23	Hammer	Purple Hammer	CPJG10183	Urethane	69.4	99	70.2	70.6	70.6	70.3	69.9	69.1	70.1	69.5	69.8	70.3	71.6	B99.
03/06/23	Hammer	Purple Hammer	ARH1168C	Urethane	71.1	62	74.6	74.0	74.2	74.1	74.6	74.1	74.4	74.8	75.2	74.9	75.9	A62. OOB
03/06/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.0	62	74.3	73.0	74.1	73.7	74.8	74.1	74.8	74.1	74.6	74.1	75.5	B62 OOB
03/06/23	Hammer	Purple Hammer	ARH1168C	Urethane	71.1	99	72.6	72.7	72.5	72.7	72.9	72.7	72.5	72.8	72.9	72.7	71.8	A99. OOB
03/06/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.0	99	72.8	73.4	72.5	72.4	72.5	72.8	72.6	72.7	72.5	73.2	73.4	B62. OOB
03/06/23	Storm	Pitch Black	22TUBJ07F093	Urethane	70.4	62	75.5	76.4	75.7	75.4	75.8	75.2	74.6	75.2	75.5	76.2	74.5	A62. OOB
03/06/23	Storm	Pitch Black	22TUBJ07F093	Urethane	71.7	99	73.1	73.6	73.1	72.9	73.0	72.6	73.2	73.5	73.3	73.3	72.5	A99. OOB
03/06/23	Hammer	Purple Hammer	CPJG1119	Urethane	70.5	62	74.5	74.4	74.8	75.3	74.2	74.7	73.8	74.1	73.4	75.0	75.3	A62. OOB
03/06/23	Hammer	Purple Hammer	CPJG1119	Urethane	70.3	99	72.8	72.7	72.8	73.7	72.3	73.0	72.5	72.7	72.6	73.1	73.0	A99. OOB
03/06/23	Storm	Pitch Black	22TUBJ07D016	Urethane	70.7	62	75.0	74.4	74.9	75.1	74.6	75.1	75.4	74.6	75.8	75.6	74.9	A62. OOB
03/06/23	Storm	Pitch Black	22TUBJ07D016	Urethane	71.2	99	73.3	72.3	72.9	73.6	72.9	73.7	74.2	73.3	73.5	73.1	73.1	A99. OOB
03/06/23	Motiv	Purple Tank	WDN03530	Urethane	71.4	62	77.8	78.2	78.2	77.7	77.5	78.1	77.6	78.6	77.8	77.4	77.2	A62. OOB
03/06/23	Motiv	Purple Tank	WDN03530	Urethane	71.5	99	76.5	76.5	76.2	76.4	76.2	76.8	76.4	76.4	76.6	76.8	76.4	A99. OOB
03/06/23	Motiv	Jackal Ghost	WBP02017	Reactive	70.1	99	72.7	73.3	73.0	72.8	72.5	71.9	72.7	72.6	72.9	72.4	72.8	A99. OOB
03/06/23	Motiv	Jackal Ghost	WBP02017	Reactive	74.0	99	72.4	72.7	72.9	72.6	72.9	72.4	72.9	72.6	71.7	71.5	72.1	B99. OOB
03/06/23	Motiv	Jackal Ghost	WBP02017	Reactive	73.1	62	74.4	74.2	75.0	74.6	74.2	74.0	74.7	74.2	74.4	74.6	74.3	A62. OOB
03/06/23	Motiv	Jackal Ghost	WBP02017	Reactive	74.0	62	74.5	74.2	74.4	74.2	74.5	75.1	74.6	74.8	74.3	74.5	74.1	B62. OOB
03/06/23	Motiv	Primal Shock	WBP05244	Reactive	71.2	62	73.7	74.7	74.5	73.7	72.8	73.9	73.8	73.5	72.8	73.8	73.4	A62. OOB
03/06/23	Motiv	Primal Shock	WBP05244	Reactive	72.5	99	72.0	73.2	71.6	71.9	71.8	71.9	72.4	72.4	71.7	71.8	71.7	A99. OOB
03/06/23	Motiv	Black Venom	WAP09028	Reactive	69.6	62	74.2	74.7	74.2	74.0	74.3	73.6	74.0	74.7	73.9	74.1	74.3	A62. OOB
03/06/23	Motiv	Black Venom	WAP09028	Reactive	70.0	99	72.2	73.0	72.1	71.9	71.6	71.3	72.1	72.4	72.1	72.8	72.3	A99. OOB
03/06/23	Storm	Pitch Black	22TUBJ07E099	Urethane	73.2	62	73.4	73.9	73.2	73.8	74.1	73.3	73.0	73.1	73.3	72.8	73.3	A62. Initial on 3/6
03/06/23	Storm	Pitch Black	22TUBJ07E099	Urethane	73.2	62	74.1	74.5	73.5	74.3	72.7	73.6	74.3	74.5	73.8	74.6	74.7	Cleaned with 99.9% IPA & Retest.
03/06/23	Storm	Pitch Black	22TUBJ07E099	Urethane	71.5	99	72.6	73.5	74.1	72.3	72.5	71.8	71.6	72.6	73.1	72.4	71.9	A99.
03/27/23	Hammer	Purple Hammer	CPJG1083	Urethane	69.4	62	70.9	71.1	72.0	71.3	71.1	70.4	71.3	70.4	70.0	71.0	70.0	initial 3/27 test (Used)
03/29/23	Hammer	Purple Hammer	CPJG1083	Urethane	71.8	62	71.4	71.8	72.9	72.3	71.8	71.3	71.1	70.1	70.5	70.9	71.1	initial 3/29 test
04/19/23	Storm	Pitch Black	16TUBK22W008	Urethane	69.0	62	74.2	74.1	75.9	74.1	73.4	74.4	74.3	73.4	74.0	73.9	74.8	2016 Pitch Black (used)
04/19/23	Storm	Pitch Black	16TUBK22W008	Urethane	70.6	62	73.9	73.6	75.8	73.2	74.2	73.4	73.8	73.6	74.1	73.4	73.5	Retested 30 minutes later at >70F
05/01/23	900Global	ZenU	22GUZI19H036	Urethane	73.0	62	73.4	73.0	73.0	73.2	73.4	72.9	73.6	73.4	73.8	73.1	74.1	Used ~5games
05/01/23	900Global	Altered Reality	22GALC17B011	Reactive	72.0	62	73.5	73.6	73.6	73.8	72.8	72.7	74.2	74.0	73.1	73.1	74.1	Used ~2games
05/17/23	SWAG	Bg Bro Burn Up LE	22T0098	Urethane	71.2	62	80.9	82.2	81.2	81.3	80.7	81.1	80.1	80.3	80.9	80.2	80.5	Initial OOB test 5/17
05/17/23	SWAG	Bg Bro Burn Up LE	22T0098	Urethane	71.2	62	81.6	82.5	82.1	81.7	81.8	81.8	81.7	81.1	80.7	81.4	81.0	After full clean with 99% IPA
05/17/23	SWAG	Bg Bro Burn Up LE	22T0098	Urethane	73.5	62	81.3	81.5	81.0	81.7	81.3	81.5	81.1	81.7	81.6	81.3	80.4	After 10 shots on the approach
05/17/23	SWAG	Swagger Bomb	22P0505	Reactive	72.6	62	75.2	74.8	75.3	75.4	75.0	75.3	75.2	74.8	75.8	75.1	75.7	Initial OOB
05/30/23	SWAG	Buffalo	23A0036	Urethane	74.2	62	81.1	81.8	80.6	81.4	81.6	80.7	80.9	81.5	80.5	81.1	81.0	Initial OOB

Key: OOB = Out Of Box, A=Tester1, B=Tester2, 99=Field Durometer, 62=Lab Durometer

Lab Testing - Dry Lane Tests

Date	Ball Manuf	Ball Name	Serial Number	Ball Type	Avg Temp F	Durometer SN	Avg HD	HD1	HD2	HD3	HD4	HD5	HD6	HD7	HD8	HD9	HD10	Comments:
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	70.1	62	74.46	74.7	75.1	74.3	74.0	75.6	74.6	73.5	74.2	74.4	74.2	Initial OOB test - 3/20
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	73.4	62	71.87	71.2	71.6	72.0	72.1	73.0	72.6	72.0	72.0	71.3	70.9	After 10 shots on the approach
03/20/23	Hammer	Purple Hammer	ARH1168C	Urethane	71.9	62	72.75	73.8	72.5	72.7	73.2	73.4	71.2	72.1	73.0	72.5	73.1	Post drill, zero lineage (1hr later)
							2.59											10 shot drop no oil.
03/24/23	Hammer	Purple Hammer	ARH2005H	Urethane	72.1	62	73.84	73.5	73.8	74.0	74.1	73.6	74.3	73.6	73.3	74.2	74.0	Initial OOB test 3/24
03/24/23	Hammer	Purple Hammer	ARH2005H	Urethane	70.0	62	71.02	70.5	70.8	70.3	71.4	70.5	71.1	72.0	71.5	71.0	71.1	After 10 approach shots (no oil)
							2.82											10 shot drop no oil.
03/20/23	Storm	Pitch Black	23TUBB24J001	Urethane	70.3	62	73.48	73.1	73.4	74.0	74.7	74.0	73.2	73.2	72.9	72.4	73.9	Initial OOB test 3/20
03/20/23	Storm	Pitch Black	23TUBB24J001	Urethane	74.6	62	71.15	71.7	71.9	71.8	71.7	70.0	70.9	71.4	70.2	70.8	71.1	After 10 approach shots (no oil)
							2.33											10 shot drop no oil.
03/20/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	71.5	62	74.39	74.2	74.6	73.6	73.9	74.3	74.9	74.5	74.4	74.8	74.7	Initial OOB test 3/20
03/24/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	73.5	62	73.76	73.7	74.0	73.8	74.5	73.6	73.7	73.5	73.5	73.6	73.7	Initial 3/24 test
03/24/23	Roto Grip	Rubicon UC3	22RBNJ26J033	Urethane	74.0	62	73.41	73.5	73.3	73.7	72.5	73.2	73.6	73.7	73.6	73.6	73.4	After 10 approach shots (no oil)
							0.35											10 shot drop no oil.
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	71.5	62	74.25	74.5	74.6	74.5	74.1	73.2	73.5	73.8	74.9	75.0	74.4	Initial OOB test 4/6
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	71.5	62	73.99	73.1	74.2	75.2	74.0	74.9	75.3	74.1	72.4	73.9	72.8	After Determinator test (2 min)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	72.0	62	74.20	74.1	74.4	74.9	74.5	74.5	74.0	74.5	74.1	73.6	73.4	After 2nd Determinator test (another 2 min)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	72.7	62	72.34	72.8	73.4	72.8	72.1	71.5	70.9	72.7	72.6	72.6	72.0	After 10 shots on dry lane (no oil, down ramp)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	72.6	62	71.60	71.8	71.6	71.4	71.4	71.5	71.8	71.8	71.4	71.9	71.4	After 20 shots on dry lane (no oil, down ramp)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	73.6	62	71.40	72.5	71.6	71.7	71.9	71.0	72.0	70.9	70.8	70.9	70.7	After 30 shots on dry lane (no oil, down ramp)
04/06/23	Hammer	Purple Hammer	CRF1149H	Urethane	73.0	62	71.63	71.3	71.5	71.9	72.4	71.4	72.4	71.4	71.1	71.6	71.3	After 40 shots on dry lane (no oil, down ramp)
							1.91											10 shot drop no oil.
05/17/23	SWAG	Bg Bro Burn Up LE	22T0098	Urethane	71.2	62	80.85	82.2	81.2	81.3	80.7	81.1	80.1	80.3	80.9	80.2	80.5	Initial OOB test 5/17
05/17/23	SWAG	Bg Bro Burn Up LE	22T0098	Urethane	71.2	62	81.58	82.5	82.1	81.7	81.8	81.8	81.7	81.1	80.7	81.4	81.0	After full clean with 99% IPA
05/17/23	SWAG	Bg Bro Burn Up LE	22T0098	Urethane	73.5	62	81.31	81.5	81.0	81.7	81.3	81.5	81.1	81.7	81.6	81.3	80.4	After 10 shots on the approach
							0.27											10 shot drop no oil.

Appendix C

Traditional Urethane balls as of 6/1/2023

Brunswick/Hammer/DV8/Radical/Columbia

Brunswick Avalanche Urethane
Brunswick BTU Solid
Brunswick BTU Pearl
Brunswick Karma Urethane
Brunswick True Motion
Brunswick U Motion
DV8 Tactic Control
Columbia 300 The Classic U2
Hammer Black Widow Pink Pearl Urethane
Hammer Black Widow Black Solid Urethane
Hammer Blue Solid Urethane
Hammer Black Solid Urethane
Hammer Purple Pearl Urethane
Hammer Tough Spare Ball
Radical Double Cross

Storm/Roto/Global

Black Storm
Pitch Black
Pitch Out
Pitch Purple
Pitch Sky
Pitch Blue
Fast Pitch
Fever Pitch
Pitch Red
Super Natural
Natural Pearl
Natural
Sword/U
Sword Perfect
SKILL 3.02
Hot Cell
Boo-Yah PRO
!Q Tour Red
!Q Tour U
Fame U
Rubicon UC3
Wild Streak TOUR/U
Vintage

Vintage Dark Fuchsia
Vintage Obsidian
Boo-Yah
ZenU

MOTIV

Tank
Combat Tank
Tank Rampage
Rebel Tank
Purple Tank

SWAG

Big Bro Burn Up LE
Buffalo