



INTERSTATE-McBEE



Cummins® ISX/QSX

Cylinder Liner and Piston Updates



INTERSTATE-McBEE, LLC

5300 Lakeside Avenue • Cleveland, Ohio 44114 U.S.A.


216-881-0015 • Toll Free: 800-321-4234 • Fax: 216-881-0805

www.interstate-mcbee.com • E-mail: sales@interstate-mcbee.com

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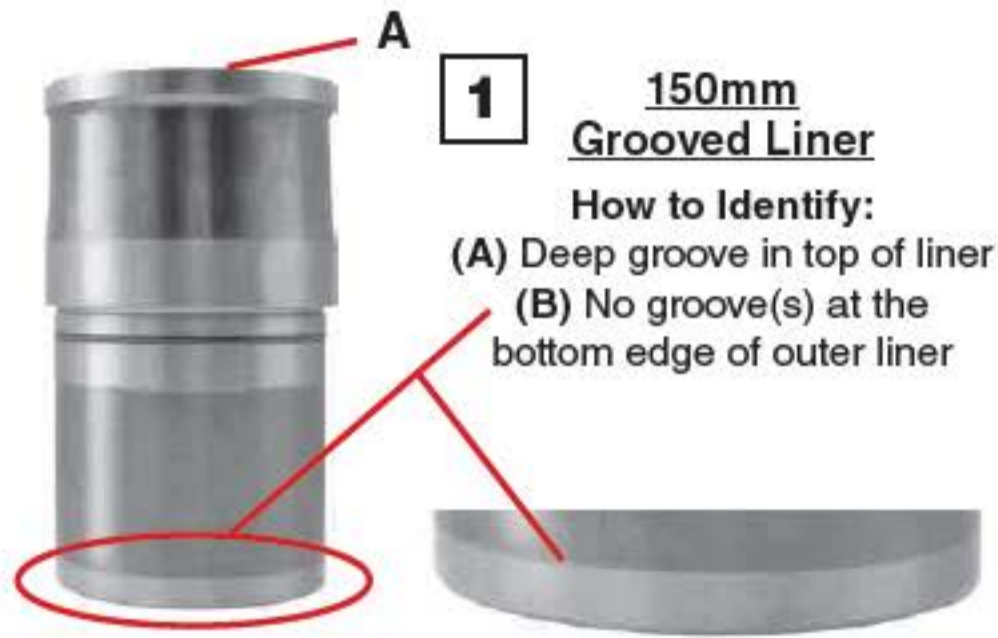
Piston Progression

 <p>1 <u>Early - 2 Piece High Top Ring</u> How to Identify: (A) High top ring (B) Crown and skirt separate</p>	 <p>2 <u>Open Window - 1 Piece High Top Ring Large or Reduced Diameter Top Land</u> How to Identify: (A) 8mm between the combustion face and top ring groove (B) 35mm between bottom of crown and top of skirt (C) 135.30mm or 134.86mm diameter of piston top</p>
 <p>3 <u>Closed Window High Top Ring Large Diameter Top Land</u> How to Identify: (A) 8mm between the combustion face and top ring groove (B) 25mm between bottom of crown and top of skirt (C) 135.30mm diameter of piston top</p>	 <p>4 <u>Closed Window High Top Ring Reduced Diameter Top Land</u> How to Identify: (A) 8mm between the combustion face and top ring groove (B) 25mm between bottom of crown and top of skirt (C) 134.86mm diameter of piston top</p>
 <p>5 <u>Closed Window Low Top Ring Large Diameter Top Land</u> How to Identify: (A) 11mm between the combustion face and top ring groove (B) 25mm between bottom of crown and top of skirt (C) 135.30mm diameter of piston top</p>	 <p>6 <u>Closed Window Low Top Ring Reduced Diameter Top Land</u> How to Identify: (A) 11mm between the combustion face and top ring groove (B) 25mm between bottom of crown and top of skirt (C) 134.86mm diameter of piston top</p>

**Please note: Piston types cannot be mixed in the same engine. Mixing piston types will lead to catastrophic engine failure.

<p><u>Top Ring Identification</u></p>  <p>135.30mm 134.86mm</p> <p>8mm 11mm</p> <p>High Top Ring Low Top Ring</p>		<p><u>Window Identification</u></p>  <p>35mm 25mm</p> <p>Open Window Closed Window</p>	
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Cylinder Liner Progression



1 150mm Grooved Liner
 How to Identify:
 (A) Deep groove in top of liner
 (B) No groove(s) at the bottom edge of outer liner



2 150mm or 152mm Flat Top Liner
 How to Identify:
 (A) No Integral Shim at mid-stop point
 (B) No groove(s) at the bottom edge of outer liner



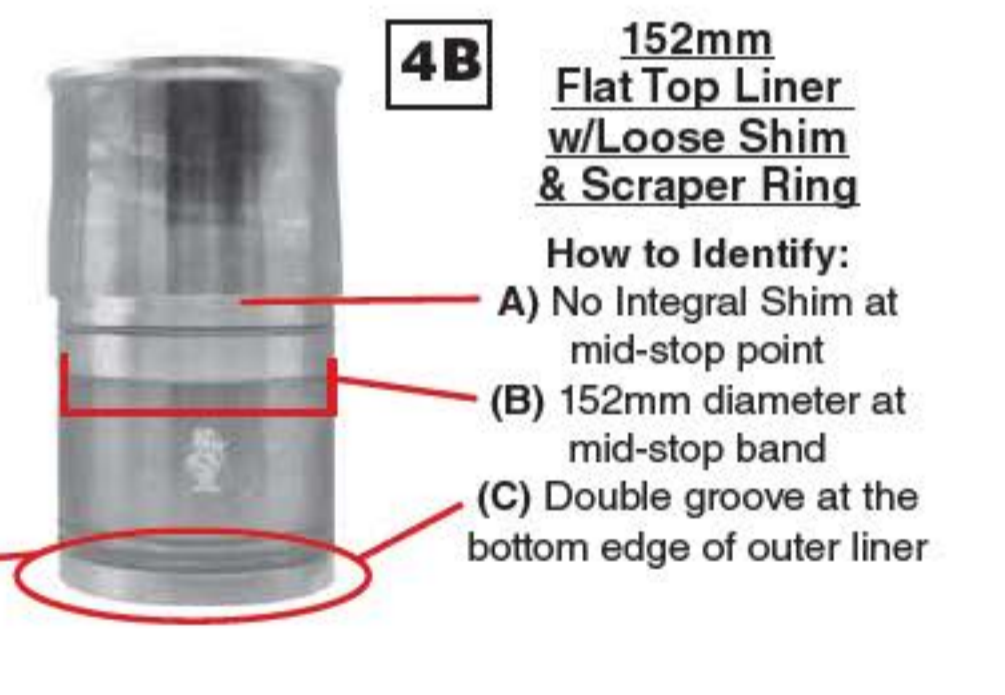
3A 150mm Flat Top Liner w/Integral Shim
 How to Identify:
 (A) Integral Shim
 (B) 150mm diameter at mid-stop band
 (C) Single groove at the bottom edge of outer liner



3B 152mm Flat Top Liner w/Loose Shim
 How to Identify:
 (A) No Integral Shim at mid-stop point
 (B) 152mm diameter at mid-stop band
 (C) Single groove at the bottom edge of outer liner



4A 150mm Flat Top Liner w/Integral Shim & Scraper Ring
 How to Identify:
 (A) Integral Shim
 (B) 150mm diameter at mid-stop band
 (C) Double groove at the bottom edge of outer liner



4B 152mm Flat Top Liner w/Loose Shim & Scraper Ring
 How to Identify:
 (A) No Integral Shim at mid-stop point
 (B) 152mm diameter at mid-stop band
 (C) Double groove at the bottom edge of outer liner

Current update:

The current update refers to the introduction of the carbon scraper ring cylinder liner commonly known as an APR (Anti-Polishing Ring) liner. This liner contains a counter bore at the top in which a removable steel ring is inserted to remove the carbon from the sides of the piston preventing it from contact with the liner walls.

Flat Top Liner
 No Counter Bore



Scraper Ring Liner
 Counter Bore

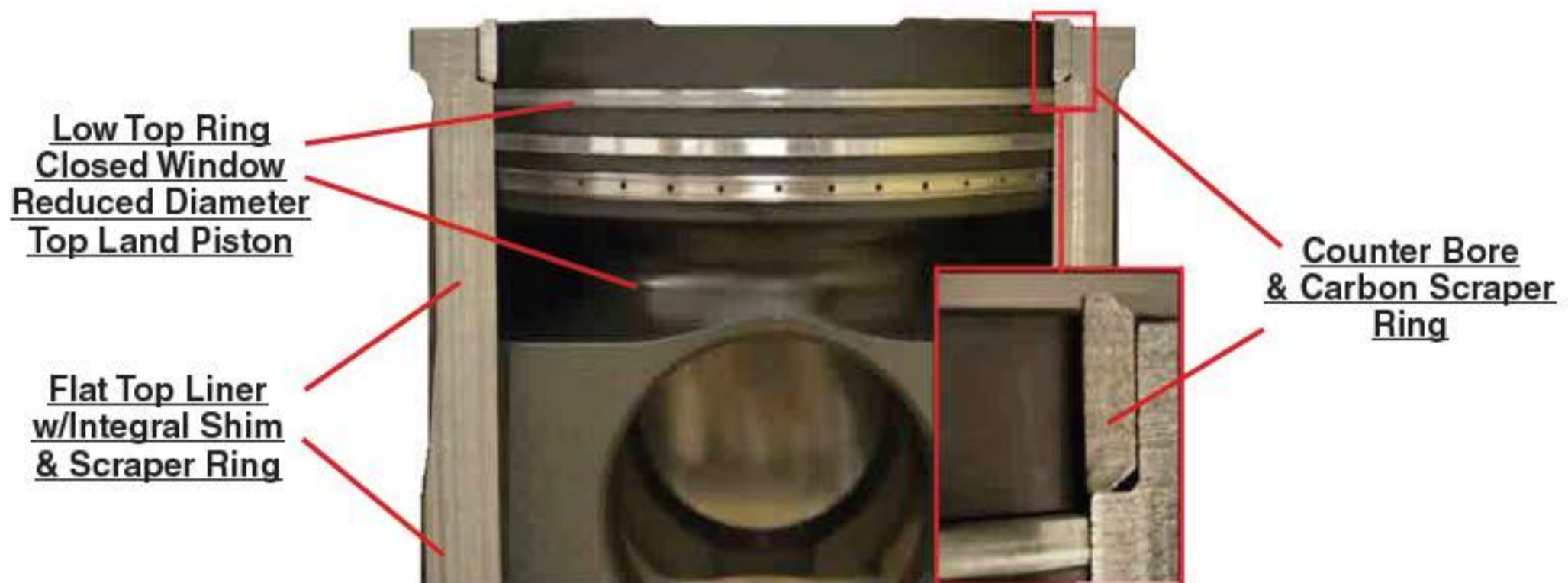


Scraper Ring

Power Cylinder Update

Current Power Cylinder components incorporate the use of a Carbon Scraper Ring cylinder liner commonly known as an APR (Anti-Polishing Ring) liner and a Low Top Ring, Reduced Diameter Top Land Piston. The liner contains a counter bore at the top in which a removable steel ring is inserted. This ring scrapes the carbon from the sides of the piston and aids in reducing carbon polishing of the cylinder liner walls.

The Carbon Scraper Liner is designed to only be used with Low Top Ring and Reduced Diameter Pistons. These improvements are designed to aid in decreasing oil consumption, oil filter flow and DPF regeneration.



Compatibility

Cylinder Liner – Piston – Connecting Rod

- Open Skirt Pistons cannot be used with Carbon Scraper Ring (APR) Cylinder Liners.
- High Top Ring Pistons cannot be used with Carbon Scraper Ring (APR) Cylinder Liners.
- Carbon Scraper Ring Cylinder Liners must use a Closed Window, Reduced Diameter, Low Top Ring Pistons
- All six cylinder liners installed must be of the same type.
- Liner Shims must be replaced with new shims upon installation.
- Service Tool 5299448 is required for Scraper Ring Liner piston installation.
- All one piece pistons require drilled connecting rods and drilled bearings.
- Machined (saw cut) connecting rods and fractured-split connecting rods require different bearings which are not interchangeable.



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Progression Quick Reference

Model	Piston	Skirt Type	Top Ring Location	Top Land Diameter	Liner OD Size	In-Frame Engine Kit	Scraper Ring In-Frame Kit
ISX CM570	2863938	Closed	High	Large	150mm	N/A	M-4376171
					152mm		M-4376429
	2863939	Closed	High	Large	150mm	N/A	M-4376172
					152mm		N/A
	2882635	Closed	High	Reduced	150mm	N/A	M-4376171
					152mm		M-4376429
	2882636	Closed	High	Reduced	150mm	N/A	M-4376172
					152mm		N/A
QSX CM570	3104186	Open	High	Large	150mm	M-4352291	IN DEVELOPMENT
					152mm	N/A	
	4298991	Open	High	Reduced	150mm	M-4352291	
					152mm	N/A	
	4298992	Open	High	Reduced	150mm	M-4352288	
					152mm	N/A	
	4923744	Open	High	Large	150mm	M-4352288	
					152mm	N/A	
ISX CM870 CM871	2882630	Closed	High	Reduced	150mm	N/A	M-4376175
					152mm		M-5405988
	2882631	Closed	High	Reduced	150mm	N/A	M-4376174
					152mm		M-4376428
	3684467	Closed	High	Large	150mm	N/A	M-4376174
					152mm		M-4376428
	3684472	Closed	High	Large	150mm	N/A	M-4376175
					152mm		M-5405988
ISX15 QSX15 CM2250 CM2350	3686366	Closed	Low	Large	150mm	N/A	M-5473065
					152mm		M-5473066
	3687177	Closed	Low	Large	150mm	N/A	M-5473069
					152mm		M-5473070
	3687605	Closed	Low	Large	150mm	N/A	M-5473074
					152mm		M-5473075
	3687897	Closed	Low	Reduced	150mm	N/A	M-5473074
					152mm		M-5473075
	3688099	Closed	Low	Reduced	150mm	N/A	M-5473065
					152mm		M-5473066
	3688100	Closed	Low	Reduced	150mm	N/A	M-5473069
					152mm		M-5473070
	3688405	Closed	Low	Reduced	150mm	N/A	M-5473074
					152mm		M-5473075



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INTERSTATE-McBEE

www.interstate-mcbee.com



World Headquarters

5300 Lakeside Ave.
Cleveland, OH 44114
PH: 216-881-0015
FAX: 216-881-0805
E-mail: sales@interstate-mcbee.com

California

13137 Arctic Circle
Santa Fe Springs, CA 90670
PH: 562-356-5414
FAX: 562-926-2452

Florida

9955 NW 58th Street
Doral, FL 33178
PH: 305-863-6650
FAX: 305-863-6272

Texas

1755 Transcentral Ct.
Suite 200
Houston, TX 77032
PH: 281-645-7168
FAX: 281-443-0202

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