Cummins® ISX/QSX Cylinder Liner and Piston Updates
**Please note: Piston types cannot be mixed in the same engine. Mixing piston types will lead to catastrophic engine failure.**

**Piston Progression**

1. **Early - 2 Piece High Top Ring**
   - How to Identify:
     - (A) High top ring
     - (B) Crown and skirt separate

2. **Open Window - 1 Piece High Top Ring**
   - Large or Reduced Diameter Top Land
   - 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

3. **Closed Window High Top Ring**
   - Large Diameter Top Land
   - 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

4. **Closed Window High Top Ring**
   - Reduced Diameter Top Land
   - 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

5. **Closed Window Low Top Ring**
   - Large Diameter Top Land
   - 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

6. **Closed Window Low Top Ring**
   - Reduced Diameter Top Land
   - 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

**Window Identification**

- **High Top Ring**: 135.30mm
- **Low Top Ring**: 134.86mm
- **Open Window**: 35mm
- **Closed Window**: 25mm
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.
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, DPF regeneration and increased oil filter flow.

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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<th>Skirt Type</th>
<th>Top Ring Location</th>
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