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2008 JEEP Patriot OEM Service and Repair Workshop Manual

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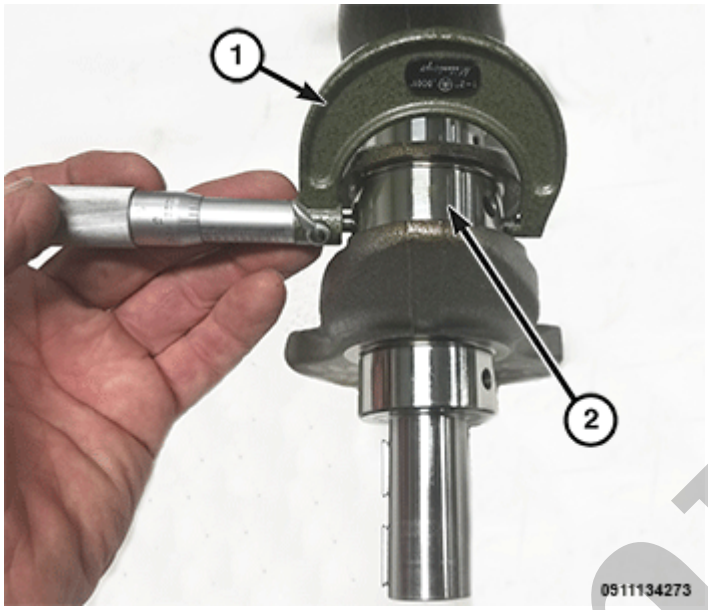
1 - Micrometer
2 - Connecting Rod Journal

7. Use a micrometer to correctly measure the outside diameter of the connecting rod journals.
8. Measure the outside diameter at two locations (each end of the journal).



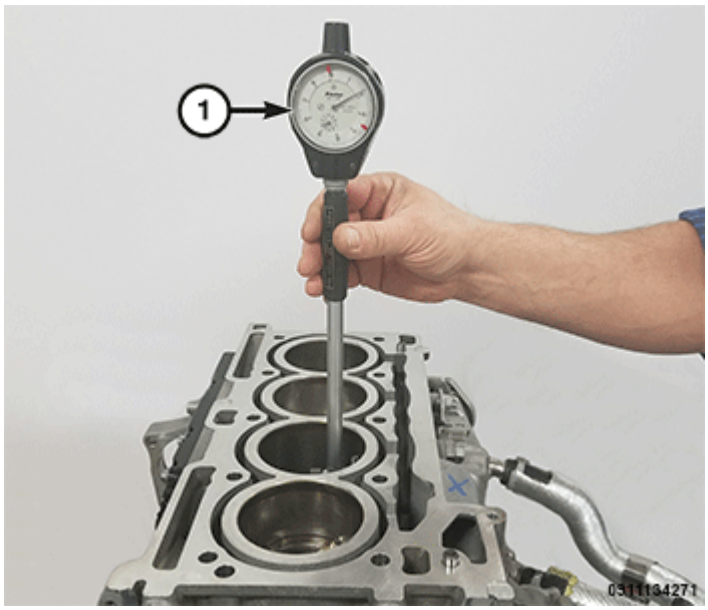
1 - Micrometer
2 - Connecting Rod Journal

9. Rotate the crankshaft 90° and repeat the two measurements.
10. For connecting rod journals, verify that the maximum taper and maximum out of round are within specifications (Refer to 09 - Engine/Specifications)(Refer To List 1).
11. Compare the measured rod journal diameter to the crankshaft connecting rod bearing journal diameter grade marking chart (Refer to Engine/Engine Block/Standard Procedure)(Refer To List 2). Select the bearing size that corresponds to the crankshaft markings for each rod bearing journal that will provide the proper oil clearance.

Refer To List:

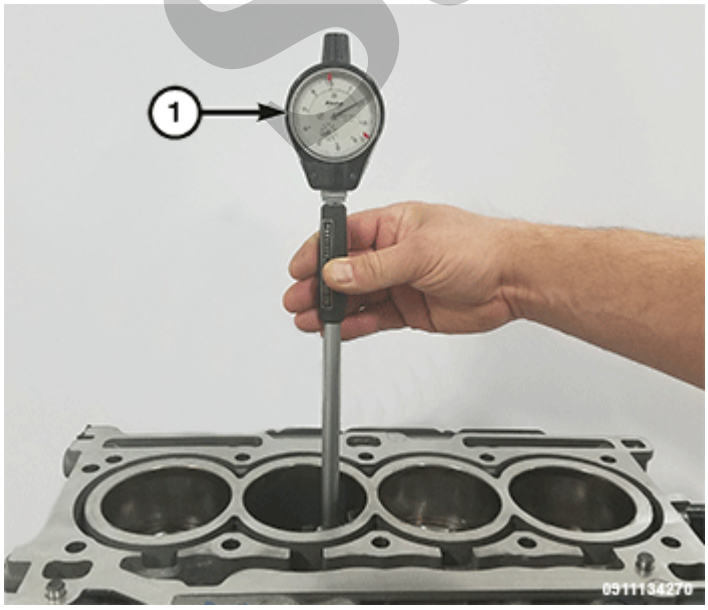
List 1

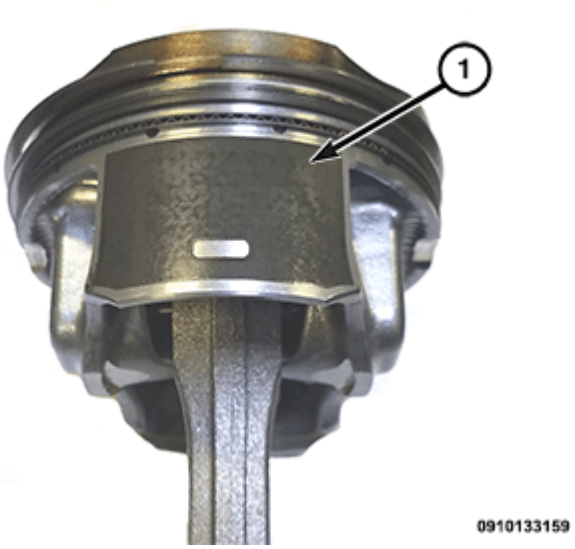
- 09 - Engine, 2.0L / Technical Specifications



1 - Cylinder Bore Gauge

7. Use a cylinder bore gauge to correctly measure the inside diameter of the cylinder bore. A cylinder bore gauge capable of reading in 0.003 mm (0.0001 in.) INCREMENTS is required. If a bore gauge is not available, do not use an inside micrometer.
8. Measure the inside diameter of the cylinder bore at three levels below the top of the bore. Start at the top of the bore, perpendicular (across or at 90 degrees) to the axis of the crankshaft.
9. Repeat the measurement near the middle of the bore, then repeat the measurement near the bottom of the bore.
10. Determine taper by subtracting the smaller diameter from the larger diameter.





1 - Piston Coating Material

1. Inspect the piston for scoring or scraping marks in the piston skirts. Check the ring lands for cracks and/or deterioration.

   NOTE

   The coating material is applied to the piston after the final piston machining process. This coating may affect the outside diameter measurement of a coated piston may not provide accurate results.

2. Check the piston for taper and out of round shape.

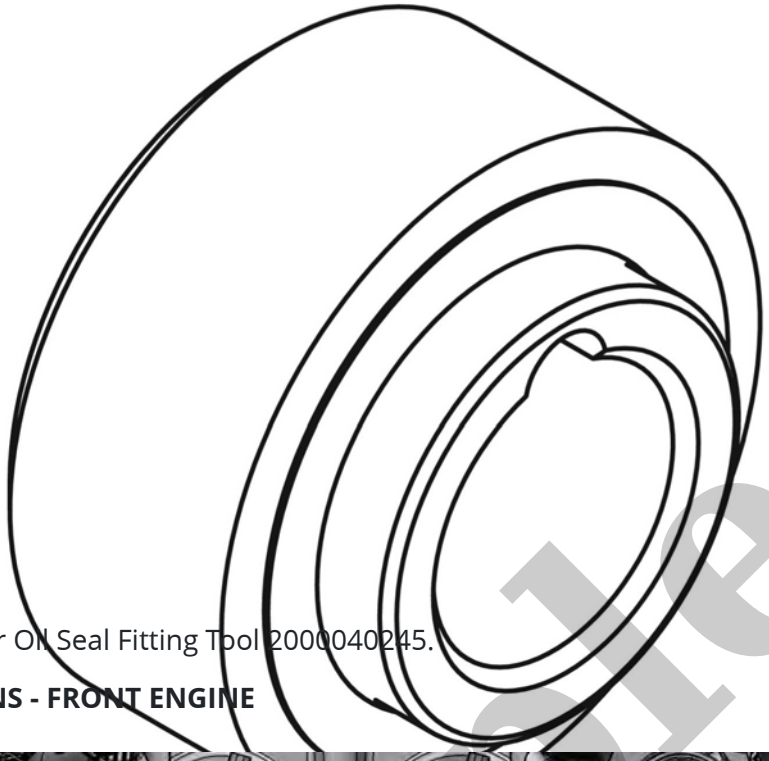
   NOTE

   Piston installation into the cylinder bore may require slightly more pressure than that required for non-coated pistons. The bonded coating on the piston will give the appearance of a line-to-line fit with the cylinder bore.

Refer To List:

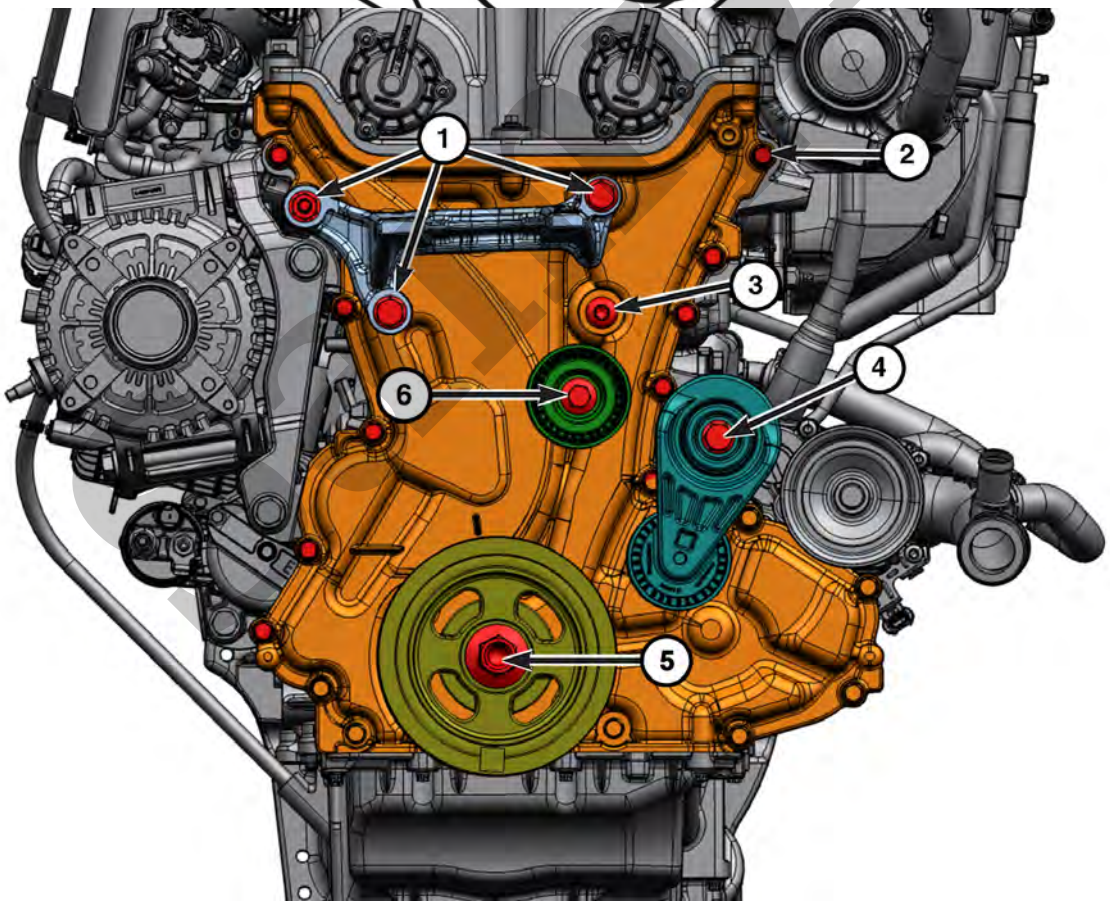
List 1

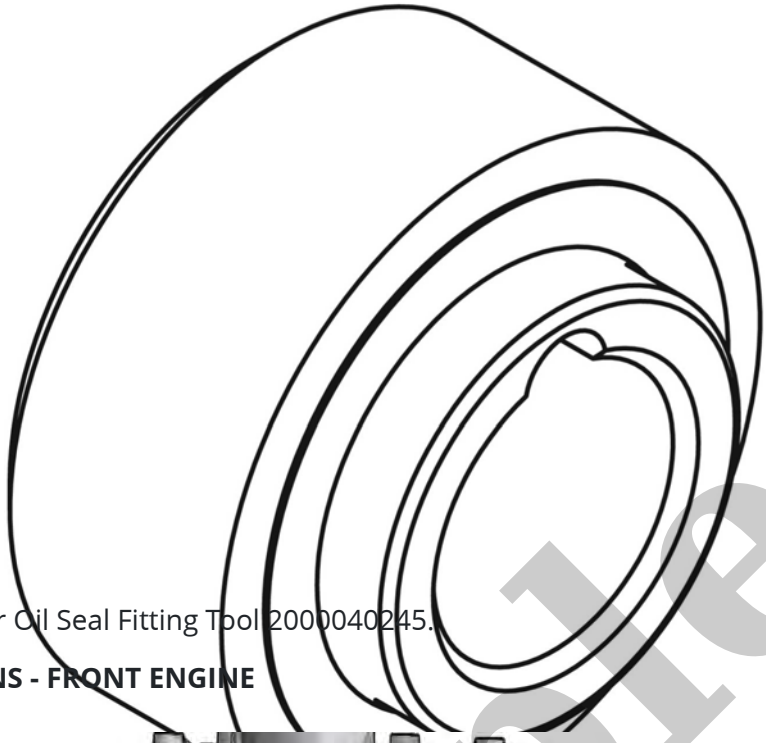
- 09 - Engine, 2.0L / Engine Block / Standard Procedure
- 09 - Engine, 3.6L / Engine Block / Standard Procedure
- 09 - Engine, 5.7L / Engine Block / Standard Procedure



or the Timing Cover Oil Seal Fitting Tool 2000040245.

TORQUE SPECIFICATIONS - FRONT ENGINE





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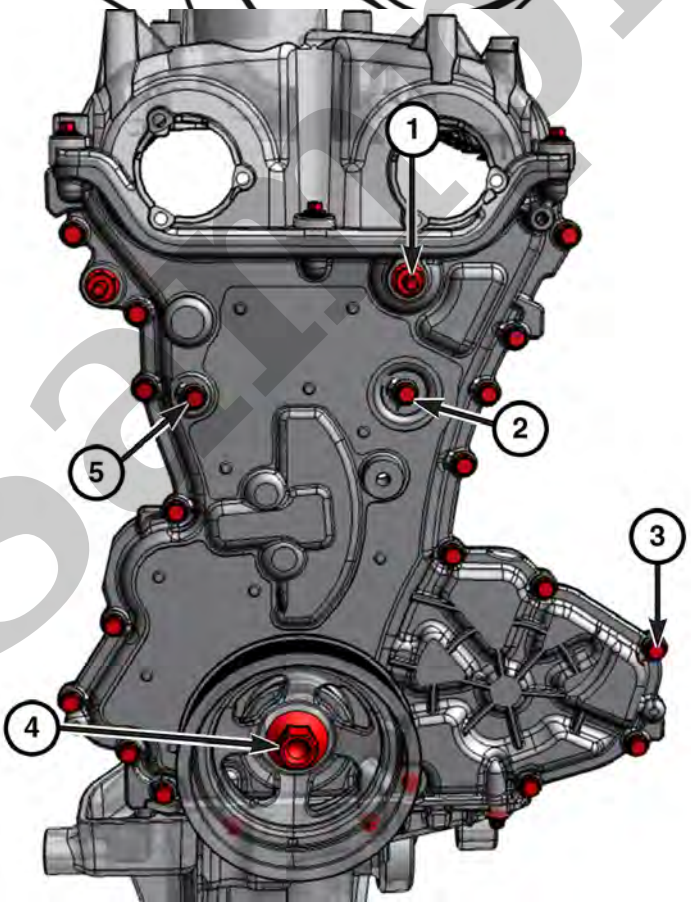
TORQUE SPECIFICATIONS - FRONT ENGINE



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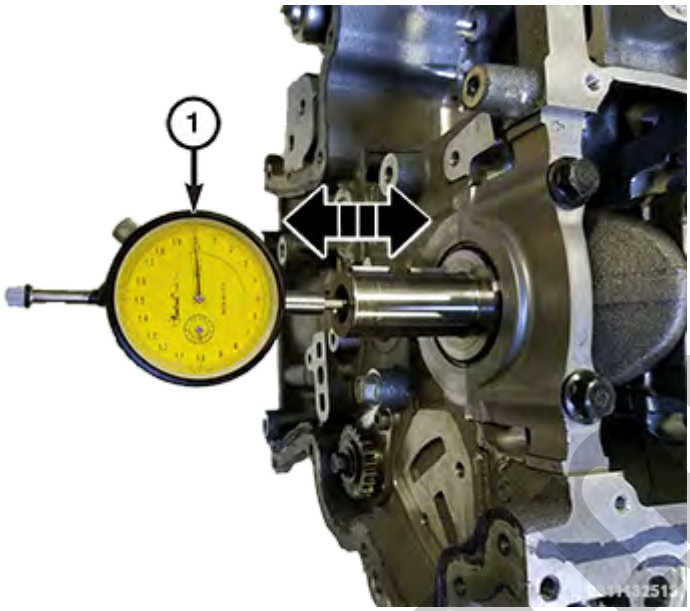
YOUR CURRENT VEHICLE

Crankshaft End Play

CRANKSHAFT END PLAY



1 - Dial Indicator

1. Mount a dial indicator to a stationary point at the front of the engine. Locate the probe perpendicular against the nose of the crankshaft.
2. Move the crankshaft all the way to the rear of its travel.
3. Zero the dial indicator.
4. Move the crankshaft forward to the limit of travel and read the dial indicator. Compare the measured end play to the specification (Refer to Engine - Specifications)(Refer To List 1).

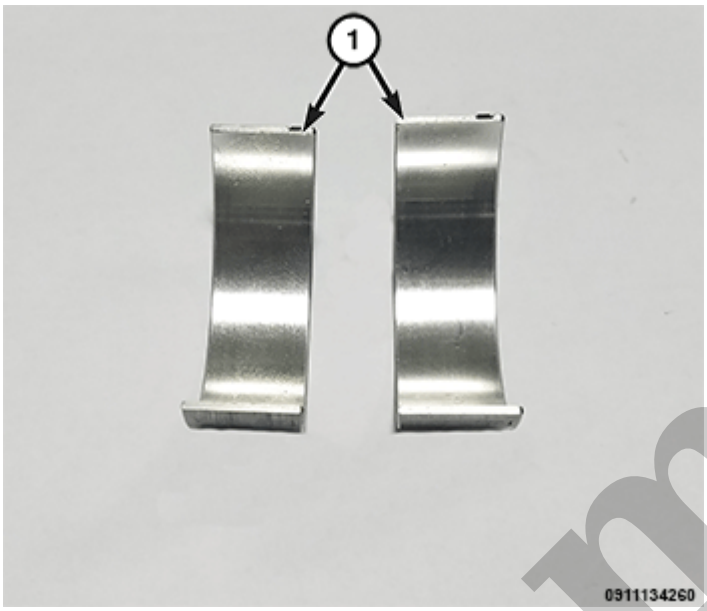
NOTE

Piston Marking	Piston Size mm (in.)	
	Metric	**Standard**
B	83.960 - 83.970 mm	3.3055 - 3.3059 in.

1 - Coating Material

A coating material is applied to both piston skirts after the final piston machining process. Piston installation into the cylinder bore requires slightly more pressure than that required for non-coated pistons. The bonded coating on the piston will give the appearance of a line-to-line fit with the cylinder bore.

Crankshaft Marking	Journal Diameter mm (in.)
1	49.966 - 49.972 mm (1.9672 - 1.9674 in.)
2	49.960 - 49.966 mm (1.9669 - 1.9672 in.)
3	49.954 - 49.960 mm (1.9667 - 1.9669 in.)



1 - Rod Bearings

NOTE

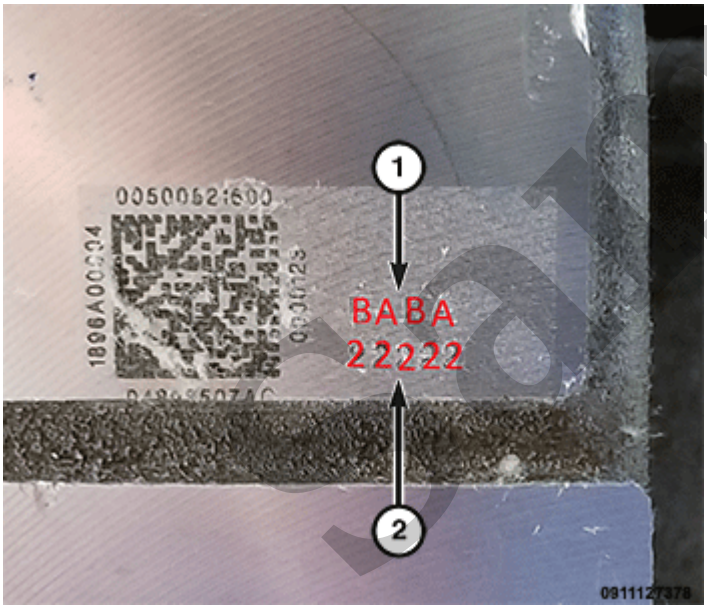
Install the rod bearings in pairs. Do not mix sizes or use a new bearing half with an old bearing half.

Select the bearing size that corresponds to the crankshaft markings for each rod bearing journal.

The lower main bearing shells are marked with a color code indicating bearing thickness. The bearings are available in five different thickness sizes in order to achieve the desired oil clearance.

Crankshaft lower main bearing shells are available in five thickness sizes. The chart below identifies the five sizes.

Bearing Marking	Thickness mm (in.)
0 (Yellow)	2.497 - 2.500 mm (0.0983 - 0.0984 in.)
1 (Green)	2.500 - 2.503 mm (0.0984 - 0.0985 in.)
2 (Brown)	2.503 - 2.506 mm (0.0985 - 0.0987 in.)
3 (Black)	2.506 - 2.509 mm (0.0987 - 0.0988 in.)
4 (Blue)	2.509 - 2.512 mm (0.0988 - 0.0989 in.)



1 - Cylinder Bore Diameter Grade Markings
2 - Upper Main Bearing Journal Diameter Grade Markings

Engine block upper main bearing journal diameter grade markings are stamped into the exhaust side of the engine block near the oil pump. These marks are read from left to right, corresponding with journal number 1, 2, 3, 4 and 5.