

2022 CHEVROLET CORVETTE SERVICE MANUAL

- SEARCH

1. Engine/Propulsion

2. Engine Mechanical - 6.2L (LT2)

3. Repair Instructions

- 4.

Crankshaft and Bearing Removal and Installation

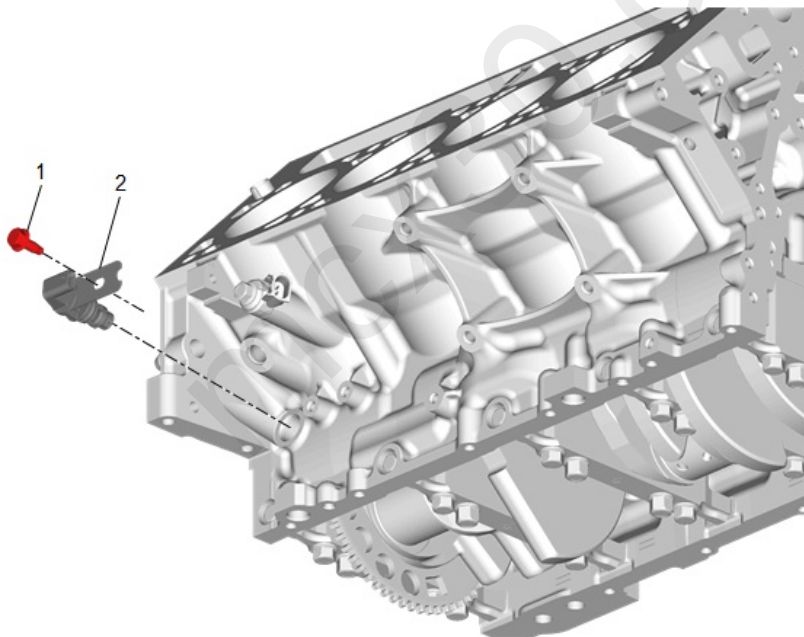
Special Tools

- EN-49102, Crankshaft Bearing Cap Remover
- GE-6125-1B, Slide Hammer
- GE-7872, Magnetic Base Dial Indicator Set
- EN-43690, Rod Bearing Checking Tool
- EN-43690-100, Rod Bearing Checking Tool Adapter Kit

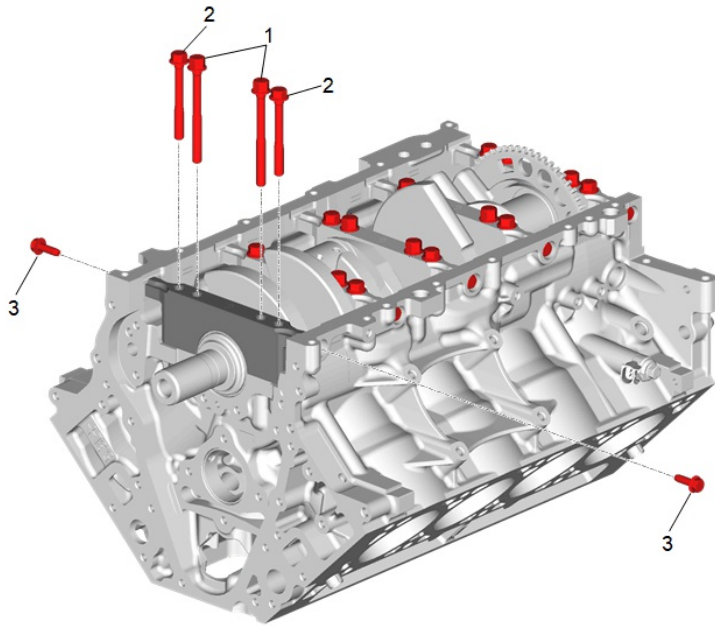
Equivalent regional tools: Special Tools

Removal Procedure

1. Piston and Connecting Rod Assembly >> Remove [8x] - Piston and Connecting Rod Removal and Installation



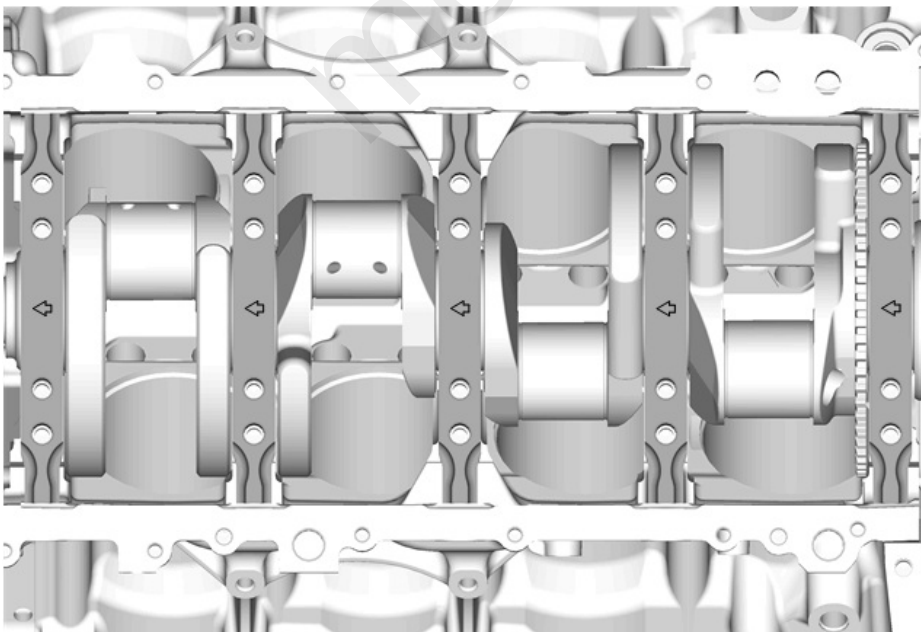
2.
[Click here for full size](#)
3. Crankshaft Position Sensor Bolt (1) >> Remove
4. Crankshaft Position Sensor (2) >> Remove



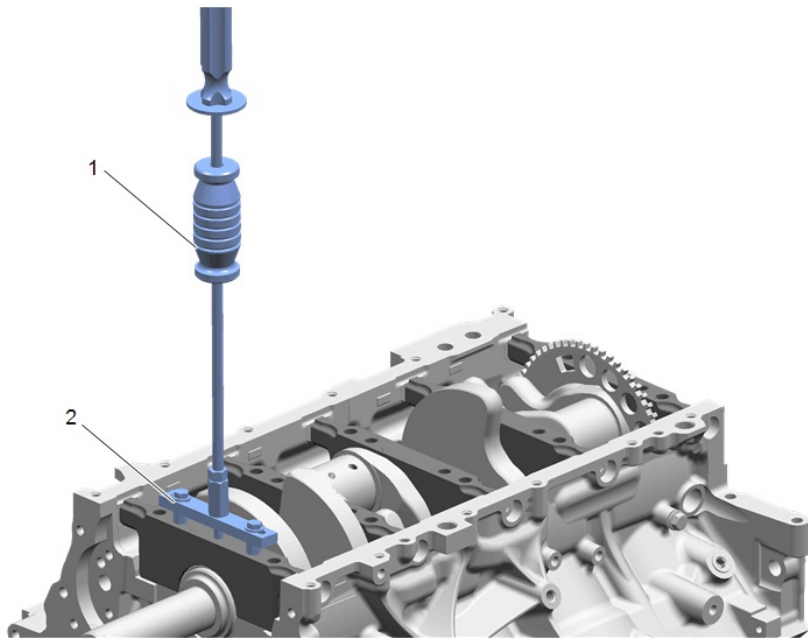
5. [Click here for full size](#)
6. Note:

The crankshaft bearing caps are machined with the engine block, for the proper clearances. Mark or identify each crankshaft bearing cap location and direction before removal. The crankshaft bearing caps **MUST** be installed to their original position and direction.

7. Crankshaft Bearing Cap Bolt - Inner (1) >> Remove and DISCARD [10x]
8. Crankshaft Bearing Cap Bolt - Outer (2) >> Remove and DISCARD [10x]
9. Crankshaft Bearing Cap Bolt - Side (3) >> Remove and DISCARD [10x]



10. [Click here for full size](#)
11. Before removal note the direction of the bearing caps arrows and location.

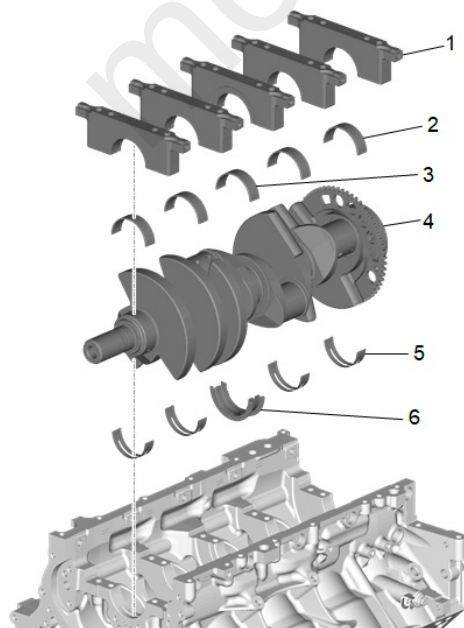


12. [Click here for full size](#)

13. **Caution:**

Refer to Fastener Caution.

14. Install the *EN41818* Crankshaft Bearing Cap Remover(2) and tighten to 11 N-m (100 lb in).
15. Install the *GE6125-1B* Slide Hammer(1) to the *EN41818* Crankshaft Bearing Cap Remover(2).



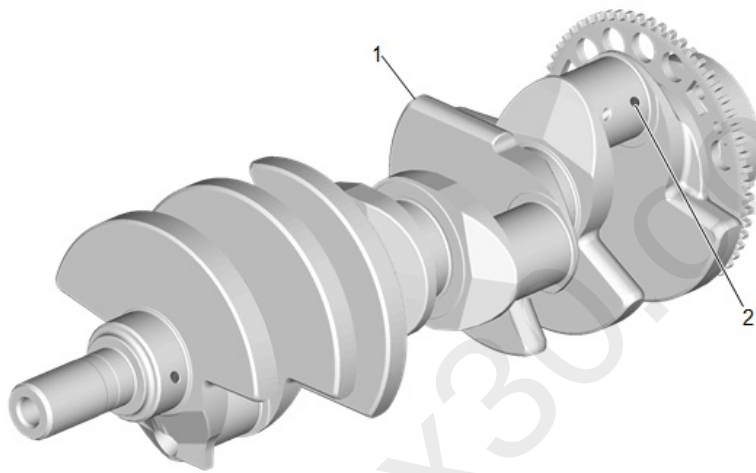
16. [Click here for full size](#)

17. **Caution:**

In order to prevent damage to the crankshaft position (CKP) sensor reluctor wheel/ring, care must be used when removing or installing this component.

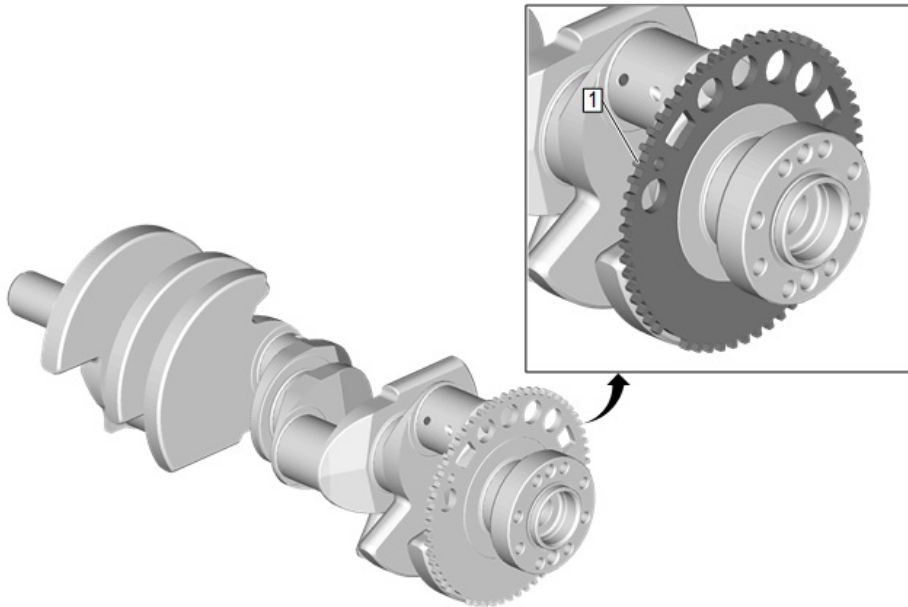
18. Crankshaft Bearing Cap (1) >> Remove [5x]
19. Crankshaft Lower Bearing (2) >> Remove [4x]
20. Crankshaft Thrust Lower Bearing (3) >> Remove
21. Crankshaft (4) >> Remove
22. Crankshaft Upper Bearing (5) >> Remove [4x]
23. Crankshaft Thrust Upper Bearing (6) >> Remove
24. Mark, sort, or organize the crankshaft bearings so they may be installed to their original position and location. Separating Parts
25. Lay the crankshaft onto 2 wooden V-blocks or other protective surface.

Cleaning Procedure



1. [Click here for full size](#)
2. Clean the crankshaft (1) with solvent.
3. Thoroughly clean all oil passages (2) and inspect for restrictions or burrs.
4. Warning:
Refer to Safety Glasses Warning.
5. Dry the crankshaft (1) with compressed air.

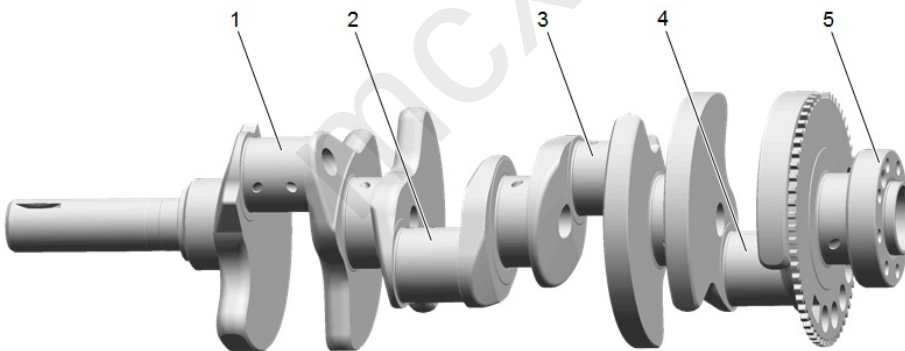
Inspection Procedure



1. [Click here for full size](#)
2. Note:

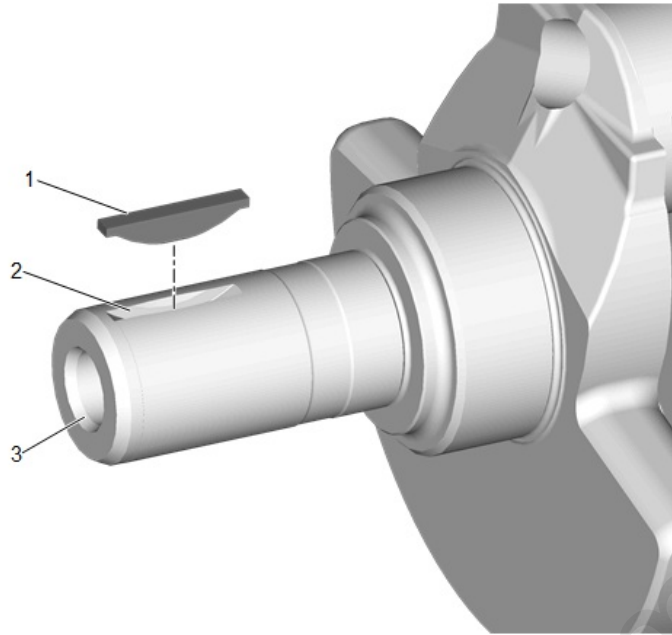
The reluctor ring teeth should not have imperfections on the rising or falling edges. Imperfections of the reluctor ring teeth may affect OBD II system performance.

3. Inspect the Crankshaft Position Sensor Reluctor Ring (1) for damage.

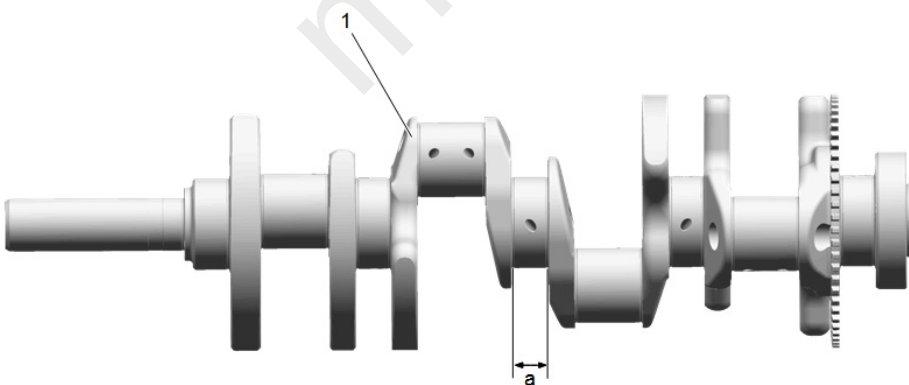


4. [Click here for full size](#)
5. Inspect the crankshaft journals for wear.
6. Journals should be smooth (1ÅçÂ€Âˆ4) with no signs of scoring, wear, or damage.
7. Inspect the crankshaft journals for grooves or scoring.
8. Inspect the crankshaft journals for scratches or wear.

9. Inspect the crankshaft journals for pitting or imbedded bearing material.
10. Inspect the crankshaft rear oil seal surface (5) for grooves or scoring.

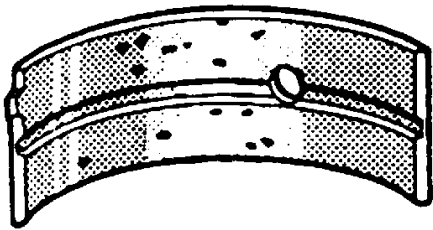


11.
[Click here for full size](#)
12. Inspect the crankshaft key (1), keyway (2), and threaded hole (3) for damage.
13.
[Click here for full size](#)
14. Measure the connecting rod journals for out-of-round and taper.

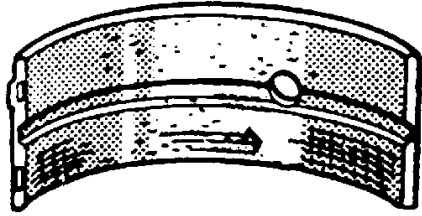


15.
[Click here for full size](#)
16. Measure the crankshaft thrust wall width.

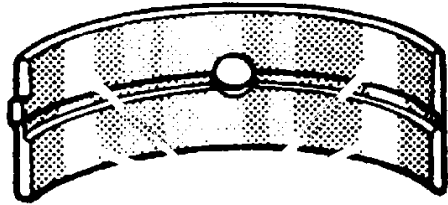
17. A crankshaft (1) with a thrust wall width in excess of 26.2 mm (1.0315 in) (a) must be replaced.
18.
[Click here for full size](#)
19. Measure the crankshaft runout.
20. Use wooden V-blocks or a fixture to support the crankshaft on the front and rear journals.
21. Use the GE-7872 Magnetic Base Dial Indicator Set in order to measure the crankshaft runout at the front and rear intermediate journals.
22. Use the GE-7872 Magnetic Base Dial Indicator Set in order to measure the runout of the crankshaft rear flange.
23. Use the GE-7872 Magnetic Base Dial Indicator Set in order to measure the runout of the crankshaft position reluctor ring. Reluctor ring runout should be measured 1.0 mm (0.04 in) below the ring teeth.
24. If the front and rear intermediate journals, crankshaft rear flange, or reluctor ring runout exceeds specification, replace the crankshaft. Engine Mechanical Specifications



25.
[Click here for full size](#)
26. Inspect crankshaft bearings for craters or pockets. Flattened sections on the bearing halves also indicate fatigue.



27. [Click here for full size](#)
28. Inspect the crankshaft bearings for excessive scoring or discoloration.
29. Inspect the crankshaft bearings for dirt or debris imbedded into the bearing material.

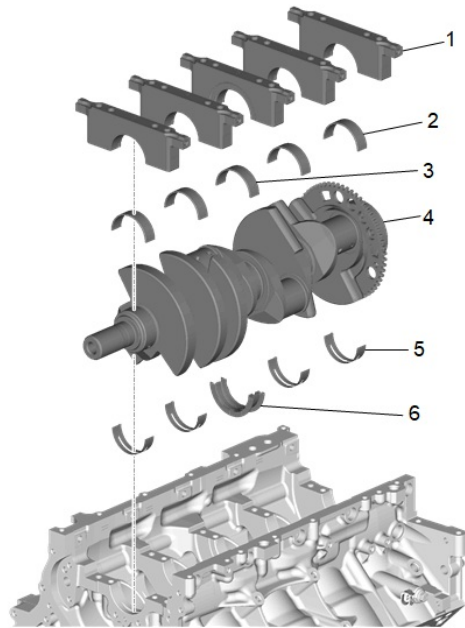


30.

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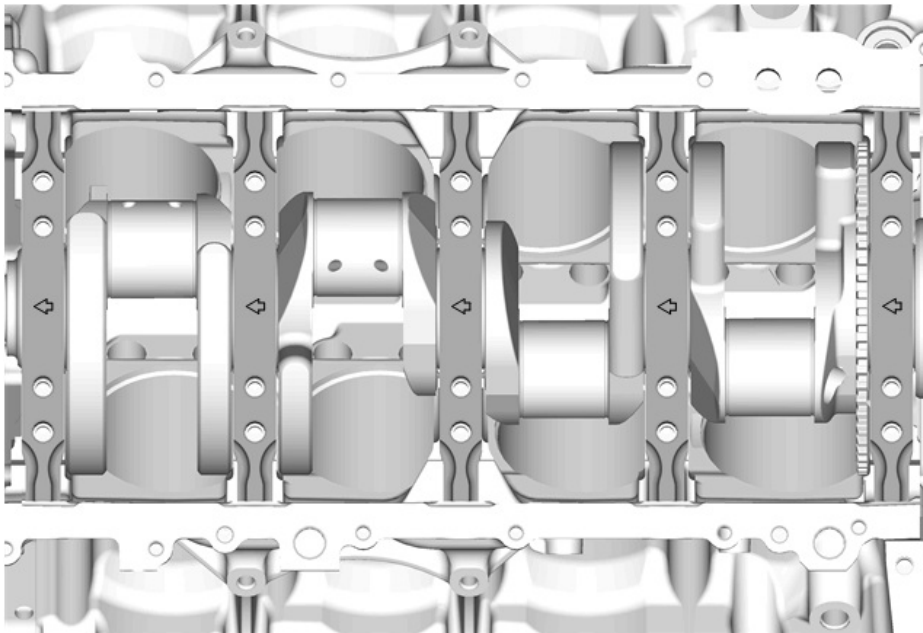
- 31. Inspect the crankshaft bearings for improper seating, indicated by bright, polished sections of the bearing.
- 32. If the lower half of the bearing is worn or damaged, both upper and lower halves should be replaced.
- 33. Generally, if the lower half is suitable for use, the upper half should also be suitable for use.

Installation Procedure

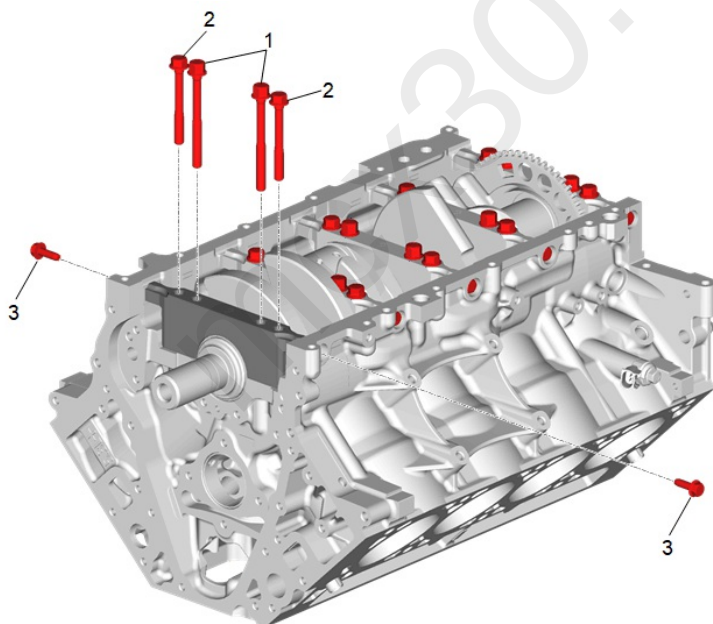


1. [Click here for full size](#)
2. Note:
 - Crankshaft bearing clearances are critical. Excessive crankshaft bearing clearance may affect crankshaft position (CKP) sensor signals and/or on-board diagnostic (OBD) II system performance.
 - Crankshaft bearing caps must be installed to the proper location and direction.
 - When installing the crankshaft bearings, align the locating tabs on the bearings with the locating notches in the engine block journal bore and the bearing cap.
 - Always install crankshaft bearings with their machined partner. Do not file bearings or mix bearing halves.
 - In order to prevent engine block oil leakage, install NEW crankshaft bearing cap side bolts.
3. Install the crankshaft bearings (2 and 5) to the engine block and bearing caps (1). The thrust bearings (3 and 6) are to be installed into center journal.
4. Lubricate the bearing surfaces and crankshaft journals with clean engine oil. Adhesives, Fluids, Lubricants, and Sealers
5. Caution:

To maintain proper crankshaft end play, use extreme care during crankshaft installation. Avoid scoring or damaging the thrust bearing.
6. Install the crankshaft (3).

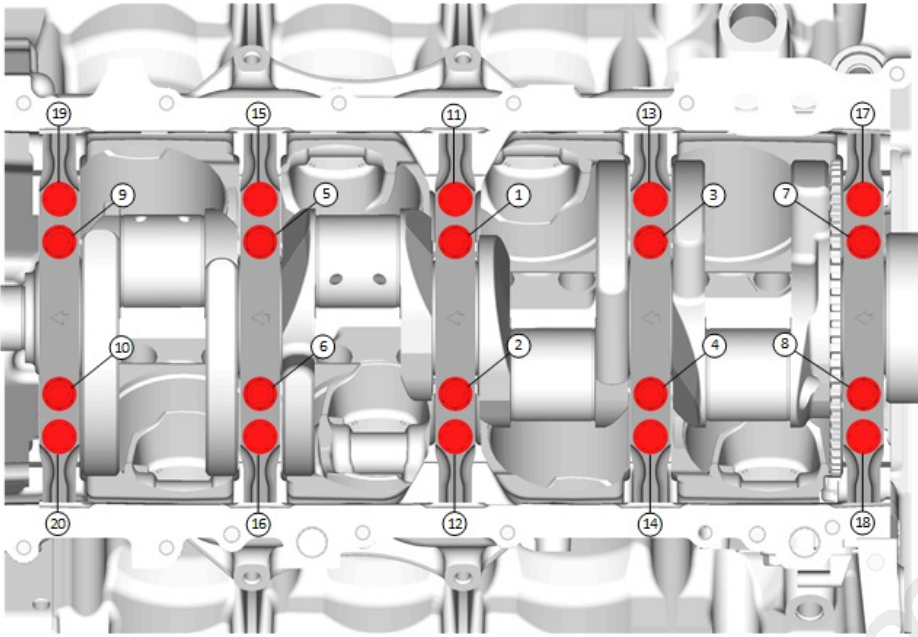


7. [Click here for full size](#)
8. Ensure the bearing caps are installed correctly.
9. The bearing caps must be installed in the proper location and direction. The arrows on the bearing caps must point toward front of engine.

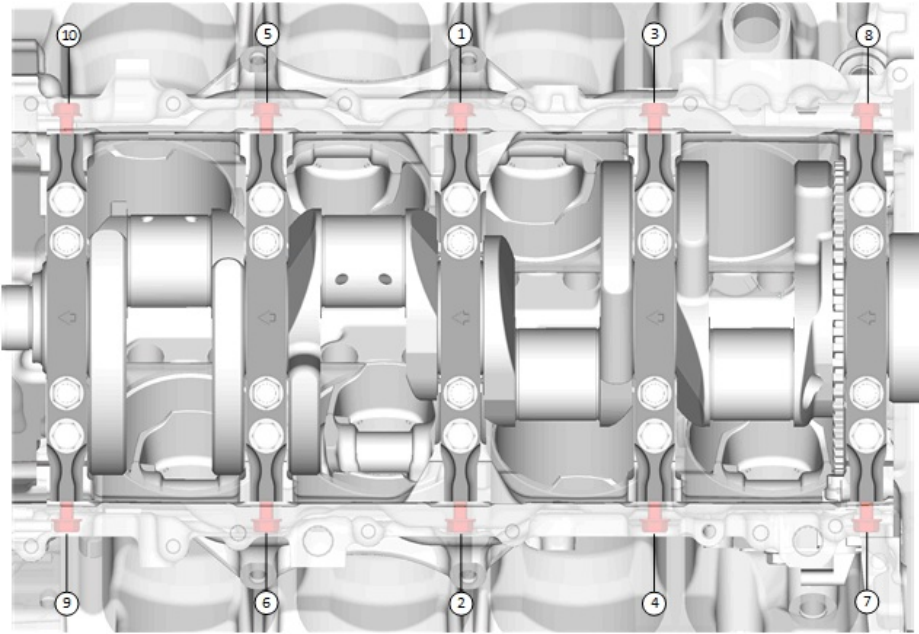


10. [Click here for full size](#)
11. **Caution:**
This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.
12. **Note:**
The inner bearing cap bolts are longer than the outer bearing cap bolts.
13. Install NEW inner bearing cap bolts (1) and NEW outer bearing cap bolts (2)

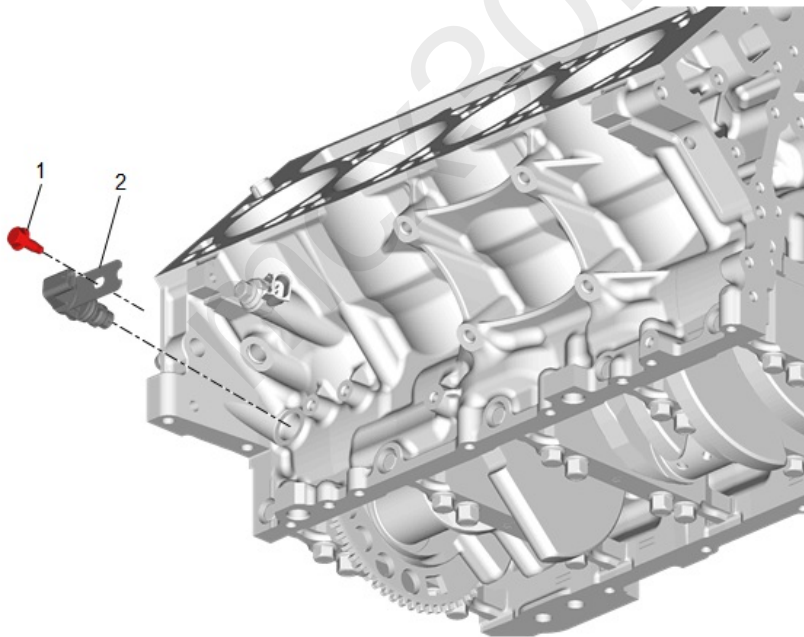
14. Using a plastic-face hammer, tap the bearing caps into place.
15. Install the NEW bearing cap side bolts (3).



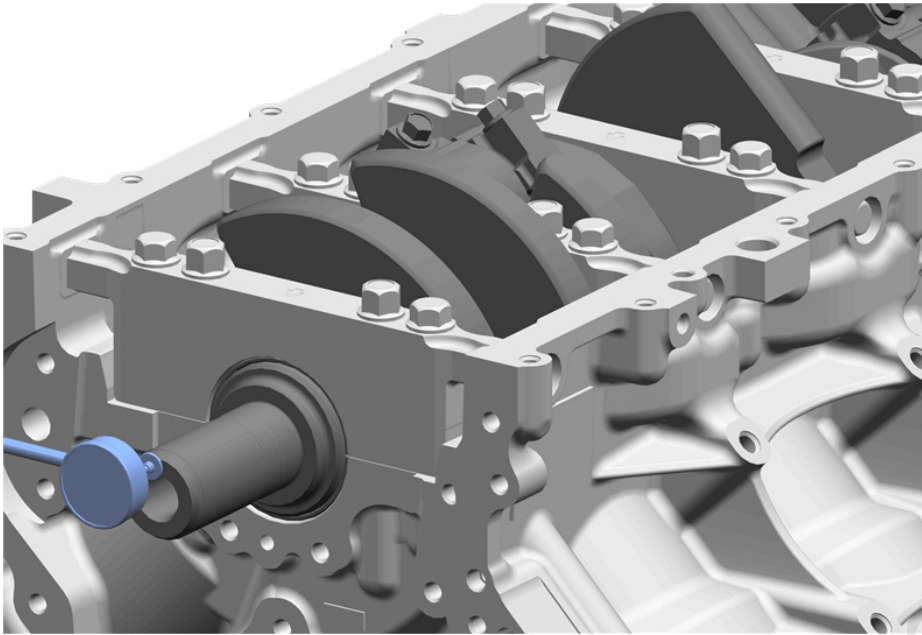
16. [Click here for full size](#)
17. Caution:
Refer to Fastener Caution.
18. Tighten the inner bearing cap bolts in sequence:
19.
 1. First Pass: 20 N-m (15 lb ft)
 2. Final Pass: 110 degrees
20. Note:
To properly align the crankshaft thrust bearings, the final thrust of the crankshaft MUST be in the forward direction.
21. Using a plastic-face hammer, tap the crankshaft rearward, then forward in order to align the thrust bearings.
22. Tighten the outer bearing cap bolts in sequence:
23.
 1. First Pass: 20 N-m (15 lb ft)
 2. Final Pass: 80 degrees



24. [Click here for full size](#)
25. Tighten the main bearing cap side bolts in sequence:
- 26.
1. First Pass: 25 N-m (18 lb ft)
 2. Final Pass: 60 degrees

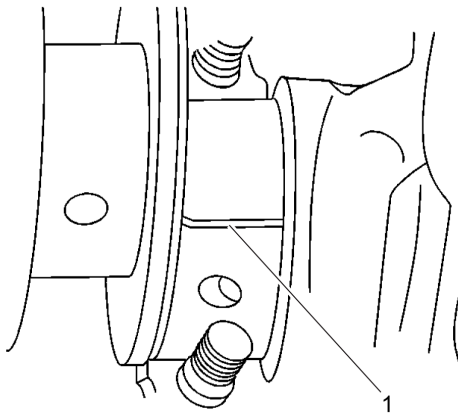


27. [Click here for full size](#)
28. Install the crankshaft position sensor (2). Rotate the sensor until the locating hole in the bracket aligns with the bolt hole in the block.
29. Crankshaft Position Sensor Bolt (1) >> Install and tighten 25 N-m (18 lb ft)



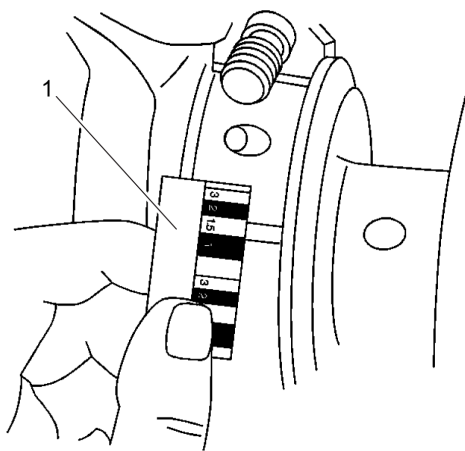
30.
[Click here for full size](#)
31. Measure the crankshaft end play.
- 32.
1. Thrust the crankshaft forward or rearward.
 2. Mount a dial indicator gauge with the tip engaging the front face of the nose of the crankshaft.
 3. Thrust the crankshaft in the opposite direction as step 12.1. Record the measurement from the dial indicator.
 4. Compare the measurement to the required end play specification. Engine Mechanical Specifications
 5. If the bearing clearance is not within specifications, inspect the thrust surfaces for nicks, gouges or raised metal. Minor imperfections may be removed with a fine stone.
33. Piston and Connecting Rod Assembly >> Install [8x] - Piston and Connecting Rod Removal and Installation

Measuring Main Bearing Clearance “Gaging Plastic Method”



1. [Click here for full size](#)
2. Note:
 - The crankshaft main bearings are a precision insert type. Main bearing caps are machined with the engine block, for proper clearance, and cannot be shimmed or filed for bearing fit. If the clearances are found to be excessive, new bearings and/or engine block and cap repair or replacement may be required.
 - Do not rotate the crankshaft while gaging plastic is between the crankshaft journal and the bearing surface.
 - The crankshaft bearing clearances are critical. Excessive bearing clearance may affect crankshaft position sensor signals and may affect OBD II system operation.
 - Remove the bearing cap side bolts prior to cap removal.
3. Remove the bearing caps, bearing half, and bolts.
4. Install gaging plastic onto the crankshaft journal. Install the gaging plastic the full width of the crankshaft bearing journal.

5. Install the bearing caps, bearing half, and bolts.
6. Remove the bearing caps, bearing half, and bolts.



7.
[Click here for full size](#)
8. Using the scale supplied with the plastic gaging kit, measure the gaging plastic at its widest area.
9.
 - If the gaging plastic shows irregularity in the journal, exceeding 0.025 mm (0.001 in), remove the crankshaft and measure the journal with a micrometer.
 - If clearance cannot be brought to specifications, replace the crankshaft or engine block as required. Engine Mechanical Specifications