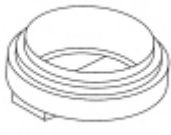





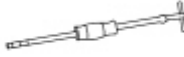



Crankshaft Rear Seal with Retainer Plate

Special Tool(s)

 <p>ST1479-A</p>	Installer, Crankshaft Rear Oil Seal 303-516 (T95P-6701-BH)
 <p>ST1480-A</p>	Installer, Crankshaft Rear Oil Seal 303-518 (T95P-6701-DH)
 <p>ST1482-A</p>	Installer, Crankshaft Rear Oil Slinger 303-517 (T95P-6701-CH)
 <p>ST1603-A</p>	Lifting Bracket, Engine (2 required) 303-D087 (D93P-6001-A1) or equivalent
 <p>ST1382-A</p>	Remover, Crankshaft Rear Oil Seal 303-519 (T95P-6701-EH)
 <p>ST1481-A</p>	Remover, Crankshaft Rear Oil Slinger 303-514 (T95P-6701-AH)
 <p>ST1185-A</p>	Slide Hammer 100-001 (T50T-100-A)
 <p>ST2176-B</p>	Support Bar, Engine 303-F070

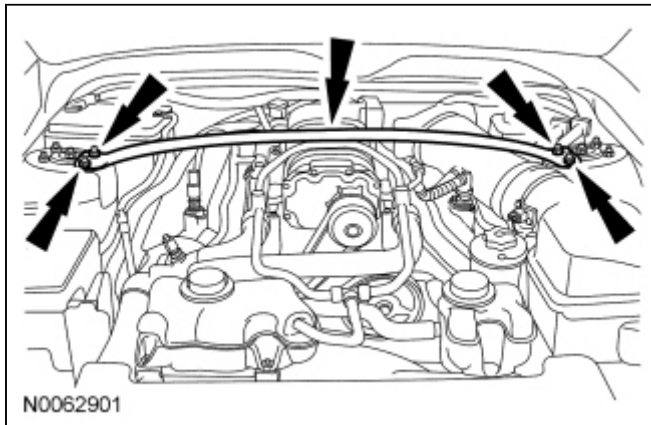


Material

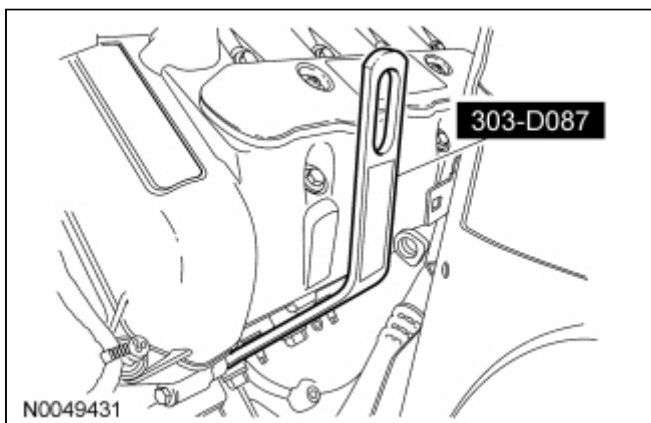
Item	Specification
Motorcraft® Metal Surface Prep ZC-31-A	—
Motorcraft® SAE 5W-50 Full Synthetic Motor Oil XO-5W50-QGT or equivalent	WSS-M2C931-B
Silicone Gasket and Sealant TA-30	WSE-M4G323-A4
Silicone Gasket Remover ZC-30	—

Removal

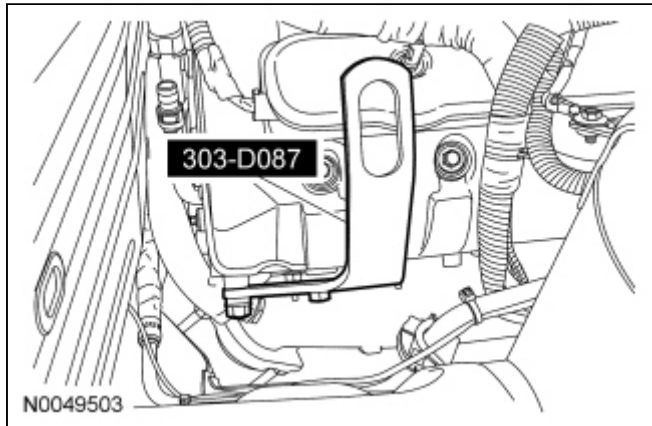
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to [Section 100-02](#).
2. Remove the 4 nuts and the strut tower cross brace.



3. Remove the battery and tray. For additional information, refer to [Section 414-01](#).
4. Remove the Air Cleaner (ACL) outlet pipe. For additional information, refer to [Section 303-12](#).
5. Install the Engine Lifting Bracket.

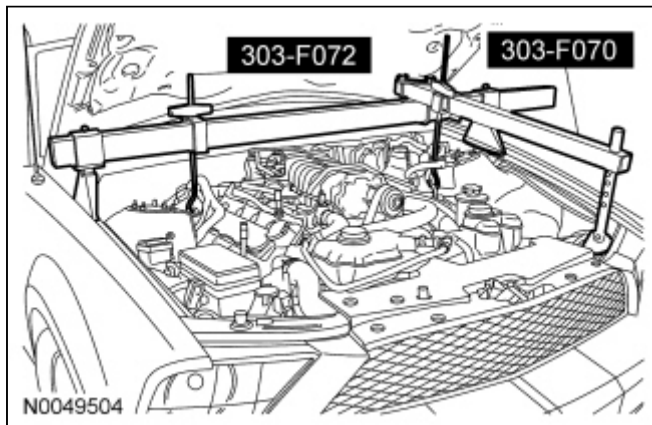


6. Install the Engine Lifting Bracket.

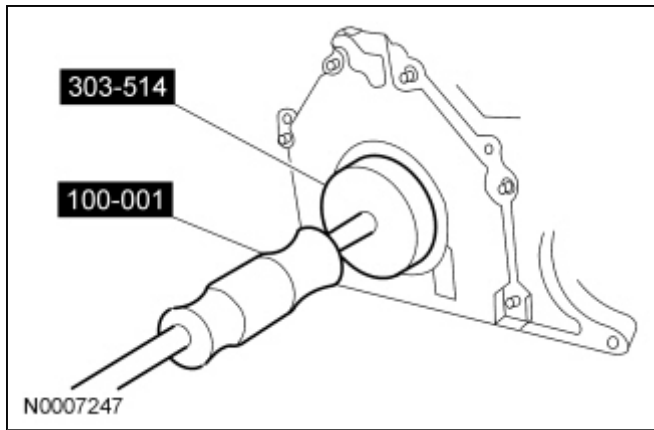


7. Remove the flywheel. For additional information, refer to [Flywheel](#) in this section.
8. Remove the engine-to-transmission spacer plate.
9. Remove the LH and RH engine support insulator nuts.
10. **NOTE:** The heavy duty Engine Support Bar (303-F070) must be used with the draw screws from the light duty Engine Support Bar (303-F072). This will provide enough clearance between the Supercharger (SC) and the Engine Support Bar, and enough clearance between the draw screw and the vehicle hood.

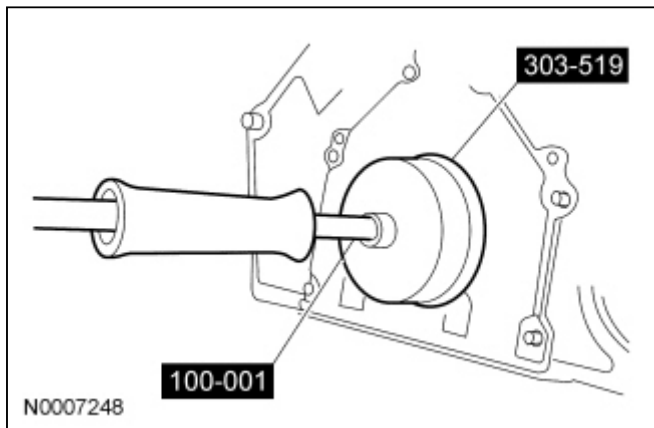
Install the Engine Support Bars and raise the engine.



11. Drain the engine oil.
 - Tighten the drain plug to 26 Nm (19 lb-ft).
12. Detach the 2 wiring harness retainers from the oil pan.
13. Detach the wiring harness retainer from the oil pan stud bolt.
14. Remove the nut and the wire harness retainer bracket from the oil pan stud bolt.
15. Remove the 14 bolts, 2 stud bolts and the oil pan.
 - Discard the gasket.
16. Using the Slide Hammer and Crankshaft Rear Oil Slinger Remover, remove the crankshaft rear seal oil slinger.



17. Using the Slide Hammer and the Crankshaft Rear Oil Seal Remover, remove the crankshaft rear seal.



18. Remove the 6 bolts and the crankshaft rear seal retainer plate.

Installation

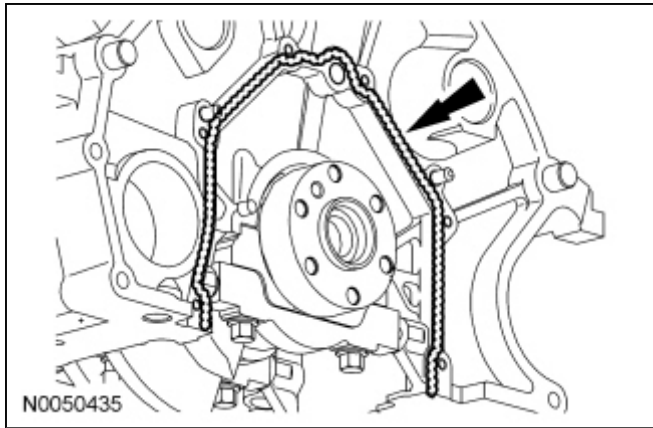
- NOTICE:** Do not use metal scrapers, wire brushes, power abrasive discs or other abrasive means to clean the sealing surfaces. These tools cause scratches and gouges which make leak paths. Use a plastic scraping tool to remove all traces of old sealant.

NOTE: Clean the sealing surfaces with silicone gasket remover and metal surface prep. Follow the directions on the packaging. Failure to follow this procedure can cause future oil leakage.

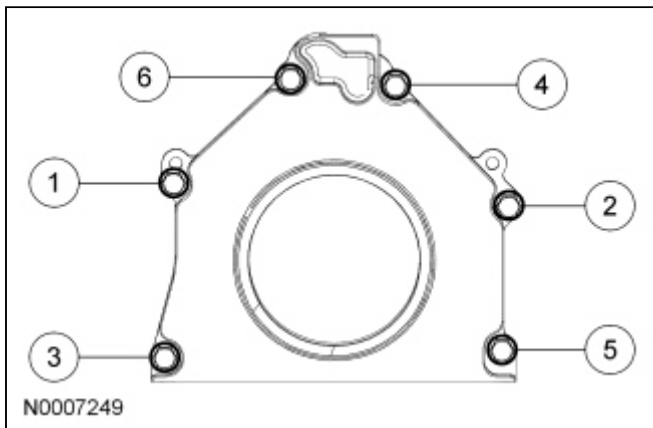
Clean and inspect the mating surfaces of the engine block, rear seal retainer plate and oil pan.

- NOTICE:** If not secured within 4 minutes, the sealant must be removed and the sealing area cleaned. To clean the sealing area, use silicone gasket remover and metal surface prep. Follow the directions on the packaging. Failure to follow this procedure can cause future oil leakage.

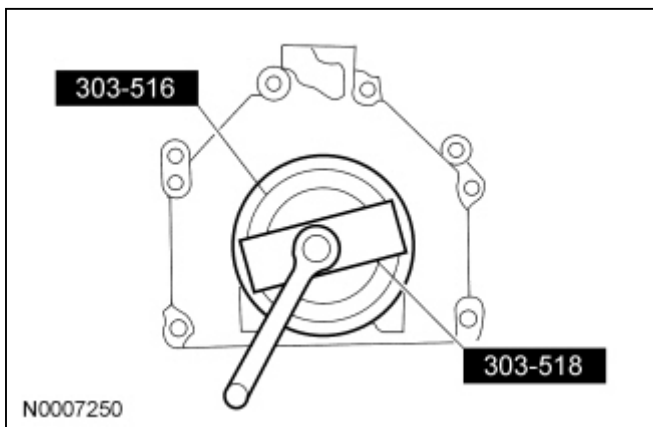
Apply a 4 mm (0.15 in) bead of silicone gasket and sealant to the rear crankshaft seal retainer mating surface on the engine block.



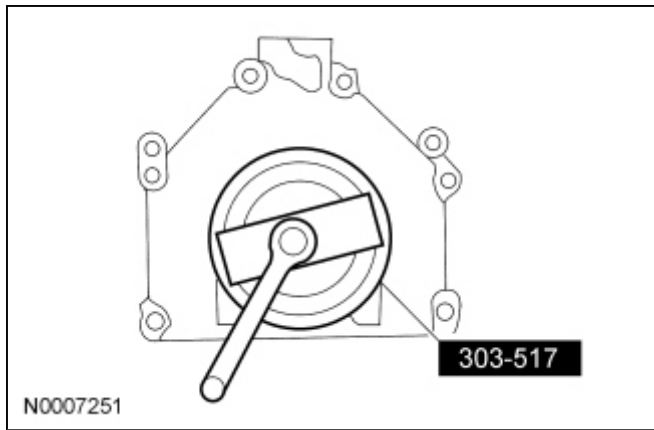
3. Install the crankshaft rear seal retainer plate and the 6 bolts.
 - Tighten in the sequence shown to 10 Nm (89 lb-in).



4. **NOTE:** Lubricate the inner lip of the crankshaft rear seal with clean engine oil.
Using the Crankshaft Rear Oil Seal Installers, install the crankshaft rear seal.

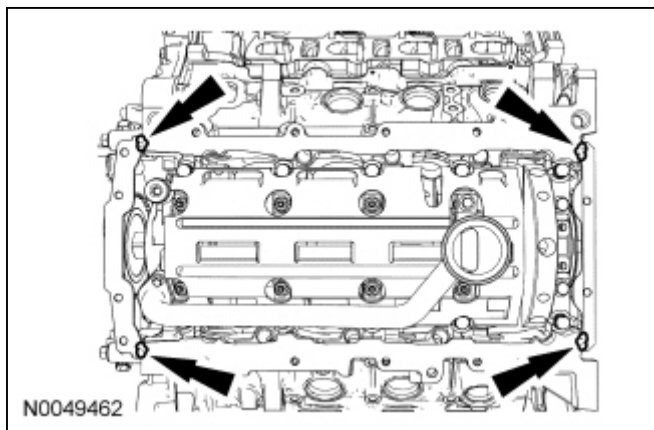


5. Using the Crankshaft Rear Oil Slinger Installer, install the crankshaft rear oil slinger.

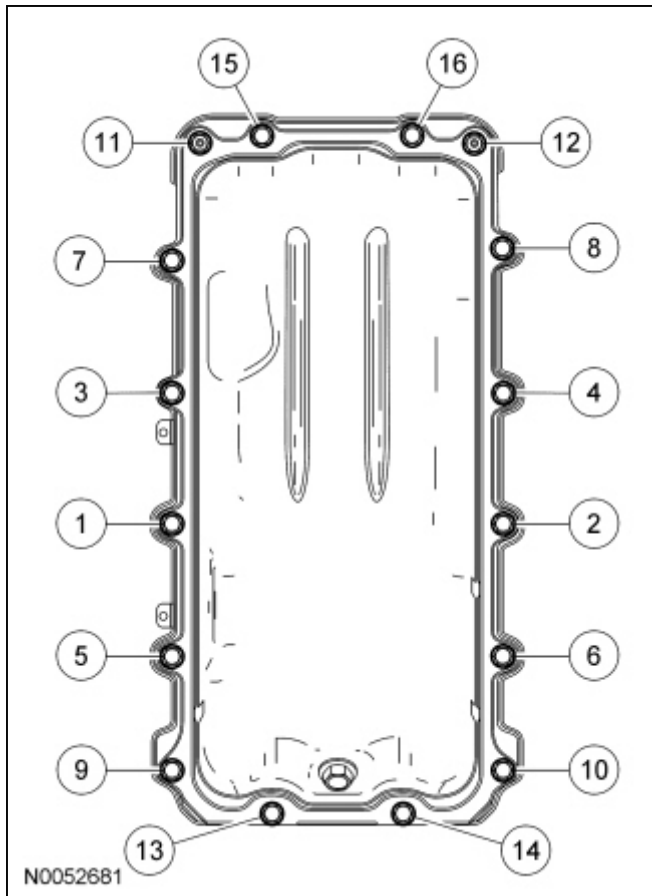


6. **NOTICE:** If not secured within 4 minutes, the sealant must be removed and the sealing area cleaned. To clean the sealing area, use silicone gasket remover and metal surface prep. Follow the directions on the packaging. Failure to follow this procedure can cause future oil leakage.

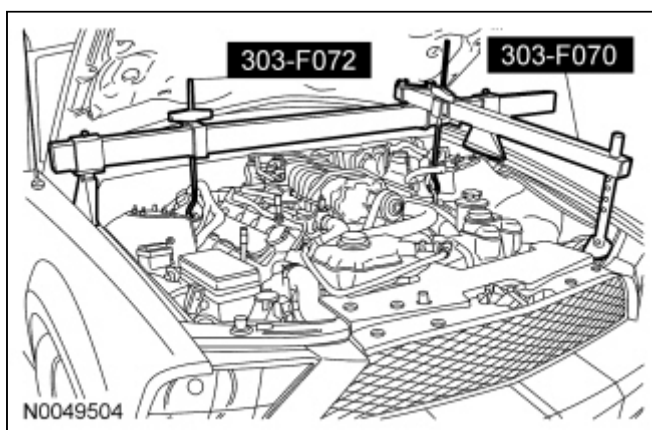
Apply silicone gasket and sealant at the engine front cover-to-cylinder block sealing joints and the crankshaft rear seal retainer plate-to-cylinder block sealing joints.



7. Using a new gasket, install the oil pan, 14 bolts and 2 stud bolts.
- Tighten in the sequence shown to 25 Nm (18 lb-ft).

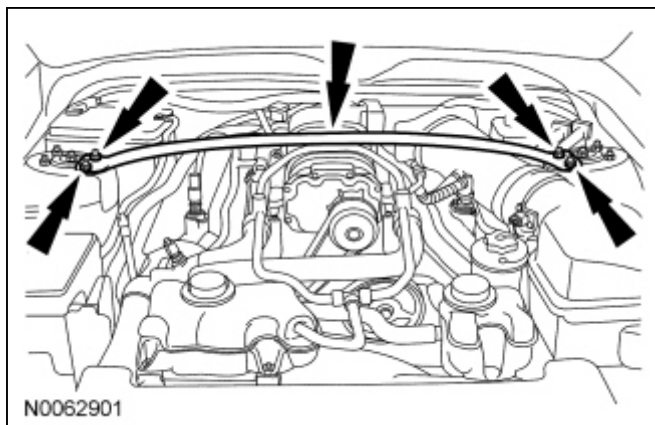


8. Install the wire harness retainer bracket on the oil pan stud bolt and install the nut.
 - Tighten to 10 Nm (89 lb-in).
9. Attach the wiring harness retainer to the oil pan stud bolt.
10. Attach the 2 wiring harness retainers to the oil pan.
11. Using the Engine Support Bars, lower the engine onto the engine support insulators.



12. Install the LH and RH engine support insulator nuts.
 - Tighten to 63 Nm (46 lb-ft).
13. Install the engine-to-transmission spacer plate.
14. Install the flywheel. For additional information, refer to [Flywheel](#) in this section.
15. Install the [ACL](#) outlet pipe. For additional information, refer to [Section 303-12](#).

16. Install the battery and tray. For additional information, refer to [Section 414-01](#).
17. Install the strut tower cross brace and the 4 nuts.
 - Tighten to 35 Nm (26 lb-ft).



18. Fill the engine with clean engine oil.
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