



## Cylinder Block Cradle

### Special Tool(s)

 ST1595-A	Lifting Bracket, Engine 303-050 (T70P-6000)
 ST2425-A	Support Bar, Engine 303-F072

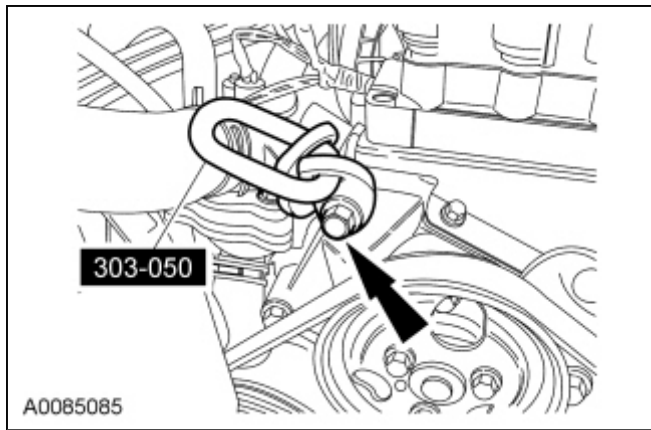
### Material

Item	Specification
Motorcraft® Metal Surface Prep ZC-31-A	—
Silicone Gasket and Sealant TA-30	WSE-M4G323- A4
Motorcraft® Silicone Gasket Remover ZC-30	—

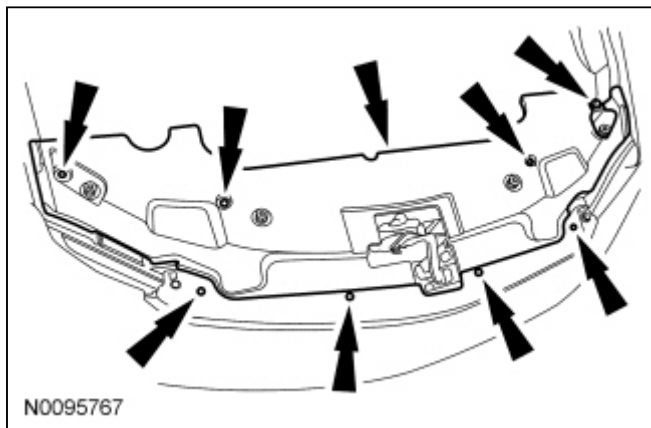
### Removal

**NOTICE:** During engine repair procedures, cleanliness is extremely important. Any foreign material, including any material created while cleaning gasket surfaces that enters the oil passages, coolant passages or the oil pan, can cause engine failure.

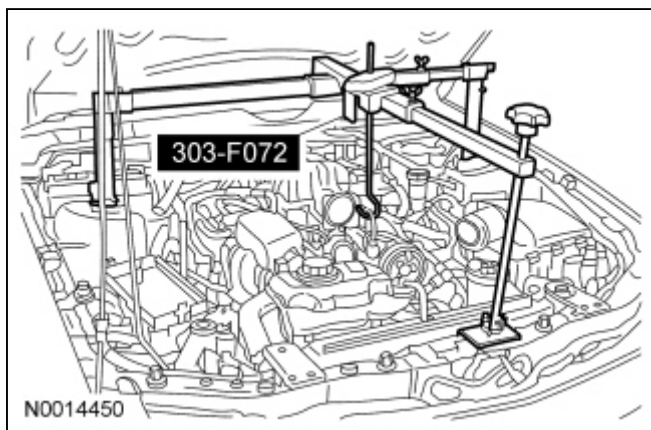
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to [Section 100-02](#).
2. Disconnect the battery ground cable. For additional information, refer to [Section 414-01](#).
3. Remove the Throttle Body (TB). For additional information, refer to [Section 303-04A](#).
4. Remove the Front End Accessory Drive (FEAD) bracket bolt and install the Engine Lifting Bracket.



5. Remove the 8 pin-type retainers and the radiator sight shield.

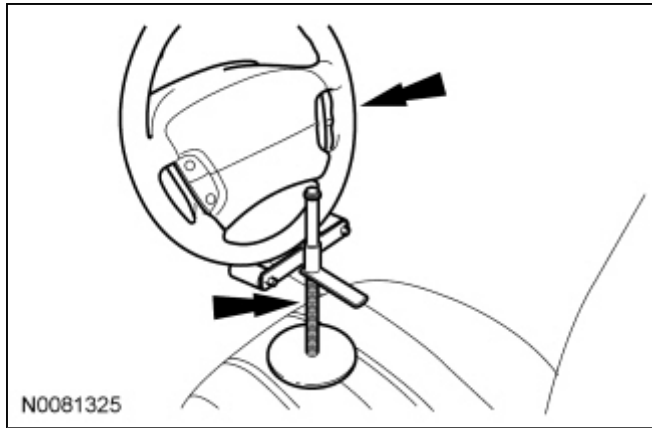


6. Install the Engine Support Bar.



7. **NOTE:** Use a steering wheel holding device (such as Hunter® 28-75-1 or equivalent).

Using a suitable holding device, hold the steering wheel in the straight-ahead position.

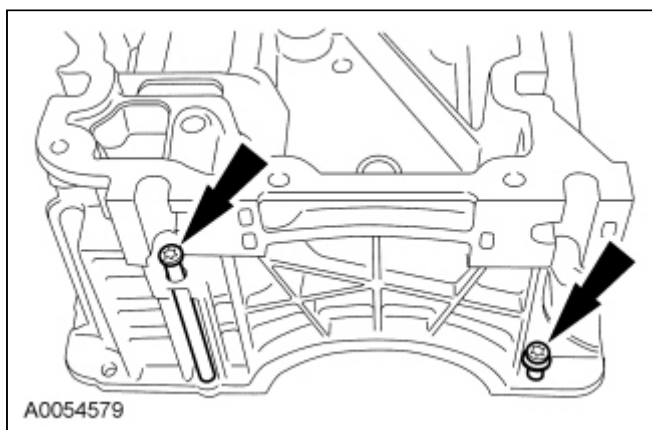


8. Remove the RH engine mount nut.
9. Remove the LH engine mount nut.
10. Remove the oil pump screen and pickup tube. For additional information, refer to [Oil Pump Screen and Pickup Tube](#) in this section.
11. **NOTICE:** Do not allow the steering wheel to rotate while the steering column intermediate shaft is disconnected or damage to the clockspring can result. If there is evidence that the wheel has rotated, the clockspring must be removed and recentered. For additional information, refer to [Section 501-20B](#).

Remove the bolt and detach the steering column intermediate shaft from the steering gear.

12. Remove the starter. For additional information, refer to [Section 303-06](#).
13. **NOTE:** The cylinder block cradle removed for clarity. Note the location of the 2 Torx head bolts at the rear of the cylinder block cradle.

Remove the 2 cylinder block cradle rear Torx bolts.

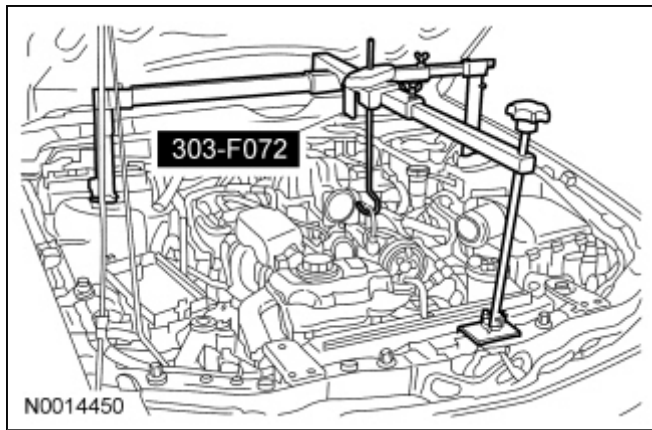


14. Remove the 20 bolts and 2 nuts along the outside of the cylinder block cradle.
15. **NOTE:** Note the location of the 2 silver-colored bolts that have washer seals. They must be installed in the same position with new washer seals.

Remove the 8 cylinder block cradle inner bolts and the 2 washer seals.

- Discard the washer seals.

16. Using the Engine Support Bar, raise the engine.

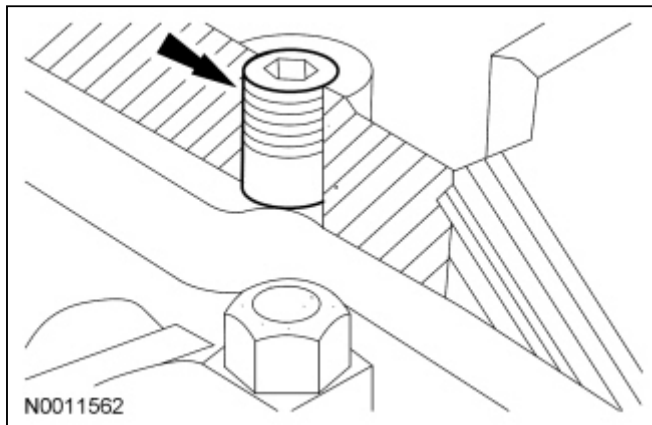


17. Support the subframe.
18. Remove the 4 front subframe bolts at the torque box.
19. Remove the 4 front subframe nuts.
20. Lower the front subframe.
21. Remove the cylinder block cradle.

## Installation

1. **NOTICE:** Failure to back off the set screws can result in damage to the cylinder block cradle.

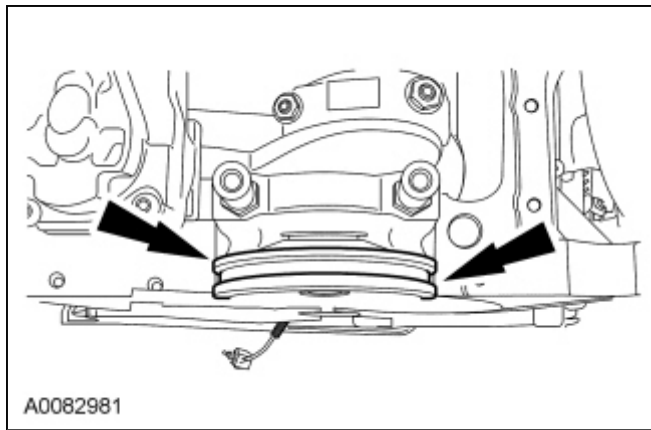
Back the set screws off until they are below the cylinder block cradle boss.



2. **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.

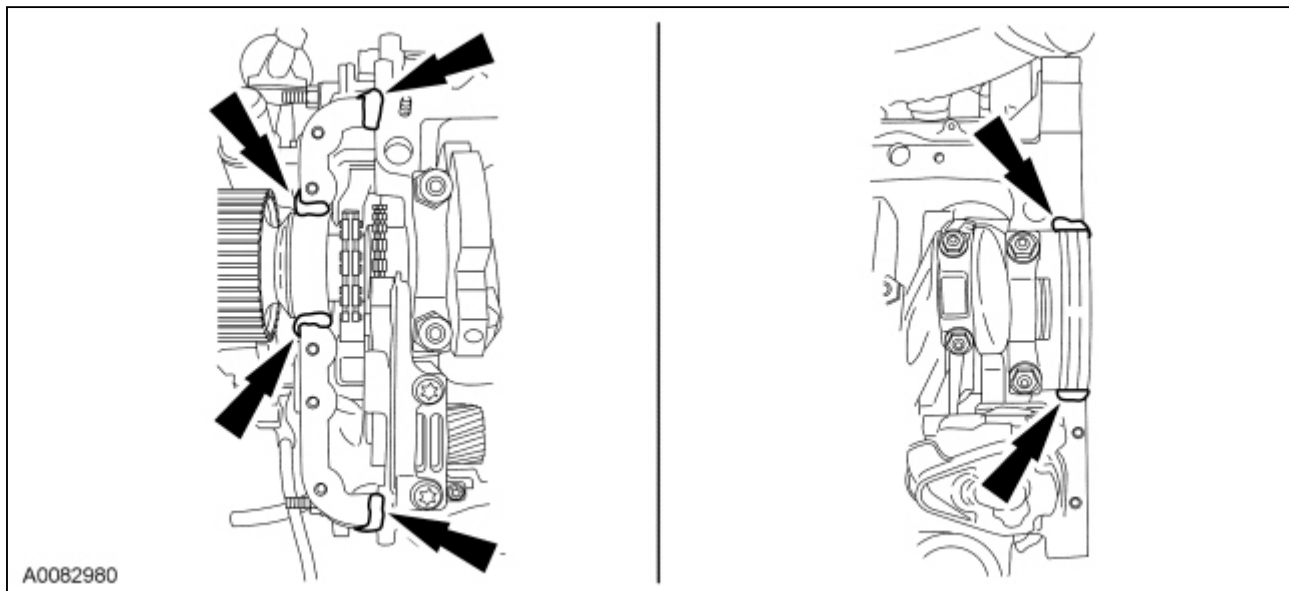
**NOTE:** Gasket material as well as silicone sealant may be present in the cavities in the main bearing cap. This material must be removed completely prior to assembly.

Clean the gasket mating surfaces, making sure all the sealant is removed from the cavities on the rear main bearing cap. To clean the sealing area, use silicone gasket remover and metal surface prep. Follow the directions on the packaging.

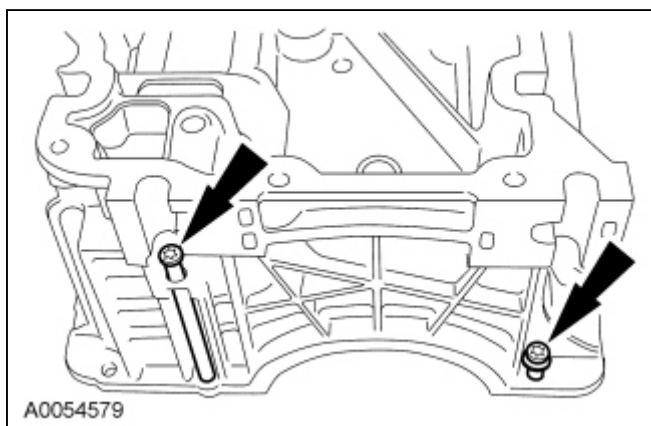


3. **NOTE:** If not secured within 4 minutes, the sealant must be removed and the sealing area cleaned. To clean the sealing area, use silicone gasket remover and metal surface prep. Follow the directions on the packaging. Failure to follow this procedure can cause future oil leakage.

Apply silicone in the 6 places shown.

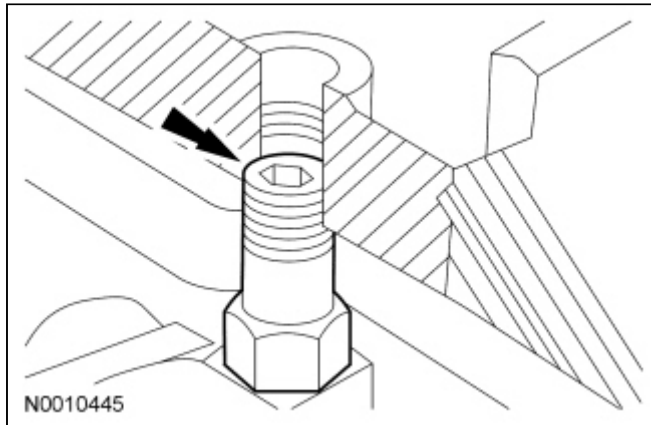


4. Position a new gasket and the cylinder block cradle.
5. Install the outer 20 bolts and 2 nuts finger-tight.
6. Install the 2 cylinder block cradle rear Torx bolts finger-tight.

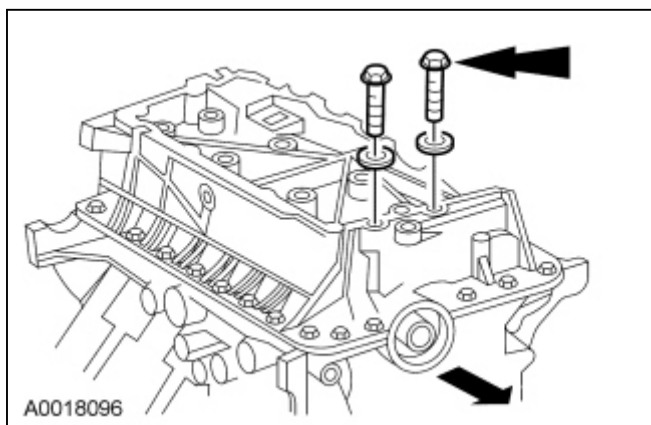


7. Install the 2 bellhousing-to-cylinder block cradle bolts.
  - Tighten to 47 Nm (35 lb-ft).

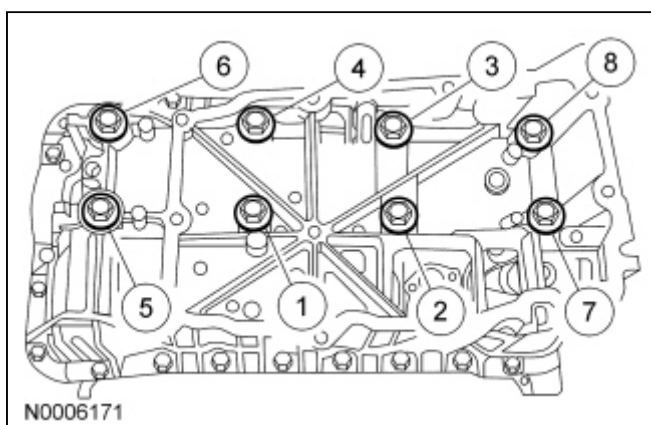
8. Tighten the outer 20 bolts and 2 nuts.
  - Tighten the nuts to 10 Nm (89 lb-in).
  - Tighten the bolts to 14 Nm (124 lb-in).
9. Tighten the 2 cylinder block cradle rear Torx bolts.
  - Tighten to 10 Nm (89 lb-in).
10. Tighten the 8 inserts.
  - Tighten to 3 Nm (27 lb-in).



11. Install the 2 silver-colored bolts and new washer seals finger-tight.



12. Install the 6 remaining inner bolts finger-tight.
13. Tighten the 8 inner bolts in the sequence shown in 2 stages.
  - Stage 1: Tighten to 15 Nm (133 lb-in).
  - Stage 2: Tighten to 34 Nm (25 lb-ft).



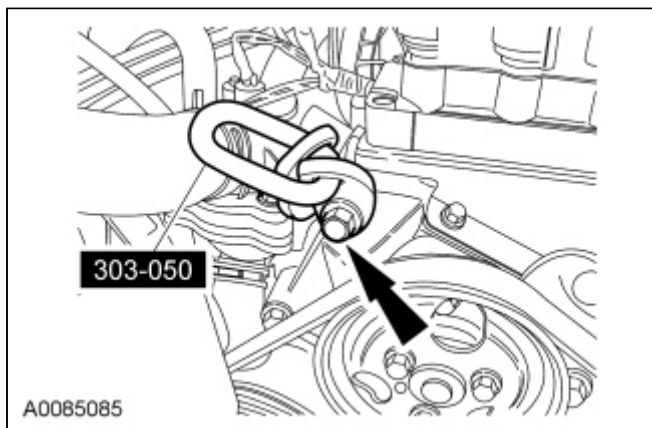
14. **NOTE:** Use a suitable alignment tool with a 15 mm (0.59 in) OD shaft that is long enough to go through the subframe and body. Align the subframe to the body before tightening the subframe bolts and nuts to specification.

Raise and support the front subframe.

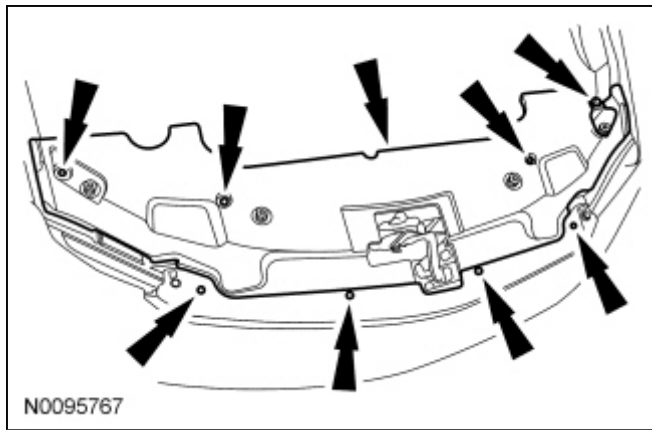
15. Install the 4 front subframe nuts.
- Tighten to 115 Nm (85 lb-ft).
16. Install the 4 front subframe bolts at the torque box.
- Tighten to 115 Nm (85 lb-ft).
17. Install the starter. For additional information, refer to [Section 303-06](#).
18. **NOTICE:** Do not allow the steering wheel to rotate while the steering column intermediate shaft is disconnected or damage to the clockspring can result. If there is evidence that the wheel has rotated, the clockspring must be removed and recentered. For additional information, refer to [Section 501-20B](#).

Attach the steering column intermediate shaft to the steering gear and install the bolt.

- Tighten to 25 Nm (18 lb-ft).
19. Install the oil pump screen and pickup tube. For additional information, refer to [Oil Pump Screen and Pickup Tube](#) in this section.
20. Lower the engine and install the LH engine mount nut.
- Tighten to 63 Nm (46 lb-ft).
21. Install the RH engine mount nut.
- Tighten to 63 Nm (46 lb-ft).
22. Remove the Engine Lifting Brackets and install the **FEAD** bracket bolt.
- Tighten to 48 Nm (35 lb-ft).



23. Position the radiator sight shield and install the 8 pin-type retainers.



24. Install the [TB](#). For additional information, refer to [Section 303-04A](#).
  25. Connect the battery ground cable. For additional information, refer to [Section 414-01](#).
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