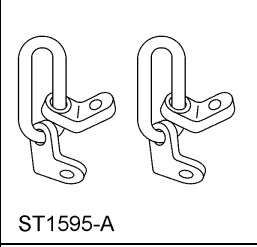
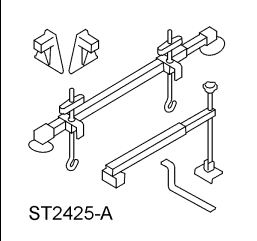


IN-VEHICLE REPAIR

Cylinder Block Cradle

Special Tool(s)

 <p>ST1595-A</p>	<p>Lifting Bracket, Engine 303-050 (D70P-6000) or equivalent</p>
 <p>ST2425-A</p>	<p>3-Bar Engine Support Kit 303-F072</p>

Material

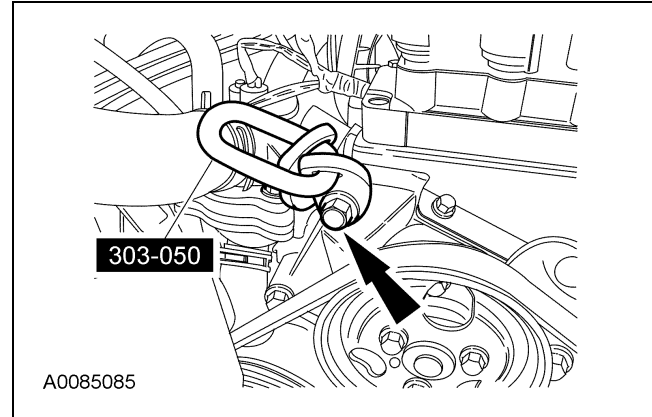
Item	Specification
Silicone Gasket Remover ZC-30	—
Motorcraft Metal Surface Prep ZC-31	—
Silicone Gasket and Sealant TA-30	WSE-M4G323-A4

Removal

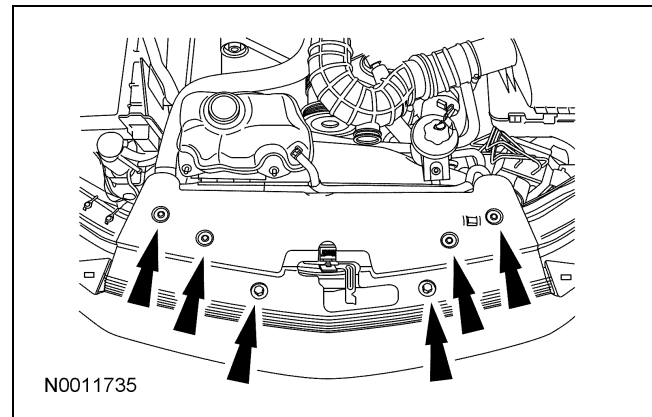
⚠ CAUTION: During engine repair procedures, cleanliness is extremely important. Any foreign material, including any material created while cleaning gasket surfaces that enters the oil passages, coolant passages or the oil pan, can cause engine failure.

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 air cleaner outlet pipe. For additional information, refer to Section 303-12.
4. Disconnect the throttle position (TP) sensor and throttle body (TB) electrical connectors.

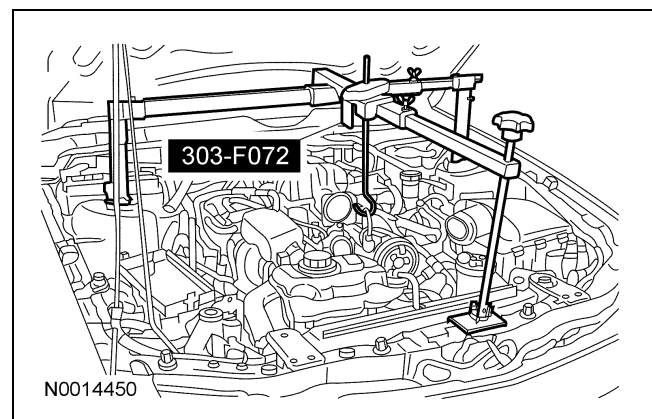
5. Remove the 4 bolts and position the throttle body (TB) aside.
6. Remove the front end accessory drive (FEAD) bracket bolt and install the special tool.



7. Remove the 6 pin-type retainers and the radiator sight shield.




8. Install the special tools.



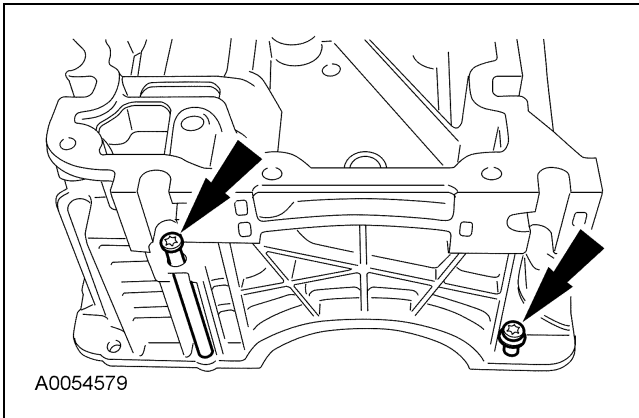
9. Remove the RH engine mount nut.

IN-VEHICLE REPAIR (Continued)

10. Remove the LH engine mount nut.
11. Remove the oil pump screen and pickup tube. For additional information, refer to Oil Pump Screen and Pickup Tube in this section.
12.  **CAUTION: 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.

13. Remove the 2 steering gear-to-crossmember bolts and detach the gear from the crossmember.
14. **NOTE:** The cylinder block cradle is shown 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.



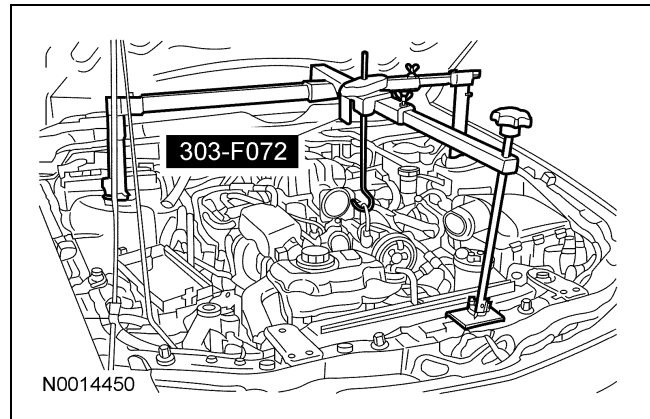
15. Remove the 2 bolts and position the starter motor aside.
16. Remove the 20 bolts and 2 nuts along the outside of the cylinder block cradle.


17. **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.

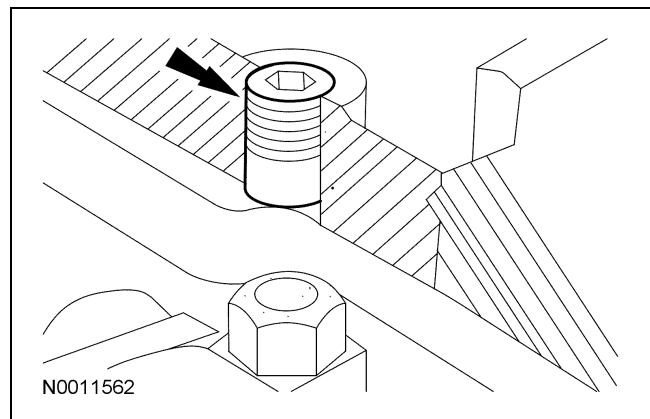
- Discard the washer seals.

18. Using the special tools, raise the engine and then remove the lower block cradle.

**Installation**

1.  **CAUTION: 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.

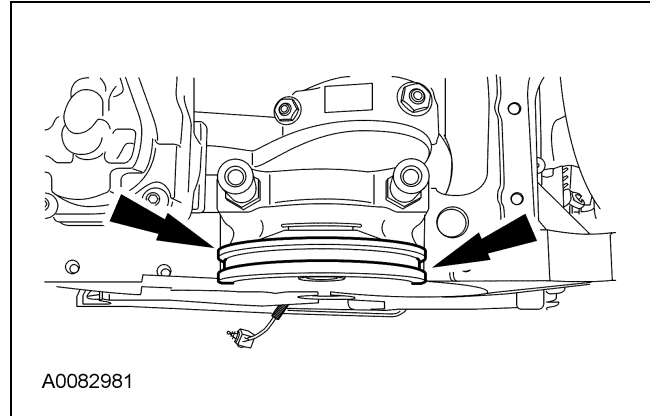


IN-VEHICLE REPAIR (Continued)

2. **⚠ CAUTION:** 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.

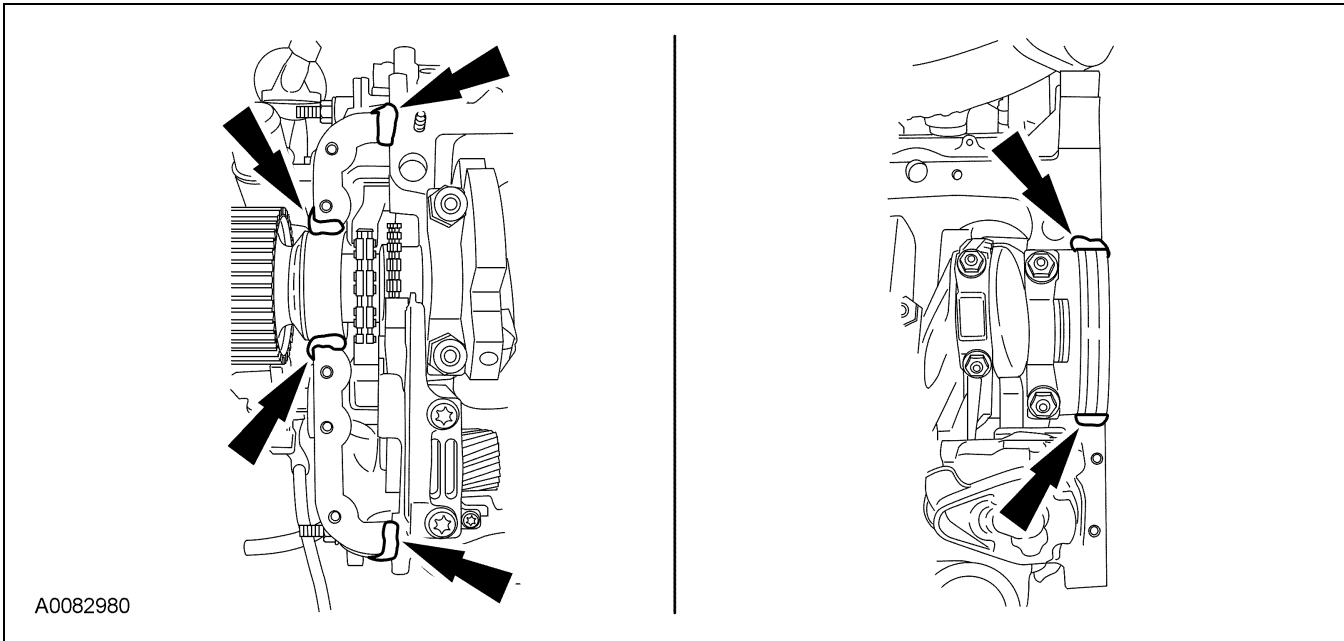
NOTE: Gasket material as well as silicone sealant may be present in the cavities in the main bearing cap. This material must be removed completely prior to assembly.

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.

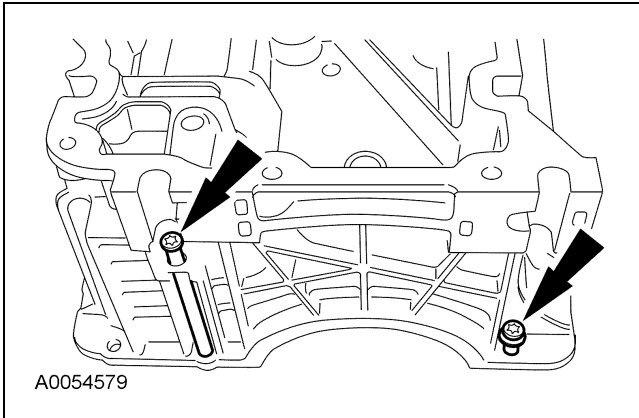
Apply silicone in the 6 places shown.



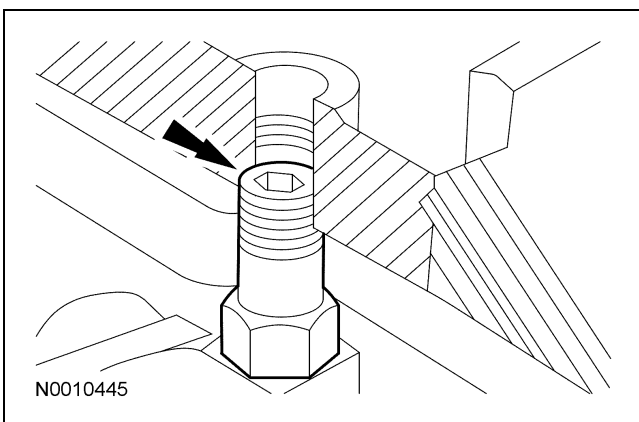
4. Position a new gasket and the cylinder block cradle. Install the outer bolts and nuts finger tight.
5. Install the outer 20 bolts and 2 nuts finger tight.

IN-VEHICLE REPAIR (Continued)

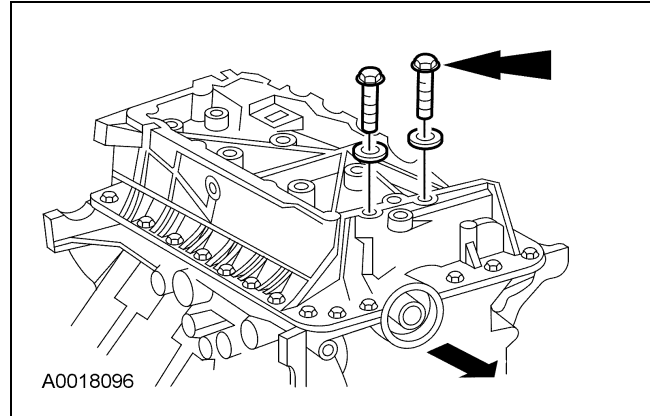
6. Install the 2 cylinder block cradle rear Torx® bolts finger tight.



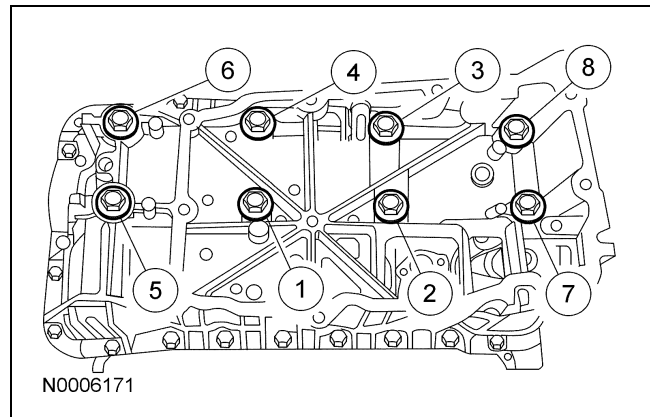
7. Install the 2 bell housing-to-cylinder block cradle bolts.
- Tighten to 47 Nm (35 lb-ft).
8. Tighten the outer 20 bolts and 2 nuts.
- Tighten the bolts with washers and both nuts to 10 Nm (89 lb-in).
 - Tighten the bolts without washers to 14 Nm (10 lb-ft).
9. Tighten the 2 cylinder block cradle rear Torx® bolts.
- Tighten to 8 Nm (71 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 (11 lb-ft).
 - Stage 2: Tighten to 34 Nm (25 lb-ft).



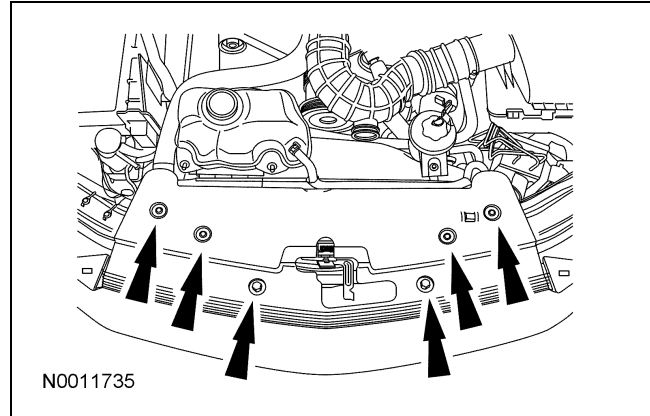
14. Position the starter motor and install the 2 bolts.
- Tighten to 25 Nm (18 lb-ft).
15. Position the steering gear and install the 2 bolts.
- Tighten to 115 Nm (85 lb-ft).
16. **⚠ CAUTION: Do not allow the steering wheel to rotate while the steering column intermediate shaft is disconnected or damage 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).

IN-VEHICLE REPAIR (Continued)

17. Install the oil pump screen and pickup tube. For additional information, refer to Oil Pump Screen and Pickup Tube in this section.
18. Lower the engine and install the LH engine mount nut.
 - Tighten to 63 Nm (46 lb-ft).
19. Install the RH engine mount nut.
 - Tighten to 63 Nm (46 lb-ft).
20. Remove the engine lifting bracket and install the FEAD bracket bolt.
 - Tighten to 48 Nm (35 lb-ft).
21. Position the radiator sight shield and install the 6 pin-type retainers.



22. **NOTE:** Inspect and install a new TB gasket as necessary.
Position the TB and install the 4 bolts.
 - Tighten to 10 Nm (89 lb-in).
23. Connect the TP sensor and TB electrical connectors.
24. Install the air cleaner outlet pipe. For additional information, refer to Section 303-12.
25. Connect the battery ground cable. For additional information, refer to Section 414-01.