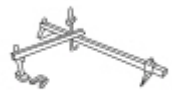
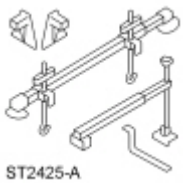
Oil Pan

Special Tool(s)

 ST1603-A	Lifting Bracket, Engine (2 required) 303-D087 (D93P-6001-A1) or equivalent
 ST2176-B	Support Bar, Engine 303-F070
 ST2425-A	Support Bar, Engine 303-F072

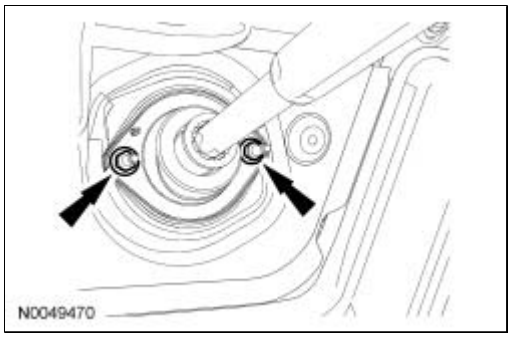
Material

Item	Specification
Motorcraft® High Performance Engine RTV Silicone TA-357	WSE-M4G323-A6
Motorcraft® Metal Surface Prep ZC-31-A	—
Motorcraft® SAE 5W-50 Full Synthetic Motor Oil XO-5W50-QGT	WSS-M2C931-C
Motorcraft® Silicone Gasket Remover ZC-30	—

Removal

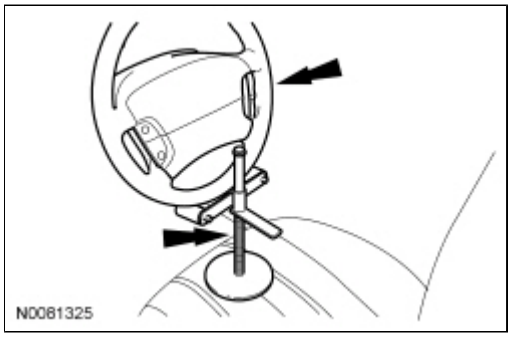
NOTICE: **During engine repair procedures, cleanliness is extremely important. Any foreign material, including any material created while cleaning gasket surfaces, that enters the oil passages, coolant passages or the oil pan, can cause engine failure.**

1. With the vehicle in NEUTRAL, position it on a hoist. Refer to Section 100-02 .
2. Remove the 2 dash boot nuts.

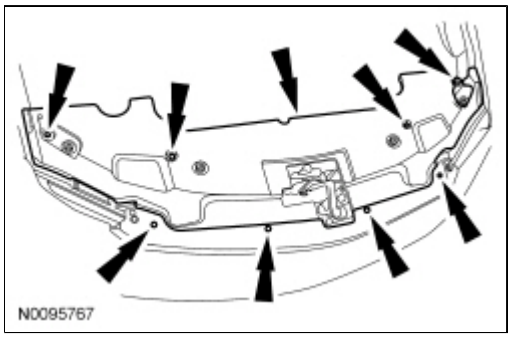


3. **NOTE:** Use a steering wheel holding device (such as Hunter® 28-75-1 or equivalent).

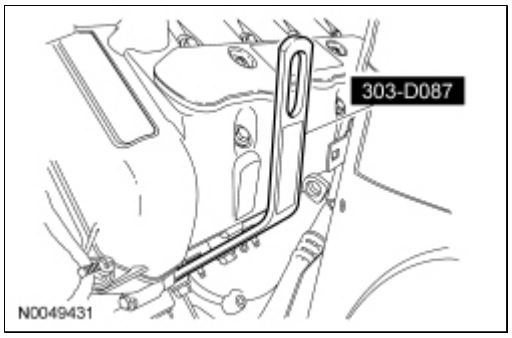
   Using a suitable holding device, hold the steering wheel in the straight-ahead position.



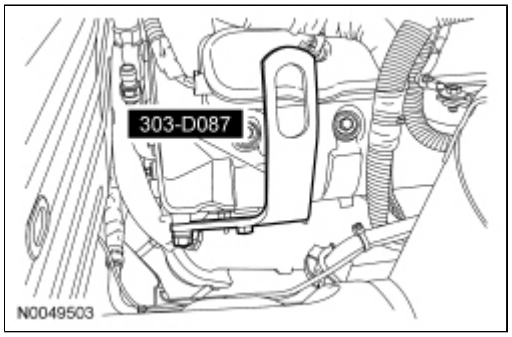
4. Remove the Air Cleaner (ACL) assembly and the ACL outlet pipe. Refer to Section 303-12 .
5. Remove the battery and tray. Refer to Section 414-01 .
6. Remove the 8 pin-type retainers and the upper radiator sight shield.



7. Install the Engine Lifting Bracket.

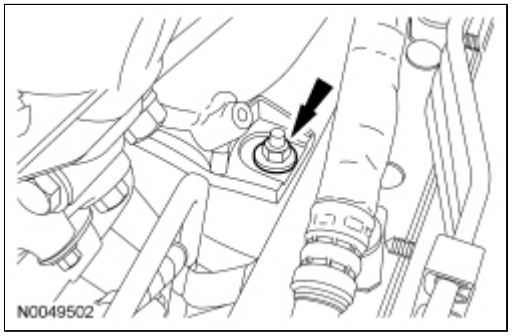


8. Install the Engine Lifting Bracket.



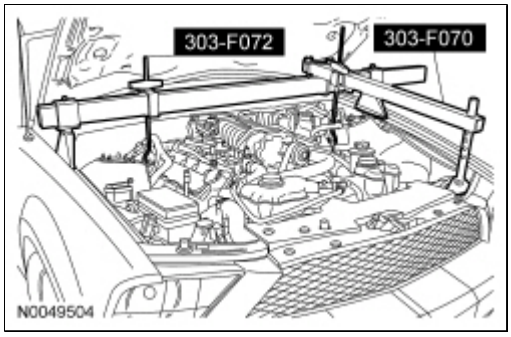
9. **NOTE:** LH side shown, RH side similar.

   Remove the LH and RH engine support insulator nuts.



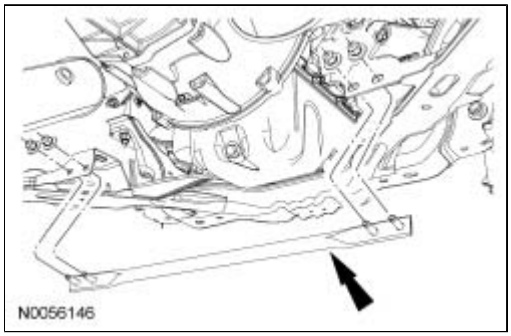
10. **NOTE:** The heavy duty Engine Support Bar (303-F070) must be used with the draw screws from the light duty Engine Support Bar (303-F072). This will provide enough clearance between the Supercharger (SC) and the Engine Support Bar, and enough clearance between the draw screw and the vehicle hood.

    Install the Engine Support Bars and raise the engine.

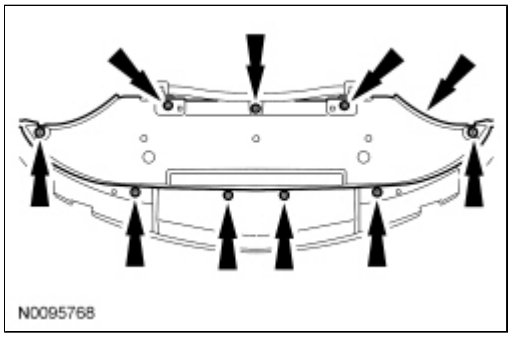


11. Drain the engine oil.
    - Tighten the drain plug to 26 Nm (19 lb-ft).

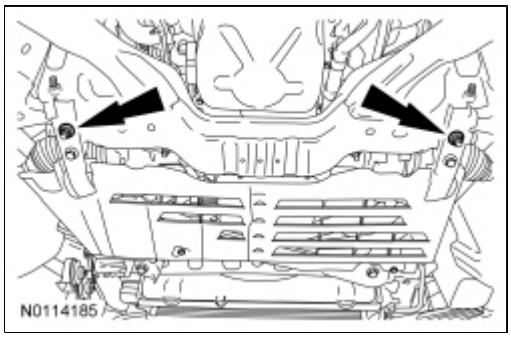
12. Remove the 4 nuts and the rear subframe cross brace.



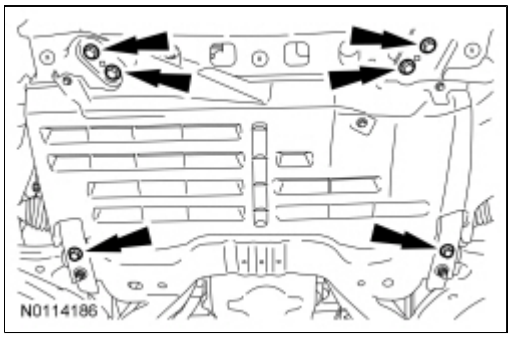
13. Remove the 9 screws and the lower air deflector.



14. Loosen the 2 crossmember brace nuts.



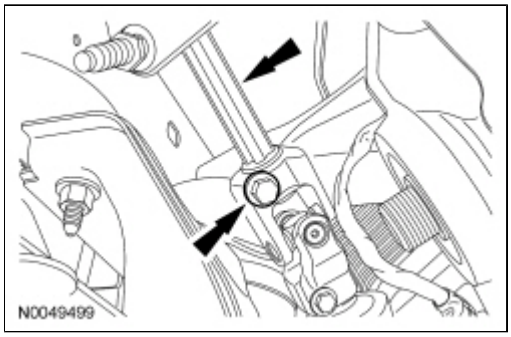
15. Remove the 6 bolts and remove the crossmember brace.



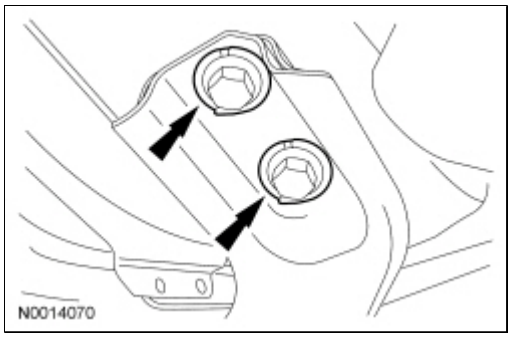
16. Position 2 adjustable jackstands under the subframe.

17. ***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 upper bolt from the intermediate steering shaft.



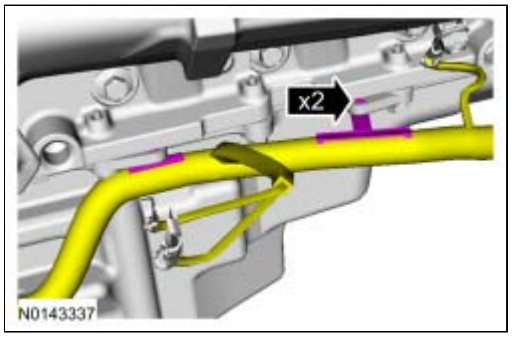
18. Mark the position of the 4 subframe nuts and 4 subframe bolts for referencing during assembly.



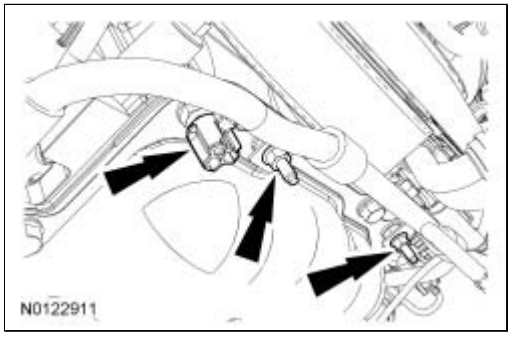
19. Remove the 4 subframe nuts and 4 subframe bolts.

20. Using the adjustable jackstands, lower the subframe 150 mm (5.905 in).

21. Detach the 2 wiring harness retainers from the oil pan.

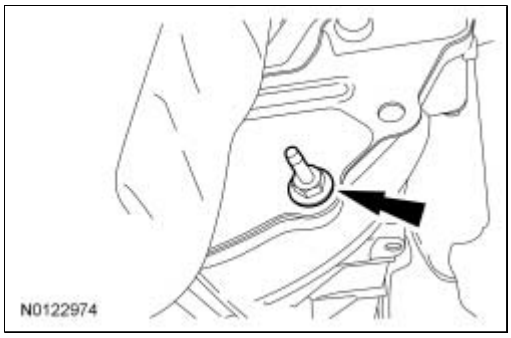


22. Disconnect the wire retainer. Remove the 2 nuts and the 2 wire harness retainer brackets from the oil pan stud bolts.

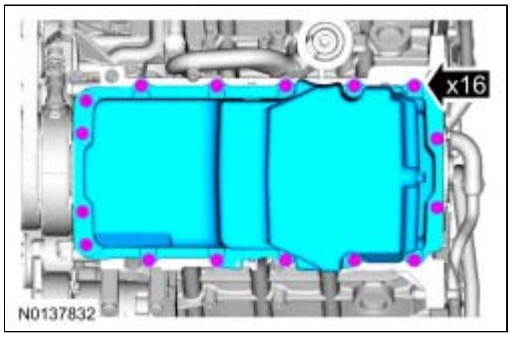


23. **NOTE:** LH side shown, RH side similar.

    Remove the 2 lower bellhousing stud bolts.



24. Remove the 13 bolts, the 3 stud bolts and the oil pan.



25. Remove the 3 bolts and the oil pump screen and pickup tube.
    - Discard the O-ring seal.

26. Remove and inspect the oil pan baffle and gasket, replace as necessary.

Installation

1. ***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.**

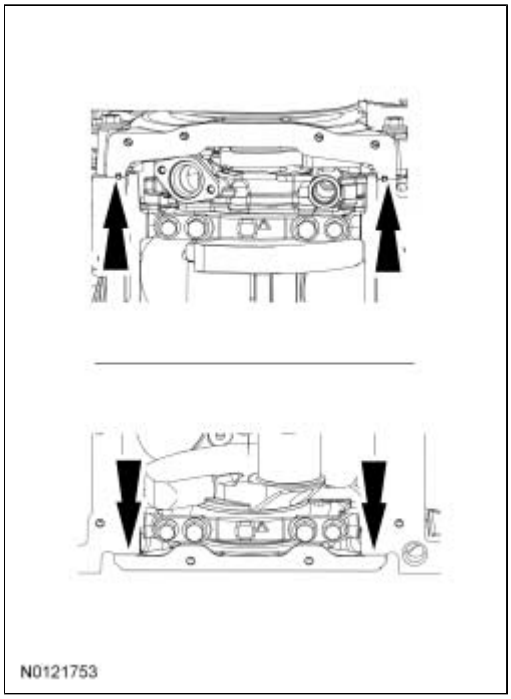
   NOTE: Clean the sealing surfaces with silicone gasket remover and metal surface prep. Follow the directions on the packaging. Failure to follow this procedure can cause future oil leakage.

   Clean and inspect the mating surfaces of the engine block and oil pan.

2. ***NOTICE:*** **Failure to use Motorcraft® High Performance Engine RTV Silicone may cause the engine oil to foam excessively and result in serious engine damage.**

   NOTE: If the oil pan is not installed and the fasteners tightened 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. Failure to follow this procedure can cause future oil leakage. If this timing cannot be met, tighten fasteners 7, 8, 9 and 10 to 8 Nm (71 lb-in) within 4 minutes of applying the sealer and final torque all of the fasteners within 1 hour of applying the sealer.

   Apply an 8 mm (0.31 in) bead of Motorcraft® High Performance Engine RTV Silicone to the crankshaft rear seal retainer plate-to-cylinder block sealing surfaces and the engine front cover-to-cylinder block sealing surfaces.



3. Position the oil pan baffle and gasket.

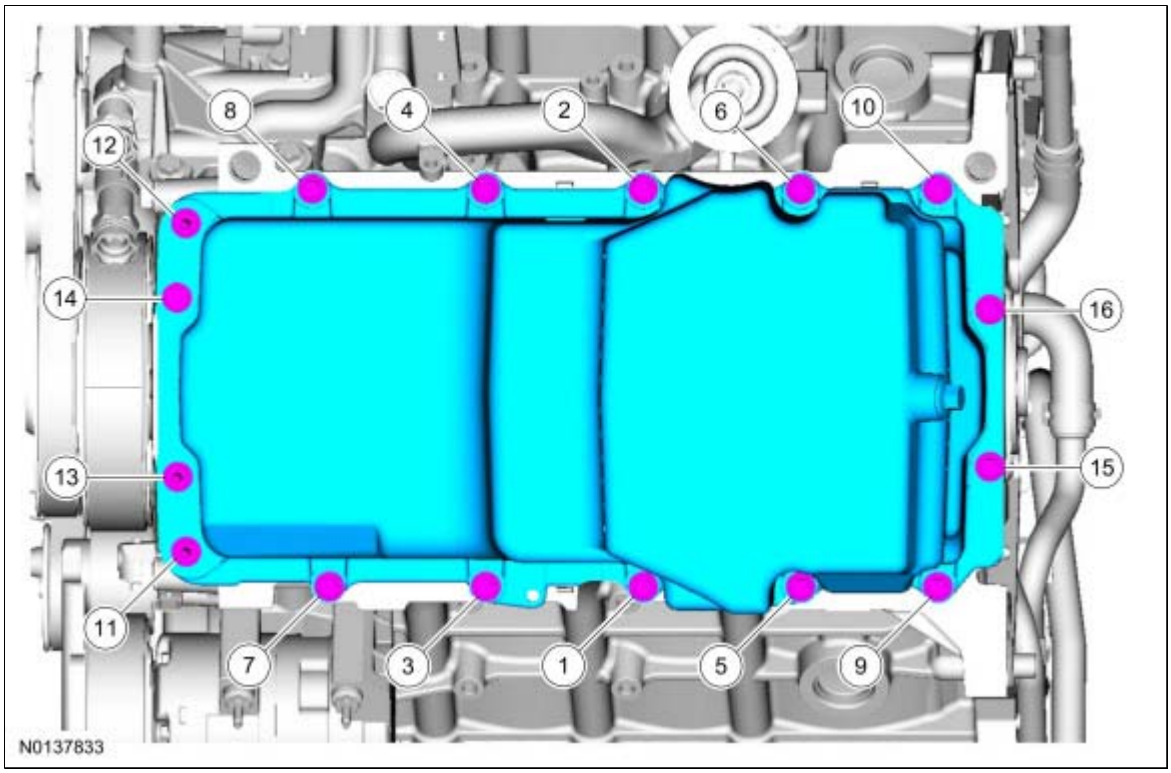
4. **NOTE:** The 2 oil pump screen and pickup tube-to-oil pump bolts must be tightened prior to tightening the oil pump screen and pickup tube-to-spacer bolt.

   Using a new O-ring seal, install the oil pump screen and pickup tube and the 3 bolts. Tighten the 2 oil pump screen and pickup tube-to-oil pump bolts.
   - Tighten to 10 Nm (89 lb-in).

5. Tighten the oil pump screen and pickup tube-to-spacer bolt to 25 Nm (18 lb-ft).

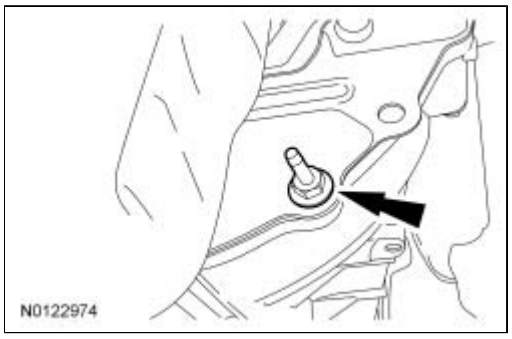
6. **NOTE:** Fastener locations 11, 12 and 13 are stud bolts.

   Install the oil pan, 13 bolts and 3 stud bolts. Tighten in the sequence shown
   - Tighten to 25 Nm (18 lb-ft).

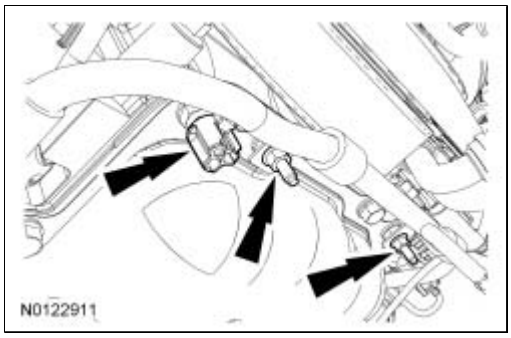


7. **NOTE:** LH side shown, RH side similar.

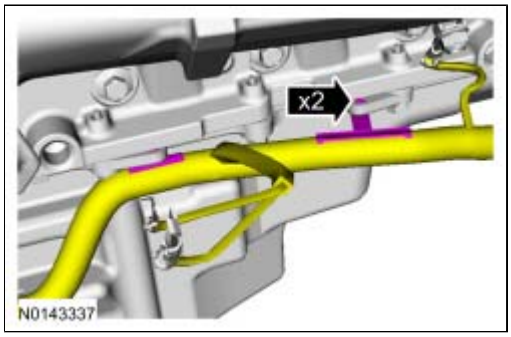
   Install the 2 lower bellhousing stud bolts.
   - Tighten to 10 Nm (89 lb-in).



8. Install the 2 wire harness retainer brackets on the oil pan stud bolts and install the 2 nuts. Connect the wire retainer.
   - Tighten to 10 Nm (89 lb-in).



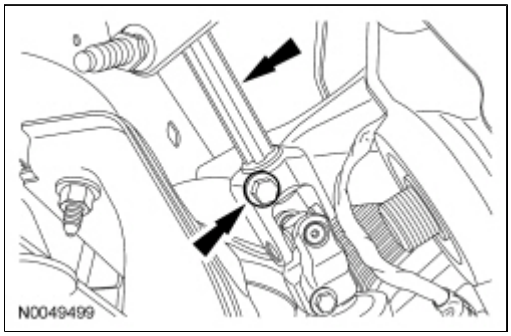
9. Attach the 2 wiring harness retainers to the oil pan.



10. Using the adjustable jackstand, raise the subframe.

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 .**

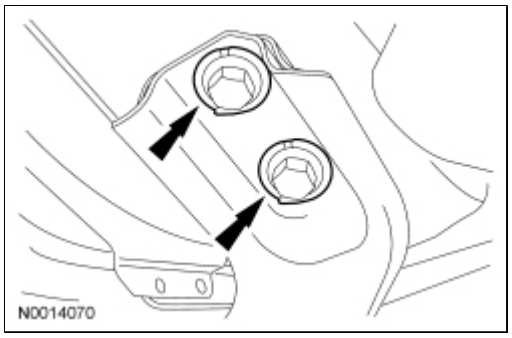
    Position the intermediate steering shaft and install the upper bolt.
    - Tighten to 47 Nm (35 lb-ft).



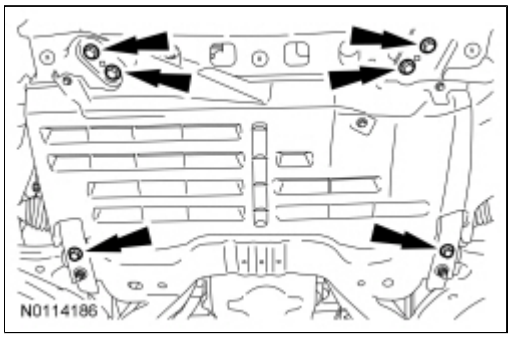
12. **NOTE:** Do not tighten the subframe nuts and bolts at this time.

    Install the 4 subframe nuts and 4 subframe bolts.

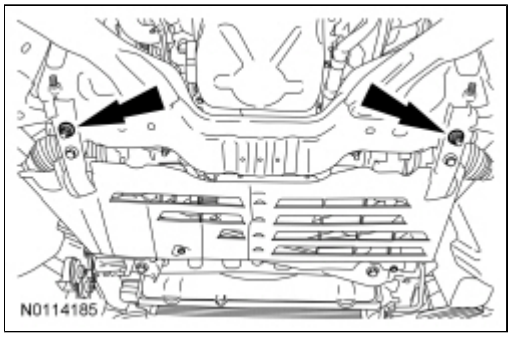
13. Align the subframe nuts and bolts with the reference marks made during removal.
    - Tighten the nuts to 115 Nm (85 lb-ft).
    - Tighten the bolts to 115 Nm (85 lb-ft).



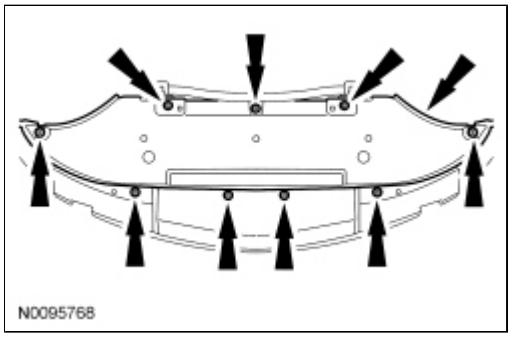
14. Install the crossmember brace and the 6 bolts.
    - Tighten to 48 Nm (35 lb-ft).



15. Tighten the 2 crossmember brace nuts.
    - Tighten to 48 Nm (35 lb-ft).

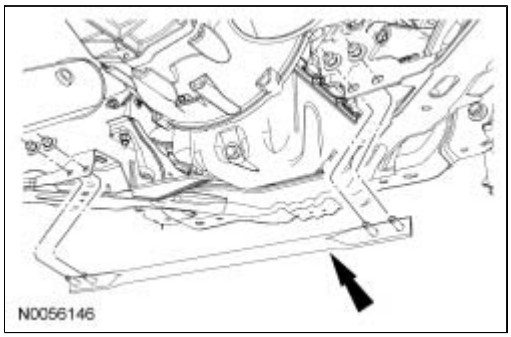


16. Install the lower air deflector and the 9 screws.

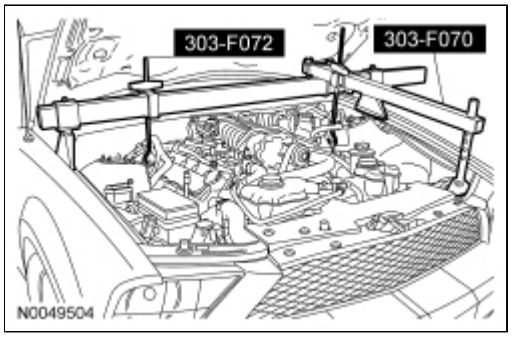


17. Install the subframe rear cross brace and the 4 nuts.

- Tighten to 48 Nm (35 lb-ft).



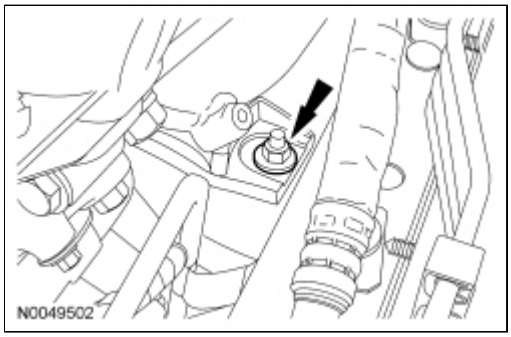
18. Using the Engine Support Bars, lower the engine onto the engine support insulators.



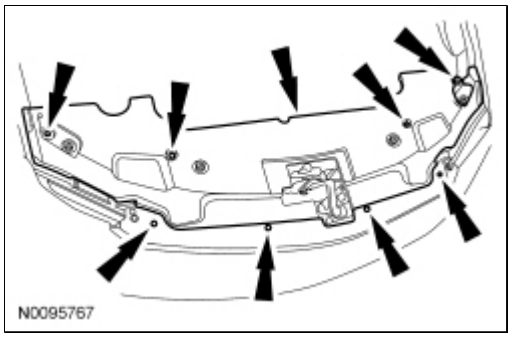
19. ***NOTICE:*** **Do not tighten the engine support insulator nuts until the full weight of the engine is on the engine insulator or damage to the engine insulator may occur.**

    NOTE: LH side shown, RH side similar.

    Install the LH and RH engine support insulator nuts.
    - Tighten to 63 Nm (46 lb-ft).



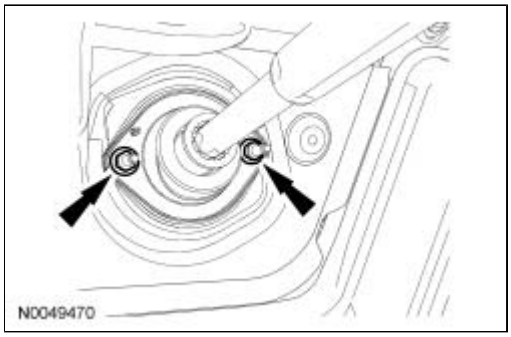
20. Install the 8 pin-type retainers and the upper radiator sight shield.



21. Install the battery and tray. Refer to Section 414-01 .

22. Install the ACL assembly and the ACL outlet pipe. Refer to Section 303-12 .

23. Install the dash boot and the 2 nuts.
    - Tighten to 9 Nm (80 lb-in).



24. Fill the engine with clean engine oil.