

SECTION 303-01C: Engine — 5.0L (4V)
REMOVAL

2014 F-150 Workshop Manual
Procedure revision date: 10/25/2013

Engine

Special Tool(s)

 ST1341-A	2,200# Floor Crane, Fold Away 300-OTC1819E
 ST1377-A	Lifting Bracket, Engine 303-F047 (014-00073)

 **WARNING:** Do not smoke, carry lighted tobacco or have an open flame of any type when working on or near any fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

 **WARNING:** Before working on or disconnecting any of the fuel tubes or fuel system components, relieve the fuel system pressure to prevent accidental spraying of fuel. Fuel in the fuel system remains under high pressure, even when the engine is not running. Failure to follow this instruction may result in serious personal injury.

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to [Section 100-02](#).
2. **NOTE:** Index-mark the hood hinge location to aid in hood installation.

NOTE: RH shown, LH similar.

Remove the 4 bolts (2 shown) and the hood.

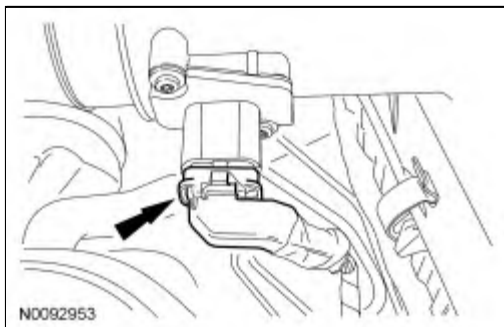


3. Release the fuel system pressure. For additional information, refer to [Section 310-00](#).

4. Disconnect the battery ground cable. For additional information, refer to [Section 414-01](#).
5. **NOTICE:** If the engine is repaired or replaced because of upper engine failure, typically including valve or piston damage, check the intake manifold for metal debris. If metal debris is found, install a new intake manifold. Failure to follow these instructions can result in engine damage.

Remove the intake manifold. For additional information, refer to [Intake Manifold](#) in this section.

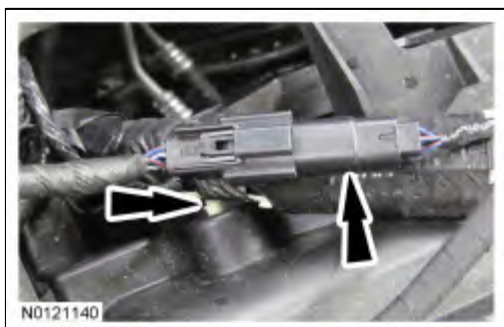
6. Disconnect the Mass Air Flow (MAF) sensor electrical connector.



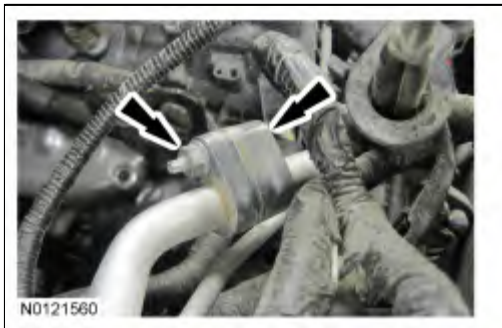
7. Remove the Air Cleaner (ACL) upper tray and the ACL element. For additional information, refer to [Section 303-12](#).
8. Remove the cooling module. For additional information, refer to [Section 303-03](#).
9. Disconnect the A/C pressure transducer electrical connector.



10. Disconnect the wiring harness electrical connector and pin-type retainer.
 - Position the Power Distribution Box (PDB) and wiring harness aside.



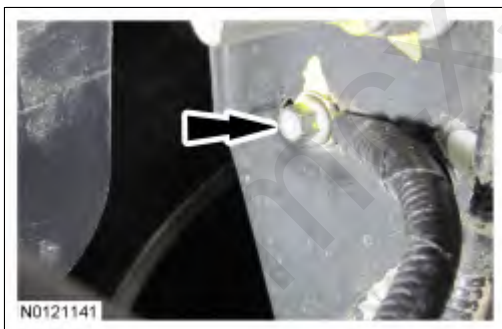
11. Remove the nut and disconnect the A/C tube.
 - Discard the O-ring seal and gasket.



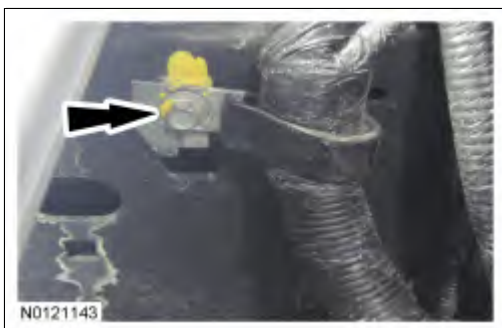
12. Remove the nut and the transmission cooler line bracket from the engine front cover stud bolt.



13. Remove the bolt and the ground wire from the RH frame rail.



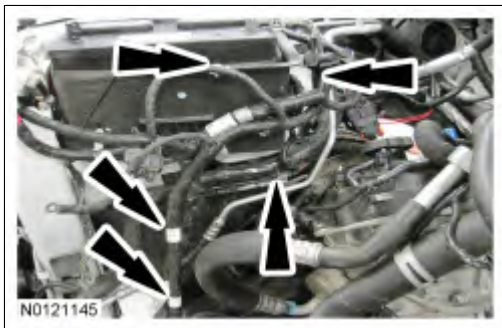
14. Remove the bolt and the wiring harness bracket from the RH frame rail.



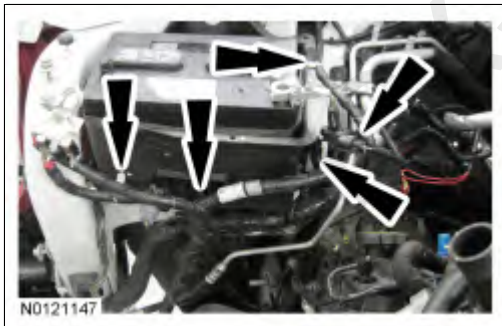
15. Remove the nut and disconnect the B+ wire.
 - Detach the wiring harness retainer from the battery tray.



16. Detach the 5 wiring harness retainers.



17. Disconnect the 2 wiring harness connectors and detach the 3 wiring harness retainers.



18. Disconnect the middle PCM electrical connector.



19. Detach and disconnect the engine harness electrical connector.



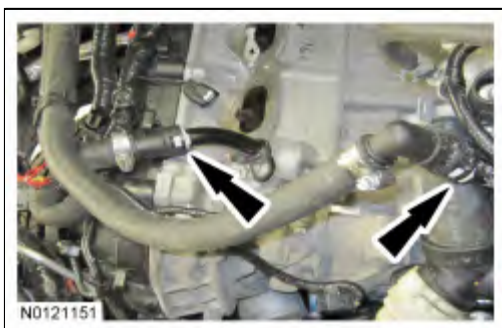
20. Detach the PCM wiring harness retainer from the valve cover bolt stud.



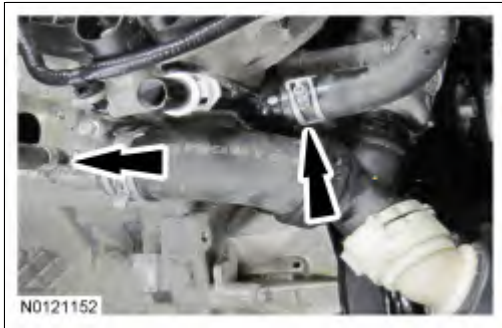
21. Remove the bolt and the ground strap from the cowl.



22. Disconnect the 2 heater hose quick connect couplings. For additional information, refer to [Section 412-00](#).



23. Disconnect the 2 coolant hoses and position aside.



24. Remove the spring clip, the clamp and disconnect the coolant bypass T assembly from the engine.



25. If equipped, disconnect the block heater electrical connector and the 2 wiring harness retainers.



26. If equipped, remove the front driveshaft. For additional information, refer to [Section 205-01](#).
27. Remove the starter. For additional information, refer to [Section 303-06](#).
28. Remove the 2 bolts and the flexplate inspection cover.



29. Remove the cylinder block opening cover.



30. **NOTE:** Index-mark the end of one torque converter stud and the flexplate for installation.

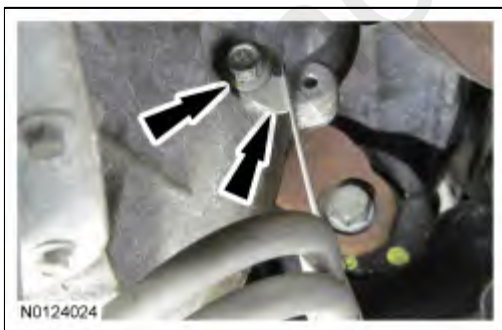
Remove the 4 torque converter-to-flexplate nuts.

- Discard the nuts.



31. **NOTE:** The 2 upper transmission-to-engine bolts will be removed later.

Remove the transmission-to-engine bolt and transmission cooler tube support bracket.



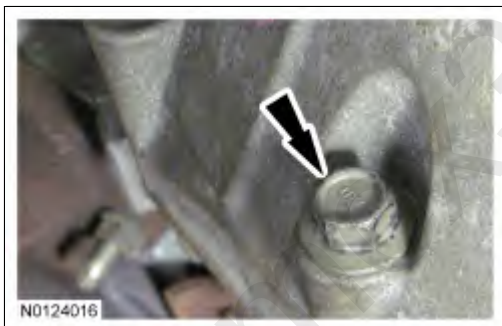
32. Remove the lower transmission-to-engine bolt.



33. Remove the 2 lower transmission-to-engine bolts.



34. Remove the lower transmission-to-engine bolt.



35. Remove the drain plug and drain the engine oil.
- Install the drain plug and tighten to 26 Nm (19 lb-ft).
36. Remove and discard the engine oil filter.



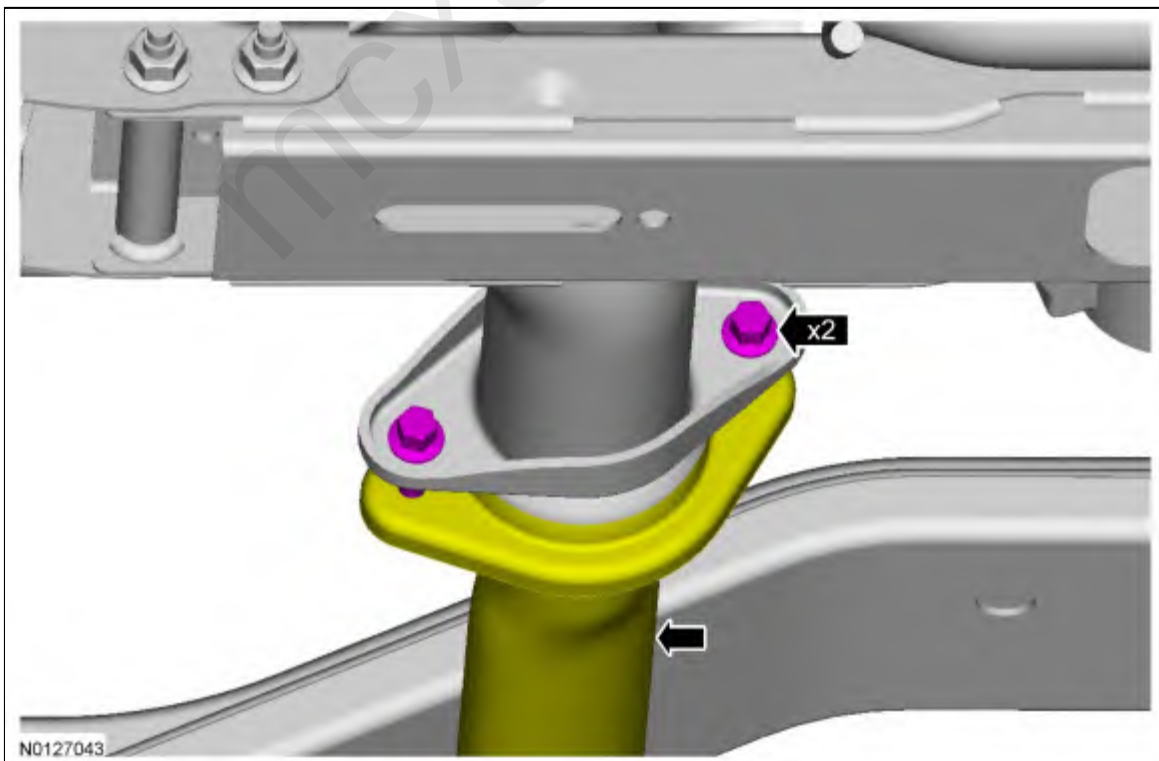
37. Remove and discard the 2 LH catalytic converter-to-exhaust manifold nuts.



38. Remove and discard the RH catalytic converter-to-exhaust manifold nut.



39. Remove the 2 exhaust Y-pipe dual catalytic converter-to-exhaust intermediate pipe bolts and separate.
- Discard the 2 bolts.



40. **NOTICE:** Only use hand tools when removing the engine support insulator nuts or the engine support insulator may be damaged.

NOTE: If during nut removal the stud is extracted from the engine support insulator, separate the nut from the stud prior to installing the stud.

Remove the 2 RH engine support insulator nuts.



41. **NOTICE:** Only use hand tools when removing the engine support insulator stud or the engine support insulator may be damaged.

Remove the 2 RH engine support insulator studs.



42. **NOTICE:** Only use hand tools when loosening the engine support insulator through bolt or the engine support insulator may be damaged.

Remove the LH engine support insulator bolt.



43. Loosen the 2 transmission mount-to-crossmember nuts.



44. Disconnect the oil level sensor electrical connector.



45. Disconnect the quick connect coupling and remove the crankcase ventilation tube. For additional information, refer to [Section 310-00](#).

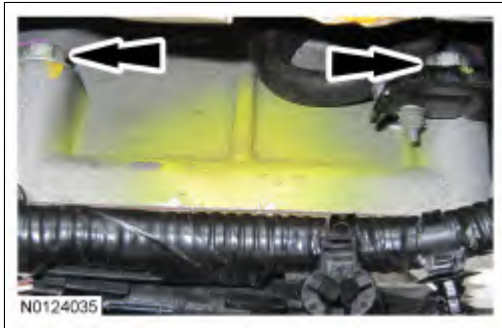


46. **NOTICE:** Do not support the transmission by the fluid pan, failure to follow this instruction may result in serious damage to the transmission.

Support the bellhousing of the transmission with a suitable floor jack and a block of wood.

47. **NOTE:** On Four-Wheel Drive (4WD) vehicles, it may be necessary to reposition the transfer case vent hose to access the bolts.

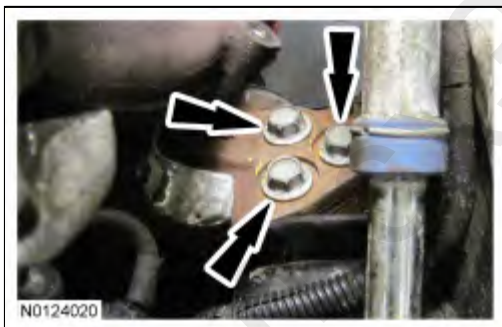
Remove the upper 2 transmission-to-engine bolts.



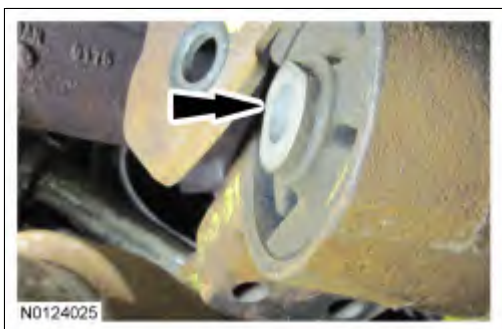
48. Install the Engine Lifting Bracket.



49. Using the Heavy Duty Floor Crane and the Engine Lifting Bracket, raise the engine assembly to gain access to the 3 LH engine support insulator bolts.



50. Remove the LH engine support insulator from under the vehicle.



51. Using the Heavy Duty Floor Crane and the Engine Lifting Bracket, remove the engine assembly from the vehicle.

mcx30.com