

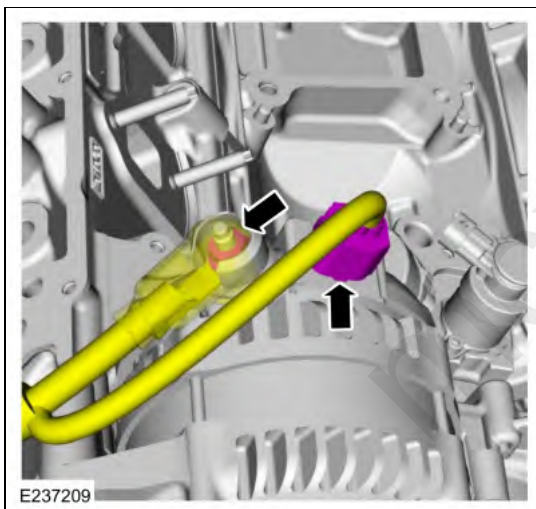
Cylinder Head RH

Removal

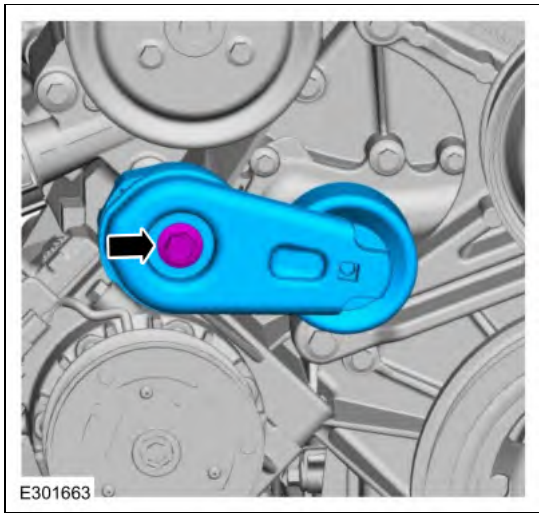
NOTICE: The cylinder heads must be cool before removing it from the engine. Cylinder head warpage can result if a warm or hot cylinder head is removed.

NOTE: Place clean shop towels over exposed engine cavities. Carefully remove the towels so foreign material is not dropped into the engine.

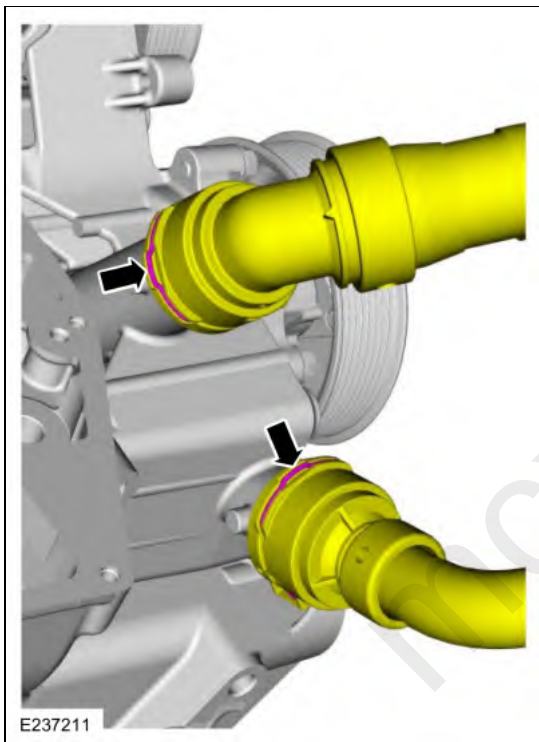
1. With the vehicle in NEUTRAL, position it on a hoist.
Refer to: Jacking and Lifting - Overview (100-02 Jacking and Lifting, Description and Operation).
2. Disconnect the battery ground cable.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).
3. Drain the cooling system.
Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03B Engine Cooling - 6.7L Power Stroke Diesel, General Procedures).
4. Remove the following items:
 1. Remove the cooling fan stator.
Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03B Engine Cooling - 6.7L Power Stroke Diesel, General Procedures).
 2. Remove the accessory drive belt.
Refer to: Accessory Drive Belt (303-05B Accessory Drive - 6.7L Power Stroke Diesel, Removal and Installation).
 3. Remove the exhaust manifold RH.
Refer to: Exhaust Manifold RH (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).
 4. Remove the RH rocker arms.
Refer to: Rocker Arm (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).
 5. Remove the coolant crossover manifold.
Refer to: Coolant Crossover Manifold (303-03B Engine Cooling - 6.7L Power Stroke Diesel, Removal and Installation).
5.
 - If equipped with dual generator, position the boot and remove the nut.
 - Disconnect the generator electrical connector.



6. Remove the bolt and accessory drive belt tensioner.

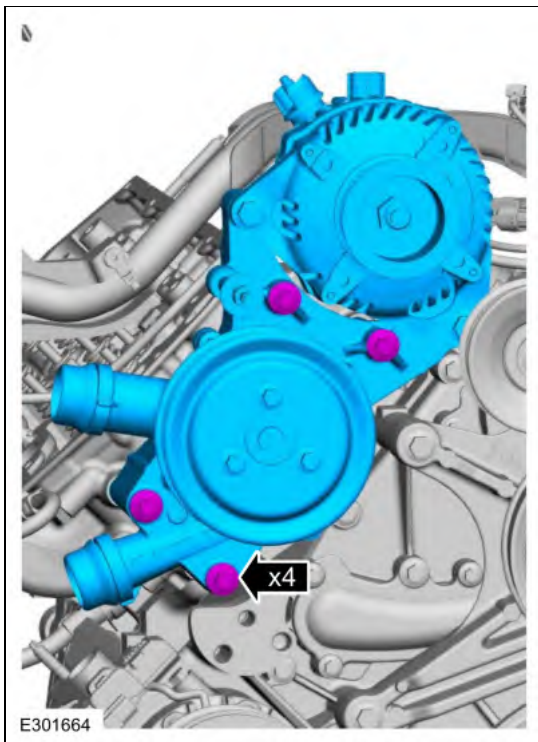


7. Pull the coolant pump hose spring clip up until the end of the clip is in the detent on the quick connect coupling. Disconnect the coolant hoses from the secondary coolant pump.

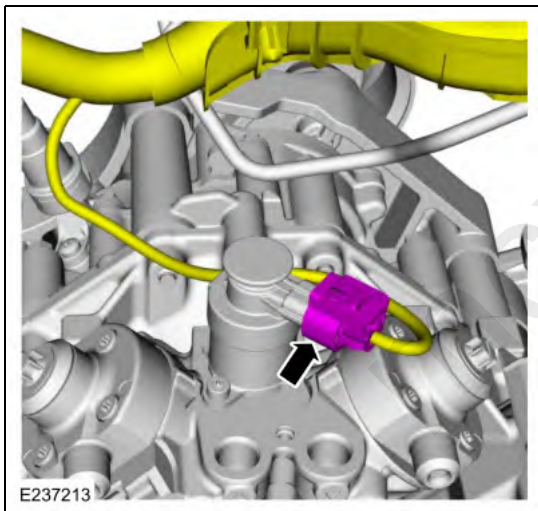


8. **NOTE:** Dual generator shown, single generator similar.

Remove the bolts and the secondary coolant pump.



9. Disconnect the fuel volume control valve electrical connector and position the engine wiring harness aside.

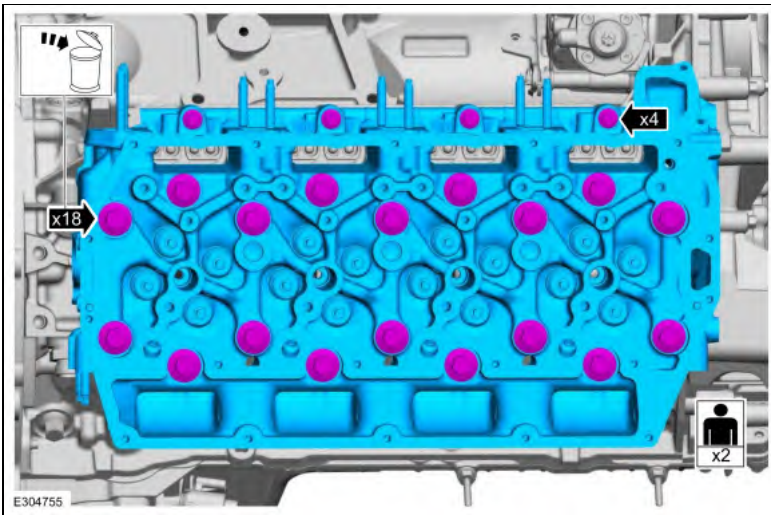


10. **NOTICE:** Place clean shop towels over exposed engine cavities. Carefully remove the towels so foreign material is not dropped into the engine. Any foreign material (including any material created while cleaning gasket surfaces) that enters the oil passages or the oil pan, may cause engine failure.

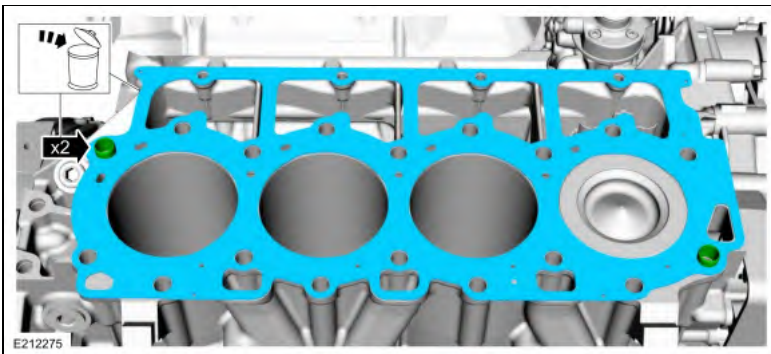
NOTICE: Aluminum surfaces are soft and can be scratched easily. Never place the cylinder head gasket surface, unprotected, on a bench surface.

NOTE: The M12 cylinder head bolts must be discarded and new bolts installed. They are torque-to-yield design and cannot be reused.

- Remove and discard the M12 cylinder head bolts. Remove the M8 cylinder head bolts.
- Remove the RH cylinder head.



11. Remove and discard the cylinder head gasket and the cylinder head dowels.



12. Check the cylinder head distortion.

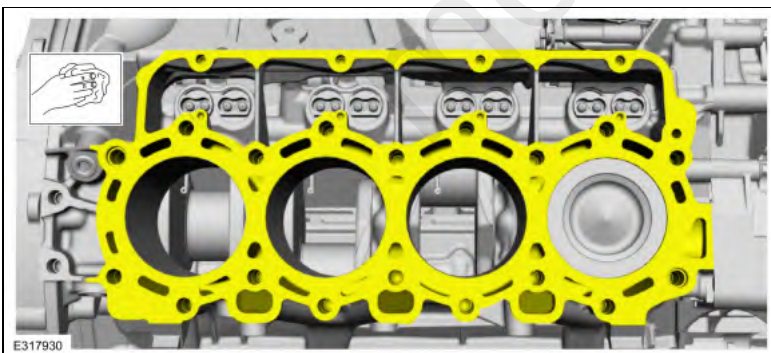
Refer to: Cylinder Head Distortion (303-01B Engine - 6.7L Power Stroke Diesel, General Procedures).

13. **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 that make leak paths. Use a plastic scraping tool to remove all traces of the head gasket.**

NOTE: Clean the cylinder block bolt holes using compressed air. Make sure all coolant, oil or other foreign material is removed.

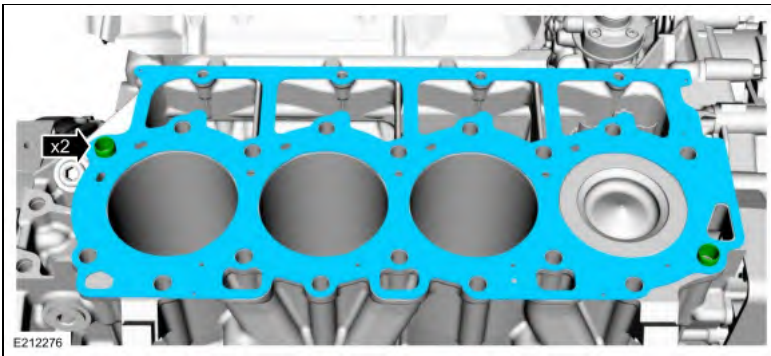
- Clean and inspect the cylinder block mating surface.
- Check the cylinder block distortion.

Refer to: Cylinder Block Distortion (303-00 Engine System - General Information, General Procedures).



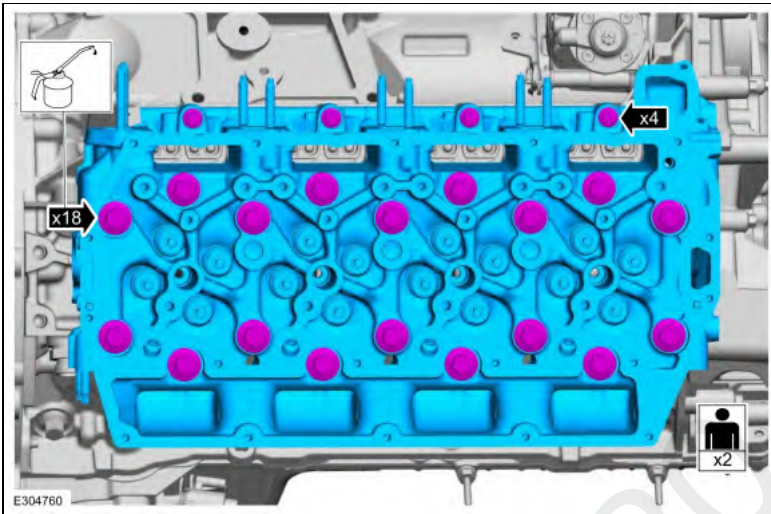
Installation

1. Install the new cylinder head dowels and the cylinder head gasket.



2. **NOTICE:** Using too much engine oil on the threads of the cylinder head bolts may cause damage to the threads and poor sealing. Using anti-seize compounds, grease or any other lubricants other than engine oil on the cylinder head bolt threads may affect the true torque value of the bolts.

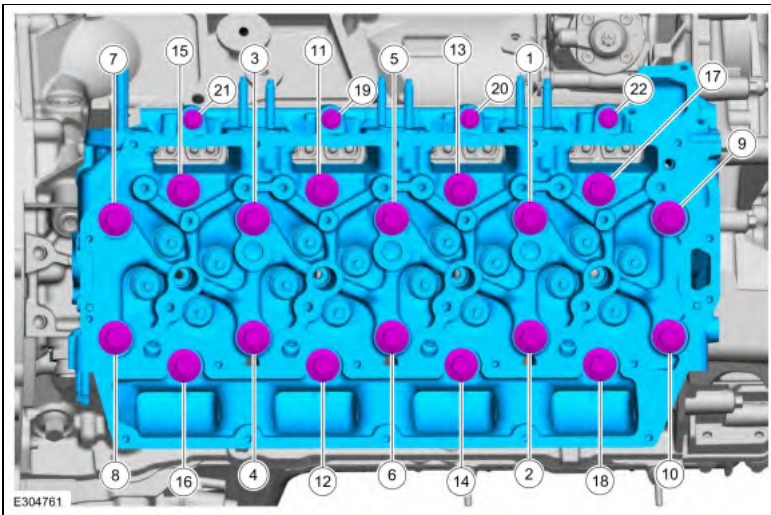
- Install the RH cylinder head.
- Lightly lubricate the new M12 cylinder head bolt threads and flanges with clean engine oil. Install the cylinder head bolts finger tight. Refer to: Specifications (303-01B Engine - 6.7L Power Stroke Diesel, Specifications).



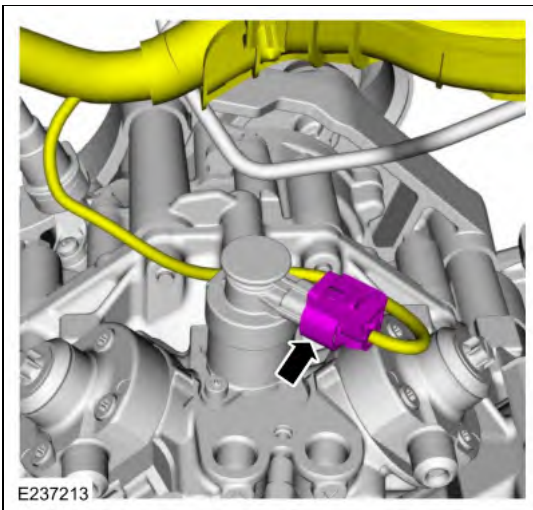
3. Tighten the cylinder head bolts.

Torque:

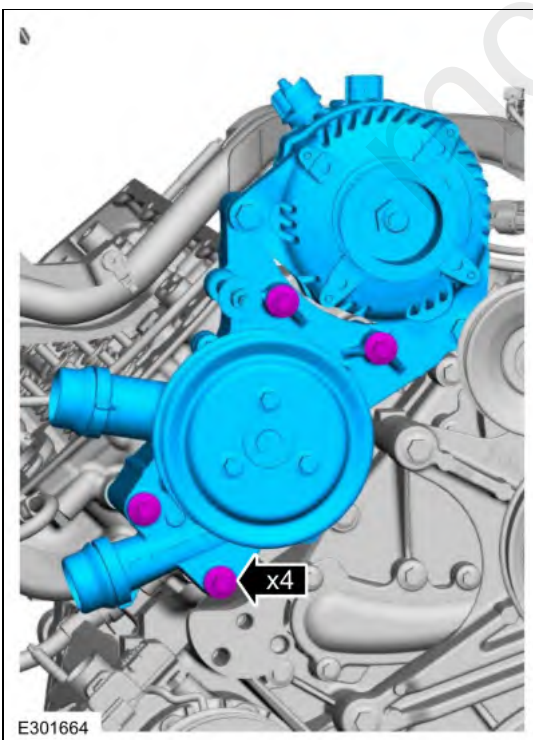
- Stage 1: Tighten bolts 1 through 18 to : 168 lb.in (19 Nm)
- Stage 2: Tighten bolts 1 through 18 to : 36 lb.ft (49 Nm)
- Stage 3: Tighten bolts 1 through 18, a second time to : 36 lb.ft (49 Nm)
- Stage 4: Tighten bolts 1 through 18, a third time to : 36 lb.ft (49 Nm)
- Stage 5: Tighten bolts 1 through 18, an additional : 90 Å°
- Stage 6: Tighten bolts 1 through 18, a second time, an additional : 90 Å°
- Stage 7: Tighten bolts 1 through 18, a third time, an additional : 90 Å°
- Stage 8: Tighten bolts 19 through 22 to : 22 lb.ft (30 Nm)



4. Position back the engine wiring harness aside and connect the fuel volume control valve electrical connector.

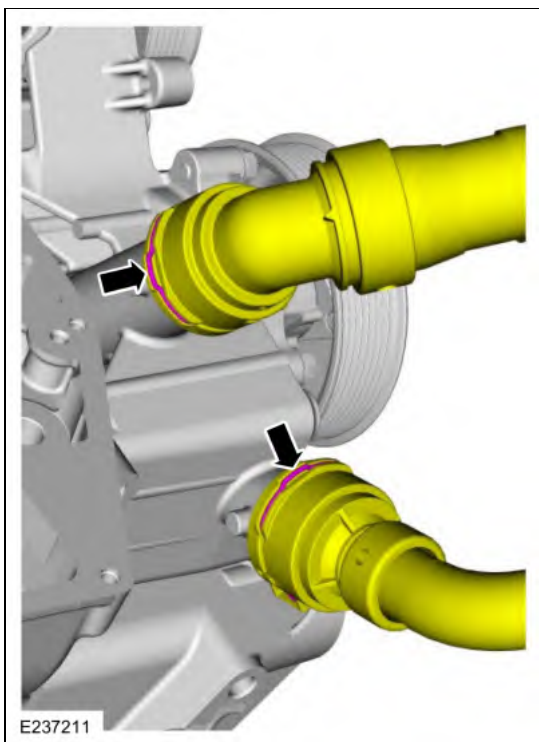


5. Install the secondary coolant pump and bolts.
Torque: 18 lb.ft (25 Nm)

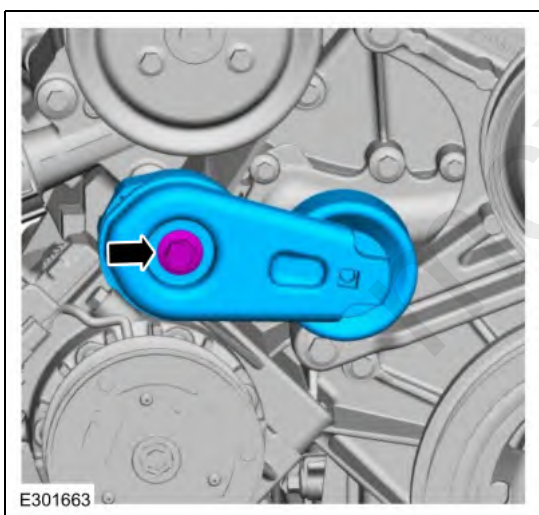


6. **NOTE:** Make sure the spring clip is in place and the coolant hose quick connect coupling is secure.

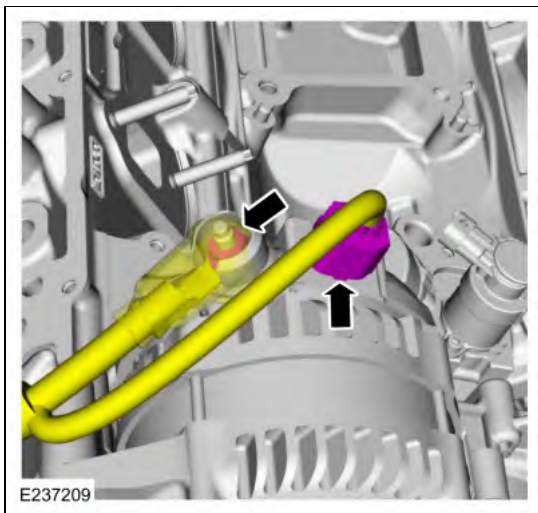
Connect the coolant hoses to the secondary coolant pump.



7. Install the accessory drive belt tensioner and the bolt.
Torque: 35 lb.ft (48 Nm)



- 8.
- If equipped with dual generator, position the cable and install the nut. Position back the boot.
Torque: 159 lb.in (18 Nm)
 - Connect the generator electrical connector.



9. Install the following items:

1. Install the coolant crossover manifold.
Refer to: Coolant Crossover Manifold (303-03B Engine Cooling - 6.7L Power Stroke Diesel, Removal and Installation).
2. Install the RH rocker arms.
Refer to: Rocker Arm (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).
3. Install the exhaust manifold RH.
Refer to: Exhaust Manifold RH (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).
4. Install the accessory drive belt.
Refer to: Accessory Drive Belt (303-05B Accessory Drive - 6.7L Power Stroke Diesel, Removal and Installation).
5. Install the cooling fan stator.
Refer to: Cooling Fan Stator (303-03B Engine Cooling - 6.7L Power Stroke Diesel, Removal and Installation).

10. Connector the battery ground cable.

Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

11. **NOTICE: Evaluate the cooling system condition before filling the cooling system. Failure to follow these instructions can result in damage to the engine.**

Evaluate the cooling system condition.

Refer to: Engine Cooling System Condition Evaluation (303-03B Engine Cooling - 6.7L Power Stroke Diesel, General Procedures).