

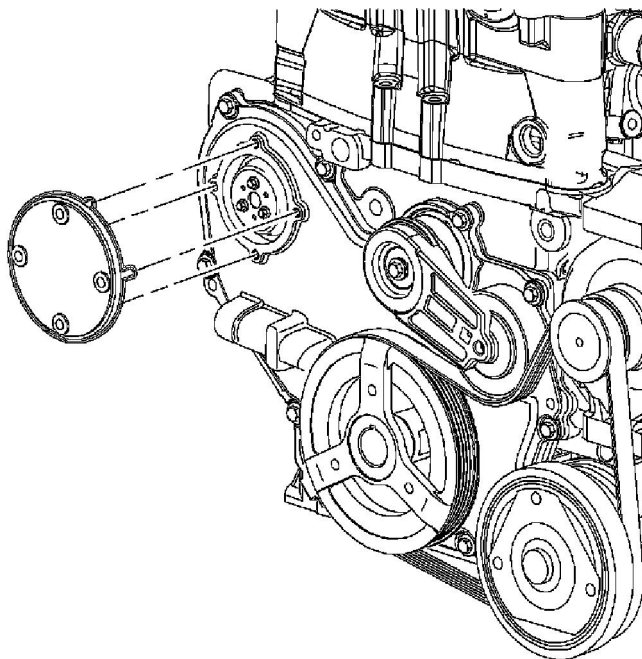
Water Pump: Service and Repair

Water Pump Replacement (LE8, LE9) (2.2L, 2.4L)

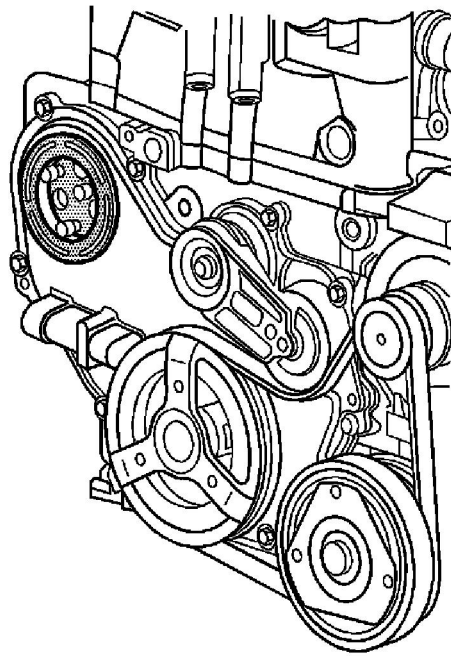
Special Tools

- * J 25025-5 Dial Indicator Mounting Post
- * J 43651 Water Pump Holding Tool

Removal Procedure

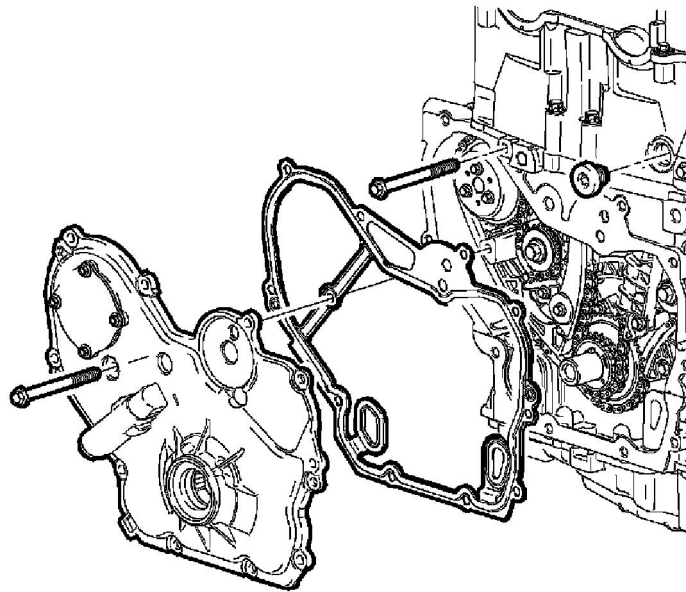


1. Remove the thermostat housing. Refer to Engine Coolant Thermostat Housing Replacement (LE8, LE9) (See: Cooling System/Thermostat Housing/Service and Repair)Engine Coolant Thermostat Housing Replacement (LNF) (See: Cooling System/Thermostat Housing/Service and Repair).
2. Remove the coolant heater. Refer to Coolant Heater Replacement (LNF) (See: Cylinder Block Assembly/Engine Block Heater/Service and Repair/Coolant Heater Replacement)Coolant Heater Replacement (LE8, LE9) (See: Cylinder Block Assembly/Engine Block Heater/Service and Repair/Coolant Heater Replacement).
3. Remove the windshield washer solvent container. Refer to Windshield Washer Solvent Container Replacement (See: Wiper and Washer Systems/Windshield Washer Reservoir/Service and Repair).
4. Remove the water pump access plate from the front cover.



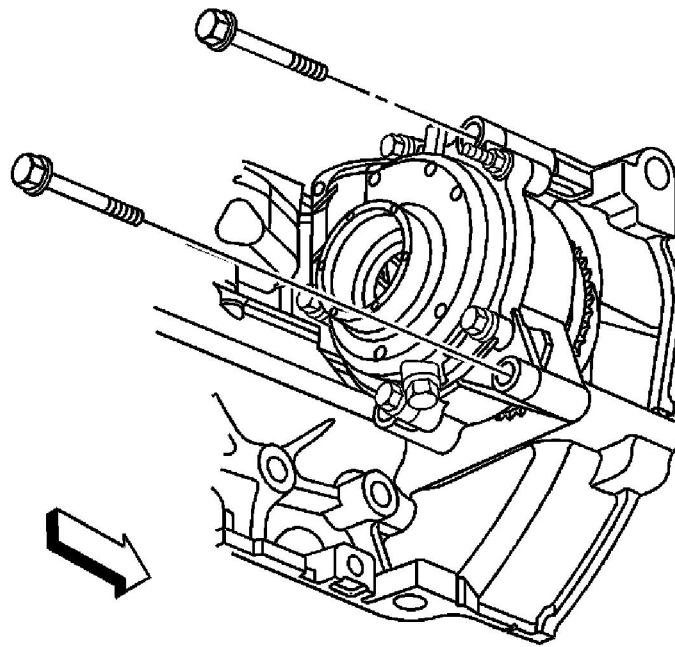
Note: The water pump holding tool supports the sprocket and chain during water pump service. The tool must be used or the balance shaft must be re-timed.

5. Install the J 43651 into position.
6. Tighten the bolts on the water pump holding tool into the threads on the water pump sprocket.
7. Install the access cover bolts that were removed earlier to secure the water pump holding tool to the front cover assembly.
8. Remove the 3 inner water pump sprocket to water pump bolts.

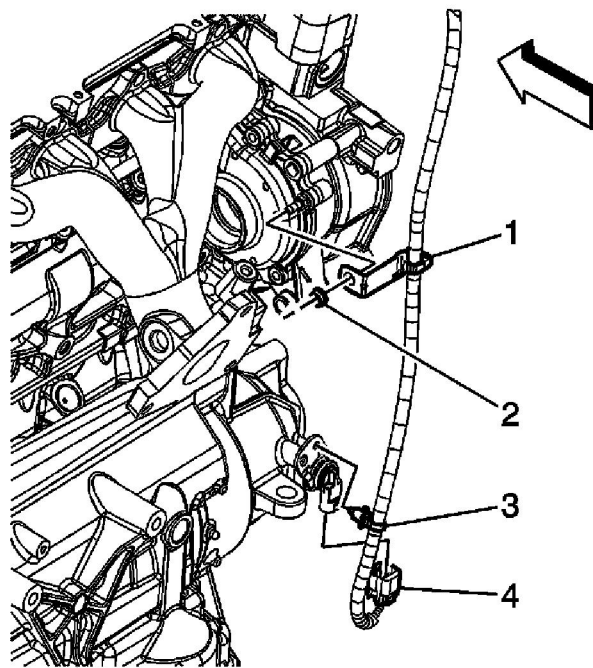


Note: Be sure to remove both water pump bolts from the front of the engine block.

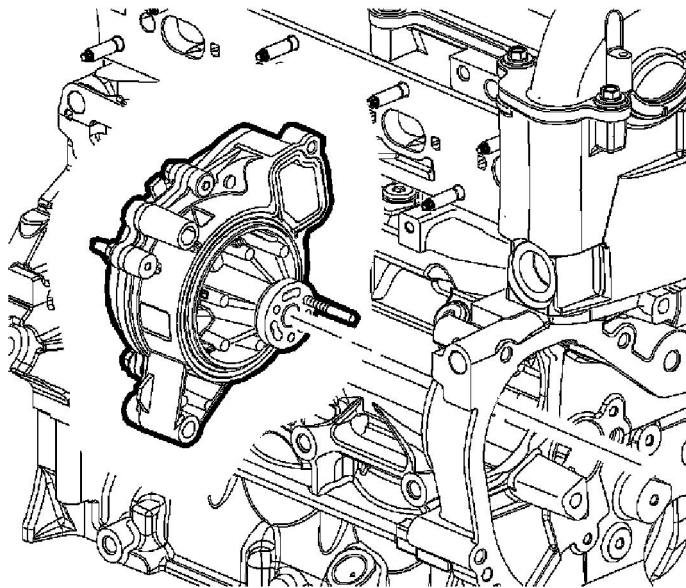
9. Remove the 2 water pump bolts (1).



10. Remove the rear 2 water pump bolts (1).

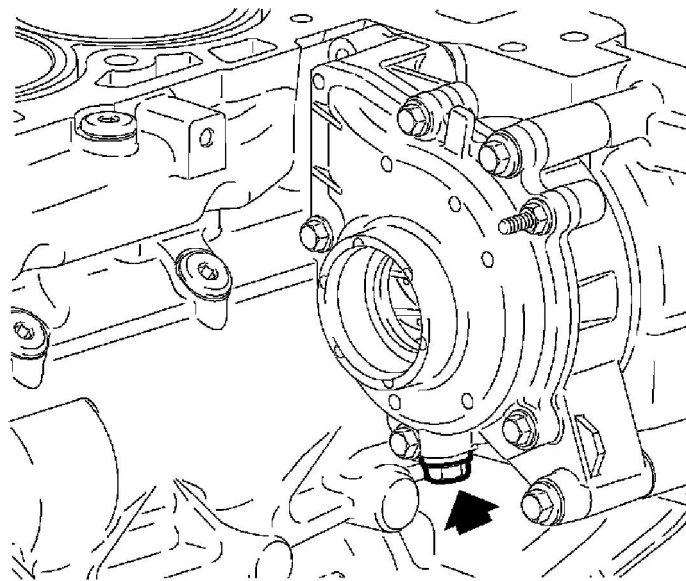


11. Remove the engine harness clip nut (2) from the water pump stud.
12. Remove the engine harness clip (1) from the stud.



13. Remove the water pump (1).

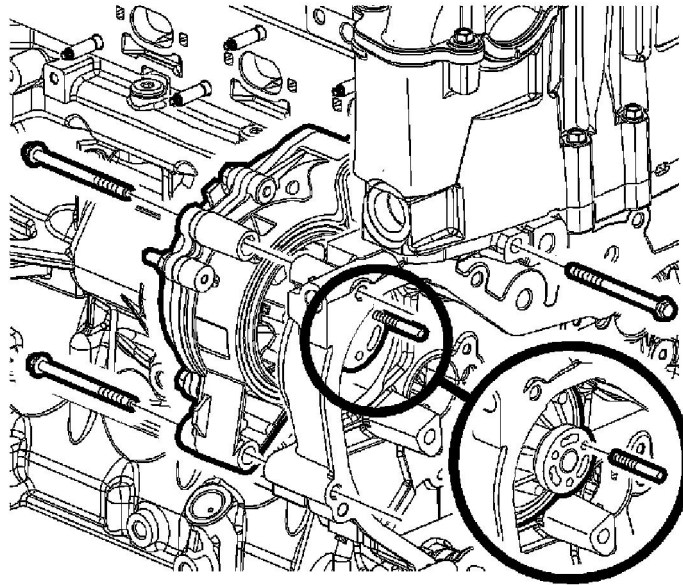
Installation Procedure



1. Apply sealant to the water pump drain plug. Refer to Adhesives, Fluids, Lubricants, and Sealers (See: Specifications/Adhesives, Fluids, Lubricants, and Sealers) or Adhesives, Fluids, Lubricants, and Sealers (See: Specifications/Adhesives, Fluids, Lubricants, and Sealers).

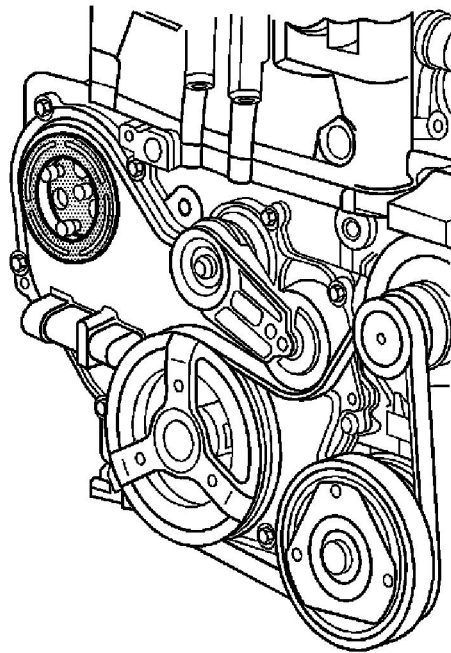
Caution: Refer to Fastener Caution (See: Service Precautions/Vehicle Damage Warnings/Fastener Caution).

2. Install the water pump drain plug and tighten to **22 Nm (16 lb ft)**.

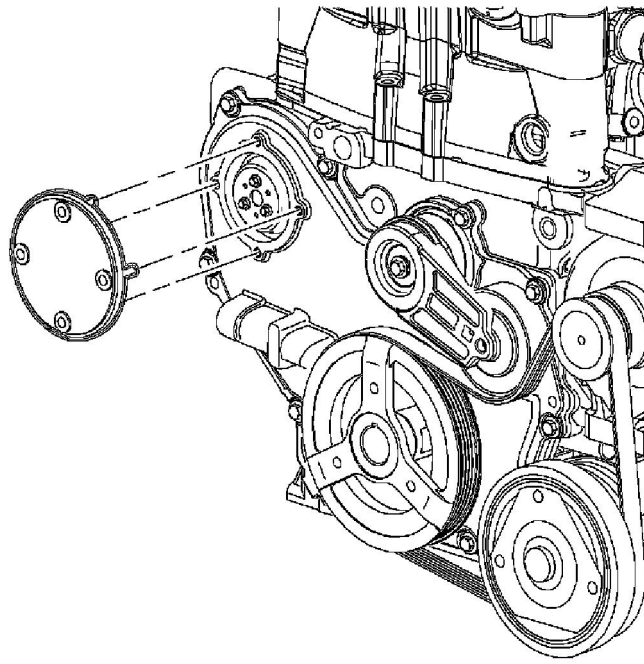
**Note:**

- * Prior to installing the water pump, read the entire procedure. This will help avoid balance shaft chain re-timing and ensure proper sealing.
- * A guide pin can be created using a M6 m x 6 mm stud to aid in water pump alignment. Thread the pin into the water pump sprocket.

3. Using the J 25025-5 or the guide pin that was created, align the pin with the water pump holding tool.
4. Position the water pump against the engine block and hand tighten the water pump bolts.
5. Install the inner water pump sprocket bolts. After 2 are snug, remove the guide pin and install the 3rd bolt. Tighten the water pump bolts to **25 Nm (18 lb ft)**.
6. Tighten the water pump sprocket bolts last. Tighten the water pump sprocket bolts to **10 Nm (89 lb in)**.



7. Remove the J 43651 .



8. Install the water pump access plate and bolts and tighten to **10 Nm (89 lb in)**.
9. Install the coolant heater. Refer to Coolant Heater Replacement (LNF) (See: Cylinder Block Assembly/Engine Block Heater/Service and Repair/Coolant Heater Replacement)Coolant Heater Replacement (LE8, LE9) (See: Cylinder Block Assembly/Engine Block Heater/Service and Repair/Coolant Heater Replacement).
10. Install the windshield washer solvent container. Refer to Windshield Washer Solvent Container Replacement (See: Wiper and Washer Systems/Windshield Washer Reservoir/Service and Repair).
11. Install the thermostat housing. Refer to Engine Coolant Thermostat Housing Replacement (LE8, LE9) (See: Cooling System/Thermostat Housing/Service and Repair)Engine Coolant Thermostat Housing Replacement (LNF) (See: Cooling System/Thermostat Housing/Service and Repair).