TECHNICAL SERVICE BULLETIN

TSB No: TSB-US8160 Revision: A Date: 04/2026

WATER PUMP INSTALLATION REQUIREMENTS PART NUMBER: US8160

⚠ **COOLANT:** Flush the cooling system and refill with NEW coolant. Use OEM MS-90032 or equivalent — verify correct coolant type in the vehicle service manual. Incorrect or contaminated coolant will cause premature water pump seal failure.

⚠ **BOLT SEQUENCE:** Tighten bolts 1–11 in OEM sequence. Mixed sizes (M6, M8, M10) — each has a different torque.

⚠ **TORQUE:** See table below. Use calibrated torque wrench. Do not overtighten — stripped threads void warranty.

⚠ **BLEED:** Use the vehicle service manual to view the full installation procedure and how to properly bleed the cooling system when filling coolant. Use an airlift vacuum fill tool or the manual burp method per the service manual.

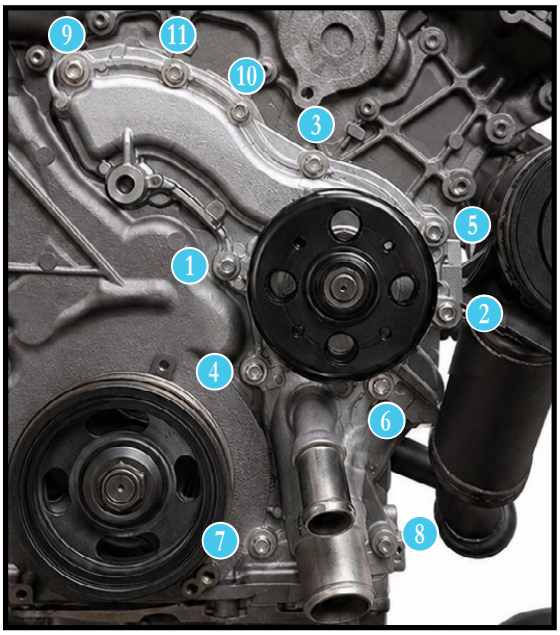
BEFORE YOU START INSTALLATION

• Engine must be completely cold • Disconnect negative battery cable • Drain coolant • Remove accessory drive belt
• Remove old water pump • Clean mounting surface thoroughly

(The engine mounting surface must be clean, dry, smooth, and free of gasket material, RTV, oil, or debris before installation.)
Note: bolt locations and lengths. Reinstall each bolt in the same position. Shorter M6 bolts (pos. 3, 4, 6, 8) go into the timing cover.

STEP 1 - INSTALL THE WATER PUMP

1. Install the NEW water pump gasket (included). Do not reuse the old gasket. Do not use RTV sealer.
2. Position the new US8160 pumpand hand-start ALL mounting bolts..
3. Hand-tighten the idler pulley bolt.
4. Tighten bolts 1–11 in OEM SEQUENCE (see diagram). M6 (1–8) = 12 Nm, M8 (9–10) = 28 Nm, M10 (11) = 50 Nm. Repeat until final torque is met.
5. Spin pump by hand — impeller must NOT rub against timing chain case or cover.
6. Follow numbered sequence. Mixed bolt sizes require different torque.



Water Pump Bolt Torque Table:

Bolt Size	N·m	Ft-Lbs (In-Lbs)
M6 Bolts (pos. 1–8)	12	9 (108 in-lb)
M8 Bolts (pos. 9, 10)	28	21 (252 in-lb)
M10 Bolt (pos. 11)	50	37 (444 in-lb)

STEP 2 - FLUSH, FILL & BLEED THE COOLING SYSTEM

7. Reassemble hoses, clamps, belt, and components per service manual.
8. Flush the old coolant: run clean water through the system until it comes out clear. Drain completely.
9. Fill with NEW coolant only — use MS-90032 or equivalent at the correct mix ratio. Never reuse old coolant.

Option A — Vacuum fill (best method):

10. Turn heater to HEAT. Engine OFF. Attach vacuum fill tool to the filler neck and seal it.
11. Pull vacuum until hoses collapse (normal). Close valve. Wait 20 seconds.
12. Vacuum holds steady = no leaks. Vacuum drops = you have a leak — find and fix it before filling.
13. Connect suction hose to coolant container. Open valve. Coolant is drawn in. Gauge at zero = system is full.

Option B — Manual fill (no vacuum tool):

14. Park on level ground. Engine cold. Remove cap. Pour coolant slowly to the COLD FILL mark.
15. Turn heater to HEAT. Start engine with cap OFF. Keep adding coolant as the level drops.
16. Wait for thermostat to open (upper hose gets hot). Squeeze both hoses to push air out.
17. Keep filling until level stays steady and no more bubbles come up. Put the cap back on.

After filling (both methods):

18. Run engine to full operating temp with heater on HEAT. Shut off. Let cool completely.
19. Check coolant level when cold — top off to COLD MIN. Road test. Recheck next morning.
20. Heater blows HOT = properly bled. Heater stays COLD = air is still trapped — repeat the bleed.

Warning: Skipping the cooling system fill/bleed traps air pockets causing overheating, erratic temp gauge, no heater, and premature seal failure — warranty claims from improper fill are NOT covered as manufacturing defects.