

COOL-07, Water Pump Information and Replacement

Tools Needed

- Floor Jack
- Jack Stands or Ramps
- Drain Pan
- Metric Socket Set
- Metric Combination Wrench Set
- Timing Belt Tensioning Tool (P9201)
- Balance Shaft Spanner Wrench (P9200) or equivalent
- Flywheel Lock (P9206)
- Snap ring pliers

Other Procedures Needed

- [ENG-13](#), Locating and Setting Engine to Top Dead Center (TDC), Cylinder 1
- [ENG-03](#), Flywheel Lock Installation
- [ENG-05](#), Camshaft and Balance Shaft Belt Removal
- [COOL-02](#), Coolant System Draining, Filling, and Venting
- [ENG-06](#), Camshaft and Balance Shaft Belt Installation
- [ENG-10](#), Camshaft and Balance Shaft Belt Tension - Checking and Adjusting
- [AF-01](#), Air Filter Housing and Air Flow Sensor - Removal and Installation

Parts

There are two different styles of water pumps used on the 924S and 944 (including Turbos). The new style coolant pump has a guard rail for the timing belt and a larger idler roller (46.2 mm vs. 32.0 mm). The new style was installed on all cars produced after July 1986. I recommend installing the new style pump when replacing the water pump. For cars which previously did not have the new style pump installed, this requires modifying the rear timing cover and purchasing a belt guard and larger idler roller. Some of the new style pumps will come with the belt guard already installed so ask your parts supplier when ordering. The groove for the thermostat snap ring has also been moved. Previously, it was 4.5 mm from the sealing surface and is now at 7 mm. This requires the use of a new thermostat and spacer.

On Turbocharged cars, there is a nozzle on the water pump which supplies cooling water to the turbocharger bearing housing. On Normally Aspirated cars the nozzle is a block-off plate. The block-off plate / nozzle is sealed to the water pump by an o-ring which should be replaced when the new pump is installed. On some pumps, the block-off plate / nozzle is mounted using a 6 mm stud and nut and a 6 mm x 20 mm bolt. However, most of the new pumps come with two bolt holes. This requires transferring the 6 mm stud from the old pump to the new one or purchasing another 6 mm x 20 mm bolt.

Part Numbers

Model	Old Style Pump	New Style Pump
924S, 944, 944S	944 106 021 13	951 106 021 10
944 Turbo	951 106 021 01	951 106 021 10

Other Parts

New Style Pump	Part Number
Water Pump Gasket ¹	944 106 132 04
Guard Rail	944 105 213 01
Guard Rail Lock Nuts (2)	999 084 092 02
46.2 mm Roller	944 105 241 03
Block-off Plate / Nozzle	Part Number
Block-off plate (NA cars only)	944 106 313 00
Nozzle (Turbo Only)	951 106 313 00
Thermostat for Turbocharger	951 106 311 00
O-Ring (NA or Turbo)	900 174 049 40 or 999 707 283 40
Washer (2)	N 011 524 7
Bolts 6 mm x 20 mm (2)	N 014 704 1
Thermostat	Part Number
Thermostat (New)	944 106 019 00
Thermostat (Old)	944 106 129 05
Spacer (New Style Pump)	900 234 160 00
O-Ring (New Thermostat)	944 106 929 08
O-Ring (Old Thermostat)	944 106 929 05
Thermostat Snap Ring	900 042 025 01

¹ Normally, a new gasket will be provided with any new or rebuilt water pump. However, when ordering your pump, you should ask if the gasket is included.

Procedure

1. Place car on jack stands or ramps.
2. Disconnect battery positive lead.
3. Using [ENG-13](#), set engine at TDC on cylinder number 1.

4. Using [ENG-03](#), remove the starter and install the flywheel lock (P9206).
5. Using [ENG-05](#), remove the balance shaft belt, timing belt, rollers, balance shaft sprockets, crankshaft gear, and rear timing cover.
6. Using [COOL-02](#), drain the cooling system to an appropriate catch pan.
7. Disconnect the coolant hoses from the water pump.
8. Loosen the water pump retaining bolts and nuts (10 mm socket) and remove the water pump from the car.

Tip: This is a good time to inspect and replace the crankshaft and balance shaft oil seals.

9. Install thermostat on new water pump using Snap Ring from old pump.

NOTE

On the newer style water pump, the gap between the thermostat sealing surface and the snap ring groove is 7mm. This will require the newer style thermostat and sealing ring. It will also require installation of the 2.5mm support washer between the snap ring and the thermostat. The older style water pump has a 4.5mm gap between the thermostat sealing surface and the snap ring groove and requires the older style thermostat and sealing ring without the support washer.

10. On Turbocharged cars install the turbocharger thermostat and thermostat nozzle with o-ring on new water pump.
11. On Normally Aspirated cars install the Block-off nozzle with o-ring on the new water pump.
12. Install the new water pump using a new gasket (normally supplied with the pump).

NOTE

The factory manual has you install the water pump fasteners using Loctite 270. This is fine for the nuts. However, I prefer to not use it on the bolts as it increases the probability of stripping the bolts holes during the next removal.

13. Tighten the water pump nuts and bolts to 8 Nm (6 ft-lbs).
14. Using [ENG-06](#) install the timing belt, balance shaft belt and all rollers. The belts are tensioned during the performance of ENG-06 using [ENG-10](#).
15. Install the air filter assembly ([AF-01](#)).
16. Reconnect battery.
17. Using [COOL-02](#), fill and vent the cooling system.
18. Install skid pan.
19. Remove car from jack stands/ramps.

