

Heated oxygen sensor (HO2S), replacing

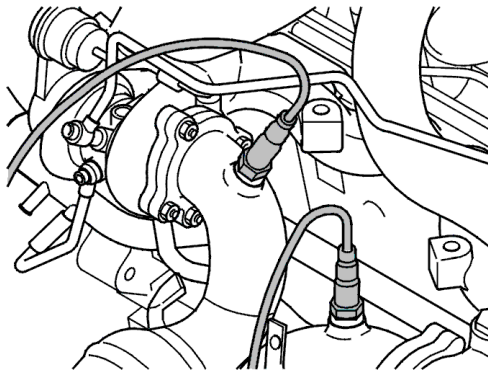
Front heated oxygen sensors (HO2S), replacing

Note! For tightening torques, see [Tightening torque](#).

Removing front heated oxygen sensors (HO2S)

Note! As the illustrations in this service information are used for different model years and / or models, some variation may occur. However, the essential information in the illustrations is always correct.

Remove the splashguard under the engine. Disconnect the connectors for the heated oxygen sensors (HO2S). Disconnect the wiring.



Remove:

- the wiring for the heated oxygen sensors (HO2S) from the clamps
- the heated oxygen sensors (HO2S). Use tool [999 5543](#).

Caution! Note the position of the probes.

Installing front heated oxygen sensors (HO2S)

Caution! Note the position of the probes.

Install:

- the heated oxygen sensors (HO2S).
Lubricate the threads using paste 116 1408.
Tighten to **45 Nm**. Use tool [999 5543](#)
- the connectors
- the lower engine cover.

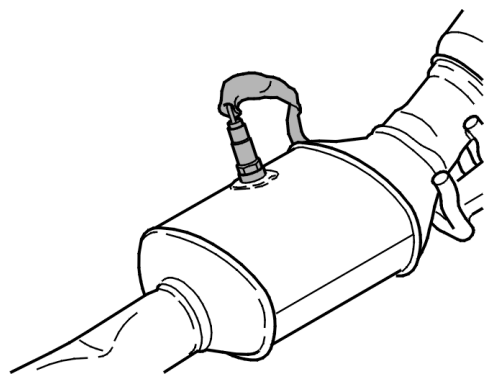
Finishing

Install the wiring for the heated oxygen sensors (HO2S) using clips and clamps.
Test drive the engine.
Check for leakage.

Rear heated oxygen sensor (HO2S), replacing

Removing the rear heated oxygen sensor (HO2S)

- Remove the splashguard under the engine



- Disconnect the connectors for the heated oxygen sensors (HO2S)
- Remove the clamps from the wiring for the heated oxygen sensor (HO2S)
- Remove the heated oxygen sensor (HO2S).
Use tool **999 5543** .

Installing the rear heated oxygen sensor (HO2S)

Install:

- the heated oxygen sensor (HO2S). Lubricate the studs using paste **116 1408**. Tighten to 45 Nm. Use tool 999 5543
- the clamps for the heated oxygen sensor (HO2S) wiring
- the connector
- the lower engine cover.

Test drive the engine.
Check for leakage.

Tightening torque

General tightening torque

Note! Screws coated with a locking fluid or self locking nuts must be replaced with new when reinstalled.

See the table below to find the tightening torques for components not included in the summary.

Nuts and screws which are not self locking can be reused provided that they are in good condition.

Applies to screwed joint with strength class 8.8.	
Thread	Tightening torques (Nm)
M5	5
M6	10
M7	17
M8	24
M10	50
M12	80
M14	130

Summary of tightening torques for specific components

Note! Screws coated with locking fluid or sealant must be replaced with new when reinstalled.

Always use **new screws and nuts** when angle tightening. Any exceptions to this rule will be indicated in the method.

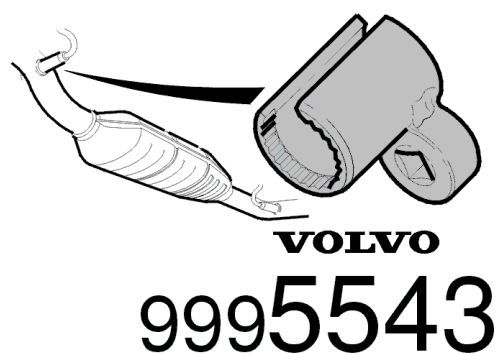
Angle-tightening in tight spaces. See [Screwed joint, torque/angle tightening](#) .

Exhaust bend (to the turbocharger (TC))	24 Nm
Cylinder head Tighten the screws in sequence from the centre and outwards.	Stage 1.....20 Nm Stage 2.....60 Nm Stage 3.....angle-tighten 130°
Manifold (cylinder head side)	25 Nm
Sub-frame nut (lower torque rod)	65 Nm. Angle-tighten 60°
Pipe screws (water heated crankcase ventilation.)	26 Nm
Pipe screws (coolant pipe / turbocharger (TC))	26 Nm

Pipe screws (oil pressure line / turbocharger (TC))	18 Nm
Pipe screws (oil pressure line / engine block)	38 Nm
Sub-frame screw	105 Nm angle-tighten 120°
Intake manifold (joint upper / lower section)	19 Nm
Intake manifold (cylinder head side)	19 Nm
Centre screw for the timing belt	25 Nm
Knock sensor (KS)	20 Nm
Piston cooling valve (piston cooling oil duct)	35 Nm
Timing gear pulley (camshafts without variable valve timing)	20 Nm
Timing gear pulley (camshafts with variable valve timing)	10 Nm
Carrier plate	Stage 1.....45 Nm Stage 2.....angle-tighten 50°
Intermediate section Tighten the screws in sequence from the centre and outwards.	Stage 1 M10.....20 Nm Stage 2 M10.....45 Nm Stage 3 M8.....24 Nm Stage 4 M7.....17 Nm Stage 5 M10.....angle-tighten 90°
Torque converter	50 Nm
Engine mounting Right side (M10x35 to cylinder block)	Stage 1.....35 Nm Stage 2.....angle-tighten 60°
Engine mounting Right side (M8x23 to cylinder block)	Stage 1.....20 Nm Stage 2.....angle-tighten 60°
Lower torque rod, gearbox screw.	35 Nm. Angle-tighten 40°
Lower torque rod, sub-frame nut	65 Nm. Angle-tighten 60°
Oil filter (environmental filter)	25 Nm
Oil trap	15 Nm
Sump plug	38 Nm
Oil pump (20 countersunk M6 Allen screws hold the pump housing together)	6 Nm
Oil return line (turbocharger (TC))	12 Nm
Oil pressure switch	50 Nm
Stud (at exhaust port, manifold, turbocharger (TC))	20 Nm
Plug (check hole for gauging valve clearance)	20 Nm
Plug	38 Nm

(gauge hole / crankshaft seal)	
Belt tensioner (mechanical belt tensioner)	25 Nm
Tensioner pulley (lever mechanical belt tensioner)	30 Nm
Flywheel	Stage 1.....45 Nm Stage 2.....angle-tighten 65°
Vibration damper	Stage 1.....35 Nm Stage 2.....angle-tighten 50°
Temperature sensor (coolant)	22 Nm
Front timing cover	12 Nm
Upper timing cover	8 Nm
Pressure control valve (piston cooling oil duct)	35 Nm
Turbocharger (TC) (to manifold)	25 Nm
Spark plugs	30 Nm
Crankshaft centre nut	300 Nm
Connecting rod cap	Stage 1.....20 Nm Stage 2.....angle-tighten 90°
Variable valve timing / centre screw	120 Nm
Variable valve timing / centre plug	35 Nm

999 5543 SOCKET NV-22 HO2S



Tool number: 999 5543-7
Tool description: SOCKET NV-22 HO2S (OXYGEN SENSOR)
Tool board: EU12-2
Tool position: H7
Tool board: SV12-2
Tool position: H7
Tool board: UK99
Tool position:
Tool board: US12-2
Tool position: H7