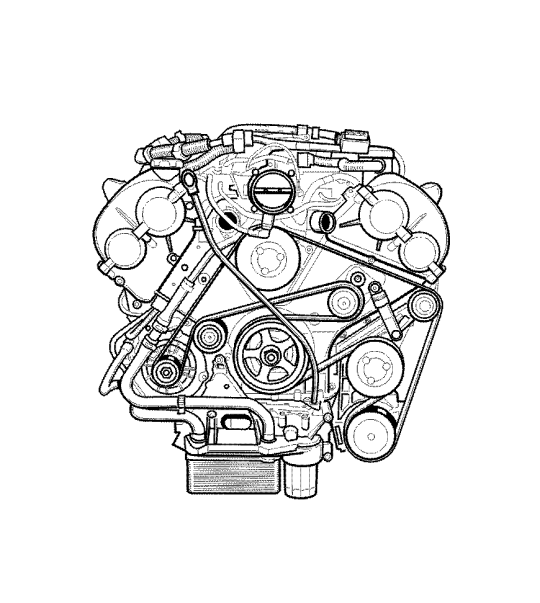
**10 01 IN Tightening torques for Cayenne S (M48/00) and Cayenne Turbo (M48/50) - as of MY 2003**

- [Information](file:///C:\POSES\data\rl\2\9PA\1001IN_2.htm#PIWIS797e08a040981004827dca0c0e41f59e)

[top of page](file:///C:\POSES\data\rl\2\9PA\1001IN_2.htm#DMS1207860)

**Information**

**Information**



*V8 engine*

|  |  |
| --- | --- |
| C:\POSES\data\css\hinweis.gif | **Note** |

* *This torque list is organised according to component groups in the same way as service numbering.*
* *The torque for the coolant pump is provided in Chapter 19.*
* *The tightening sequences are indicated in the figures in the corresponding chapters, and it is essential to observe them.*
* *The most important torques are specified at the end of the respective chapters.*

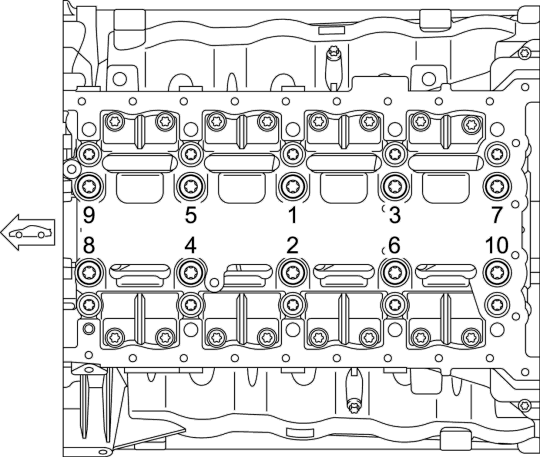
The torques in the table below generally apply to screws which are not specifically listed.

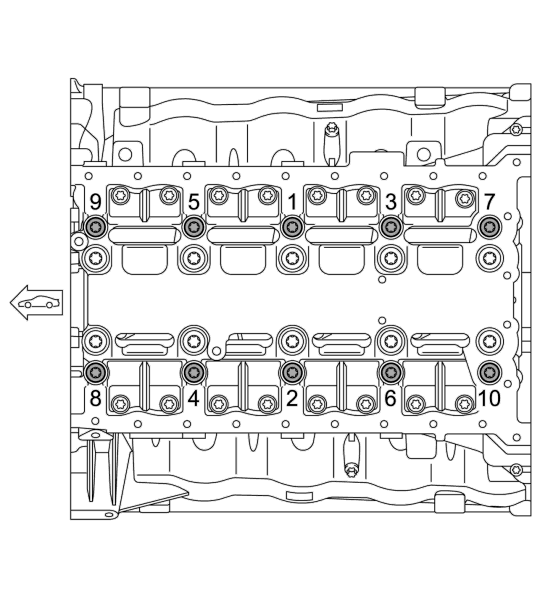
| **Bolt quality 8.8** | | **Bolt quality 10.9** | |
| --- | --- | --- | --- |
| **Thread** | **ftlb.** | **Thread** | **ftlb.** |
| M4 | 3 | M4 | 4 |
| M5 | 6 | M5 | 8 |
| M6 | 10 | M6 | 13 |
| M8 | 23 | M8 | 33 |
| M10 | 45 | M10 | 65 |
| M10 x 1.25 | 50 | M10 x 1.25 | 70 |
| M12 | 80 | M12 | 115 |
| M12 x 1.25 | 90 | M12 x 1.25 | 125 |
| M12 x 1.5 | 85 | M12 x 1.5 | 120 |
| M14 | 130 | M14 | 180 |
| M16 | 200 | M16 | 280 |

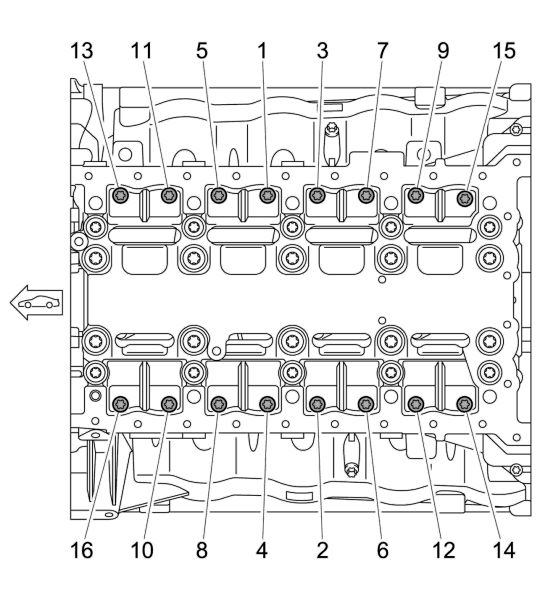
**Group 10 - Crankcase, suspension**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Thrust block screw fitting | M12 x 1.5 x 132 | 40 (30) + 75° (observe sequence!) |
| Thrust block screw fitting | M10 x 117 | 22 (16) + 60° (observe sequence!) |
| Oil spray valve on crankcase | M6 x 16 | 10 |
| Top section of crankcase with bottom section of crankcase - cross bolt connection | M8 | 23 |
| Bracket for auxiliary units | M10 x 45 | 65 |
| Design cover | M5 x 16 | 5 |
| Engine carrier, cylinder row 1 - 4 | M10 x 45 | 65 |
| Bracket for torque support | M6 x 40 | 13 |
| Bracket for torque support | M8 x 45 | 23 |

**Tightening sequences**







**Group 13 - Crank drive, pistons**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Sealing flange on timing case cover | M6 | 10 |
| Belt pulley (vibration balancer) on crankshaft | M16 x 1.5 x 77 | 20, 50, 250, then 90° (always replace screw!) |
| Deflection roller, left | M10 x 41 | 35 |
| Deflection roller, right | M10 x 85 | 35 |
| Belt tensioner on bracket | M8 x 33 | 35 |
| Belt tensioner on timing case cover | M8 x 100 | 35 |
| Tensioner roller on belt tensioner | M10 | 35 |
| Connecting rod cap on connecting rod | M9 x 56 | 8 (6), then 40 (30), then 90° (always replace screws with new ones!) |
| Air-conditioning compressor on engine | M8 x 95 | 23 |
| Air-conditioning compressor on engine | M10 x 90 | 46 |
| Servo pump on engine | M8 x 35 | 23 |
| Belt pulley on servo pump | M8 x 16 | 23 |
| Drive plate to crankshaft | M10 x 22 | 60 (44) + 90° (always replace screws with new ones!) |

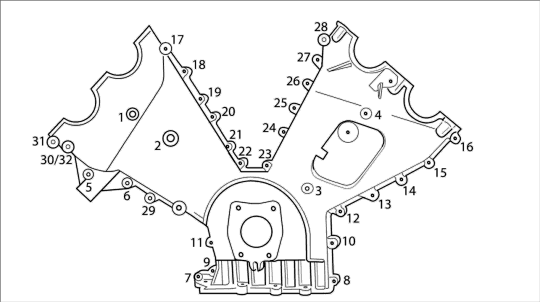
**Group 15 - Cylinder head, pistons**

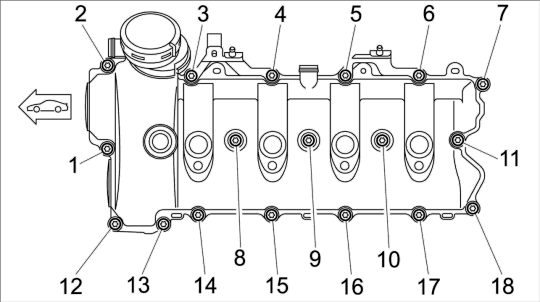
| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Timing case cover | M6 | See Note |
| Timing case cover | M8 x 50 | 23 |
| Tensioning rail bearing | M10/12 x 25 | 35 |
| Chain tensioner | M24 x 1.5 | 60 |
| Guide rail bearing on camshaft housing | M8 x 25 | 20 |
| Guide rail | M8 x 25 | 20 |
| Deflector rail | M8 x 35 | 32 |
| Chain sprocket on exhaust camshaft | M12 x 1.5 x 140 | 10 (7.5), then 50 (37), then 90° |
| Camshaft adjuster on inlet camshaft | M12 x 1.5 x 140 | 10 (7.5), then 50 (37), then 135° |
| Camshaft housing cover (valve cover) | M6 x 30 | 13 (9.5) (observe sequence!) |
| Camshaft bearing saddles | M6 x 35 | 10 (7.5) (observe sequence!) |
| Thrust bearing cover on camshaft housing | M6 x 35 | 10 |
| Hall sender on camshaft housing | M6 x 16 | 10 |
| Camshaft housing on cylinder head | M8 | 23 |
| Hydraulic valve for camshaft adjuster | M6 x 16 | 10 |
| Adapter for torque support | M10 x 24 | 20 |
| Cylinder head | M12 x 1.5 x 140 | 30 (22), then 50 (37), then loosen  30 (22), then 30 (22), then 90° |
| Ground point on camshaft housing | M6 x 12 | 10 |
| Cable duct on timing case cover | M6 x 18 | 10 |
| Cable duct on cylinder head 5 - 8 | M6 x 12 | 10 |

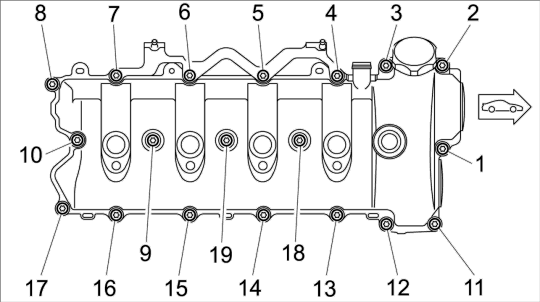
**Tightening sequences**

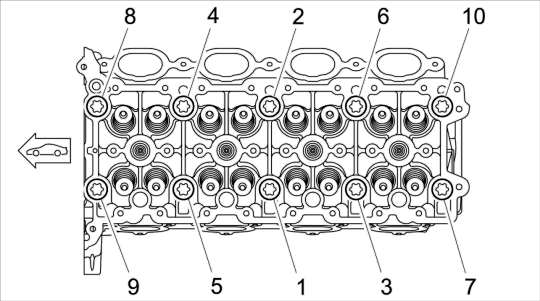
|  |  |
| --- | --- |
| C:\POSES\data\css\hinweis.gif | **Note** |

* *The exterior fastening screws must have a quality of 10.9.*
* *If the quality is 8.8, the screws must be replaced.*
* *Tighten screws 1 to 4 (M6 / 8.8) to 7.5 ftlb.*
* *Tighten screws 5 to 6 (M8 / 8.8) to 17 ftlb.*
* *Tighten screws 7 to 32 (M6/10.9) to 13 Nm (9.5 ftlb.).*









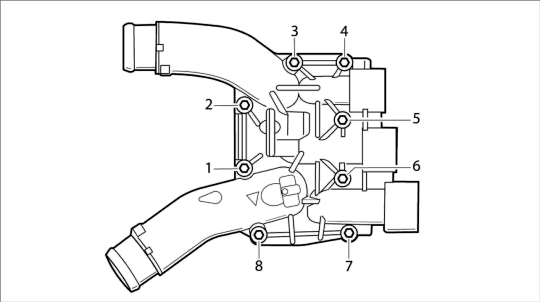
**Group 17 - Lubrication**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Chain sprocket on oil pump | M10 x 1 | 45 |
| Oil pump on crankcase | M8 x 50 | 23 |
| Chain cover on oil pump | M5 x 20 | 6 |
| Tensioning rail bearing for oil pump | M8 x 25 | 20 |
| Short oil extraction pipe | M6 x 25 | 13 |
| Oil extraction pipe | M6 x 25 | 13 |
| Oil drain plug | M18 x 1.5 | 50 |
| Oil return line into oil pan | M6 x 20 | 10 |
| Oil pan on crankcase | M6 x 25 | 10 |
| Oil level sender on oil pan | M6 x 25 | 10 |
| Guide tube for oil dipstick | M6 x 16 | 10 |
| Cover on oil filter bracket | M6 x 20 | 10 |
| Oil filter bracket on oil pan | M8 x 70 | 23 |
| Spacer sleeve for oil filter bracket | M16 x 1.5 | 2 (1.5) to 5 (3.5) |
| Oil filter bracket on connection piece | M8 x 50 | 23 |
| Oil/water heat exchanger | M6 x 20 | 10 |
| Oil filter housing | S80 x 3 | 25 (19) (sealing ring oiled) |
| Oil pressure switch on oil filter bracket | M10 x 1 | 20 |

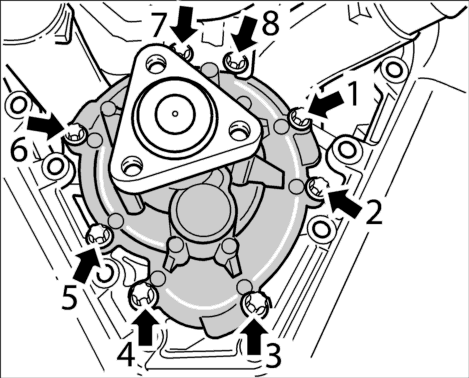
**Group 19 - Cooling**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Belt pulley on coolant pump | M8 x 16 | 23 |
| Water pump on crankcase | M6 x 25 | 10 (7.5) (observe sequence!) |
| Thermostat housing cover | M6 x 25 | 10 (7.5) (observe sequence!) |
| Coolant distribution pipe | M6 x 25 | 10 |
| Thermostat housing trough | M6 x 16 | 10 |
| Coolant pipe on crankcase | M6 x 16 | 10 |
| Coolant drain plug on distribution pipe | M16 x 1.5 x 6 | 30 |
| T-piece on generator | M6 x 16 | 10 |
| Supply connection fitting on generator | M6 x 16 | 10 |
| Coolant pipe on thermostat housing | M6 x 12 | 10 |
| Temperature sensor on coolant distribution pipe | M14 x 1.5 | 30 |

**Tightening sequences**



*Thermostat housing*



*Water pump*

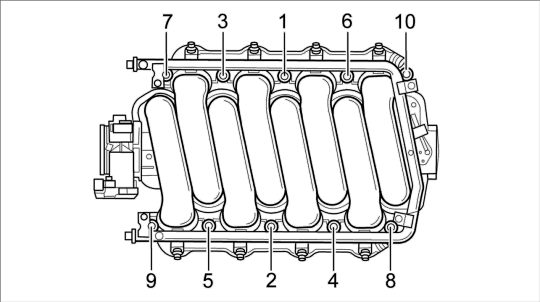
**Group 20 - Fuel supply, control**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Fuel tank restraining strap | M8 x 25 | 23 |
| Carbon canister and degassing tank | M6 | 10 |
| Filler neck fastening screws | M6 | 10 |
| Connection unit ring fastener |  | 140 |
| Filler neck fastening screws | M6 x 20 | 10 |
| Cover plate under rear seat | M6 | 10 |

**Group 24 - Fuel system, electronic injection**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Knock sensor on crankcase | M8 x 35 | 23 |
| Intake distributor | M7 x 52 | 10 (7.5), then 15 (11) (observe sequence!) |
| Throttle adjuster | M6 x 45 | 8 |
| Fuel distribution pipe on intake distributor | M6 x 10 | 8 |
| T-piece on intake distributor |  | 2,2 |

**Tightening sequences**

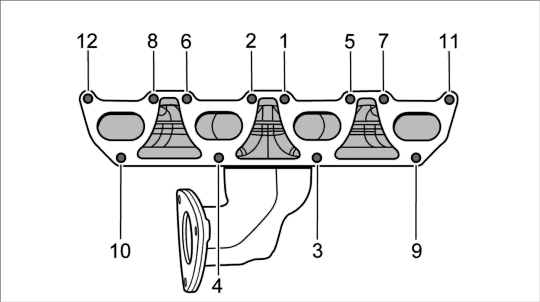


*Suction module*

**Group 26 - Exhaust system**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Exhaust manifold on cylinder head | M8 | 25, then 33 (observe sequence); replacing fastening nuts |
| Oxygen sensors in exhaust manifold | M18 x 1.5 | 45 |
| Oxygen sensor holder on engine | M6 x 12 | 10 |
| Secondary air pump on holder | M6 x 50 | 10 |
| Secondary air pump holder | M6 x 50 | 10 |
| Exhaust system fastening screws | M8 x 25 | 23 |
| Exhaust clamps | M10 | 60 (44) (replace) |
| Fastening screw for catalytic converter holder | M8 | 23 |

**Tightening sequences**



*Exhaust manifold*

**Group 27 - Starter, power supply**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| Generator on crankcase | M8 | 23 |
| B+ wire on generator | M8 plastic | 18 |
| Heat shield on generator | M6 x 12 | 10 |
| Starter | M10 x 45 | 45 (33) to 53 (39) |
| B+ wire on starter | M8 | 18 |
| Terminal 50 on starter | M6 | 9 |

**Group 28 - Ignition system**

| **Location** | **Thread** | **Tightening torque [Nm] (ftlb.)** |
| --- | --- | --- |
| New spark plug | M14 x 1.25 | 30 |
| Spark plug reinstallation | M14 x 1.25 | 25 |
| Ignition coils | M6 x 16.5/M5 x 9 | 10 |
| Knock sensor | M8 x 35 | 23 |

9PAAE1, 9PAAE7

as of MY 2003  
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99