

Exhaust system

Exhaust manifold	40 Nm
Exhaust pipe	43 Nm
Soot particulate filter	48 Nm
Catalytic converter	47 Nm
Catalytic converter holder	25 Nm

Air intake system

Intake manifold	15 Nm
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Charging

Turbo charger	23 Nm	Use new nut(s).
Turbocharger oil feed line	20 Nm	
Turbocharger oil return line	10 Nm	

Carburation

Injection nozzle/injector		
01 stage	6 Nm	Reuse screws only 3 times.
02 stage	360°	
Injection hoses		
01 stage	15 Nm	Replace injection line(s).
02 stage	30 Nm	
High-pressure line		
01 stage	15 Nm	Replace high-pressure line(s).
02 stage	30 Nm	
High-pressure pump	23 Nm	
High-pressure pump pulley		
Left-hand thread	55 Nm	
Fuel distributor		

23 Nm

Air-conditioning system

Air-conditioning compressor

25 Nm

Air-conditioning compressor pressure line

20 Nm

Cooling system

Coolant pump

23 Nm

Fan wheel

105 Nm

Right-hand thread

Engine block

Main bearing

01 stage

6 Nm

Use new screw(s).

02 stage

15 Nm

03 stage

20 Nm

04 stage

35 Nm

05 stage

80 Nm

06 stage

90°

Connecting rod bearing

01 stage

8 Nm

Use new screw(s).

02 stage

25 Nm

03 stage

37 Nm

04 stage

90°

Crankshaft pulley

01 stage

45 Nm

Use new screws and tighten them crosswise.

02 stage

120°

Flywheel

01 stage

25 Nm

Use new screw(s).

02 stage

45 Nm

03 stage

45°

Crankshaft sealing flange (gearbox side)

01 stage

5 Nm

02 stage

10 Nm

03 stage

10 Nm

Engine mounting

Subframe

M14

175 Nm

M16

300 Nm

Engine bracket

on the engine block

62 Nm

Engine mounting

at the crossmember

30 Nm

on engine bracket

103 Nm

Engine suspension

on chassis

70 Nm

Engine management

Exhaust gas temperature sensor

42 Nm

Glow plugs

13 Nm

Crankshaft sensor

7 Nm

Lambda sensor

42 Nm

Camshaft sensor

10 Nm

Engine lubrication

Oil drain plug(s)

39 Nm

Oil filter housing

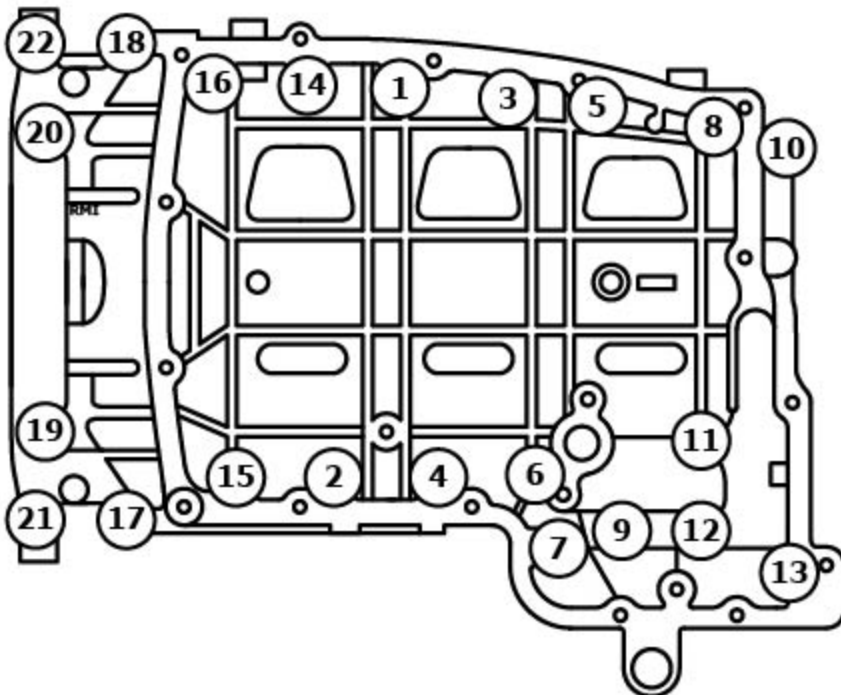
on the engine block

23 Nm

Oil pump

10 Nm

Oil sump upper part



01 stage	6 Nm
02 stage	23 Nm
03 stage	23 Nm
Oil sump lower part	
01 stage	7 Nm
02 stage	14 Nm

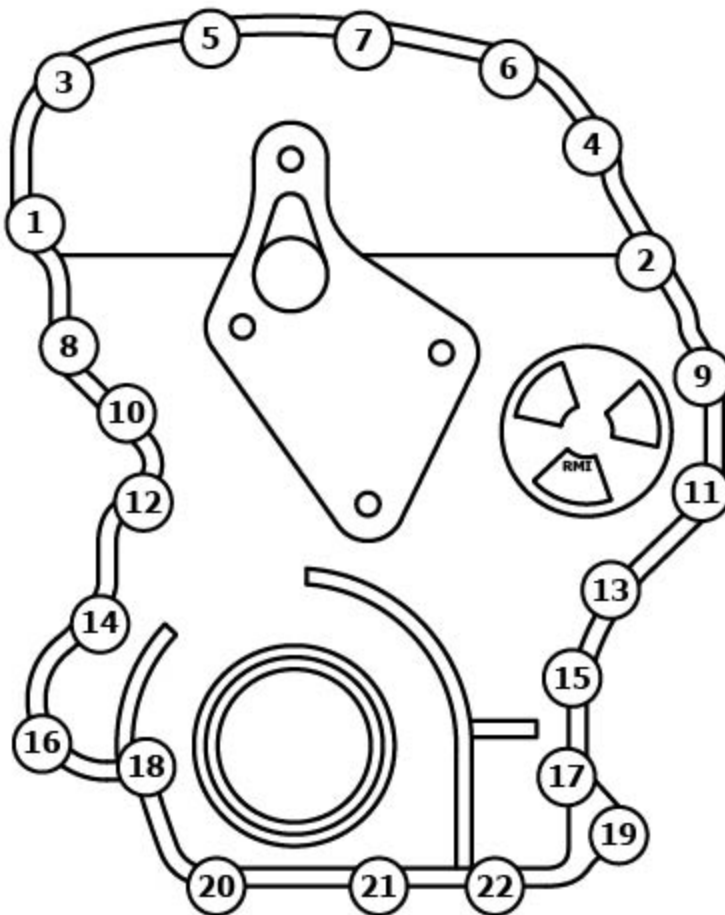
Control tensioner

Apply sealant.

Engine timing

Outlet camshaft wheel	35 Nm
Inlet camshaft wheel	35 Nm
Camshaft timing chain guide rail	15 Nm
Camshaft timing chain slip rail	15 Nm
Camshaft timing chain tensioning rail	36 Nm
Chain tensioner	15 Nm
Camshaft timing chain tensioner	15 Nm
Timing case cover	15 Nm

Use new screw(s).



01 stage	5 Nm
02 stage	10 Nm

Auxiliary units

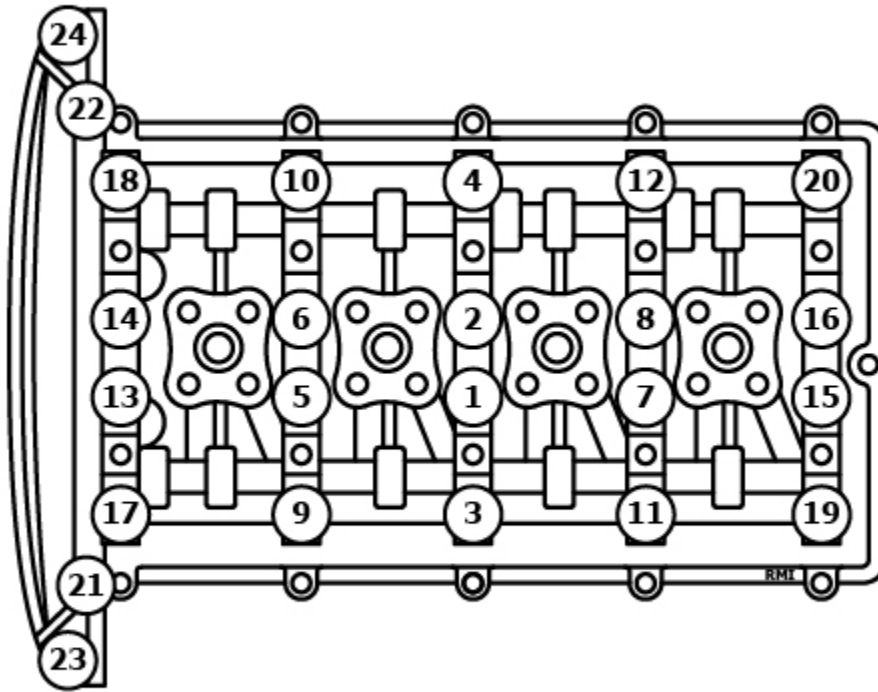
Alternator	48 Nm
Holder - generator	23 Nm
Servo steering pump	23 Nm
Accessory drive belt tensioning device	25 Nm
Accessory drive belt deflection pulley	48 Nm
Vacuum pump	23 Nm

Start system

Starter	35 Nm
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Cylinder head

Rocker arm bridge	
01 stage	10 Nm
02 stage	30°
Camshaft bearing	



Screw(s) 1 - 22, 01 stage
 Screw(s) 1 - 22, 02 stage
 Screw(s) 1 - 22, 03 stage
 Screw(s) 23 - 24, 04 stage
 Screw(s) 23 - 24, 05 stage
 Screw(s) 23 - 24, 06 stage

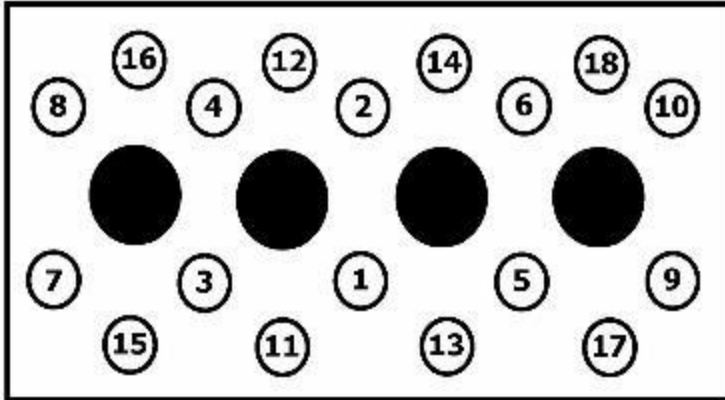
7 Nm
 15 Nm
 23 Nm
 4 Nm
 6 Nm
 10 Nm

Valve cover (set)

10 Nm

Replace seal(s).

Cylinder head screws



ADC

Screw(s) 1 - 10, 01 stage	10 Nm
Screw(s) 11 - 18, 02 stage	5 Nm
Screw(s) 1 - 10, 03 stage	20 Nm
Screw(s) 11 - 18, 04 stage	10 Nm
Screw(s) 1 - 10, 05 stage	35 Nm
Screw(s) 11 - 18, 06 stage	20 Nm
Screw(s) 1 - 10, 07 stage	45 Nm
Screw(s) 11 - 18, 08 stage	25 Nm
Screw(s) 1 - 10, 09 stage	90°
Screw(s) 11 - 18, 10 stage	90°
Screw(s) 1 - 10, 11 stage	90°
Screw(s) 11 - 18, 12 stage	90°

Use new screw(s).

Use new screw(s).

Repair/maintenance work have to be carried out by a specialist who has completed his training in the motor vehicle trade (e.g. car mechanic, car electrician, car mechatronics specialist). Alternatively, the repair can also be performed by a trained and experienced mechanic.