



Contents

00 - Technical data	1
1 Technical data	1
1.1 Engine number	1
1.2 Engine characteristics	1
10 - Removing and installing engine	3
1 Engine - remove and install	3
1.1 Removal - recommendations	4
1.2 Additional notes and assembly works in vehicles with air conditioning	7
1.3 Installation	7
1.4 Tightening torques	8
13 - Crankshaft group	10
1 Engine - assembly and disassembly	10
1.1 Part I - Poly-V belt actuation	10
1.2 Part II - Chain actuation	11
1.3 Poly-V belt - remove and install	14
1.4 Command box - remove and install	15
2 Engine block, sealants	20
2.1 Crankshaft sealants	20
2.2 Crankshaft seal (pulley side) - replace	21
2.3 Crankshaft sealant (flywheel side) - replace	22
15 - Cylinder head, valve gear	26
1 Cylinder head	26
1.1 Cylinder head - assembly and disassembly	26
1.2 Cylinder head - remove and install	28
1.3 Valve timing - check	31
1.4 Roller chains - remove and install	33
1.5 Valve timing - adjust	35
1.6 Compression - check	39
2 Camshaft mechanism - repair	42
2.1 Camshaft mechanism - repair	42
2.2 Camshaft - check axial clearance	44
2.3 Valve seat - trim	45
2.4 Valve guides - check	48
2.5 Valve rod sealant - replacement	49
17 - Lubrication	53
1 Lubrication system components	53
1.1 Engine oil	53
1.2 Lubrication system - general assembly overview	53
1.3 Oil filter - assembly overview	56
1.4 Oil filtering element - remove and install	56
1.5 Sump - remove and install	57
1.6 Oil pressure and the Oil pressure switch F1 - check	59
19 - Cooling	62
1 Cooling system components	62
1.1 Cooling system components, body side	62
1.2 Cooling system components, engine side	64
1.3 Hose connection diagram for cooling system	65
1.4 Cooling system - drainage and replenishment	66



1.5	Radiator - remove and install	68
1.6	Water pump - remove and install	70
20	Fuel supply system	72
1	Fuel supply system components - removal and installation	72
1.1	Fuel supply system components - removal and installation	72
1.2	Safety measures regarding work on the fuel supply systems	75
1.3	Cleaning rules	75
1.4	Fuel pump (pre-supply pump) G6 - remove and install	76
1.5	Fuel level sensor G - remove and install	77
1.6	Fuel reservoir - remove and install	78
1.7	Fuel interruption in case of accident	80
1.8	Fuel pump (pre-supply pump) G6 - check	80
1.9	Feeding system - drain the air	89
2	Activated charcoal filter system	92
2.1	Operation	92
2.2	Activated charcoal filter system components - repair	92
2.3	Fuel tank ventilation - check	93
3	Engine power electronic adjustment (electronic accelerator)	95
3.1	Operation	95
3.2	Engine power electronic adjustment (electronic accelerator)	95
24	Mixture preparation - injection	97
1	Injection system	97
1.1	Component location	97
1.2	Fuel injection components - remove and install	100
1.3	Intake manifold - remove and install	102
1.4	Fuel distributor with injectors - remove and install	103
1.5	Air filter set - assembly overview	103
1.6	Air filter assembly - remove and install	104
1.7	Safety measures	105
1.8	Cleaning rules	106
1.9	Technical data	107
2	Check the components	108
2.1	Injection valves - check	108
2.2	Residual pressure and fuel pressure regulator - check	110
3	Engine control unit J623	115
3.1	Engine control unit J623 - remove and install	115
3.2	Engine control unit J623 - check and delete the fault memory	115
3.3	Functions and components - adapt	116
26	Exhaust system	118
1	Exhaust system components	118
1.1	Exhaust system components - assembly overview	118
1.2	Rear muffler with supports - assembly overview	120
28	Ignition system	121
1	Ignition system	121
1.1	Ignition system components - assembly overview	121
1.2	Ignition coils with the final power stages - remove and install.	122
1.3	Safety measures	123
1.4	Test data, Spark plugs Q	124